AMATEUR RADIO

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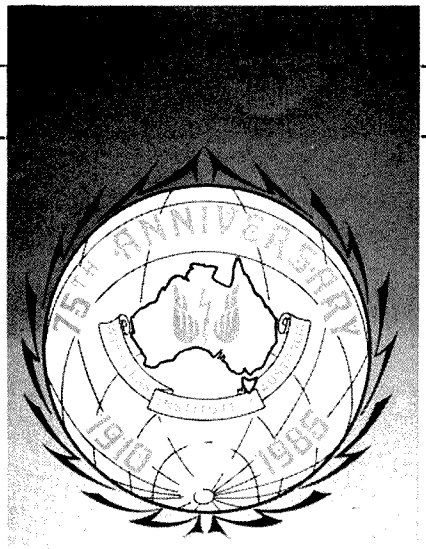
JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



The feature of the cover for January is the Seventy Fifth Anniversary Logo. This logo will feature on the cover of each magazine this year.

TECHNICAL FEATURES

SPECIAL FEATURES

REGULAR FEATURES

AMATEUR RADIO

Published monthly as the official journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6659. Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

This magazine is the first issue in this, the WIA's anniversary year, and the cover features the logo, which was devised from a design submitted by Don VK3DLV, in the Logo Competition last year. This logo will become familiar to all readers during the year.

The logo will feature on AR each month and will also feature on T-shirts, keyrings, pennants and self-adhesive labels which will be available to members. Members will find five complimentary labels included with their magazine this month.

Also included with your AR this month is a Planner Calendar which has some events and contests listed which were available at the time of printing. During the year it is anticipated to include updated information for marking in on the calendar.

The Main QSP, p5, also lists some of the exciting activities that will be happening during the 75th Anniversary.

Late last year Bill Hempel VK4LC accepted the position of Federal Awards Manager. Best wishes to you Bill. All applications for Australian Awards may now be sent to Bill at Southport Avenue, Eagle Heights, Qld 4271.

The rules for the 1985 John Moyle Field Day Contest will be printed next month. Read them carefully so you may note the change of date.

For members interested in RTTY-Morse, check out the feature technical article which begins on page 16. It has a full size PCB layout, circuits and computer programme which will relieve you of the 'old clanking Baudot machine'.

Historically, do you know the origin of 73? Max VK3ZS explains this on page 13. Max hopes to re-kindle some history during the year with some further articles about the past.

Further to the history of the Institute is a reprinted article about how the WIA came into being — see page 6. It is a very informative article, originally published in Monitor.

As there are no Ionospheric Predictions due to early publishing dates, Len VK3BYE has written a very informative article about the 'Sunspots' and their effect on propagation — page 55.

DEADLINE

All copy for March AR must arrive at PO Box 300, Caulfield South, Vic 3162, at the latest by midday 23rd January 1985.

★ Cartoons in this issue by Bill Martin VK2EBM

Enquiries and material to:
The Editor
PO Box 300, Caulfield South, Vic. 3162

Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962**
Hamads should be sent direct to same address.
Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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a word from your EDITOR

A PROUD HISTORY

Welcome to the first month of the 75th Anniversary Year of the Wireless Institute of Australia. Those few enthusiasts, with their spark transmitters and coherers, laying in March 1910 in Sydney the foundations of the organisation which became the WIA, could not possibly have foretold how it would develop in 75 years. But because of their foresight we are the oldest amateur radio society in the world, while the great interest which unites us all has evolved into a means of international understanding which has no equal.

In 1910 those early pioneers envisaged the possibility of communicating with each other by Morse code over distances of only a few miles. Marconi had shown in 1901 that it was possible to span the Atlantic, but few of the other early amateurs could aspire to building or owning equipment as large and powerful as his. It was not until 1921 that amateurs, as we now understand the word, succeeded in repeating Marconi's feat. Another three years passed before amateur contacts were made from Australia to USA and England.

The amateur movement has grown tremendously since those early days. There are now licensed amateurs in virtually every country of the world, and their total is approaching one million. The technology has evolved over the years, with individual amateurs contributing at almost every step, until it is now feasible that any one of that million should be able to make contact on amateur frequencies with any other! Admittedly not all at the same time, but, as our use of satellites develops, even this may be possible.

More than any other interest with participants all over the world, amateur radio has the ability to bring people together. Such things as politics and religion are often divisive. This is why they may not, as a rule, be discussed on the amateur bands. Yet a common interest in radio not only unites us but provides the means whereby it can develop further. Amateur procedure (particularly on CW) can even go far towards bridging the barriers of language. And differences in rank or status traditionally play no part in our communications.

The evolution of this world-wide egalitarian fraternity did not occur by accident. It was made possible by the ingenuity of individuals and the negotiations of their societies with governments. Our own society, the WIA, has played no small part in this. We may justifiably be proud of our achievements, but we still have a long way to go. Our strength as an organisation will determine how effectively we can advance into the next 75 years. Every Australian amateur who joins the WIA helps add to that strength. All of us, already in the Institute, have a duty to recruit new members, to enhance still further our credibility as the voice of Australian amateurs. This is the message of our 75th anniversary. It challenges each of us to do even better from now into the next 75 years and beyond. *Let's go and do it!*

Bill Rice VK3ABP
Editor
AR

THUMBNAIL SKETCHES

Alan Shawsmith, VK4SS
35 Whynot Street, West End, Qld 4101

ROY P JONASSON — VK4NE (ex VK4NG)

This OOTer passed his AOCP in 1928 but, because of the great economic depression in Australia, it was 1931 before Roy could spare the cash to put himself on air on QRPp. Being fortunate enough to have a property at "Ageston" at the mouth of the Logan River overlooking the wide expanse of Moreton Bay, DX was a piece of cake. It would appear that Roy could be the holder of a couple of pre-WW11 QRPp records; they have never been officially recorded, simply because he's not the type to talk about them.

In 1932 he QSOd ZL4DT in Balclutha, South Island of New Zealand (the op incidentally was YL Kath Kirby). This was on 40 metres, using a receiver-type 201A valve Hartley oscillator driven from a car accumulator and 'B'+ batteries of approx 150 volts. The mode was loop modulation phone; input four-fifths of one watt or about .2 watt in the aerial. Report received QSA 3, R 4-5.

Prior to this a contact was made with the USA using a 3 watt SPARK transmitter. This rig was made up of an old Ford T model coil and driven by a car battery and vibrator and fed into the antenna via a spark gap. Roy was probably not the *first-ever* VK4 to work into W-land but quite likely the *first* to do it on QRPp, ie less than five watts DC input. The antenna for both these record-making QSO's was a 132 feet flat top end fed Zepp up 66 feet. As proof of the ideal QTH at Ageston, it was possible to hear both 2BL and 3LO nightly on a crystal set.

In 1935 Roy VK4NG played a big part in rebuilding and operating the official station of the Queensland Listeners League VK4QL which was situated in Paddington, close to the City of Brisbane. This station operated on approx 206 metres. Roy obtained raw quartz crystal directly from Mt Isa Mines, Queensland — this was claimed to be the first time such active mineral from an Australian source was used for electronic purposes. The quartz was cut and ground in Brisbane by a professional gem cutter who also had an interest in wireless. The finished product was forwarded to Mr Armstrong, O/C Radio Inspectors Dept, who found it to be spot on frequency, ie 206 metres — not bad for those using homebrew measuring equipment.

Roy moved to the Apple Isle in 1935 and took the call VK7NG; the year 1938 saw him signing VK3ND. After this, he went north to New Guinea and used VK9DP to attract the DX, then back to VK3 and finally retiring in the Sunshine State at Kingston less than thirty kilometres from whence he started out as VK4NG, over a half century earlier.

His working condition now includes an FT101Z; he homebrewed his equipment until 1970, which is longer than most. VK4NG joined the WIA and RAAF Wireless Reserve in 1929 and was also a member of the QRP Club of Gisborne, New Zealand. Long may he remain active and enjoy his memories.

Unfortunately we only have a photocopy of a photo of Roy which will not reproduce in the magazine printing process.
AR

OUR EMBLEM IS NOW STANDARDISED

The WIA emblem is believed to have been designed around 1920-21 with the wings and lightning motif derived from an Army Wireless Unit badge of World War 1.

Until now the emblem has been in a state of virtual constant change — but appropriately this stops in the Institute's 75th year.

At last year's Federal Convention, motion 84.10.01 proposed by VK3 and seconded VK2 said that: *"The Institute adopt for its 75th anniversary a winged emblem closer to the roots of the organisation such as appears on the 1980 Australian Callbook cover and the majority of WIA certificates."*

The proposer's comments were: *"The emblem is part of the Institute's heritage and has been drawn differently so many times that a number of versions are unfortunately in use throughout Australia."*

The comments continued to point out differences in various versions, *including the* wording, scroll, wings and lightning motif. Many of the variations are subtle, while some are quite obvious even to the untrained eye.

The Divisions were unanimous in support of 84.10.01 which has resulted in the standardised emblem shown here.

Admittedly it will take some time to phase out the use of non-standard emblems. But each Division aims to do this on its stationery and by encouraging members to use only the standard emblem on their QSLs.

The emblem is also a focal point of the WIA 75th logo — copies of which are Inserted in this month's AR for use by members.

Contributed by Jim Linton VK3PC
AR

QSP

75th ANNIVERSARY OF THE WIRELESS INSTITUTE OF AUSTRALIA

Members should now be well aware that 1985 is the 75th Anniversary Year of the Oldest Radio Society in the World.

This news item is intended to inform all members of the plans made to celebrate this Anniversary Year. Some items are firm and others have yet to be finalised.

THE 1985 EVENT CALENDAR

The 1985 Event Calendar included in this issue, shows as many firm dates as was possible to include at the time of printing. As the year proceeds "*dates for your calendar*" will appear in "Amateur Radio" to allow you to update your event calendar.

75th LOGO

Each member has received, in this issue, some self adhesive 75th Logo Stickers. The intent for these are for members to use them on QSL cards, etc, going overseas, or to anywhere you consider it desirable to publicise the 75th Anniversary Year. Contact your divisional offices for further supplies.

75th AWARD

The rules for this event will be published separately (elsewhere in this issue) but suffice to say, at this time, that the award will open on the anniversary of the founding day 10 March and will close on 31 December 1985. The certificate itself will be of a high standard and even if you are not a regular entrant into contests or an awards buff, this special award will be worth the effort to obtain.

VK FOX HUNT CHAMPIONSHIP

The finals of this event will take place during October 1985, details of this event are yet to be finalised, further information will be published in later issues of AR.

RTTY ART CONTEST

The VK3 Division have this contest well under way, refer to page 28 of November AR.

CW CONTEST

During this year the VK2 Division will be running a CW Contest to further the ability of Morse knowledge, practice and skill amongst full calls, novices and "K" calls.

The dates and rules will be published in later issues of AR.

VK/ZL CONTEST

The VK/ZL Contest Manager will be making every effort to ensure that the VK winner will be known before the end of 1985, it is hoped that a suitable prize to commemorate the 75th Anniversary will be obtained. More about that at a later date.

PRE-STAMPED ENVELOPE

On 22nd May 1985 Australia Post will be releasing a pre-stamped envelope to celebrate the Institute's 75th Anniversary. At the time of writing the design is almost completed.

Displays of radio activities will take place in many post offices to co-incide with the launch of this envelope.

WORLD AMATEUR RADIO DAY, 18th APRIL 1985

This day is proposed as an activity day for the little used 10, 18, 24MHz bands. All members are requested to come up on these bands during WARD. *(The old adage still applies "use or lose").*

DO YOU OWN A PIECE OF HISTORY?

We are seeking the oldest working (authenticated) item of amateur radio equipment, send brief details, with a photograph to your divisional offices. During 1985 the responses to this will be published in AR. *(We realise that some old timers may be reticent in coming forward, so if you know of an interesting item have a chinwag with the owner).*

ARE YOU A PIECE OF HISTORY OR ARE YOU AWARE OF AN AMATEUR WHO COULD POSSIBLY BE?

(1) We are seeking the licensed amateur who has been active longest.

(2) We are also seeking the longest serving member. Send brief details of either to the Secretary at the Federal Office *(Again we realise that some old timers may need to be helped, so if you can do so.)* Some form of vertification is required in both cases.

FEDERAL 75th ANNIVERSARY DINNER

A formal dinner will be held in Melbourne at the Southern Cross Hotel on 9th November 1985. With many dignitaries attending, included will be all the members of the IARU Administrative Council, who will be in Melbourne for their council meeting and officers of the institute. A limited number of tickets will be available to members at an approximate cost of $40 per person. *(Apply in writing with your cheque to the Federal Secretary).*

REGALIA

To celebrate the 75th Anniversary the Executive Sub-Committee, tasked to co-ordinate this year, have commissioned several items of regalia for members.

WIA ties, WIA tee shirts (with two styles, either 75th or WIA Motif), WIA pennants, WIA keyrings.

These items will be available from your divisional offices in March 1985.

MEMBERSHIP DURING 1985

(1) Each 75th new member receive, from the Federal Office, a presentation clock for their shacks.

(2) Each 75th renewal before the cut off date ie: 21.2.85 will receive a small gift pack and will be placed in a draw for a clock.

(3) Each proposer of a new member will receive a small gift to recognise his/her efforts. *(exceptions are of course as usual, executive office staff etc).*

(4) For 1985 a specially prepared limited edition Membership Certificate will be issued to new members.

The decision regarding 1 and 2 will be computer controlled and no correspondence will be entered into.

The presentation clocks are "Citizen Quartz", which, amongst other features, have dual time zones and temperature readouts. The normal retail price of these clocks is $60.

We hope that you all enjoy participating in the events planned, proposed and yet to be announced. Please do what you can to publicise this Anniversary Year whenever you have the opportunity.

AR

Many amateurs and WIA members may not know how our existence came about, and the close relationship which exists between the Wireless Institute of Australia and the Institution of Radio and Electronics Engineers Australia (IREE).

In the early days of the formulation of our hobby and the WIA, both groups were in fact one, but its members had slightly different spheres of interest.

The following article was published in the IREE's Journal 'MONITOR' in December 1982, and is republished in AR by arrangement.

Regretfully the author H Murray Tyler passed away prior to seeing his work published.

THE BEGINNING OF IREE — HOW IT ALL CAME ABOUT

by the late H Murray Tyler, FIREE

The following historical document was carefully researched and written by the late H Murray Tyler, FIREE — a Foundation Member of The Institution of Radio and Electronics Engineers Australia — for many months prior to his death earlier this year, who was looking forward to having it published in this Jubilee Issue of MONITOR. We deeply regret he was not able to see its final publication.

Murray was well known to many members of The Institution in his home State of New South Wales and elsewhere throughout Australia. We are sure that this article will bring recollections of Murray Tyler himself as well as the early days of The Institution to many of our members.

The Institution of Radio Electronics Engineers, Australia, celebrating in 1982 what superficially appears to be its 50th birthday, is really a very much older body which, although passing through a series of name changes, has had a continuous existence since March, 1910. This article tells the story of why and how it all came about, and why it can claim to have its beginnings as the first technical radio association in the British Empire.

FIRST MEETING

Marconi had spanned the Atlantic with a wireless signal only nine years earlier when a group of technically-minded wireless experimenters, in Sydney, headed by George A Taylor, met at the Australia Hotel on 11th March, 1910, to found a body named "Institute of Wireless Telegraphy of Australia".

The glamour of wireless communication had gripped the imagination of wireless enthusiasts throughout the world. This wonderful new device proved an irresistible area of experiment for any who had a leaning towards technical matters.

HOOKED ON "WIRELESS"

They were hooked — they had to be in it. The leader of such a group in Sydney, George A Taylor, was a very remarkable man indeed, who lived an unbelievably exciting life. Commencing as an artist, he became interested in aviation and collaborated with Lawrence Hargraves in his early flights. He later established at Redfern the first aeroplane factory in the Southern Hemisphere, and, in 1909, he flew the first heavier-than-air machine built in Australia. Taylor also founded, in 1909 the Aerial League of Australia, and his wife Florence became the first woman in Australia to fly a plane. From such beginnings, however, he devoted his life to radio and to publishing. If it was technical and new, Taylor had to be in it, and he had to tell the world all about it.

In moving that a Wireless Institute of Australia be founded, he said:

"Investigators were today on the verge of an arena of wonder. They are like explorers in a strange country, where every step is a discovery, but as success could only be achieved after many failures, there was need of mutual co-operation between investigators to avoid making the same mistakes, and to climb together wherever any successful discovery would be achieved. The time was approaching when this age would not again have the stigma of a 'Waratah' going into the unknown without a wireless connecting link. There was further necessity for the formation of the Institute to protect legitimate experimenters."*

The first Council consisted of George A Taylor, Major Fitzmaurice, Capt Cox-Taylor, Dr Brissenden, Messrs Hannam, Pike, Bartholomew, Gosche, F Leverrier and H Leverrier, A Garnsey, F Cleary. All were well-known radio experimenters. Pike and Hannam had both been reported by the Sydney Morning Herald, a few weeks earlier, as receiving signals in Sydney from warships in the vicinity of Melbourne and Auckland, and that same paper was reporting plans of the Commonwealth Government to establish two wireless stations in Australia — one near Sydney and the other near Fremantle.

MARCONI SPONSOR

And so, radio had its beginnings in Australia. The Institute of Wireless Telegraphy of Australia was soundly established, and Guglielmo Marconi was delighted to grant his sponsorship to this unique body.

The Institute grew in numbers and influence as the intricacies of this latest wonder were unravelled. As time went on, the word "Telegraphy" was dropped from the name and it became "The Wireless Institute of Australia". Operation was continued after World War I and until 1932, when it re-formed itself as the Institution of Radio Engineers, Australia and the Wireless Institute of Australia ceased to operate.

We must be careful to avoid confusion with that fine amateur body, the present Wireless Institute of Australia which, in NSW, commenced operations as such in 1937, and carries on the kind of activity which, in the early days, did so much to develop the commercial application of the science.

HOW WIA DEVELOPED

This is the story of how it all happened.

The 20s was a glamour decade for radio. The thermionic valve had made its presence felt — telephony was opening up a new field, with much more appeal to the man in the street than Morse code signals had — amateur experimenters were conducting music broadcasts — Charles Maclurcan's regular Sunday night concerts had become an item of conversation on Monday, so that by next Sunday many more were trying to listen, mostly on crystal sets with headphones. The more sophisticated had built for themselves "valve" sets, some even with horn type loud speakers, and some of the broadcasters of the day were names well-known to their many listeners. Such names as Otto Sandel, Basil Cooke, R C Marsden, Brooker, Charlie Slade, Stevenson and O F Mingay were becoming household words. Flo Wallace's shop, in the Royal Arcade, had become a "Mecca" for the wireless-minded lads of the day. Here they bought the components to build their receivers, and many of these lads built a lifetime career in the industry from such beginnings.

EARLY DISASTERS

The greatest disaster, in those days, was when the "A" battery ran flat during the concert. This was even worse than when

somebody nearby rustled a newspaper while you were concentrating on the headphones listening to a signal, or searching with the "cat's whisker" for a sensitive spot on the crystal.

World War I was over, and a great deal of radio development had resulted from it. Many experimenters had enlisted and, because expert knowledge was scarce, they had been eagerly seized by the Defence authorities for service in Communication Units — in fact, about 75% of the members of the Wireless Institute of Australia had served in the Armed Forces, as most were of the appropriate age.

Many of those returning from the war had their appetites whetted for further development of radio and, as they resumed civil life, formed themselves into Radio Clubs. These sprang up mainly on a district basis in and around Sydney, and in some country areas. Several of these clubs affiliated with WIA, and examples were district clubs from Concord, Croydon, Northbridge, Balmain, Leichhardt, Marrickville, Artarmon, Waverley, Strathfield, Illawarra, Wahroonga. Job related clubs also came into being, examples being the "Railway & Tramway" and "Postal Institute". Records reveal that, by 1922, these clubs were very active indeed under the aegis of WIA.

Old records of Institute meetings offer a fascinating area for exploration and reveal a surprising degree of investigation into many things which we, today, find an accepted part of everyday life, but were then visions of the future.

NO BATTERIES?

For instance when O F Mingay lectured on "The Application of Electric Power Supply to Radio Equipment", he let his audience into the surprising fact that radio receivers of the future could be worked from electric mains, and horrible messy batteries could be eliminated. Another member, Dr W G Woolnough, who was, as well as being a radio experimenter, an eminent geologist, told how he had made the first automobile journey to Central Australia, and used a wireless set to communicate with Adelaide. During his lecture to the Institute in 1924, he forecast how, someday, wireless would bring entertainment to the lonely outback and would provide a vital need both in the fields of medical assistance and in education.

Charles Maclurcan, the best known of the amateur transmitters and, at the time, the President of WIA, achieved fame by communicating with New Zealand on a power of only nine watts. This was the start of a wide quest, thereafter, to achieve efficiency on low power, and many were the theories expounded at WIA meetings.

When it became known that the Commonwealth Government had allocated the sum of £800,000 to radio communication, WIA, at the suggestion of Mingay, urged the Government to use this "substantially in the public interest and not to return it to consolidated revenue", as the latter was what seemed likely at the time.

Meetings of WIA had, for some years, been conducted in the Marconi Schoolroom controlled by AWA, but in April, 1922, it secured for itself a club room at Queen's Chambers, Dalley Street, at a rental of two pounds per week, and there it installed the transmitter for which it had received an experimental licence. In retrospect, it is interesting to note that a claim was made at a WIA meeting, in 1923, to the effect that the WIA Headquarters was the location of the "Nucleus of the one and only Wireless Lab in Australia" — it had just procured a wave meter, complete with a Bureau of Standards (USA) Calibration Certificate, a Thermo-coupled Microammeter complete with shunts, and a Complete Valve Tester. We may well smile at some of these things today, but nearly 60 years ago, members were proud, indeed, of such equipment.

WIA WENT NATIONAL

While these things were happening in NSW, similar interest in radio had, of course, developed in other States, and by 1924, it was decided, largely as a result of urging by Mingay, that the time for a nationwide organisation had arrived, and so, on May 16, the first Australian Wireless Convention was held at Melbourne Town Hall, with the result that WIA became Federal, and a further integration of Radio Clubs and similar societies occurred on an intrastate basis. Each State had sent representatives from its major radio organisations, and it is interesting to note that, from Queensland two organisations were represented, viz, the Radio Society of Queensland and the Queensland Institute of Radio Engineers.

When the Commonwealth Government sought to frame regulations regarding national commercial broadcasting, valuable co-operation was given by WIA. The Chief Radio Inspector was a member of the Institute, and as it was, at the time, the main channel for the concentration of technical knowledge, some sound guidelines resulted.

"FATHER" OF IREE JOINS WIA

A matter worthy of note, at this stage, is that on February 14, 1922, Oswald F Mingay (later fondly known as Ossie) became a member of WIA. He was a remarkable man — a human dynamo — and one who had a very obvious hand in most of the important things that happened to WIA from that time on. Many consider him as the "father" of what IREE is now celebrating, and the reasons for this will be apparent as the story unfolds. He was, at the time of joining WIA, already the Honorary Secretary of the Military Radio Association of Australia (formed during World War I) and held the rank of Lieutenant. By September 1922, WIA had appointed him as Treasurer, and by December, also as Publicity Officer.

Most of the original 1910 members were still active in the early '20s and the foundation chairman, George A Taylor, was still lecturing to members in 1923.

During 1922, the radio art was accelerating very rapidly. Interest in joining WIA had become widespread, and the Institute felt that the time had come when it should initiate steps to secure recognition as an Incorporated body under the Companies Act. Up till that time it had been an unofficial organisation although a very active one, and its application for registration was granted on May 26, 1922.

Articles of Association were formulated and grades of membership, "Full" and "Associate" were introduced. This resulted in the necessity for a Qualifications

Committee, and the first such Committee consisted of Messrs Maclurcan, Cooke, and Stowe. This was well before the existence of recognised academic gradings in this new field, and led to the introduction later of the regular, annual examinations held by the Institute.

"KNOW-HOW" TEXT

Very few textbooks existed, and the Admiralty Handbook of Wireless Telegraphy 1925 later became the standard text and contained all the significant "know-how" of the time when it was published. It was used by the Institute as the basis for examinations. Not until 1933 did recognised professional radio engineering qualifications exist in NSW when the Sydney Technical College introduced their Associate Diploma in Radio Engineering, and it was a few years later before there were any who obtained the qualification. Electrical Engineering degrees at Sydney University included little specialised Radio content.

One of the highlights of the Radio Year in the '20s was the regular Annual Radio Exhibition at the Sydney Town Hall. These were subsequently organised by the Electrical and Radio Development Association (ERDA). However, the idea was the brainchild of WIA which pioneered and received an overwhelming response from the industry when, with O F Mingay as Director, they ran the first Exhibition from December 3-8, 1923. A profit of 750 pounds resulted, and over 12,000 visitors paid for admission. The success of the first Exhibition was such that, from then on, it had to become a matter for participation by the commercial houses.

A Papers & Publications Committee was formed in 1922, under the chairmanship of W H Newman and, although it was not until January 1924 that an official organ was announced, this committee earns recognition as the predecessor of today's IREE Publications Board. The first official organ was "Sea, Land & Air", and later, when the former ceased publication, the journal "Radio" was appointed. Both were privately published, at the time, and it was not until several years later that the body owned and controlled its own journal.

"IRE (AUST)" REGISTERED

The next event of interest happened on August 16, 1924 when Mr E T Fisk (later Sir Ernest), who was then a member of WIA, together with some of his colleagues from AWA Ltd., effected with the Registrar General of NSW registration of the name "Institution of Radio Engineers, (Australia)". No record of any activities of this group is extant, but the fact of the registration will become significant later in the story.

Each year, WIA became stronger as the industry exanded, and what had been an organisation of enthusiastic amateurs, had become, predominantly professional in a vocational sense. Radio receivers were no longer homemade, but had become the product of commercial manufacturers.

AMATEURS GO COMMERCIAL

The amateurs who had built up their technical competence, had been "bought" by the manufacturing companies, to head their laboratories and to supervise their manufacturing activities. Where else was the right kind of knowledge to be found?

Other experimenters had turned their hobby into profitable businesses in becoming sales agents and servicemen for manufacturers.

Except for use in remote country areas, receivers no longer operated from batteries, for the mains-operated receiver had been born, and everything in the radio garden was lovely — until the authorities "threw a spanner in the works" by decreeing that mains-operated radio receivers were classified as electrical appliances and, as such, could only be serviced or installed by persons licensed under the Electrical Contractors and Electricians Licensing Act.

A General Meeting was organised on November 23, 1931, by Mingay, who was then Secretary of WIA, to which were invited all interested persons, whether members of the Institute or not, for the purpose of alerting them to the danger to their jobs, of the new ruling, as very few of them possessed an appropriate licence. The industry had just expanded into what it was, and radio had unobtrusively moved from the realm of the enthusiastic amateur to that of the businessman. What was to happen to WIA, which had been in the forefront of all this growth, and was the body which included the technical experts of the day?

A TIME FOR CHANGE

The answer seemed obvious. WIA had to change also. Very few of the existing members were still purely amateurs. The commercialisation of the art had been so rapid that its tide had swept up almost all the experts and, as the depression at the time was squeezing most other callings, the prospects for this new thing were too good not to be in it commercially.

The name WIA had been associated with amateur activities for over twenty years — it was the epitome of amateurism — and so it had to go too.

To what could it be changed?

There were various suggestions, but one seemed obviously right. The Institution of Radio Engineers was the name of the professional body in USA with broadly similar aims, and one of WIA's own members, Mr E T Fisk, had wisely reserved the name, in Australia, seven years earlier. It has always been the writer's belief that Mr Fisk (later Sir Ernest) was a person of considerable foresight, who had unbounded faith in the inevitable bright future of radio, and who envisaged a fully professional institution becoming a reality in Australia at some future date, and it is perhaps interesting to contemplate whether his action might have been influenced in any way when the news of the apparently unregistered Queensland Institute of Radio Engineers surfaced at the National Convention in 1924, because within three months of that date, he had effected the registration of IRE Australia.

Be that as it may, "Ossie" Mingay, as Secretary of WIA, explored the possibility of this name with Mr Fisk, who was enthusiastic about the idea. When the mechanics of the change were investigated, it was found that there were no financial members of IRE, and the Registrar-General could only recognise Mr Fisk (President) and Captain Toombs (Secretary), who had been named as officers in the application, and so, a method had to be found — but that was not beyond the genius of Ossie Mingay, as will be seen.

All these matters had been the subject of a discussion, at Federal level, and a policy determined, at a Convention, which was in accord with the recommendations made by WIA (NSW Div). However, when it came to the moment of action, the other States were hesitant, and it became clear that if the NSW Council had the courage of their convictions and the support of their members, they must go it alone.

Consequently, on February 14, 1932, a notice was sent to all members in NSW calling for a Special Meeting on February 29 to vote on the recommendation of the Council. The meeting was attended by 64 members and 21 proxies were held, and the result was that the recommendation of the Council to form the WIA into the IRE was adopted by 79 votes to 6.

The nature of this decision required, of course, a Confirmatory Meeting and this was held on Tuesday, March 15, 1932 when a motion by Messrs Norville and Mingay was carried unanimously.

"That this meeting confirms the Special Resolution of February 29, 1932 authorising the Council to take all the necessary steps to form an Institute of Radio Engineers, Australia."

LAUNCH DATE

It now seems logical to pinpoint this meeting as the moment in time which represents the launching of what is now the IREE, and makes a good target date for treating March 15, 1982 as the 50th Anniversary, although, if one considers its worthy predecessor, a venerable 72 years can now be totalled up.

It might be an interesting exercise to contemplate the 21st century. Will IREE treat March 2010 as its centenary, or wait until March 2032? The writer pleads Leave of Absence from the ceremony.

Now came the task of implementing the decision, formulating a new policy and closing down WIA (NSW Div).

As explained above, there was some difficulty, as only the President and Secretary of IRE were officially recognised as existing, but Ossie Mingay, the WIA Secretary, had an idea. There were four other WIA members who had also been IRE members and, with this in mind, a meeting was called on April 26, 1932 as a meeting of IRE, which in addition to the two officials, included Messrs Hooke, McDonald, Reed and Crawford (the four IRE members referred to above) who together with the President and Secretary, constituted an IRE quorum, and as invitees to the meeting, were three other WIA members, Messrs Renshaw (President), Mingay (Secretary) and Norville (Treasurer).

This meeting passed two resolutions — the first, admitting as members the entire list of WIA (NSW Div) members who had en masse, applied for membership of IRE, and the second, appointing a provisional Council to manage the affairs of the Institute until a General Meeting could be held. The following Councillors were appointed: Messrs Fisk (President), Hooke, McDonald, Crawford, Renshaw, Gilmour, Norville, Mingay, Hill, Bean, Emmelhainz, Tyler, Thom, Kennell and Turner. Toombs

resigned as Secretary of IRE and Mingay, Secretary of WIA, became also Secretary of IRE.

INAUGURAL DINNER

The first activity arranged by the new Council was an Inaugural Dinner (many felt it was a coming-of-age party). This was held on May 30, 1932 and was attended by 123 members.

Then followed a well advertised Public Lecture in the State Theatre Conference Hall, at which the speaker was Major C W C Marr, Federal Minister for Health, who had been Commanding Officer for the Anzac Wireless Squadron during World War I. An honoured guest at this meeting was the Chief Engineer of the BBC, Captain Eccesley.

On June 11, 1932, a Final Meeting of WIA (NSW Div) Council was held for the purpose of officially closing it down. It was reported by Phil Renshaw, President, tnat all WIA members had formed the IRE. A motion was passed that it, WIA (NSW Div), be wound up forthwith, and the Institute's solicitor was named as Liquidator.

This became a story *in* itself, because when the liquidator came to the stage of seeking the registration certificate in order to return it to the Registrar-General, he seemed to meet with a series of delaying tactics because there was a growing feeling of goodwill toward a small amateur body called the "Association of Radio Amateurs" which had developed after the closure of WIA. This feeling was behind the Resolution of the IRE Council, on December 6, 1932, to place in the hands of the Trustees (Hooke and Norville) for use by ARA, its own Radio Transmitter and the Maclurcan Cup. This cup had, until recently, been eagerly competed for, on a regular basis by NSW amateur transmitters, and the condition of its transfer was that these competitions should be revived and continued. A "wait and see" attitude had developed about returning the WIA registration certificate, and hope was emerging that, some time in the future, amateur radio would again become significant in the State.

By 1934, the interest in electronic communication had become quite wide, and this year saw another technical professional body come into being with the inaugural meeting of the Institution of Engineers Australia, Communications Section, which was held on September 26, and still continues alongside IREE as a leading professional organisation.

It was reported at the Council Metting of April 3, 1935, that the Registrar General required the final liquidation of WIA to be completed, and the liquidator to consent to a new Company. O F Mingay, Secretary of IRE and also nominally Secretary of the defunct WIA (NSW Div) reported difficulty in holding the necessary meeting because there were no WIA financial members. On June 4, 1935, following another letter from the solicitors, the Secretary was empowered to call together sufficient members of the Council to re-form WIA with a temporary fee of one shilling per head to pass the necessary resolution required to carry into effect the legal requirements for winding up.

WIA REBUILT

Somehow, (and many would say, fortunately) this became a long-drawn-out process and never actually took place in its originally intended form, because by April 14, 1937, it was resolved by Council not to cancel, but to hand the original certificate of registration to IRE's good friends, a group of amateurs who had, by now, rebuilt themselves into a sound organisation. The plan originally adopted in 1935 was implemented and a meeting organised by O F Mingay, was held on June 2, 1937, in accordance with the solicitor's advice, and four resolutions were passed as follows:

1. "The Institute accepts from IRE Certificate of Registration 86355 issued on 26/5/22.
2. The Institute indemnifies IRE against any possible liabilities.
3. It undertakes to function solely as an amateur body.
4. It accepts the resignation of O F Mingay as Secretary in favour of W G Ryan."

The Wireless Institute of Australia (NSW Division) has continued to develop, and today, ably represents the amateur radio enthusiasts (Hams) of the State as their official authorised body.

IREE AND ROYAL CHARTER

Reverting back to the continued development of IRE, the Articles of Association were amended and new Articles adopted on February 20, 1933. It has grown and expanded as the science has developed. There have been name changes. Firstly, the original discussion had used the word "Institute" and the "birth" resolution used this term, but after the first meeting of the re-formed body, the word "Institute" was replaced by "Institution". Then, as the science expanded, the name was obviously too restricted adequately to describe the Institution, and it was changed to The Institution of Radio and Electronics Engineers Australia in January 1965. It continued as a Public Company, registered in NSW, until 1967, when it was honored to receive a Royal Charter.

If George A Taylor, who died in 1928, at the early age of 56, could see IREE today, or even to be a "ghostly visitor" at an IREECON Convention, do doubt he would be proud at what had grown from the seed he planted in 1910, and how true, still, is his call for mutual co-operation between those who professionally lead the world of electronics.

Name changes by this body have reflected the history of the science, which was originally introduced as "wireless telegraphy" — but then, telephony evolved, making the original title too restrictive, and so it became just "wireless" without any addendum. There were, originally, no specialist wireless engineers — they grew out of the science itself, and the professional man appeared as the necessity for him arose. Wireless and radio are synonymous terms and the latter became the preferred word for modern usage but then, as the science spread and produced specialists so widely outside the restricted field of radio, the word "Electronics" had to be added to the name.

Reprinted from "Monitor" Dec '82

FOLDED-ELEMENT COLLINEAR ANTENNA FOR 2 METRES

Desmond Greenham, VK3CO
16 Clydesdale Court, Mooroopna, Vic. 3629

The "Slim Jim" is a most popular 2 metre antenna for stations within reasonable distance from a repeater and where omni-directional characteristics are required. This was featured in a previous article by the author on the construction and operation of an updated "Slim Jim".

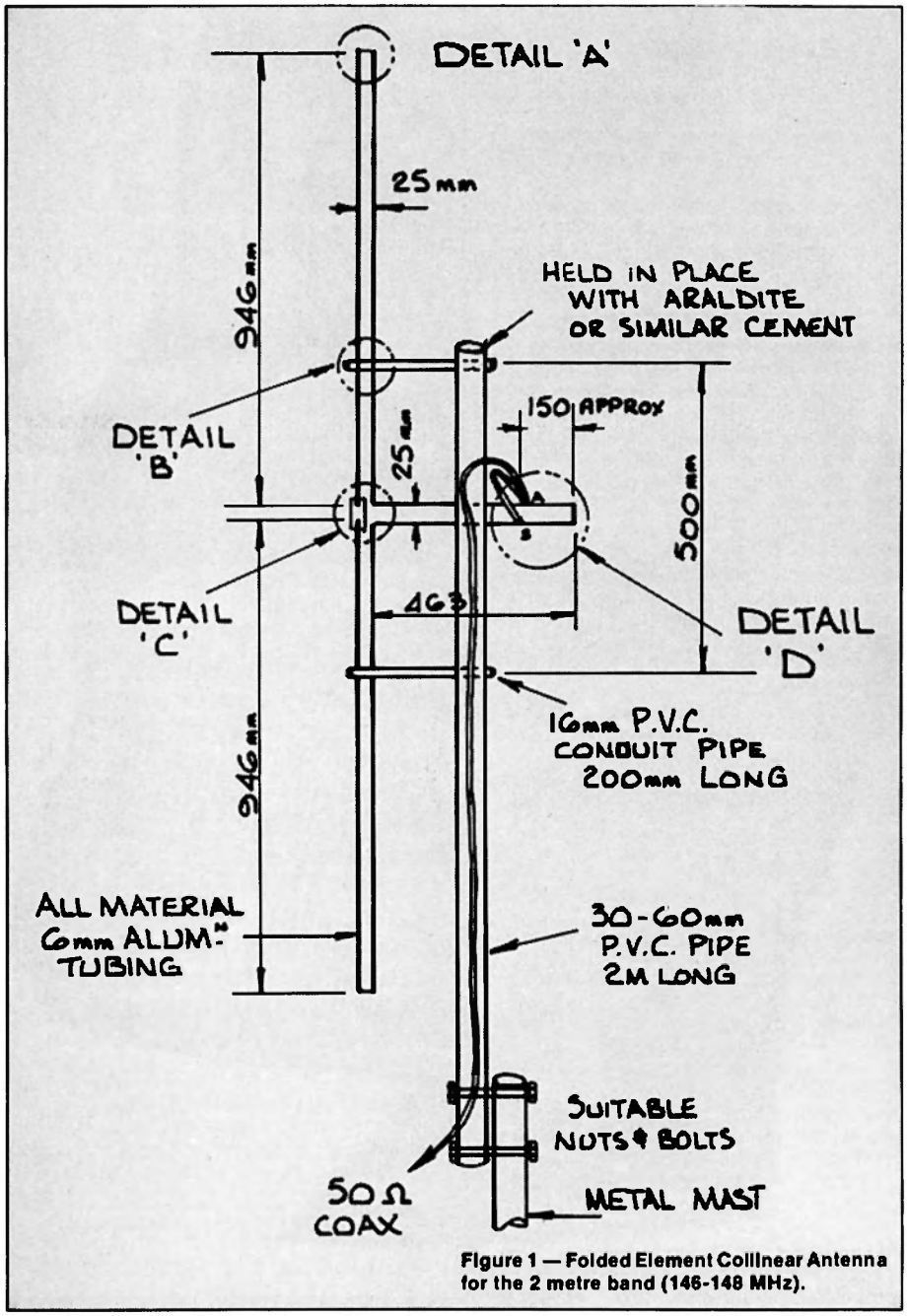
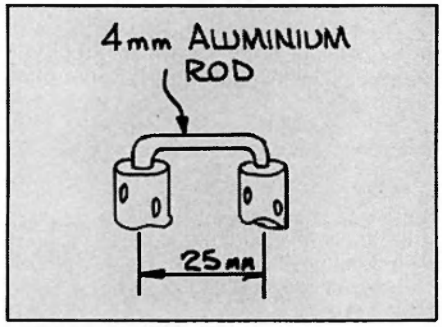


Figure 1 — Folded Element Collinear Antenna for the 2 metre band (146-148 MHz).

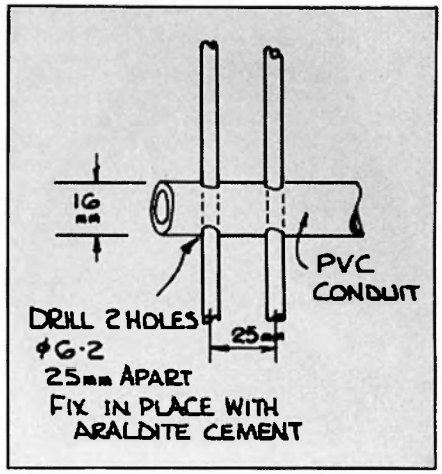
In an attempt to derive more antenna gain and still retain omni-directional properties, the old, still popular "two half waves in phase" antenna was revalued. This type of antenna is featured in many text books as the "Plumbers Delight" because it can be constructed with copper pipe using plumbing elbows etc. The antenna is claimed to have a slight gain over a "J Pole" or "Slim Jim", however, on test it has been found that whilst there is a "gain" there is also a problem in achieving a satisfactory impedence match resulting in a higher than desirable SWR.

DESIGN

The antenna to be described, was originally developed by F C Judd G2BCX for using a repeater in UK and is a variation of the original "two half waves in phase". This antenna uses two folded dipole elements fed in phase through a quarter wave stub and a co-axial cable "balun" matching system. The result is an antenna that is balanced and symmetrical, and exhibiting a very good impedence match resulting in a low SWR over the 2 m band and providing worthwhile gain.



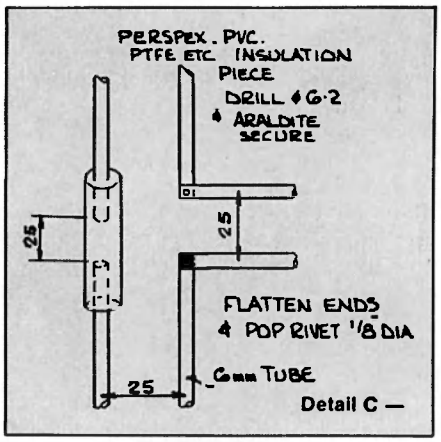
Detail A — Drill out tubes and press in end piece. Centre punch to locate and hold.

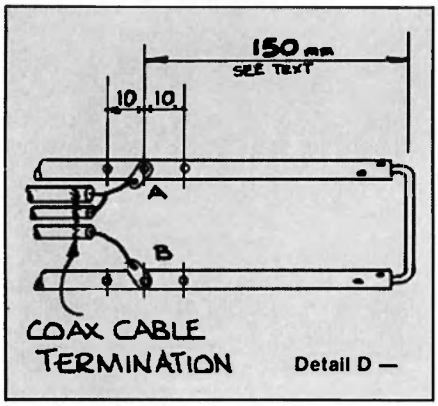


Detail B — Fix in place with Araldite.

CONSTRUCTION

The supporting frame for the antenna is made from electricians PVC conduit, a most suitable material for antenna construction and preferable to wood. The elements are made from (¼") 6 mm aluminium tubing. This is readily available and reasonably cheap to purchase.





The general construction is reasonably straight forward and details are shown in the sketches. The end sections of the dipoles and the matching stub are made from 4 mm aluminium rod.

Other metals, brass etc could be used, however, there is an electrolysis problem with dissimilar metals resulting in corrosion and consequent high resistance connection. All mounting of elements is achieved by drilling a neat clearance hole and securing with "Araldite" or other epoxy type cement.

Care must be taken when drilling 16 mm holes through the PVC support mast. A smaller hole can be drilled first and then enlarged with a round file or reamer.

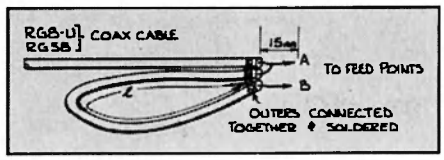
COAXIAL CABLE "BALUN"

The balun should be made from a section of the same cable that is used to feed the antenna. A cable with low loss is preferable and RG8 or equivalent is suitable. If the overall length of cable is not excessive, say, less than fifteen metres, then RG-58-AU "foam" dielectric is quite suitable. This cable combines low loss, thin diameter, and easy handling. The ½ wave section must be carefully cut to the correct length depending on the cable dielectric. If standard solid dielectric cable is used, the velocity factor is 0.66 resulting in a length of 673 mm measured from outer covering ends. (see sketch). If "foam" cable is used the velocity factor is 0.75 giving an overall length of 765 mm.

The section should be looped and taped as shown and carefully terminated. The termination can be water proofed by PVC tape or some sealing compound. If water enters the cable it will be damaged and characteristics altered considerably. The "balun" and cable ends are soldered to lugs and screwed with self tapping screws to the matching section.

TESTING AND ADJUSTMENT

After deciding on the final location of the antenna and the length of the feed cable, final connection should be made as shown in Detail D. The antenna with full length cable connected should be lifted as



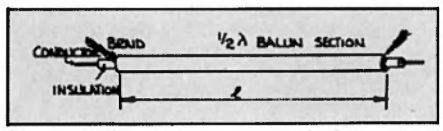
4:1 Balun ½ wave matching (see text)

l = ½ wave. If RG8 or RG58 standard polythene co-axial cable is used, velocity factor = 0.66.

l = 673 mm

If RG8-AU or RG58-AU foam insulated cable is used, the velocity factor = 0.75. l = 765 mm.

½ λ = 150 x .75
147 MHz = 765 mm
= 150 x 0.66
147 MHz = 673 mm



high as possible in the clear and the SWR checked. If all dimensions are correct, and construction details followed, an SWR figure less than 1.5 will result. An improvement can be made by moving the tapping point ± 10 mm from the point shown.

The author has obtained SWR results better than 1.2 over the band with the dimensions shown.

When testing is completed, the cable can be taped or clipped to the support mast and the antenna placed in its final position.

The SWR figure will not change significantly and the antenna will give good results over the entire 2 m band.

AR

TV LINE OSCILLATOR INTERFERENCE

The problem of TV receiver line oscillator interference on amateur bands is being examined in the WIA EMC and Standards areas.

Federal Executive is seeking information from Divisions which may assist in the preparation of a submission to the Standards Association of Australia proposing improvement in the relevant performance specifications for television receivers. A similar but more general request for information on the problem appeared in the National EMC Advisory Service feature in last month's AR (Page 66).

Duplication of information submitted in response to these requests is unnecessary, since the EMC Service and FE will collate all reports received from both sources.

AR

RSGB HF CONTESTS

The custom whereby each HF Contest organised by the RSGB has had a different adjudicator each year and therefore a different address for logs to be sent to has caused many problems for entrants from outside the UK who do not necessarily have the information needed. In future the procedure will be much simpler as entries for ALL RSGB HF CONTESTS from outside the United Kingdom may be sent to:—

PO Box 73,
Lichfield,
Staffs, WS13 6UJ,
England.

Please write the name of the contest being entered on the top left-corner of the envelope.

from Region 1 News — Oct 84

AR

TECHNICAL CORRESPONDENCE

CURTAINS FOR WA AURORAL COMMUNICATION?

John Hawkins, VK6HQ
39 Glyde Road, Lesmurdie, WA 6076

Intrigued by something experienced by Bert VK6ZY during an aurora in Western Australia sometime previously, a study was commenced in January 1981 by John VK6HO under the auspices of the WA VHF Group.

The objective of the study was to gauge the possibility of communication from WA at VHF and UHF via the aurora.

Apart from an awareness that this form of communication had long been the norm in the northern hemisphere and that some observations may have been done in the south of the State during the International Geophysical Year (IGY) of 1957, the subject had to be tackled literally from the ground up. Some information was found in a report from New Zealand.[1] (All reports and papers that were drawn upon appear in the bibliography.)

What was the aurora really like and from where in the southern hemisphere might it simultaneously be seen? Few I asked had seen it. Even ZS stations in Capetown, lower in latitude than Perth, could not recall mention, let alone the sighting, of one, which immediately rules out big DX!

At this juncture I approached Perth Observatory who responded by loaning three books[2,3,4] and at the same time providing a list of auroral sightings. They emphasised that such occurrences were logged only if they coincided with their main observing operations and consequently the list was by no means complete.

While I pondered how to begin to predict the onset of an aurora, I read. As I read I concluded that auroral theory was still being written.

Certainly, when the auroral effect reaches the E-region in the atmosphere signals begin to bounce back, but *why do the magnetic fields at the poles "light-up" progressively outward, following a disturbance at the Sun?*

Akasofu, writing on the subject as far back as I could trace in 1960[5], describes in December 1982[6] the visual (northern) aurora thus:

"An astronaut looking down on Earth from high above the north pole in winter would see a huge glowing ring. This oval, about 4500 km across, is approximately centred on the geometric pole and passes across Alaska, northern Canada, Greenland, Scandinavia and Sibera.

"From ground level, one sees a gigantic curtain of light, intermittently curling up like a whirlpool of flame over the frozen Arctic Ocean and endless forest and tundra.

"This spectacle is the Aurora Borealis (Aurora Australis in the southern hemisphere) one of the magnificent natural occurrences on Earth."

Whilst taken perhaps out of context the "exploded view" of the aurora, Fig 1, as described by Gerhard Haerendal[7] shows the almost "frictional" effects resulting in the auroral generator.

Through an auroral "atlas"[8] I learned that the aurora can be classified visually under:

Condition — quiet, pulsing, etc
Structure — homogenous, rayed, etc
Form — arc, veil, etc
Brightness — indexed 0-4
Colour — classed a-f.

Earlier accounts suggested that the Sun flared throwing particles Earthwards, where they in turn "jiggled" the magnetic fields around the poles like gas in a flourescent tube. Akasofu, however, goes on to say[6] *"there is little doubt that the aurora is produced by a very high powered electrical discharge (as much as a million megawatts) in the polar atmosphere".* This makes sci-fi like "Siva!" almost credible!

Reports on the invisible aurora and its effect upon VHF communication were still, even in 1951, news, but the first reference appears to have been in QST, May 1939. After that, 56 MHz "aurora effects" reports

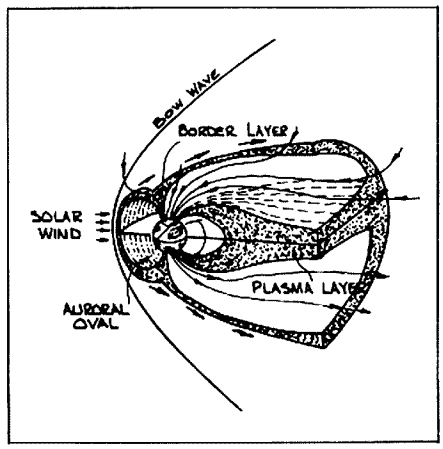


Figure 1 — Three dimensional section through the magnetosphere with the source area of the Aurora. The border layer at the magnetopause and the plasma layer in the tail. Acknowledgement to Sterne and Weltraum.

became commonplace. It was not until QST for March 1949 that two-way communication "via the aurora" on 144 MHz was reported.

R K Moore cites[9] the now famous QST report[10]:

"W2AMJ makes some interesting observations regarding conditions noted on 56 MHz: the Northern Lights were going to town on the night of 24th February. I got on 56 MHz at about 8.20 PM. I sent a CQ in ICW and was rewarded with a call from W8VO in Akron, Ohio, also on ICW. His carrier was S9 but had the most peculiar sound to it, with or without modulation . . . I swung over to phone and he advised me that the phone was unintelligible. Then he shifted to phone, and boy, if you ever heard inverted speech you should have heard this. It sounded nothing like voice modulation. We continued the contact on ICW-S9 both ways. At no time was there any appreciable fading. The signal was just like it was around the corner, except for the peculiar combinations of howl and roar that accompanied his carrier . . ."

Auroral disturbances can extend out from 80 km to 1000 km and influence radio signals in the HF, VHF and UHF range in several ways. Not only this but radio noise emissions in the VLF range and known as the "dawn chorus" occur with the onset of an aurora.

Both the Carmel and Mundaring observatories continued to be very helpful for subject documents. In addition, I arranged for the WA VHF Group to be added to the circulation of the weekly "Preliminary Report and Forecast of Solar Geophysical Activity" (PRF) originating from the US authorities in Boulder, Colorado. The PRF, amongst many other things, diarises Alerts in the past period, Soflares, 245 MHz Radio Bursts in flux units, and so on. It also makes predictions as to the effect of reappearing coronal holes.

It was hoped to correlate WA sightings with these reports and build up a pattern for predictions. Regrettably, there was insufficient auroral activity in WA to use this approach.

I then stumbled on an article in *Radio Communication*[11] mentioning twenty seven day auroral charts maintained at G8VR and reporting a discussion with Charlie G2FKZ, the IARU aurora co-ordinator. As I knew G2FKZ personally from IGY days I wrote to him and received charts, diagrams and a cassette tape in return.

G2FKZ has been associated with auroral communication and prediction for twenty five years or more. What follows is a resumé of his notes to me.

On either side of an eleven year solar cycle there are peak periods for the aurora. The peak on the upward side occurred in 1978/79 and we were, as at August 1982, at the peak on the downward slope.

There are about five causes of auroras. Auroras are indexed on an "A" scale. The big ones, A-100 plus, are nearly always caused by disintegrating filaments, virtually impossible to predict and of short duration. The other major cause resulting in about eighty per cent of auroras is the coronal hole. These auroras are usually in the A-10 to A-50 sort of order and provide the "bread and butter" auroras.

It would appear Perth needs an index of at least A-100 to get in the auroral communication ball park. G2FKZ was not surprised that the aurora of 6th September 1982 had made itself known in WA; it was the biggest of Cycle 21 and reached A-162. Ironically, I missed it and only deduced that an aurora had occurred through talking to some rather baffled Perth HF operators later on.

Because coronal holes grow, spawn auroras, and then decay, sometimes over three or four rotations of the Sun, the twenty seven day cycle is a useful guide. However, with relatively low indices on average the chances of working auroral QSOs from Perth, according to G2FKZ, are slim.

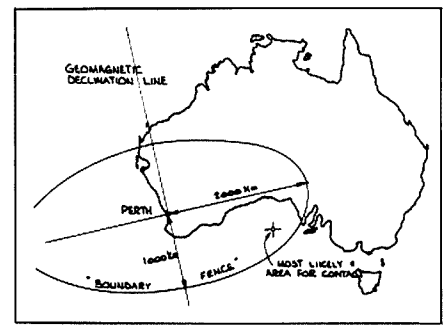


Figure 2 — G2FKZ's "Boundary Fence" conception. For all practical purposes communication outside area a physical impossibility.

G2FKZ considers that a "boundary fence" exists with regard to auroral communication generally. It will be seen from Fig 2 that an ovaloid area aligned with the station's longitude and approximately 2000 km deep by 4000 km wide surrounds any given station outside of which he cannot hope to contact a second station. Exceptions are few in practice. Distance/bearing graphs appear at Fig 3.

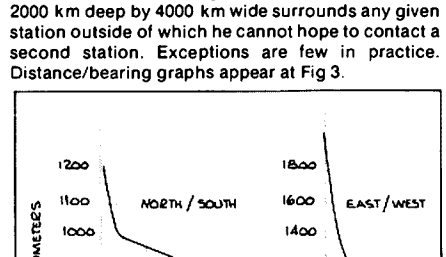


Figure 3 — Guide to QSO direction in the Northern Hemisphere.

Beam headings, see Fig 4, are aligned for minimum attenuation of the signal with one station or the other making the "long run" to cut down square law losses. The reflection point needs to be close to one station.

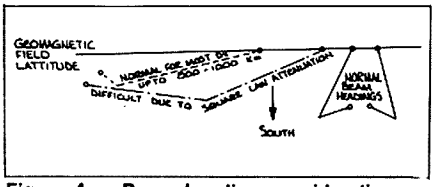


Figure 4 — Beam heading considerations — Northern Hemisphere. It does not matter which station is more south.

One antenna only need be elevated up to the E-layer height (about 300 or 400 kms minimum). The other operator then fires low and hits the same piece of sky 200 or 300 kms south of him. If both were to fire southwards they would hear much noise but not make contact.

If the "boundary fence" is the good news the bad news is that three quarters of the accessible area from Perth is out at sea. If Perth were "transplanted" no one in the northern hemisphere has put an auroral signal into the equivalent area. Two places were mentioned by G2FKZ as having supported research on the aurora by way of radar, MacOuarie Island and Heard Island.

Visual observations of auroras do not always mean that communication will be possible. Sometimes there might be good communication and no visible spectacle, sometimes the reverse and sometimes both.

From what G2FKZ relates, his rebroadcasted predictions coupled with other rapid alert systems keep interest in auroral propagation at a high level in the Northern Hemisphere: he has amassed something like 20 000 individual contact reports through which to sift and draw further conclusions. Clearly, however, our northern relations have a lot going for them with Northern Ireland singularly blessed with auroral sightings.

Going back to the occasion of 6th September 1982, 10 metres showed entranced propagation but shifted its skip rapidly from one DX region to another. On 80 metres several operators thought AC had got into their RX local oscillators such was the burbling effect of received signals. Perth Observatory, meanwhile, received several calls from commercial concerns in the country asking why they suddenly couldn't talk to one another by radio.

Perhaps these might all be pointers to the onset or existence of an aurora. I once asked a Norwegian station on 20 metres if he saw many auroras. He paused, looked from his window and reported, *"there's one there now! We usually know when they're about — we hear our repeater being triggered from Sweden!"*

So, with Cycle 21 ebbing slowly away, one last concerted effort was made from WA to "hear something on aurora". Perth Observatory agreed to call VK6HQ at any time during the period 1st to 31st March 1983 if an aurora were spotted.

That magic telephone call never came. Presumably if auroras had occurred the A-index failed to approach A-100.

Boulder were asked to send us further PRFs and with particular thanks to them and to Dr Nikoloff, Dennis Harwood and librarian Carmell of Perth Observatory and Peter Gregson of Mundaring Geophysical Observatory, the project was put into suspended animation.

Since then I note with great delight the reappearance of the publication *6UP* and in it a fine article on the aurora by Roger VK2ZTB[12]. Roger mentions that in August 1978 a dozen stations in VK3, VK5 and VK7 broke the auroral scatter propagation "drought" of some twenty years with a vengeance.

With this in mind, perhaps all is not lost. Roll on, Cycle 22 . . .

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THE ORIGIN OF 73

G Maxwell Hull, VK3ZS
Federal Historian

Amateurs have used the term "73" to express — 'Best Wishes' — since as far back as can be remembered. Of more recent times the term "73's" has crept into amateur jargon, both on the air and in amateur literature. Although to a great extent this has been accepted by common usage, it is in fact quite incorrect. As recently as a couple of months ago, following a Divisional Broadcast, an amateur was heard to 'call in' and correct the announcer on the use of "73's" instead of "73". The announcer's comment (and also that of a 'breaker') left no doubt in the writer's mind that the amateur attempting to correct the situation was considered "old hat" or to be "flogging an unwilling horse" so to speak. And so for the record, here is some information on the origin of "73".

The origin of "73" as the telegrapher's conventional signal of greeting has been ascribed to a dinner given to Andrew Carnegie on his 73rd birthday by the Order of Military Telegraphers. The dinner referred to was given on 27th November 1908, and the signal "73" was played upon in connection with his 73rd birthday. However, investigation indicates that the term "73" was used for many years prior to that time. This information came from the December Bulletin from the Navy Department Office of the Chief of Naval Operations, USA.

The following material, believed to be authentic, is quoted from the "Telegraph and Telephone Age," dated 1st June 1934:

"It appears from a research of telegraph histories that in 1859 the telegraph people held a convention, and one of its features was a discussion as to the saving of 'line time'. A committee was appointed to devise a code to reduce standard expressions to symbols or figures. This committee worked out a figure code, from figure 1 to 92. Most of these figure symbols became obsolescent, but a few remain to this day, (well, in 1935 anyhow!), such as 4, which means 'Where shall I go ahead? Figure 9 means 'wire', the wire chief being on the wire and that everyone should close their keys. Symbol 13 means 'don't understand'; 22 is 'love and a kiss'; 30 means 'good night' or 'the end.' The symbol most often used now is 73, which means, 'my compliments', and 92 is for the word 'deliver.' The other figures in between the foregoing have fallen into almost complete disuse."

The following were still in effect in 1905 —

1 Wait a minute
4 Where shall I start in message?
5 Have you anything for me?
9 Attention, or clear the wire.
13 I do not understand.
22 Love and kisses.
25 Busy on another circuit.
30 Finished, the end (VA)
73 My compliments, or Best regards.
92 Deliver.

So there you are! This bit of history leaves no doubt that "73" is quite correct and even that has been changed to mean 'Best wishes'. So does "73's" mean Best-best wishes or 'Best wisheses' or what? And then "88" crept in somewhere too!

We'll leave the reader to think about it. 'Common Usage' of words and expressions has been the cause of some funny changes. 73.

AR

EQUIPMENT REVIEW

Kevin Phillips VK3AUQ
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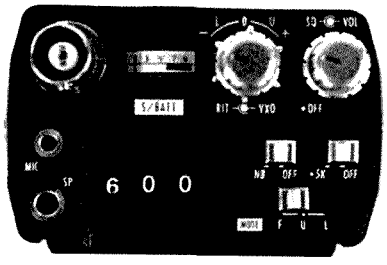
BELCOM LS-202E

The Belcom LS-202E is a compact, synthesised, two metre handheld transceiver featuring both FM and SSB modes of operation. The unit supplied for review was fitted with the optional NP-9 nicad battery pack (10.8 volt), CA-110E AC charger and SH-1 speaker microphone. It also comes as standard with a belt clip, carrying strap and a rubber flex antenna.

There are other multi mode rigs about, but not as a handheld unit, so it should have some appeal to those who do a bit of travelling and have no room for excess luggage. It is fairly small at 179 x 64 x 44 mm including all projections, and weighs about 500 g. Many FM only alternatives are no smaller or lighter.

APPEARANCE

Overall appearance is compact and fairly neat, until you try to use some of the controls. On the front, is a speaker and microphone, all else is blank apart from a label. Left side panel has a PTT lever, high/low power switch, repeater offset switch which can be either 600 kHz up or down, a tone switch which serves no useful purpose in Australia, and a button for lighting up the S meter. This side also contains the charging socket. Moving up to the top panel, there are two pairs of concentric knobs. One pair are the VXO and RIT controls which are only functional on SSB, and the other pair are volume/on off and squelch controls. VXO range is ±5 kHz, and RIT is ± 1 kHz. There are three slide switches for noise blanker, +5 kHz offset and mode selection. Modes are FM, USB and LSB. Next are the thumbwheel switches for selecting operating frequency in 10 kHz increments. These switches are small and fiddly to use, and would be difficult for anyone with big fingers to select a frequency with any speed. Next are two sockets for remote speaker and microphone. Each socket is a different size, so the two functions cannot be mixed up. A rubber bung fits into these sockets when not in use to keep out dirt and other nasties. Antenna connector is a BNC type. Last item on top is an "S" meter/battery condition meter.



Top view: From left — clockwise. BNC antenna socket, S meter/battery condition meter, RIT/VOX control, volume/on/off and squelch control, three slide switches, frequency selection thumbwheel and remote speaker and microphone sockets.

FREQUENCY RANGE

Frequency coverage is from 144.000 to 147.995 MHz on transmit, but I found that on receive it covered 144.000 to 153.995 MHz, not 140 to 149.995 MHz as I expected. It has an interlock to prevent transmission if MHz is 148 or above. The only exception is if the repeater offset is on, and a frequency less than 600 kHz from a band edge is selected. An example is

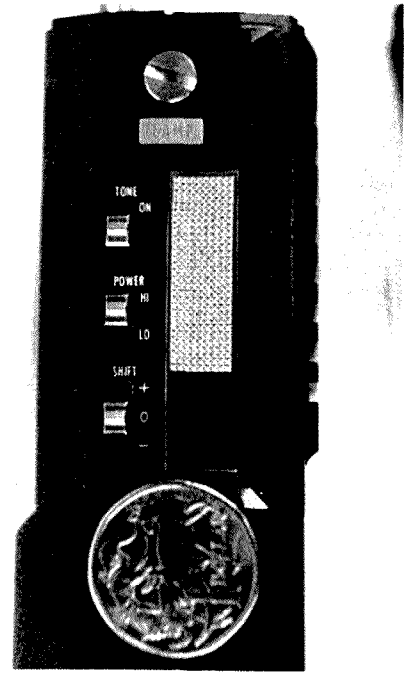
say 144.1 MHz selected, but you had last used the rig on the 146.7 MHz repeater. You had turned on the offset to 600 kHz low, so your new frequency is 143.5 MHz (out of band and very naughty). The same can happen at the other end of the band with offset high. The offset doesn't care what mode you selected.

Power output is claimed to be 3.5 watts when run on 10.8 volts, and the test rig ran at 3.8, and drew slightly less current than specified. On low power, it was still 1.7 watts, which is a bit excessive, but drops to a more reasonable 0.7 W when on 9 volts, or 2.7 W on high power. These figures are for the FM mode, and similar results occurred on SSB. It is very easy to drive it to full output on SSB, as mike sensitivity is reasonably high. FM deviation was measured at 5 kHz. I was a little disappointed in spurious response, as a number were just out of specifications. There were a couple either side of the carrier, at 10.695 MHz removed, and they varied in level depending on mode, power and frequency selected. Second and fourth harmonics were a bit high also, but third harmonic was very low. Most transmitters radiate broadband noise in the form of a noise plateau. This rig has a noise plateau of —80 dBr on SSB, and — 86 dBr on FM. All spurious should be able to be improved, and other units may be much lower.

RECEIVER

Receiver performance was better than specifications on most counts. Belcom claim better than .25 microvolt for 10 dB S/N, and test result showed 17 dB S/N for FM, and 17 dB SINAD on SSB, where specification is better than 12 dB. At low level signal input, audio output is not very high, but I found it adequate for my needs. The squelch control works on both FM and SSB, and worked fine. Like most receivers, this one has a few spurious responses, and they tuned at a different rate to the main signal except for image responses that tune normally.

The receiver is a conventional superheterodyne type with single conversion for SSB and double conversion for FM. First IF frequency is 10.695 MHz for both modes, and 455 kHz for FM. The RF amp is a 3SK114 dual gate FET, followed by a bipolar transistor mixer. After the mixer, the signal splits up and goes through a three stage amp for SSB, and then to a balanced demodulator. On FM the signal is mixed with a second local oscillator in an IC, and passes through two filters at 455 kHz, limited and then quadrature detected. A single IC is used for audio amplification.



Left side panel compared to a dollar coin.

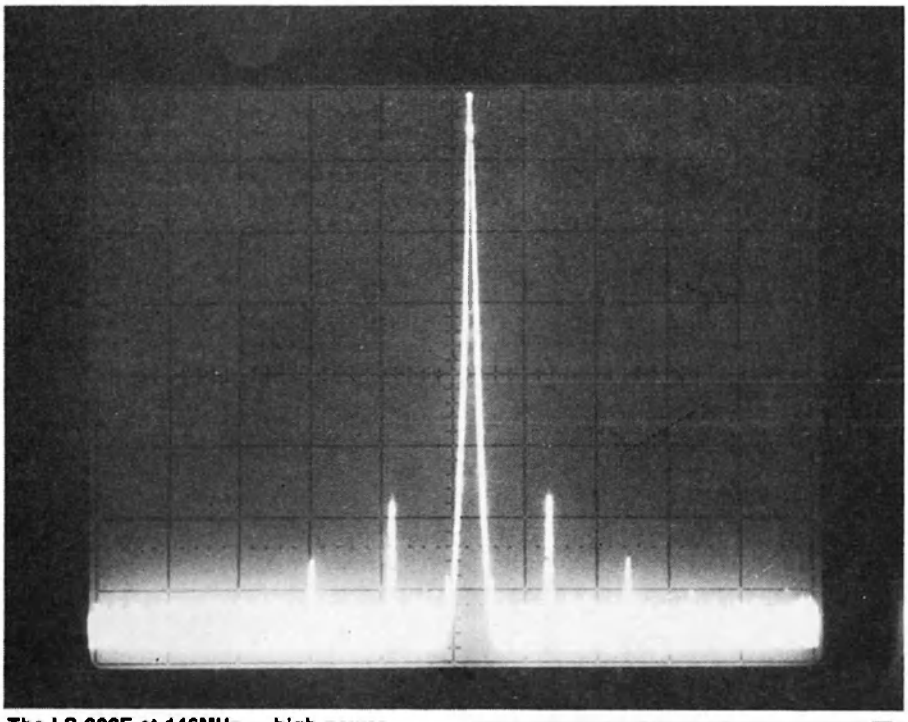
TRANSMITTER

On transmit, the SSB audio and 10.695 MHz carrier signals are fed to an IC balanced modulator, then to a crystal filter (same one as on receive), to eliminate the other sideband. From there it is heterodyned to the final frequency and amplified in several stages. For FM operation, the VCO is modulated, then mixed to final frequency and amplified as before.

This rig doesn't offer any frills such as scanning or memory facilities. If you want to tune around the band it must be done with the thumbwheel switches. On SSB that can be fairly hard, as to tune a segment of the band, you have to use a combination of thumbwheel switches, 5 kHz offset slide switch and VXO control. That can be somewhat frustrating, so I would suggest you tried leaving it on 144.1 MHz most of the time if you want to use SSB. That way you can establish a QSO on the calling frequency and then shift to another mutually agreeable frequency. On FM it is easier to tune around as most frequencies in use are about 50 kHz apart, but it is still easier to leave it on your favourite repeater.

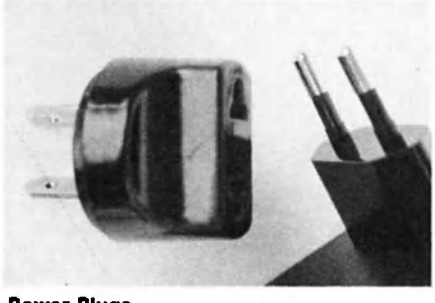
ANTENNA

The rubber ducky antenna supplied worked as well as any other I have tried, and put in adequate signals



The LS-202E at 146MHz — high power.

to several repeaters from the Box Hill area, and also from Mt Evelyn. I much prefer to use a real antenna on my rigs though. With the optional SH-1 speaker/microphone, the little rig can be hung on a belt with the belt clip, and only a light weight extra need be held. It's much easier to carry that way.



Power Plugs.

POWER

Now for power supplies. Belcom claim that maximum DC supply voltage is 12 volts. As such it should never be operated directly from a car battery or catastrophic rig failure may result. It runs on a nominal 9 volts, or for higher power operation 10.8 volts. The optional CA-110E AC charger supplied for the review was rated at 220 volts AC input, and had a non standard plug on it. As it is a plug pack type of supply, it needs an adaptor to fit it to Australian AC outlets. The charger tends to run a little warm, so it may have a limited life when run on 240 volts. The rig may be used while being charged.

OPERATIONAL BOOK

The instruction book seemed to say all that was necessary for normal use, except for the instructions that came with the SH-1 which were in Japanese, but operation is so simple as to not need interpretation.

CONCLUSIONS

This rig would seem to fit the bill for someone who wants a light weight multi mode two metre hand held, and doesn't mind not having scanning or memory functions like some of the FM only opposition. It does have shortcomings in its operation due to its type of

Belcom LS-202E
SSB&FM HANDY TRANSCEIVER
OPERATING MANUAL

frequency selection, but it can be very useful even so. It would be very useful for a traveller who likes to use both SSB and FM, but cannot find room for the larger multi mode rigs. Power and receiver sensitivity are adequate for most needs. I would suggest you try one and make up your own mind.

AR

VK3BFG RTTY — MORSE

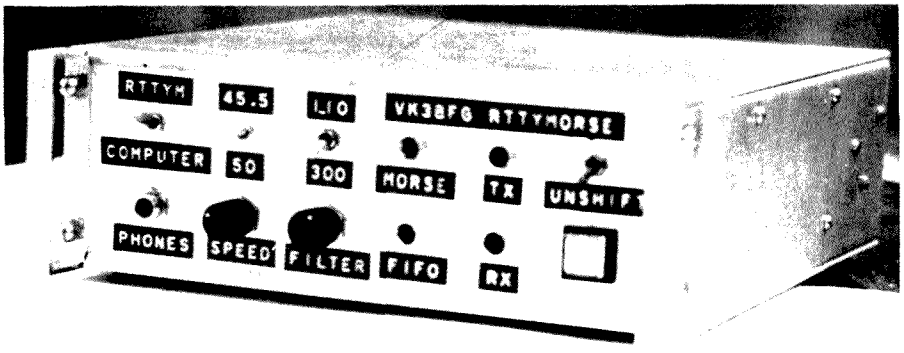
Peter Cossins VK3BFG
14 Coleman Road, Wantirna South, Vic 3152

If you wish to relieve yourself of the old clanking Baudot machine in the amateur shack and you have a VDU or a quieter, more modern ASCII Teleprinter, on ASCII Keyboard and a Computer Lineprinter, this project may be of interest to you. It is not absolutely "state of the art" as far as microprocessor systems go but it works in both modes (Morse and RTTY) and is relatively cheap.

```
00010                       NAM     RTTYMORSE
00020 0000                  ORG     $0000
00030                       OPT     NOG
00040                *
00050                *VERSION3
00060                *
00070                *PROGRAM TO CONVERT BAUDOT TO ASCII
00080                *AND MORSE TO ASCII WITH MODES
00090                *SELECTED BY KEYBOARD
00100                *
00110                *P.COSSINS
00120                *VK3BFG
00130                *
00140                *ACKNOWLEDGMENT TO KEN PALLISER
00150                *VK3GJ FOR LOOK-UP TABLES
00160                *
00170                *RTTY MODE
00180                *
00190                *SYSTEM VARIABLES
00200                *
00210 0000 0002     FSTACK RMB     2
00220 0002 0002     PSTACK RMB     2
00230 0004 0002     XSTACK RMB     2
00240 0006 0001     TXCNT  RMB     1
00250 0007 0001     RXCNT  RMB     1
00260 0008 0001     AUTCR  RMB     1
00270 0009 0001     RTTYM  RMB     1
00280 000A 0001     NOSTR  RMB     1
00290 000B 0001     FIGLET RMB     1
00300 000C 0001     SHIFT  RMB     1
00310 000D 0001     RXCH   RMB     1
00320 000E 0001     TXCH   RMB     1
00330                *
00340                *SYSTEM EQUATES
00350                *
00360 8004                  ORG     $8004
00370                *
00380 8004 0001     PIAD   RMB     1
00390 8005 0001     PIAC   RMB     1
00400 8006 0001     PIBD   RMB     1
00410 8007 0001     PIBC   RMB     1
00420                *
00430 8040                  ORG     $8040
00440                *
00450 8040 0001     ACIAS  RMB     1
00460 8041 0001     ACIAD  RMB     1
00470                *
00480       007F    SPOINT EQU     $007F
00490       0050    FIFTOP EQU     $0050
00500       000F    ENDFIF EQU     $000F
00510                *
00520                *SYSTEM INITIALISATION
00530                *
00540 E000                  ORG     $E000
00550                *
00560 E000 01       INIT   NOP
00570 E001 0F              SEI                     TEMPORARILY MASK IRQ
00580 E002 01              NOP
00590 E003 86 00           LDA A   #$00
00600 E005 B7 8005         STA A   PIAC
00610 E008 B7 8007         STA A   PIBC       CLR CNTRL REGS
00620 E00B B7 8004         STA A   PIAD       A SIDE IN
00630 E00E C6 FF           LDA B   #$FF
00640 E010 F7 8006         STA B   PIBD       B SIDE OUT
00650 E013 86 16           LDA A   #%00010110
00660 E015 B7 8005         STA A   PIAC       SET UP FOR RTTY
00670 E018 C6 3F           LDA B   #%00111111
00680 E01A F7 8007         STA B   PIBC       SET UP FOR RTTY
00690 E01D 86 03           LDA A   #$03
00700 E01F B7 8040         STA A   ACIAS      RESET ACIA
00710 E022 C6 D1           LDA B   #$D1       8 CHARS 2 STOP IRQ
00720 E024 F7 8040         STA B   ACIAS      NO PARITY DIVIDE BY 16
00730 E027 8E 007F         LDS     #SPOINT

00740 E02A 86 20           LDA A   #32        SET RECEIVE ####
00750 E02C 97 0D           STA A   RXCH
00760 E02E C6 40           LDA B   #64        SET TRANSMIT ####
00770 E030 D7 0E           STA B   TXCH
00780                *
00790 E032 CE E0D6 LDM     LDX     #MESS1
00800 E035 BD E0CA         JSR     OUTM
00810 E038 BD 3C           BSR     INCH
00820 E03A 81 52           CMP A   #$52       R=RTTY!
00830 E03C 27 0C           BEQ     RTTY
00840 E03E 81 4D           CMP A   #$4D       M=MORSE!
00850 E040 27 02           BEQ     MORSE
00860 E042 20 EE           BRA     LDM        INCORRECT RESPONSE!
00870 E044 7F 0009 MORSE   CLR     RTTYM
00880 E047 7E E45B         JMP     GOM
00890 E04A C6 01    RTTY   LDA B   #$01
00900 E04C D7 09           STA B   RTTYM      SET FOR RTTY
00910 E04E CE E0FE         LDX     #MESS2
00920 E051 BD E0CA         JSR     OUTM
00930 E054 BD 20           BSR     INCH
00940 E056 81 4E           CMP A   #$4E       N=NO AUTO
00950 E058 27 0C           BEQ     NOAUT
00960 E05A 81 59           CMP A   #$59       Y=AUTO
00970 E05C 27 02           BEQ     YAUT
00980 E05E 20 EA           BRA     RTTY       INCORRECT RESPONSE!
00990 E060 C6 01    YAUT   LDA B   #$01
01000 E062 D7 08           STA B   AUTCR      SET FLAG
01010 E064 20 03           BRA     TXRX
01020 E066 7F 0008 NOAUT   CLR     AUTCR
01030 E069 B6 8004 TXRX    LDA A   PIAD
01040 E06C 85 20           BIT A   #%00100000
01050 E06E 27 03           BEQ     TX         IX=0!
01060 E070 7E E2E7 RX      JMP     GORX
01070 E073 7E E14F TX      JMP     GOTX
01080                *
01090 E076 F6 8040 INCH    LDA B   ACIAS
01100 E079 57              ASR B
01110 E07A 24 FA           BCC     INCH
01120 E07C B6 8041         LDA A   ACIAD
01130 E07F 84 7F           AND A   #$7F
01140 E081 39              RTS
01150                *
01160 E082 F6 8040 INC     LDA B   ACIAS
01170 E085 57              ASR B
01180 E086 B6 8004         LDA A   PIAD
01190 E089 85 20           BIT A   #$20       TX OR RX?
01200 E08B 27 03           BEQ     GON
01210 E08D 7E E2E7         JMP     GORX
01220 E090 24 F0    GON    BCC     INC
01230 E092 B6 8041         LDA A   ACIAD
01240 E095 84 7F           AND A   #$7F
01250 E097 81 0D           CMP A   #$0D
01260 E099 27 16           BEQ     RESRX
01270 E09B 81 0A           CMP A   #$0A
01280 E09D 27 16           BEQ     RESRX
01290 E09F 7A 0007         DEC     RXCNT
01300 E0A2 27 07           BEQ     GOLF
01310 E0A4 D6 07           LDA B   RXCNT
01320 E0A6 C1 06           CMP B   #6
01330 E0A8 23 10           BLS     TSPA
01340 E0AA 39              RTS
01350 E0AB 36       GOLF   PSH A
01360 E0AC B6 0D           LDA A   #$0D
01370 E0AF BD 0F           BSR     OUTCH
01380 E0B1 B6 0A           LDA A   #$0A
01390 E0B3 BD 0B           BSR     OUTCH
01400 E0B5 32              PUL A
01410 E0B6 D6 0D    RESRX  LDA B   RXCH
01420 E0B8 D7 07           STA B   RXCNT
01430 E0BA 39              RTS
01440 E0BB 81 20    TSPA   CMP A   #$20
01450 E0BD 27 ED           BEQ     GOLF
01460 E0BF 39              RTS
```

Programme continued p18



The design was dictated by the devices I could find in the junk box, as so often is the case, with equipment homebrewed by amatuers. If you wish to be more 'with it' the UART used in the design could be replaced by a more modern software programmable VIA. The software would need some minor adjustments to accommodate the new hardware lineup and obviously the printed circuit board layout would also need some surgery. There are a few Bytes of unused space in the ROM which could be used for additional keyboard control by the inclusion of appropriate routines within the software.

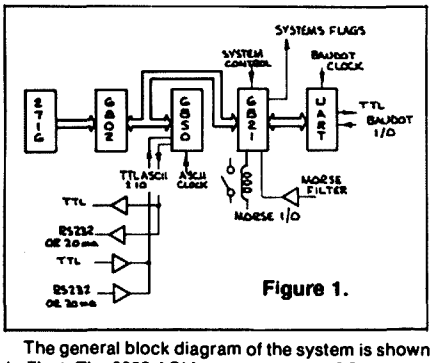


Figure 1.

The general block diagram of the system is shown in Fig 1. The 6850 ACIA accepts serial ASCII data at TTL level and is the interface between the VDU or ASCII teleprinter and the microprocessor. The 6821 PIA is used for control and flag functions in both the RTTY and Morse modes and also drives the UART in the RTTY mode. The UART performs the parallel to serial and serial to parallel conversion of the Baudot data.

The 2716 ROM contains the control software for the whole system and the 6802 is the microprocessor with 128 Bytes of on-board RAM. 555 clocks were used for both the Baudot and ASCII ports; again the junk box rules. Other clock systems can be used if you wish a wider selection of code speeds.

The software is a conglomerate of self written, re-assembled and modified routines from amateur sources.

In particular, the very clever ASCII-Baudot look-up tables originated from Ken Palliser VK3GJ as written for the RTTY repeater in Melbourne. A complete listing of software and associated flowcharts are provided for those who wish to hand load a ROM or conduct modifications to suit their own particular application.

I am prepared to programme 2716 ROMs if you send me a clean 2716 and a suitable SAE or jiffy bag for return mail. As the software can accommodate a variety of line formats you should also indicate the number of characters in a line in your system. I can also 'customise' the ROM with your own name if required.

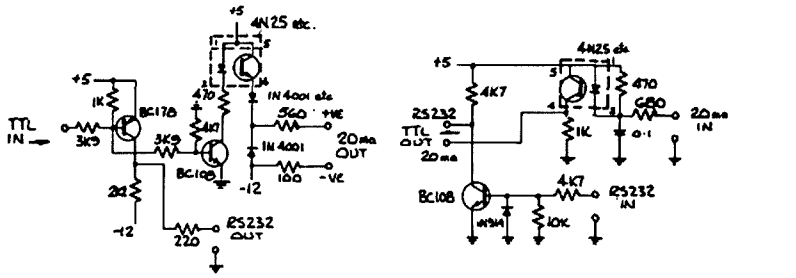
The wiring of the system requires normal good soldering techniques but is fairly non-critical, but of course like all computers there is quite a lot of it to be done if you decide to use veroboard or similar. I have not included the microprocessor system wiring in this article so if you decide to go that way you need to be

Continued p19

VK3BFG RTTY — MORSE

```
01470                    *
01480 E0BF F6 8040 OUTCH  LDA B  ACIAS
01490 E0C2 57             ASR B
01500 E0C3 57             ASR B
01510 E0C4 24 F9          BCC    OUTCH
01520 E0C6 B7 8041        STA A  ACIAD
01530 E0C9 39             RTS
01540                    *
01550 E0CA A6 00  OUTH    LDA A  $0,X
01560 E0CC B1 04          CMP A  #$04
01570 E0CE 27 05          BEQ    ENDM
01580 E0D0 BD ED          BSR    OUTCH
01590 E0D2 08             INX
01600 E0D3 20 F5          BRA    OUTH
01610 E0D5 39     ENDM    RTS
01620                    *
01630 E0D6 0D     MESS1   FCB    $0D,$0A,$0A
01640 E0D9 56             FCC    /VK3BFG RTTYMORSE/
01650 E0E9 0D             FCB    $0D,$0A,$0A
01660 E0EC 4D             FCC    /MORSE OR RTTY?/
01670 E0FA 0D             FCB    $0D,$0A,$0A
01680 E0FD 04             FCB    $04
01690 E0FE 0D     MESS2   FCB    $0D,$0A,$0A
01700 E101 41             FCC    /AUTO CR AND LF?/
01710 E110 0D             FCB    $0D,$0A,$0A
01720 E113 04             FCB    $04
01730 E114 0D     MESS3   FCB    $0D,$0A,$0A
01740 E117 52             FCC    /READY TO TRANSMIT!/
01750 E129 0D             FCB    $0D,$0A,$0A
01760 E12C 04             FCB    $04
01770 E12D 0D     MESS4   FCB    $0D,$0A,$0A
01780 E130 52             FCC    /RECEIVING!/
01790 E13A 0D             FCB    $0D,$0A,$0A
01800 E13D 04             FCB    $04
01810 E13E 0D     MESS5   FCB    $0D,$0A,$0A
01820 E141 46             FCC    /FIFO FULL!/
01830 E14B 0D             FCB    $0D,$0A,$0A
01840 E14E 04             FCB    $04
01850                    *
01860                    *TRANSMIT ROUTINE
01870                    *
01880 E14F 8E 007F GOTX   LDS    #SPOINT  RESET STACK
01890 E152 CE 0050        LDX    #FIFTOP
01900 E155 DF 00          STX    FSTACK   RESET FSTACK
01910 E157 C6 01          LDA B  #$01
01920 E159 D7 0A          STA B  NOSTR
01930 E15B 96 0E  GOON    LDA A  TXCH
01940 E15D 97 06          STA A  TXCNT    SET TX COUNT
01950 E15F 96 0D          LDA A  RXCH
01960 E161 97 07          STA A  RXCNT
01970 E163 C6 04          LDA B  #%00000100
01980 E165 F7 8006        STA B  PIBD     SET TX FLAG
01990 E168 86 04          LDA A  #$04     TIME DELAY
02000 E16A CE FFFF DELI   LDX    #$FFFF
02010 E16D 09      DEL    DEX
02020 E16E 26 FD          BNE    DEL
02030 E170 4A             DEC A
02040 E171 26 F7          BNE    DEL1
02050 E173 86 14          LDA A  #%00010100
02060 E175 8B 08          BSR    GOB      SEND BAUDOT CR
02070 E177 86 44          LDA A  #%01000100
02080 E179 8D 04          BSR    GOB
02090 E17B 8D 02          BSR    GOB      SEND 2 BAUDOT LF
02100 E17D 20 19          BRA    CONT
02110                    *
02120 E17F B7 8006 GOB    STA A  PIBD     DUMP CHAR
02130 E182 C6 37          LDA B  #$37
02140 E184 F7 8007        STA B  PIBC     CB2 LOW TDS
02150 E187 01             NOP
02160 E188 C6 3F          LDA B  #$3F
02170 E18A F7 8007        STA B  PIBC     CB2 HIGH
02180 E18D F6 8006        LDA B  PIBD     CLEAR IRQB!
02190 E190 F6 8007 RDY    LDA B  PIBC
02200 E193 C5 80          BIT B  #$80     READY?
02210 E195 27 F9          BEQ    RDY
02220 E197 39             RTS
02230                    *
02240 E198 CE E114 CONT   LDX    #MESS3
02250 E19B BD E0CA        JSR    OUTH
02260                    *
02270 E19E BD E082 GET    JSR    INC      GET FIRST BYTE
02280 E1A1 BD E0BF        JSR    OUTCH    ECHO IT
02290 E1A4 85 40          BIT A  #$40     FIG OR LTR?
02300 E1A6 26 04          BNE    LTRS
02310 E1A8 C6 6C          LDA B  #$6C     GET FIG SHIFT
02320 E1AA 20 02          BRA    SET
02330 E1AC C6 7C  LTRS    LDA B  #$7C     GET LTR SHIFT
02340 E1AE D7 0C  SET     STA B  SHIFT
02350 E1B0 D6 08          LDA B  AUTCR
02360 E1B2 C5 01          BIT B  #$01
02370 E1B4 27 08          BEQ    GORTY
02380 E1B6 81 0D          CMP A  #$0D     CR?
02390 E1B8 27 E4          BEQ    GET
02400 E1BA 81 0A          CMP A  #$0A     LF?
02410 E1BC 27 E0          BEQ    GET
02420 E1BE 8D 69  GORTY   BSR    FINDB    NO STORE!
02430 E1C0 7F 000A        CLR    NOSTR
02440 E1C3 BD E2D3        JSR    DUMP     DUMP FIRST CHAR!
02450 E1C6 7A 0006        DEC    TXCNT
02460 E1C9 F6 8006        LDA B  PIBD     CLEAR IRQB!
02470 E1CC F6 8041        LDA B  ACIAD    CLEAR ACIA IRQ!
02480 E1CF 0E             CLI            CLEAR IRQ MASK
02490                    *
02500 E1D0 B6 8004 TSTRX  LDA A  PIAD
02510 E1D3 85 20          BIT A  #$20     RX?
02520 E1D5 27 F9          BEQ    TSTRX
02530 E1D7 7E E2E7        JMP    GORX
02540                    *
02550 E1DA 96 09  IRQA    LDA A  RTTYM
02560 E1DC 85 01          BIT A  #$01
02570 E1DE 26 03          BNE    IRQON
02580 E1E0 7E E4AC        JMP    IRQM
02590 E1E3 F6 8040 IRQON  LDA B  ACIAS
02600 E1E6 C5 80          BIT B  #$80     IRQA?
02610 E1E8 26 03          BNE    GOA
02620 E1EA 7E E28B GOOD   JMP    IRQB
02630 E1ED 8D E082 GOA    JSR    INC      GET BYTE
02640 E1F0 8D E0BF        JSR    OUTCH
02650 E1F3 D6 08          LDA B  AUTCR
02660 E1F5 C5 01          BIT B  #$01
02670 E1F7 26 04          BNE    CRLF
02680 E1F9 8D 2E  FBAUD   BSR    FINDB    FINB AND STORE
02690 E1FB 20 ED          BRA    GOOB
02700 E1FD 81 0D  CRLF    CMP A  #$0B     CR?
02710 E1FF 27 E9          BEQ    GOOB
02720 E201 81 0A          CMP A  #$0A     LF?
02730 E203 27 E5          BEQ    GOOB
02740 E205 8D 02          BSR    CRLFS
02750 E207 20 F0          BRA    FBAUD
02760                    *
02770 E209 7A 0006 CRLFS  DEC    TXCNT
02780 E20C 27 0C          BEQ    SAVE
02790 E20E D6 06          LDA B  TXCNT
02800 E210 C1 06          CMP B  #6
02810 E212 23 01          BLS    TESTS
02820 E214 39             RTS
02830 E215 81 20  TESTS   CMP A  #$20
02840 E217 27 01          BEQ    SAVE
02850 E219 39             RTS
02860 E21A 36     SAVE    PSH A          SAVE ASCII BYTE
02870 E21B 86 0B          LDA A  #$0B     BAUDOT CR
02880 E21D 8D 46          BSR    STORE
02890 E21F 86 20          LDA A  #$20     BAUDOT LF
02900 E221 8D 42          BSR    STORE
02910 E223 32             PUL A          GET ASCII BYTE
02920 E224 D6 0E          LDA B  TXCH
02930 E226 D7 06          STA B  TXCNT
02940 E228 39             RTS
02950                    *
02960 E229 CE E37C FINDB  LDX    #TABLE
02970 E22C A1 00  LOKBDT  CMP A  $0,X
02980 E22E 26 0F          BNE    STEP1
02990 E230 C6 7C          LDA B  #$7C
03000 E232 D1 0C          CMP B  SHIFT
03010 E234 27 05          BEQ    SENDIT
03020 E236 D7 0C          STA B  SHIFT
03030 E238 17             TBA
03040 E239 8D 2A          BSR    STORE
03050 E23B A6 02  SENDIT  LDA A  $2,X
03060 E23D 20 1D          BRA    OUT
03070 E23F A1 01  STEP1   CMP A  $1,X
03080 E241 26 0D          BNE    STEPON
03090 E243 C6 6C          LDA B  #$6C
03100 E245 D1 0C          CMP B  SHIFT
03110 E247 27 F2          BEQ    SENDIT
03120 E249 D7 0C          STA B  SHIFT
03130 E24B 17             TBA
03140 E24C 8D 17          BSR    STORE
03150 E24E 20 EB          BRA    SENDIT
03160 E250 08     STEPON  INX
03170 E251 08             INX
03180 E252 08             INX
03190 E253 8C E3D6        CPX    #TABEND
03200 E256 27 02          BEQ    EXTOUT   NOT FOUND!
03210 E258 20 D2          BRA    LOKBDT
03220 E25A 86 7C  EXTOUT  LDA A  #$7C     SEND LTR SHIFT!
03230 E25C D6 0A  OUT     LDA B  NOSTR
03240 E25E C1 01          CMP B  #$01     FIRST CHAR?
03250 E260 27 02          BEQ    ENDF
03260 E262 20 01          BRA    STORE
03270 E264 39     ENDF    RTS
03280                    *
03290 E265 DF 04  STORE   STX    XSTACK
03300 E267 9F 02          STS    FSTACK
03310 E269 9E 00          LDS    FSTACK
03320 E26B 36             PSH A
03330 E26C 9F 00          STS    FSTACK
03340 E26E DE 00          LDX    FSTACK
03350 E270 8C 000F        CPX    #ENDFIF
03360 E273 26 11          BNE    OUTS
03370 E275 C6 06  FULL    LDA B  #$06
03380 E277 F7 8006        STA B  PIBB     FLAG IT TX ON
03390 E27A CE E13E        LDX    #MESS5
```

Programme continued p20



20mA — RS232 Interface.

familiar with 6800 systems or find someone who can *fill in the details*'.

I recommend using the printed circuit board as provided as this leaves little source for error. My unit was actually wired on a micro-system prototype board but working units have been made using the final layout so it is not unproven. Note that the layout is positive and hence could be used as a photocopy transparency master for use with positive resist available from your local hobby shop.

Talking of printed circuit boards, Keith Haslam of Eastern Communications has a few available that he has populated. Give Keith a call if you are interested and if there is sufficient demand Keith may be able to supply PCBs only as well.

Full size PCB Layout on page 26.

PLEASE NOTE

Some PIAs exhibit faulty reading of the CA2 line; which is used to indicate Baudot data is ready for transfer to the 6821 from the UART. A modification is shown on the circuit diagram using a spare gate on the board. Cut the track between pin 6 of the appropriate 7400 and pin 39 of the PIA: Rewire as shown and all should be well.

FRONT PANEL MODES AND OPERATION

1 45.5/50 Baudot speed select. For amateur operation select 45.5. For commercial RTTY select 50.
2 110/300 ASCII speed selection is dependent on the VDU or teleprinter used. Other speeds are possible by suitable modification to the ASCII clocks on the board.
3 SPEED — Controls the speed of Morse in the transmit mode.
4 FILTER — Selects the 200 Hz, 40 Hz or processed CW audio from the receiver.
5 PHONES — Headphone output for tuning Morse.
6 MORSE LED — Output indicating correct tuning of the receiver for Morse.
7 FIFO LED — Output indicating storage buffer full. (This is also printed out on the VDU or ASCII teleprinter.)
8 TX LED — Output indicating transmit mode in both RTTY and Morse.
9 RX LED — Output indicating receive mode in both RTTY and Morse.
10 UNSHIFT — Controls the selection of unshift on space in the RTTY mode. Normally I leave this on.

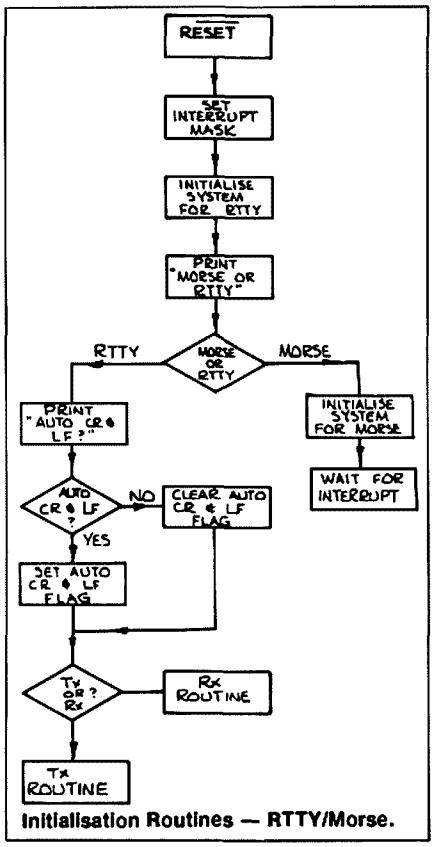
KEYBOARD OPERATION

The unit will automatically initialise when the power is switched on. Providing the ASCII clock is correct, the system will print 'VK3BFGRTTYMORSE' and then the question 'MORSE OR RTTY?'

There are only two valid responses.

Type the letter M — the system will initialise into the Morse mode and the VDU or teleprinter will print 'READY'.

In this mode the unit is automatically in receive but will go to transmit if any valid key is depressed. There are a number of ASCII codes that have no equivalent in Morse. If any of these keys are depressed the print will be an ASCII 'hash' and the system will remain in the receive mode. The unit is therefore set up for full break in operation for Morse code.



Initialisation Routines — RTTY/Morse.

Tuning of the receiver is quite critical. Listen on the headphones in the 200 Hz position of the filter switch. Centre the tuning and repeat in the 40 Hz and processed positions. The processed audio is a hard tone and with a little bit of practice you can recognise when the tuning is correct. Like all computer Morse receivers the accuracy of the print out is dependent on the quality of the Morse sent.

Type the letter R — the system will print out the question 'AUTO CR AND LF?' Again there are only two valid responses.

Type the letter Y — the system will automatically send CR and LF to you and the receiving station.

Type the letter N — the system will send CR and LF when those keys are depressed on your VDU or teleprinter.

In both modes any invalid response will simply cause a repeat of the previous printout.

Transmit and receive in the RTTY mode is *controlled* by a switch in my modem to pin 7 of the 6821 in the RTTYMORSE unit.

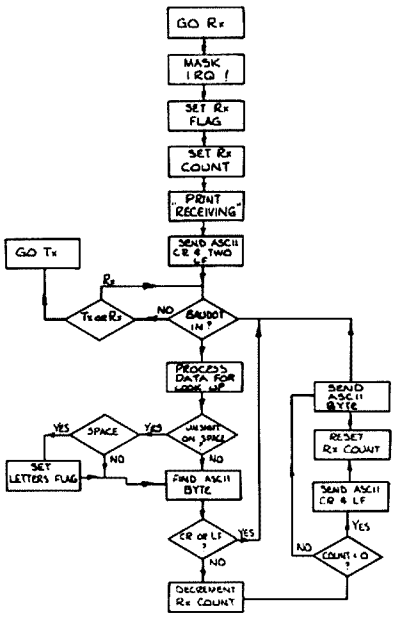
If you are starting from scratch there is no reason why the RTTYMORSE unit and the modem should not be in the same box.

Continued p21

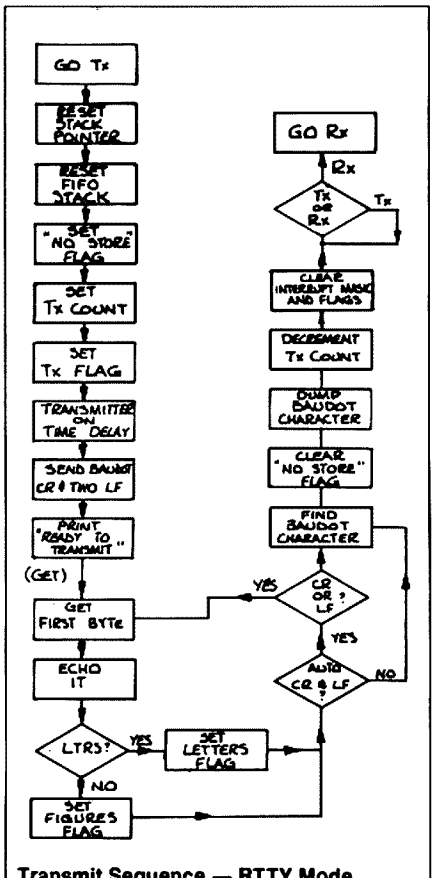
VK3BFG RTTY — MORSE

```
03400 E27D BD LOCA      JSR    OUTM
03410 E280 CE FFFF      LDX    #$FFFF
03420 E283 09      DEL2 DEX
03430 E284 26 FD        BNE    DEL2
03440 E286 9E 02   OUTS LDS    FSTACK
03450 E288 DE 04        LDX    XSTACK
03460 E28A 39           RTS
03470              *
03480 E28B B6 8007 IRQB LDA A  PIBC
03490 E28E 85 80        BIT A  #$80
03500 E290 27 1F        BEQ    ENDI
03510 E292 DE 00        LDX    FSTACK
03520 E294 8C 0050      CPX    #FIFTOP
03530 E297 27 1C        BEQ    ENDO     NO DATA IN STORE!
03540 E299 C6 04        LDA B  #$04
03550 E29B F7 8006      STA B  PIBD     CLR FIFO FLAG TX ON
03560 E29E 96 50   GETF LDA A  FIFTOP   GET BAUDOT CHAR
03570 E2A0 8D 31        BSR    DUMP
03580 E2A2 CE 0050      LDX    #FIFTOP
03590 E2A5 09      DLOOP DEX
03600 E2A6 E6 00        LDA B  $0,X
03610 E2A8 E7 01        STA B  $1,X
03620 E2AA 9C 00        CPX    FSTACK
03630 E2AC 26 F7        BNE    DLOOP
03640 E2AE 7C 0001      INC    FSTACK+1
03650 E2B1 F6 8006 END1 LDA B  PIBD     CLEAR IRQB!
03660 E2B4 3B           RTI
03670 E2B5 BD E082 ENDO JSR    INC      GET BYTE
03680 E2B8 BD E0BF      JSR    OUTCH    ECHO IT
03690 E2BB D6 08        LDA B  AUTCR
03700 E2BD C5 01        BIT B  #$01     AUTO?
03710 E2BF 26 05        BNE    INTCR
03720 E2C1 BD E229 INTF JSR    FINDB    FIND AND STORE!
03730 E2C4 20 D8        BRA    GETF
03740              $
03750 E2C6 81 0D   INTCR CMP A  #$0D
03760 E2C8 27 EB        BEQ    ENDO
03770 E2CA 81 0A        CMP A  #$0A
03780 E2CC 27 E7        BEQ    ENDQ
03790 E2CE BD E209      JSR    CRLFS
03800 E2D1 20 EE        BRA    INTF
03810              *
03820 E2D3 48      DUMP ASL A
03830 E2D4 84 F8        AND A  #$F8     MASK 3 LSB
03840 E2D6 8A 04        ORA A  #$04
03850 E2D8 B7 8006      STA A  PIBD     DUMP,CLR FIFO FLAG TX ON
03860 E2DB C6 37        LDA B  #$37
03870 E2DD F7 8007      STA B  PIBC     CB2 LOW TDS
03880 E2E0 01           NOP
03890 E2E1 C6 3F        LDA B  #$3F
03900 E2E3 F7 8007      STA B  PIBC     CB2 HIGH
03910 E2E6 39           RTS
03920              *
03930              *RECEIVE ROUTINE
03940              *
03950 E2E7 01      GORX NOP
03960 E2E8 0F           SEI
03970 E2E9 01           NOP
03980 E2EA 7F 8006      CLR    PIBD     RX FLAG ON!
03990 E2ED 7F 000B      CLR    FIGLET   ASSUME FIRST CHAR IS A LTR!
04000 E2F0 96 0D        LDA A  RXCH
04010 E2F2 97 07        STA A  RXCNT    SET RX COUNT
04020 E2F4 CE E12D      LDX    #MESS4
04030 E2F7 BD E0CA      JSR    OUTM
04040              *
04050 E2FA F6 8004 RXING LDA B PIAD
04060 E2FD C5 20        BIT B  #$20     TX?
04070 E2FF 27 02        BEQ    TXING
04080 E301 20 03        BRA    RXON
04090 E303 7E E14F TXING JMP   GOTX
04100 E306 F6 8005 RXON  LDA B PIAC
04110 E309 C5 40        BIT B  #$40     CA2 FLAG?
04120 E30B 27 ED        BEQ    RXING    NO INCOMING DATA!
04130 E30D B6 8004      LDA A  PIAD     GET BAUDOT CHAR
04140 E310 48           ASL A
04150 E311 48           ASL A
04160 E312 84 7F        AND A  #$7F     MASK!
04170 E314 F6 8004      LDA B  PIAD
04180 E317 C5 40        BIT B  #$40     TEST UNSHIFT!
04190 E319 27 07        BEQ    FINDA
04200 E31B 81 10        CMP A  #$10     BAUDOT SPACE?
04210 E31D 26 03        BNE    FINDA
04220 E31F 7F 000B      CLR    FIGLET   SET LTRS!
04230              *
04240 E322 CE E37C FINDA LDX   #TABLE
04250 E325 A1 02   LOKASC CMP A $2,X
04260 E327 27 0A        BEQ    FNDASC
04270 E329 08           INX
04280 E32A 08           INX
04290 E32B 08           INX
04300 E32C 8C E3D6      CPX    #TABEND
04310 E32F 27 0F        BEQ    NOTFND
04320 E331 20 F2        BRA    LOKASC
04330 E333 7D 000B FNDASC TST  FIGLET
04340 E336 26 04        BNE    ISAFIG
04350 E338 A6 00        LDA A  $0,X     IS LETTER,GET IT!
04360 E33A 20 16        BRA    GOTASC
04370 E33C A6 01   ISAFIG LDA A $1,X
04380 E33E 20 12        BRA    GOTASC
04390 E340 81 6C   NOTFND CMP A #$6C
04400 E342 26 05        BNE    NFSHFT
04410 E344 7C 000B      INC    FIGLET
04420 E347 20 07        BRA    EXTREC
04430 E349 81 7C   NFSHFT CMP A #$7C
04440 E34B 26 03        BNE    EXTREC
04450 E34D 7F 000B      CLR    FIGLET
04460 E350 20 A8   EXTREC BRA   RXING    NO VALID ASCII CHAR!
04470              *
04480 E352 81 0D   GOTASC CMP A #$0D
04490 E354 27 08        BEQ    OUTA
04500 E356 81 0A        CMP A  #$0A
04510 E358 26 07        BNE    TESTRX
04520 E35A 86 20        LDA A  #$20
04530 E35C 20 03        BRA    TESTRX
04540 E35E 7E E2FA OUTA  JMP   RXING
04550 E361 7A 0007 TESTRX DEC  RXCNT
04560 E364 26 10        BNE    DUMPA
04570 E366 36           PSH A
04580 E367 86 0D        LDA A  #$0D
04590 E369 BD E0BF      JSR    OUTCH
04600 E36C 86 0A        LDA A  #$0A
04610 E36E BD E0BF      JSR    OUTCH
04620 E371 D6 0D        LDA B  RXCH
04630 E373 D7 07        STA B  RXCNT    RESET RX COUNT
04640 E375 32           PUL A
04650 E376 BD E0BF DUMPA JSR   OUTCH
04660 E379 7E E2FA      JMP    RXING
04670              *
04680 E37C 41      TABLE FCB   $41,$2D,$60,$42,$3F,$4C
04690 E382 43           FCB    $43,$3A,$38,$44,$23,$48
04700 E388 45           FCB    $45,$33,$40,$46,$25,$58
04710 E38E 47           FCB    $47,$24,$2C,$48,$2A,$14
04720 E394 49           FCB    $49,$38,$30,$4A,$07,$68
04730 E39A 4B           FCB    $4B,$28,$78,$4C,$29,$24
04740 E3A0 4D           FCB    $4D,$2E,$1C,$4E,$2C,$18
04750 E3A6 4F           FCB    $4F,$39,$0C,$50,$30,$34
04760 E3AC 51           FCB    $51,$31,$74,$52,$34,$28
04770 E3B2 53           FCB    $53,$27,$50,$54,$35,$04
04780 E3B8 55           FCB    $55,$37,$70,$56,$3D,$3C
04790 E3BE 57           FCB    $57,$32,$64,$58,$2F,$5C
04800 E3C4 59           FCB    $59,$36,$54,$5A,$2B,$44
04810              #MACHINE CHARACTERS
04820 E3CA 0D           FCB    $0D,$0D,$08,$0A,$0A,$20
04830 E3D0 20           FCB    $20,$20,$10,$5E,$5E,$00
04840 E3D6 00      TABEND FCB   $00
04850              *
04860              #MORSE MODE
04870              *
04880              #SYSTEM VARIABLES
04890              *
04900 0010                ORG    $0010
04910              *
04920 0010 0002    CVCX   RMB    2
04930 0012 0002    SAVEX  RMB    2
04940 0014 0001    COUNT  RMB    1
04950 0015 0001    RESMSK RMB    1
04960 0016 0001    BUFLAG RMB    1
04970 0017 0001    COSTA  RMB    1
04980 0018 0001    LETYPE RMB    1
04990 0019 0001    HLETIM RMB    1
05000 001A 0001    TLETIM RMB    1
05010 001B 0001    SPEEDK RMB    1
05020 001C 0001    RCHAR  RMB    1
05030 001D 0001    LDATIM RMB    1
05040 001E 0001    TOLDAT RMB    1
05050 001F 0001    TLDAT  RMB    1
05060 0020 0001    KDTIM  RMB    1
05070 0021 0001    KUTIM  RMB    1
05080 0022 0001    CHCTR  RMB    1
05090 0023 0001    RECX   RMB    1
05100 0024 0040    BUFBOT RMB    64
05110 0064 0001    BUFTOP RMB    1
05120 0065 0001    RXCHM  RMB    1
05130              *
05140 E400                ORG    $E400
05150              *
05160 E400 00      CODE   FCB    0,$B4,$BB,$54,$16,0,$14,0
05170 E408 01             FCB    1,0,0,0,0,$21,0,0
05180 E410 00             FCB    0,0,0,0,0,0,0,0
05190 E418 00             FCB    0,0,0,$44,0,0,0,0
05200 E420 21      RTAB   FCB    $21,0,$4A,0,0,0,0,$7A
05210 E428 B6             FCB    $B6,$D2,0,0,$CE,$86,$56,$94
05220 E430 FC             FCB    $FC,$7C,$3C,$1C,$0C,4,$84,$C4
05230 E438 E4             FCB    $E4,$F4,$E2,$AA,0,$8C,0,$32
05240 E440 00             FCB    0,$60,$88,$A8,$90,$40,$28,$110
05250 E448 08             FCB    $08,$20,$78,$B0,$48,$E0,$A0,$F0
05260 E450 68             FCB    $68,$D8,$50,$10,$C0,$30,$18,$70
05270 E458 98             FCB    $98,$B8,$C8
05280              *
05290              #INITIALISE FOR MORSE
05300              *
05310 E45B CE 007F GOM    LDX    #$7F     INIT MORSE
05320 E45E 6F 00   L1     CLR    0,X
```

Programme continued p22



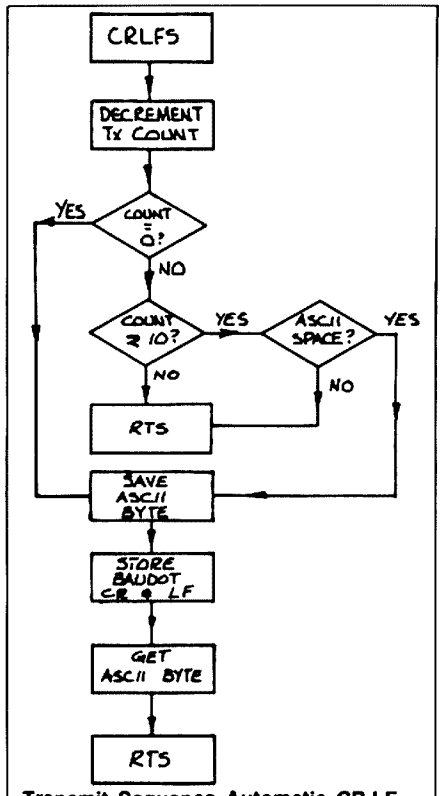
Receive Sequence — RTTY Mode.



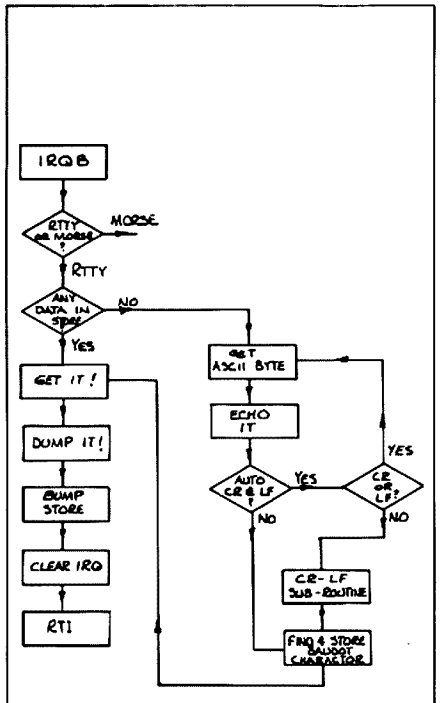
Transmit Sequence — RTTY Mode.

A short delay from receive to transmit is in-built in the system.

During this time the transmit key line will be active and an automatic CR and LF sent. 'READY TO TRANSMIT' and 'RECEIVING' printouts assist the operator.



Transmit Sequence Automatic CR-LF Subroutine — RTTY Mode.



Transmit Sequence IRQB Request — RTTY Mode.

Continued p23

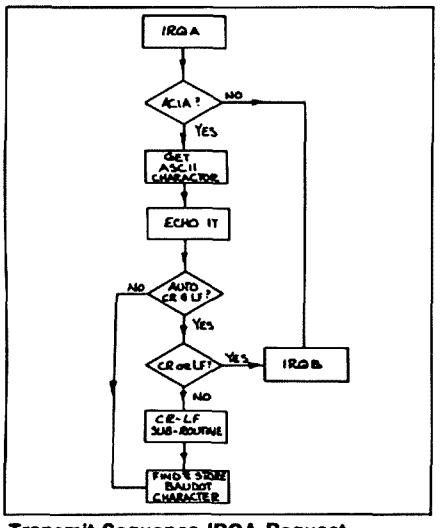
VK3BFG RTTY — MORSE

```
05330 E460 09            BEX
05340 E461 26 FB         BNE    L1
05350 E463 CE 0F01       LDX    ##0F01
05360 E466 DF 1B         STX    SPEEDK
05370 E468 86 40         LDA A  #64
05380 E46A 97 64         STA A  BUFTOP
05390 E46C CE E400       LDX    #CODE
05400 E46F DF 10         STX    CVCX

05410 E471 CE 0064       LDX    #BUFTOP
05420 E474 DF 12         STX    SAVEX
05430 E476 CE 8004       LDX    #PIAD
05440 E479 6F 01         CLR    1,X
05450 E47B 6F 03         CLR    3,X
05460 E47D 8E 0007       LBS    ##0007
05470 E480 AF 00         STS    0,X
05480 E482 8E FF34       LBS    ##FF34
05490 E485 AF 02         STS    2,X
05500 E487 A6 00         LDA A  0,X
05510 E489 A6 02         LDA A  2,X
05520 E48B 8E 007F       LDS    #SPOINT
05530 E48E C6 20         LDA B  #32       SET RECEIVE #*#*
05540 E490 D7 65         STA B  RXCHM
05550 E492 D7 07         STA B  RXCNT
05560 E494 CE E4A0       LDX    #MESS6
05570 E497 BD E0CA       JSR    OUTM
05580 E49A 01            NOP
05590 E49B 0E            CLI
05600 E49C 01            NOP
05610 E49D 3E       EXEC WAI
05620 E49E 20 FD         BRA    EXEC
05630               *
05640 E4A0 0D       MESS6 FCB   #0D,#0A,#0A
05650 E4A3 52            FCC    /READY/
05660 E4A8 0D            FCB    #0D,#0A,#0A
05670 E4AB 04            FCB    #04
05680               *
05690 E4AC 7D 8005  IROM  TST    PIAC
05700 E4AF 2B 0E         BMI    POLL2
05710 E4B1 7B 8040       TST    ACIAS
05720 E4B4 2B 68         BMI    COMMR1
05730 E4B6 7D 0016       TST    BUFLAG
05740 E4B9 2B 03         BMI    NOTRCV
05750 E4BB 7E E5F7       JMP    REC
05760 E4BE 3B       NOTRCV RTI
05770               *
05780 E4BF F6 8004  POLL2 LDA B  PIAD
05790 E4L2 F6 8006       LDA B  PIBD
05800 E4C5 CA 04         ORA D  #4
05810 E4C7 F7 8006       STA B  PIBB
05820 E4CA 96 17         LDA A  COSTA
05830 E4CC 2A 07         BPL    CFDAM
05840 E4CE C6 7F         LDA B  ##7F
05850 E4B0 D7 15         STA B  RESMSK
05860 E4D2 5F       CES1 CLR B
05870 E4D3 20 29         BRA    CKCNT
05880 E4B5 48       CFDAH ASL A
05890 E4D6 2A 08         BPL    CFES
05900 E4DB C6 BF         LDA B  ##BF
05910 E4DA B7 15         STA B  RESMSK
05920 E4BC C6 04         LDA B  #4
05930 E4DE 20 1E         BRA    CKCNT
05940               *
05950 E4E0 48       CFES  ASL A
05960 E4E1 2A 0A         BPL    CFWS
05970 E4E3 C6 DF         LDA B  ##DF
05980 E4E5 D7 15         STA B  RESMSK
05990 E4E7 8D 2C         DSR    SOZERO
06000 E4E9 C6 01         LDA B  #1
06010 E4EB 20 11         BRA    CKCNT
06020 E4ED 48       CFWS  ASL A
06030 E4EE 2A 08         BPL    CFCS
06040 E4F0 C6 EF         LDA B  ##EF
06050 E4F2 B7 15         STA B  RESMSK
06060 E4F4 C6 08         LDA B  #8
06070 E4F6 20 06         BRA    CKCNT
06080               *
06090 E4F8 C6 F7    CFCS  LDA D  ##F7
06100 E4FA D7 15         STA B  RESMSK
06110 E4FC C6 04         LDA B  #4
06120 E4FE D1 14    CKCNT CMP B  COUNT
06130 E500 27 06         BEQ    CK1
06140 E502 7C 0014       INC    COUNT
06150 E505 7E E4AC  RETRN JMP    IROM
06160               *
06170 E508 7F 0014  CK1  CLR    COUNT
06180 E50B 96 17         LDA A  COSTA
06190 L50D 94 15         AND A  RESMSK
06200 E50F 97 17         STA A  COSTA
06210 E511 26 F2         BNE    RETRN
06220 E513 20 14         BRA    GNEL
06230               *
06240 E515 B6 8006  SOZERO LDA A PIBD
06250 E518 84 FE         AND A  ##FE
06260 E51A B7 8006       STA A  PIBD
06270 E51D 39            RTS
06280 E51E 20 64    COMMR1 BRA   COMMR
06290               *
```

```
06300 E520 B6 8006  SOONE  LDA A  PIBD
06310 E523 8A 01           ORA A  #1
06320 E525 B7 8006         STA A  PIBD
06330 E528 39              RTS
06340               *
06350 E529 96 64    GNEL   LDA A  BUFTOP
06360 E52B 81 80           CMP A  ##80
06370 E52D 26 26           BNE    GNEL1
06380 E52F 86 08           LDA A  #8
06390 E531 97 17           STA A  COSTA
06400 E533 8D E0           BSR    SOZERO
06410 E535 DE 12           LBX    SAVEX
06420 E537 8C 0064         CPX    #BUFTOP
06430 E53A 26 09           BNE    GNELR
06440 E53C 96 16           LDA A  BUFLAG
06450 E53E 84 7F           AND A  ##7F
06460 E540 97 16           STA A  BUFLAG
06470 E542 7E E4AC         JMP    IROM
06480               *
06490 E545 8D 2D    GNELR  BSR    MOVUP
06500 E547 96 64           LDA A  BUFTOP
06510 E549 81 21           CMP A  ##21
06520 E54B 27 1A           BEQ    SWS
06530 E54D 7D 0017         TST    COSTA
06540 E550 27 03           BEQ    GNEL1
06550 E552 7E E4AC         JMP    IROM
06560               *
06570 E555 78 0064  GNEL1  ASL    BUFTOP
06580 E558 25 04           BCS    SODAH
06590 E55A 86 A0           LDA A  ##A0
06600 E55C 20 02           BRA    SOEL
06610               *
06620 E55E B6 60    SODAH  LDA A  #60
06630 E560 97 17    SOEL   STA A  COSTA
06640 E562 8D BC           BSR    SOONE
06650 E564 7E E4AC         JMP    IROM
06660 E567 86 80    SWS    LDA A  ##80
06670 E569 97 64           STA A  BUFTOP
06680 E56B 86 10           LDA A  #10
06690 E56D 97 17           STA A  COSTA
06700 E56F 8D A4           BSR    SOZERO
06710 E571 7E E4AC         JMP    IROM
06720               *
06730 E574 CE 0040  MOVUP  LDX    #BUFTOP-BUFBOT
06740 E577 A6 23    MOVI   LDA A  BUFBOT-1,X
06750 E579 A7 24           STA A  BUFBOT,X
06760 E57B 09              DEX
06770 E57C 26 F9           BNE    MOV1
06780 E57E DE 12           LBX    SAVEX
06790 E580 08              INX
06800 E581 DF 12           STX    SAVEX
06810 E583 39       MOVRT  RTS
06820               *
06830 E584 DE 12    COMMR  LDX    SAVEX
06840 E586 B6 8041         LDA A  ACIAD
06850 E589 84 7F           AND A  ##7F
06860 E58B 81 0D           CMP A  ##0D
06870 E58D 27 27           BEQ    OOUTC
06880 E58F 81 0A           CMP A  ##0A
06890 E591 27 23           BEQ    GOUTC
06900 E593 8C 0024         CPX    #BUFBOT
06910 E596 27 4E           BEQ    BUFFUL
06920 E598 81 5A           CMP A  ##5A
06930 E59A 22 53           BHI    BADCH
06940 E59C 97 11           STA A  CVCX+1
06950 E59E DE 10           LDX    CVCX
06960 E5A0 E6 00           LDA B  0,X
06970 E5A2 27 4B           BEQ    BADCH
06980 E5A4 DE 12           LDX    SAVEX
06990 E5A6 09              DEX
07000 E5A7 E7 00           STA B  0,X
07010 E5A9 DF 12           STX    SAVEX
07020 E5AB D6 16           LDA B  BUFLAG
07030 E5AD CA 80           ORA B  ##80
07040 E5AF D7 16           STA D  BUFLAG
07050 E5B1 8D 0C           BSR    OUTC
07060 E5B3 7E E4AC  ENDCM  JMP    IROM
07070               *
07080 E5B6 BD E0BF  OOUTC  JSR    OUTCH
07090 E5B9 D6 65           LDA B  RXCHM
07100 E5BB B7 07           STA B  RXCNT
07110 E5BD 20 F4           BRA    ENDCM
07120               *
07130 E5BF BD E0BF  OUTC   JSR    OUTCH
07140 E5C2 7A 0007         DEC    RXCNT
07150 E5C5 27 08           BEQ    GOCR
07160 E5C7 D6 07           LDA B  RXCNT
07170 E5C9 C1 06           CMP B  #6
07180 E5CB 23 11           BLS    TESS
07190 E5CD 20 0E           BRA    GOUT
07200 E5CF 86 0D    GOCR   LDA A  ##0D
07210 E5D1 BD E0BF         JSR    OUTCH
07220 E5D4 86 0A           LDA A  ##0A
07230 E5D6 BB E0BF         JSR    OUTCH
07240 E5D9 D6 65           LDA B  RXCHM
07250 E5DB D7 07           STA B  RXCNT
07260 E5DD 39       GOUT   RTS
```

Programme continued p24



Transmit Sequence IRQA Request — RTTY Mode.

ADJUSTMENT OF CLOCKS

As described the RTTYMORSE is self booting and is controlled by subsequent keyboard entries. The only set-up adjustment needed is the 555 clocks.

Using a frequency counter on pin 3 of each respective 555, adjust the ten turn potentiometer as follows —
45.5 Baud — 728 Hz
50 Baud — 800 Hz
110 Baud — 1760 Hz
300 Baud — 4800 Hz
in all cases sixteen times the required Baud rate.

Well, that's about it. I would be happy to answer any queries that you may have but unfortunately I cannot supply printed circuit boards for the project.

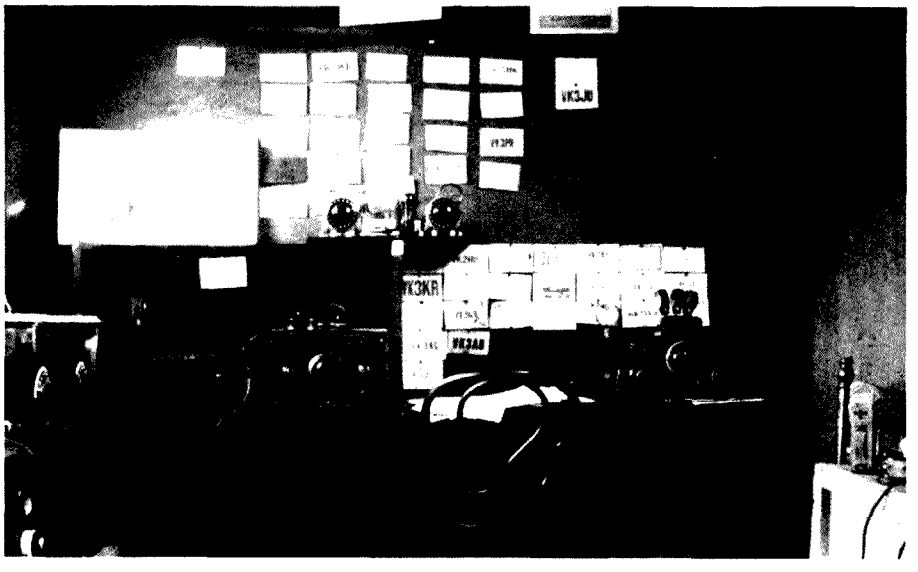
73 DE VK3BFG SK SK

AR

1 Editor's Note
These include address/data and control lines as well as the microprocessor and ROM. They are shown in Fig 1 but not on the schematic.

Schematic Diagram on page 25. Full size printed circuit board layout on page 26.

THUMBNAIL SKETCHES



STAN TONKIN VK5SG ex VK2SG

Stan's licence was issued in June 1929. He held the call sign VK2SG from 1929-1955 when he became VK5SG — a call he still holds today.

His working life was completely involved in radio —1931 at 2AY, Albury, 1933 International Radio Company in Sydney, 1934 2UW Sydney, 1936 2LM Lismore, 1941-48 was spent working for AWA in different positions and from 1955 to retirement in 1975 Stan was at EMI Electronics in SA.

The equipment at Stans station in 1930 consisted of L to R: Power supply, Hartley Oscillator (25W) and modulator, ATU, wet receiver HT battery, receiver regen detector, TPTG oscillator — Ross Hull QST version, long wave receiver detector and an audio amplifier.

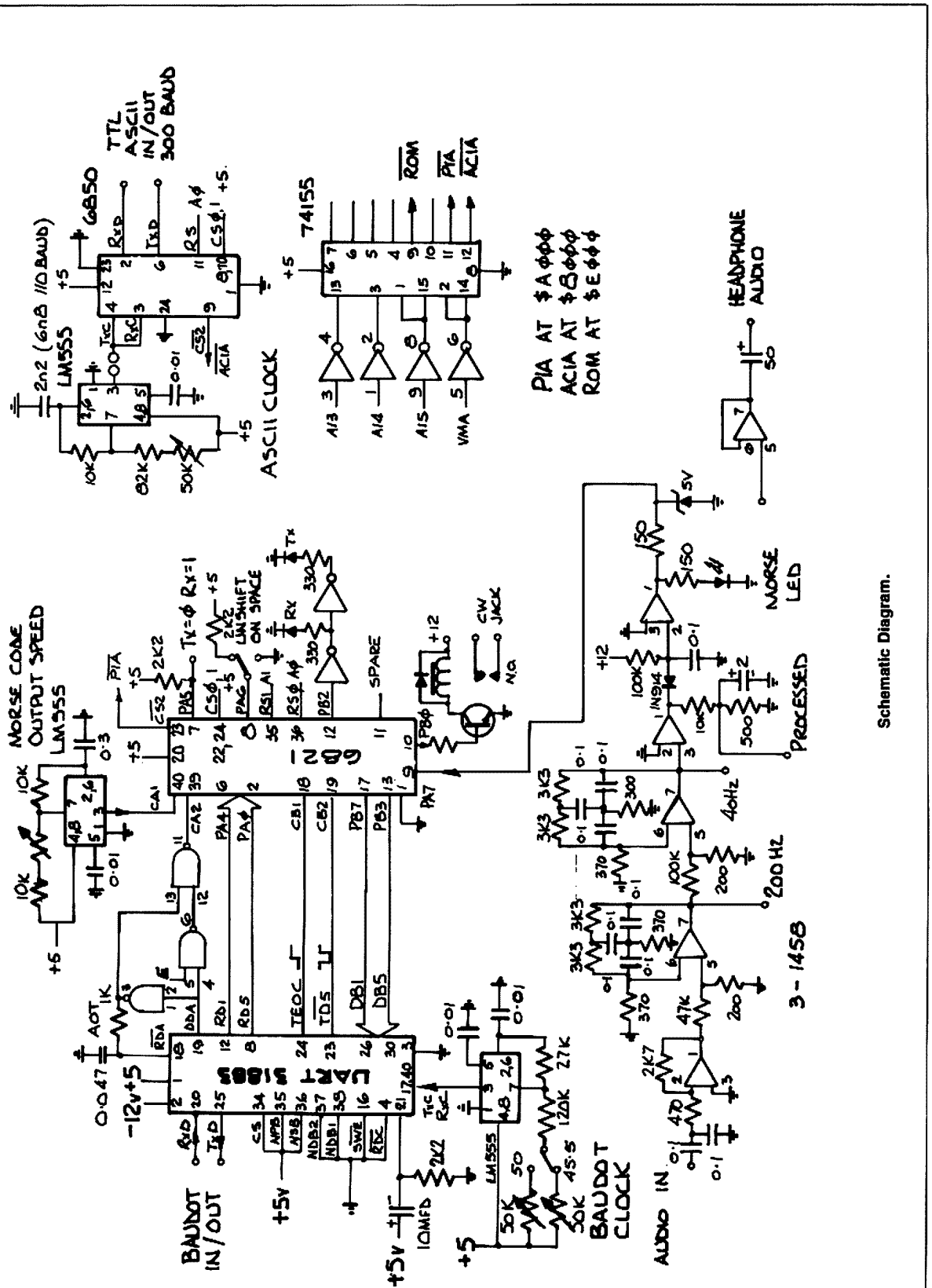
Stan is still operational today using an FT290R and an FT101Z.

AR

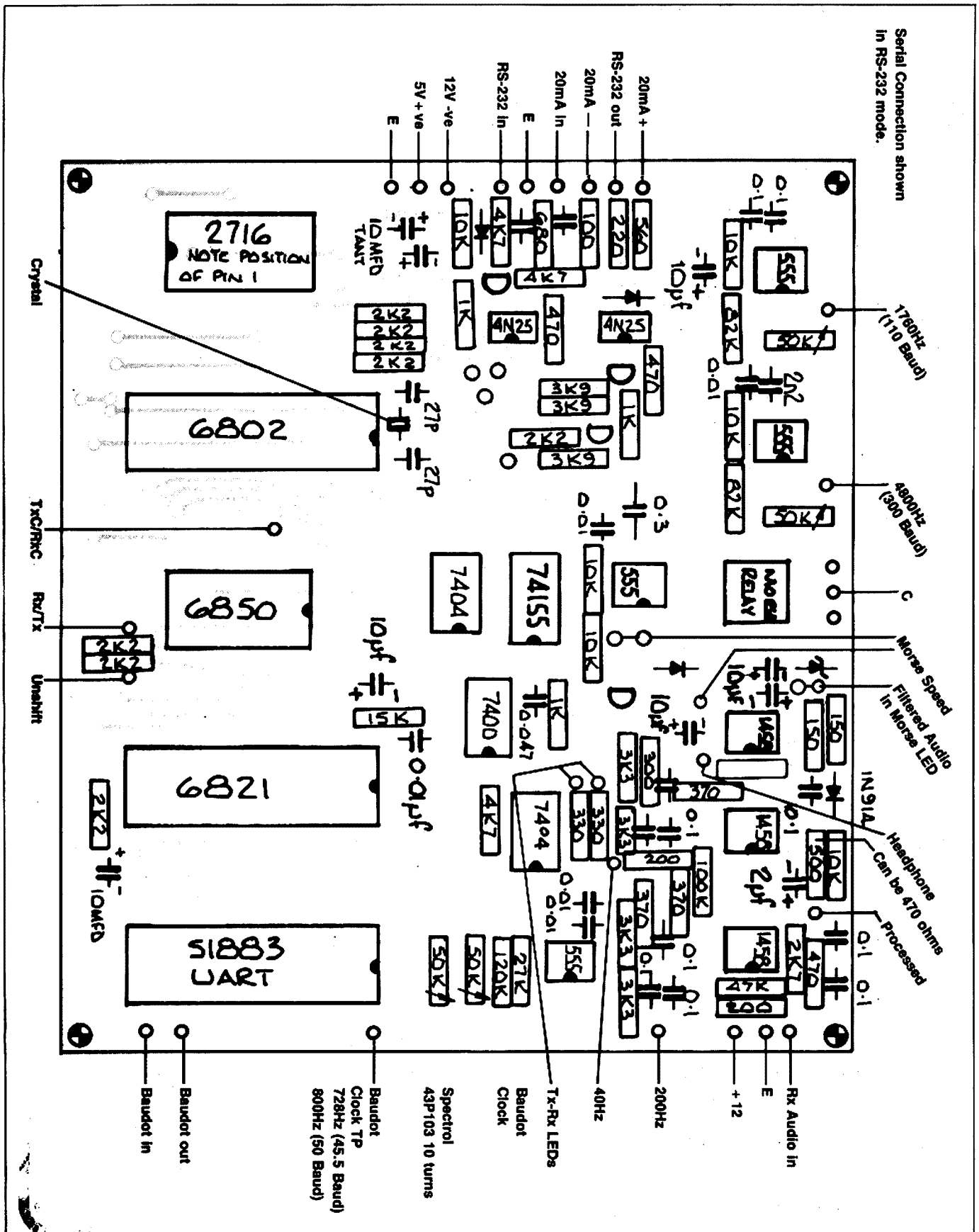
VK3BFG RTTY — MORSE

```
07270 E5BE B1 20    TESS    CMP A   #$20
07280 E5E0 27 ED            BEQ     GOCK
07290 E5E2 20 F9            BRA     GOUT
07300 E5E4 20 9E    COMMR2  BRA     COMMR
07310               *
07320 E5E6 CE E13E  BUFFUL  LDX     #MESS5
07330 E5E9 BD E0CA          JSR     OUTM
07340 E5EC 7E E4AC          JMP     IROM.
07350               *
07360 E5EF B6 23    BADCH   LDA A   #$23
07370 E5F1 BD E5BF          JSR     OUTC
07380 E5F4 7E E4AC          JMP     IROM
07390               *
07400 E5F7 B6 8006  REC     LDA A   PIRD
07410 E5FA 84 FB            AND A   #$FB
07420 E5FC B7 8006          STA A   PIRD
07430 E5FF B6 FF    KEYUP   LDA A   #$FF
07440 E601 81 FE    KULOOP  CMP A   #$FE
07450 E603 27 03            BEQ     NOINC
07460 E605 4C               INC A
07470 E606 20 0A            BRA     KUCONT
07480               *
07490 E608 97 21    NOINC   STA A   KUTIM
07500 E60A D6 1C            LDA B   RCHAR
07510 E60C C1 01            CMP B   #1
07520 E60E 27 02            BEQ     KUCONT
07530 E610 8D 4C            BSR     COMPKU
07540 E612 F6 8004  KUCONT  LDA B   PIAD
07550 E615 2B 09            BMI     KD
07560 E617 8D 36            BSR     TIMER
07570               *
07580 E619 7D 8040          TST     ACIAS
07590 E61C 2B C6            BMI     COMMR2
07600 E61E 20 E1            BRA     KULOOP
07610 E620 97 21    KD      STA A   KUTIM
07620 E622 8D 3A            BSR     COMPKU
07630 E624 86 FF    KEYDWN  LDA A   #$FF
07640 E626 81 FE    KDLOOP  CMP A   #$FE
07650 E628 27 01            BEQ     MAXKD
07660 E62A 4C               INC A
07670 E62B F6 8004  MAXKD   LDA B   PIAD
07680 E62E 2A 04            BPL     KU
07690 E630 8D 1B            BSR     TIMER
07700 E632 20 F2            BRA     KDLOOP
07710               *
07720 E634 97 20    KU      STA A   KDTIM
07730 E636 81 04            CMP A   #4
07740 E638 24 05            BCC     CKHI
07750 E63A 96 1B            LDA A   SPEEDK
07760 E63C 44               LSR A
07770 E63D 20 07            BRA     UNZERO
07780               *
07790 E63F 81 7F    CKHI    CMP A   #$7F
07800 E641 25 07            BCS     CMPTKD
07810 E643 96 1B            LDA A   SPEEDK
07820 E645 48               ASL A
07830 E646 8A 01    UNZERO  ORA A   #1
07840 E648 97 1B            STA A   SPEEDK
07850 E64A 8D 31    CMPTKD  BSR     COMPKD
07860 E64C 7E E5FF          JMP     KEYUP
07870               *
07880 E64F 37       TIMER   PSH B
07890 E650 36               PSH A
07900 E651 D6 1B            LDA B   SPEEDK
07910 E653 86 40    DELOP2  LDA A   #$40
07920 E655 4A       DELOOP  DEC A
07930 E656 26 FD            BNE     DELOOP
07940 E658 5A               DEC B
07950 E659 26 F8            BNE     DELOP2
07960 E65B 32               PUL A
07970 E65C 33               PUL B
07980 E65D 39               RTS
07990               *
```

```
08000 E65E 91 1E    COMPKU  CMP A   TQLDAT
08010 E660 25 1A            BCS     MOREL
08020 E662 96 1C            LDA A   RCHAR
08030 E664 81 01            CMP A   #1
08040 E666 27 09            BEQ     CKFSP
08050 E668 8D 4A            BSR     GAFT
08060 E66A BD E5BF          JSR     OUTC
08070 E66D 86 01            LDA A   #1
08080 E66F 97 1C            STA A   RCHAR
08090 E671 96 1F    CKFSP   LDA A   TLDAT
08100 E673 91 21            CMP A   KUTIM
08110 E675 24 05            BCC     MOREL
08120 E677 86 20            LDA A   #$20
08130 E679 BD E5DF          JSR     OUTC
08140 E67C 39       MOREL   RTS
08150               *
08160 E67D 96 1A    COMPKD  LDA A   TLETIM
08170 E67F 91 20            CMP A   KDTIM
08180 E681 25 10            BCS     DASHEL
08190 E683 96 19            LDA A   HLETIM
08200 E685 91 20            CMP A   KDTIM
08210 E687 24 04            BCC     DOTEL
08220 E689 96 18            LDA A   LETYPE
08230 E68B 26 06            BNE     DASHEL
08240 E68D 7F 0018  DOTEL   CLR     LETYPE
08250 E690 0C               CLC
08260 E691 20 14            BRA     ADDEL
08270 E693 7C 0018  DASHEL  INC     LETYPE
08280 E696 96 20            LDA A   KDTIM
08290 E698 97 10            STA A   LDATIM
08300 E69A 16               TAB
08310 E69B 44               LSR A
08320 E69C 97 1E            STA A   TQLDAT
08330 E69E 44               LSR A
08340 E69F 9B 1E            ADD A   TQLDAT
08350 E6A1 97 1E            STA A   TQLDAT
08360 E6A3 58               ASL B
08370 E6A4 D7 1F            STA B   TLBAT
08380 E6A6 0D               SEC
08390 E6A7 79 001C  ADDEL   ROL     RCHAR
08400 E6AA 96 20            LDA A   KDTIM
08410 E6AC 16               TAB
08420 E6AD 44               LSR A
08430 E6AE 97 19            STA A   HLETIM
08440 E6B0 58               ASL B
08450 E6B1 D7 1A            STA B   TLETIM
08460 E6B3 39               RTS
08470               *
08480 E6B4 0D       GAFT    SEC
08490 E6B5 49               ROL A
08500 E6B6 48       GAFT1   ASL A
08510 E6B7 24 FD            BCC     GAFT1
08520 E6B9 CE E45A          LDX     #GOM-1
08530 E6BC A1 00    STAB1   CMP A   0,X
08540 E6BE 27 09            BEQ     TABM
08550 E6C0 09               DEX
08560 E6C1 8C E421          CPX     #RTAB+1
08570 E6C4 26 F6            BNE     STAB1
08580 E6C6 86 5F            LDA A   #$5F
08590 E6C8 39               RTS
08600               *
08610 E6C9 DF 23    TABM    STX     RECX
08620 E6CB 96 24            LDA A   RECX+1
08630 E6CD 39               RTS
08640               *
08650 E7F8                  ORG     $E7F8
08660               *
08670 E7F8 E1DA             FDB     IRQA
08680 E7FA E000             FDB     INIT
08690 E7FC E000             FDB     INIT
08700 E7FE E000             FDB     INIT
08710               *
08720                       END
```



Schematic Diagram.


Serial Connection shown in RS-232 mode.
20mA +
RS-232 out
20mA —
20mA In
E
RS-232 In
12V -ve
5V +ve
E
2716 NOTE POSITION OF PIN 1
10 MFD TANT
6802
6850
6821
S1883 UART
Crystal
Tx C/Rx C
Rx/Tx
Unshift
1760Hz (110 Baud)
4800Hz (300 Baud)
C
Morse Speed
Filtered Audio In Morse LED
IN914
Headphone
Can be 470 ohms
Processed
Rx Audio in
E
+12
200Hz
40Hz
Tx-Rx LEDs
Baudot Clock
Spectrol 43P103 10 turns
Baudot Clock TP 728Hz (45.5 Baud) 800Hz (50 Baud)
Baudot out
Baudot in

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	FT209R	FNB-4	3.7W
	FT209RH	FNB-3	3.7W
	FT209RH	FNB-4	5W

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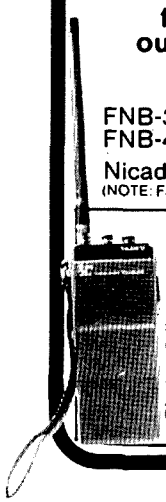

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VICTORIA'S 150TH ANNIVERSARY CONTEST

Chris Dimitrijevic VK3FY,
SECRETARY,
South Pacific Contest Club,
21 Belmont Avenue, Keilor Downs, Vic. 3038.

A unique contest, as part of amateur radio's involvement in the 150th anniversary of European settlement in Victoria, will be held this month. It's the first Australian contest to use the Maidenhead Locator System — a system fully explained later in this article.

The contest has been registered on the Victoria 150th Anniversary Committee official calendar of events and is being conducted by the South Pacific Contest Club VK3EZ — a member club of the WIA, Victorian Division.

RULES

1 *Contest period: 24 hours from* 0100UTC 26 January, to 0100UTC 27 January.
2 Bands: Australian novice segments of 80, 15, and 10 metres. All of 6 and 2 metres.
3 Mode: All modes permitted within individual amateur station licence conditions.
4 Classifications:
Novice
Limited
Single (fullcall, combined)
Multi-Operator/Single Transmitter
Multi-Operator/Multi-Transmitter
Shortwave Listener
5 Exchange: RS(T) plus Maidenhead Grid Location.
6 Restrictions:
a) No cross mode permitted.
b) No cross band allowed, exception satellite contacts.
c) Except Multi-Multi, transmitting more than one signal at the same time including cases of different bands is not permitted.
d) Points and Multipliers: Points: A required exchange with another Australian station will score one point. Multipliers: The number of different Australian grid locations worked on each band.
7 Scoring: The sum of contact points on each band, multiplied by the sum of multipliers on each band.
8 Summary and Log Sheets:
a) All times in UTC.
b) Indicate clearly all new multipliers worked on each band.
c) Use separate log sheets for each band.
d) A photograph of you operating during the contest, as well as your comments about the contest would be appreciated, but are not compulsory.
9 Awards:
a) High scores in each classification will receive a trophy.
b) Special award for the most exotic activated grid location.
10 Reporting:
a) Submit a summary and logs for one classification only.
b) Both log and summary must be postmarked no later than 27 February, 1985.
c) Send logs to: *South Pacific Contest Club, Contest Manager, 18 Jones Street, Thornbury, Vic. 3071.*
11 Disqualification:
a) Violation of contest rules.
b) False statement of report.
c) Taking points from duplicate contacts on the same band in excess of two percent of the total.
12 Announcement of Results: This will be done in November 1985. to coincide with the conclusion of Victoria 150 celebrations. Each entrant must abide by the decisions of the contest committee, which is final.

MAIDENHEAD LOCATORS FOR AUSTRALIA

The locator system is in use overseas and can be applied to field days, contests and awards.

Basically the system is based on breaking the world up into 324 major locators, these are of 20 degrees longitude and 10 degrees latitude with each being represented by two letters.

Within each major locator are 100 sub-locators, each numbered from 00-99. The sub-locators are of two degrees longitude and one degree latitude in size.

To give a clearer understanding of this concept a map of Australia is shown with all its major locators marked, and one major locator with its sub-locators.

Determining a Maidenhead Locator can be done in two easy steps. First find out the co-ordinates of your QTH, they should be available through the local municipal council. Then refer to the Maidenhead Co-ordinates Tables shown — and you're ready for the Victoria's 150th Anniversary Contest.

As an exercise let's pick some co-ordinates — longitude 137 degrees 56 minutes and latitude 26 degrees 37 minutes.

REFER TO THE CO-ORDINATES TABLES:

First part of locator: The main longitude location we find 137 lies between 120 degrees and 139 degrees 59 minutes, 59 seconds. First character is therefore P.

Second part of locator: The latitude in whole degrees is read. We find 26 degrees lies between 20 degrees and 29 degrees 59 minutes 59 seconds. Second character is G. Now we have the main locator of PG.

Third part of locator: The longitude is taken again, only the whole degree is required, giving the number 8.

Fourth part of locator: The latitude is now used, but this time only the second whole digit is used. In our example this is 6, which gives us the fourth part of the locator 3. Result: Mainhead Locator PG83. **AR**

TABLE NO1

DEGREES LONGITUDE	1st CHARACTOR
100° - 119° 59' 59"	O
120° - 139°	P
140° - 159°	Q
160° - 179°	R

TABLE NO2

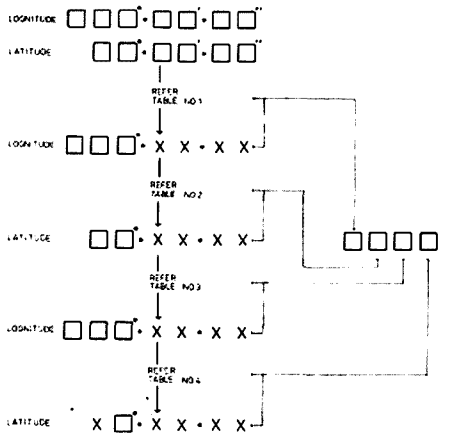
DEGREES LATITUDE	2nd CHARACTOR
0° - 9° 59' 59"	I
10° - 19°	H
20° - 29°	G
30° - 39°	F
40° - 49°	E

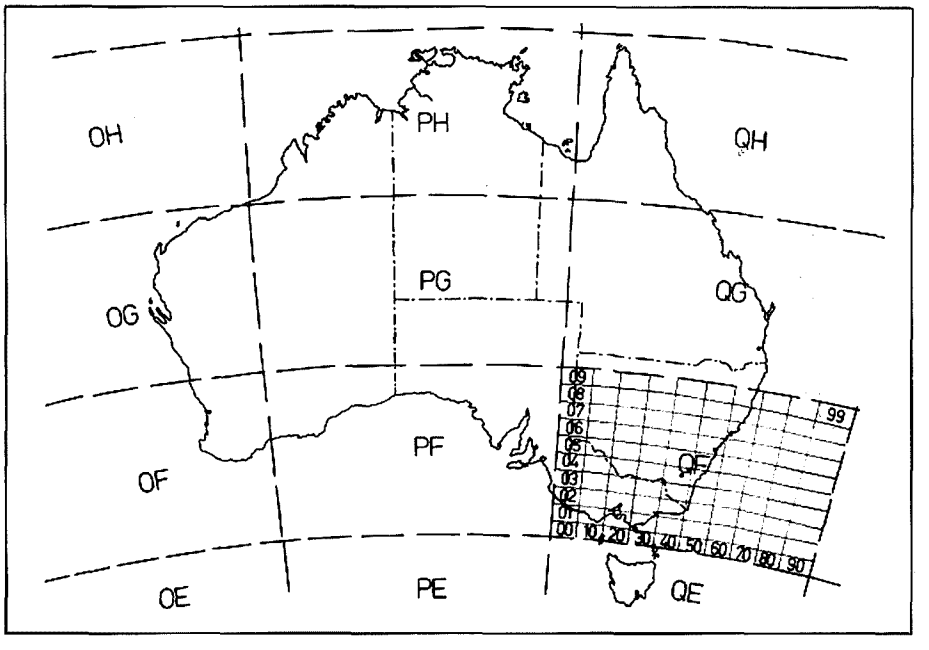
TABLE NO4

3rd single digit of LATITUDE	4th CHARACTOR
0	9
1	8
2	7
3	6
4	5
5	4
6	3
7	2
8	1
9	0

TABLE NO3

DEGREES LONGITUDE	3rd CHARACTOR
110° - 111°	5
112° - 113°	6
114° - 115°	7
116° - 117°	8
118° - 119°	9
120° - 121°	0
122° - 123°	1
124° - 125°	2
126° - 127°	3
128° - 129°	4
130° - 131°	5
132° - 133°	6
134° - 135°	7
136° - 137°	8
138° - 139°	9
140° - 141°	0
142° - 143°	1
144° - 145°	2
146° - 147°	3
148° - 149°	4
150° - 151°	5
152° - 153°	6
154° - 155°	7
156° - 157°	8
158° - 159°	9
160° - 161°	0





HAMVENTION 1984

Ken McLachlan VK3AH
PO Box 39, Mooroolbark, Vic. 3138

Ballarat "Hamvention" 1984, held on the 10th and 11th of November was a success, a success which will stay in the minds of all those who attended for a long time to come.

Enroute to the venue the road was distinctly marked and backed up by directions on the local repeater and a nominated frequency on 80 metres. On arrival, ample and safe parking was available with explicit directions indicating where to find the registration desk, commercial displays and refreshments. From being greeted with a sincere welcome, organisation was spot on from registration to the end of the week-end.

Over pre-dinner drinks many old friendships and new acquaintances were made. After the serving of a sumptuous meal to the tunes from a talented organist, the 90 odd guests were treated to a very lively and humourous talk by a local barrister with many years experience representing the locals in times of trouble. Laughter at times drowned out the heavy thunder-storm overhead.

Paul VK3BW'C — organist.

Dancing and reminiscing carried on to the hours that some would like to forget, considering that in a few hours many events like scrambles, sniffer and fox hunts were to be decided.

Stan VK3BSR, proprietor of Bail Electronics, chats to Bill VK3PAL, whilst Bert VK3BH looks at the equipment.

Preparing for one of the Fox Hunts. This VK5 vehicle, and occupants, was a winner.

The many trade displays were stocked with the latest equipment, brochures and were beseiged by interested customers regarding state of the art developments and trends the hobby is taking.

There was always something to do. The barbecue lunch was excellent and prior to the presentations and trip home the estimated gathering of 250 were treated to a very filling afternoon tea.

Greg VK5ZGY and Geoff VK3ADB enjoy a quiet natter. Geoff is the President of the Ballarat ARC.

Tom VK5EE, David VK5FF and Greg VK5ZGY check out a trade exhibit.

The general opinion of many of the visitors I chatted with was that it was one of the best they had visited anywhere and, in my book, it had a five star rating.

Maurie VK3XEX checks over his home brew power supply prior to judging.

Many of the prizes went to the Mount Gambier group and a friendly challenge was issued to attend their attraction next year and win them back. The "Home Brew" competition was won by Maurie VK3XEX with work that could be attributed to a perfectionist.

Brian VK3KQB.

The committee must be applauded for the success of the social-hobby get together but they cannot accept all the accolades. The small, but extremely effective, newly formed Ladies Auxiliary are to be congratulated in supporting their partners hobby and making the event such a success.

Congratulations to all and I, like others, are already looking forward to next year's "Hamvention".

AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

The prelude to start this column has been kindly written by Ivor VK3XB. Ivor and his XYL Mavis VK3KS are known world wide for their amateur activities particularly in the CW sections of the bands.

I had the pleasure of interviewing this charming couple recently on Feedback, an amateur radio orientated programme broadcast fortnightly on 3RPH, "Radio for the Print Handicapped" and it was only then that I found out some of the accomplishments of this happy duo.

Ivor licenced in 1934, has attained many honours from the hobby including being the winner of many world wide contests, the first winner of the Australian Contest Trophy (and a few thereafter) and being made a Life Member of the WIA, to name but a few.

Ivor in his profession with the Education Department attained the position of Principal before his retirement. He has always had and made time to put something back into the hobby he so much enjoys. He had the onerous task of being Outwards QSL Manager for some fourteen years and has taken an extreme interest in Intruder Watching, a facet of the hobby that is so important but often overlooked or taken for granted.

DXING OVER THE YEARS

Long distance communication has been the aim of amateur radio right from the very beginning. We can go back to the Trans-Atlantic tests of 1903. Marconi considered himself "only an amateur", and with him we must group Godley and many others. Their aim was DX though they did not call it such. Their enthusiasm fired the imagination of thousands of would be experimenters, and amateur radio was born.

On 110 metres in 1923, American amateurs achieved their first exciting DX. In Australia, our first real DXer was Max Howden VK3BQ, whose exploits have already been most capably handled by Max Hull VK3ZS in his story appearing in a recent issue of "Amateur Radio".

Comparatively isolated though Australia was, her amateurs, favored by a very friendly administration, soon established themselves as an internationally recognised body. As has often been mentioned by reminiscing amateurs, transmitting and receiving equipment in the twenties and thirties was practically all home built, most amateurs running less than 25 watts input which was the legal limit. As for receivers, the ownership of a Hammarlund or a Hallicrafters receiver was so unique that all Australia knew about the affluent possessor.

I started on .6 of a watt, but by 1936 had 7 watts to a pair of Type 19 two volt battery tubes, and was working DX regularly using a 7 wavelength aside vee beam. Other country amateurs also had huge vee beams or rhombics but metropolitan amateurs were restricted to end or centre fed Zepps or a single wire fed Hertz, until, a few years later, the Yagi surfaced and revolutionized DXing from the city. All manner of wire beams appeared.

In the thirties, CW operation predominated, but phone operators invariably answered anyone calling them on CW. What a contrast today! Crystal control was regarded as the ultimate in efficiency, but the TPTG was very popular. Calls on CW were longer and made in a more leisurely fashion. Answering on the other station's frequency occurred more by accident than plan. A South American calling "CQ DX" would have a number of stations responding anywhere in the band. By those suitably equipped, "Now try phone here" was the logical follow on from receiving a 579 report on CW.

The ARRL Worked All Continents Certificate was the goal of nearly every amateur. Though requiring only six contacts, the difficulty in gaining a South American contact in those times was such that the phrase, "Hooray, WAC at last" often hit the ether. After WAC came a further and often seemingly unattainable goal, the ARRL DXCC. Aids to gaining this were participation in the BERU Contest, begun in 1931, and later, thanks to Bob Cunningham VK3ML, the Centenary DX Contest and the VK/ZL Contest that followed. In Victoria, the Bureau, managed by Ray Jones VK3RJ, was almost exclusively the route for QSL card exchange.

While 10 metres already had its devotees, Clarry Castle VK5KL, being the first VK to gain WAC on that band, 20 metres was then, as now, the chief DX band. The presence of an "American Phone Band" determined where everyone else would be. In the thirties, this tract of howling heterodynes was located in the middle of the band. Hence the rest of the world was forced to sit on either side, the CW operators gathering on the high frequency end and the AM phone operators on the low frequency end, those of the latter who desired to contact American phones tending to cluster close to the phone boundary and tune inside for replies. But, after the war ended, amateurs world wide discovered the "American Phone Band" now on the high frequency half with the first SSB stations venturing in near the edge, and gradually creeping down. So the world's CW operators were now on the low frequency end. The much vaunted crystal controlled rigs gradually disappeared as Clapp VFOs came in. Now, calling the DX station on his or her own frequency saw the advent of a new phenomenon, the dogpile. And a valuable by-product of wartime communications development, the propagation chart now told us when to expect the DX. In Australia, commercially made equipment appeared; the Geloso and Eddystone gear comes readily to mind. A new incentive to DX chasing was provided when, in May 1948, the WIA instituted its own DXCC, and Bill Mitchell VK3UM, secretary of the Federal Awards Committee signified that Ron Tandy VK3KX would receive Certificate Number 1.

Through this period, our legal power was gradually being raised, and true transmitting valves became common in all transmitters. By 1950, SSB operation was well established. The six feet high and one and a half feet wide rack and panel rigs were disappearing. With the commercially produced compact transmitters rendering portable operation easier, the era of the DXpedition began, two of the first exponents being Dick McKercher and Danny Weil, followed by Gus Browning and Don Miller and many others. Competition for the exotic contacts became fierce and the standard of operating rose tremendously. After the dogpiles came the "tail ending techniques" and then the "QSX up" procedure. With QSL managers proliferating, and the race for DX credits almost frantic, the use of IRCs, CRCs and "green stamps" became established procedure for quicker return of cards.

For phone stations, the next innovation was "List working" with a "Master of Ceremonies", and this was followed by DX Nets, all of which were a boon to the less affluent amateur with modest equipment. Such are now well established. While some net controls meticulously observe dignity and correctness coupled with speed, others in their enthusiasm hand out too much information so that the wanted DX station knows practically everything before the person on the list has even made a transmission. In the case of some overseas controls, (but not Australian I am glad to note), the prompting and leading makes contacts rather too easy.

To sum up. Prewar, all operators gained their DX contacts on their comparatively simple gear by patience and perseverence alone. Postwar, with the tremendous rise in the amateur population and the ready availability of commercial equipment embodying striking scientific advances, accommodation pressures have given rise to the need for the techniques and aids already mentioned. But the CW operators still retain a nostalgic link with the past and continue to display a facet of the old amateur radio, gaining thereby the satisfaction of doing it by themselves.

I sincerely thank you Ivor, on behalf of all the readers, for a very interesting contribution to commence this column in 1985, the 75th Anniversary of our Society, and trust that during the forthcoming years you and your XYL Mavis will still continue to enjoy the hobby you both love so much.

NAME CHANGE

The country of Upper Volta, with the prefix of XT, has changed its name to Bourkina Fasso. The native translation of this unusual name means "Land of the Upright Men". Many DXers would like to see more upright operational antennas with signals eminating from them.

BHUTAN

Pradhan A51PN, is definitely not active, and it appears his call may have been pirated from time to time from reports received. Meanwhile A5 is climbing the much wanted ladder caused by newcomers that are either newly licenced or have caught the DX bug.

Pradhan, is a radio engineer by profession, employed by the government in the communications field. His main responsibility lies in the maintenance of some of the forty odd broadcast stations that are scattered around the undulating land east of the Himalayan mountains. At best there is little time for the hobby.

A recent business visit by Seiji JH1WXH to Bhutan allowed some operating with oral permission but no written documentation was available as foreign amateurs are not allowed to hold an A5 licence under the present operating regulations. This may change within the next few years.

Seiji, left a new FT-757GX in Thimbu for Pradhan. The question is now whether Pradhan, when in the capital, will make time to try the new rig out.

THE GLOBETROTTING COLVIN'S

Lloyd and Iris, the couple that have made nearly a million QSO's to their credit and received close to half a million alphabetically indexed cards which weigh over 5000 kilogrammes have jaunted over to the south of Africa until late March. They hope to activate a number of the unusual countries in that area but nothing is guaranteed.

SAN FELIX ISLAND

The operators returned safe and well, with the logs. The Club's aim was to commence posting QSL cards from the first week of last month. Perhaps many DXers have received their Christmas surprise already!

BANGLADESH

At present there are a number of JA amateurs working on radio communications in the country. The licences of S21JA, DX and FT have been issued for "testing" purposes and are not to be used for any DX working. This is strange as reports over the last

couple of years indicated that the licensing authority was relaxing some of their rigid conditions.

It is believed that negotiations to the authorities, in conjunction with the Bangladesh Amateur Radio League are still continuing for the allowance of nationals and foreigners to obtain full operating privileges.

CAUGHT BY THE CAMERA

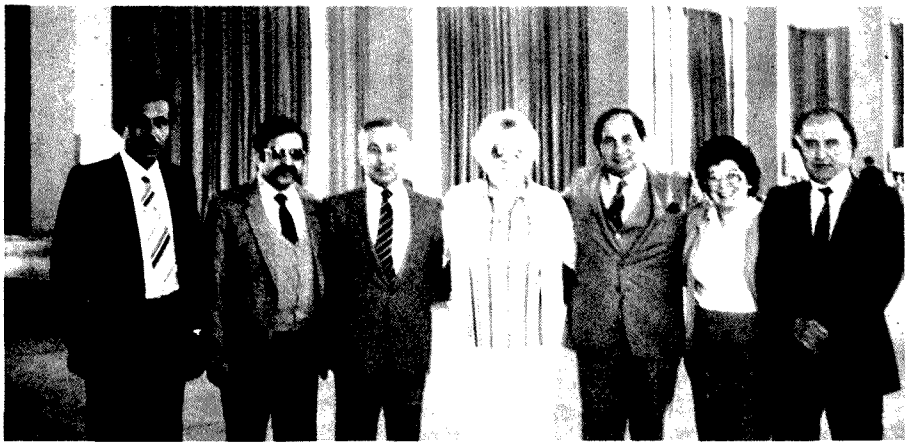
Photographs of Jordanian amateurs are hard to come by but this happy picture was taken when Mary Ann WA3HUP/JY9AA and Ruthanna WB3CQN/JY4CQ, both WIA members visited Amman early last year.

SOMALIA

It is believed that Marti OH2BH, has his credentials signed by the president for an operation to commence from T5 in the near future. Any operation from this area causes extreme interest and with Marti operating and at the helm re QSLing it would be a must.

BEEN THERE — DONE THAT!

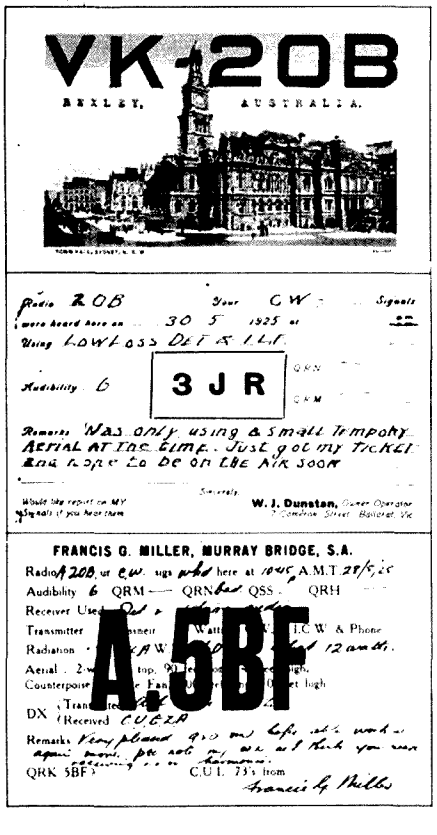
Sao Tome, a much wanted country was activated. Those that were waiting for Craig WB7RFA to sign S9 were confronted by a whistle stop of a few hours by PS7ABT/S9 who worked some European, JA and North American stations (which you could count on one hand).



From L to R Ibrahim JY4MB, Mohammed JY5ZM, Dr Zuheir JY5ZM, Ruthanna, His Royal Highness Prince Raad JY2RZ (Chairman of the Royal Jordanian Amateur Society), Mary Ann and Zedan JY3ZH (Conroller of the Arabian Knights Net).

CARDS OF YESTERYEAR

Again, some more cards of yesteryear which belonged to the late Lionel Mashmen VK2OB and have been kindly forwarded by Arthur VK2JM. All cards are from the 1925 era.



At the time of writing, no further information is avialable on Craig's whereabouts who is visiting the country on a contract to design new postage stamps for the authorities. All I require is good propagation and one minute of the time of a genuine operator in this much wanted country. What a start to the new year that would be!

KEEP AN EAR OUT FOB —

Over the New Year break it would pay to keep an eye out for Pradhan A51PN with his new rig. AX0PB operational in the Antarctic, VP8ASO on a quick trip to South Sandwich territory which may pre-empt a longer stay, Dr Sid ST2SA mobile on his "house" calls and anything that sounds like 3Y.

9L1CISV

This unusual call sign is from a special events station at the Childrens International Summer Village Camp in Freetown and is sponsored by the Sierra Leone Amateur Radio Society. QSL to Cassandra 9L1YL.

TWO AMATEURS IN SPACE

Tony W0ORE and John W4NYZ are expected to board Shuttle Mission 51F which is due for launch on the 17th April this year. The query is will they be taking any amateur equipment?

ZS/S4/S8/V9

A nice collection and Dave WA2HZR hoped to actuate the areas of Venda V9, Transkei S8, Ciskei S4 and ZS0 during late November and early December last year. OSL to WA2HZR, PO Box 592, Mexico, NY 13114 USA.

THE USE OF VI3WI

It was a pleasure to do a little operating instead of listening all the time and the use of VI3WI allowed me to catch up with a lot of old friends.

The bands were kind from fifteen metres down and with the help of voluntary list takers in Europe which allowed me to overcome the lower Mediterranian QRM, I was fortunate to have 700 contacts and snare over 60 countries in the 20 hours that the rig was actuated by me on the 1st and 2nd of November.

Net controllers greeted me like a long lost friend, the "dog piles" were music to ones ears and one was pounced upon when calling CQ after asking if the frequency was clear. At one time I operated in the Novice segment of fifteen metres, to give them a chance at the commemorative prefix, then I began to feel guilty when propagation opened to Europe but I trust the spill over of activity allowed a few to work some new countries. If the ploy did not gel, apologies boys and girls.

All QSL's for VI3WI are either via the bureau or direct to VK3WI as per the call book address.

IDENTIFICATION OF BY CALL AREAS

The People's Republic of China licensing authorities have allocated blocks of call signs to the following areas as below. This will allow easier identification as more stations become active.

BY1AA — BY1ZZZ Beijing
BY2AA — BY2IZZ Hei Long Jian
BY2JA — BY2OZZ Jilin
BY2RA — BY2ZZZ Liaoning
BY3AA — BY3FZZ Tianjin
BY3GA — BY3LZZ Nei Mongol Z
BY3MA — BY3SZZ Hebei
BY3TA — BY3ZZZ Shanxi
BY4AA — BY4IZZ Shanghai
BY4JA — BY4QZZ Shandong
BY8AA — BY8IZZ Sichuan
BY8JA — BY8QZZ Guizhou
BY8RA — BY8ZZZ Yunnan
BY9AA — BY9FZZ Ningxia
BY9GA — BY9LZZ Quinghai
BY9MA — BY9SZZ Shaanxi
BY9TA — BY9ZZZ Gansu
BY0AA — BY0MZZ Xinjian
BY0NA — BY0ZZZ Xizang
BY4RA — BY4ZZZ Jiangsu
BY5AA — BY5IZZ Zhejian
BY5JA — BY5QZZ Jiangxi
BY5RA — BY5ZZZ Fuzian
BY6AA — BY6IZZ Henan
BY6JA — BY6QZZ Anhui
BY6RA — BY6ZZZ Hubei
BY7AA — BY7IZZ Hunan
BY7JA — BY7QZZ Guanxi
BY7RA — BY7ZZZ Guangdon

BITS AND PIECES

Dave ZL1AMM and Aola ZL1ALE back home and around the bands after a world trip. **Another tripper and contributor to this column back in VK is Eric L30042. **VK0AK a licenced YL is active from Mawson Base in the Antarctice. QSL to VK2DEJ. **FT8 looks to be the new prefix for Kerguelen. **4K1CEY is located in the Antarctic. **6D1FIC was a special event station in Mexico. QSL to K9AUB. **More BY stations will appear early this year. **The query re 4K1H Russkaya Base has been answered. The base which has been in operation since 1979 is located at 80 S and 105 W. (Thanks Bob W5KNE).

MORE CHANGES

The French Authorities, as from the first of this month, have implemented their new prefix structure for the five classes of licence designated A through to E. Visitors will not be issued with a French call under the new system but will sign F/their home call.

Class A and C licences are issued for VHF and UHF only. Class B licensees will have VHF privileges plus certain CW segments in the 7, 14, 21 and SSB plus CW on the 28 MHz bands.

Class D and E are fully privileged to use all bands, the E being for amateurs that have held a D rating for three years.

The F part of the prefix will remain in mainland France with the licence class added. For example all F2, F3, F5, F8 and some F6 licences will become FE2, FE3, FE5, FE8 and FE9 respectively. Other F6 operators with less than 3 years experience will become FD6XYZ etc.

Corsica has already changed from FC to TK and the French Antarctic and associated islands have changed from FB to FT. Other stations outside of continental France will be indicated with a number 1 through to 5 to indicate the class of licence in the prefix.

Confusing? Yes, but apparently the suffixes will remain the same and recognition of old friends should not be so hard. To appreciate the difference and confusion one could listen between 14.100 to 14.120 MHz, where the French operators congregate.

The commercial enterprises that produce QSL cards in that country must be clapping their hands for the chance of the extra Christmas work that they received.

WILLIS ISLAND

Willis Island is presently being activated by Peter VK9ZR on all bands, including 6 metres, after the changeover from Andy VK9ZA, last month.

Peter has had extensive experience of amateur operations at various meteorological stations including stints at Mawson Base and Macquarie Island, where he held the callsign VK0AP.

Gil VK3AUI kindly arranged for an EPROM to be programmed with Peter's new call for the manned 6 metre beacon.

QSLs either direct or via the bureau will be handled by Jill VK6YL.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, ORZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S OSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, QST, RADCOM, JARL NEWS, KARL NEWS, OZ, JARL NEWS, REGION 1 NEWS, WORLD RADIO, 73, BREAK IN and VERON.

Members who have contributed include VKs 2JM, 3FR, KS, XB, YJ, YL, 4BHJ, 6NE, 9ZA and G3NBC. Overseas amateurs include G1EOD, I8SAT and W5KNE. Sincere thanks and a happy and prosperous New Year to one and all.

SOME OF THE DX WORKED ON THE EAST COAST

15 METRES

3A2LF, 4Z4VH, C21BD, DA2ER, DK4QS, DL3AO, OU9RG, EA4BVE, F6AXP, F9RM, G3MCS, G4LIJ, HB9BXE, HL9XX, I1UJX, JA1-0, OH5NZ, LZ1TV, ON5NT, ON5OS, PA2JHO, S79CW, SP3JIA, SM5LI, UM8MU, UY5QQ, UZ6LTT, YB1BI, Y48UJ, Y54OL, YC9VGB.

20 METRES

4Z4DX, 4X6AR, 4X6IL, 6W2EX, 6Y5IC, 8R1RBF, 9H1EU, 9M2MW, 9M2PW, 9V1TL, A4XJW, A92DY, AP2AU, C21BD, C21RK, C21RO, CE0AA, CE0GBL, CE4HBZ, CP7GAE, FB8YK, G3MMN, G3RUV, G4KHG, GM3BQA, GW4YUX, HB9ARE, HL9YIC, HZ1AB, I8SAT, JA1-0, JY3ZH, JY4MB, KX6DS, LA9ZV, LZ1AT, N4AOA, N4KLL, ON4AMI, ON5NT, PJ2HB, SV1NA, T2ADE, T32AN, TI2CF, UA9AB, UA9CBO, UD6BD, UD6BY, UZ3AWO, UZ9AYA, VU2AU, VK9ND, VK9MR, VK9ZA, YI1BGD, YU2OM, XU1YL, XU1SS, ZL2BDF, ZL2BDF.

40 METRES

3D2MP, CT1FL, CT4NH, EA6GP, EA9IE, EI6S, F9RM, I5VIT, IT9ZKW, LU1EAO, ZL4QJ, ZL7PO, ZP5JCY.

AR

QSP

160 METRES IN THE NETHERLANDS

Since June 1984 the part of the 160 m band allocated to radio amateurs has been expanded to 1.825-1.850 MHz.

The following restrictions have to be observed:

1 1.825-1.835 MHz

(a) modes of transmission:

200HA1A	*2K20A2A*	*3K00R3E*	*1K20F1A*
200HA1B	*2K20A2B*	*3K00J3E*	*1K20F1B*
		3K00H3E	

(b) maximum output power 10 watts or 40 watts PEP.

2 1.835-1.850 MHz

(a) modes of transmission:

200HA1A

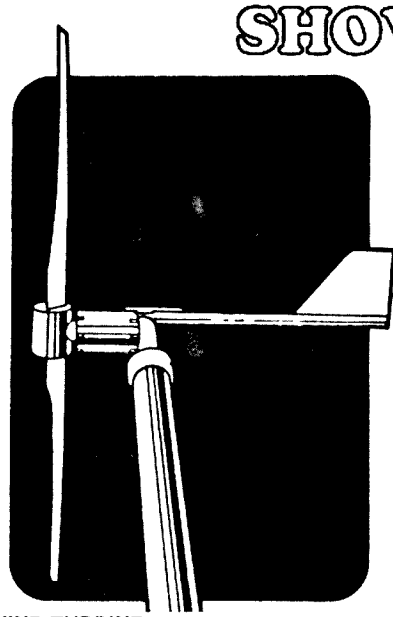
(b) maximum output power 10 watts

(c) no contest participation in this part.

from Region 1 News — Oct '84

AR

AR SHOWCASE



WIND TURBINE

Wecam Communications are importing the Rikan Hornet Wind Turbine which is an ideal source of power for charging batteries. It is a boon to many farmers, campers and those living in remote areas or for that "get away from it all" holiday home and the manufacturers claim it to be 150 percent more efficient than solar panels when tests were conducted in Auckland.

The units are packaged as a complete kit including battery leads, full instructions for assembly with the only tools required being a screwdriver, spanner and pop riveter. The unit is designed to fit 50 mm threaded pipe and included with the instructions are designs for simple six metre towers.

The unit has a rated output of 20 watts with a 20 knot wind and is designed for maintenance free operation in the harsh environment, having a fully sealed stainless steel shaft running in ball races, corrosion resistant ultra violet stabilised PVC blades, mechanical overspeed control and a fail safe device in case of high winds. All units are guaranteed for twelve months.

Further information may be obtained from Wecam Communications, 11 Malmesbury Street, Wendouree, Vic 3355 or by telephoning (053) 39 2808.

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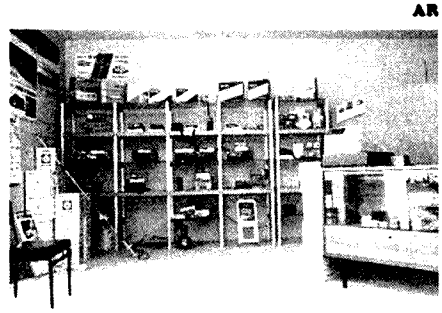


NEW EQUIPMENT SUPPLIER

Recently Fred Mackiewicz VK3ZZN returned to Melbourne to open new premises that will carry stock to serve the amateurs needs.

Fred was first established in 1976 and still provides the same standard of courteous service in 1985 and should make many friends with the stocking of major brands such as Icom, Kenwood and Yaesu equipment, as well as a quality range of accessories to suit.

For further details of the on-site full sales and service facilities that are available contact AM-COMM Electronics at 69 Canterbury Road, East Camberwell, Vic 3124 or telephone (03) 836 7634.

AR

RTTY — CW TRANSCEIVE AS WELL

Two new data communications programmes for the TRS-80C color computer, are written in Australia by Locus Software. The programme Data Communication Monitor (Cat DCM) provides for the reception of CW, standard BAUDOT RTTY as well as SITOR (Broadcast Mode), FEC and ARQ mode B. Stations using these RTTY modes include Press, Interpol, Embassies, Meteorological, Coast Guard plus a number of others. The RTTY transceive programme (Cat RBM) allows its user to run full transmit or receive on RTTY (BAUDOT or ASCII). Both programmes have been written such that they are extremely user friendly, regularly displaying on screen operating prompts and require a minimum 4K basic TRS-80C computer.

The Data Communications Monitor provides a number of user selectable options. These include, data output to screen or printer at 2400 BAUD, clear screen using CLEAR key, BREAK key initiates a break in the programme while retaining data on screen, operating status is easily displayed using a single entry key. In the CW mode DCM provides auto speed adjustment. When receiving RTTY BAUDOT the speed may be user set at 45, 50, 75 and 100 BAUD.

Designed to comply with CCIR recommendation 476-2 for SITOR (FEC and ARQ mode B) DCM has a number of unique features including a special graphic tuning display to allow optimum receiver tuning. Speed is preset at the standard 100 BAUD required for SITOR. Automatic data rephasing is carried out after four continuous characters are missed.

The RTTY Transceive programme (RBA) includes four transmit buffers, one for CW identification plus three additional with a capacity of 255,512 and 512 characters each. Also included is an auto RY transmit command.

When using BAUOOT, speeds of 45, 50 and 75 BAUD may be selected. The ASCII speed is preset at 110 BAUD.

Price of Locus DCM programme is $75 plus $5 P&P while the RBA programme is $55 plus $5 P&P. For further information contact the Australian distributors, GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic, 3132. Phone (03) 873 3777.

AR

PLAQUE PRESENTATION

From left are Michael VK3KI, Alf VK3LC and David VK3ADW.

At a recent executive meeting Alf Chandler VK3LC received an engraved plaque for his work as the Region 3 Intruder Watch Co-ordinator for the period 1975-1984.

This award is made available for amateurs who have contributed to the region's work.

The plaque was presented to Alf, on behalf of Region 3, by Michael Owen VK3KI, who is a Director of that body.

In presenting the plaque, Michael stated that "Intruder Watch involves a high degree of dedication and accuracy which not many amateurs are prepared to give for long periods. As a result of the work of Intruder Watch there are not too many intruders removed but raising the issue, and continuing to do so, many would-be intruders are deterred".

Alf replied, commenting that he had enjoyed his long association with the Region and the plaque was much appreciated.

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BANDS BEACONS

Freq	Call sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
50.945	ZS1SIX	South Africa
51.020	ZL1UHF	Mt Climie
52.020	FK8EM	Noumea
52.033	P29SIX	New Guinea
52.100	ZK2SIX	Niue
52.150	VK0CK	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth
52.310	ZL3MHF	Hornby
52.320	VK6RTT	Carnarvon?
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL2SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.480	VK8VF	Darwin
144.550	VK5RSE	Mount Gambier
144.600	VK6RTT	Carnarvon?
144.600	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.159	VK6RPR	Nedlands*
432.410	VK6RTT	Carnarvon?
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton

* *Thanks to the VK6 VHF Group Bulletin for advice of the Nedlands beacon on 432.159. They also query whether the Carnarvon beacons are running. If they are could someone please advise me.*

? *The VK6 VHF Group also asked if VK6RVF on 10.3 GHz is operating? Do you know?*

ABOUT CHINA FROM JAPAN

Hatsuo Yoshida JA1VOK, a well known 6 metre operator from Japan has written with a few details of 6 and 2 metre activity from China where the prefix is normally BY. However, BT5RA is the call sign of a special VHF club in Fuz hou city, and JA1VOK contacted this station on 13/8 and 19/8/84. Others to work the station were JA1UT, JH4RUG and a group from the BY Club station. Signals were 5x9 both ways. It seems likely that BY5RA will also be on 6 metres.

On 2 metres, BT5RA worked a JR6 in Okinawa on 17/8 by tropo, which probably rates as a first for that band between those two countries.

As it appears the Chinese government only issues licences at present to club stations, it seems unlikely we will be rushed with keen VHF ops from there for the time being, but contacts should be possible when conditions permit operation with Japan.

Further information regarding BY operations was included on page 37 of November 1984 "AR".

SIX METRES

It's that time of the year again when one looks with expectation to the six metre band and hopes for Es openings to renew old acquaintances and make new friendships. Until the last few days the band has been relatively quiet, there have been the odd contact "out of the blue" but generally nothing consistent. Channel 0 mainly from Brisbane can be heard frequently, sometimes very strong, at other times in and out of the noise, but remarkably consistent.

Bob VK5ZRO (my very consistent band spy) advised that on 2/11 ZL worked FK8 on 6 metres but nothing heard here. On 7/11 (2230 UTC day 6/11) Ch 0 from Sydney was available in full colour. At 2250 Bob worked VK2AKU 5x8 and again at 2330 5x9; at 0002 VK7JG 5x9; 0005 ZL1AON 5x5 and 0016 VK7DC 5x6. For the next two hours signals drifted in and out but not lasting long enough for contacts. No signals were heard from the north.

Also on 7/11 VK2 were working ZL1, and VK2AKU worked VK3, 5 and 7. The VK2RHV beacon on 52.325 was audible at the same time (0000 UTC). At 0453 Bob VK5ZRO worked Graham VK6RO 5x3. At 1000 UTC VK8TM and VK8ZLX were up to 5x9 on 52.070.

It certainly looks as though there was a fairly large Es cloud around, which eventually involved the western areas and the north. With signals so good so early it may be that we will be in for a good Es season this year. And of course keep your ears on 2 metres as well, especially when the skip shortens.

ON 1296 MHz

Bob VK5ZRO and Don VK5ZRG at Whyalla, 210km apart, continue to exploit 1296 MHz. They have been having consistently good contacts at any time of the day or night. Both being on holidays helps of course! They have found the daytime signals are subject to more QSB than at night, frequently very heavy QSB varying the signals between S1 and S9+60dB! The same peak strength of signals applies at night but the signals do not drop as low when they fade down.

All these experiments have been carried out with a maximum power of 13 watts, and from 25/10 Don VK5ZRG has had an improved antenna system with four 27 element loop yagis, while VK5ZRO uses either one 27 element loop yagi or a 4 feet dish. Bob has found that with the two antenna systems about 4 metres apart he is getting some diversity effects, sometimes the signals are better with the loop yagi, at other times with the dish!

Recently experiments were conducted using 1 watt between the two stations with little apparent reduction in signals so one wonders just how far the signals on this band could be transmitted on a regular basis, perhaps double the present distance, who knows until it is tried.

The regular experiments between the two stations on 432 MHz has been temporarily suspended whilst they find out the vagaries of 1296. It seems these two operators have been having more success with the FM signals than originally anticipated. There does however, seem to be a ceiling above which the signals are not propagated satisfactorily, as Sid VK5ME has had some difficulty copying VK5ZRG from his elevated site in the Adelaide hills, although he receives tremendous signals from VK5ZRO.

Opening Ceremony of BY5RA.

NEWS FROM JAPAN

From the Japan "CO ham radio" magazine for September 1984, I note Graham VK6RO has acquainted JA operators with the latest DOC regulations regarding our operations on the 50 MHz end of the band, so they will now have some idea of where and when to look for signals.

I note also that the JA's haven't been working too far afield on six metres either. Stations worked included JD1DCK, HL1, 2, 3, 4 and 5, VS6 and VK8GB.

ON TWO METRES

The English "Short Wave Magazine" for September 1984 (per favour VK5AIM) has a photograph of a QSL card which confirms the present IARU Region 1 distance record of 2787 kms on 432 MHz between EA8XS, Canary Islands and GW8VHI, which was made on SSB on 5/7/84 at 2226 UTC.

Congratulations to the parties concerned, and it is good to see some of these distances being lengthened

in the European sector again.

The same magazine carries considerable information regarding contacts made particularly on two metres using auroras for propogation. Such occurrences are fairly rare in this country. Our northern friends also make good use of the various meteor showers throughout the year, something we don't seem to worry about here.

The annual CW ladder in "Short Wave Magazine" shows GW4TTU as heading the list with 247 contacts on two metres all with different stations on CW. He also has 53 on 70cm, and 10 on higher bands. G4ARI is next in line with 193 different stations on two metres, and in addition has 67 stations on four metres.

GW4TTU also heads the annual VHF/UHF table with 90 counties and 36 countries worked so far this year on two metres, 41 counties and 10 countries on 70cm, and 11 counties and 4 countries on 23cm! The penetration of VHF/UHF into Region 1 is quite remarkable, and surely 36 countries even in Europe must be considered quite an effort, especially as language problems must surely arise at times, and QRM due to station density in some places would not help either. Europe from Portugal/Spain to most of European Russia is about the same width as Australia is from west to east at the widest points!

BEACON FOR NEW CALEDONIA

John VK4ZJB has written a hurried note advising he worked Pierre FK8EM on the morning of Tuesday 6/11. During the six metre contact mention was made that a beacon would be operational from about 13/11 specifically beaming for VK stations.

Frequency: 52.020 MHz, power: nominal 5 watts; antenna: Swiss Quad with 12dB gain; direction: WSW from FK8; Time: 8 am to 10 pm FK8 time, which should be about 7 am to 9 pm EST or 2100 to 1100 UTC.

Distance wise, New Caledonia should be similar to working New Zealand for most, perhaps a bit closer for the east coast stations, but well within the capabilities of an Es opening. And remember to keep your contacts short with Pierre as there will be a lot of six metre operators wanting to work him and openings may not be of long duration. If they are, then there will be plenty of time to call him up later and talk about the latest piece of gear you have bought!

While on the subject of beacons I note from "Break In" that the Manawatu Branch are to close down their 70cm and 2 metre beacons for economic reasons! Apparently after a survey it was found people only looked for the six metre beacon which has been allowed to continue.

THIRTY YEARS OF BEACONS

The following is condensed from an interesting article in the "West Australian VHF Group Bulletin" for October 1984.

"Amateur beacons have been operating from Perth for nearly 30 years. The first amateur VHF beacon in Australia was VK6VF on 50.003 MHz in the mid 1950s. Built by the late Don Brown VK6ZAV, it had a neon valve relaxation oscillator feeding a 6V6 valve which screen modulated an 807. It was keyed by a notched disc driven by a synchronous motor through a rubber band actuating a mechanical switch. Unattended operation was not permitted at the time so VK6VF was heard irregularly when the operator was present and remembered to turn it on!

"The first two metre beacon was located at VK6BE in Kalamunda, then it was moved to VK6RX in Subiaco, to VK6HK in Wembley Downs and VK6AW in Tuart Hill. At this time a valve tripler was added, making it the first 70cm beacon in WA and possibly in Australia. The keyer was an SEC power meter to provide the slowly revolving disc, with tabs attached to interrupt a light beam which was detected by a transistor with the casing filed away to make it photosensitive. By informal agreement it was moved to the TVW7 site at Bickley where the antenna was only a few feet off the ground, so it was replaced by the current solid state dual band beacon relocated part way up the transmitter tower. It operated almost continuously for 13 years. Only recently the keyer was rebuilt by Phil VK6AD to change the ident to VK6RPH. A formal agreement is being made with TVW7 for it to be replaced on the tower.

"Another first for Perth was VK6RVF, constructed by Colin VK6CM several years ago and located at Roleystone, and transmitting on 10.3 GHZ. Then there was the recent addition of VK6RWA on 10 metres. Though strictly not VHF the ionosphere is currently ignoring it so it might as well be on VHF!

"The newest Perth beacon is VK6RPR at the Nedlands CAE transmitting on 70cm. A tripler is being built so it will also transmit on 1296 MHz. Perth will then have a set of beacons on all bands from 10m through to 1296 MHz.

"Beacons have also been erected at Busselton with the call sign VK6RBS and have been operational for about a year, and are designed to test propagation northwards along the coast and eastwards towards Adelaide. The 144 MHz exciter and 1296 tripler were built by Wally VK6KZ, the keyer and 432 tripler by Don VK6HK, the 144 MHz power amplifier built by Barry VK6ZSB and the power supply built by VK3TN/6ZK/8TN.

"The basic concept of the beacon is to generate enough power at 144 MHz and transfer it up the mast to a second module near the antenna. This module divides the power so that part is radiated and part is tripled to 432 MHz. This is again divided with part being radiated and part being tripled to 1296 MHz. The power dividers are ex NASA courtesy Bob VK6ZFY with 50 ohm dummy loads rated at 10 watts to absorb power if an antenna falls off.

"The antennas on 2 metres are 2 x 5 element yagis built by Bob VK6KRC and are aimed at Adelaide and Perth. On 432 MHz there is an extended 1½ wavelength dipole with a screen reflector giving a tri-lobed pattern aimed roughly at Adelaide, Bunbury and Perth/Carnarvon, and was built by Don VK6HK from a standard VHF broadcasting design. Don also built the antenna for 1296, a balun/dipole combination with a corner reflector aimed at Perth.

"The keyer, power and exciter modules are contained in a security box in the Geographe Bay Yacht Club. Output is around 40 watts at 144.019. This is transferred by good quality coax to the divider/multiplier module about 7m up the tower. After coax losses power delivered to this module is about 25 watts. The 2m antennas get about 5 watts each for an ERP of about 30 watts. The tripler produces about 5 watts on 432.057 MHz. After the power is divided there is about 2 watts for the antenna, producing about 5 watts ERP in the favoured directions. The second tripler is inefficient due to an ageing varactor and the output at 1296.171 MHz is only a few hundred milliwatts, boosted by an antenna gain to about 2W ERP.

"In less than a year VK6RBS has demonstrated remarkable propagation. It has been heard as far north as Exmouth on 144 MHz, and on 432 MHz has been heard by VK6ZPG at Gunyidi, north of Watheroo. VK6ZFY reports hearing it most days on 1296 MHz around Perth."

The congratulations of the VHF/UHF fraternity is extended to these good people who have spent so much time and effort in providing very useful instruments for your use, and the closer you are to them and thus the more reliable they are, the more useful you will find them. And many has been the time that a beacon has warned an alert operator that the band could be opening and possible contacts made. We are indeed fortunate in Australia that with a country as large as it is, there is such an all embracing network of beacons on so many bands ready and waiting to give warnings to anyone who cares to listen. Long live the beacons!

That about wraps it up for this month. Due to printing deadlines there is a shorter period for reporting this time, and most DX operating will start the day after this is posted!

Closing with the thought for the month: "A man is three people — what he is, what he thinks he is, and what others think he is." 73. The Voice in the Hills. Greetings for the New Year. **AR**

New Federal Awards Manager:
Bill Hempel VK4LC, QTHR.

PACKET RADIO

David Furst, VK3YDF
131 Church Street, Hawthorn, Vic. 3122

THE FUTURE

Packet Radio, as we have seen in previous articles on the subject, transmits information a few characters at a time, packaged, checked and addressed. This allows things like several QSOs at the same time, on the same frequency, without errors and without interference. (You really should have read the article in May '84 AR more closely.)

Because this information is all in the form of packages with labels on them we can identify each packet from the others and deal with it individually. All of Packet Radio is controlled by dedicated microcomputers — the rigs, the repeaters, etc and this makes it possible to programme these computers to do all manner of things.

A Packet Radio repeater listens to a given channel receiving, storing and checking all the packets that are flying past. If a packet has information within it which says that it is meant to be repeated then the repeater waits until the channel is free for a moment and then retrieves the packet from its memory, modifies it to say that it has passed through the repeater, then retransmits it. On the other hand, the repeater may see packets from a simplex contact. It will examine them as it sees them, but it will know that it is not meant to take any action.

An interesting situation appears when a station receives two packets from the other station with which it is having a contact: one from the other station direct, and one via the repeater (which is possible because this is all happening on a single channel). In this case the receiving stations microcomputer knows that it is supposed to be operating via the repeater, and it will ignore the packet it received direct.

If we consider the Packet Radio network like a postal system (which it emulates very closely) what we have been doing with the local repeater is just sending mail around our local postal district. This is all very fine, but occasionally we wish to send a letter to someone not in our own suburb. In this case we post it to our post office, it posts it to the post office in another district, and that post office posts it to the person we addressed it to.

Packet Radio allows us to send a packet to our local repeater, which sends it to the repeater in another area which delivers it to the person we addressed it to. This process takes only a matter of a second at most. A contact actually consists of many packets being sent back and forth through the system. This all operates in much the same manner as ongoing correspondence conducted via the postal system.

It bears pointing out at this point that this is where the similarity between Packet Radio and the postal system ends. Packet Radio works reliably.

The technology is developing such that it will be possible in less than twelve months to have a 'Packet Briefcase' containing a two metre rig, a Packet Radio rig, a portable computer and a battery which will allow us to tap into the local repeater.

At the same time interstate links have been developing, and it will be possible to ask the local repeater to 'connect' us to an interstate repeater. The interstate repeater can be asked to further connect us to a station in its local area. In 1985 we may be using our briefcase to play games on a computer which is in a different state!

Packet Radio combines radio and computer technologies to provide a reliable and efficient communications medium. This makes things such as the Computerised Bulletin Board System possible. The CBBS, as it is known, has become a fixture of the Amateur Computing community.

The CBBS is a computer system running a specially written programme which makes it imitate a bulletin board such as you would expect to find in a community centre. At the community centre you would stand back from the board and scan the headings on all the messages tacked onto it. Once you found a message of interest you would move forward to read it in more detail. The CBBS operates in a similar fashion.

The Packet network will let you use your own keyboard and screen to type instructions and messages into the CBBS. You might ask it to type out the headings of all the most recently placed messages. After scanning these you might decide that one or more messages sound interesting and ask it to type them out in full.

Many people find it interesting to scan all messages on a CBBS and reply to most of them. Some people prefer to simply read what everyone else is up to. Others like to correct the mistakes anyone else makes, while some correct the correctors. You may check the CBBS at any time of the day or night and receive messages from, or leave messages for, people who are not near a rig at the time. The CBBS becomes the hub of a community where no-one has to call another station all week on the repeater before they get them.

Another kind of service which has become popular in the amateur computing community is the Remote CP/M System or RCP/M for short. As well as having a small bulletin board facility it can act as a remote CP/M computer system which you can load programmes onto for others to download into their own computers. These systems have become an extremely efficient method of distributing public domain programmes around the hobbyist community.

There have been concerns expressed about people using Packet Radio for illegally copying programmes to which they have no right. In theory this is possible, however because of the public nature of Packet Radio transmissions, such conduct would be much too obvious for anyone to attempt it without being found out.

Other areas of amateur radio (notably two metre repeaters) have problems with policing reasonable standards of conduct. We believe that Packet Radio is inherently self policing. If anyone behaves irresponsibly, he is immediately identified by the signature in his packets thereby denying him anonymity. If this continues then comments will begin to appear on the Computerised Bulletin Board System. In the fullness of time this may become a full scale public debate on this persons behaviour, and if the community feels that action is warranted, they may bar this person from accessing the various systems hooked up to the network or perhaps even from the network itself.

The Amateur Computing community has been using CBBS and RCP/M systems for several years via the telephone system and appropriate modems hooked up to their computers. They are technical people after all the best traditions of amateur radio and we have much in common with them. They have as little knowledge about linear electronics as many of us have in the area of computing. We believe that there is an enormous amount to be gained from communication between these two communities and would like to see CBBSs and RCP/Ms which can be accessed from both the telephone system and the Packet network.

There is concern over CBBSs and RCP/Ms with access both by radio and by telephone. We agree that if it were possible to ring in on phone and go out on Packet this would be a most undesirable situation. It is not now, nor has it ever been our intention that this be possible.

A second area of concern is that there may be unsuitable material on the CBBS which should not be transmitted over the air. We do not see this as a insurmountable problem. No-one looks at all the messages 'blind'. All CBBSs have a summary of message titles which are scanned for material of interest and the messages are then selectively retrieved.

In 25,000 odd calls to the Microcomputer Club of Melbourne (MICOM) CBBS it has been extremely rare that any offensive messages have been left. The trend is now that much as anyone can look at the contents of a CBBS, only people with an appropriate password may leave messages, and any message left automatically has the name of its originator associated with it. This system can kill off distasteful messages entirely.

Other areas of Packet Radio which people are showing interest in are: Bulletin Boards on satellites, using meteor showers to reflect packet transmissions, store and forward satellites to hook countries and continents together, etc.

Many of us are working toward this bright future. We expect it to bring a flood of new techniques and people to enrich Australian Amateur Radio.

Note: David is most willing to answer any queries regarding Packet Radio that members may have. Drop David a note at the above address and he will answer any questions in this column.

AR

QSP

INTERNATIONAL 28 MHz BEACONS

The following is a list of beacons operating on 28 MHz.

Freq	C/S	Location
28.175	VE3TEN	Ottawa
28.2025	ZS5VHF	Durban
28.205	DL0IGI	Mt Predightssluhl
28.2075	KE4NL	Sarasota Fla
28.210	3B8MS	Mauritius
28.2125	ZD9GI	Gough Island
28.215	GB3SX	Crowborough
28.2175	VE2TEN	Chicoutimi Que
28.220	5B4CY	Zyyi
28.2225	HG2BHA	Tapolca
28.2275	EA6AU	Palma
28.230	ZL2MHF	Mt Climie
28.235	VP9BA	Bermuda
28.2375	LA5TEN	Oslo
28.2425	ZS1CTB	Capetown
28.245	A92C	Bahrain
28.250	Z21ANB	Bulawayo
28.2575	DK0TEN	Konstanz
28.260	VK5WI	Adelaide
28.262	VK2RSY	Dural
28.264	VK6RWA	Perth
28.266	VK6RTW	
28.270	ZS6PW	Pretoria
28.2725	9L1FTN	Freetown
28.2775	DF0AAB	Kiel
28.280	YV5AYV	Caracas
28.284	KA1YE/B	Henrietta NY
28.285	VP8ADE	Adelaide Island
28.2875	H44SI	under construction
28.295	VU2BCN	Mt Matilda
28.295	VU2BCN	New Delhi
28.296	W3VO	Laurel Md
28.300	PY2AMI	Sac Paule
28.3025	ZS1STB	Still Bay

from Region 1 News — Oct '84

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

Well our ALARA contest is over again for another year and I do hope by the time you are reading this that I have received your log, results will be out very soon.

Propagation was not too favourable but some very good scores were being passed on by some of the ladies. My very sincere thanks once again to all who participated and especially to the OM's, I overheard one say he was only worth 3 points so wasn't as popular as the YL's but those 3 points add up and help to boost our score. So come on fella's join us next year it's all good fun.

Mavis was very popular this year with the commemorative call VI3WI and logged up a good score. Unfortunately 80 metres was washed out by the electrical storms experienced on Saturday night so a lot of contacts were lost.

NEW MEMBERS

Welcome to new members Aimee FK8FA 22.10.84 and Mary KB6CLL 27.10.84.

Subscriptions are now due and Valda VK3DVT, PO Box 4, Middle Brighton Vic 3186 will be very happy to answer any enquiries and delighted to receive your subs. Australian membership is $5 per year; and if you would like to sponsor an overseas YL cost is $3 for the newsletters to go sea mail. $5 for airmail.

ALARA MERCHANDISE

ALARA also has available Badges and Charms (for keyring or chain) $4 each post paid, $3 if collected.

Teaspoons boxed $4.50 posted. $3.50 collected. These all depict our logo and are most attractive.

ALARA notepaper is also available 50 sheets $3 posted $2 collected.

YL DAY

On YL activity day 6th January a roster of VK3 members will be using the call VI3WI so look out for us on the usual YL frequencies 21.188, 14.288, 28.588 MHz and also on 3.588‡ QRM in the evening.

ALARA net times for daylight saving times are Monday 3.580 at 1000 UTC this will revert to 1030 UTC early in March.

LOOKING BACK

Looking back over 1984, the main highlight must be our first Annual Get-together and certainly this will be followed by others in the future.

YL's are becoming more active at zone and club levels and in the coming years I hope this continues. No I am not becoming sexist but feel that everyone has something to offer and a different approach will benefit all.

Publicity for our hobby has continued this past year. Jenny VK5ANW was interviewed on radio station 5SE; Joyce VK2DIX was interviewed for their local paper; Mavis VK3KS and Ivor VK3XB were interviewed for 3RPH the radio station for the print handicapped in Melbourne.

Mavis also was featured on the cover of 1984-85 Call Book. Other milestones in 1984 were the presentation to Austine VK3YL who has been licensed for 54 years.

The presentation to Helene VK7HD our president of The Mrs McKenzie CW Trophy who accepted this on behalf of ALARA and this will be suitably housed and a certificate presented to our top CW scoring novice YL in our contests.

Kim VK3CYL and Valda VK3DVT for receiving commendations for their entries in the WIA 75th Logo competition.

Judy VK5BYL conducts the slow Morse practise on Friday nights for the WIA on 3.550 MHz at 1030 UTC.

Above

Marlene VK5QO, Carol VK5PWA, Jenny VK5ANW and daughter Wendy, Joy VK5YJ and grand daughter Rebecca.

Below

Norma VK2DJO; Judy VK5BYL; Rae VK3AYL at Mildura.

Carol VK5PWA is president of the Lower Eyre Peninsula ARC. Val VK4VR is Junior Vice President and Liaison Officer in the VK4 Division.

Wishing everyone a very happy, healthy year for 1985.

Until next month 33,73,88 to all.

Margaret VK3DML

AR

WICEN NEWS

Jim Linton, VK3PC
4 Ansett Crescent, Forest Hill, Vic. 3134

Recognition, restructure, & revival — the three Rs of WICEN Victoria since Ash Wednesday.

Continued from December AR

WICEN Co-ordinator Derek McNeil VK3BYA outlines the post-Ash Wednesday restructure of WICEN.

Ash Wednesday was undoubtedly the catalyst necessary to bring WICEN Victoria back to life again. Not that it had died, but its numbers were down to approximately thirty loyal dedicated members. Whereas there are a few good emergency operators who manage to retain their ability without practice, it was evident many people would be far more effective in the field if they had some training and took part in the occasional exercise between emergency call-outs.

Ash Wednesday also revealed the need for good administration of WICEN resources and standardisation of operating procedures to ensure maximum operability between WICEN members and between WICEN and other emergency agencies.

Apart from those issues, WICEN was no longer part of the Victorian State Disaster Plan and, naturally enough, few people knew what WICEN stood for, what it could do or how to use it.

So began the Three R's of WICEN Victoria.

On 12 November, 1983, a general meeting of WICEN (Vic) appointed a Steering Committee to review the present organisation, recommend improvements — and where necessary, recommendations should actually be implemented in view of the imminent high risk fire season.

The Committee set to work immediately addressing the following matters:

— to identify and confirm the role of WICEN,
— to renew contact with other emergency services,
— to re-establish WICEN in the State Disaster Plan,
— to create greater awareness and understanding of WICEN within the Amateur Radio Service and the general public,
— to prepare a set of base level, standard operating procedures for use by all operators,
— to set up administrative procedures for membership recording, operator rostering etc,
— to review and confirm the State structure and regional boundaries.

Many of these tasks were completed by 31 March, 1984, when the next WICEN General Meeting was held. Some tasks were still in progress and have been continued since then.

It's of major significance that WICEN representatives now take part in disaster planning meetings at Regional and State levels and have been invited to participate in a number of emergency services seminars.

RECOGNITION? Yes, WICEN is now looked upon as an essential communications resource and there's a great obligation on members of the WIA Victorian Division, who, of course, called for the WICEN review, to make sure they can respond to the demands likely to be placed upon them.

RESTRUCTURE? Regional boundaries have been defined, regional representatives nominated and a central co-ordinating group established. Administrative procedures are being formulated and installed. Communication hierarchies have been set-up to ensure a quick assembly of operating groups.

REVIVAL? Yes, a partial revival has been achieved and a number of new club-based groups have sprung up in the past twelve months preparing themselves fairly well. The ultimate test is the next emergency/disaster callout. There are many operators who, only awaiting the next Ash Wednesday, will submit to neither practice nor training and, until that day, make no contribution to the furthering of WICEN. They have their uses — in making cups of tea!

The (other) Three R's of WICEN Victoria: Responsibility, Reliability, and Readiness.

AR

PACKET VIA METEORS

The recent Perseids meteor shower provided a good opportunity for experimentation with packet radio operation via meteor scatter. Various stations in the USA took part in tests, and W0RPK and K1HTV completed what is believed to be the first packet radio contact on 144MHz using MS. The tests were performed at 1,200 Bauds using AFSK FM: this mode was used in order to allow as many stations as possible to take part in the tests, although a sacrifice in performance was involved.

from Rad Com — Nov '84

AR

WICEN NEWS

Ron Henderson VK1RH
FEDERAL WICEN CO-ORDINATOR
171 Kingsford Smith Drive, Melba, ACT 2615

NATURAL DISASTERS ORGANIZATION

During the first quarter of 1984 Air Vice Marshal John Lessels took over as Director General of the Natural Disasters Organization from Major General Ken Lachford, who retired. AVM Lesseis is a civil engineer and was formerly head of Air Force works. He was briefed on WICEN by the Federal Co-ordinator in early November.

NDO ANNUAL EXERCISE

WICEN was advised In late October that the annual NDO command post exercise for 1984 would be an all in-house activity and there would be no requirement for a WICEN communications demonstration. The exercise scenario is one of a disaster occurring on one of our South Pacific Island state neighbours and as it will be fully simulated in Canberra any communications to the nation might cause unnecessary alarm. Perhaps if procedures are tested this year NDO might extend their scope next exercise. You will recall that last year WICEN provided communications to an Australian Territory, Christmas Island, for the annual exercise.

COMMUNICATIONS EQUIPMENT CONNECTORS

You will recall that earlier in 1984 I reproduced a UK RAYNET article on communications connectors. Paul Webster VK2BZC has written in response to that item and his letter is reproduced below. Whilst interoperability is a worthwhile goal, it does not need to be achieved nationally, or even state wide as its greatest application is at the local WICEN group level.

Dear Ron,

I am most impressed by the (reprint) article in July AR '84. My interest stems not only from some small interest in WICEN, having taken part in a few City-to-Surf exercises while not a paid-up WICEN member (last year in fact, in my professional capacity instead), but also from considering the problem of patching together equipment in the shack, such as RTTY gear or a land-line interface, and the possibility (distant) of building a central control panel for a variety of rigs.

The Raynet idea as described sounds excellent, and for the moment, I an implementing it on my equipment for the above purpose. Discussion with my father, Jim VK2BZD who, as the Callbook would have him, lives in Sydney still and who IS a paid-up and active WICEN member, revealed a local standard already in use in Sydney. In case you are unaware of this, it consists of a 5 or 6-pin 270-degrees DIN *connection making, I assume, the same usage of the 'sexes' as the Raynet standard, and has the following pin allocations:*

1. +12V supply
2. Audio Output
3. Ground
4. Microphone
5. PTT
6. 'Busy' (Optional)

The 'Busy' control line is most useful, implemented in the rig by an NPN transistor switching to ground, with base drive current adequate to allow sinking of at least 200mA in the 'ON' state when the mute is opened. A suitable cross-connect lead (which must contain attenuators in each direction) then allows two rigs on different bands, or on the same band separated by a suitably great distance, to be used as a repeater. Back EMF protection should always be (and usually is) applied to the T/R relay in the set. Just in case, a 24V zener can be connected across the 'Busy' transistor.

The obvious extension of the Raynet plan, therefore, is to use 8-pin DIN connectors, which are at present (in Sydney) as readily available as the 7-pin variety, and which are compatible with them in the same way as the 6- and 5-pin 270 degree types. The (off-) centre pin then has the same function as in the Sydney standard.

Jim has, on my behalf, put this idea to Sydney WICEN who rejected it for several reasons:

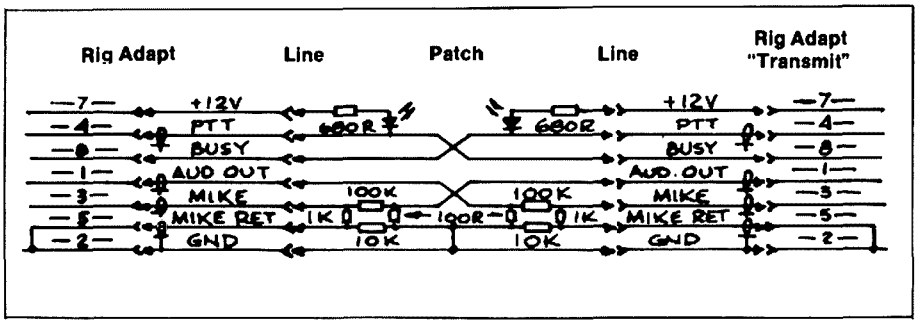
1. Multi-pin fittings too fiddley for OM's to wire.
2. Secondary output circuit is not necessary.
3. Nobody uses balanced mike circuits.
4. It doesn't follow DIN standard pin definitions.

I cannot completely agree, however, with these arguments, or to put it another way, I am still entranced by the Raynet plan, plus the obvious adaptation for the 'Busy' line. My replies are:

1) There is very little difference in pin spacing between 5- and 7-pin 270 degree fittings. The 'centre' pin is equally difficult to solder (and should be done first). If, however, one is only using 3- or 5-pin 180 degree fittings, these are quite easy to solder, decent quality ones having a separate large tab for pin 2.

2) The original article explains this.

3) While balanced mike circuits are rarely seen since the era of the AWA carphones, the mike return is of tremendous value in reducing interference and hum (whine etc). Careful analysis of the construction of attenuators reveals that if the ground legs are taken to their respective returns, then 'Earth Loop' signals are attenuated also:



(The resistor between the two earth lines in the patch is for compatibility with true differential mike inputs. The 100 ohm 'load' resistor is probably not required.)

4) A moot point. The DIN standard does define signal directions for the connector in stereo, balanced and mono modes, although function of a given pin as input or output depends on whether the device is an amplifier or recording equipment. Confusion regarding this leads to ready availability of interconnection cords with both 'straight' and 'reversed' connections. At least some of these, if chosen correctly, will be immediately useful in the minimum Raynet plan and others can be conveniently 'cannibalised' to produce 'rig-adaptors'. Also, using an appropriate ready-made lead, a tape recorder COULD be plugged directly into the paralled socket of the 'line', notwithstanding lack of conformity with the 'true' DIN standard. By comparison, very few ready-mades can be adapted to the Sydney convention!

In summary, then I am suggesting a natural extension of the Raynet convention as published, and remain sure that it offers significant advantages over, and greater versatility than the current Sydney convention, and is worth 'pushing'. A few further observations on the article and on conventions:

1) Four-core cable, RS catalogue 367-577 is equivalent to Dick Smith W-2038. I can't find a catalogue equivalent from Tandy. Radio Spares has branches in Perth and Sydney.

2) A common convention for 12V supply uses 2-pin polarised Extra-Low-Voltage plugs (Clipsal 495) and sockets with a 'T' orientation of the pins. Unfortunately, while common sense suggests that the vertical of the 'T' be the ground for conformity with the standard for 240V mains fittings, some renegades opt for the opposite. These connectors are an obvious, very rugged, choice.

3) I personally, along with many others use 6.5mm phone plugs for 12V connections as a matter of compactness and cheapness. The plastic fittings are not very rugged, however, while the cheaper line sockets short during insertion etc, and there is some danger of confusion with common audio appliances. Alternately, Telecom and military disposals plugs and jacks are EXTREMELY rugged.

4) A compact connector for a 12V supply is the 2-pin, 'arrow' profile Utilux connector set (Tandy 274-222) used to some extent by Sydney WICEN, as well as some CB sets. This fitting is adequately rated and convenient, but probably has a limited repetitive connect-disconnect life.

Perhaps you may discuss such standards for 12V power supply in a future column in AR? In any case I will hope to see to what extent the Raynet convention is adopted by the regional WICEN groups, as I feel that a widely accepted convention is of tremendous value.

73,

Paul B. Webster VK2BZC

AR

MICROS PRODUCE THE COMPUTER-LITERATE GENERATION

By the time the current generation of school children and students complete their education, Britain will be the only country with an entire generation literate and versed in computers and computer technology.

Every single one of the country's 10.6 million pupils and every one of the 0.5 million students have access to a computer at some stage during their education — and mostly on a daily basis.

Due to the government's far-sighted programme "Micros in Primary Schools", launched a couple of years ago, 18,000 primary schools have been able to buy microcomputers for their classrooms. Higher up the age groups, 5,800 secondary schools have computers as do 868 polytechnics and 45 universities.

As if these figures are not impressive enough, Britain has the highest number of computers in the home in the world. An astonishing 2.7 million homes — 12 per cent of the total — own their own computer. Allowing an average of three people per home, this means more than one-third of the entire population uses and understands microcomputers.

from Information Technology from Britain 25.10.84

AR

LISTENING AROUND

Joe Baker, VK2BJX
Box 2121, Mildura, Vic 3500

Imagine yourself, as I was, an army switchboard operator on duty at Pine Creek in the Northern Territory, when suddenly the shutter signalling a call from the local area office drops, and an official voice asks *"We have a message for Sig Baker. Is he available?"* Of course, I was available and speaking. *"What is the message?"* I asked.

"You are to present yourself at the area office at 10 am tomorrow morning, escorted by two corporals with sidearms, before Area Commander Captain Pickett. This is an order, ***do not fail to obey it.***"

When I recovered my composure, I dared to ask the caller what the matter was all about. *"You will be informed when you present yourself. Just make sure of your presence,"* the caller said before hanging up.

The following morning, equipped with sidearms, and dressed in full regulation uniform, with one corporal in front, and the other at the rear, I was marched across the railway line at Pine Creek to the area office and there paraded before the august presence of the Area Commander. I hadn't a clue as to what I had done wrong, but it was evident that it must have been something very serious.

After throwing the usual ceremonial salute, and identifying myself, he produced a long envelope and asked if I had sent that envelope and its contents to the Australian Broadcasting Commission. I took one glance at the envelope, and said yes, that I had written that story and posted it to the ABC some days before. It was one of several stories that I had written about the Northern Territory, and I think this one concerned an Army race meeting (the army's version of a NT Melbourne Cup).

He then began to read the charge, which was in effect that I had by so doing **broken the National Security Regulations — which was about as serious a charge as one could be guilty of especially in wartime.** It appears that my story to the ABC had been intercepted by military police somewhere down south — probably in Adelaide, their interest having been sparked by the fact that the envelope bore no censors mark, and it was customary for all mail at that time to have to pass an official censor before it left the Northern Territory. He then asked me how I pleaded and I said *"Not Guilty, Sir."*

"May I remind you Signalman Baker that I am the official censor for this military area, and this piece of correspondence ***never came to me*** *for censoring. How did you manage to smuggle that envelope out of the Territory, was it by rail?"* he asked.

"I have no knowledge of how it got out of the Territory without being stamped by a censor," I replied. *"As you know sir, the railway line from Darwin finishes near Birdum, not Adelaide, and since you went on leave Sir, it has been the custom for signallers to send all outgoing mail to our own headquarters at Adelaide River (70 miles north of Pine Creek). All I know Sir, is that I put that piece of mail in the bag going to Adelaide River, and how it got down south without having been censored, I do not know."*

Captain Pickett admitted that this put a different complexion on things, and said that he would give me a remand of one week, so that he could check my story. That was the last I heard of the matter, for a short time later Captain Pickett was involved in a head-on collision between two military vehicles, in which both he and an RAAF driver lost their lives. I was on duty at the switchboard at Pine Creek when news of collision came through, and you will read about that later.

In the Northern Territory, when you are in at an isolated place like Pine Creek, facing long hours of boredom, all the days seem the same, and you resort to all sorts of rouses to pass the time. However I spent many an hour talking to other switchboard ops in other isolated areas. My particular mate was an operator at the army detention centre — a place called Brocks Creek, about 40 miles to the north of me. Known to all as "The Count" because of his classy voice, he had, I believe, before the war been a Yarra Bank orator, and he could rage on and on about Einstein's Theory of Relativity, the Cosmos and Religion for hours. He seemed to be a never-ending fund of knowledge, and utterly wasted operating his Pyramid switchboard at Brocks Creek. I don't think anyone ever won any argument in which he was involved.

I mention him not because of any particular incident or happening but just because he was a character in his own right. When, in the course of time, I was due to leave Pine Creek, I met him for the first time when he came to relieve me. He was as scrawny as they come — and came complete with about 100 or more books which were where he got his knowledge from.

Part of our communications system at Pine Creek included a pigeon loft containing about thirty birds and it was the job of one soldier to look after them.

At Pine Creek we also had a Cypher Clerk, who had been coached in the art of cyphering by a certain Lieutenant who used to visit Pine periodically for the purpose.

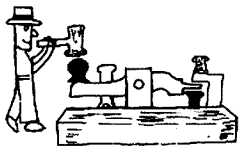
When he was visiting, he was closeted with the soldier he was training in a special room which was out of bounds to the rest of us. Knowing nothing about cypher work, I don't know what happened in that room, but it was all so very, very secret.

Although we didn't have any radio transmitters at Pine, at this time, the army did have what was called the "substitution code". It was a means by which if one radio operator became suspicious that "the enemy" might be listening, a word such as "apple" could mean that such and such a unit was moving, and hopefully the enemy wouldn't have a clue as to what "apple" meant. However it was a much more involved code than that and there was a system by which, taking into consideration the time and day of the month on which contact was being made, one operator could challenge the identity of another. All this was on the top secret list of course and in wartime what is known as "operators chat" was not permitted. Operators were also discouraged from having particular mannerisms of speech, for example if one operator had the habit of making a slight cough while using Radio Telephony and his unit moved to another area, the listening enemy could be sure that his whole unit had moved.

However, operators using sounders on the Overland Telegraph line were free from such restrictions. One operator that we had at Pine Creek used to crack jokes and another operator somewhere down south used to obtain the most up-to-date racing information and for a price, such news sheets were distributed to soldiers with racing interests all over the Northern Territory. "The Whispering Wire" as Mrs Anaeas Gunn called the Overland Telegraph line, had found a new use in World War Two.

This is not yet the full story of my army days in the Northern Territory, but for now the best of 73s from

Joe VK2BJX
AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

Whither CW?

During the brief history of amateur radio there have been occasions where a physical mode of operation has given way to something newer and better, just as the dinosaurs vanished when they were no longer suited to their environment (or vice versa). Spark gave way to CW, and AM gave way to SSB. Nobody has yet suggested that SSB should give way to FM, but scarcely an amateur magazine appears in print without someone suggesting that CW is a dinosaur that should have died out years ago, when microphones and code-free (technician) licenses were invented.

When spark and AM bit the dust, it was for a very good reason — amateurs as a group benefited from the transition to more efficient modes which made more effective use of the available spectrum. If spark and AM were still the going thing, there would be room for far fewer operators on any given band at any given time. But why be-labour this — very few operators would seriously argue that the status quo should be changed at this late date.

Even during the transition from spark to CW there were those who predicted an end to the hobby as a result. Spark was the mode they knew, and it was the only mode they wanted — at least till it was proved incontrovertably that CW was far more effective with far less power.

And of course AM is still alive and well — on 160m and wherever some budding 21st century Marconi has built himself an AM transmitter out of old TV parts.

The point is simply this — operating modes are very very difficult to kill — it takes a combination of superior technology and legislation, and even then there will be objectors. So to that limited extent, the future of CW seems reasonably assured, but those are surely very negative reasons for its retention.

What sort of superior technology will replace the human ear? CW can almost always out-perform any other amateur mode when conditions are poor, simply because the ear is more discriminating than any machine, and CW relies on the detection of the presence or absence of a tone (not it's pitch, or pronunciation, or any other form of modulation). Add to that the advantages that it is technologically simple, efficient, and inexpensive, that standard messages can be communicated between operators who cannot pronounce each other's languages, and you have a very attractive proposition — which is why there are so many enthusiastic users of the mode today. It is also the reason so much continuing technical effort is devoted to such operating conveniences as keyers and filters.

To some extent it is probably fair to say that CW operators belong to a traditional hard-core of amateurs whose primary interest is in communicating with other amateurs. This is where it gets a bit risky. The legal aspects of the hobby are always controlled by non-amateurs, who rely on amateur organisations for guidance. These organisations tend to be dominated these days by people who are more interested in current events (so to speak) and their own particular areas of interest. This means that the hobby as a whole can be controlled by people who have no particular interest in CW, and who may never even have used a key.

Don't think for one minute that we are not extremely fortunate to have our exclusive usage segments — they have come under attack before, and undoubtedly will again. Each time there are more trendy techniques around, and CW is that little bit older and more "antique" so it seems to many that our privilege is too great.

CW as a mode needs a higher profile if it is to survive into the next century. Every CW operator should make a point of working the slow newcomer occasionally, and of encouraging (on SSB, at WIA meetings, in the local press) as vocally as possible our non-vocal mode. Write a letter to the Editor of AR supporting the mode and retention of the Morse exam as a requirement for licensing. *Make Yourself Heard.*

Here endeth the reading . . . And on to signal reporting, as promised.

In CW operation, the standard report format is called the "RST Report," a three digit number representing an appraisal of Readability (R), Strength (S), and Tone (T), in that order.

READABILITY

Reported on a scale of 1 to 5, where 1 represents no readability and 5 equals perfect copy. Assuming that "copy" is our ability to derive intelligence from a received signal, perfect copy would represent 100 per cent reception with no difficulty. For the record, the scale is:

1 No readability
2 Barely readable (only occasional words)
3 Readable with difficulty
4 Readable with practically no difficulty
5 Perfectly readable

The word "difficulty" as used above presents some problems. Keeping in mind that we are talking about actual signals here, you should ignore "difficulty" that you might experience due to your own copying ability or the other station's sending speed.

Note that there is no provision for a report of Readability 0-R1 means no readability, and you can't get any lower than none!

STRENGTH

Reported on a scale of 1 to 9, where 1 represents faint signals and 9 represents extremely strong ones:

1 Faint, barely perceptible
2 Very weak
3 Weak
4 Fair
5 Fairly good
6 Good
7 Moderately strong
8 Strong
9 Extremely strong

A great degree of judgement is called for in giving a strength report. "S-points" cannot be measured objectively outside a laboratory, so meter deflection should be taken as a relative indication only. For example, my own S-meter is sluggish on 10 metres — if it twitches the received signal must be at least S8! As far as possible, give a report which indicates the strength relative to other signals on the band. It may seem strange to give an S9 report when the static noise level is S9+3dB, but there is scope in the report amplifications to explain that one, as we shall see next month.

Never, never, never give a report of S0. It just makes you look silly, because if there is no signal strength at all, there is no signal — and nothing for you to report on in the first place.

For practical purposes, readability can give a clue to the appropriate strength report, at least to this extent — if the Readability is 5, Strength can't be less than 3. Look at the tables and think about it.

TONE

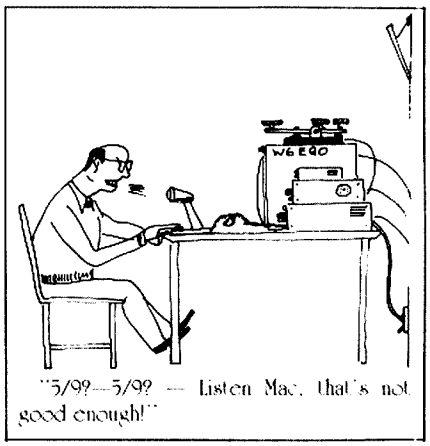
Yes, tone . . . Well, what can we say about tone? This report goes right back to the days of spark. T1 is defined as a rough, hissing note, while T9 is defined as a pure DC note with no trace of ripple. I think in technical terms a report of less than T9 would have to represent some form of modulation, but you don't often hear it.

***NOTE:** Technical faults such as Chirp, Drift and Clicks do not mean sub-standard tone. They will be covered separately next month.*

I once got a report of 5/9/8 and I was so shocked I nearly broke the paddles going back with *"WHY T8? WHY T8?"* The answer I got was *"SRI OM RCVR HR NOT VY GUD."* He knew the fault was in his receiver, but he still wouldn't change my report. Oh, well . . .

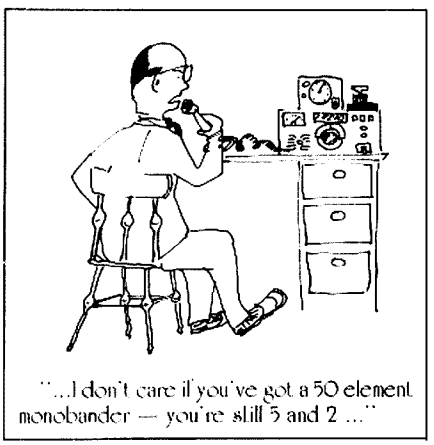
Till next month — may all your reports be 5/9/9.

AR



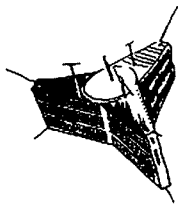
"5/9?—5/9? — Listen Mac, that's not good enough!"

"Yes OM — your QRG is 14214.6397413kHz!"



"...I don't care if you've got a 50 element monobander — you're still 5 and 2 ..."

Cartoons by Bill Martin VK2EBM



AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR
INFORMATION NETS
AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.680 MHz Summer: 7.064 MHz
AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz
AMSAT SW PACIFIC
Control: W6CG
2200 UTC Saturday
21.280/28.678 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and Graham VK5AGR.

UPS AND DOWNS.

Once again from Bob Arnold VK3ZBB we have the latest list of Launches and Re-entries of man-made objects. We are deeply indebted to Bob for his contributions each month.

AMSAT GENERAL MEETING

Graham VK5AGR and Peter VK7PF were attendees at the AMSAT Annual General Meeting held on the weekend 10th and 11th November 1984, at Los Angeles. Following the AMSAT AGM Graham and Peter were Planning to visit the University of Surrey, AMSAT-DL at Marburg and the Budapest University to ascertain the latest developments in the Amateur Satellite Service. We look forward to a detailed report in a future issue of Amateur Radio.

W3IWI COMPUTER PROGRAMME

Many readers will have a copy or variant of the Tom Clark Orbits Programme that utilises the Keplerian Element set. As users will be aware you do require a CURRENT YEAR set of Keplerian Elements. However they do take a few days into the New Year to filter through from the United States. Therefore until you get a 1985 Element Set for your favourite satellites here Is an operating hint to help you through and overcome the "Elements not from current year" Error.

If you wish to run the Programme using the 1984 Set on the 1st January 1985 insert the Date into the Programme as 32nd December 1984, similarly the 2nd January becomes 33rd December 1984.

PHASE 4 PROGRAMME

The following excerpts are from a paper prepared by Jan King W3GEY, AMSAT Vice-President, Engineering. It details a concept for the next generation of satellites. It is purely a discussion paper to gauge reactions from the worldwide Amateur Satellite Service. Any comments that you wish to make following a read of these excerpts would be greatly appreciated. Comments to Graham VK5AGR. The complete paper has link calculations and substantial technical discussion and derivation. Any person wishing to peruse the complete paper can obtain one by sending a request to Graham VK5AGR, QTHR and include $1 for Pack and Post.

AMSAT PHASE-4 CONCEPT

by Jan A King

INTRODUCTION: The following concept has occurred to me over the course of the past several months during the preparation of AMSAT's long range planning document. I believe the concept put forward here is, in fact, very ambitious and could be done only if an extreme commitment could be made by all international parties both in the area of financial contributions and in technical effort on the satellites and ground stations. I also believe that the effort would result in a mission that could change amateur radio in a major positive way. It must also be stated that this approach is the most ambitious concept of a family of such possibilities. I hope the ideas expressed here will be taken as constructive to the overall international programme; whether they ever evolve into a mission is entirely dependent on the people who must do the work. The concept must be traded against various national and international priorities.

MOTIVATION: The motivations of this concept result from my collective experience in over 15 years of work with the amateur satellite programme. The past two years, however, have been most formative. The following specific facts or impressions are most important:

1 The best communications capability for the amateur satellite service has not as yet been achieved. 24 hour per day service on a global basis has not yet been achieved. The successful launch of Phase 3-C will not accomplish this objective even if AO-10 lasts for another 5 to 6 years.

2 Different amateur satellite groups have different expectations as to how the amateur satellites should be used and operated. These differences should be accommodated and it is the right of each group to expect that the satellites be operated in accordance with their wishes.

3 No clear preference exists within any one satellite group (let alone among all of the groups together) as to the best mode of satellite transponder operation.

4 Satellite system complexity for high earth orbiting missions suggests that satellite construction groups work together internationally in order to accomplish goals that could not be reached by any group working by itself.

5 Unavoidably, but regrettably, the Ariane L-6 mission Sylda which contained P-3B was virtually empty. As an on site observer, knowing the value of such a vast mass margin, gazing into Sylda was nearly enough to make a grown man cry! At the same time I realize the level of effort required to achieve the completion of the P-3B project.

6 The Ariane-4 opportunity available to us will have an even larger wasted mass margin if we fly only a Phase-3C spacecraft in our proposed payload position.

7 The launch of a single synchronous satellite for the amateur service is simply unfair and would strain the relationships of the international satellite community.

8 The launch of multiple payloads on a single mission allows for cleaner segmentation of work while allowing for the advantages of a common design. Mass production and larger parts procurements provide cost savings due to economy of scale. This approach allows for participation on a single focused mission on a truly international scale.

9 Both the UOSAT and PHASE-3 programmes have demonstrated shortcomings in pre-launch planning for mission operations. This situation must be rectified if an international programme is to survive.

10 In the US where funds cannot be realistically raised via government sources and no University "umbrella" has been found to foster the programme, it is clear that powerful fund raising techniques must be used in order to raise the level of funding necessary to support each project. It will be more difficult to raise funds for a repeat mission than to raise money for an exciting new programme.

11 Discussions with Ariane planners have suggested that lower cost missions might always be available on Ariane provided that additive costs for the missions can be found and that the satellites themselves are within a load carrying structure for the primary satellite (P-3C case) or become the load carrying structure for a primary satellite (eg: Apple, Viking/Sweden).

12 It has been the goal for some years among members of the Phase-3 team to find a method of co-operation with amateurs of the USSR on an amateur space project.

MISSION CONCEPT: The proposed mission would effectively use the Ariane-4 mission (or a later launch) volume to place a constellation of six (yes, 6) satellites into geostationary orbit. The spacecraft would be transferred into geostationary orbit by a common "carrier" and would be ferried through the drift phase of the mission and would then be deposited, two at a time, into each of three geostationary orbit positions by the carrier. The mission would rely heavily upon Phase-3 technology. The six "subsatellites" are fitted into a seven topology hexagonal pattern and released much as with the FIREWHEEL mission planned by MPE. Fabrication of subelements of the satellites are accomplished by "groups" internationally. A group is the collection of workers within any country or geographic area who agree to co-operate as a single entity. It could also be two countries working together. One group, for example, the Technical University of Budapest, might build six BCR units. Once all of the hardware subassemblies had been completed, each of six groups would then integrate a subsatellite from the kit of equipment provided by the groups collectively during the first phase of the programme. A key feature of this proposal is that each satellite would carry one transponder agreed upon (by all) as the "international standard" — in the proposal I am suggesting mode-L — and one or more "experiment(s)" of the choosing of each group. The special experiment is to be of the group's own choosing and may not be influenced by the other groups so long as the performance of the internationally agreed transponder is not compromised. Once the satellite is "on-station" the operation of the satellite is the responsibility of the integrating group, however, it is strongly recommended that the team that physically built the satellite be separate from the team (within each group) that will operate the satellite.

APPROACH TO INTEGRATION GROUP PARTICIPATION:

APPROACH #1:
S/C #1: AMSAT-UK/UOS/SA AMSAT
S/C #2: AMSAT-DL
S/C #3: AMSAT-US/AMSAT-CANADA
S/C #4: JAMSAT/AMSAT-NZ/WIA
S/C #5: TECH UNIV BUDAPEST/DOSAAF-USSR
S/C #6: RACE-FRANCE
CARRIER: UNIVERSITY OF SURREY
POSSIBLE ADDITIONAL HELP: AMSAT-NL, AMSAT-SW, PACKET GROUP, SWEDEN

APPROACH #2:
S/C #1: RACE/FRANCE
S/C #2: AMSAT-DL
S/C #3: AMSAT-US
S/C #4: AMSAT-CANADA/SA AMSAT
S/C #5: JAMSAT
S/C #6: TECH UNIV BUDAPEST/DOSAAF-USSR
CARRIER: UNIVERSITY OF SURREY/AMSAT UK. The carrier could become a scientific platform carrying a variety of experiments.
POSSIBLE ADDITIONAL HELP: As above.

APPROACH #3:
S/C #1: AMSAT-DL/TECH UNIV BUDAPEST
S/C #2: AMSAT-DL/TECH UNIV BUDAPEST
S/C #3: AMSAT-US/AMSAT CANADA
S/C #4: AMSAT-US/AMSAT CANADA
S/C #5: AMSAT UK/UOS
S/C #6: SA AMSAT/AMSAT NZ/WIA
CARRIER: UNIVERSITY OF SURREY
POSSIBLE ADDITIONAL HELP: JAMSAT, RACE

PROPOSED SUPPORT PROVIDED BY GROUPS TOWARD THE COMMON PROJECT:

Integration (Assembly of Carrier and installation of subsatellites): University of Surrey
Structures for Subsatellites: AMSAT-US/AMSAT-DL
Carrier Module: Structure: University of Surrey. Propulsion: AMSAT-DL/MBB. Solar Arrays: AEG Telefunken or Solarex.
Sensors: AMSAT-DL
Reaction Control System Components: AMSAT-US
Batteries: GE/USA and/or Saft/France
BCR's (X2 Power Capability): Technical University of Budapest
Assembly of Battery Packs, IHU's, SEU's, LIU, Nutation Dampers, Antennas, Thermal Components, and other system small units could be shared among the groups participating.
Transponders: One of the problem areas. Clearly AMSAT-DL cannot build 6 Mode-L transponders on their own. A method must be found for sharing and "productionizing" this work.
Special Experiment (Transponder): The responsibility of each participating group to build or obtain their own special experiment(s).

USABLE PHASE-3 TECHNOLOGY:

Integrated Housekeeping Unit
Battery Charge Regulator (X2 increase in output capability, must be added).
Senesor Electronics Unit (See notes later in presentation).
Liquid Motor Ignition Unit (One unit on Carrier Mudule).
400 N Motor
Propellant Flow Assembly
Battery Packaging Technology
Sensors (Earth and Sun)
Nutation Dampers
Mode B Transponder (For those interested in using this as their special experiment).
Telemetry and Command Standards

NEW REQUIRED TECHNOLOGIES:

Mechanically Despun Antenna or Platform
MDA Drive Electronics
Reaction Control System
RCS Electronics
Mode-L Transponder/Antennas
Subsatellite Separation System
Synchronous Orbit Ranging and Orbit Determination System

POSSIBLE SPECIAL EXPERIMENTS:

Packet or Digital Communications Experiment/ Transponder
Mode B or Mode J Transponder
Microwave Transponder
Satellite-to-Satellite Communications Experiment
Synchronous (High B-Shell) Magnetometer; Partical or Radiation Detectors.
Data Storage/Mailbox/Advanced Beacon Experiments/Voice Synthesizer.
Mode-A Transponder (USSR?)

PROPOSED ORGANIZATIONAL ARRANGEMENT:

1 Each subsatellite will carry one 500 kHz Mode-L Transponder in support of the international satellite system.

2 Each subsatellite may carry one or more experiments that are of a regional nature defined by the group integrating that satellite. Experiment mass and power may not exceed established limits and the experiment may not interfere with the Mode-L transponder. Time sharing of experiments is addressed below.

3 Project has a single design authority — K Meinzer.

4 This authority includes the design of the subsatellites and the propulsion system of the Carrier Module.

5 This design authority does not include the specific design of the Carrier Module.

6 This design authority does not include the design of the ground control network.

7 A design review committee will meet periodically to review the overall project design. One design review member will be appointed from each group.

8 Each group will integrate one or more subsatellite(s).

9 Subsystems will be fabricated to AMSAT-DL specifications but, built by various groups according to their interests, abilities and expertise.

10 Piece parts are provided by various groups according to the best price and quality of equipment.

11 Each subsatellite will operate Mode-L and meet the standards of the international system. Mode-L will operate a minimum of 75% of the time per day. The special experiments can operate up to 25% of the time per day (or longer if they do not interfere with Mode-L and they do not exceed their power allocation of approximately 20 W).

12 The Mode-L OFF time must not occur simultaneously for two satellites at a common geostationary slot.

13 All subsatellites must have absolutely common external interfaces. The addition of special experiments cannot violate these interfaces.

14 The ground control network is managed separately in a team arrangement. This team acts in parallel with the spacecraft team. The ground control network is made up of members from each group.

15 Once the subsatellites are on station, each is maintained by its own organization (group). Backup arrangements can be made on a case by case basis.

16 University of Surrey/AMSAT-UK will act as the system integrator.

17 AMSAT-DL will act as single point of contact with the launcher authority.

18 An MOU is signed by all participating groups in advance of signature of the ESA contract.

19 Final ESA contract signed by K Meinzer but with counter signatures (of responsibility) by each group. The intent is not to cause AMSAT-DL to be responsible for any financial burden should problems arise.

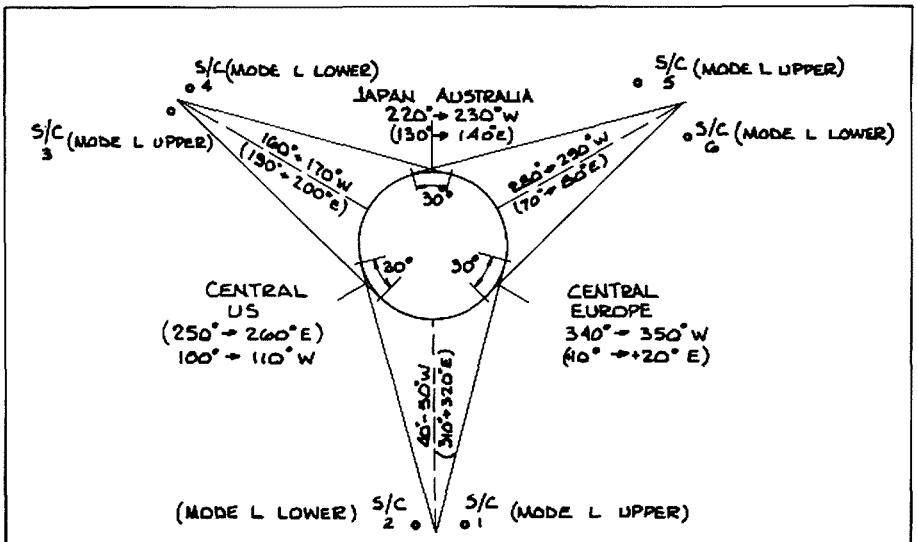
20 Metric standards will be applied for the project design. (Screws, nuts and bolts could be an exception.)

21 A fund raising quota system could be proposed for each group. Each group is not necessarily responsible for raising 1/6th of the total funding. Larger groups would be expected to pick up a larger percentage of the cost burden.

22 IARU, Regions 1, 2, 3 to support shipping, transport and travel costs (as a minimum).

23 Larger groups like IARU, ARRL, JARL, RSGB, DARC should get very excited about this kind of a system. They should be more prepared to pay.

de Colin VK5HI
AR



PROPOSED ORBIT POSITIONS

- Each S/C can view ±75° of longitude at 55°N latitude or 150° total longitude
- 3 S/C, equally spaced can see 450° (@55°N latitude or 55°S latitude)

∴ 3 S/C have 90° of overlap at 55°N or S or 3 zones of overlap each 30° wide.

NOT TO SCALE

- Major population zones can view 4 spacecraft and have access to 4 transponders totalling 2 MHz of bandwidth.

NEW ENDORSEMENTS FOR WAC

The Administrative Council has created two new endorsements for the Worked-All-Continents award: FAX and QRP.

Amateurs who have achieved two-way facsimile (A3C, F3C or J3C) communication with all six continents may request FAX-endorsed WAC certificates. In honour of the pioneers in this mode who may be now engaged in other activities, contacts of any date, past or future, are valid. FAX certificates will *not* be numbered, consistent with the practice for SSB, SSTV and RTTY certificates.

QRP endorsement will be available from 1985. The endorsement will be in the form of a sticker for affixing to a basic (CW or mixed-mode), SSB, SSTV, RTTY, FAX or 5 band certificate. QRP is defined as 5 watts output (10 watts input) or less. Only contacts made *on or after 1 January 1985* will be valid. The applicant must make the six contacts while running QRP; there is no restriction on the power of the stations contacted.

The other endorsement stickers that are presently available are for 1.8 MHz, 3.5 MHz, 50 MHz, 144 MHz, 432 MHz and 6-band operation. Please be also reminded that contacts made on 10, 18 or 24 MHz are *not* good for 5-band or 6-band WAC at present.

from Region 1 News — Oct '84
AR

ANDORRA EXPEDITION

The Worcester Moonbounce Society (UK) has announced that its 1985 DXpedition will be to Andorra. Callsigns will be C30AKA, C30BTA and C30CMV. Activity will be on all bands from 1.8MHz to 1.3GHz, including 50MHz. Skeds can be arranged by writing to G6JNS, QTHR. The dates will be from 15 to 22 April, and the QSL manager will be G6JNS, PO Box 36, Worcester.

from Rad Com — Nov '84
AR

OSCAR-10 APOGEES

JAN/FEB 1985

DATE	DAY #	ORBIT #	APOGEE UTC HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	SATELLITE CO-ORDINATES LONG DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
JAN 1	1	1168	0354:48	10	201	11	38	27	34	52	23
2	2	1170	0313:53	10	191	24	36	38	29	59	16
3	3	1172	0232:58	10	182	35	32	47	24	66	9
4	4	1174	0152:04	10	173	45	26	55	17	71	1
5	5	1176	0112:36	10	164	53	21	62	11		
6	6	1178	0031:41	10	154	60	14	69	4		
6	6	1180	2350:46	10	145	67	7				
7	7	1181	1130:18	10	320					286	-2
8	8	1183	1049:23	9	311					291	5
9	9	1185	1008:28	9	301					297	13
10	10	1187	0927:33	9	292			289	1	304	20
11	11	1189	0846:38	9	263	287	-1	295	9	311	27
12	12	1191	0005:44	9	273	292	7	301	16	321	33
13	13	1193	0724:49	9	264	299	14	309	22	332	38
14	14	1195	0643:54	9	255	306	21	318	29	344	41
15	15	1197	0602:59	9	245	314	27	328	34	358	43
16	16	1199	0522:05	9	236	324	33	339	38	12	42
17	17	1201	0441:07	9	227	335	37	352	40	25	39
18	18	1203	0400:12	8	217	348	40	6	40	37	35
19	19	1205	0320:45	8	208	1	41	19	38	47	30
20	20	1207	0239:50	8	199	15	40	31	35	55	23
21	21	1209	0158:55	8	189	27	37	41	30	62	16
22	22	1211	0118:00	8	180	38	33	51	24	69	8
23	23	1213	0037:05	8	171	48	27	58	18	74	1
23	23	1215	2356:11	8	161	56	21	65	11		
24	24	1217	2315:16	8	152	63	14	72	4		
25	25	1219	2234:21	8	143	70	6				
26	26	1220	1013:52	7	318					285	1
27	27	1222	0932:58	7	309					290	8
28	28	1224	0852:03	7	299					296	16
29	29	1226	0811:08	7	290			288	4	303	23
30	30	1228	0730:13	7	281	286	2	294	12	312	30
31	31	1230	0649:18	7	271	292	10	301	19	321	36
FEB 1	32	1232	0609:51	7	262	298	17	309	26	333	41
2	33	1234	0528:56	7	253	306	24	318	32	346	44
3	34	1236	0448:01	7	244	314	30	329	37	1	45
4	35	1238	0407:06	6	234	324	36	341	40	16	44
5	36	1240	0326:11	6	225	336	40	355	42	29	41
6	37	1242	0245:14	6	216	350	43	9	42	41	36
7	38	1244	0204:19	6	206	4	44	22	40	50	30
8	39	1246	0123:24	6	197	18	42	35	36	59	23
9	40	1246	0042:30	6	188	31	39	45	31	66	16
10	41	1250	0001:35	6	178	42	34	54	25	72	8
10	41	1252	2320:40	6	169	52	28	62	18	77	1
11	42	1254	2241:12	5	160	60	21	68	11		
12	43	1256	2200:18	5	150	67	14	75	3		
13	44	1256	2119:23	5	141	73	6				
14	45	1259	0858:54	5	316					284	3

SATELLITE ACTIVITY
FOR PERIOD 24 AUGUST TO 21 SEPTEMBER 1984

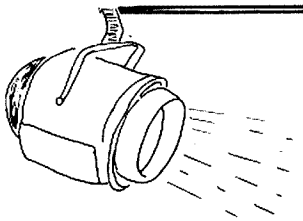
NUMBER	NAME	NATION	DATE OF LAUNCH	PERIOD MINS	INITIAL DATA APOGEE KM	INITIAL DATA PERIGEE KM	INITIAL DATA INCLN DEG	REMARKS
1984-09 1A	USA-4	USA	Aug 28	-	-	-	-	Military
1984-092A	Cosmos 1591	USSR	Aug 30	89.4	300	220	82.3	SI TM
1984-093A	STS 41D	USA	Aug 30	90.6	314	297	28.5	**
1984-093B	SBS-4	USA	Aug 30	640.2	36137	317	23.0	# †
1984-093C	Syncom IV-2	USA	Aug 31	1433.6	35784	35692	3.5	#
1984-0930	Telstar 3C	USA	Sep 1	1430.3	36573	34776	0.4	#
1984-094A	Cosmos 1592	USSR	Sep 4	90.0	380	209	72.9	SI TM
1984-095A	Cosmos 1593	USSR	Sep 4	676	19141	-	64.7	SI
1984-095B	Cosmos 1594	USSR	Sep 4	676	19141	-	64.7	SI
1984-095C	Cosmos 1595	USSR	Sep 4	676	19141	-	64.7	SI
1984-096A	Cosmos 1596	USSR	Sep 7	709	39342	613	62.8	SI TM
1984-097A	USA-5	USA	Sep 8	-	-	-	-	Military
1984-098A	PRC-16	China	Sep 12	-	-	-	-	
1984-099A	Cosmos 1597	USSR	Sep 13	89.1	272	219	82.3	SI TM
1984-100A	Cosmos 1598	USSR	Sep 13	-	-	-	-	
1984-101A	Galaxy-C	USA	Sep 21	664.2	36980	697	21.3	Geosync

SI — Scientific Instruments. TM — Telemetry.
*** — Carrying Astronauts H. Hartsfield, M. Coats, R. Mullane, C. Walker, S. Hawley, and J. Resnik.*
 # — Launched from STS-41D.
† — Designed to provide digital communication for government, industry etc.

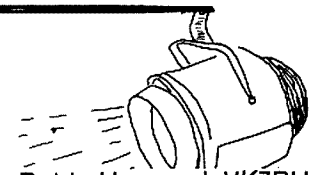
The following Satellites returned or decayed during the period —

1984-066A	Cosmos 1576	Aug 24
1984-077A	Cosmos 1585	Sep 28
1984-082A	Cosmos 1587	Aug 31
1984-086A	Progress 23	Aug 28
1984-087A	Cosmos 1590	Aug 30
1984-092A	Cosmos 1591	Sep 13
1984-093A	STS-41D	Sep 5
1984-098A	PRC-16	Sep 29
1984-099A	Cosmos 1597	Sep 26

Together with 40 other objects.



SPOTLIGHT ON SWLing



Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Welcome to 1985! I sincerely do hope that this year will bring health and happiness to you and your family. I am also hoping that you will continue getting DX, although propagation will still be unpredictable, especially on the higher frequencies.

NEW 22 m BROADCASTING

At the time I am compiling this column, there have been several interesting developments. You may remember that in 1979, the WARC meeting, allocated a new international HF broadcasting band between 13.600 and 13.800 MHz. Operations on these new frequencies were expected to be commencing in about 1988, after existing users of the spectrum had been re-located on other frequencies. Now the Soviet Union has commenced utilizing the new 22 metre broadcasting allocation in a big way, as from the 1st October 1984. I have observed lately several strong signals, broadcasting Soviet Domestic and Foreign Service programming. Transmissions appear primarily directed to the Middle East, Africa and West Asia, indicative of the senders being located in Kazakhstan and/or Uzbekistan.

For example, on 13.600 MHz, I am hearing a domestic regional programme in the local evening hours in Russian. On 13.645 MHz, Radio Moscow is heard with foreign service programming in Asian/Middle Eastern languages and dialects, e.g. Punjabi at 1130 UTC was observed.

Transmissions also are beamed to Africa in various local languages on 13.625 MHz between 1500 and 2100 UTC as well as English/French and Portuguese. World Service and African Service programming in English have been heard between 1500 and 2100, with a transmission in Hausa at 1800, sandwiched in between. This presumably is being beamed to West Africa. 13.660 MHz has been noted with French (Radio Moscou Internationale) from 1700 UTC, with Arabic from 2100 to 2130 UTC. The World Service is reported on 13.680 MHz from 1400 to 1700 UTC followed by African languages until 2000, when English is observed. I have noted Indonesian in the past on 13.790 MHz from Moscow, but presumably other languages will also be utilized as the need arises.

This new 22 metre allocation has also been used by several other nations ahead of time. South Korea has been noted with test transmissions on 13.665 MHz between 0630 and 0830 UTC with identification announcements in various languages. The Gulf War between Iran and Iraq has also seen the 22 metre allocation used by both sides. Baghdad has been noted in Arabic between 11-12 and 20-21 hours on 13.700 MHz while Tehran has been noted on 13.745 MHz broadcasting in Farsi from 0330 till 1130 UTC in parallel with 9.022 and 15.084. Jerusalem has been using the new allocation for some time now, and programming in Russian as well as a relay of the commercial H/S in Hebrew has been on 13.720 MHz, accompanied by heavy jamming. Iceland has been heard by several on 13.797 MHz with a relay of the domestic MW programmes, yet I consider this to be a Utility Feeder as it is on SSB.

Now that the new allocation has come alive with activity, I shall not be surprised to see it fill up very rapidly with other broadcasters during the year. Concurrently with the expansion on 13 MHz, other allocations have also spread outside the allotted bands, particularly the 16 and 31 metre segments. My thanks to Bob Padula of the ARDXC News for most of the above information.

BBC WORLD SERVICE

Also as I am writing this up, the news from the Indian sub-continent is dominating the World News, following the assassination of Mrs Indira Gandhi, the Indian Prime Minister. I was alerted by a headline over the local TV channel, and commenced monitoring one of the international newsagency feeds on RTTY for the next few hours. Strangely enough, I had poor propagation from India, that night. So I mainly relied on the BBC World Service for the latest news.

And while I think of the BBC, now aided by the R70 receiver, I am now able to almost get a continuous coverage of "Bush House". These are via the various relay bases, as there are, in fact, times when UK sites are inaudible, when propagation should be reliable. I often had to rely on the Antigua relay in the Caribbean, but alas, a station has appeared alongside, causing a nasty heterodyne from 0700 UTC. The station is on 9.509 MHz variable, and aided with the notch and passband tuning controls, I was able to positively identify it as Algeria in French. It has been notorious for its frequency instability.

MODERN TECHNOLOGY TAKES OVER

The Radio Australia facility at Lyndhurst is to be closed. This is according to Robert Jones, in the November edition of the ADXN Station News. Already the RA feeder on 12.290 MHz USB has been discontinued as from the 20th September 1984, although it will remain on standby, if required. The proposed AUSSAT communications satellite will be feeding audio to the various sites, backed up by terrestrial microwave links in the future. Services at present stationed there, will be relocated to other sites, with the facility being closed later this year, or early 1986.

Well, that is all for this month. Until next time, the very best of DX and good listening! — Robin.

AR

BILL DESPAIRS

Ted Holmes VK3DEH 20 Edmunds Street, Parkdale, Vic 3195

Driving home from the supermarket, Bill Blitheringtwit felt mildly satisfied. Despite the fact that his brand new power supply was already looking a bit the worse for wear, at least he had a unit which would probably work. He could get back on air, anyway, after a few minor repairs had been done. He wondered where he put the masking tape. . . . Humming unmusically, he arrived back safely beneath his home carport.

Normally at this point his wife vanished indoors, leaving him to unload all the shopping. Today, however, she didn't. She hung around the car boot waiting for him to open it. This was awkward. If she spotted the battered (but plainly alien) carton containing the remnants of the power supply, nestling amongst the shopping, then he was a doomed man. Bill dawdled a bit, fiddled around, examined things in the car, but his wife never budged. Perhaps she had smelt a rat. Eventually he had to alight and he sidled around to the boot. He could see a distinct glint in his wife's eyes. Almost steely, he thought.

"Don't worry, dear," he said. "I can carry all this stuff in."

"I want to see," said his wife.

"See what?" Bill asked, all innocence.

"What you bought," she said.

"Bought?" echoed Bill, but it was no use. He realised immediately that he was a dead duck, a condemned man, doomed. Reluctantly, he opened the boot. There stood the carton, naked, blatant, made in Japan.

"Aha!" his wife exclaimed. "What's that?"

Bill cleared his throat. He knew what was coming.

"A power supply."

"A what?"

"A power supply. Real cheap too. Beat the chap down . . ." Bill rambled on, seeing a look of total disapproval forming on his wife's face.

"Indeed!" she said and then proceeded to give him a dressing down which lasted ten minutes.

As she spoke, Bill could feel the gloom pressing down on him. Utter depression possessed him and he shambled into the house like a zombie. What was the use? He couldn't fight it. All the spirit, the old fire, went out of him. He went into the shack and looked around. What did he see? An empty shell of what it was. Silent rigs, dust, disorder. There just didn't seem to be any point any more.

Suddenly, like dawn breaking across dark horizons, an idea came to him. He would give it up — at least for a while. Take up something else. What about bowls? He had heard that this was a good game and it had one great advantage — it would get him out of the house for long periods. Yes! He'd take up bowls and perhaps one day . . . one day he'd return to his old love — Amateur Radio.

Meantime he'd give it a rest, lay off for a bit and, when the time was right, who knows?

QRX . . . QRX . . . QRX . . . QRX . . . QRX . . . QRX . . . QRX.

AR

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

JANUARY

1. UBA SWL Competition, 1985 commences (Rules AR Nov) (I do not propose to list this contest further as it continues throughout the remainder of 1985.)
12 40 Metre World SSB Championship Contest
13 75 Metre World SSB Championship Contest
19-20 160 Metre World SSB Championship Contest
28 15 Metre World SSB Championship Contest
27 20 Metre World SSB Championship Contest
12 Hunting Lions In The Air. (Rules AR Dec)
25-27 CQ WW DX 160 Metre CW Contest.

Ross Hull Memorial Contest continues to finish 7th January. (Rules AR Nov)

FEBRUARY

9-10 OCWA CW QSO Party
9-10 YL-OM Phone Contest.
23 RTTY World Championship Contest. (Rules this issue.)
22-24 CQ WW DX 160 Metre SSB Contest
23-24 John Moyle Memorial National Field Day Contest.

MARCH

30-31 CQ WW WPX SSB Contest

There are various different types of contests but they all have a number of common features. Two, most important, are the overall technical capability of the station equipment, (will the gear perform at its best for the continuous hours operation?) and the skill of the operator to be able to keep his contact rate running at a maximum for the full duration of the contest. The latter is probably the most important factor of them all as it has been shown many times that a top class operator can produce a winning performance without access to high power, big beams etc.

It is great to have fun during a contest but for those who are truly contest-minded the whole thing becomes a really serious matter. In this vein I might expand on a point which I have been considering for several years now, but I accept the right of people to have differing points of view. I remember wondering about this when a number of years ago the current Federal Contest Manager, I think it was Peter VK4PJ (and no offence meant Peter) came out with a proposal that the Remembrance Day Contest should become known as 'The Friendly Contest'. Now this came as a bit of a shock to me. I had always pictured a contest as a bit of a battle, somewhat akin to a couple of fighters getting into a boxing ring. I somehow could not accept the philosophy of one giving the other just a friendly punch to the nose. You will certainly accept though, the fact, that even boxers have to fight within the rules and they may even be the very best of friends both before and after the contest. Such it is, I believe, with our contests. You fight as hard as you can although you fight fair. Cheating is obviously outlawed, dubious operating practices may well be questioned by the Contest Manager and in fact many contests contain provisos which allow disqualification of an operator who consistently departs from the well recognised code of operating ethics.

One important side of contest operating is speed, although this should never be such as to sacrifice accuracy. If this occurs you are not a good contest operator as it will undoubtedly lead to loss of points. Incidentally I can well remember an operator on RTTY replying to me when I asked why his transmission contained so many mistakes that it was not his fault as his teletype machine would not operate as fast as he wanted to type. There are some of the fraternity who join in a contest just to give out numbers for fun and in a contest such as the Remembrance Day to help their state along. If you are one of those I believe that you are welcome as the serious operator appreciates the additional contact which you provide to him. I would ask though that you also respect the fact that the other guy wants to make his contact as quickly as possible and move on to his next, so please do not aggravate him by adding extraneous detail such as my name is . . ., and I am running 50 watts here from my QTH at Oodnnawoop-woop to a dipole. Simply give him the number he desires and then you can usually find someone else who wants to rag-chew rather than contest. Similarly however the serious contester should be as patient as possible with someone who is somewhat slower than might be desired for various reasons. Remember you had to go through stages before you became a Hot Shot operator, and after all the other station is providing you with the courtesy of another contact which you otherwise would not have. Slowness may be due to inexperience, age maybe or even a state of temporary confusion. Please never let it be that you could not be bothered checking up as to what is required before joining in even if you personally are not all that interested in contests.

There is one situation which I have run across many times, particularly in our own local contests, and this is one which shows a lack of understanding on the part of many operators. I have just made a contact with an operator, whom I tuned to and called, and then I in turn am called by yet another station on the same frequency. I would agree that the use of the frequency is probably the right of the first station which occupied it, if such a right does exist, but it does no harm for him to stand by and allow me to make my very quick exchange with the station calling me before I shift away from his frequency. You might think that this sounds unlair, nevertheless I find that the most complaints about this practice seem to come from those operators who are actually pretty slow and ineffective. Most of the top operators will stand by and allow the other guy to make his quick contact and in fact are usually pleased to do so as it allows them a quick break before calling CQ again. If you do not believe me on this score ask about amongst the top scoring contest men as they realise that such quick contacts and courtesy and understanding benefit them. Deliberate ORMing to prevent such a quick second contact taking place smacks of a spoilt little boy attitude.

Usually a contest is not the place to be for the purpose of chasing rare DX contacts. But there are always exceptions to the rule, such as the annual WPX Contest which is fine for chasing and obtaining new prefixes for the WPX Award. However that is one thing that contest is specifically designed for. Unless there is a very good reason to believe otherwise don't expect the contester to appreciate your QSL card after the contest when he has probably worked hundreds of other stations in your call area.

Before a major entrant competes in a contest he has usually psyched himself up for a big effort. All his activity beforehand, preparing logs, check sheets, operating aids, cleaning up the shack, and even practising staying up all night or maybe getting in extra sleep and rest is accompanied by his thoughts and plans toward the various strategies he will adopt. Such things include planning which band to begin the contest on and then which band to QSY to next. *What will be the best direction to keep the beam pointed in for the majority of time? Which prefix or country to give priority to or which particular rig to use on which band and whether or not to use a particular microphone?* There is no doubt whatsoever that such an approach pays off and I recommend some thought on these aspects of operation.

Some operators tend to use the technique of staying as far as possible on one frequency and calling CQ. This is OK as long as replies are coming in however it becomes an obvious waste of time and does little else but produce unwanted QRM when the going gets slow. If no reply is received after about one-and-a-half minutes calling you will always do far better to tune the band and ascertain just what is going on. It may well be that propagation on the particular band is just going out. You can also pick up new contacts by carefully tuning a band from top to bottom and finding those who for some reason are not prepared to tune more than a few kHz one way or another. By and large the main aim is to be doing something all the time which might produce some worthwhile result rather than have no contacts.

A poor practice, adopted by some of the inexperienced in the false belief that they are operating faster, is to call a station and give him the serial number before he has acknowledged the first call. Mostly this practice merely slows things. Even the best operators are working to a fixed method and whilst fast and usually flexible they are not expecting this, so they will probably ask you to give the serial number again anyway. It also creates confusion, particularly when the station who has been called and sent the unsolicited number goes back instead to someone else. Thus your time in sending the serial number has been wasted whereas the short snappy call would more probably have produced a result.

Again I suggest that you observe the operating procedures of the top scoring operators and try to emulate them. They have proven their methods by the results they obtain.

Finally, another little story comes to mind as light relief. One operator told me he could not understand why his points score each year was not keeping up with the rest of the top operators. He explained that he planned very carefully each year and entered the contest with a really good organisation behind him. He had a whole band of helpers; one to run the two tape recorders sequentially so as to ensure that no contact missed being recorded, another to operate the playback machine to double check the number exchanges, another to scan the other bands with other receivers, yet another to keep the log and another the check sheet etc. It even came out that he had at least two other members of the team to produce the food and drink and chop the wood for the fire. The question followed as to how many my back up team comprised. He seemed absolutely staggered when I replied that I did all the work except that my XYL backed me by ensuring that I had a cold drink nearby all the time and something light to eat now and again. There was no doubt that all the extra planning in the case of my friend and the mammoth organisation behind him was in fact holding him further back all the time.

Best of luck with your contest operation next time you enter one.

In the December issue I raised again the matter of the dates of our various contests and proposed a plan to rationalise same. You will note that the date for the John Moyle Memorial National Field Day Contest has now been set to as late as possible within the month of February. The rules for same will appear in next months issue of AR. In changing the date to this extent I have gone as far as I can without actually moving the date to another month later, as proposed. I have done this for several reasons. Firstly the majority of feedback, indeed without exception, has been in favour of my proposal for this contest. This feedback has come from on air discussions with amateurs in both VK5 and other states, letters from individuals and various radio clubs and also personal discussion with other operators and representatives of clubs.

I recently paid a visit to Wagga in VK2 and was most kindly made welcome by amateurs there. I took the opportunity of raising the subject with the President of the Wagga Amateur Radio Club who immediately contacted various club officers and members and from them obtained an opinion. Needless to say that opinion was generally in favour of such a change also. It is such interest and action as this which is appreciated when one has a job to do.

Thus I trust that the aims advanced for a change may have, *at least in part*, been met. These are, to get the Field Day Contest away from the fire danger season and to remove it from the great WET period as far as the boys in the north of the country are concerned.

It would appear nevertheless that any such changes as proposed may not meet with the approval of all, Federal Councillors. The matter of contest dates was proposed for discussion by the VK5 Division at the 1984 Federal Convention, however the motion lapsed for want of a seconder thus no discussion was held on this subject.

I would therefore ask that if you have an opinion on this subject, and even if you have already written to me on your own behalf or representing a club, could you please put pen to paper again and make such opinion known to your Federal Councillor and the Council Members of your own Division. Maybe this way we can have it seen that a proper consensus of opinion is taken notice of.

REMEMBRANCE DAY CONTEST RESULTS

Pressure of work and other important activities has delayed the completion of results for this contest. You should see such appear in the February issue of AR as was the case last year.

One certainly learns by experience, and I feel that once having dealt with the large number of logs for this latest RD Contest I will be much better placed to handle such matters in future.

I would also like to express my appreciation for the advice and assistance provided by Peter VK4PJ and Neil VK6NE both of whom are previous contest managers. Peter in particular forwarded to me a copy of 'A Guide to Federal Contest Managers' which he had compiled several years ago.

REMEMBRANCE DAY CONTEST CERTIFICATES FOR 1983

Efforts to sort out the situation with regard to these certificates are still being made, so if you should have been the recipient of one of these do not yet give up hope of receiving same.

VK NOVICE CONTEST 1983

Certificates for this contest were mailed out several months ago so all concerned should have received same by now. Our thanks are due to our Secretary/Manager Reg Macey who arranged for new certificates to be printed at rather short notice once matters had been sorted out as to just what had occurred. We are still however looking for the trophy for that contest and I hope that by the time you are reading this we will have located it.

VK NOVICE CONTEST, 1984

The due date for receipt of logs of 29th October is now well past and a rather dissappointing total of about only 30 logs have been received. Coming right on top of the Remembrance Day Contest this perhaps may not be unexpected, probably as I have previously pointed out this is a good reason to move the date of the Novice Contest. If no more logs than this are received for a contest it makes it hardly worth the effort of organising. Checking of the logs and preparation of the results will take place as soon as the RD Contest work is completed.

CONTRIBUTIONS TO THIS COLUMN

As well as hearing from you regarding contest matters, rules etc, I would be very pleased to receive anything else in the way of material which you feel may interest others in connection with contest operation. I would also be very pleased to receive any photographs of contest operation stations both of individuals and clubs. There should surely be some good Field Day Contest photos somewhere about. *Do you have any favourite hints about the way you operate which you would like to pass along, or maybe details of a nice easy to assemble portable 5 element 40 metre yagi for a Field Day?* Any material along these lines will be welcome as I am sure that photos and diagrams etc, are a lot more interesting than just pages of print. I also have under consideration the idea of a guest writer from time to time, specifically someone who is well known as a regular and successful contester. So again if you think you would like to contribute in this way please let me know.

Now the 1985 contesting year is upon us and I like to think that it will be a year of both expansion and enthusiasm in this area of our hobby activities. Rest assured that if there is any way I can see in which things can be made more exciting or interesting I will do my very best to implement whatever is necessary. I do acknowledge that I have received quite a number of suggestions in connection with scoring for some contests, some members have suggested that larger states, eg: VK4 and VK6 should be divided up into smaller areas for contest purposes, differing methods of 'exchange' within contests have been proposed, many and varied are the suggestions overall. Whilst all such ideas are appreciated, and indeed I still welcome them, I must point out that it is not always easy to include them in the contest rules and that changes have to be carefully thought out before being applied. Thus it may take some time to sift and select from the many ideas and the changes possible will not happen overnight.

Another suggestion which I have made to the Federal Executive is that a standard log sheet should be developed and printed in quantity for issue for contests. It would be then be expected that entrants should all submit their logs on the standard form. I am awaiting comment from the Federal Office on this suggestion following which, if the idea is accepted, arrangements would be made to produce a suitable format. Any ideas on just what such a log sheet should look like would also be welcome. It would be necessary to decide how the matter of costs should be dealt with although it is my belief that if such a task was done on a national basis it should not turn out to be too expensive. Some individual Divisions already issue log sheets for such as the RD Contest. At the same time it could well be that the standard log sheet provides for the necessary declaration, entry details and operating summary etc as well as contact information.

So, here again are some of the ideas being turned over in my mind as a means of improving contest operation here in Australia. For now, I once again pass along my best 73 to you. I trust that you have had a enjoyable Festive Season and I wish you all the very best for a successful and satisfying 1985. May your contest operations provide you with much pleasure.

FOURTH ANNUAL RTTY WORLD CHAMPIONSHIP CONTEST

Sponsored By: The RTTY Journal and 73 Magazine.

Contest Period: 0000 to 2400 UTC 23 February, 1985.

Rules: The same station may be worked ONCE ON EACH BAND. Crossmode contacts do not count. Single operator stations may work 16 hours maximum, while the multi-operator stations may operate the entire 24 hour period. Off times are NO LESS than 30 minutes each and MUST be noted in your log(s).

Operator Classes: (A) Single Operator, Single Transmitter. (B) Multi-operator, Single Transmitter.

Entry Categories: (A) Single Band. (B) All Band, 10-80 Metres.

Exchange: Stations within the 48 Continental US States and Canada must transmit RST, and State, Province/Territory. All others must transmit RST and consecutive contact number.

OSO Points: 5 QSO Points for contacts with W/VE stations located within the Continental US and Canada. 10 QSO Points for all other contacts.

Multiplier Points: 1 Multiplier Point is awarded for each of the 48 Continental US States, (A District of Columbia contact may be substituted for a State of Maryland multiplier), Canadian Provinces/Territories and DX Countries worked on each band (excluding US and Canada).

Final Points: Total QSO Points multiplied by Total Multipliers equals CLAIMED SCORE.

Contest Entries: Entries must include a SEPARATE log for EACH BAND, a dupe sheet, a summary sheet, a multiplier check list, and a list of equipment used. Contestants are asked to send a SASE to the Contest address for Official Forms.

Entry Deadline: All entries MUST be POSTMARKED no later than 16 April, 1985.

Disqualifications: Omission of the required entry forms, operating in excess of legal power, manipulating scores or times to achieve a score advantage or failure to omit duplicate contacts which would reduce the overall score more than 2 percent are all grounds for immediate disqualification. Decisions of the contest committee are final.

Awards: Contest awards will be issued in each entry category and operator class in each of the US Call Districts, Canadian Provinces/Territories as well as in each DX Country represented. Other awards may be issued at the discretion of the awards committee. A minimum of 25 QSOs must be worked to be eligible for awards.

Contest Address: Enclose an SASE to: *RTTY World Championship Contest, C/- The RTTY Journal, PO Box RY, Cardiff, CA 92007.* **AR**

MICROCOMPUTER CONVERTS BRAILLE INTO PRINT

A microcomputer system which converts braille into print to help blind people at school or work has won an award, presented by the BBC for the best invention to help the unsighted.

The winner is Dr Tom Vincent, a physics lecturer, for his development of the Work Station, which enables a person to type in braille, produce a simultaneous printed version, and then, with the help of a voice synthesiser, to check the print version independently.

Dr Vincent, 49, has also devised ancillary software which enables a blind person to make use of word processing facilities, and keep personal braille records on floppy disks. *from Information Technology from Britain* **AR**

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
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This month "go to it" and see how you would fare with this sample AOCP Examination Paper.

Select the correct or most appropriate alternative.

1 The inductive reactance of a coil may be calculated from the
a resistance of the coil and the frequency applied
b frequency applied and the inductance of the coil
c frequency applied and the Q of the coil
d inductance and resistance of the coil

2 Chokes are not used in low voltage high current power supplies because
a of the excessive voltage drop across them
b they do not have a smoothing effect at low voltage
c they overheat with high current
d they have a very low inductive reactance

3 A dip oscillator is an instrument which:
a shows a rise in current when power is absorbed by the tuned circuit under test
b is sensitive and measures the exact resonant frequencies of L-C circuits
c can be used only on energised circuits
d is inductively coupled to an L-C circuit to measure its resonant frequency

4 A receiver requires a 12 volt DC power source. You could use:
a 12 nicad batteries
b 10 dry cell batteries
c 10 nicad batteries
d 8 nicad batteries

5 A vertical antenna may be described as
a being omnidirectional in a horizontal plane
b having a spherically polarized magnetic field
c having primarily a high angle of radiation
d having maximum radiation in the vertical plane

6 Capacitors with mica or ceramic dielectric are used in radio frequency circuits because they have
a low dielectric loss, low inductance, and low insulation resistance
b lower capacitive reactance than tantalum or paper capacitors
c low dielectric loss, low inductance and high insulation resistance
d low dielectric loss, high inductance and low insulation resistance

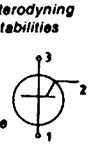
7 A power supply is designed to reliably provide an output of 12 volts DC at 20 amps. The main components rating should be:
a transformer — 20 V, 30 amps; capacitors — 2 x 32 µfd; bridge rectifier — 40 V, 10 amps
b transformer — 30 V, 20 amps; capacitors — 2 x 4000 µfd 50 V; bridge rectifier 20 V 20 amps
c transformer — 12 V, 30 amps; capacitors — 3 x 4000 µfd; bridge rectifier — 35 V 35 amps
d transformer — 20 V, 30 amps; capacitors 3 x 4000 µfd, 50 V; bridge rectifier — 50 V 35 amps

8 When using a resonant antenna, the voltage SWR measured at the transmitter output is 3:1. The SWR should be reduced by:
a shortening the antenna
b using heavy duty coaxial transmission line
c lengthening the antenna
d correcting impedance mismatching

9 In radio-teletype transmissions
a the message is conveyed by frequency shift keying
b hand keying is used to set the spacing
c grid block keying is used to reduce interference
d the keying is controlled by the phase shift

10 Variable frequency oscillator systems for use at VHF usually employ heterodyning rather than frequency multiplication because
a it is difficult to build crystal circuits to provide the required high order of overtones
b the stability of the oscillator is not important
c frequency measurement is made easier by heterodyning
d it avoids the multiplication of oscillator instabilities

11 This symbol represents a



a PNP transistor and 2 is the collector
b triac and 1 is the emitter
c zener diode and 3 is the cathode
d silicon controlled rectifier and 2 is the gate

12 In high level modulation, the audio signal
a modulates the carrier in the final stages of the transmitter
b is filtered to boost the lower frequencies
c is applied at the buffer stage
d is only amplified at the higher frequencies

13 When cathode bias is used in an RF amplifier stage a capacitor is connected in parallel with the bias resistor to:
a reduce the bias voltage
b double the bias voltage
c provide a low impedance path for RF
d block the DC flow between cathode and ground

14 When an alternating voltage is applied to a capacitor, the voltage and current are
a in phase
b 180° out of phase
c 90° out of phase, voltage leading
d 90° out of phase, current leading

15 At a frequency of 1 GigaHertz, each cycle occupies a period of
a 1 nanosecond
b 1000 nanoseconds
c $\frac{1}{100}$ milliseconds
d 1000 microseconds

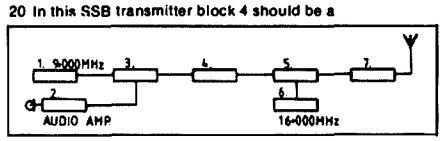
16 In a Class AB amplifier, the operating cycle occupies
a 360°
b between 360° and 180°
c 180°
d between 180° and 90°

17 To achieve adequate intelligibility in a telephony transmission the modulating frequency need not be more than
a 300 Hz
b 3 kHz
c 6 kHz
d 10 kHz

16 The specifications for an SSB receiver quote one feature as '0.5 V for 10 dB $\frac{S+N}{N}$'. The feature referred to is
a stability
b sensitivity
c image rejection
d squelch range

19 The Modulation Index of an FM transmission is calculated from the formula Modulation Index =
a Modulation frequency ÷ Carrier frequency
b $\frac{\text{Modulation frequency}}{\text{Carrier frequency}}$
c $\frac{\text{Carrier frequency deviation}}{\text{Modulating frequency}}$
d $\frac{\text{Modulating frequency x 2}}{\text{Carrier frequency}}$

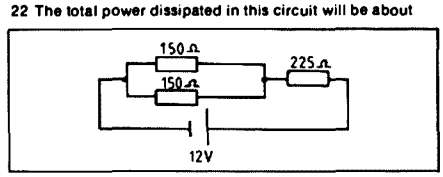
20 In this SSB transmitter block 4 should be a



a filter to separate the two RF oscillators
b narrow bandpass filter
c filter designed to suppress harmonics of 9.000 MHz
d frequency multiplier

21 An SSB receiver uses delayed AGC because
a the AGC system is slow to respond to a signal without a carrier
b a fast attack results in excessive audio output
c a slow release causes hum on the audio output
d a slow release gives a more constant audio output

22 The total power dissipated in this circuit will be about



a 2 watts
b 1 watt
c ½ watt
d ¼ watt

23 The PIV rating of a rectifier in a full wave rectifier circuit should be about
a 2.4 times the secondary RMS voltage
b 3.0 times the secondary RMS voltage
c 1.5 times the secondary RMS voltage
d 0.9 times the secondary RMS voltage

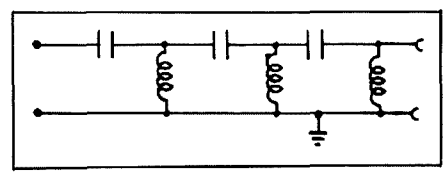
24 Power transistor performance ratings are generally specified at given current and voltage levels but these ratings may not apply if the
a input signal level is low
b operating temperature is excessive
c device is used at VHF or SHF
d resistance of the load is more than 1 KΩ

25 The use of broadband final amplifiers in modern amateur transmitters has made
a matching of the load more critical
b matching to the load more accurate
c the use of an antenna tuner unnecessary
d it possible to cover 1.8 — 450 MHz without any tuning

26 A VHF mobile operator is performing field strength measurements using quarter wave and ⅝wavelength antennas. Differences in performance are likely because the:
a quarter wave antenna has a higher angle of radiation
b input to the ⅝wave antenna is several dB greater
c feed impedance of the two antennas is different
d ⅝wave antenna has a larger tuning coil

27 In the event of thunderstorm activity, the risk of lightning strikes into an amateur installation may be reduced if:
a equipment is disconnected from mains power and transmission lines
b transmission lines only are disconnected at the receiver or transceiver
c equipment is disconnected from mains power only
d transmission lines are shorted to the AC earth line

26 This device could be used as a:



a high pass filter at the input to a television receiver
b matching stub on an antenna
c transmitter output filter to prevent radiation of harmonics
d trap in a multiband antenna

29 An amateur transmission on 28 MHz causes interference to nearby television reception on Channel 9 (196 MHz) but not on Channel 2 (64 MHz). It is likely that this problem:
a is the result of poor design in the television set
b can be cured by a low pass filter at the transmitter output
c will decrease if transmitter output power is increased
d can be reduced by better shielding of the transmitter

30 To enable an AM receiver to resolve CW signals it is necessary to add:
a an extra IF amplifier stage
b a narrow band filter before the detection stage
c a beat frequency oscillator stage
d a more efficient noise limiter

31 A received FM signal sounds weak but not noisy. This effect occurs if the:
a signal deviation is too wide
b signal strength received is low
c signal deviation is too narrow
d receiver is designed for phase modulation signals

32 Bipolar transistors require a bias current across the base — emitter junction. This can be achieved by using:
a a resistor network
b cathode bias
c negative voltage on the collector
d limiting of collector current

33 A 9.9 k ohm resistor is placed in series with a 100 ohm 0.1 mA meter. The scale will now read:
a 0 — 1 volt
b 0 — 10 volts
c 0 — 100 volts
d 0 — 1000 volts

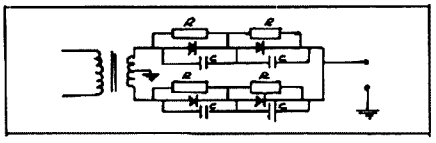
34 Amateur HF band reception is disrupted by a high ambient noise level. At the same time a television receiver shows two broad horizontal interference bands. It is likely that the cause is:
a noise from distant thunderstorms
b a continuous leakage path between nearby power lines
c local oscillator radiation from another television set
d power line leakage to earth occuring on line voltage peaks

35 Short term fluctuations in the strength of an HF signal received from an overseas station may be due to
a upper atmospheric turbulence
b simultaneous reception of ground wave and tropospheric wave
c phase differences between waves travelling different paths
d tropospheric temperature inversions over the ocean

36 A long wire antenna designed for use in the HF band
a should be fed with two-wire transmission line at a current maximum
b will radiate most of the power in a direction parallel to the wire itself
c should be cut accurately to an uneven number of half wavelengths only
d will always have a voltage minimum at the free end

37 A transformer has a Primary:secondary turns ratio of 10:1. An 8 ohm load is connected to the secondary. The primary impedance will be:
a 100 ohms
b 800 ohms
c 8 ohms
d 0.8 ohms

38 In this rectifier circuit the

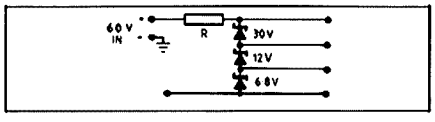


a ripple frequency of the output will be four times the frequency of the input
b capacitors are used to protect the diodes against voltage 'spikes'
c PIV rating of the diodes should be twice that required if single diodes were used
d resistors are used to provide output voltage regulation

39 The 'gain bandwidth product' of a transistor is the:
a frequency at which the gain becomes unity
b ratio of base current to collector current
c range of frequencies which can cause partial or complete phase shift
d ratio of output impedance to input impedance

40 Forward bias values required for solid state diodes to conduct are about
a germanium 0.2 volt, silicon 0.6 volt
b germanium 0.01 volt, silicon 1.6 volts
c germanium 0.6 volt, silicon 0.2 volt
d germanium 6 millivolts, silicon 2 millivolts

41 Regulated voltages obtainable from this arrangement could include



a 60V, 90V and 102V
b 30V, 18V and 5.2V
c 30V, 42V and 48.8V
d 30V, 12V and 6.8V only

42 The 'polarisation' of a radio wave refers to the
a direction of the magnetic field
b compass alignment of the antenna
c angle of radiation with respect to the earth's surface
d direction of the electric field

43 The sunspot cycle:
a recurs about every 27 days
b may be responsible for sudden changes in propagation conditions
c is caused by slight variations in the distance between the Earth and the Sun
d has an average period of about 11 years

44 Self oscillation in a vacuum tube or transistor stage
a may occur when its output and input circuits are tuned to the same frequency
b is usually due to negative feedback between output and input
c will not be apparent to the operator unless the signal is displayed on a cathode ray oscilloscope
d is rarely responsible for any radiation outside the amateur bands

45 The accuracy of a moving coil voltmeter will be adequate if:
a a diode is used in series with the meter
b a high resistance shunt is used across the voltmeter
c the internal resistance of the meter is as high as possible
d the internal resistance of the meter is as low as possible

46 The resonant frequency of a parallel tuned circuit
a is the frequency at which the circuit impedance is minimum
b will depend on the voltage applied
c will increase if the capacitance or inductance is decreased
d is the frequency at which reactance equals resistance

47 A television receiver suffers interference on all channels when a nearby amateur station transmits. This problem could be reduced by
a increasing the output power of the amateur transmitter
b inserting a low pass filter at the television input
c changing polarisation of the television antenna system
d using a high pass filter in the television antenna lead

48 A double conversion superheterodyne receiver usually
a has a low first IF for sensitivity and a high second IF for good stability
b includes a regenerative detector
c is less likely to suffer from cross modulation than a single conversion type
d has a high first IF for good image rejection, and a low second IF for good selectivity

49 FM receivers exhibit a characteristic known as 'capture effect'. This means that
a they can resolve a wide range of frequencies
b only small antennas are required because of their high efficiency
c a very narrow band filter has to be used to block unwanted frequencies
d only the strongest signal received will be demodulated

50 Tropospheric ducting may:
a cause HF signals to fade suddenly
b allow extended long distance VHF communications
c occur as a result of meteor showers or auroral activity
d occur more frequently at HF than at VHF

AR

WIA subscriptions are now due.
Please pay promptly!

RADIO TELESCOPE BREAKS THE SPACE BARRIER

The origins of galaxies in deep space can now be examined for the first time with a new kind of radio telescope developed in Britain by a team of Cambridge astronomers.

Known as the Cambridge Low Frequency Synthesis Telescope, it consists of an array of 2-300 Yagi aerials dotted along a five km line. The Yagis pick up long, two-metre wavelengths which are converted by a central Nord computer into optical photographs for examination the next morning.

"This is a big advantage," says Dr John Baldwin, who is in charge of the project. *"Previously it has taken up to two weeks to analyse the results obtained with existing radio telescopes. Also it is the first telescope that has been designed to overcome the effects of the atmosphere which until now has always made the imaging of astronomical objects extremely difficult."*

Because the telescope opens up a new wavelength, Dr Baldwin is confident that it will reveal objects that are unlike objects seen on other wavebands. *"We might expect to find in our milky way quite new stars that give out radio waves specifically at these long wavelengths,"* he explains. *"Also, we can expect to see things that are particularly old. For example, after 10 to 20 million years many radio galaxies will disappear at short wavelengths, but will leave large clouds behind which will radiate at long wavelengths for perhaps 100 million years or so.*

"The problem we would like to sort out is where do galaxies come from and how does the Universe evolve to form the universe as we see it now."

According to Dr Baldwin, first results have come up to expectations with vast numbers of previously unrecorded objects being detected, including some very large objects measuring several million light years across, and in one case an age of 300 million years has been put on an electron cloud to indirectly reveal the galaxy's speed across the sky.

from Information Technology from Britain

AR

John MacPhee
FORWARD BIAS EDITOR
36 Kavel Street, Torrens, ACT 2607

FORWARD BIAS

VK1 DIVISION

"Happy New Year" to readers and I hope you have a better year than last.

"HOW TO BECOME AN AMATEUR RADIO OPERATOR"

The VK1 Division of the WIA holds lecture classes each year for those people wishing to become amateurs, or those operators wanting to up-grade to a higher class of licence. There are two classes available. The Novice (NAOCP) and the Full Call (AOCP).

NOVICE CLASSES

These will begin on the 5th February 1985, at 6.30pm, in room 13 the Griffen Centre, Civic, and this course will continue until the 12th November 1985. The course will not have any breaks in it and will always be on Tuesday nights. The fee for this course will be approx $45, this also includes the text book that will be used throughout the year. The course provides basic electronic theory and Morse code practise at 5 WPM and constitutes the ground work for a beginner to enter the fascinating world of amateur radio.

FULL CALL CLASSES

These classes will commence 7th February 1985, at 6.30pm in room 13 the Griffen Centre, Civic on Thursday nights and will continue until the 8th August 1985. The fee for this course will be $40 and the student supplies his/her own text books. These books are available from the WIA bookshop at the general monthly meetings. This course is suited to the holder of a Novice Licence or the person that has knowledge in electronics and wishes to gain information on the finer points of radio theory, propagation, antennas and circuit analysis etc for the purpose of gaining an amateur radio licence. This course also provides tutoring in Morse code at 10WPM.

This year we are also offering something for the student that wants to do both courses. The fee will be $55, a massive saving to the student of $30.

People wanting to enrol in any of the courses offered should contact Alan Hawes on 58 2568 at home after 7pm, or contact one of the committee men at the monthly meeting.

1985 ANNUAL GENERAL MEETING

In accordance with the Division's Constitution, notice is hereby given that the AGM will be held on the 25th February 1985 at 8pm, at the Griffen Centre, Civic, and all are welcome to attend.

The order of business will be as follows:

"to receive from the Committee, Auditor, Federal Councillor, Public Officer and other officers, reports on the Divisions transactions and business during 1984;

"to elect the officers and committee members for 1985;

"to elect the Federal Councillor; and

"to appoint the Auditor and determine his renumeration, if any.

Nominations of candidates for election of officers of the Division or as a committee member, must be in writing, signed by two members of the Division, who are holders of a current Australian transmitting licence, and accompanied by the written consent of the candidate. The nomination is to be delivered to the Public Officer at least ten days prior to the date of the AGM. Nomination forms will be available at January's general meeting.

So, let's see those nominations arrive, and don't leave it to "SOMEONE ELSE" because he died a long time ago.

YOUR DIVISION NEEDS YOU!

MEMBERSHIP FEES

By now you should have paid your 1985 membership fee, remember our Constitution, if you're not financial, you're not a member, therefore you don't receive the benefits of the QSL bureau, and what would life be like if you couldn't receive Amateur Radio every month, delivered to your home. Life just wouldn't be the same.

MEETING DATES FOR 1985

All meetings will be held at the Griffen Centre, Civic, 21 Jan., 25 Feb., 25 Mar., 22 Apr., 27 May, 24 Jun., 22 Jul., 26 Aug., 23 Sep., 28 Oct., 25 Nov.

The meetings normally start at 8.00pm, however, the room is usually opened at 7.30pm, so that members can collect their QSL cards and look over the Book Shop.

VK1WK REPORTS

There is little doubt that 40 metres is going to provide some interest during the summer months in Eastern Australia; as I write there are brilliant, but rather noisy, openings to Europe at 1900UTC and the USA 1200UTC. Follow the "grey line" for maximum benefit.

Solar antics in the latter half of 1984 have played havoc with 20 and 15; the only regular openings of late on 20 have been 0930UTC to South America (short path), Europe 0500 (long path), and the USA, on 15, from 2300-0200UTC; nothing heard on 10!

By the time this literary gem receives publication your humble correspondent will be holidaying back in the Americas as VK1WK/W2/VE and resurrecting the old callsign as LU8EBI/PY/CE/CX and looking for VKs at 0930UTC on ± 14.104 MHz over the South Pole. So New Year greetings to all, signed John VK1WK.

My thanks go to John who always comes to my rescue when I need some interesting material to finish off with.

Well that's it for another month and in my case this will be the last time I will be writing this column, (who said thank heavens). However, before I hang up my typewriter, I would like to show my appreciation to Alan VK1KAL, the Committee, and the lecturers, and the members of the VK1 Division, especially Theo VK1KV, who was always prepared to lend his station to me and be my engineer on the weekly broadcasts. My sincere thanks to all, and my best wishes to the incoming Committee for 1985.

Cheers for now.

John VK1KJM. Editor.

AR

INTRUDER WATCH

Bill Martin, VK2EBM
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

It's nice to be able to open the column sometimes with congratulations to someone. This time it's to Don VK2JYI, formerly VK2VYI, a staunch supporter of the Intruder Watch, and nice to see him upgrade. Well done, Don.

During the period of daylight saving time, the Thursday evening 3.540 MHz Intruder Watch Net will be scheduled at 1000 UTC. Personally, I am looking forward to the end of daylight saving. How many times have I sat at the rig, awaiting a net or sked, only to realise that I'm an hour early!

Nice note from Brian L60099, who sent some useful information re the IW, and look forward to more from him, and other SWL's who may want to help out.

I would like to point out, by the way, that, for reasons of compilation, etc, for Amateur Radio, this column must be written two months in advance, and it can be difficult sometimes to get current news into the magazine while it is still topical.

The month of September last, saw good support from around thirty amateurs and SWLs, and reports arrived from every state of Australia, which is very gratifying.

News from the DOC is that they are monitoring the frequencies used by the USSR intruder, 'UMS', who has been active for a number of years on 14.141, 14.171, and 21.032 MHz.

Bearings on a RTTY intruder on 14.218 MHz would be appreciated from those who have beams, and we might be able to track down this nuisance, who operates nightly; he is always there around 0700 UTC, and comes into this shack at 10dB over S9. He is usually to be found idling for great lengths of time.

Any VK5 amateur might like to listen for the fourth harmonic of 5AN, Adelaide, on 3.564 MHz, and we'll see how wide-spread it is. Last heard at 0650 UTC.

I hope the support of VK amateurs and SWLs is as forthcoming in the new year as it was in the old, and will say 'all the best' for 1985, and hope the solar cycle makes an upward turn shortly; see you next month.

AR

H-E-L-P!!!!

VK NOVICE CUP

The Executive seeks information regarding the whereabouts of the Novice Cup which was last heard of in 1982.

If you can throw any light on the situation please contact the Federal Secretary, Box 300, Caulfield South, Vic 3162 or telephone (03) 528 5962.

AR

STOLEN EQUIPMENT REGISTER

In accordance with 1984 convention motion 84:17:01 the Federal Office has established a stolen equipment register.

Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them may write or telephone the Federal Office their queries.

ICOM IC25A	*03831*	*VK2DPM*
ICOM IC45A	*01876*	*VK2DPM*
ICOM IC211	*6804309*	*VK3BRV*
KYOUTO FM144/10	*5027*	*VK2KUR*

D S EXPLORER 70cm Transciever. Has extensive internal mods.

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

May I start the notes this year by wishing all members all the best for 1985, in this the Institute's 75th Anniversary Year. This Division, as will all others, is holding special events through-out the year to celebrate, more details in later issues.

TIMETABLE OF EVENTS

In a timetable of general events for this year. The VK2WI broadcasts will recommence on Sunday the 13th January. The Central Coast ARC Field Day will be held on Sunday the 17th February at the Gosford Showground. The next Conference of Clubs will be held in Sydney, the weekend after Easter, hosted by HADARC, and included In the agenda will be discussion of the Federal Convention agenda items. Should you or your group have items which need Federal or national discussion or involvement these should be submitted now to Divisional Council for consideration, checking that they have not been previously dealt with at a Federal Convention, and if suitable submitting to the next convention. The closing date for Federal items is late March. It is hoped to include the annual fireworks night at Dural on the Saturday night of the Conference of Clubs.

MEETING TIME

The start of a new year is also the time for Divisional business. The Annual General Meeting is held on Saturday the 30th March. The closing date for agenda items to the AGM, as well as the nominations for Council is 27th February. Several members of the present Council are not standing for re-election for the next term. It is also sometime since there has been an election. Don't let this keep you away, but "Member" involvement is required in the running of the Division and the more help received, the less the present personnel have to double up with various jobs. There are times when there are not enough hours in the day to do everything and this has happened to Sue VK2BSB. Sue has recently started a business venture and has had to drop off Divisional Council. Her place for the balance of the Council year has been filled by Roger VK2ZIG. I am sure that all will wish Sue the best in her new activities and thank her for the time she devoted to the Division.

HELP WITH CALL BOOK CORRECTIONS

Another position to be filled this year is JOTA liaison officer. Tom VK2PDT is not able to continue after the end of 84. If you can help, advise the Divisional office during office hours of 11 am to 2 pm week days, Wednesday evenings 7 to 9 pm on phone 02 689 2417 or via the box number. Stocks of the current Call Book are almost exhausted so you will have to wait until Spring for the next edition. *Do you have any corrections for the next edition?* If so, perhaps include them with your renewal to Melbourne. Everybody should have received their renewal about a month ago. These and matters about renewal go to the Federal Office, except those who need to apply for a concessional status for the first time. These enquiries should be directed first to the Divisional office. Additional information about renewals are included in Divisional broadcasts. It is important that anybody who may find that they are not in a position to renew advise the Federal office accordingly. It is a costly operation having to send reminder notices. I hope that there will be few in that position. In fact why not this year, **every member introduce a new member.**

REPEATER REPORTS

Now for some repeater news. Port Macquarie VK2RPM is to relocate to an elevated site to improve coverage; Goulburn ARC have submitted an application for a two metre repeater; Tumut have sought details for a two metre repeater; Orange, Bathurst and Nowra regions are in the process of applying for 70cm UHF repeaters. The last C of C brought up the high cost of insurance for repeater installations and currently investigations are under way to see if it is practical to have a single cover for multiple sites. For sometime now the Division has held a license for a 23 cm beacon and currently some stages of construction are underway. Help is required with this project and details may be obtained from John VK2EGI, the beacon officer. The assigned frequency is 1296.420 MHz which is in accordance with national band-planning. Recent issues of various electronic magazines have carried a listing for a VK6 beacon on the same frequency. It is hoped that there will be a slight frequency adjustment to take it up to what would be its band plan frequency of 1296.460 MHz, providing that the various reports to date have not been typographical errors.

Some newer amateurs appear to be unsure of the procedure of licensing repeater systems (this applies in other States as well). Co-ordination of an application is in the case of VK2 carried out by the State Repeater Committee. It is their function to have the intending group obtain and supply details about the proposed equipment, and site and permission to be there. They then assess the supplied information and determine channels for the system. Where an application reaches approval stage it is then passed on to Divisional Council and in turn to the Department of Communications. In addition, there is involvement with existing systems where changes or problems may occur. Periodically a news bulletin is produced to keep groups informed on developments. With new and variations to existing systems there is liaison with other groups where there are shared frequencies, both within the State and if required, over the borders. Any group who has a repeater matter should write or ring the Divisional office so that a set of the required paperwork may be sent out to you.

The March issue of AR will have a large involvement for NSW. If you have anything to contribute would you see that it reaches the Divisional Office by the 16th January. Until next month, which will be a few days later than other months.

73 Tim VK2ZTM
AR

Please remember to check the rules of the John Moyle Field Day Contest printed in February AR as there has been a date change.

VK3 WIA NOTES

VICTORIA 150

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

WRITING FOR AR MAGAZINE

The Victorian Division actively encourages its members to contribute articles and/or photographs for publication in the Institute's journal.

Each year those contributions judged to be the best three are given cash prizes under the Kinnear Trophy scheme.

To make it even easy for a member to get started on the article of their choice a guide has been prepared.

Anyone thinking about contributing to AR Magazine and feel they could benefit from some guidelines — write to the AR Liaison Officer, 412 Brunswick Street, Fitzroy, Vic 3065.

REFERENCE LIBRARY

For the benefit of WIA members an extensive reference library is maintained at the Wireless Institute Centre.

Magazines including Amateur Radio. QST. Break-In, Radio-Communications, Ham Radio, 73 and others are available for reading or copying.

If you're looking for a circuit diagram, technical article, or other information — you'll probably find it in the WIA library.

With so many callsigns being re-issued there's been a trend of the new holders curious about the history of their call — this can be checked by using old callbooks in the library.

Photocopying facilities are available for members who want to take copies of magazine articles, and this service is also available to members at cost through the post.

1985 IS HERE

A New Year has arrived with this one looking like being both challenging and exciting.

Already we are half way through the Victoria 150 Award period which ends on 30th April.

This award has not only helped our hobby participate in the official celebrations of Victoria's 150th anniversary but has aided our relationships with the state and local governments.

Thank you to those who have gone out of their way to make this award a success by getting on air giving others the chance to work VK3, and qualify for the certificate.

With each New Year comes the tradition of making New Year resolutions — why not make one concerning your hobby and national radio society.

Make 1985 the year you personally encourage someone else to take up the world's best hobby — amateur radio.

It could be someone at work, a friend or even a relative — and the Institute has plenty of printed material to help you.

Just look at page 118 of the 1984/85 Call Book, or get a copy of the WIA leaflet "The Hobby For Everyone" and you'll be more than adequately equipped.

You enjoy your hobby — introduce it to others and let them join our fraternity.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

A very Happy New Year to you all. One place where it would be a bit warm this time of the year is Whyalla. News of this fairly new club comes from club secretary John Thompson VK5BWB. The President is Alan Flack VK5NRW and the club callsign is VK5BWR. The club meets every Saturday morning at 10.00am local time, at their leased club rooms in Rozee Street. They have established a "Mentor" system for those undertaking examinations. For example a novice would have a full-call "Mentor" to assist with examination preparation. They have also started a club net on Tuesdays at 7.30pm local time on 3.590 MHz ± QRM. Their sister city in Texas, USA, for Jubilee 150 is Texas City and they are looking forward to making contact with a radio club there.

STAY CLEAR

My attention has been drawn to the fact that some clubs are holding their club nets very near to the Slow Morse Practice sessions on 3.550 MHz at 1030 UTC and causing some QRM. If you are the person who is responsible for finding the clear frequency for your club's net (*and I am aware that it is not easy in that portion of the band!*) please spare a thought for those who are trying to copy the slow Morse in order to pass the exam. We have all been there and know what it's like, even if they are not there when you start your net please stay clear of 3.550 MHz. It will be appreciated.

SUCCESSFUL

The display at Morphettville in November turned out to be very successful DESPITE my organisation. There were several times during the previous week when I wondered if we would ever get it together —but we did. My very sincere thanks go to all of the following: Rowland VK5OU, Lindsay VK5GZ, Les VK5KLH, Don VK5ADD, Dave VK5BOB, Max VK5NMX, Ken VK5AGW, John VK5PJG, Ron VK5AAC, Bill VK5AWM, Cyril VK5KEM, Sam VK5TZ, Steve VK5AOZ, Joy VK5YJ, David VK5AMK and anyone else that I have inadvertently forgotten. Our special thanks to John VK5MG of International Communication Systems, for the loan of a brand new TR7950 2 m FM rig.

One special mention I have been saving till last. You may remember that some months back I made a plea for someone who could design posters for displays. Out of the three people who were good enough to contact me, Council decided to accept the offer of Peter Koen (no callsign yet but he's working on it, as is his XYL Pauline) who is a sign-writer by profession. Peter has up-to-date knowledge of the latest materials and persuaded us that a professional display board would be better for our image than a handful of posters and bits and pieces. Those of you who visited the stand couldn't fail to agree that he was certainly right as the stand was the focal point of our display. Our very grateful thanks to you, Peter, and to Pauline who came along to help set it up (and proved an invaluable asset when she and I were sent off to "scrounge" chairs and tables which weren't provided as promised!)

AR

VK4 WIA NOTES

Bud Pounsett, VK4QY
Box 638, GPO, Brisbane, Qld 4001

One of Queensland's radio clubs held their annual general meeting recently. The members examined the club's activities and found that some degree of stagnation had set in, same old programmes, same old committee members. It was time for some new objectives.

Two brilliant ideas evolved from the discussions. One was for the club to contact a scout group, the other to get very serious about intruder watching. Both, its is hoped, will benefit amateur radio. Other clubs around the country might like to follow suit.

Let us look at the scout programme. The members had found that in the recent Jamboree on the Air, the girl guides were much better communicators than the boys. So it was decided to seek out a willing scout group and train them in the art of expressing their thoughts via a microphone to another unseen person.

Do you remember back to when you first began to do this in the privacy of your shack with nobody watching? Generally at JOTA, the scouts have to do this in front of you, the expert, and some of his mates.

If all the clubs around Australia undertook such a programme, JOTA 85 would be a far better exercise for all concerned. It would also give scouts much more exposure to amateur radio and bring some of those scouts into our ranks. The far reaching effect of this would be to have many more amateurs in years to come with scouting experience.

Then the thoughts turned to intruders. It was resolved that members would each be allocated a segment of an amateur band. The member would concentrate his efforts on this one part of a band and regularly report to the state intruder watch co-ordinator. This way each person would become familiar with his allotted segment and readily recognise any signal that should not be there. This proposal has a lot of merit. It would appear to be a much better method of attacking this intruder problem. Intruder watching all of our bands can be a tedious business. If every club in Australia adopted this idea, we would become the foremost intruder watching country in the world.

VK4 DIVISION ANNUAL GENERAL MEETING

This takes place on Friday, the 15th of February 1985 at the Playground and Recreation Association Hall on the corner of Love and Water Streets, Fortitude Valley, Brisbane. The time is set down for 7.30 pm and the usual facilities will be available. Bookshop and OSL Bureaux. Doors open at 7 pm.

May I take this opportunity to wish you all a Happy and Prosperous New Year. I would also like to thank all of you for the help that I have received in 1984, not only in compiling these notes, but for OTC, our Queensland insert in AR and for material for the weekly news broadcast. Many thanks

Bud Pounsett VK4QY

AR

ANNUAL MIDLAND ZONE CONVENTION

Will be held at the KANGAROO FLAT LEISURE CENTRE on Sunday 17th February from 10 am onwards; talk in on 2 metres.

Morning tea; Lunch and Afternoon tea provided.

Competitions, the usual Trade displays, Steptoe's corner, ladies events, childrens lollyscramble, soft-drinks etc available.

A bus tour of Bendigo for the ladies for approx 1 hour after lunch. Full details and a map will be in a leaflet in February AR. All welcome.

See you there.

Margaret VK3DML

AR

DISTINCTIVE MARKS FOR TOP STUDENT

A Townsville amateur has become the first student to graduate with the highest distinction possible from the Australian Maritime College in Launceston, Tasmania. Norbert Trupp VK4FXP graduated Summa Cum Laude which means that he passed 75 percent of all subjects with distinction to gain his Associate Diploma in Marine Radio Communications.

Norbert, a former RAAF air traffic control officer, also received three awards sponsored by AWA during the two year course, which he finished last year.

He received a prize for the best first-year student, the best second-year student and the best communicator. His name was inscribed on the Honours Roll both years.

Norbert has just recently left Hobart to take up his position as Senior Communications Officer at the Antarctic Base of Davis for a period of sixteen months. His VK0 call has not yet been received.

P Renton VK4PV
Publicity Officer
Townsville ARC

AR

Photo left:
Norbert Trupp VK4FXP.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

"HAPPY MOTORING IN VK LAND" No 2

In Greek history we read that as long ago as 600 BC it was known that amber rubbed with silk acquired the property of attracting small objects. Two thousand years later Dr Gilbert (1540-1603) discovered that many other substances behaved in a similar fashion when rubbed with suitable materials. He suggested that these substances should be called *electrics* (from the Green *electron*, meaning amber). Oh! what would we do without our Greek history.

Today we use electricity in many forms in our day to day living. One of these is the induction coil. Most amateurs will use one in the next twenty four hours when making a QSO to another amateur, be it in VKland, 9Vland or Gland. We also make good use of the induction coil in the motor car which has a petrol engine for motive power. The ignition system of the modern car incorporates an induction coil as a means of providing the high voltage required to produce the spark which in turn ignites the mixture of petrol and air vapour in the cylinders. The distributor, which is in fact a rotating selector switch, automatically connects the secondary of the coil to each spark plug in turn. When the projecting portion of the rotating cam, which is operated by the engine, pushes the contact arm it opens the contacts and interrupts the current in the primary coil. This in turn generates an induced EMF in the secondary and makes a spark at the particular plug which is joined to the coil via the distributor. The position of the cam relative to the engine is adjusted so that the spark occurs at the correct instant. When this happens we have the engine of the car running and turning over at the correct revolutions.

What has this got to do with motoring in VKland? PLENTY. During the second world war, a law was passed in the United Kingdom, which lasted until the war was over (1939-1945), that any person who owned or drove a motor vehicle which had a petrol engine was to make the vehicle immobile, be it for five minutes or five hours, when the vehicle was left unattended. Many people from all walks of life failed to comply with this law, so they were brought to court, fined and in some cases they went to prison, depending on the circumstances. Yes, they did lock up the vehicles, but that was not making them immobile, which could be used by an enemy agent.

Just think. You go for a trip into the bush or a tour of VKland and stop at a roadhouse for a meal, etc. After an hour or so, you come to continue your trip and find the vehicle has gone, along with all your gear. Not to mention the cost, bang goes your holiday. A few months later — a knock on the front door, you answer it, and standing there is the local policeman who tells you that they have found the remains of your car, burnt out, beyond repair. It will cost you plenty to replace it, even with the insurance payout. *Oh what was that, you're not insured.*

Well read on. *How to make your car thief-proof and it doesn't cost you a cent. The next time you park your vehicle, before you lock it up, lift the hood, undo the clips on the distributor and remove the ROTOR ARM. Replace the cap of the distributor and the clips, lower and lock the hood, now lock the car, and put the ROTOR ARM in your pocket with your key. When you come back your car will still be there, nice and safe where you left it. The only thing this small operation has cost you is the time of 45 seconds. Your car cannot be 'Hot Wired' and no tow-truck operator is going to help a thief to steal your car. If a thief breaks into the car, the only damage is a flat battery and a broken window, if the thief is dumb enough to stay in the car that long. Happy motoring!*

73

Brian L Hughes L60099
60 Redcliffe Street,
East Cannington, WA 6107
AR

NOT ALL-SOLID-STATE

There are still many of us who are not all-solid-state and from time to time as we require to replace a vacuum tube or two, we find that the sources of supply are rapidly drying up, with many types not stocked or just not available in Australia.

When all else fails, I have found a reliable source of supply from: Edlie Electronics, 2700 Hempstead Turnpike, Levittown, NY, 11756, USA.

73,

Yours sincerely,
Jim George VK4AJG,
70 Campbell Street,
Sorrento, Qld, 4217.
AR

KENWOOD

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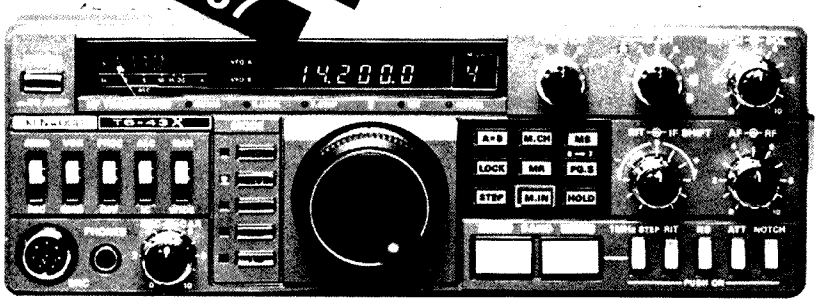

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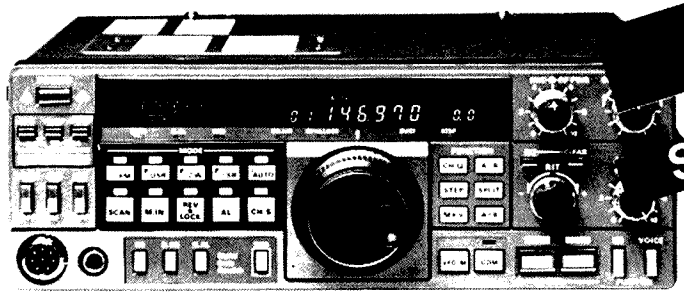

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IONOSPHERIC PREDICTIONS

Sunspots — or the lack of them

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060

All good things must end somewhere and Cycle 21 is no exception. The second highest on record is slowly spluttering out. What spots there are, appear close to the solar equator. September's mean just 15.4 with 0 count on nine days. The big question is *how long will these poor conditions last?* Recently the National Geophysical Data centre, Boulder, Colorado, USA published their predictions for the sunspot mimina.

See Table right >

SMOOTHED, OBSERVED AND PREDICTED SUNSPOT NUMBERS FOR CYCLE 21

	JAN	FEB	MAR	ARP	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN
1983	93	90	86	82	77	71	65	66	66	68	67	64	75
1984	60	56	53	54	52	51	50	48	46	44	42	40	50
				(15)	(17)	(18)	(19)	(20)	(21)	(21)	(20)	(20)	(19)
1985	38	37	36	35	34	32	31	29	29	28	27	26	32
	(21)	(20)	(20)	(20)	(20)	(20)	(19)	(19)	(18)	(19)	(19)	(20)	(20)
1986	26	26	24	23	22	20	18	17	16	16	15	15	20
	(20)	(20)	(19)	(19)	(18)	(18)	(17)	(17)	(16)	(14)	(13)	(12)	(17)

The entries with the number in parentheses below them denote predictions by the McNish — Lincoln method. Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number in parentheses from the predicted value generates the lower limit. Consider for example the Sep 84 prediction tabulated above. There exists a 90% chance that the actual smoothed number will fall somewhere between 25 and 67.

As it takes time to formulate the sunspot number, the delay is causing the sunspot figures to be relegated to historic records as historically the progress of the solar cycle has been measured in terms of "sunspot numbers".

Nowadays the 10cm (2800 MHz) solar radius flux which can be measured more easily and more consistently, has taken the place of the sunspot number.

Sunspot numbers and 10cm flux are similar in that they both indicate the level of solar activity but are different in magnitude. There is a good, but not perfect correlation between two indices. The scales of the two are different. In particular the sunspot number of zero corresponds to a ten centimetre flux of approximately 66.

MONTHLY AV VALUES

SUNSPOT N°	0	20	40	60	80	100	120	140	160	180	200
SOLAR FLUX	66	70	80	100	120	140	160	180	200	220	240

In recent months the 10cm flux has fallen below 70 and this corresponds to a sunspot number close to zero ie solar minima conditions. At this time the spectrum of frequencies available to the HF user has contracted.

Another phenomenon associated with the solar cycle are solar flares. The majority occur in the years across the solar maxima. Then influence in the form of blackouts to communication have eased during 1984 and are adopting the minima pattern.

To bring the indices up to date, the following data appears courtesy of the Ionospheric Prediction Service. Sunspot Index Data Centre and National Geophysical Data Centre.

SUNSPOTS — MONTHLY SMOOTHED NUMBER

PREDICTIONS:

	CLASSICAL METHOD	SIDC ADJUSTED VALUES
10/84	42	35
11/84	40	33
12/84	38	30
1/85	36	28
2/85	35	26
3/85	34	24

TEN CENTIMETRE RADIO FLUX: PREDICTIONS

10/84 = 104 11/84 = 103 12/84 = 99 1/85 = 92
2/85 = 86 3/85 = 84

PROVISIONAL MONTHLY MEAN SSN

4/84 = 68.6 5/84 =75.1 6/84 =46.2 7/84 = 37.0 8/84 =24.8
9/84 = 15.4

RUNNING SMOOTHED SSN FINAL SMOOTHED NUMBERS

7/82 = 115.2 8/82 = 109.4 9/82 = 101.1 10/82 = 95.7
11/82 = 94.7 12/82 = 94.6

1/83 = 92.8 2/83 = 90.4 3/83 = 86.0 4/83 = 81.5 5/83 = 77.1
6/83 = 70.5

PROVISIONAL SMOOTHED SSN

10/83 = 68.1 11/83 = 66.6 12/83 = 63.8 1/84 = 60.0
2/84 = 56.2 3/84 = 52.7

TEN CENTIMETRE (2800 MHz) SOLAR FLUX

	MONTHLY MEAN	HIGHEST DAILY		LOWEST DAILY		PREDICTED
4/84	128.7	183	29/4	94	10/4	119
5/84	128.5	148	10. 13/5	106	6/5	120
6/84	97.4	124	15/6	90	10. 11. 12/6	116
7/84	89.1	104	5/7	74	20/7	110
8/84	83.7	93	10/8	74	19. 20. 22. 23/8	104
9/84	78.1	93	3/9	69	29/9	101

A INDICES

	MEAN	HIGHEST DAY		LOWEST DAY		NO DAYS OVER A15
4/84	19.6	72	26/4	4	22/4	15
5/84	15.5	36	21/5	4	7/5	13
6/84	14.4	34	16/6	3	13. 14/6	11
7/84	15.7	44	13/7	7	26/7	12
8/84	15.1	47	1/8	2	7. 22/8	16
9/84	18.8	55	4/9	2	18/9	13

MEASURING THE STRENGTH OF MAGNETIC DISTURBANCES — THE A INDEX

The disturbance level of the earth's magnetic field is measured by what is known as the "A" index. A indices can be defined on a daily basis by any magnetic observatory in the world. The indices from many observations may be combined to produce a "planetary index" called Ap.

IPS use an A index defined by the Fredericksburg Observatory, a typical mid latitude site in the USA. The A index from WWV is from the same source.

Magnetic field disturbances are assigned to five broad categories

A up to 7 Quiet
A 8 up to 15 Unsettled
A 16 up to 24 Active
A 25 up to 35 Minor Storm
A 36 and above Major Storm

The A is yesterdays index. It is derived from the mean of the K scaling over the 24 hour period and a typical scale looks like

K = 0 1 2 3 4 5 6 7 8 9
a = 0 5 10 20 40 70 120 200 330 500 gamma.

The K index is relatively unknown but it is available from one source. WWV calls the K index just after the Solar Flux and A index is read as: ie "The K index at 0600 hrs UT is 3 repeat 3". If you have recorded your A for the previous days, the K will give you an idea of the movement of this index. As 3 = a20 it can be noted that the field is in an active condition and generally conditions will be poor. If the K was to read 3 across the whole 24 hours as

	0000	0300	0600	0900	1200	1500	1800	2100	0000 UTC
K	3	3	3	3	3	3	3	3	3
a	20	20	20	20	20	20	20	20	20

total 160 ÷ 8 = a20. It's seldom this simple but if you can hear two or perhaps three WWV reports then the trend can be noted — steady as in the example rising, or falling. However this "a" reading is some 120° away from us, in the northern hemisphere and is during the darkness hours when the K is liable to increase. So some compensation should be made and just what you can hear across the spectrum will help analyse conditions.

Probably the best conditions follow a peak in the Solar Flux. As it starts to fall and coinciding with a fall in the A index and very low K figures. These often result in an enhancement effect where there is an increase of some 10-20% over predicted MUFs. I have found that the upward movement of the solar flux tends to restrict rather than enhance. It does depend a lot on what is actually happening on the sun.

If you're charting the indices, any additional information you may come across should be noted in your records to further assist; VK2WI, during their Sunday news service at 11 am local time, give a summary of the weeks solar activity provided by IPS, and you can fill in gaps should you miss out earlier.

WWV at 18 minutes past each hour. IPS phone in service on (02) 269 8614 will provide you with all the details. Changed daily around 0000 UTC. There is no reason why you shouldn't know what is going on from a propagation point of view.

For those interested. The National Geophysical Data Center Solar — Terrestial Physics Division (E/GC2) 325 Broadway Boulder Colorado 80303 USA offer a Monthly Information Product containing Daily Radio Flux of Quiet Sun. Summaries of the entire current sunspot cycle. List predictions of smoothed sunspot numbers Daily sunspot numbers for previous month and includes explanatory text. Cost $US20 for a 1 year subscription. Call 0011-1-303-497 6136 or write. Payment may be made through one of three credit cards VISA, AMERICAN EXPRESS or MASTERCARD. Postage to Australia would be extra no doubt.

Best wishes for 1985. 73 VK3BYE

AR

Ionospheric Predictions were unavailable due to early printing dates this month. Look for them again in February AR.

NOTICE

All copy for inclusion in the March magazine must arrive at Box 300, Caulfield South, Vic 3162 no later than midday 23rd January.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

*** Please insert STD code with phone numbers when you advertise.**

- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $15 for four lines, plus $2 per line (or part thereof) minimum charge $15 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE TO: RJ & US IMPORTS, Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken Street, Oakley, 2223).

□ WANTED — NSW □

HAND BOOK OR CIRCUIT DIAGRAMS for ATU MFJ versa Tuner II model MFJ-941B to photocopy. Please write VK2PWS Wayne Smith, C/- COMCEN HMAS Creswell, Jervis Bay, NSW, 2540.

□ WANTED — VIC □

ATU DRAKE MN 2000, MURCH, KW or similar. Must be in good condition and capable of handling 2 kW. Pay freight. Accept reverse charges. Barry VK3XV. Tel: (03) 527 4029.

KLEINSCHMIDT PERFORATOR. Technical info relating to the adjustment and/or maintenance for the restoration of Kleinschmidt Morse Tape Perforator. Please write or call Dick Hope, VK3DLJ, QTHR. Tel: (03) 528 3380.

□ WANTED — QLD □

SOLDERING IRON TIPS. One or two tips only for Mico 6 V/10 W soldering iron. J George, VK4AJG, 70 Campbell St, Sorrento, Qld, 4217.

□ WANTED — SA □

AT-120 OR AT-130 antenna tuner/SWR meter combination or similar. Also mobile antenna for a Kenwood TS-120V transceiver. Paul Frost VK5KFP, 9 Donald Street, Highbury, SA, 5089. Tel: (08) 337 6268.

□ FOR SALE — NSW □

KENWOOD TR-2500 2 m h/held complete with accessories: PB-25 bat pack, BT-1 bat case, MS-1 mobile stand, LH-2 leather sheriffs case, SMC-25 spkr/mic, VB-2530 25 W AMP. All exc cond. $495 ONO VK2AQW. Tel: (02) 635 6572 BH, (02) 969 2160 AH.

KENWOOD TS-820S digi readout, CW filter, MC50 mic, 12 V DC or 240 V AC, original carton and manual. New cond, best offer around $500, Norman, VK2DLG, QTHR. Tel: (063) 37 3820.

VICOM SWR-RF METER freq 3.5-150 MHz $25. 6 m, 5 el beam, 15 metres coax $35, WW2 Army Morse key $10. 34 AR Actions, 16 CQA Radio, 7 Everyday Electronics, 4 Practical Wireless, 6 Electronic Aust, magazines $20. All of above VG cond. Tel: (067) 92 2666 (BH). Ask for Brian. VK2AKU, (il unavailable leave ph no).

□ FOR SALE — VIC □

ANTENNA TET HB-35C, 5 el. As new. Shifting interstate. To inspect. Tel: (03) 890 4645.

BEAM VS33 20/15/10 Rotator 502CXX. Both new in cartons. $200 each ONO. Also Multiband trap dipole $20. David VK3OD. Tel: (03) 509 2870.

COMPUTER — SINCLAIR SPECTRUM 48 K. With professional keyboard, joystick, tape deck, amplifier, manuals etc. Loads of software including arcade games, word processor, toolkit and compiler. Bargain $380. 2 m handheld AR240. Fully synthesised 140-150 MHz tx/rx, helical antenna, nicads, charger, carry-case, only $210. Exchange either/both for 70 cm transceiver or HF rx/tcvr. VK3CVA QTHR. Tel: (051) 49 4123.

FT209R 2 m hand held tx $330. FT7 never used mobile $350. Realistic Patrolman rx $80. All equipment in mint cond. Stan VK3BNJ. Tel: (03) 743 6708.

RADIO SHACK LINE PRINTER VII: Microprocessor-controlled, dot-matrix impact printer with full ASCII set, dot-addressable graphics, programmable line density and double-width mode, addressable print position, 90 character buffer and more. Centronics parallel or RS232C serial interfaces, TRS80 compatible. Uses 11 cm-25 cm tractor-feed paper. $350 ONO. VK3BLN, QTHR. Tel: (03) 459 1151.

SHACK SELLOUT — Yaesu FT107M tcvr and FV107 VFO, with CW filter, service manual $875 ONO, Kenwood R-1000 Comm rx and matching speak $300, Icom ICPS15 20 amp power supply $180, Icom IC22A 2 m FM rig c/w 3 simplex and 3 repeater channels $145, Icom IC2A 2 m hand held $225, Yaesu XF30C CW filter suits FT101 series $28, Yaesu YM38 scan mic suits FT757, 107, 707 etc $28. Contact Ken Jewell VK3AKK. Tel: (03) 688 9211.

□ FOR SALE — QLD □

DECEASED ESTATE VK4DO — T/S 520 T/C with CW filter, T/S 520 T/C, Kenwood TV 506 T/V, Kenwood TR 2200G FM T/C, Icom IC502 T/C, Swan SW240 T/C, Arlec regulated P/S, Kyoritsu K109 SWR meter, Sansei SE405 SWR meter, Yaesu FLDX2000 HF linear, Copal digi clock, 2 Morse keys, Peak 7200 multimeter, VTVM meter, 2 12 volt batt chargers. Quantity sundry radio equipment. All offers considered. Send SAE for further particulars, to Mrs Hobler, 141 Hyde Street, Nth Rockhampton, Qld, 4701.

KENWOOD TS520, 240 V AC/12 V DC, SP520, handbook, mic set new spare valves (3) — $480. TV5066 m transverter complete $180. Trio comm rx 9R-59DS 550 kHz-30 MHz manual, other data $100. All good wkg order. VK4YO QTHR. Tel: (07) 376 2343.

KENWOOD TR-7400A 800 channel 2 m, 25 watts output with mounting bracket if used as mobile, $260. Keith VK4KS QTHR. Tel: (07) 353 1968.

□ FOR SALE — TAS □

ICOM ICRM$_3$ remote control scanner. Near new. Suit Icom IC-211, IC-701 or IC-245. $100. Yaesu FR-50 rx. Recently re-aligned, new valves, clean condx. Inc ext spkr $70. VK7AN QTHR. Tel: (003) 31 7914.

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2	a	12	a	22	c	32	a	42	d
3	d	13	c	23	b	33	a	43	d
4	c	14	d	24	b	34	d	44	a
5	a	15	a	25	a	35	c	45	c
6	c	16	b	26	a	36	b	46	c
7	d	17	b	27	a	37	b	47	d
8	d	18	b	28	a	38	b	48	d
9	a	19	c	29	b	39	a	49	d
10	d	20	b	30	c	40	a	50	b

ADVERTISERS' INDEX

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AMATEUR RADIO

VOL. 53, No. 2, February 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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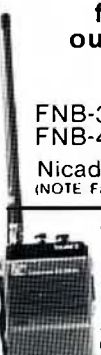

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Photograph by Tony Clarke VK4AJB.

Gympie ARC repeater site. On the tower are two 2 metre and two 70cm antennas plus a solar panel which is used to power the repeaters. See story page 46.

TECHNICAL FEATURES

SPECIAL FEATURES

REGULAR FEATURES

DEADLINE

All copy for April 1985 AR must arrive at PO Box 300, Caulfield South, Vic 3162 at the latest by midday 22nd February 1985.

Enquiries and material to:
The Editor
PO Box 300, Caulfield South, Vic. 3162

Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962.** Hamads should be sent direct to same address. Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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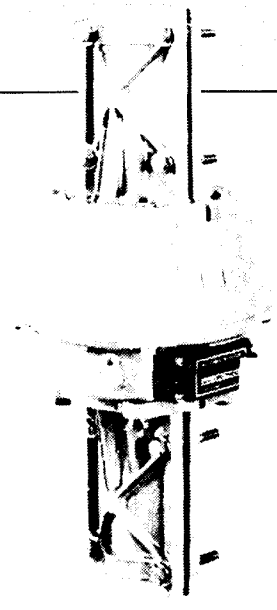

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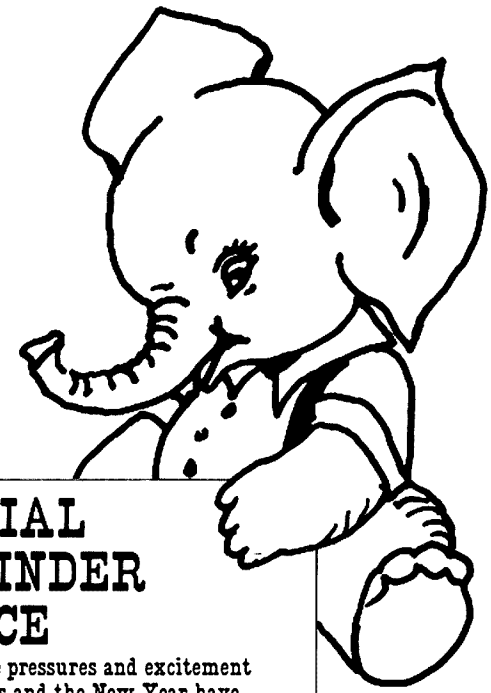


SPECIAL REMINDER NOTICE

With the pressures and excitement of Christmas and the New Year have YOU misplaced your subscription notice and forgotten to send your remittance for 1985?

This is the last magazine to be sent to unfinancial members and it cannot be guaranteed there will be missing copies available. Pay now to ensure continuance of your magazine.

a word from your EDITOR

THE BEGINNING

In March 1910 a small group of Australian radio pioneers met in Sydney to form the "Institute of Wireless Telegraphy of Australia". The name was changed several times in the ensuing years, *see last month's article reprinted from the IREE journal "Monitor"*, but this was the beginning of the Wireless Institute of Australia, whose 75th anniversary we now celebrate.

What kind of a world did these pioneers know? What was radio in 1910? Why should Australia have been the first country in the world to form an amateur radio society?

Picture the Australia of 1910. The city of Sydney had only been lit by electricity a mere six years before, the last Australian capital to introduce this modern marvel, although NSW could boast that the town of Tamworth was the first in Australia to have electric light, in 1888. There were barely four million people in the whole country. There were motor-cars, but they were primitive. Aeroplanes, even more primitive, only 7 years after the Wright brothers first flew at Kitty Hawk.

Marconi and those who followed his experimental lead, our founders among them, had by 1910 shown the ability to send spark-generated signals thousands of miles. But electron tubes did not appear for another three years. The transistor was 38 years into the future. There was no broadcasting, eventually, the early amateurs were the first broadcasters.

And why was the WIA first? We may presume that many of those four million felt that they were the farthest-flung outpost of the British Empire. Communication, by wire telegraphy and submarine cable, to the Mother Country was slow and expensive. Was there more incentive here to develop the new field of wireless, rather than in America or Europe, each relatively self-sufficent? Certainly, at that time, Australia enjoyed perhaps the highest living standard of any country in the world, mainly earned from wool and wheat, gold and silver, with other minerals coming up fast. Prosperous times encouraged initiative.

Next month we will look at the part played by amateurs, and the WIA, during the last 75 years.

Bill Rice VK3ABP
Editor

AR

WIA NEWS

BAND PLAN PROPOSALS

The following band plan proposals from the Federal Technical Advisory Committee will be discussed in detail prior to ratification at the WIA Annual Convention in April this year.

Would members study the following plans and pass any comments or counter proposals to their Divisional Officers as soon as possible.

FM REPEATER OUTPUT FREQUENCIES AND RECOMMENDED USAGE

Output: 1253.025-1255.000 MHz at 25 kHz
Input: 1241.025-1243.000 MHz (12 MHz split)

Frequency MHz	Usage
1253.050	*RTTY*
1253.100	*Mobile Voice*
1253.150	*RTTY*
1253.200	*Mobile Voice*
1253.250	*Data*
1253.300	*Mobile Voice*
1253.350	*Data*
1253.400	*Mobile Voice Secondary*
1253.500	*Mobile Voice Primary*
1253.600	*Mobile Voice Secondary*
1253.700	*Mobile Voice*
1253.800	*Mobile Voice*
1253.850	*ATV Liaison*
1253.900	*Mobile Voice*
1253.950	*ATV Liaison*
1254.000	*Mobile Voice*
1254.100	*Mobile Voice*
1254.150	*RTTY*
1254.200	*Mobile Voice*
1254.250	*RTTY*
1254.300	*Mobile Voice*
1254.350	*Data*
1254.400	*Mobile Voice*
1254.450	*Data*
1254.500	*Mobile Voice*
1254.600	*Mobile Voice*
1254.700	*Mobile Voice*
1254.800	*Mobile Voice*
1254.900	*Mobile Voice*
1255.000	*Mobile Voice*

The above band plan was prepared after a detailed examination of the effects of transmission from amateur equipment on the Melbourne Radar Installations. Accordingly, FTAC is proposing a 12 MHz split for 23 cm repeater operation.

PROPOSED 23 CM BAND PLAN

Frequency Range MHz	Usage
1240 — 1241	*FM Relays and links*
1241 — 1243	*FM Repeater inputs*
1243 — 1252	*ATV Channel 1, sound 1251.75, vision 1246.25*
1252 — 1253	*FM Simplex*
1253 — 1255	*FM Repeater outputs*
1255 — 1256	*FM Relays and links*
1256 — 1257	*Digital and Packet Radio*
1257 — 1260	*In-band and Cross-band Linear Transponder*
1260 — 1270	*Satellite Communication (WARC 79)*
1270 — 1280	*DOA RADAR*
1280 — 1293	*ATV Channel 2, sound 1292.75, vision 1287.25*
1293 — 1295	*In-band Linear Transponder*
1295 — 1297	*Weak Signal Modes*
1297 — 1300	*DOA RADAR Guard Band*

FM SIMPLEX FREQUENCIES AND RECOMMENDED USAGE

1252.025-1253.000 MHz at kHz spacing.

Frequency MHz	Usage
1252.100	*RTTY*
1252.200	*RTTY*
1252.300	*Voice Secondary*
1252.400	*Voice Secondary*
1252.500	*National Simplex Voice*
1252.600	*Voice Secondary*
1252.700	*Voice Secondary*
1252.800	*Data*
1252.900	*Data*
1253.000	*ATV Liaison*

AR

WIA Seventy Fifth Anniversary News

FEBRUARY 1985

SUN	MON	TUE	WED	THU	FRI	SAT
					1	**2** VK3 NAOCP Revision French 40m Ph Test
3 VK3 NAOCP Revision French 40m Ph Test	**4** School Resumes VK3 Independ Day-4S7	**5** VK1 NAOCP Classes	**6** NZ National Day	**7** 1030 & 1130 - Educ Net VK1 AOCP Classes	**8**	**9** QCWA CW QS0 Party YL-OM Phone Test VK3 AOCP Revision Dutch PACC Test
10 QCWA CW QS0 Party YL-OM Phone Test VK3 AOCP Revision Dutch PACC Test	**11** School Resumes VK5 School Resumes VK6	**12** People Day S VK7	**13**	**14** 1030 & 1130 Educ Net St Valentines Day	**15** VK4 AGM	**16** ARRL DX CW Test Lithuania Indep Day
17 ARRL DX CW Test Gosford Field Day VK3 Midland Zone Conv	**18**	**19** Shrove Tues School Resumes VK7	**20** Ash Wed By New Year	**21** 1030 & 1130 Educ Net Cut-off date for WIA Renewals	**22** AR Copy Deadline CQ WW DX 160m Test	**23** JMNFD Test CQ WW DX 160m Test RTTY World Test VK2 WICEN Confer RSGB 40m CW Test
24 CQ WW DX 160m Test VK2 WICEN Confer JMNFD Test Nat Day Estonia RSGB 40m CW Test	**25** VK3 AOCP Classes VK1 AGM	**26** VK3 NAOCP Classes VK5 GM	**27** Close of VK2 Noms & AGM items Final posting - 150th Test Logs	**28** 1030 & 1130 Educ Net	Dates correct at time of printing.	

PRE-STAMPED ENVELOPE

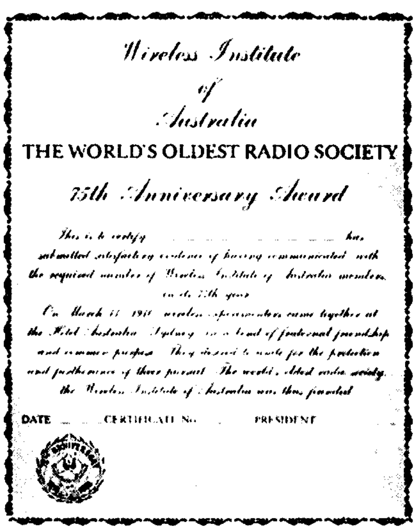
Officers of the Institute met recently with a member of the Graphics Department of Australia Post to preview the design of the envelope which will be issued to celebrate the 75th Anniversary in May this year.

CW CONTEST

This copy of AR carries the rules of a special CW contest which the VK2 Division are organising for this Anniversary year. The overall VK winner will receive the FEDERAL PRESIDENTS CUP, a handsome piece of silverware, to hold for one year. Every member who enters a log with more than 75 contacts will receive a special 75th Anniversary memento.

75TH AWARD

The rules for this contest will be printed in the March issue.



VK7 CELEBRATIONS

The 1985 Tasmanian Amateur Radio Convention will be held over the Queen's Birthday weekend the 8th to 10th of June 1985. This "Hamfest", as it is more usually known, is under the organisational auspices of the Southern Branch of the Tasmanian Division of the WIA and will be centred around Hobart.

The "Hamfest" will provide an opportunity for amateurs to share their hobby with other enthusiasts and hopefully with the public at large. The theme of the "Hamfest" will be "Amateur Radio, Yesterday, Today and Tomorrow."

1985 is the 75th Anniversary of the WIA's foundation and is also the 60th Anniversary of the formal establishment of the Tasmanian Division. This year is also the 40th Anniversary of the re-activation of WIA activity in this State after the suspension of amateur activity for the duration of World War One.

It is therefore intended to make this "Hamfest" the focal point of the celebrations of these anniversaries. A number of historical (and maybe hysterical) re-enactments of some wireless communication landmarks are proposed.

1 To begin with permission has been sought to activate briefly a "spark transmitter" to recreate the "POP MEDHURST" experiments of 1901.

It is interesting to note that as early as 1896 Australia was to the fore in wireless experimentation. The Chief Electrical Engineer of the Victorian Postal Department, a Mr H W Jenvey, played an important role in the early development work. Professor W Bragg gave a lecture (entitled 'telegraphy without wires'), at the Adelaide University on 21st September 1897. During the visit of the Duke and Duchess of Cornwall and York in the vessel R M S 'OPHIR' in 1901, the naval escort vessels H M Ships 'St George' and 'Juno' established the first marine radio communication in Australia with shore stations at Queenscliffe lighthouse, Victoria in May 1901, and at Longbeach lightstation, Sandy Bay, Tasmania in July 1901.

Local Government and Service clubs are supporting this venture.

2 In the northwest of Tasmania work is proceeding on a trans Bass Strait net to re-enact the establishment of the first land station licensed in 1906 and located at Devonport.

The initial step towards inaugurating wireless telegraphy as an official communication medium in Australia was taken with the passing of the Wireless Telegraphy Act in 1905. The first fixed land station was licensed by

the Post Office on 7th June 1906. Located at East Devonport, Tasmania, it was owned by the Marconi Wireless Telegraphy Co and was used to communicate with a similar station later established at Point Lonsdale, Victoria. On the 12th July 1906, when both stations were fully operational, the Governor-General of the period sent what is believed to be the first Australian official wireless telegram to the Governor of Tasmania: *"The Commonwealth greets Tasmania and rejoices at the establishment of the means for knitting the people of Australia more closely together-Northcote."*

The organisers of this proposed net are open for ideas on the actual mechanics of marking this historic event and await the avalanche of advice and other constructive comment. Contact Barry Risely VK7KAD who will pass on your ideas.

3 In the northern part of the state it is hoped to recreate the early trans Bass Strait VHF experiments when on Sunday 5th March 1950 VK's 7PF, 7DB, 7AM and associate Rex Summers operated from Mt Barrow using 144 MHz portable equipment and attempted to contact VK's 7DH and 7AJ. Although the transmitter caused the team problems due to lack of voltage from the generator, the reception of signals from 7AJ/7DH at S8 and 7LH from Western Junction at S7. Part of the equipment used on Mt Barrow is still available and will be brought out from retirement for the occasion.

The "Hamfest" will not be just a nostalgic journey into the past but will, if all plans succeed, be an up to date display of amateur radio techniques and equipment. The NW coast UHF ATV group, the RTTY, Satellite and Computer Groups will be displaying their equipment and skills. Trade exhibitors have been invited to attend. There will be some informal social functions on site and the whole weekend will be a season for special awards and certificates for amateur radio activities. All are asked to give support, assistance and participation to ensure this "Hamfest" is worthy of celebration 75 years hence.

Ken VK7DY is QTHR in the callbook and is the Hamfest Convenor. Contact him today.

The above notes supplied by Barry VK7KAD, Publicity Officer, TARC 85

75TH ANNIVERSARY YEAR POSTER COMPETITION

The "William Otty Displays" being prepared by the Federal office for use by Divisions/Clubs/Groups for displays, open days etc, require some fresh poster material.

In order to meet this need it was decided to run a competition aimed at finding, amongst our members and their immediate families, ideas for posters that would have a "timeless" theme to promote amateur radio and the Institute in the years ahead.

The rules have been kept as simple as possible:

The designs submitted can show any facet of the hobby, but must include some reference to the Institute, ie the "official" badge and the words "amateur radio".

Colours of course will be expected, but these could be added later by a ghost artist.

Size: The final posters will be of a uniform size, 18" x 30". It is possible to have smaller designs redrawn, but it is preferable that entries be to this size.

All designs submitted become the property of the Institute.

More than one entry can be submitted.

Entries close first post on 11th March 1985 and should be sent to the Secretary WIA, PO Box 300, South Caulfield, Vic. 3162.

Each entry must carry the name and address of the designer followed by the sponsoring members callsign, name and address.

The decision of the judges will be final and no correspondence will be entered into.

A prize of a voucher for $100 will be awarded to the design considered by the judges to reflect the aims of the contest. Minor prizes will be given.

75TH ANNIVERSARY SUBSCRIPTION RENEWALS

It was announced in the January issue of AMATEUR RADIO on page 5 that each 75th subscription renewal for 1985 would receive a small gift pack and be placed in a draw for a Citizen Quartz clock, featuring dual time zones and temperature readouts.

Further to this, during the handling of subscription renewals for 1985, the Federal Office have established the following list of members who have qualified so far:

G P Smith VK1ZEI, L N Tate VK3KLT, R W Elliott VK1ZAH, J Curran VK2AAV, R H Banks VK2DHY, R J Richards VK2BRR, P G Spain L20311, C S Wallis VK2DQE, A S Rowe VK2XAJ, D G McPherson VK2NKM, C F G Withers VK2BVI, B G Gillard VK2VSN, F W Tam VK2TAM, Mrs J Daridge VK2VYP, P D Cannon L20284, D F Wickens VK2DWX, G W Alderton VK2YET, A L Ward VK3DAW, A Kadenbach VK3PBN, S E Widgery VK3SE, EJA Chittick VK3AUB, D L Park L30003, S P Martin VK3DQL, A E Mensforth VK3AAB, H C Thomson VK3BZE, A M Carman VK3AQH, T E Manks VK3TZ, L R Ferris VK3ZLL, H J Masefield VK3NXQ, S G Jones VK3YVL, J T Low VK3NNJ, J D Cash VK4VBQ, E K Chippindall VK4XR, L Eliason VK4EH, K J McKenzie L40114, J H Jones VK4QR, D C Inall VK4VLJ, G J Westcott VK4KCW, L J Murray VK4LO, S Demchenko VK6UC, G L Rogers VK6RO, F A Page L60354, K E C Gillon VK6ZA, M K Johnson VK6LC, F J Walsh VK5NJW, B S Clarke VK5BS, H R Hodgson VK5AP, C R Willmer VK5NWE, T L Greig VK5PTL, L F Battersby VK5NEN, T M Dangerfield VK5ATD, A C Barwick VK7TD, A J Tulk VK7ZTA.

REMEMBER:

The final date for members to be eligible for this gift pack draw is the 21st February, 1985, and your membership renewal must be received at the Federal Office before this closing date.

AR

ANNUAL SUBSCRIPTION, THE WHY OF IT.

Why should I renew my subscription? You have heard that question before, a dozen times.

Apart from the obvious answers — you get AR, the QSL bureau, the bookshop facility, the repeater networks and other facilities — a very significant reason is buying insurance in your hobby. *Without the WIA would there be an amateur service in Australia today?*

Possibly, but not the service we enjoy. Certainly not all the privileges that we enjoy that make us the envy of amateurs in most other countries. It comes as a bit of a surprise to read and hear of the restrictions placed on amateurs in other countries.

Did you know in Japan, an amateur has to receive permission to modify his/her station — have it inspected — and pay for it.

Many countries do not have a novice licence.

Some countries, including the USA, have phone and CW segments designated by regulation, not by Gentlemen's Agreements.

In the UK and some European countries only the licensee can use the microphone at the station.

WARC79 bands (10, 18, 24MHz) were allocated some years ago to VKs, but other countries, amateurs have only portions or none at all.

It goes on and on.

So you "lucky country" amateurs, lend your weight to the organisation that has done so much in the past and is continuing to do so at all levels of Government, both National and State, now and in the future. Make your Institute strong with your support, renew your subscription now, then enrol a friend.

REMEMBER THE FEBRUARY ISSUE OF AR IS THE "CUT OFF" EDITION FOR UNFINANCIALS, please renew as promptly as you can to ensure that your privileges of membership are not interrupted.

THE VK5 LOW NOISE 2 METRE PREAMPLIFIER

Craig Maitland VK5ZAW
10 St Albyns Avenue, Toorak Gardens, SA 5065

This kit has been produced after many requests for an easily constructed low noise high performance switched preamp for use in all situations. These include mast-head mounting (the best position), shack mounted, or inside transceivers if room permits. All components required are supplied by the VK5 Equipment Supplies Committee as a complete kit.

In use this preamp has shown its value by lowering overall system noise figure as much as 10 dB in some cases and a minimum of 3 dB when put in front of an already modified unit using a 3N210 dual gate FET in the front end. A typical amateur transceiver was improved by 4-5 dB.

Performance specifications are as follows, measurements being made using a HP8970A automatic noise figure meter.

Gain — nominally 20 dB with 6 dB pad supplied.
Noise figure — less than 1 dB, typically 0.6 — 0.7 dB.
Through loss 0.2 dB.
Through SWR — 1.05:1 at 50 ohms.
Maximum power handling 100 W — limited by relay isolation. For higher power use separate coaxial relays.
Size — 50 mm x 68 mm.

Normally DC switched but has inbuilt RF sensing for safety. Can be RF switched for AM or FM but must be DC switched for SSB as no hang switching was incorporated; this mode is undesirable. Circuit board may be cut in half if straight pre-amp without relay switching is desired.

CIRCUIT

The ubiquitous Philips BF981 is used. At a price of about $1.50 it is difficult to beat for performance/dollar. The input uses an adjustable matching system that will match for minimum noise figure and allow for inconsistencies in coil winding, FET spreads and varying antenna loads. This is preferable to the tapped coil method which is very difficult to adjust for optimum performance without the aid of specialised test equipment.

The 6 dB attenuator can be varied in size according to the requirements but less than 6 dB is not recommended as any gain over 20 dB gives diminished improvements even for the deafest systems.

How much gain is actually needed? Assume a typical transceiver has a noise figure of 6 dB. If we use a preamp of 20 dB gain and 0.7 dB noise figure then the overall noise figure will decrease to 0.81 dB — a large improvement. If we lower preamp gain to 15 dB, the total noise figure would now be 1.04 dB, still an excellent figure. If we run the preamp at maximum gain of 26 dB, the system noise figure is now 0.73 dB, only 0.08 dB better than at 20 dB.

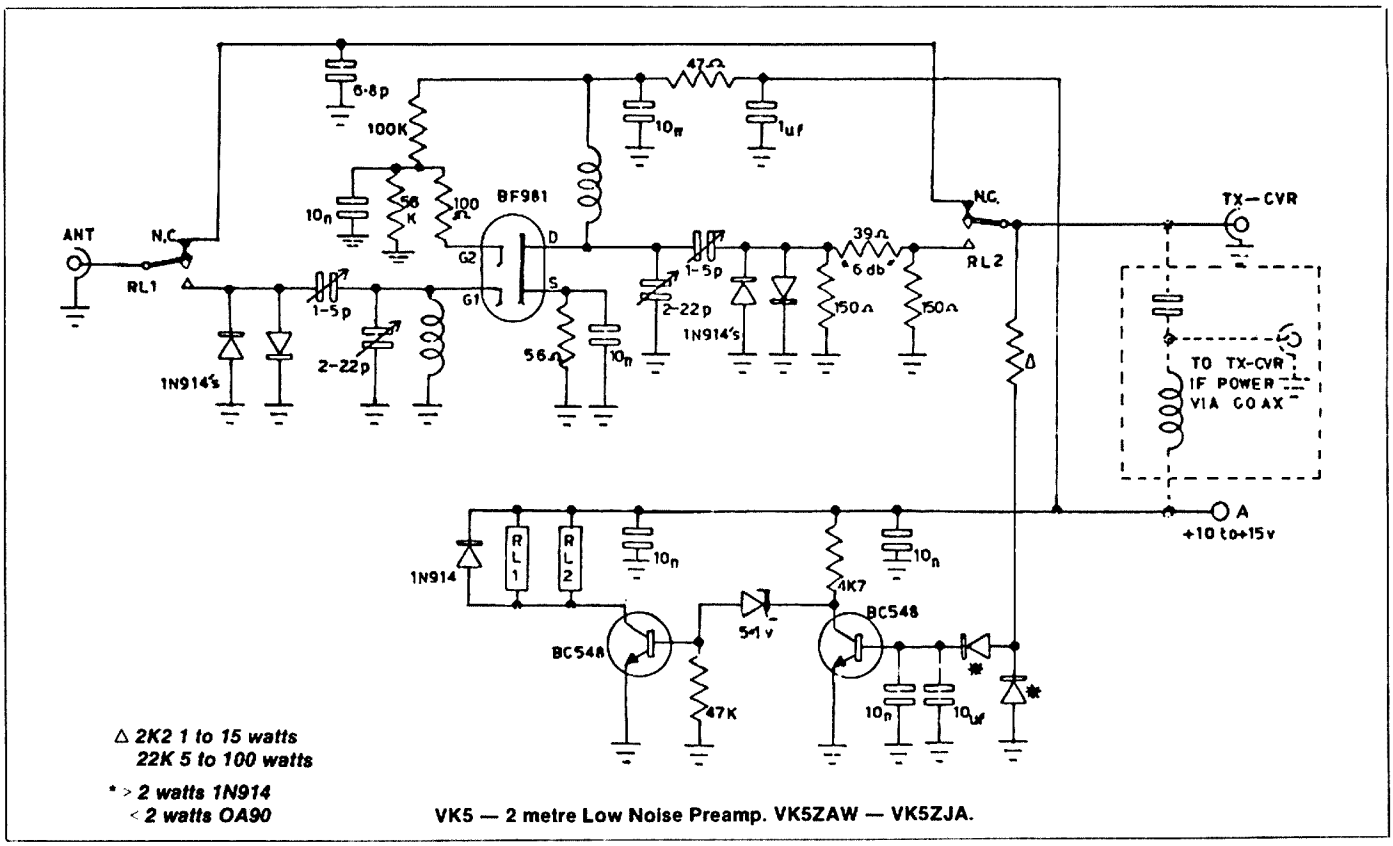
If you have a quiet location in the country, then use all the gain you want but in the city, use the lowest gain possible consistent with low overall noise figure or the receiver front end will suffer from adjacent strong signals, paging systems etc.

Typical gain required during testing was about 15 — 18 dB. A few words about the preferred mounting position may now be in order. With any system, any attenuation of the signal between antenna and receiver will degrade overall noise figure by that amount. If we have 3 dB loss in coax, connectors, diode switching etc. then we cannot obtain a total noise figure of less than about 3.8 dB. But if the preamp is mounted at the antenna, then a minimum noise figure of about 0.8 dB is achieved. These figures are used as an example only to show how important it is to mount the preamp as close to the antenna as practicable. More details on how to find the required gain figure are explained with the kit.

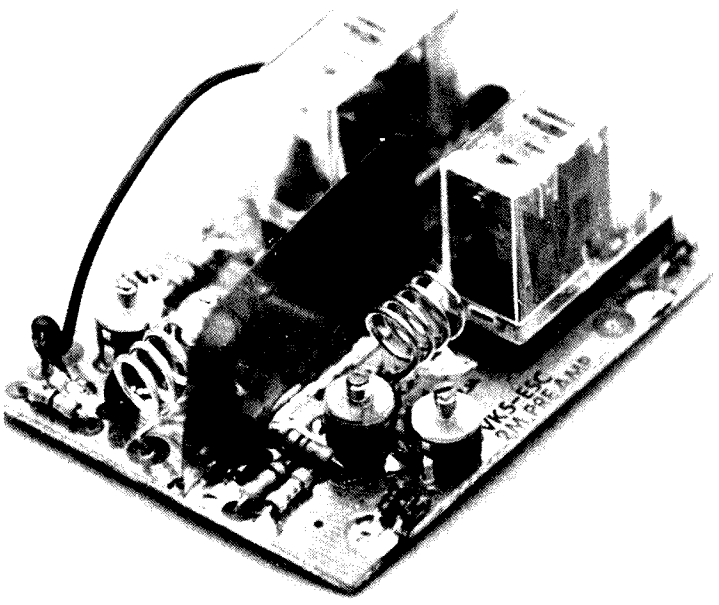
RELAYS

The relay switching system used has been made flexible to suit varying requirements. Obviously the best system is to switch the relays on and off the receiver PTT line. If this mode is used, +10 to 15 V is switched to point A during receive.

If the preamp is required to be powered via the coax, a decoupling network is used in the preamp and also at the transmitter. Unswitched +10 to 15V can also be used, relying on the RF sensing network to do the switching. This part of the circuit will then deactivate the preamp during transmit, connecting input straight though to output. The RF network will switch from as low as 1 watt to a max of 100W by



VK5 — 2 metre Low Noise Preamp. VK5ZAW — VK5ZJA.



altering one resistor and two diodes to suit the power used.

Why have not we used a new technology device such as a GaAsFET? One good reason is the cost of the device used is about $1.50, whereas even when bulk-purchased GaAsFETs are still about $6.00. At the design frequency of 144 MHz, the BF 981 has so far proved to be the equal of any other devices yet measured. This may not be the case at higher frequencies but at 2 metres the BF 981 is more than adequate.

.The full kit, PCB, components, coil winding wire etc, is available for a price of $25.00. Full construction and alignment details are given with the kit.

Postage is included in the price for SA members, $2.50 elsewhere. Orders should be addressed to the VK5 Equipment Supplies Committee, 3 Coral Sea Road, Fulham SA 5024.

ADDENDUM

It has come to our attention that some amateurs have experienced difficulty with powering the unit via the coax. This is due to a combination of poor selection of decoupling components and high power output transmitter.

As these components were not supplied with the kit, no suggestions were made on how to decouple the coax.

The suggested ferrite to use is an F29 slug with 12 turns of fine enamelled wire approximately 30 gauge wound around the outside in the threads, held in place with a drop of superglue if necessary. The decoupling capacitors must be good quality RF types such as chip capacitors, discs, polyester types — not greencaps, as they are only good for audio frequencies. The same network is used at both ends.

If top quality capacitors are not available, try paralleling a couple of different values or types and keep all leads extra short.

There have been a few reports of the preamp not switching when RF actuated. Investigations show that in most cases this has been due to the SWR protection being too fast in the transceiver and actuating during the changeover of the relay contacts of the preamp. The 10 uF on the base of the switch transistors was put in to help but in some cases the only cure is to DC switch the preamp, which is to be preferred anyway. As most transceiver PA transistors are very rugged, slowing down the SWR protect sensing circuit will cure the problem if RF switching is essential.

Don't forget that the absolute maximum power rating is 100 W — due to the limited isolation of the relays used. Any higher power and the FET could be damaged. Use proper coaxial relays with sequential switching if you want to run greater than 100 W.

AR

HAVING FUN IN A FUN RUN

Sam Voron recently participated in the "Bridge to Breakers" Fun Run. During the run Sam operated on 147 MHz FM.

Sam's certificate of achievement read "This is to certify that Sam, with 2m amateur radio backpack, completed the run of 14 km from the Sydney Harbour Bridge to Manly Beach on Sunday 26 August 1984 in 92 minutes."

During the run Sam stopped to speak with SES volunteers using VHF to co-ordinate the run.

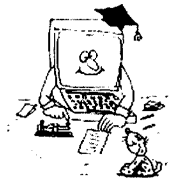
Many runners were quite amazed to see this new twist to their sport.

Sam is now eager to know when the next run will be on.

AR

MORSE TRAINER PROGRAMME — C64

Neil Cornish, VK2KCN,
56 Sherwin Avenue, Castle Hill, NSW, 2154



The majority of amateurs have greatest difficulty in Morse receiving and this programme uses the Commodore 64 to produce good Morse at any speed and with a number of good learning aids included.

The main menu of the programme has the following options.

f1 . . SEND CW FROM KEYBOARD
In this mode, the speed is selected and the CW of typed letters is generated by the computer. You may type-ahead to the limit of the keyboard buffer.

f2 . . RECEIVE PLAIN TEXT
When selected, this mode sends plain text from memory at the speed selected. It is possible to increase the spacing between each character whilst maintaining character speed. The text in memory begins with the sample exam for 10WPM listed in the Amateur Operators Handbook.
You may add your own text in DATA statements at the end of the programme in lines beginning at 4210 etc. If you do so, you should increment the two "11" in line 200 by the number of DATA lines you add.

f3 . . DISPLAY CODE ON SCREEN
This is a graphic display of the code.

f4 . . RECEIVE RANDOM GROUPS
This is possibly the most useful mode because it generates Morse for groups of five "words" either letters only or letters and numbers. The speed may be varied and the spacing between each character may be varied which allows the student to hear the character at the correct speed but gives a little more time for recognition. The number of "words" in a session can be varied and at the end of the session the "words" are displayed together with the time taken for sending. It should be noted that because random groups have more of the longer Morse characters than plain text, the time taken for say, ten "words" at 10WPM, is a little longer than one minute.

f5 . . RECEIVE RANDOM CHARACTERS TWICE
The random characters can be letters only or a mixture of letters and numbers. Details as for f4.

f6 . . PRACTICE TAPE MAKER
In this mode, you may enter some text at any selected speed and then the computer will generate the CW for that text. This is useful in making practise tapes or for educators who wish to prepare lesson tapes. The output can be recorded on a simple cassette recorder.

f7 . . RANDOM GROUPS OF SELECTED LETTERS
Here you can input the letters or numbers which you find difficult and the computer sends random groups of the selected characters only. Details as for f4.

f8 . . FINISHED WITH PROGRAMME
No explanation required.

Generally, when the computer is about to send Morse, a five second countdown on the screen is given and the CT and AR codes are sent to indicate the start and end of the test. From within each mode, return to menu is achieved with f7 and alterations of speed, spacing etc with f8.

If you can't hack the typing, $5 for a tape or $10 for a disk to the author will get you the programme. A VIC-20 version is also available. **AR**

```
100 REM[illegible]
110 PRINT"";POKE53280,5:POKE53281,3
120 W$="ABCDEFGHIJKLMNOPQRSTUVWXYZ":W1$=W$+"0123456789":U$=" F7=MENU "
130 S=80:SD=54272:FORDS=SDTOSD+24:POKEDS,0:NEXTDS
140 POKESD+5,0:POKESD+6,240:REM   A.D.S.R.
150 POKESD+1,47:POKESD,100:REM PITCH
165 POKESD+21,200:POKESD+22,50:REM  CUTOFF FREQ.
168 POKESD+24,47:REM  VOLUME & FILTER
170 POKESD+2,0:POKESD+3,8:REM PULSE WIDTH
180 DIMM$(90):FORI=40TO90:READM$(I):NEXT:M$(33)="111331111":M$(36)="111313"
190 FORI=1TO8:READA$(I):NEXT
200 DIMD$(11):FORI=1TO11:READD$(I):NEXT: REM**THE NUMBER OF TEXT DATA LINES**
210 REM[illegible]
220 PRINT"":PRINTTAB(11)"*MORSE  TRAINER*":PRINT"";
230 S=35:O$="CQ CQ DE VK2KCN  K":LETL=LEN(O$):FORI=1TOL
240 M$=MID$(O$,I,1):PRINT""M$;:GOSUB1590:NEXT:PRINT""
250 PRINTTAB(12)" COMMODORE 64 "
260 PRINTTAB(8)"NEIL CORNISH VK2KCN":FORI=1TO3000:NEXT
270 REM[illegible]
280 PRINT"MENU,SELECT FUNCTION":PRINT:FORI=1TO8:PRINT"F";A$(I):NEXT
290 PRINT:PRINT"DURING THE PROGRAM,":PRINT:BB=0
300 PRINT"TO RETURN TO THE MENU PRESS [F7]"
310 PRINT"TO ALTER SPEED ETC    PRESS [F8] "
320 G=1:GOSUB640:A=ASC(A$)-132:IFA<1ORA>8THEN320
330 IFA=8THEN720
340 TA=INT((39-LEN(A$(A)))/2)
350 G=0:PRINT""TAB(TA)A$(A):FORI=0TO39:PRINT"";:NEXT
360 PRINT: PRINTU$:PRINT:GOSUB700
370 ONAGOTO380,550,1050,1350,460,800,1210,700
380 REM[illegible]
390 GETA$:IFA$>""THENB$=B$+A$:PRINTA$;
400 IFA$=CHR$(136)THEN 280
410 IFA$=CHR$(140)THENGOSUB700
420 IFB$=""THEN380
430 M$=LEFT$(B$,1):GOSUB1590
440 IFLEN(B$)=1THENB$="":GOTO380
450 B$=RIGHT$(B$,LEN(B$)-1):GOTO380
460 REM[illegible]
470 GOSUB750
480 FORAB=1TO10:O$=D$(AB)
490 FORQ=1TOLEN(O$):GETC$:IFC$=CHR$(136)THEN280
500 GETC$:IFC$=CHR$(140)THENGOSUB700
510 M$=MID$(D$,Q,1):X$=M$:GOSUB1590:PRINTX$;:NEXT:PRINT:FORO=1TO7*S:NEXTO:NEXTAB
520 PRINT:PRINT"PRESS SPACE TO CONTINUE"
530 GETAC$:IFAC$<>" "THEN530
540 GOTO280
550 REM[illegible]
560 D$="    ":DT$="":K=0
570 FORI=48TO90:K=K+1:IFK=10THENGOSUB620
580 PRINTCHR$(I);TAB(2);:FORJ=1TOLEN(M$(I))
590 IFMID$(M$(I),J,1)="3"THENPRINTD$;
600 IFMID$(M$(I),J,1)="1"THENPRINTDT$;
610 PRINT" ";:NEXT:PRINT"":NEXT:GOSUB620:GOTO280
620 REM[illegible]
630 PRINT"PRESS  SPACE  ";K=0
640 GETA$: IFA$=""THEN640
650 IFG=1THENRETURN
660 PRINT"                            ":PRINT"" :K=0:RETURN
670 K=K+1:IFK>40THENK=0
680 K=K+1:IFK>20THENPRINT" ";:GOTO640
690 PRINT"  ";:GOTO640
700 REM[illegible]
710 PRINT:INPUT"SPEED IN W.P.M.    10";S:S=735/S:RETURN
720 REM[illegible]
730 S=35:PRINT"":C$="GUD LUCK 73 DE NEIL VK2KCN  K":LETL=LEN(C$):FORI=1TOL
740 M$=MID$(C$,I,1);PRINTM$;:GOSUB1590:NEXT:END
750 REM[illegible]
760 PRINT"STANDBY FOR CW IN "
770 FOR SB=250TO0STEP-1
780 IFSB/50=INT(SB/50)THENPRINT""SB/50
790 NEXT:PRINT:RETURN
800 REM[illegible]
```

```
810 SS=735/S:S=S*.8
820 REM
830 PRINT:PRINT"SPACING ENTER 0-50    0";
840 INPUTBB:IFBB<0ORBB>50THEN840
850 INPUT"LETTERS ONLY  Y/N    Y";Y$:IFY$="Y"ORY$="N"THEN870
860 GOTO850
870 R$=W$:W=26:IFY$="N"THENR$=W1$:W=36
880 PRINT
890 INPUT"HOW MANY WORDS    10";Z
900 GOSUB750
910 PRINT"SPACE=";BB;"WORDS=";Z
920 M$="+":GOSUB1590:FORI=1TO7*S+BB*S:NEXT:TI$="000000"
930 FORHH=1TOZ
940 FORQQ=1TO5
950 R=INT(RND(1)*W)+1:M$=MID$(R$,R,1):MM$=M$:GOSUB1590
960 PRINTMM$;
970 NEXTQQ:PRINT" ",:FORD=1TO7*S+BB*S:NEXTD:NEXTHH
980 M$="*":GOSUB1590:PRINT:PRINT
990 L$=MID$(TI$,3,2)+" MIN. "+MID$(TI$,5)+" SEC.":PRINTZ"WORDS IN"L$
1000 PRINT:PRINT"SAME AGAIN=[SPACE]":PRINT"ALTER     =[F8]":PRINT"EXIT    =[F7]"
1010 GETH$:IFH$=""THEN1010
1020 IFH$=CHR$(140)THENGOSUB1700
1030 IFH$=CHR$(136)THEN100
1040 GOTO880
1050 REM DOUBLE LETTERS
1060 PRINT:PRINT"SPACING? 0-15    0";
1070 INPUTAA:IFAA<0ORAA>15THEN1060
1080 INPUT"LETTERS ONLY    Y";Y$:IFY$="Y"ORY$="N"THEN1100
1090 GOTO1080
1100 PRINT"ALTER SPACE PRESS [F8]":GOSUB750
1110 AA= 40*AA:R$=W$:W=26:IFY$="N"THENR$=W1$:W=36
1120 FORHH=1TO8
1130 FORQ=1TO5:GETC$:IFC$=CHR$(136)THEN130
1140 IFC$=CHR$(140)THENGOTO 1060
1150 R=INT(RND(1)*W)+1:M$=MID$(R$,R,1):MM$=M$:GOSUB1590:FORD=1TOAA:NEXTD
1160 PRINTMM$;:M$=MM$:GOSUB1590:FORD=1TOAA:NEXTD
1170 NEXTQ:PRINT" ",:FORD=1TO2.33*AA:NEXT:NEXTHH
1180 PRINT"PRESS <SPACE> TO CONTINUE"
1190 GETH$:IFH$=""THEN1190
1200 PRINT"":GOTO1060
1210 REM SPECIAL SEND KEYBOARD
1220 INPUT"DELAY  1 TO 50     1";DL:IFDL<1ORDL>50THEN1220
1230 PRINT: PRINT"ALTER SPACE..[F8],  OR EXIT..[F7]":XT$=""
1240 PRINT" TYPE IN TEXT & PRESS [RETURN] TO SEND"
1250 GETTX$:IFTX$=""THEN1250
1260 IFTX$=CHR$(136)THEN100
1270 IFTX$=CHR$(140)THEN1220
1280 IFTX$=CHR$(13)THENTX$=XT$:PRINT:GOTO1300
1290 PRINTTX$;:XT$=XT$+TX$:GOTO1250
1300 GOSUB750:M$="+":GOSUB1590:FORI=1TO7*DL:NEXT
1310 FORI=1TOLEN(TX$)
1320 M$=MID$(TX$,I,1):GOSUB1590:FORL=1TO40*DL:NEXTL
1330 PRINTMID$(TX$,I,1);:NEXTI
1340 FORI=1TO5*7*DL:NEXT:M$="*":GOSUB1590:GOTO1230
1350 REM PROBLEM LETTERS
1360 SS=735/S
1370 PRINT:PRINT"SPACING. ENTER 1-15    1";
1380 INPUTAA:IFAA<1ORAA>15THEN1370
1390 AA=40*AA:PRINT
1400 INPUT"HOW MANY WORDS    5";Z
1410 IFH$<>CHR$(140)THEN1440
1420 INPUT"SAME LETTERS  Y/N";Q$
1430 IFQ$="Y"THEN1450
1440 INPUT"PROBLEM LETTERS";PR$:IFPR$=""THENPRINT"":GOTO1440
1450 LETPR=LEN(PR$)
1460 PRINT"SPACE=";AA/40;"WORDS=";Z:GOSUB750
1470 M$="+":GOSUB1590:FORI=1TOAA*7:NEXT
1480 FORHH=1TOZ
1490 FORQ=1TO5
1500 R=INT(RND(1)*PR)+1:M$=MID$(PR$,R,1):MM$=M$:GOSUB1590:FORD=1TOAA:NEXTD
1510 PRINTMM$;
1520 NEXTQ:PRINT" ",:FORD=1TO5*AA:NEXTD:NEXTHH
1530 M$="*":GOSUB1590
1540 PRINT: PRINT"REPEAT=[SPACE]..ALTER=[F8]..MENU=[F7]
1550 GETH$:IFH$=""THEN1550
1560 IFH$=CHR$(140)THEN1370
1570 IFH$=CHR$(136)THEN 280
1580 PRINT:GOTO1460
1590 REM SOUND GENERATOR MR
1600 IFM$=" "THENFORD=1TOS*7:NEXTD:RETURN
1610 IFASC(M$)>90THENRETURN
1620 M=ASC(M$):M$=M$(M)
1630 FORL=1TOLEN(M$)
1640 E=VAL(MID$(M$,L,1)):POKESD+4,65:REM  WAVEFORM - TURN ON
1650 FORD=1TOE*S:NEXT
1660 POKESD+4,64:REM  WAVEFORM - TURN OFF
1670 FORD=1TOS:NEXTD
1680 NEXTL
1690 FORD=1TO3*S+BB*S:NEXTD:RETURN
1700 REM ALTERS
1710 PRINT"ALTERATIONS AVAILABLE"
1720 PRINT"1..SPEED":PRINT"2..SPACE":PRINT"3..WORDS"
1730 GETAL:IFAL<1ORAL>3THEN1730
1740 IFAL=1THEN1770
1750 IFAL=2THEN1780
```

Continued page 12.

```
1760 PRINT"NUMBER OF WORDS";:INPUTZ:GOTO1790
1770 GOSUB700:S=S*.8:GOTO1790
1780 PRINT"SPACE  0-50";:INPUTBB:IFBB>00RBB<0THEN1780
1790 INPUT "OTHER ALTER N  Y/N";Y$
1800 IFY$="Y"THEN1710
1810 IFY$<>"N"THENPRINT"Y/N REQD.":GOTO1790
1820 RETURN
4000 DATA313313,313313,13131,31313,331133,31113,131313,31131
4010 DATA33333,13333,11333,11133,11113,11111,31111,33111,33311,33331
4020 DATA333111,313131,111313,111111,31331,113311,13111
4030 DATA13,3111,3131,311,1,1131,331,1111,11,1333,313,1311,33,31,333,1331,3313
4040 DATA131,111,3,113,1113,133,3113,3133,3311
4050 DATA1..SEND CW FROM THE KEYBOARD.,3..DISPLAY CODE ON SCREEN.
4060 DATA5..RECEIVE RANDOM CHARACTERS TWICE.
4070 DATA7..RANDOM GROUPS OF SELECTED LETTERS.
4080 DATA2..RECEIVE PLAIN TEXT..4..RECEIVE RANDOM GROUPS.
4090 DATA6..PRACTISE-TAPE MAKER..8..FINISHED WITH PROGRAM.
4100 DATA+ THE SKIING SEASON HAS STARTED AND 156 MILLIMETRES OF SNOW HAS FALLEN
4110 DATA ON MOUNTAINS ABOVE 1 4 9 2  METRES ALL MOTORISTS ARE REQUESTED TO
4120 DATACARRY CHAINS 2 LIFTS ARE OPERATING DAILY APPROXIMATELY 4 2  CARS WENT
4130 DATA THROUGH EARLY FRIDAY MORNING PICNICKERS AND SKIERS MADE UP 3 7 PER
4140 DATA CENT OF THE VISITORS *
4150 DATA PEAK AT 270 DEGREES THE CARRIER FREQUENCY CHANGES TO ITS LOWEST
4160 DATAVALUE FINALLY WHEN THE MODULATING CYCLE IS COMPLETE AT 360 DEGREES THE
4170 DATACARRIER IS BACK TO ITS CENTRE FREQUENCY WE CAN THUS SEE THE FOLLOWING
4180 DATABASIC CONDITION WITH NO MODULATING SIGNAL THE CARRIER IS AT A FIXED
4190 DATACENTER FREQUENCY AS MODULATION IS APPLIED THE CARRIER FREQUENCY WILL
4200 DATAINCREASE AND DECREASE IN ACCORDANCE WITH THE ALTERNATIONS OF AF SIGNAL
```

BATTERY DANGER WARNING

Only quick action by doctors had prevented several fatal poisonings after children swallowed small mercury batteries which were now used to power calculators and electronic games.

Dr Geoff Davidson, director of gastroenterology at Adelaide Children's Hospital said stomach acid quickly corrodes the metal casing of the battery.

The result can be battery contents including toxic mercury being released in the stomach.

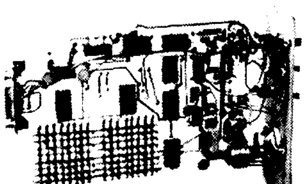
Dr Davidson said his hospital had had about a dozen cases of children aged between two and seven swallowing the batteries in the past year.

The usual procedure when a child swallowed an object was to wait until it passed through the body naturally.

But Dr Davidson said this could be fatal because after five hours the strong acid in the stomach starts to digest the metal battery covering.

He has devised a technique to push the batteries through the stomach into the bowel and then gives the child drugs to induce bowel movement.

AR



ADAPTIVE KEYER

A Van Der Byl VK2EDB
13 Brahma Close, Bossley Park, NSW 2176.

This project arose out of a need to maintain a presence on the 6 m band with a view to getting more contacts especially during times of sporadic E propagation and the band appears dead through sheer lack of occupancy.

With this mind a facility was required such that it would stop keying should the calling frequency become occupied by another station, something that has sorely been lacking in the past.

OPERATION

Relerring to the block diagram the operation is as follows: A clock which is a 555 which is used as an astable multivibrator drives a twelve bit counter which is a CD4040BP. Output Q1 to Q12 go to logic high in order of binary notation. Q1, Q2 and Q3 drive a de-multiplexer, whose eight outputs, which are normally high, go low in turn as the clock pulses are fed into the counter.

Q4 to Q7 control the multiplexer whose sixteen inputs are selected in turn each time the de-multiplexer goes through a cycle.

When a diode is inserted into the matrix as shown on the block diagram a low logic level is seen by the multiplexer whose output causes the keying relay to operate and either a LED to light up or side tone oscillator to operate depending on S2.

Q8 to 12 of the twelve bit counter are used to control the periodicity of the call, (not necessarily regular) when the required outputs are connected to the AND gate whose output enables the de-multiplexer to produce an output to be keyed.

The calling periodicities can be envisaged from the following table, showing when Q8 to Q12 become logic one.

Q12	Q11	Q10	Q9	Q8	
0	0	0	0	0	← TURN ON
0	0	0	0	1	
0	0	0	1	0	40 seconds
0	0	0	1	1	← 1st call
0	0	1	0	0	
0	0	1	0	1	
0	0	1	1	0	
etc		etc			
1	1	1	1	1	

For example, if the time taken to scan the matrix is 10 seconds and Q8 and Q9 is connected to the AND gate the first call would be at 40 seconds from turning on the power, UNLESS sufficient audio level from the receiver causes the reset relay to operate in turn forcing the counter to reset.

During the time in which the keyer is keying the high logic level from the AND gate is used to inhibit the reset relay from operating. For example in some transceivers a side tone oscillator is used in the CW mode. This would cause the counter to reset when it should not.

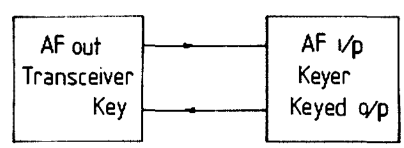
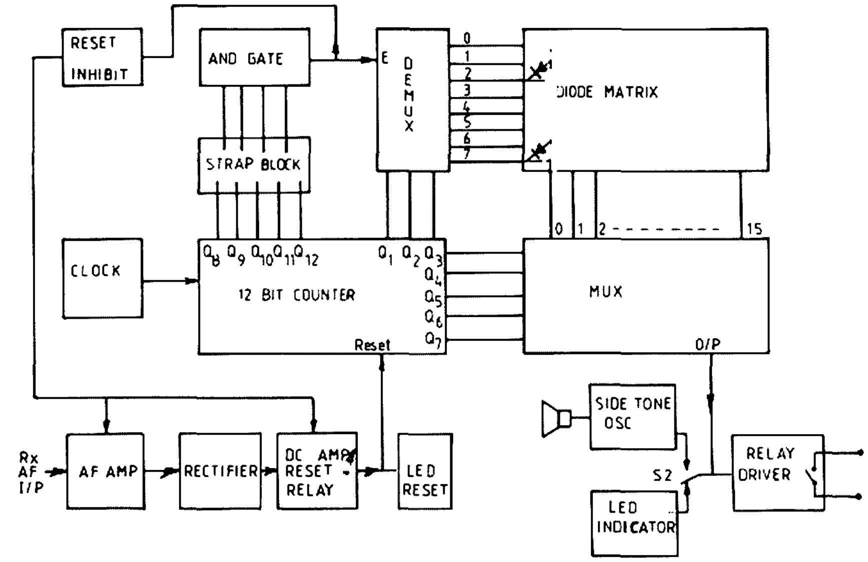


Figure 2 — Adaptive Keyer Utilization



ADAPTIVE KEYER UTILIZATION
Figure 1 — Flow Chart — Block Diagram

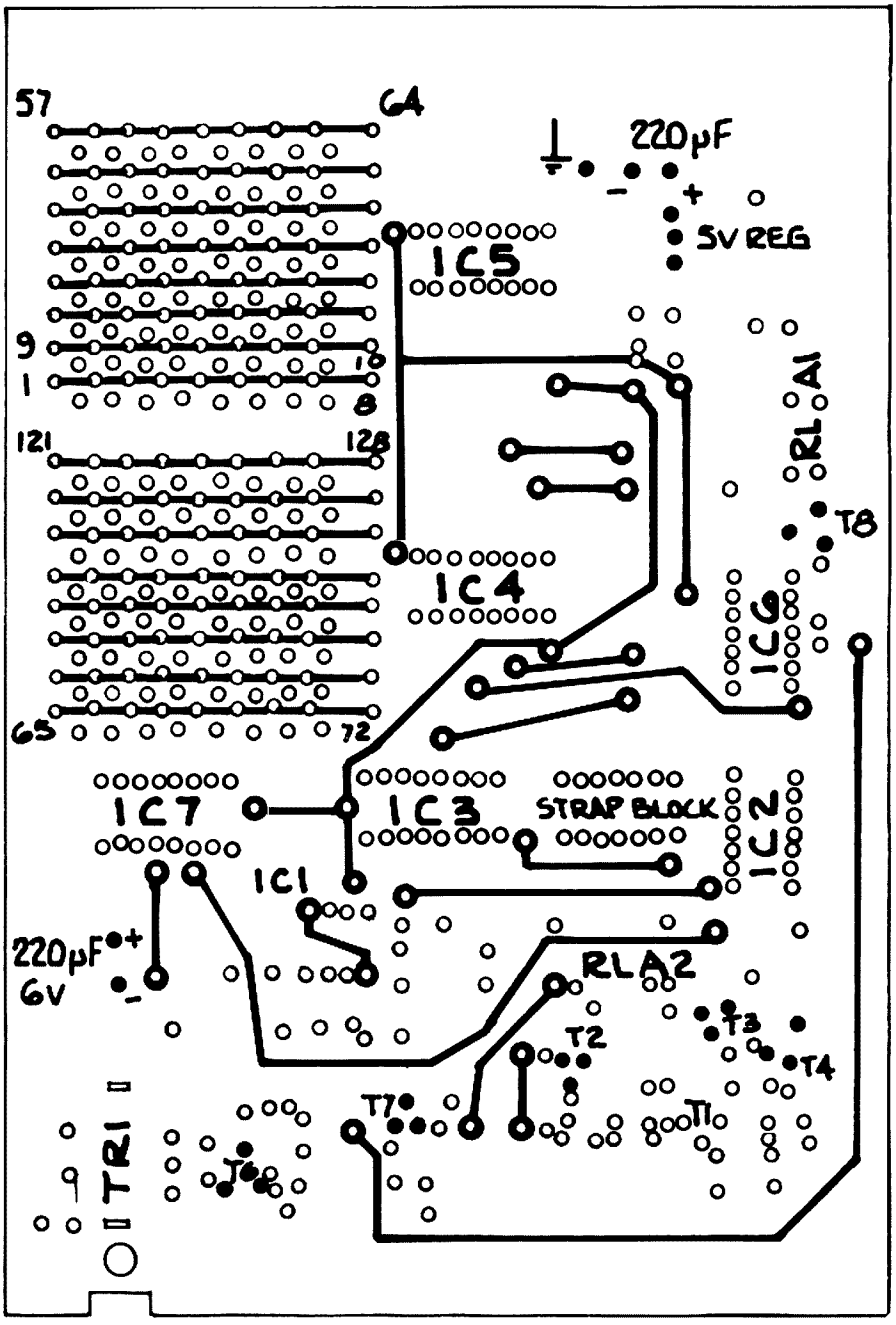


Figure 5 — PC Pattern (component side)
Note: Strap Block could be replaced by DIL switch

The reset inhibit is achieved by causing the 12V rail to be turned off during calling period.

CIRCUIT DETAILS

1) CLOCK — IC1 a 555 used as an astable multivibrator whose speed determines the CW speed.
2) COUNTER — IC3 — 12 bit binary counter. CMOS CD4040BP.
3) MULTIPLEXER — IC4 AND IC5 74LS151 and IC6 74LS00 quad 2 i/p AND gate. Gates 1a and 1b cause either IC4 or 5 to be selected under control of Q7. 1d and 1c combine the outputs of IC4 and 5.
4) DE-MULTIPLEXER — IC7 — one of eight demultiplexers. 74LS138.
5) AND gate — 74LS08 here used as a 4 input AND gate.
6) RESET INHIBIT — consists of T3 and T4 when the AND gate output goes high T4 conducts causing the base of T3 to go low hence no supply voltage for RLA2 and T1 and T2.

T5 buffer switch for either side tone oscillator or the green LED.

T7 buffer switch for the Reset LED indicator.

The value of this project in the enjoyment of amateur radio to me is that it saves a lot of calling CQ when this machine does it for me. I simply reap the benefits when a call is received.

PROBLEMS —

No claims are laid upon the use of a diode matrix in a keyer but rather the use of a keyer in a manner that would not drive every other user of 6 metres around the bend.

The greatest amount of time was spent on producing a circuit board pattern that didn't require a myriad of wire straps. Full sized circuit board patterns

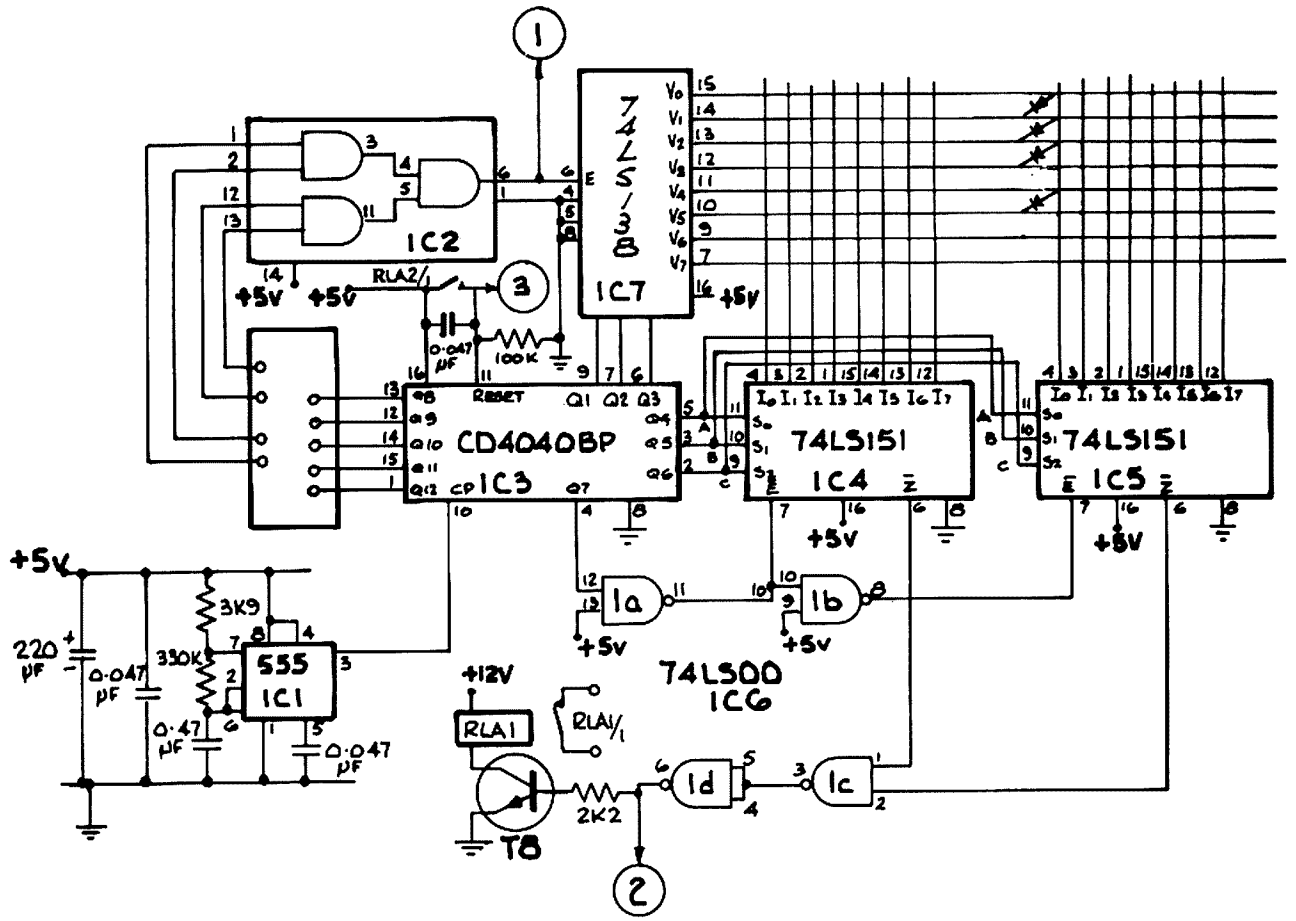


Figure 3 — Circuit Diagram

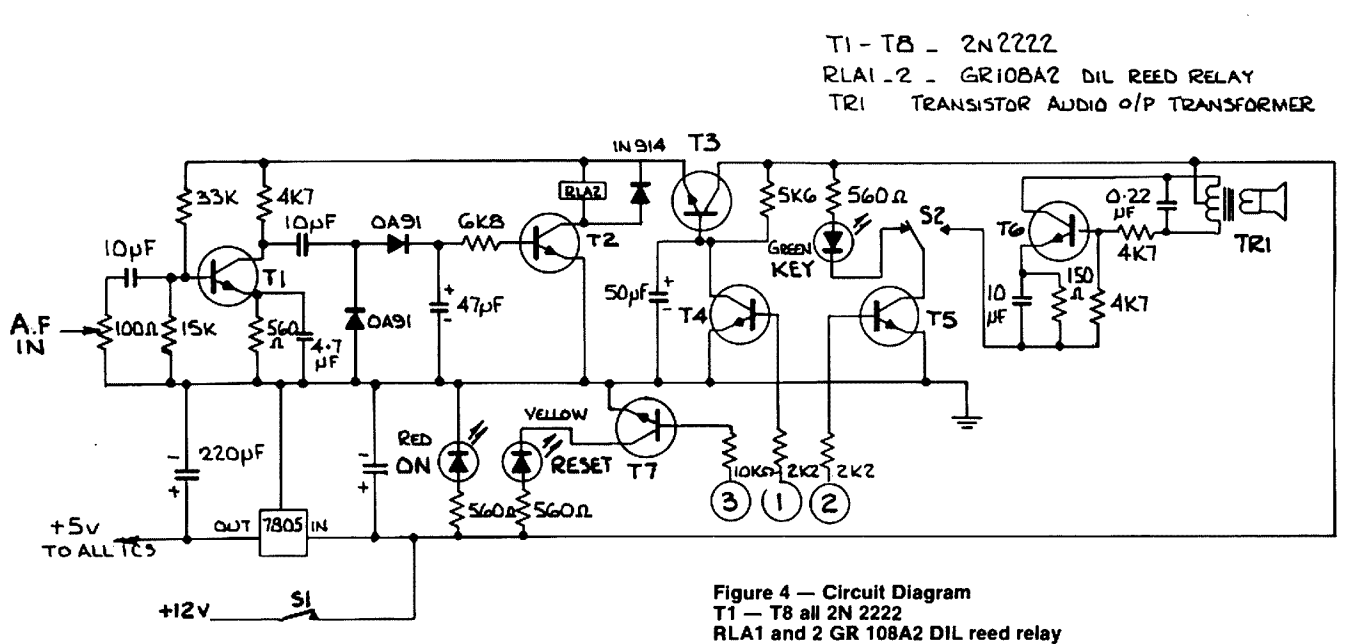


Figure 4 — Circuit Diagram
T1 — T8 all 2N 2222
RLA1 and 2 GR 108A2 DIL reed relay
TR1 Transistor audio o/p transformer

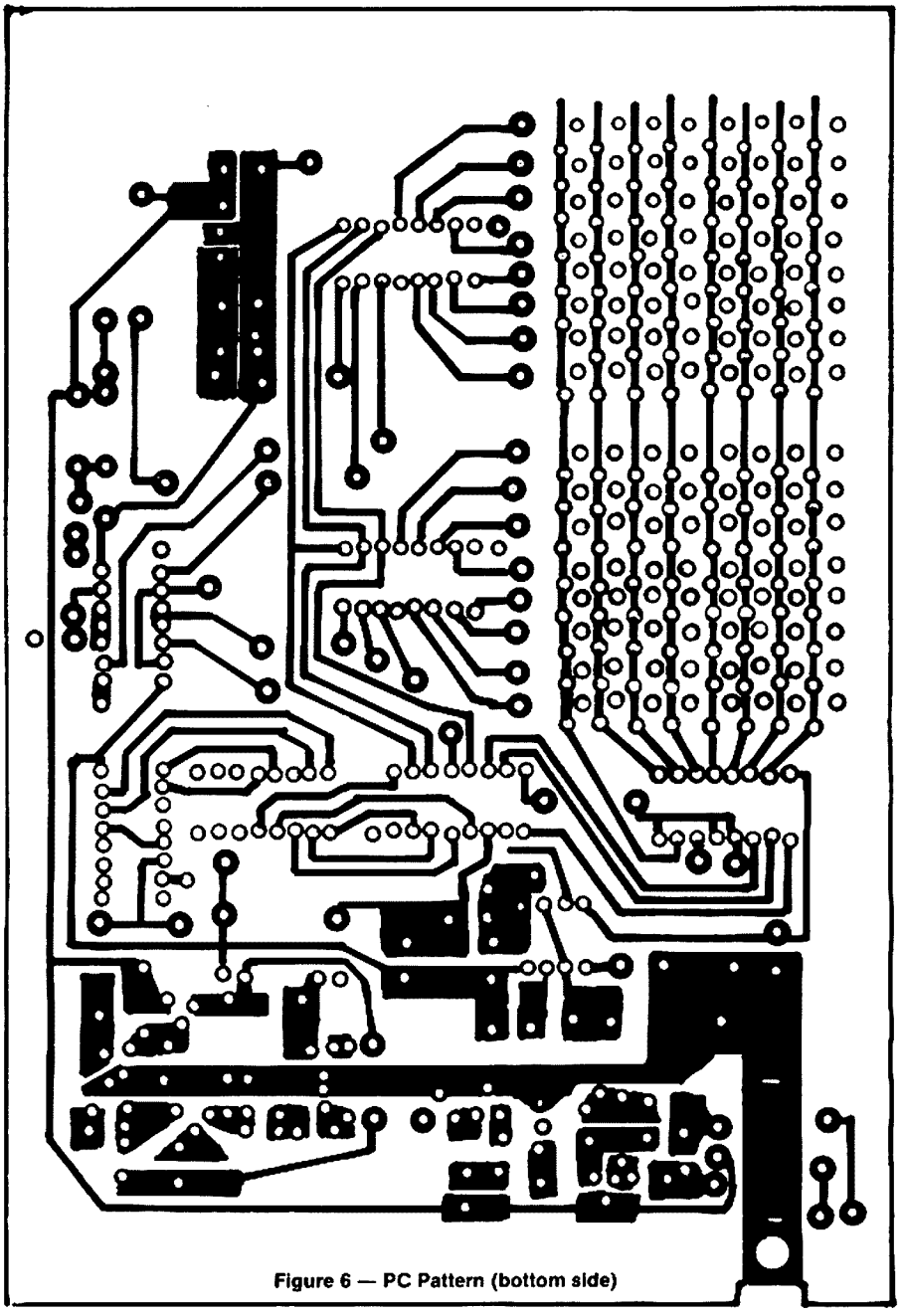


Figure 6 — PC Pattern (bottom side)

are shown in Figures 5 and 6, should any attempt be made to reproduce this project.

BRIEF SPECIFICATIONS

Power consumption @ + 12 V Idle = 50 mA
Keying = 80 mA
Maximum Reet Sensitivity = 100 mV Pk-Pk
Memory Size = 128 bits
Clock Frequency = 8.5 Hz
Message Length = 15 Seconds
Max Call Cycle Length =
32 x Message Length = 8 Mins.

Comments Reusage

I have found that a period between calls of about 5-6 mins to suit me best.

A mute on the receiver which has good noise immunity is necessary to prevent false resetting of the keyer.

Do not leave it running, unattended lest ye be reproved and proved a nuisance.

BEST PHOTOGRAPHS

DECEMBER & JANUARY

The judges selected the cover photograph of the December magazine and the photograph of Norbert Trupp VK4FXP — page 52 in January's magazine.

Other clubs and groups may like to use some of these ideas or devise some of their own from the following information, to help promote amateur radio and the Wireless Institute of Australia in this — our Anniversary Year.

CATCH-22

Or . . . One club's approach to public relations.

Charles Ivin, VK4BPI
36 Tulloch Street, Mackay, Qld 4740

Never move motions at VK4 Divisional Conferences. The Mackay club did. It read, "That the WIA Queensland Division, in co-operation with the Federal body, produce portable visual displays to promote the variety of benefits of amateur radio." The Mackay Amateur Radio Club is small and it was felt the availability of such displays would help in its membership drives. No sooner was the motion accepted on the agenda than the chairman, David Jones VK4NLV, by a combination of sheer flattery and low skullduggery talked the Club into preparing an audio-visual display for presentation at the Conference.

This should have been a warning. After spending long hours in preparation, a slide presentation was shown at the Conference, with pre-recorded commentary extolling the joys of being a member of the radio club. The response was overwhelming . . . so much favourable reaction that the club delegates, in reporting back to the next meeting, made their second big mistake . . . *"Why don't we present a public display in our own city, complete with static display, radio exhibits, video films and a live amateur radio station?"* Suddenly, reality hit. It's easy enough to move motions at Conferences, but somehow, when you find yourselves having to help make them work it seems more difficult!

"No worries!" said President Wally VK4AIV. A sub-committee was set up and a clear plan of attack was mounted. The following comments outline the approach to the challenge.

VENUE

It's important to pick a place where plenty of people visit and facilities will show the display at its best. There seemed to be two possibilities. Shopping centre complexes attract a good cross section of the public but usually have limited room and require a rostered attendance of members to guard the display from undesirable QSOs during working hours. Alternatively, the City Library, which has a large safe display area, plentiful boards and glass presentation cases, a separate small auditorium suitable for video presentations and portable amateur radio stations. Even more, it has an enthusiastic Librarian who'd rather say "CQ" than "QRT"! Therefore, the Library was selected to mount a display over the period of 22-29th September 1984, incorporating two weekends.

STATIC DISPLAY

There were about nine double sided display boards. Each side was given a theme or message to convey to the public. Where the subject was more complex, additional sides were used. To facilitate the setting up, all presentations were made on cardboard sheets of various colors, of approximate dimensions 550 x 750 mm. The headings used were:

"Welcome to Mackay Amateur Radio Club", "What is Amateur Radio?", "Spanning the Years" (good for young and old), *"Raising a Tower — A photographic sequence of construction", "Community Service — WICEN, Service groups, JOTA, Handicapped, Trials", "Shortwave Listening and DX", "ALARA . . . even little ladies do it! . . . Let's QSO!", "Amateur Radio Spans the World", "WIA . . . What is the WIA", "Licensing Requirements", "Department of Communications", "ITU, IARU, Interference, Pirates", "A Progressive Hobby", "Satellites, Microcomputers, Home-brewing, VHF, ATV, RTTY, Packet Radio", "The Morse Code —How to tackle it".*

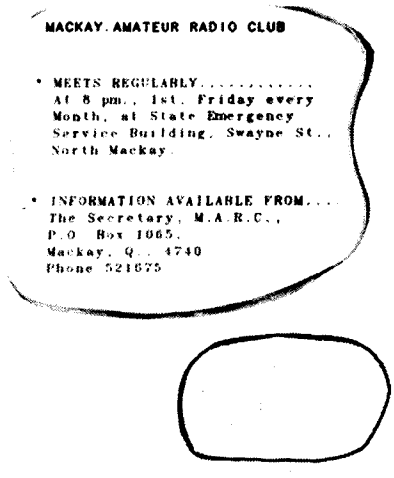
Two main tools were used for the displays to avoid the need for sign-writing by hand. A computer was used with a programme producing ten different printing styles on a graphic copier. These typed headings were then enlarged on a photocopier to a suitable size for visual impact. The latter was also handy for the many articles "borrowed" from technical sources and WIA Publications. Care was taken to acknowledge source data with occasional printed references.

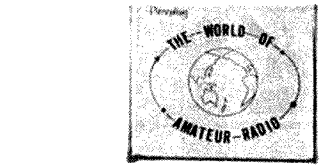
Cartoons were particularly handy to lighten up what might have become an over serious display. Although the photocopier produced excellent copies of pictures, actual magazine covers, enlarged colour photos and posters were used to provide colour contrast throughout the display.

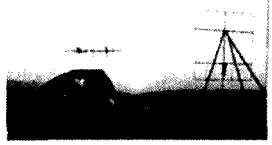
A special deal was struck at a local colour developing firm for cut prices, given a small acknowledgement near the enlargements. Six colour posters from WIA Federal sources were invaluable in giving additional impact amongst the smaller illustrations.

Probably the most important aid in presentation was the artistic hand of the writers XYL, Jenny, who added coloured borders, etc as well as organising the actual layout of each sheet.

A monster world map surrounded by QSL cards was used by Bruce VK4NPF, to relate the interesting contacts made between amateurs around the world.

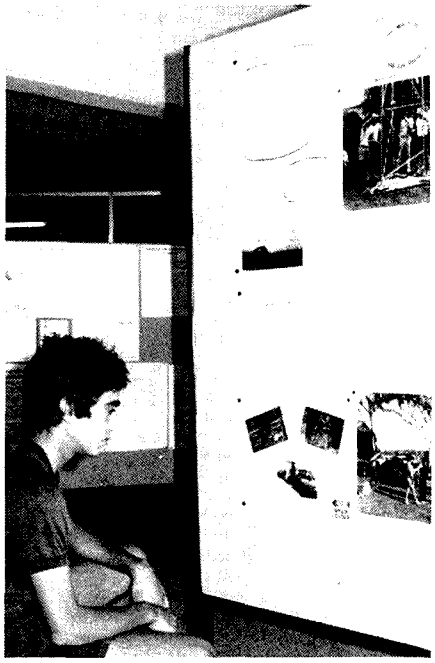






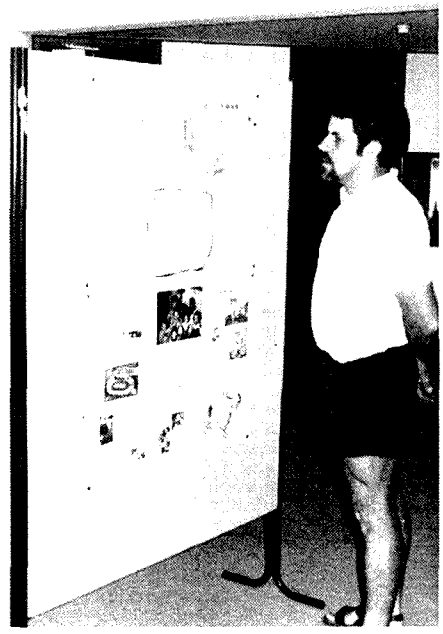
Club members provide mutual help not only in technical matters, but also in equipment instal--ations. These occasions may also provide suitable excuses for celebrations.

Static Display.



A Visitor views the Display Boards

John VK4VAE demonstrates the Club Station, VK4WIM/P, to the Moody family in the Auditorium ot the Mackay Library. Bob VK4TKA and his Harmonics look on.



Bruce VK4NPF views the Display Board on Community Service.

EQUIPMENT EXHIBITS

Popular couple Betty VK4BET and Bernie VK4KBF, presented a range of radio equipment progressing from that fully dependent upon valves through to the latest developments incorporating computer designed circuitry. Complementary displays showed the decreasing size of circuit components to integrated circuits.

Vintage QSL cards filled out the gaps between assorted items such as carbon microphones, army communication rigs, world clocks and micro-processor controlled CW/RTTY receivers.

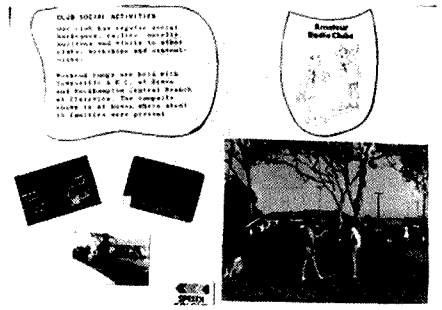
VIDEO PRESENTATIONS

Federal Video Tape Co-ordinator, John Ingham, was particularly helpful in promptly returning a copy of a number of programmes Rick VK4AIM, selected from the comprehensive range available from the WIA Library. All John required was a video cassette of compatible format with a stamped return addressed padded mailbag.

The "box"-like moving pictures of the video display put the young immediately at home and we found the audio often provided the first attraction to people from the main library rooms.

AMATEUR RADIO STATION DEMONSTRATION

At the two main peak periods, Thursday night and Saturday morning, the club station, VK4WIM/P, under the control of John VK4VAE, was operational in the auditorium. Earlier, the installation of a vertical trapped antenna on top of the library television supports was arranged to cover the bands of 80 and 20 m. A number of local amateurs were on air to ensure that definite contacts were available for any interested visitors. In fact, contacts were made from Canberra in the south to P29 in the north. Band conditions did not enable true DX but a strong friendly signal seemed to be the most important factor in introducing the hobby to the public.



Display Board showing Club Activities.

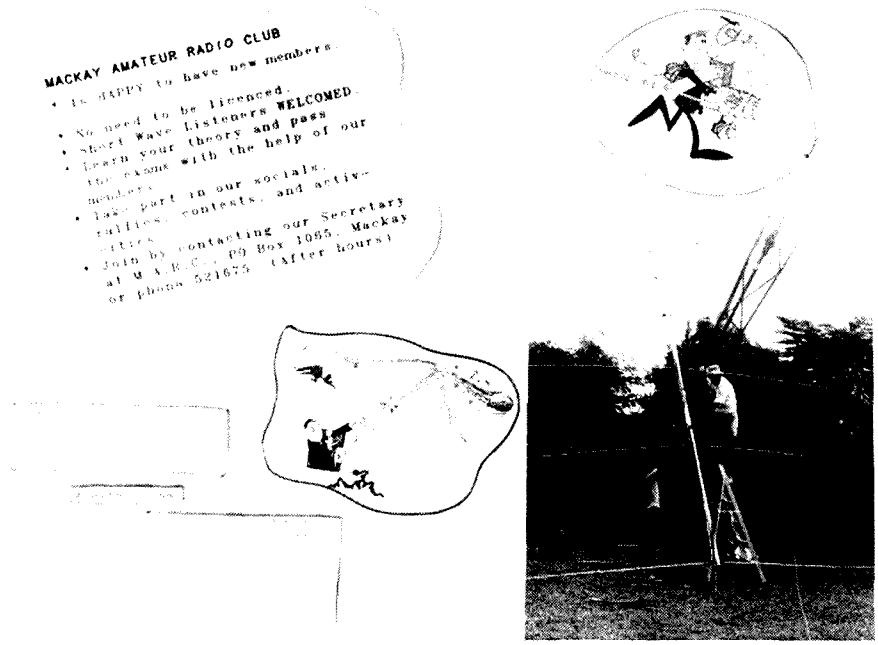
HANDOUTS

A number of handouts were available through the WIA Federal and State Divisions as well as from the Department of Communications via the friendly Radio Inspector. A number of old AR magazines and call-books were also useful, particularly to give to well selected potential members. It was found that those people drawn towards the hobby wished to take something with them to help them keep the contact alive until their next contact, possibly the next monthly meeting.

CONCLUSIONS

It was found that plenty of material is already available in WIA Publications and other technical literature. However, it did take imagination, unusual resources and plenty of time to put this available information into a more palatable form for the public. Much of the preparation would have been similar to that used by other groups in the same position. This leads one to wonder how much time could be saved if a more professional set of basic posters were available for use by all Clubs and Divisions. These would greatly enhance the presentation of all displays.

In retrospect, the Club believes that they could have given more consideration to the timing of the display. This presentation, made during the school holidays,



Cartoon lightened up the Display Boards

Overall view of the Display. Bruce VK4NPF (in foreground) and Rick VK4AIM.

missed out reaching a greater number of younger people (possibly new members).

Never mind, we've broken the back of that one! What's next? After the Jamboree on the Air, there's the "4MK Spare Time Activities Expo" and I think that will just about fill this year's public relations requirements.

What's this about moving motions for the next WIA Conference?

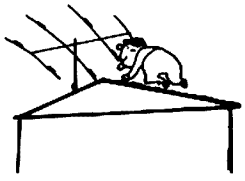
AR

FOR BEATLE FANS

From 1st December to 31st December 1984 Merseyside Special Event Group were operational using the callsigns GB 0, 1, 2, 6, 4 and GB8BCL (Beatle City Liverpool), to celebrate the opening of the Beatle City Museum in Liverpool.

For those fortunate enough to work them QSL to G4VKV, c/- Beatle City, PO Box 12, Liverpool, UK.

AR



MURPHY V MOSLEY

Allan Doble VK3AMD
206 Poath Road, Hughesdale, Vic. 3166

Adventures with a "MOSLEY JUNIOR" beam.

My Mosley Junior beam is fairly old but was always reliable with a low SWR on the 10/15/20 metre phone bands and only required the use of an ATU at the CW ends of the bands.

I suddenly found that reports I was getting were way down on those I was giving. So I checked the SWR. SHOCK! HORROR! It was over 3:1 and hard to improve even with the ATU.

SWR on 10 metres was about normal but on 15 metres three different SWR meters went to 75 percent of full scale (10:1 or more?) and could not be reduced.

First thoughts were that there might be moisture in one or more traps as it had been raining but it was too late in the day to investigate. A few warm days later nothing had changed. A borrowed linear was fed up the line to see if something would burn out but without success.

Meanwhile the LP filter, monitorscope and ATU were all disconnected so that only the built in SWR meter of the FT107M remained. No change!

Several friends consulted agreed that a fault in one of the driven traps — probably a 15 metre one — was the most likely cause of the problem.

The hard work now started as the antenna is mounted above the roof of the house and is not on a tilt-over tower.

Every visit to the antenna meant a three metre climb up the extension ladder then a six metre walk up the tiled roof and back down again.

After about twenty or thirty of these tiring journeys the beam is working properly again. *So what happened*?

All six traps were opened up and carcfully examined. Traces of moisture were found in all of them. They were dried out, checked for shorted turns and for leakage from coils to elements, carefully re-assembled and sealed against moisture.

The insulation resistance of the coil formers was checked and found to be several megohms. The (commercial) balun was opened up, checked and re-sealed. The dummy load was carted up the roof to check that SWR was OK at both the end of the coax and the far side of the balun. All were found to be OK on all bands.

Apparently solid telescoped joints in the elements were found to show quite a few ohms resistance due to corrosion, so these were all cleaned and re-assembled.

The darn thing just had to work now but, you've guessed right, nothing had changed!

The next move was to do what I had been running away from. Open up the 15 metre driven element traps and unwind them.

First one — nothing found. Second one — would you believe about 10 turns in from one end, a lump of black, charred looking crud came out of the former attached to the wire leaving a hole about 5 mm in diameter. The aluminium at the bottom of the hole was very bright and had probably been subject to some electronic etching.

Both traps were rewound with new enamelled wire and heavily sealed with epoxy resin after a careful count of the turns.

This time I had the problem licked for sure!

Up the roof for the umpteenth time, traps re-assembled and sealed, down again, switch on. Result — SWR had come back to a reasonable figure but the resonant frequency on both 15 and 20 metres had gone outside of the low end of the bands.

Thinks! It must be the heavy doping with epoxy.

So, two traps unwound, rewound and ends sealed using only a small dab of epoxy to hold the ends. This is necessary because of the construction of the Mosley traps. *(see "AR" November 1982 page 25.)*

Up etc, down etc, switch on. Eureka! It works.

SWR as measured on the built-in SWR meter of the FT107M rig is now:

MHz	SWR	MHz	SWR	MHz	SWR
14.005	3:1	21.005	2.5:1	28.005	1.5:1
14.250	1:1	21.250	1.1:1	28.500	1.1:1
14.345	1.05:1	21.345	1.5:1	29.000	1.1:1

There should be a moral in this tale somewhere and I think it's this:

I should have tested for insulation breakdown with a lot more voltage than that in my ohm meter — say 250 volts in series with a resistor and a milliameter!

AR

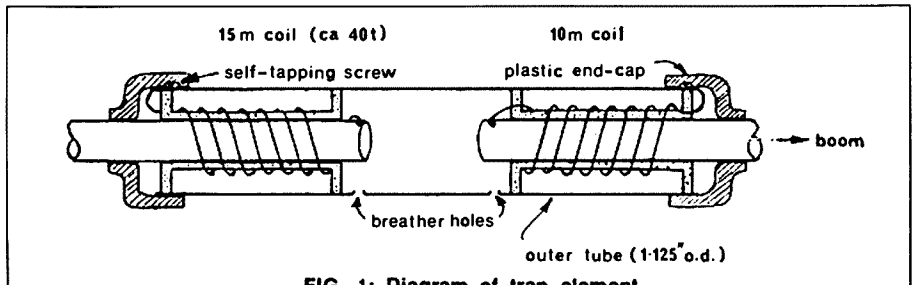


FIG. 1: Diagram of trap element

CLANDESTINE NAVIGATION AID

Reg Glanville, VK2ELG
63 Buffalo Crescent, Thurgoona. NSW. 2460.

The events in this narrative occurred in the same Prisoner-of-War work camp at the Beet Sugar factory in SE Germany where I built the short wave radio which was the subject of the March '84 article. This radio indirectly triggered the happenings of the following story, and basic electro magnetism is involved.

The complimentary responses to my article "Clandestine SWLing" in March 1984 AR, from VK1-2-3-4-5-7 per letter, telephone and during QSO's was quite unexpected, with several requests for another one in similar vein. After much thought, I decided to once more impose on my XYL's typing skills and "give it a go" — hence this submission.

For over two years the sole source of world news available to our party of approx 50 (Aust, NZ and British) was German. The radio heard while working near their lunch room, newspapers retrieved from a war effort salvage bin, plus the occasional copy of "The Camp", an English language news sheet printed in Berlin for Allied POWs. Naturally, the German media was subtly biased in their favour (as was ours) — isolated as we were in central Europe. After two years our morale and optimism was surreptitiously eroded. "Fortress Europe" appeared impregnable, and thoughts of escape from our location waned.

By mid 1943 I was receiving news from Daventry on my radio (see AR March 1984) — the German "1,000 year Reich" was crumbling after only four years! —the first ray of light since becoming a guest of the enemy two years before. Our morale was infused once again with optimism. The possibility of escape seemed viable, albeit tenuous, and thoughts trended in that direction.

An escape plan with any hope of success could not be formulated without a reasonably accurate map of Europe, indicating various military front lines and "friendly" boundaries. An attempt to draw one proved a failure. German newspaper sketch maps of various European military and political situations appeared to be the obvious.

The prison compound gates were locked most of the time, and the barrack's doors were locked and barred from 8pm to 5am — the period for clandestine activity!? After a month I was able to draw a rough map of Europe but the main problem was to strike a common distance scale.

I sat "glued" to the headphones, seeking information on geographical distances mentioned in news services, and logged quite a few over the period. Another source was discharged wounded German soldiers working at the facory — a disillusioned lot. Casual questions, such as *"Well, how far is it from Munich to Belgrade?"* were usually answered without suspicion.

The map finally showed the approximate distances from our camp as Belgium 450 miles, Switzerland 400, Italian and Russian fronts 550, Yugoslavia 400. The first three were ruled out because of a long trek through enemy Germany, the Russian front because of massive enemy forces, so we opted for Yugoslavia, despite is waring factions.

The route was through friendly Czechoslovakia, and unpredictable Hungary. This route was then redrawn with greater accuracy and the rest of the maps destroyed. We were faced with mountains, rivers and cities — a compass was essential.

By now I had selected a New Zealand partner, who had a fair knowledge of the German language and was a dependable type. I was camp interpreter, and also had a brief smattering of Polish and the Czech language — we maintained secrecy over our plans. My partner's responsibility was food, clothing, first aid, — mine, time schedule, map, compass and route. Procuring a compass proved a major problem — the multinational civilians forced to work at the factory had pitifully few possessions, certainly not a compass, even the friendliest German would not risk supplying a compass to a POW — the only avenue was design and build one. The utmost secrecy must prevail, a compass could only mean ESCAPE — our guards major concern.

For the next few nights my thoughts were fully occupied by the project — *where does a prisoner, deep in enemy terrority, find the materials for a magnetic compass?* My partner suggested that we adopt 'qui vive' for any broadly suitable materials and allow this to dictate design — however, I opted for prior theoretic design, and then seek the required bits and pieces.

The format that evolved was as follows: the compass case had to be non-magnetic, compact, robust, with a removable screw lid and clear celluloid viewing insert — a short, vertical needle glued to the bottom would serve as a pivot. On this pivot the rotating platform with magnetized needle would be mounted, hopefully to indicate north!

THE CASE

Two weeks of nonchalant peering into factory garbage produced nothing within our requirements. Curious Germans were assuaged by *"Thought I saw a rat"* — *"Looking for a bootlace!"*

Suddenly the problem was solved — a consignment of British Red Cross parcels arrived at our work camp, and some of them included cakes of Gibbs Dentifrice, in the perfect container for our compass! Approximately 2.5 inches in diameter by .75 inches deep, screwed lid of dark brown bakelite.

These food parcels, in a standardized carton, were issued through the International Red Cross to prisoners of war of all nationalities who were undersignatories to the Geneva Convention. The route to us was Portugal, Switzerland, Berlin.

BACK TO THE COMPASS

First job was to cut a circular piece out of the lid through which to view the needle — quite a task through hard, brittle bakelite, without tools. A two inch nail was obtained from the carpenter's shop, and when the barracks were locked, action commenced.

A circle, was carefully scribed leaving about a .25 inch annulus at the rim to strengthen the thread, and as a mounting flange for the celluloid window. Following this circle round and round, the nail became blunt after about ten laps, and was re-sharpened on the concrete floor, under our bunks to minimize risk of suspicious guards sighting the marks.

Because of my association with things of an electrical nature, my nickname was "Sparks", but during this period of scratching around, the pseudonym became "Chook"!

The brittle fragility of the bakelite negated the use of any pressure on the nail — the job seemed endless, the fingers numbed. A week passed before the window appeared, albeit with a section of the annulus rim broken away.

Clandestine SWLing on my radio at night indicated our advance in Italy had slowed. Escape to me was essential.

My partner had assembled clothing — one set each of new underwear and socks, to be worn — another set, well worn, to be carried. Sound, but well worn and faded uniforms and boots, plus grubby cloth dilly bags, hopefully to be less discernable amid the motley myriads of polyglot tongues of foreign forced labourers who propped up the enemy's war economy. All tags, badges and military type buttons were removed, but our clothing could still be proven as British uniform if this were necessary, should we be apprehended and accused of nefarious spy type activities, for which there was only one penalty.

I found a scrap of clear celluloid and a small cork in the factory laboratory trash bin, glue from a friend in the carpenter's shop and a sewing needle from a Polish girl worker. The needle was broken off short, inserted through the piece of cork glued to the bottom of the case, point upper most. Hey presto, the compass case with pivot and transparent lid was complete. Now for the magnetic "works!" The frustration and time consumption to produce the needle assembly was massive.

The bearing for the magnetic needle was to be the tip of a small glass phial, which positioned over the vertical needle pivot would provide almost friction free rotation — the source once again the laboratory, where small sealed phials of chemicals were used in quality control testing.

Normally I was called to the lab at least once a week, for minor electrical problems — such as a blown globe or fuse.

For three weeks the silence from the lab was deafening not the slightest need for an electrician — but finally, a faulty desk lamp.

In departing I passed the assay bench — three opened, empty glass phials thereon — my offer to dump them was accepted — two of the tapered tips appeared suitable, but they were too long, and the open ends were jagged. The restricted height of the compass case limited the glass bearing to .25 inch. So commenced the onerous task of grinding the fragile piece down to size, another "under the bunk" operation on the concrete floor of the barracks.

Half an hour later it shattered — obviously the smoothest patch of concrete was too rough. So the sole remaining tip, tied in handkerchief, was taken to my workplace in the electricians shop, where I had access to a fine emery stone.

There followed the delicate operation of grinding, whenever the German staff were absent. Days passed before the desired length was attained, a smooth true edge to the open end. Back in the barracks, using a nail, a hole was drilled through a rectangular piece of celluloid, the glass tip was pressed in and glued, the magnetic needle platform was a reality!

The compass accuracy depended on completely unimpeded rotation of the platform on the vertical pivot needle point — thus it was essential that this platform be perfectly balanced. This could only be achieved by using two precisely positioned magnetized needles, one each side of the pivot bearing. Sounds simple — try it some time!

Sewing needles were at a premium in our barracks,

so this time a lassie labourer obliged on a barter basis — four needles for a small piece of chocolate, which was literally unavailable in Germany. Three of them were identical in size, but displayed not a vestige of magnetism — how to achieve this under the circumstances?

I realized then, that up to that point in time, magnetism had been taken for granted, and my knowledge thereof was vague. A steel needle, exposed to a magnetic field should become magnetized, so the hunt for a permanent magnet commenced. I well recall the morning when, on a slim pretext, I entered the factory machine shop and my presence there was questioned by a German worker. His startled expression, bordering on pity, was worth seeing, when I replied *"I'm looking for a magnetic field"!*

Eventually a friend working in the boiler room "procured" a small weak horseshoe magnet (another barter deal). Across the poles I laid two of the needles, one responded but showed only faint traces of magnetism, the other one remained totally oblivious to the magnet, despite my efforts over two evenings, to then discover it was plated brass! The third needle was magnetized, and the compass was ready to make its debut! The two needles were painstakingly positioned on the platform and the north polarized points slowly, sluggishly turned north — victory, almost! But stronger magnetism was essential.

The molasses content of brown sugar at our factory was removed per medium of centrifuge machines, equipped with DC electromagnet operated brakes — worth investigating? For a few days the needles were embedded in my jacket lapel — then luck. I was sent to the centrifuge room to clean the cast iron fuse boxes and surreptitiously left the needles on the magnet core laminates of a nearby machine. Never were fuse boxes subjected to such meticulous cleaning especially by an enemy alien. I made sure the job was not completed that day and returned at 6am the next morning.

The needles were conspicuous by their absence! — they had become dislodged during night shift. I spent some time nonchalently seeking around the machine, the aged, friendly German operator showing only bored indifference.

The needles had fallen down into the sugar, during braking vibration. That put me back to square one.

Another pair of needles were scrounged and my decision was to try a method I had earlier discarded because of certain inherent difficulties — to wind a coil around the needles and flash across it a 240 volt AC power source. I retrieved some 22SWG cotton covered wire and a broken light globe base from the factory salvage bin, and that night embarked on the project. Two leads about three feet long were attached to the globe base and anchored the bared ends between the teeth of a comb, about two inches apart. A fifteen turn coil was wound around both needles, leaving two feet long pig tails, with bared ends.

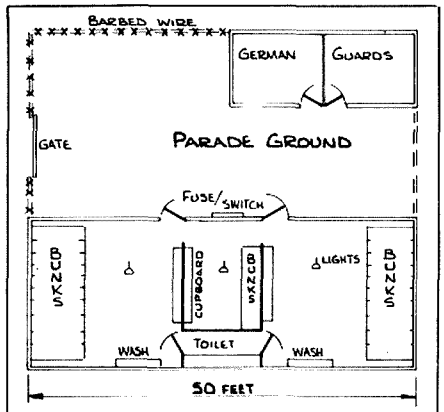
For the previous four years, my life style had been totally remote from civilized normality which had further dimmed my knowledge of electro magnetism. I remembered that a full AC cycle commenced at zero current, rose to a positive peak, fell to zero, reached a negative peak and returned to zero, fifty times per second. The magnetic flux reacted in accordance with the AC current of course.

I had to be lucky enough to strike the split second when current was just before one of the peaks — I presumed that if the dwell included current reversal after the peak, demagnetization, or polarity reversal of the needle would commence.

Our barracks fuse was outside (see sketch 1) and anticipating the possibility of blowing the sole fuse, I had deliberately shorted our lights a few days earlier. This gave me "official" access to the box to replace a fuse, which I did with one of 20 amperes rating.

NOW FOR EXERCISE MAGNETIZE!?

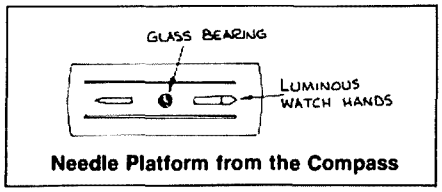
Joining one end of the needle coil to a wire protruding from the comb, unscrewing a light globe (most of Germany Edison Screw Base) and replacing it with my globe base with wires attached. These were then "live" — no switches in the barracks. Under our existence safety standards had low priority. Holding the comb rigidly on our barracks table, and tongue in cheek, the two bare wire ends were flashed across



POW Barracks

each other — the entire barracks plunged into darkness!! My contraption was unscrewed, tossed under a bunk, and the globe replaced, all by sense of touch, then I pounded on our barred door to attract guards.

I muttered something relative to 'German aluminium wiring and inferior synthetic rubber insulation' as I dashed out into the snow (only slightly colder than our barracks), replacing the fuse.



Needle Platform from the Compass

Next night I slid the two needles out of the coil and tediously positioned them on the compass rotatable platform — no luck, the platform wallowed about, showing no inclination whatsover for either N or S pole. I presumed that the split second of current flow through the coil must have coincided with either a zero or part positive, part negative phase of the cycle. It was painfully obvious that the chances of successfully magnetizing the needle points north would be very slim. However, I had learned the virtue of patience when building the radio some months before, and decided to press on.

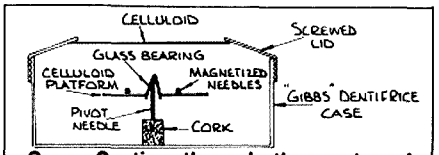
The blown fuse indicated that the time span and current were too great. The time span could be reduced by greatly increasing the speed at which I flashed the wires across each other, and the current by using a 'tail' of hair-thin wire on the end of the coil wire. This wire took some finding, but a week later a multistrand connector wire on a variable RF tuning coil from a cannibalized set in the workshop filled the need. So the endeavour resumed, night after night — no more blown fuses thank goodness. The wire dutifully melted at the tip, greatly reducing current and time. After each try, the needles had to be tested in the compass — but never a north pole!

Unfortunately, at this point, my partner was transferred to another sugar factory, ten miles distant. Totally unanticipated, this disturbed our well laid plans. Eventually contact with him was established via a French farm worker, who had some freedom of movement, especially on Sundays. No need to guard the French — the whereabouts of their relatives in France was known to the Germans!!

Finally EUREKA! — at long last the needles pointed north, the platform rotated freely and responded quickly. The last flash must have coincided with the rising positive peak of the AC cycle. Carefully I glued the needles to the celluloid platform (which is still holding forty years later!) and cut a cardboard packing piece to place under the lid to stabilise the needles to avoid bearing damage when carried in my pocket. I had hoped that the bright needles against the matt black case bottom, would be visible in near darkness, but a test made before dawn on my way to work proved this incorrect.

I still had a pocket watch which my parents had posted to me for my twenty first birthday when in Egypt (the engraved inscription had saved it from being taken from me on several occasions). It had luminous hands, the tips of which I removed and glued between the needles.

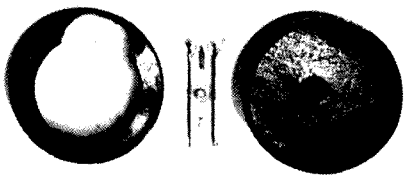
The compass was near perfect. I was ready to go — was my friend? Verbal messages were sent via French 'underground' that all was ready. A month passed, and then the reply — he would attempt to escape off night shift, reach our factory on the same night, and be smuggled into our barracks during a shift change. We thought the authorities would not search another prison compound for an escapee!



Cross Section through the centre of the Compass.

Some time later our guards informed us that a POW from that factory had been wounded and apprehended during an escape attempt — I did not see him again. Soon after this the German radio reported the allied invasion of France and all our bridgeheads held. The risks entailed in an escape attempt now seemed pointless, so the plan was abandoned.

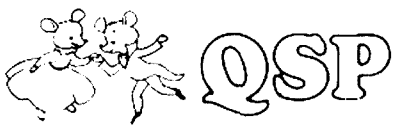
This is a factual narrative of events that occurred around 1944 — I have striven to minimize tendencies for this to become an "escape" story. It is primarily an account of elementary use of electricity under adverse circumstances, to achieve an objective, made possible by my pre-war radio knowledge. Furthermore it is yet one more example that electricity is taken for granted, always available to serve mankind.



Clandestine Compass — 1984.

Irrespective of the 'whys and wherefores' of magnetizing an object with 50 cycle AC, eventually a device was produced that indicated magnetic north. When the decision was made to write this, my XYL retrieved the compass from family archives — its first exposure to daylight for thirty five years — still intact, and operating perfectly!

AR



RUSSIANS DEVELOP MINIATURE TV CAMERA

Soviet manufacturers have produced a television camera one-and-a-half times the size of a cigarette packet.

Tass news agency reported that the camera, called the KT86, could be used with any TV set and produced a crisp and clear image.

Only monochrome cameras were being made initially but colour models of the same size were expected soon.

Tass said the camera had scientific, economic research, and domestic applications, but the report did not say when it would be available commercially.

AR

USER REPORT — THE TET HB-433DX QUAD BAND BEAM

Brian Warman VK5 BI
Box 677, Whyalla, SA, 5600

Having been a Cubical Quad user for 15 years or so I only gave this antenna away (literally!) due to moving to a city and was compelled to look for something looking a little less like a CB antenna. Favoured American antennas cost an arm and a leg so when the TET range was investigated, these antennas looked like the answer. The antennas are made in Japan and are very favourably priced in this country. An added attraction was coverage of the 7MHz band — one of my favorites of DX.

I rang the agent who unfortunately is not really amateur oriented, and could not offer me such information as — *does it come with a balun?* But they were very helpful and the box eventually arrived per passenger rail.

I picked up the box and took it home. The antenna is well packaged in a fibreboard container of about 2 metres length. When I opened the box I was greeted with a conglomeration of aluminium packed in little pieces of polyprophelene. Full marks for packaging.

I laid the bits out on the patio. The elements and traps are all labelled. Hardware is packed in plastic bags and all bolts, screws etc are stainless steel. A little booklet is included showing construction details.

One requires a large area in which to assemble the beast. The longest element is 9.25 metres, that's 30.5 feet long! Configuration of this antenna is three elements including two phased driven on all bands 40 through 10 m and a director which is functional on 20-15-10.

The boom is assembled first. This is a solid piece of thick walled aluminium and comes in two sections in 2 m lengths. I assembled the director (easy since all traps and elements are labelled), and attached it to the boom. Then measuring from this element the two driven elements may be assembled and attached as per the measurements given in the instruction package. It is as well to keep the third element loose so that the phasing line will slip into place easily. Once the phasing is attached the whole lot may be bolted together. I used petroleum jelly on all element joints, and all screws and bolts. All elements are pre-drilled and the self-tapping screws (which have generous thread depth) go in with no trouble.

The antenna assembled I put it out of the way for the moment so that I could think about getting the tower ready. I stood it against the fence standing on its director.

The antenna comes with a stainless steel mounting plate together with necessary grooved wedges which should ensure the boom stays in correct alignment. Included in the package is a well constructed coaxial balun and male connector.

One point of some concern relates to the correct point for attaching the antenna to the tower. The instructions supplied, and all of the illustrations in the advertisements for this antenna show it attached in front of the middle element. This means the mass is unbalanced. I can only assume the intention is to keep the phasing wires all clear of the mast. This is the way I attached mine anyway.

Checks of the antenna at 10 metres confirmed the advertised specifications. In fact this antenna exceeds them in most instances. Any fears I may have had of narrow bandwidth compared with my quad have been dispelled. I believe this is due to the antenna having two driven elements.

The antenna is rated to 1 kW/CW and, by the look of the wire used for the traps I have no doubt there would be no problems with cooked traps at this level.

Note: A review of the TET HB443DX Quad Beam appeared in December AR, page 30. The HB443 is a four element beam whilst the HB433 is a three element beam. **AR**

THUMBNAIL SKETCHES

Alan Shawsmith, VK4SS
35 Whynot Street, West End, Qld 4101

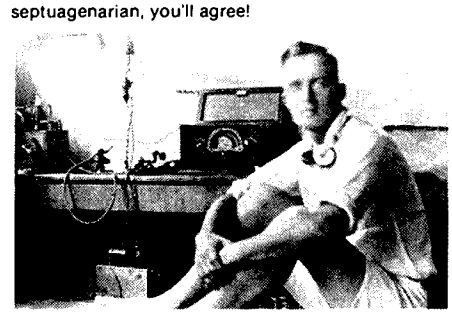
WILLIAM JIM BERRY — VK4WB

Jim VK4WB was licensed 18th May 1934 at Buranda, Brisbane. He has the honor of belonging to that select group of OOTers who've been active for over half a century and for all of this time he is conscious of the fact that he has used the callsign of one of VK4's earliest famous pioneers, viz OA4WB

OA4WB was first used in the years 1919/20 as a temporary call by William Bright, a 'gun' telegraphist with the Queensland Railways and an ex-Army Signaller WW1. (The VK prefix was to come later). At the immediate post-WW1 period of amateur radio's history, the PMG was reluctant to issue a call to a private individual — only the intervention of the then Prime Minister Billy Hughes made it possible for OA4WAB. A commemorative wall plaque inscribed with his name and call can be viewed in the vestibule of the Toowoomba City Hall.

Jim VK4WAB kicked off in 1934 with the ubiquitous Hartley 45 oscillator and an O-V-1 Reinartz receiver. The photo shows him, still in his teens, on a camping holiday at Woy Woy, NSW in 1934/5 using the call VK2BI; a 15 watt transmitter is at left and the receiver is in the centre of the photo. He clearly remembers working into VK7 with 15 watts input and loop fone.

Another of Jim's interests is that he gets his mobility from two powered wheels — not four. When I queried the safety of his means of locomotion in and around the busy parts of Brisbane at his age, his reply was, *"I'm just about to buy a new motor bike"*. Not bad for a septuagenarian, you'll agree!



QSP

TWO NEW DXCC COUNTRIES?

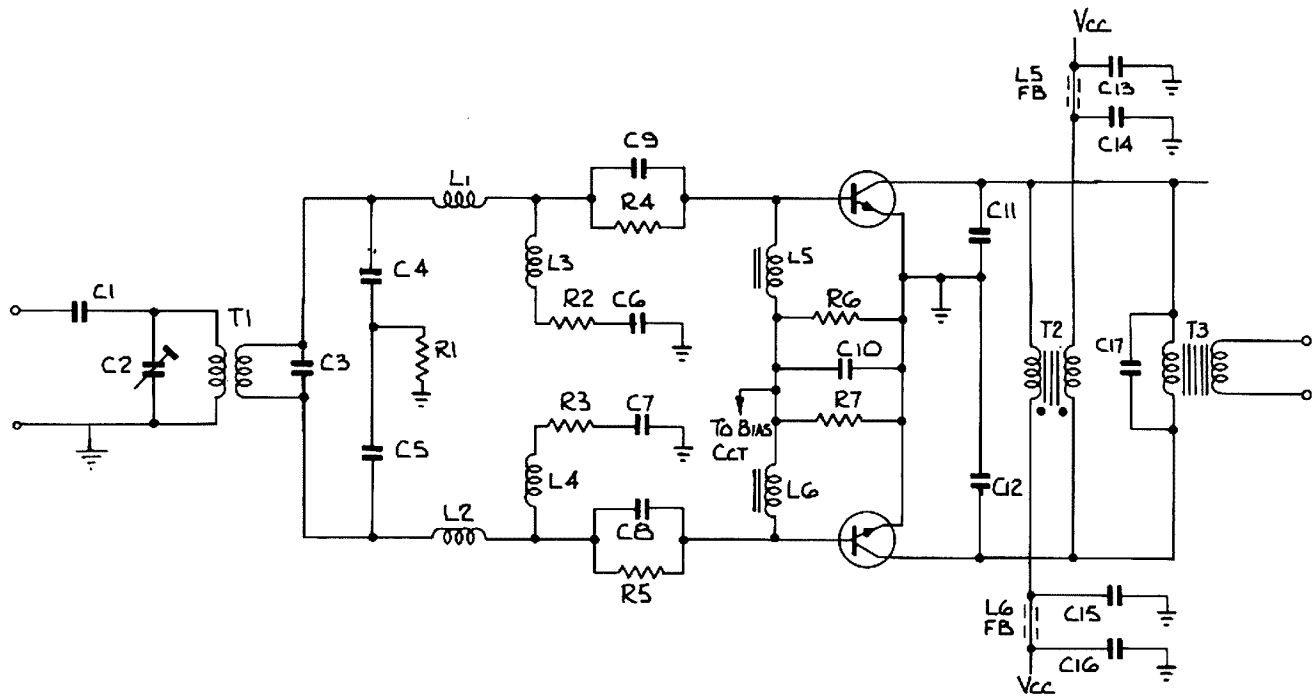
The ARRL DX Advisory Committee has voted to recommend separate DXCC country status for the British military base areas on the Mediterranean island of Cyprus. The case for country status is based on the following: when the Republic of Cyprus (formerly a British possession) was established by treaty in 1960, the United Kingdom retained sovereignty over both the Akrotiri military base and the Dhekelia military base, which continues to the present. The area of these two British bases total approximately 100 square miles on the 3572-square-mile island. Amateur Radio operations from the bases use ZC4 callsigns issued by British authorities, while all other amateur operations from Cyprus sign 5B4 calls issued by the government of Cyprus. Under the DXAC recommendation, the two bases would together count as one new DXCC country in accordance with DXCC Criterion Three — separation (from Great Britain) by foreign land. Note that the bases would be considered as one DXCC country because they are about 50 miles apart. Under Rule Three, the two bases have to be separated by at least 75 miles to be considered as two new ones. The DXAC recommendation now goes to the ARRL Awards Committee for action. Readers might remember that the last DXAC new-country recommendation — separate country status for the Baker and Howland Islands in the Pacific — was emphatically rejected by the Awards Committee. So stay tuned!

In other DXCC news, Minute 68 of the October 1984 Board Meeting instructed the DX Advisory Committee to reconsider DXCC country status for the Vienna International Center, 4U1VIC, in light of a briefing paper to be prepared by ARRL staff. A comprehensive briefing paper has now been completed and distributed to the DXAC. The Committee was asked to respond by 20 January 1985 (the deadline called for in Minute 68), so work could be completed on the issue prior to the 1985 Annual Meeting of the ARRL Board, January 24-25.

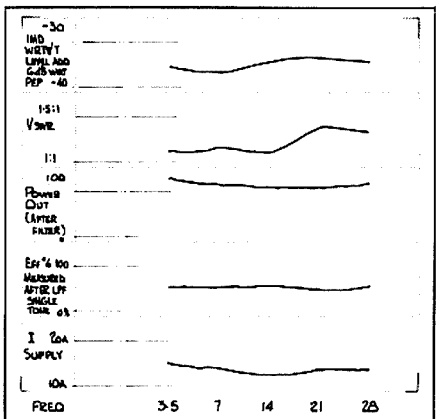
from ARRL Letter, Vol 3, No 26

WIDE BAND LINEAR AMPLIFIER . . .

additions to article in November



Schematic Diagram for the High Frequency Wide Band Linear Amplifier which was published on page 10, November Amateur Radio.



Graph 1 — refer page 12, November AR.

REMEMBER . . . .

If trapped by a bushfire —

Use every means to protect yourself from radiated heat and act logically, don't run or panic, remain calm.

from Smoke Signals — January 1985

AR

CHINA MODERNISING PHONE SYSTEM

Direct dialling to foreign countries from Beijing (Peking) and other major cities were part of a planned new communications network for China.

The present overtaxed and problem-prone phone system which allows no direct dialling, internally or overseas, is to be upgraded using advanced technology.

Minister of Post and Telecommunications, Yang Taifang said the number of phones would double to more than 10 million by 1990 and be more than 33 million by the end of the century.

Three million new lines, 1.2 million controlled by computer, and 60,000 long-distance cables will be laid.

AR

THIS IS GB2SDD CALLING THE WORLD

The Saint David's Day Special Event Station will again be operational on the 1st March 1985 to celebrate the National Day of Wales.

In 1984, 1300 contacts were made in 24 hours. With this record in mind the BSC Port Talbot Amateur Radio Society are preparing to celebrate SDD on the amateur bands in 1985.

The Special Event Station will be operational from midnight the 28th February to midnight Friday 1st March 1985. Activity, conditions permitting, will be on all HF and VHF amateur bands. A team of enthusiastic operators will be pleased to make contacts, and as ever they will endeavour to pass a message of friendship and goodwill to all countries of the World. All are cordially invited to join in on the proceedings.

The Special Event QSL card will be sent to all amateurs making contact with the SDD Station and we will also be pleased to respond to reports sent in by Short Wave Listeners. IRC's would be appreciated if a card is required by return post.

All amateur licenced operators interested in the attractive Saint David's Day Award should aim to meet the following requirements.

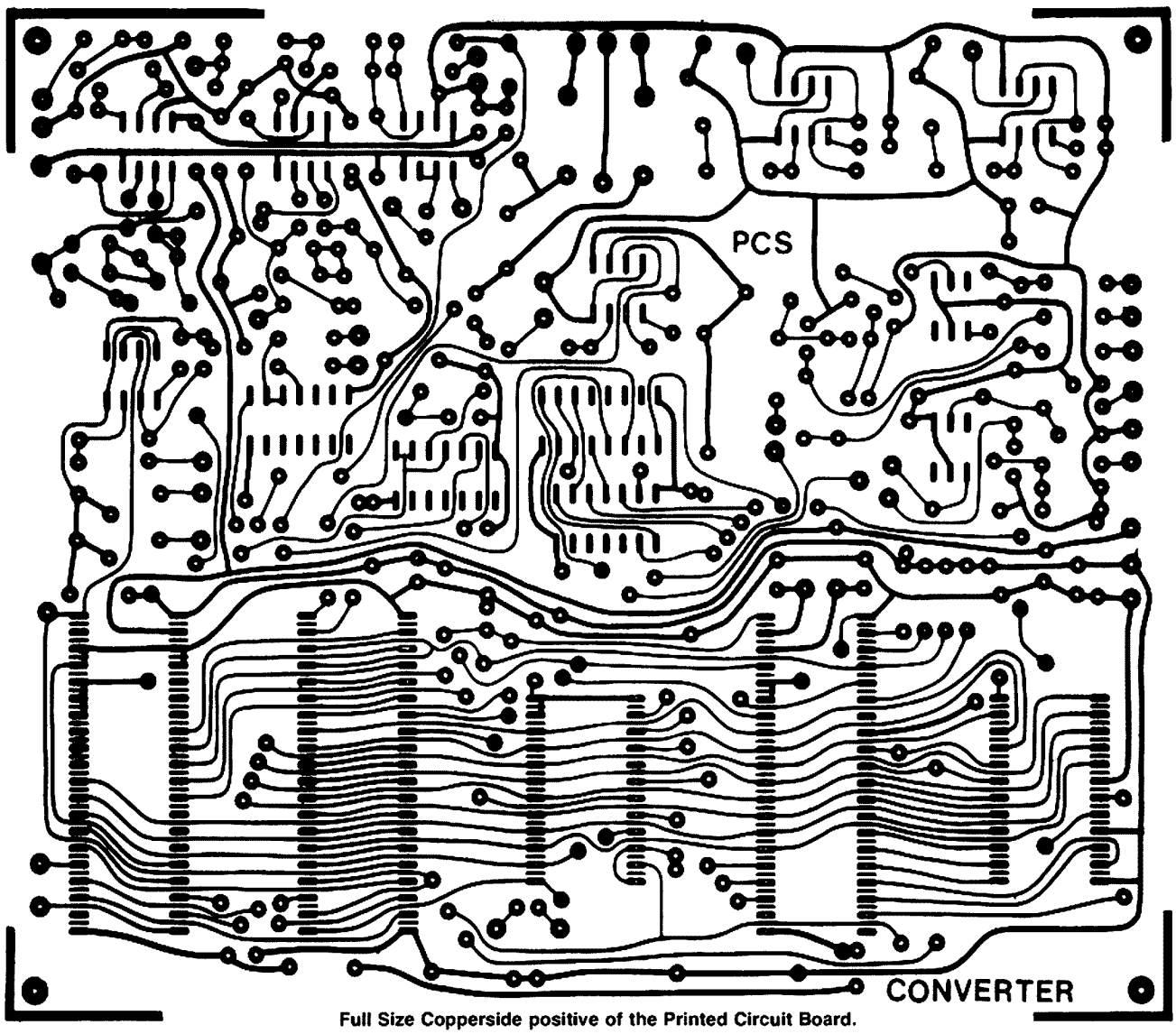
Contact should be made with the Special Event Station on Saint David's Day (1st March 1985) and any 5 other Welsh amateur stations during the months of February and March 1985.

To claim the Award please forward copies of your logged contacts along with your cheque or Postal Order to the value of 6 IRC's to cover P&P made out to SDD Station and addressed to the Event Co-ordinator: Mr R. R. Jones, GW4HOQ, 'Bryn-Ynys', Strawberry Place, Morriston, Swansea, West Glam., SA6 7AG.

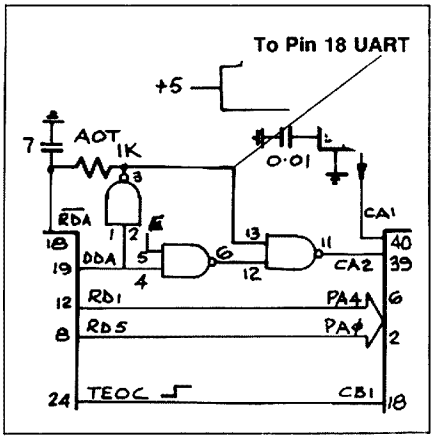
AR

MODIFICATIONS & ADDITIONS TO VK3BFG RTTY-MORSE ARTICLE

*see page 16, December AR.



Full Size Copperside positive of the Printed Circuit Board.



TRACY

The Cyclone Tracy 10th anniversary story in AR last December has created some interest and stirred up memories.

It concentrated on the recollections of Slim Jones VK6ATJ (ex VK8JT) and Ken McLachlan VK3AH and the roles they played.

An article on our hobby's involvement in the Darwin disaster recovery was well overdue.

In a disaster of that size other radio amateurs would be involved and hopefully they will put their thoughts on paper so a complete record of events can be compiled.

An error in the story has since been found. It was not Mal Westwood 9M2MW involved in the emergency communications but Mike Paget then 9M2ML (now VK3CDB) — apologies to both Mal and Mike.

Jim Linton VK3PC

AR

AMSAT

While the traditional way of working stations through amateur satellites has been to set up and operate one's own earth station, more and more amateurs are now being introduced to satellite communications through the use of "gate way" stations. Simply put, a gateway station is an earth station that takes your signal and retransmits it to a satellite for you. The signals received from the satellite at the gateway station in turn are retransmitted by that station for you to hear.

Gateway stations often operate using local terrestrial repeaters. Thus, even those amateurs using hand-held transceivers can participate in contacts through satellites such as OSCAR 10.

From CO — October '84.

AR

AR SHOWCASE

VICOM — ON THE LEADING EDGE OF TECHNOLOGY

Vicom Australia is ten years old and owes its huge success to amateur radio.

Incorporated in November 1974, Vicom quickly became a force in the resurgence of amateur radio during the 70's. Today, Vicom is essentially a communication and engineering company specialising in HF and other radio communications as well as sophisticated electronic test equipment.

With an annual growth rate of some 30 percent in Australia, Vicom is a major force in its field and is in direct competition with many of the world's largest multi-national electronics groups.

Australian-owned, it opened, in 1980, a New Zealand Office that is experiencing a 50 percent annual growth rate.

Whilst it has concentrated largely on Government business in Australia, New Zealand, Papua New Guinea and Singapore, Vicom has now released the GRID Compass Computer which will see the development of strong marketing initiatives within the business community.

Vicom's Chairman and Managing Director is Russell Kelly VK3NT, an accountant who has had extensive financial and computing experience with several large companies. Russell has lectured and consulted in Accounting, and Computer Science and has been actively involved in communications and electronics.

Other founding Board Members of Vicom Australia include Michael Goode VK3BDL of the stockbroking firm A C Goode and Company; Peter Williams VK3IZ who is the Company's Director of Technical Services and Neil Lambert ZL2JO, who is responsible for the New Zealand operations.

Peter was for some time WIA Federal Secretary and IARU Region 3 Secretary.

In the early days of the Company, Vicom was exclusively involved in amateur radio and used this as an entree into the professional communications and electronics industry. Russell said that the main reason for parting with amateur radio was because of the poor margins being offered and the ultimate slump in consumer demand caused by the recession. He said that this trend was evident world-wide and most of the amateur radio manufacturers had been forced to diversify into the commercial and professional communications markets.

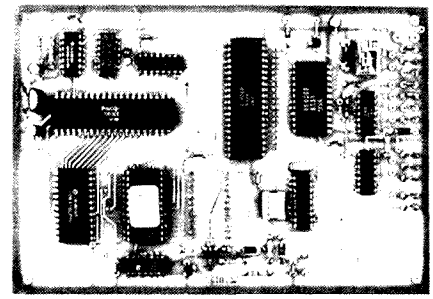
Russell believes that Vicom's success is principally due to the sourcing of only quality products which are backed-up technically by both the Principal and Vicom.

The next few years will be even more challenging as Vicom intends to set up a manufacturing base in Australia and New Zealand for the production and world-wide distribution of specialised communications equipment. In addition, Vicom is becoming increasingly involved in sophisticated Government communications and electronic warfare systems and complex HF Embassy communication systems.

INTELLIGENT DIGITAL COMMUNICATIONS INTERFACE

GFS Electronic Imports recently announced the availability of a new digital communications interface unit, the model CPU-100. It's design lends it primarily to interfacing a dumb ASCII terminal with a radio transceiver via a modem, which GFS can also supply.

Using a 6809 microprocessor the CPU-100, via ROM software, is able to perform a wide variety of functions. These include transmission of both BAUDOT and ASCII at user definable speeds, digital selective calling, as well as a number of built-in buffers. SITOR transmission may also be possible given the appropriate software.



Because of its built-in intelligence the CPU-100 is extremely flexible. For example it may be configured for either simplex or full duplex operation depending on its end users' requirements.

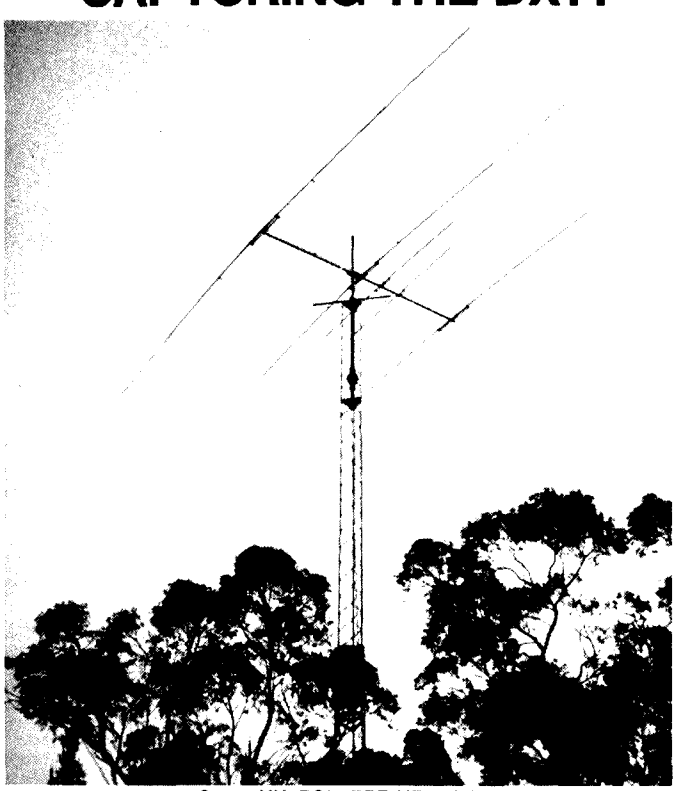
A wide variety of applications exist. These include accessing a mainframe computer from a vehicle or aircraft, radio teletype operation where a number of stations operate on the one frequency and the calling station wishes to address each one separately via selcall.

GFS are able to supply the CPU-100 on OEM basis as a pre wired and tested PCB or as a fully housed unit including their MDK-17 modem. Special applications software can also be made available.

For further details contact the manufacturers, GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic 3132, PO Box 97, Mitcham, Vic. Phone (03) 873 3777.

AR

CAPTURING THE DX??



Photograph by Steve Pall VK2PS

Steve VK2PS's TET HB35C beam

PCB — THE VERY DIRTY INITIALS OF PRIORITY POLLUTANTS

Jim Linton, VK3PC
4 Ansett Crescent, Forest Hill, Vic 3131

This article, written using a number of sources, aims to inform the hobby radio community about hazardous PCBs — the most insidious chemicals ever made by man.

Polychlorinated Biphenyls (PCBs) were first discovered in the 1680s, but it wasn't until 1960 when people monitoring the effects of the insecticide DDT found they were getting other chlorides which turned out to be PCBs.

Their stability combined with di-electric and fire resistance properties led to widespread use in industry.

They have been used in electrical components such as capacitors and transformers, and a variety of other products ranging from carbonless copy paper to kiss-proof lipsticks.

REASONS FOR WORLDWIDE CONCERN

Polychlorinated Biphenyls are dangerous because they can cause medical problems and biomagnify in the ecological food chain.

In the long term heavy doses of PCBs cause liver damage, thyroid gland disorders, disease in the newborn, and are regarded by the World Health Organisation as being carcinogenic to humans.

The Victorian EPA's chemical division director, Dr Brian Robinson has warned direct skin contact with PCBs may result in chloracne, a severe skin disease which can disfigure. Another problem is swelling of eyes exposed to PCBs.

Telecom Australia workers dealing with the disposal of electrical components containing PCBs are given protective clothing including oil proof gloves.

Even with these safety precautions they have been warned to thoroughly wash their hands before smoking, eating, or using toilet facilities. PCBs can also enter the body through inhaling.

To safely dispose of PCBs they have to be incinerated at 2,200 degrees ceisius.

A special incinerator ship named the Vulcanus, run by a European company, visits a number of countries, including Australia, by appointment to take on board quantities of PCBs for disposal.

Meanwhile microbiologists were trying to find effective methods of disposing PCBs which could have long-term effects on the world's environment.

WHERE PCBs ARE FOUND

While importation into Australia of PCBs stopped in 1978 they can still be found in old oil cooled transformers and capacitors.

An article in Teletechnician, May 1983, said PCBs had been used in high voltage non-polarised capacitors which are liquid filled, liquid cooled power transformers, and fluorescent lighting circuits (power factor correction capacitors, liquid filled).

This publication is the official journal of the Australian Telecommunications Employees Association, whose members are employed by Telecom Australia.

The Teletechnician article deals with identifying possible sources of PCBs, their safe handling and disposal.

A check with some Telecom technicians recently found components containing PCBs were still in equipment.

The practice in Telecom is for weeping or leaking components to be removed and replaced with those not containing PCBs.

This means radio amateurs should be alert for components with PCBs in disposals equipment from all sources — particularly broadcasting or transmitting equipment which use high power capacitors.

Ham Radio said that apart from the obvious risk in headed *"When hazardous waste comes home — PCBs in the ham shack"*.

This was a follow-up to other reports in the US amateur radio press about dummy loads as a potential source of PCB contamination in the shack.

Concern was about PCB in the form of transformer oil being used as the coolant in dummy loads.

Ham Radio said that from the obvious risk in handling a leaking dummy load containing such oil, the heat in a dummy load could release invisible airborne PCBs.

While sniffing suspect dummy loads is strictly discouraged due to the hazard of inhaling — the article added the smell of PCBs was similar to that of moth balls.

It appears to be a remote possibility commercially-made dummy loads with PCBs have been imported into Australia.

But someone in Australia could have homebrewed a dummy load and used second-hand transformer oil containing PCBs.

The suspect oil is a straw color, and the liquid has also been used in industry as a hydraulic fluid.

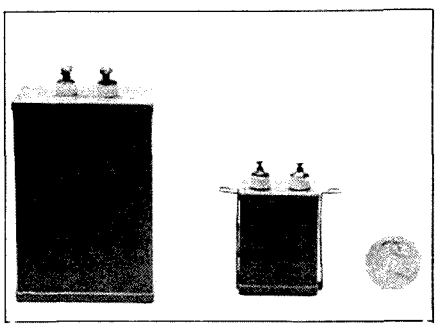
It would be wise for everyone to check around their shacks and through junk boxes for possible components containing PCBs.

To dispose of or obtain further advice about PCBs — contact the environmental agency in your state or territory.

PCB COMPONENT REGISTER — ISSUE 4 SEPTEMBER 1984

(version adapted by this article's author)

Parts list of components and equipment known to contain PCB (Polychlorinated Biphenyl) from sample testing, or believed to contain PCB from the advice of manufacturers or suppliers.



Two examples of capacitors known to contain PCB oil. The type 3S160 is the smallest in a series which has some physically large capacitors.

CAPACITORS

AEE (now Rifa) — FW series, FG.
DUBLIER — PO 19941/1
DUCON — S, N, and P series, Type 10N40, 11, 12P01, APT 4300N, GPM 2500 HCR, 3S 12B, 3S05, 4S50, 4S80, 10S80 12 P01.
DUCONA 2840
GENERAL ELECTRIC — 45F
PLESSEY — APF 250 series
SPRAGUE — Type 271 P277

EQUIPMENT

Various HF, MF, and TV transmitters in all states, the Northern Territory and ACT.

Power Conversion Units (rectifiers, invertors etc), probably thirty to forty different models in use supplied by a number of manufacturers. No specific check has been made on any of them to date. However if the date of manufacture was prior to 1975 then the capacitors in the units may contain PCB and should be checked against the capacitor list above.

Miscellaneous equipment: If capacitors in the following units are PLESSEY and have a metal case with the last two digits of the four digit manufacturing date code ending in numbers 60 to 75 inclusive, then the probability of them containing PCB will be very high,

Fluorescent light fittings
Air conditioning compressors
Air conditioning fan motors
Electric motors generally
Power factor corrected electrical circuits
Discharge lighting units
Evaporative cooler units
Rural pumps
Dishwashers
Washing machines

ACKNOWLEDGEMENTS: *Environment Protection Authority, Victoria, Record La Trobe University, Melbourne, Teletechnician, Victorian Forensic Science Laboratory, Ham Radio Magazine, Telecom Australia.*

AR

ILLEGAL RADIO USERS ENDANGER LIFE

The Department of Communications is to seek out unauthorised users of marine radio channels on and around Port Philip Bay who may be putting human lives in danger.

A spokesman for the Department said: *"We'll be inviting unlicensed operators of radio equipment to take out licences.*

"If we can't get co-operation then I'm afraid we'll have to begin prosecutions. Confiscation of equipment could result."

The spokesman said unlicensed operators in boats were jeopardising the safety of themselves and others. They were putting human life and the safety of small craft at serious risk, because they often transmitted messages on the marine 27.88 MHz (Channel 88) frequency, commonly used for distress calls at sea.

The Department allocates radio channels according to user categories. These provided a legal means of communication between licensed shore stations and boats and between boats.

Further information may be obtained from Ian McDonald on (03) 266 8921 re radios in boats.

AR

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	Call sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.045	OX3VHF	Greenland (1)
50.010	GB3NHQ	England (2)
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
50.945	ZS1SIX	South Africa
51.020	ZL1UHF	Mt Climie
52.020	FK8??	Noumea
52.033	P29SIX	New Guinea
52.100	ZK2SIX	Nieue
52.150	VK0CK	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth
52.310	ZL3MHF	Hornby
52.320	VK6RTT	Carnarvon
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mt Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra (3)
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.480	VK8VF	Darwin
144.550	VK5RSE	Mt Gambier
144.800	VK6RTT	Carnarvon
144.800	VK8VF	Mt Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.159	VK6RPR	Nedlands
432.410	VK6RTT	Carnarvon
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton

(1) Norman Fitch G3FPK advises of this beacon in Greenland.

(2) Norman also reports this new UK beacon which started continuous operation on 30th August 1984, running 15 watts to crossed dipoles. It sends its call sign and its "Maidenhead Locator" code — IO91VQ.

(3) Federal Councillor for the ACT Fred Robertson-Mudie VK1MM advises VK1RCC is back on the air on its correct bandplan frequency. Antenna is a stainless steel halo giving omni-directional horizontal polarisation. Fred also advises a 6 metre beacon is being installed on the same site, Mt Majure, and should be operational before long.

While on the subject of beacons it is interesting to note that Bill Tynan W3XQ in QST's "The World above 50 MHz" takes his VHF/UHF fraternity to task for generally failing to provide any worthwhile number of beacons throughout the US. On 3rd January 1983 unattended automatic beacon operation was permitted by the FCC but it seems little interest has been generated. Perhaps they are not as necessary in the US with its large population and densely distributed amateurs — probably there are signals on the bands at all hours anyway — whereas here in VK, with a small population, continuously operating beacons have long ago proved their worth for alerting to band openings. It would be a very dead world without the beacons! *ROCKHAMPTON BEACON*: Harry VK4LE advises there is a beacon on Mt Archer near Rockhampton, on 432.540 MHz and running 200 milliwatts, which he can copy quite often from his QTH at Springsure. He didn't mention the callsign!

NEWS FROM QUEENSLAND

Harry VK4LE in his letter dated 11/12 said 6 metres had been very quiet, but he has been keeping 2 metres SSB alive, by contacting VK4ZWH in Bundaberg almost every morning, also VK4AEW in Rockhampton, with VK4ZEI and VK4ZHL joining in sometimes. Another regular is VK4KAL at Rubyvale. He says the east-west all land path is more difficult than the north-south coastal path.

Not too many stations on 70 cm but Harry has worked VK4ZHL and VK4ZEI at Rockhampton and a crossband QSO with VK4AEW. Also worked VK4ALW at Mackay, which being further than Rockhampton signals are usually weaker. VK4LE runs 60 watts on 70 cm to four 11 element yagis at 40 feet. Thanks Harry.

GREETINGS FROM MAWSON

Mark VK0AQ (ex VK5AVQ) has written a letter dated 26/11 after arriving at the Mawson Base on Antarctica, and said the journey of ten days down (from South Africa) was fairly smooth. The base is quite large taking half an hour to slowly walk around. It is located on a rocky outcrop and the snow/ice disappears off the base in summer. Up to writing weather had been nice with a maximum of 1°C, with no wind and sunny. He said those who had passed through the 1984 winter were wearing little more than T shirts!

Mark was rather pleased to have already had a 20 metre contact with me (VK5LP), and also a rare Macquarie Island contact per VK0CK. The other amateurs at the base thought the Collins linear was "crook" — Mark says it wasn't — when all else fails, read the instructions. The KWM2 only puts out 80 watts (sleepy valves?) which is probably just as well as the V beam antenna has a VSWR of 3 to 1. One leg of the V beam goes over the science building, picking up computer EMI. When his own gear arrives he will be seriously thinking of putting it in the main transmitting room where he can plug into the rhombics, which have leg lengths of about 100 metres.

On the question of the former IPS beacon, VK0MA, Mark says the equipment line-up consists of 6AK5, 5763, 4-65 with 120 watts output, originally on 53.1 MHz but Mark would like to shift it to about 52.4 MHz, or at least to a frequency which causes no problems with the riometer. Due to a road being built the beacon tower must be moved, which will be a good thing as it is far too close to the riometer. The obvious place for the antenna is behind a hill from the riometer, and this can be arranged if the beacon is shifted to an old transmitting building. Reducing power to 10 watts should help the interference problem, but all this takes time, and maybe pointless if QRM in the riometer continues. One can but try Mark says!

Dry air static is a problem, but advantageous in that wet clothes dry quickly and biscuits don't soften. A PS at the end of the letter says after the generally fine weather, today the wind is varying from 30 to 50 knots with fine wet snow, visibility 100 to 150 feet — a mini blizzard! He says *"You thought rain static was bad, you should hear blizzard static! Perhaps we will be having a white Christmas after all!!"*

As other news from Mark comes to hand it will be passed on to readers. As QSL manager for both VK0CK and VK0AQ I am fortunate that it is mostly possible to maintain a weekly sked with both of them on 20 metres, despite the great distances between them. By the way, Mawson time is UTC plus 6 hours — the longitude indicates it should be 4 to 5 hours. *Oh, well, who am I to question such variations!*

QSL arrangements for both stations are the same: a stamped self addressed envelope is all that is required together with your QSL card of course. No other money should be sent, we aren't in the profit making business. Any QSLs requested without the envelope may eventually be sent through the Bureau, but as I don't get to the Bureau very often it may be a long process!

NEW SOUTH WALES

Nev VK2QF has sent in an amended list of six metre countries confirmed and added a few other comments which may be of interest.

The three weeks up to about 10/12 saw VK2QF working all VK States 1,2,3,4,5,7,8,9,0 but no VK6, also ZL1,2,3,4, FK1, FK8, ZL7OY, VK9ZA. Not a bad effort one would suggest.

Nev says *"I have set up a small monitoring station using an IC505 at my house to tune about on 6 metres using a 3 element beam at 24 feet, and a gear drive rotator which is cranked around from inside my office. Very handy.*

"Superb to hear the Macquarie Island 52.150 beacon on Saturday morning (8/12) when it was in for about 2 hours at 539. At 0830 the beacon was 599 and had been for some time. David turned it off at 0845 and I worked him at 0859. He was still 5x1 on the monitor in the office at 1230. Seems most of the QSOs with various stations were 5x9.

"Missed the Friday opening (7/12) but heard from VK2BA that it was not too good in Sydney but much better to VK1 and 3 etc. Incidentally, the beacon was 599 in Sydney during the morning of Saturday but took over one hour to be audible here 300 km NW of Sydney. One wonders what size the cloud of Es was on the Saturday which produced ZL7, ZL1 and 4 and VK0 all in one large opening from here.

"My praise and gratitude to those behind the activities from Macquarie Island, to David VK0CK for staying on the air for so many hours to give as many as possible a contact, and to you for the QSL job." Thanks Nev.

EME ACTIVITIES

Doug VK3UM continues with his experiments on 432 MHz and advises 17/11 was his first chance to try the newly completed EME set up antenna system. Sent a couple of Vs at 0600 and back came the echoes, from 4 to 8 dB above the noise for 90 per cent of the time.

Doug took a break at 0800 to speak to John VK5DJ on 2 metres then worked the VK1 gang, about 6 of them, on 432.1. During this time Gordon VK2ZAB called and they had a Q5 S1 to 3 QSO for about 2½ minutes via aircraft enhancement on 432.1, so they are now able to claim the first Sydney to Melbourne 432 contact, the previous one being a bit doubtful. Gordon was running 10 watts only!

Back on the moon at 1000, called CQ and back came ZL3AAD and gave him 529. Then DF3RU called for an exchange of "O" reports.

Next morning, Sunday, 18/11, called CQ a few times, echoes OK but no answers. Doug wondered where the Ws were. Chris VK5MC informed him later that the Ws and JAs wanted to know who this VK3UM was with the big mouth and wax in his ears. Turns out he had not allowed enough for doppler shift!! Next time.

Since all this has taken place Doug has replaced the feeder with ⅞" new heliax which should give nearly 2 dB improvement. Moreover, he found a type N socket at the RF output had melted and fused the contacts! Looking at the cause it seems the unbranded type of connector had too high a contact resistance. Replaced with genuine Acme type C.

Doug says he is very satisfied with the ATN type antennas he is using and is looking forward to plenty of contacts via the moon as time permits.

Another area of EME activity is VK2AMW under the leadership of Lyle VK2ALU. Appeals were made for a new 3CX100A tube, and typical of the *tremendous* spirit which exists world wide in the EME group, an

airmail parcel of tubes arrived from OE9XXI in Austria, who had heard of the problem from HB9BM in Switzerland. This was followed by good tubes sent by VK5ZO and VK5MC. A letter has now been received from Peter ZS6JT (ex Z25JJ) in South Africa indicating he also is sending tubes. Lyle certainly thanks everyone for their helpfulness. After the defective tube was replaced the transmitter output was measured at 140 watts.

Also from "The Propagator" comes news that hurricane force winds totally destroyed the antenna for EME contacts at HB9BM in Switzerland on 17/11, and there are reports of other European EME stations suffering damage as well.

SIX METRES

As expected, the six metre band has been pretty good to most of us again this year. The Es contacts have been widespread and most signals very strong. Those with good antenna systems have been treated to some extra contacts not normally available to others, as the antenna works both for transmitting and receiving!

The following listings shows a fair cross section of the stations who have been operating six metres during the latter part of 1984. The call signs indicate the spread of the contacts, and there are quite a few stations who like to see their call sign mentioned occasionally, and I see nothing wrong in that!

13/11: from 0808: VK2AKU, VK2XJ, VK2HT, VK2YKG, VK2ZTW, VK2ZWE, VK2CN, VK2QF, VK2ZRV, VK2XDW, VK2XDH. 1045: VK4LE, VK4FNQ.

14/11: 0240 VK6RO. 2323: VK4JXZ. 15/11: 0001 VK9ZA, FK8EM, VK4FNQ, VK8KK, VK2AKU, VK4GI, VK4ALM, VK8GF, VK2ELS, VK2XRC, VK2ZZV, VK3XEP/2, VK2ZKO, VK1KRS, VK2XJ, VK2ZTL, VK2BHO, VK7ZIF. 16/11: 2335: VK9ZA. 17/11: 0009 to 1256: VK6ZPG, VK6HK, VK6RO, VK6XV, VK6AWJ, VK6IV, VK6BA, VK6VP, VK6WD, VK6AB, VK6ZWH. 19/11: 0830 VK2BNN, VK2BHO, VK3XEP/2, VK2YHN, VK2ZPW, VK2YOS, VK2EAI, VK2XJ, VK2YKG, VK2ZRU. 20/11: 2255 VK4JAH.

21/11: 0025 VK4ALM, VK8GF, VK6RO, VK2XJ, VK6ZPG, VK2ZZV, 0740: VK4FXX, VK4JXZ, VK2DDG, VK3XEP/2, VK2XJ, VK2BRQ, VK2AAB, VK2YDM, VK2KIC, VK7ZIF, VK1ZQS (1140) and at 2305 VK6FQ, VK2BNN, VK2ADV, VK4ZAZ, VK6HK, VK6ZDY, VK2YVG. 22/11: 0002 VK2ZZV, VK2XJ, VK2DLW, VK4ABV, VK3ZKP & VK3ZGW (Both backscatter), VK6VP, VK6RO, VK2QF, VK2AKU, VK3XEX, VK4ALM, FK8EB, VK3XR, VK4KHZ, FK8EM, VK4ALM, VK2KIC, VK4ABP, VK4JH, VK4NL, VK4JAH, VK4AMH, VK8TM, VK2YHN. 23/11: 0205 VK6RO, VK6ZRY, VK2EEC, VK2BHO, VK2AKU, VK8TM.

24/11: 0109 VK4ALM, VK6YA, VK6KHD, VK8TM, VK7ZIF, VK7ZAP, VK7ZOT, VK7AN, ZL2CD. 25/11: 0050 VK4ALM, VK4JH, VK4FXX, VK4KAA, VK8TM, VK8ZLU. 26/11: 1050 VK7KXA, VK7RR, VK4TUA. 27/11: 0005 VK4FNQ, VK6RO, VK4LE.

1/12: 2153 VK4RO. 2/12: 0015 VK4ALM. 8/12: 0018 VK2HT, VK2ZZV, VK4FNQ, VK4ALM, ZL4AS, ZL2UFN, ZL4CN, ZL2TFY, ZL4LV, ZL2QS, ZL3TIC, ZL3ADT, VI3WI, VK7ZIF, VK7KJ, VK7RR, ZL3TIC, ZL3ADP, VK0CK, VK1GL. 9/12: 0430 VK7ZAR, VK6ZPG. 10/12: 2322 ZL2TJX. 11/12: 0020 VK1EP, VK2ZRE, VK1ZQR, ZL3AQ, VK3VD, VK2AWQ, VK3DQJ, VK3ZKP, VK3KMA, ZL2TUV, ZL2AQR. 12/12: 0123 VK8ZCV, VK7ZIF, VK7ZJJ, VK7ZAJ, VK7AL, VK6RO, VK6ZPG, VK6WG. 14/12: 0105 VK4ALM, 0535 VK4FNQ. 15/12: 0050 VK4YJF, VK2DLR, VK2AKU, VK6ZPG, VK4BTN, VK4AMF, VK8TM. 16/12: 0235 FK8EB, VK4KAA, VK8ZCU, FK8EB, FK1TK and 0700 VK8ZLX. 18/12: 0127 VK6BA, VK6VP, VK4ALM, VK2XJ, VK2DDC, VK8GB, VK8TM.

19/12: 0435 VK6RO, VK2DE. 20/12: 0215 VK6PR, 0605 VK6RO, VK6ZRY. 21/12: 0950 ZL3OF, VK7ZAR and at 2156 VK4ZJB. 22/12: 0345 VK6HK, VK3VF, VK3ZBJ, VK6RO, VK6ZPG. 24/12: 0110 VK2HT, VK2QF, VK6ZPG, VK6WG. 26/12: 0155 ZL2CD, ZL2TPY. 28/12: 0015 VK2XJ, VK2DDG, 0346 ZL2CD, ZL2TPY.

It is interesting to note that this year anyway there seems to have been a tapering off of Es in the latter part of December, especially around Christmas which is often a very good period for contacts, around 26/12 and 28/12. The more intense Es period seems to have been in the early part of December, with special mention having to be made of 8/12, the day VK0CK ran up more than 120 contacts covering VK1, 2, 3, 4, 5, 7, 8 and ZL. The fact that David was available for so many hours at 5x9 indicated a very intense Es cloud and I am very glad he took my advice to get on early in the month as there were more possibilities for him to be heard than if he left it until the last week as before.

Also of interest has been the contacts to VK9ZA, FK1TK, FK8EM, FK8EB and ZL7OY. These serve to keep an interest in the Pacific areas. P29 has been a rare commodity in VK5 this year although there are reports of other States working into there.

I note from the log of Brian VK2AKU that in addition to many ZLs he has also worked VK9ZA and JA2DDN (16/11), VK9ZA again on 17/11, also FK1SB. On 4/12 FK8EB, and on 7 & 8/12 VK0CK. Ross VK2ZRU said it took him over two hours to finally work VK0CK through the dogpilel David VK2BA had a number of exotic contacts leading up to mid November, with A35RS, ZK2SIX, JH4, YJ8RG, many FKs, ZLs 1 to 4, VK9ZA as well as all VK States except VK0 at time of writing (21/11).

A letter from Gordon VK4GM with a QSL for VK0CK also mentioned his XYL is VK4PZ. We welcome Mary to the VHF bands and note she has been working quite a bit of DX. eg 21/11 1000 to 1029 she worked six ZL1 stations; 6/12 0853 ZL2TJX, 0909 YJ8RG, 0912 ZL3TIC, 1120 FK8EM and 1202 VK0CK. I would imagine those contacts would make her very happy!

Other brief letters to arrive have been from Ross VK2ZRU who mentioned the opening on 144 and 432 MHz to ZL on 27/11. On 144 he worked ZL2TAL and ZL2TPY and on 432 ZL2TAL from 0930 to 1116 when signals faded out.

John VK4ZJB registers his thanks to David VK0CK for his marathon effort on 8/12 in providing contacts for so many stations. He also confirms Chris ZL7OY is still active on Chatham Island.

OTHER BITS OF NEWS

That 50 MHz long range DX has fallen away in the northern hemisphere is indicated in "CQ Ham Radio" from Japan via Graham VK6RO. Stations being worked include HL1, HL2, HL5, HL0, BT5RA, VS6, H44, and that's it! Good to see BT5RA on 50.110 on SSB. Last month mention was made of this station on 2 metres.

A report to hand that during late November Jeff VK8GF heard some Sydney stations on 2 metres FM. About the same time Don VK5ZRG in Whyalla heard two FM stations from VK6 via the Ch 4 repeater. Also heard of VK2AKU working VK3XEX on 2 metres SSB recently.

Bob VK5ZRO reports that on 29/12 VK5KBU worked VK5ZRG (Adelaide to Whyalla) and received a report of S9 + 60 dB! That may not be unusual you say, but it was on 1296 MHz and VK5KBU was running 1 watt to a bay of four 27 element yagis. Distance nearly 200 km. Sid VK5ME has finally worked VK5ZRG on that band, his QTH does not favour the Whyalla path.

On 25/11 at 0140 through to 0340 heard a number of JAs around 50.225 MHz at S5/6. Don't usually hear JAs this high.

18/12: VK8GB reported working 17 ZLs. Quite a good haul for that distance. Also, talking with Bill ZL2CD, he mentioned more ZLs had been able to work VK6 this year than usual, and VK8 was becoming more common!

NEWS FROM THE UK

Norman Fitch G3FPK advises of happenings in Region 1. He says that finally the Department of Trade and Industry have issued the long awaited extra 60 permits to Class A licencees to operate on 50 MHz bringing the total to 100. At present operators are limited to working outside TV hours, but there may be some improvement in this after the Band 1 transmitters close down on 6/1/85, although there are still some problems to sort out with European countries still using Band 1.

The Norwegian licensing authorities have granted permission for 25 LAs to operate on 6 metres outside of TV hours, which means they and the UK can experiment via auroras, MS and other modes.

Norman also mentions the two beacons already listed earlier, and says that during an aurora on 15/11 the OX3VHF beacon in Greenland was copied S9 + by GM3DOD between 1927 and 1935 UTC. Some amateur QSOs took place later that night after TV hours with GM and GI stations from 2310 to 2350.

The good news of course is that there is being a slow recognition on a world wide basis of the need for the amateurs to have some portion of the 50 MHz band and this first move in the Region 1 area could help other countries decide.

50-54 MHz DX STANDINGS

DXCC countries based on information received up to 15th December 1984. Crossband totals are those not duplicated by 6 metre two-way contacts. Credit has not been given for contacts made with stations when 50 MHz operation was not authorised.

Column 1: 6 metre two-way confirmed
2: 6 metre two-way worked
3: Crossband (6 to 10) confirmed
4: Crossband (6 to 10) worked
5: Countries heard on 50 MHz
6: Countries heard on 52 MHz

Call sign	1	2	3	4	5	6
VK2BA	28	28				
VK2DDG	25	26		2	12	3
VK30T	25	25			10	
VK4ZJB	23	24				4
VK20F	23	23				
VK2VC	22	22				
VK3XO	18	20			1	1
VK5LP	18	18			6	3
VK3AMK	17	17				
VK4TL	17	17				
VK7JG	15	17			2	
VK4ALM	15	16				
VK4ZSH	15	16				
VK3NM	15	15				
VK3AUI	14	15				
VK60X	10	10	1	1		
VK6RO	9	9	3	3	2	

The minimum number of countries confirmed for an operator to commence being listed is five, including VK.

The next list should appear in August 1985 and entries will need to be on my desk no later than 15th June 1985. Claimants are reminded full details of all contracts are required, the details having been published several times before.

LATE NEWS

As these notes were being completed I received a phone call from Bob VK5ZRO that 2 metres was starting to open to VK4. Switching off the typewriter I rushed to the shack and heard Mick VK5ZDR in contact with VK4ACE. Bob VK5ZRO had already worked VK4ZAZ and VK4KHZ. I was lucky to work Bill VK4LC at 5x9 at 0737. The band then closed! As I have said on many occasions before, you have to be quick to work stations on 2 metres over those distances especially using Es. Apparently the band had been trying to open for some time but those who had been around the longest were finally rewarded.

Special thanks again this month to Bob VK5ZRO for filling in the gaps in my operating information, and especially for alerting me of the two metre opening. Good to have friends like that!

Six metres is still active. On the morning of 30/12 (29/12 UTC) at 2258 VK2ZRE, 2304 ZL3NE, 2332 ZL4AI and 0150 on 30/12 ZL3ADT. Later in the day at 0508 VK8KK.

A note from John VK4ZJB which was too late for inclusion in the last notes mentions that Pierre FK8EM had advised there is a beacon from FK8 operating on 52.020 with a nominal power of 5 watts, antenna Swiss Q approximately 12dB gain, direction WSW from FK8 especially set up for contacts with VK stations. Operating times will be 2100 to 1100 UTC.

Although I do not have a call sign at present for this beacon I have tentatively listed it at the start of the column.

Closing with the thought for the month: "Why is it that political leaders don't seem to have all the answers until they write their memoirs?" 73. The Voice in the Hills. **AR**

RED CROSS MURRAY RI

Gil Sones VK3AUI, 30 Mo

The 1984 Canoe Marathon commun
WICEN operators. Members of the tea
and New South Wales. There were a lo
the newcomers.

The annual canoe marathon starts
and finishes at Swan Hill on the 31st
follows the prize giving and the annou

Everyone has a most enjoyable
necessary function. The safety net
contribution to the safe running of the

All checkpoints are provided with ra
safety boats and some key perso
communications.

Both HF and VHF are used, the princ
MHz and 146.5 MHz FM.

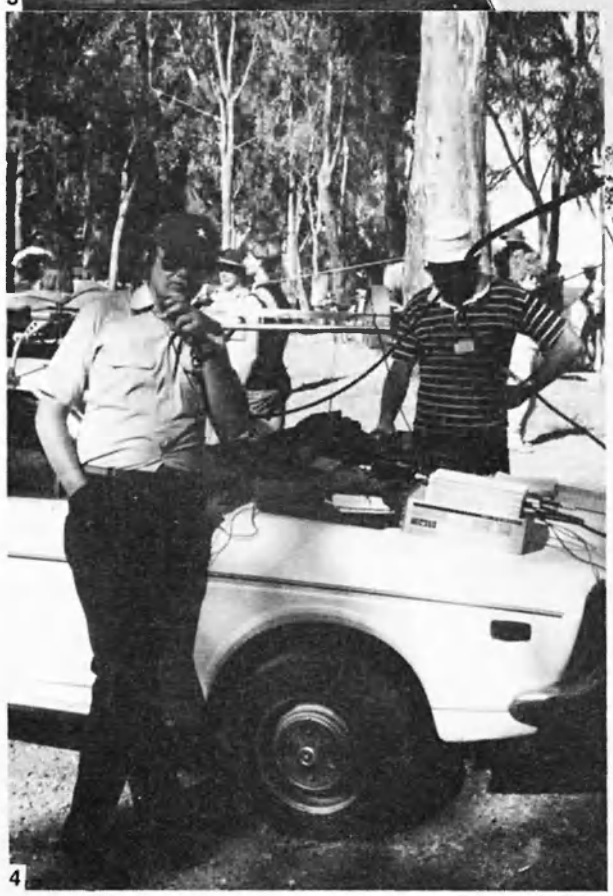

1


2

3


5


6


4


7


8

VER CANOE MARATHON

oore Street. Box Hill South, Vic. 3128

nications were provided by a team of 30 m came from Victoria, South Australia lot of old faces but most important were

at Yarrawonga on the 27th December ecember. A New Year Eve Celebration ncement of the results.

time as well as performing a most provided by WICEN makes a large e Canoe Marathon.

radio communications and many of the onnel are also provided with radio

cipal operating frequencies being 3.600

10

Photographs by Gil Sones VK3AUI.


11


12


9

1. Paul VK3DIP. 2. Les VK3BW. 3. Gilflite Sweep Boat at Moira Lakes — Checkpoint A. 4. David VK3YWZ and Bruce VK3BJZ. 5. Aerials at the start of the race, Yarrawonga. 6. Alex VK3CCT and Robert VK3AVJ. 7. Bruce VK3BJZ. 8. Skipper of the Gilflite Sweep Boat, Ken Williams, talks to officials. It was from this boat that Gil viewed the race. 9. Ron VK2EFJ. 10. A welcome break with campers between Barmah and Echuca. 11. Wally's checkpoint where HF gets into the PA system. 12. Bruce VK3BJZ and Steven VK3BHC.

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

QSLing to Short Wave Listeners is an important part of our hobby. It is courteous for an operator to QSL accurately and promptly on receipt of a valid SWL card that has been logged as a legitimate report.

What is a legitimate report that one could expect to receive from an SWL? I, speaking as an amateur and a QSL Manager expect an accurate date and time group to be given to the station the card is being requested from, the station that the operator was in contact with, the reports exchanged and if possible some of the "dialogue" of the QSO.

My conscience would not allow me to generate a reply without the above as a minimum. The reasons being that the listener requesting the card in my mind has to have genuinely heard the full contact and it is therefore then a valid report. This alleviates the problems associated with some SWLers of when they receive a card, they pass the info onto their mates, friends, acquaintances and sundry acquaintances of acquaintances. Within months the Bureau cards arrive and one finds that you have a multitude of cards to send out to people for the one contact who are building up the score on the "mate" system.

I know that these remarks are going to generate a "storm", but one, it is felt, has to be logical in such a situation.

VOLUNTEER REQUIRED

In the July magazine this year I will have completed four years of writing this column. Up to the present I have enjoyed, and still hope to until the end of that period, writing the notes. The generation of the notes has been at times fun, frustration, the occasional scoop, magnificent co-operation from many participating members, innumerable letters with information, some seeking QSL data, many of praise from readers who have gained a new one or have got a much wanted card by the info that has been printed. On the other side of the coin one could count the letters received from the disgruntled on one hand.

Not to be overlooked is the valuable information that has been gained from reading newsletters and magazines, receiving telegrams, telexes and the occasional international phone call or a call whilst on the band.

This prelude adds up to the fact that I would like to see a fresh approach to the column in the August issue and that means a new DX Editor who is willing to generate, in typewritten or neatly written form, the information that the reader requires, ready for typesetting by the deadlines each month.

I appeal for anyone interested to contact me at the above address for further details or contact the Editor, Bill VK3ABP, via the Executive Office.

ZAIRE

Johannes 9Q5JE is still active on 10 and 15 metres and expects to go QRT in April this year. QSL to the Club Station DK0HT either direct or via the Bureaux.

SAO TOME

Dias PS7ABT/S9 was by all accounts duly authorised and he is unlikely to appear again. This operator was from a Brazilian Naval vessel and he operated from the island of Principe. By all accounts another vessel will visit the area within the next year and it is trusted that an amateur orientated ship's Radio Officer can be persuaded to take a rig ashore and obtain a licence.

The S9 and PY authorites have an understanding on reciprocal licencing. I, like many others, would appreciate knowing the secret! It is a case of observe, wait and trust that it is acceptable!

SYRIA

Two more YLs licenced. SU1RR Rehab and SU1SR Sally, both daughters of SU3AM. Others are SU1HK Hosni and SU1IA Ibrhim. Congratulations to the newcomers.

WARC BANDS

The FCC, the governing authority on licensing in the United States has released the entire 10MHz WARC allocation to American amateurs. The 18 and 24 MHz bands will not be released before 1989 at the earliest!

ETHIOPIA

The stations ET3PG and ET3PS are not at present good for DXCC. The QSL Manager could be Franz OJ9ZB and if he is handling the cards there is a good chance that these calls will receive the "nod" as being acceptable.

Franz is well known and is a stickler for doing the right "thing" by ail and he could extract the necessary documentation for forwarding to Don Search at the ARRL DXCC Desk.

It is possible the operators are using the Police Radio system and it can be appreciated that the hobby would have a very low priority in that country according to all the media reports.

UNITED ARAB EMIRATES

A61AA has been quite QRV from this area using a commercial log periodic antenna system. All QSLs go to ever "Mr Reliable" Roger G3LQP. Contrary to rumours, Roger has a translation of the licence and other documentation which is being forwarded to the ARRL.

A PIRATE

In a letter from the Botswana Amateur Radio Society (BARS) dated 15/11/1984 to DX Editors is reprinted in full for all operators' information as hereunder.

"SUBJECT: ZS6BUX/A22 or ZS6DM/A22 ILLEGAL OPERATIONS.

"Gentlemen,

The Botswana Amateur Radio Society, would like to bring to your attention, Mr Miodras Jovanovic, ZS6BUX/A22 or ZS6DM/A22 who was illegally practicing a DX-Expedition Operation within the borders of the Republic of Botswana on October 27, 1984.

"The Botswana Telecommunications Corporation, along with the Ministry of Public Works and Communications REVOKED Mr Jovanovic's Temporary Botswana Amateur Radio Licence as of the 27th September 1984.

"The Botswana Amateur Radio Society, strongly urge the American Radio Relay League to withdraw Mr Jovanovic's calls ZS6BUX/A22 or ZS6DM/A22 from the DXCC list of stations.

Signed A22ME Secretary."

Quite harsh words one would say but the Botswana Telecommunication Commission were more explicit in their letter of cancellation as the following extracts show.

"I would like to make one thing quite clear to you, and that is the destruction that you have caused to the Botswana Amateur Association and the Government of Botswana to the world is irreparable.

"My office cannot tolerate or comprehend why you chose to brand our nation so badly moreover the hospitality of the Selibe-Phikwe Radio Association that hosted you into their town.

"Please be aware that your temporary licence operation privileges are revoked as of the 27th September 1984 for ever.

Yours faithfully,

Signed: J. M. B. Skeete."

One must admit that these strong words supporting the positive action removed the "man" from the bands but I really would like to know what he said or did to incur their wrath. *Does any reader know the facts?*

PIRATES AGAIN

Edmund who is in charge of HV2VO would like it known that he is being impersonated. In other words some Italian station or stations are using HV2VO on CW. Brother Edmund does not use this mode and if he has a visitor who desires to use CW, he announces the fact on SSB at the same period. *Any VK been caught yet?*

Father Edmund operator at HV2VO pictured with Jan K6HHD co-editor of Jan and Jay O'Briens QSL Manager LisL

Photo courtesy of QRZ DX.

ANOTHER WORD ON PIRATES

There have been several pirates "active" from Cape Verde over the last decade since the country was granted independence. Only two licenced amateurs are acceptable, those being Julio D44BC and Angelo D44BS who are duly licenced with the authorities in the Republic and all cards should be sent direct, as there is no QSL Bureau and neither of the gentlemen have Managers.

KERGUELEN ISLAND

A late letter has been received from Rousselet Michel to say that FT8XB will be operational from Kerguelen this year. The letter is as follows:

I'm a French amateur and will be making an expedition to Kerguelen Island in the South Indian Sea during 1985. My call is a new prefix for DXCC; FT8XB and I will be QRV all HF bands 80m, 40m, 20m, 15m, 10m, with a DX frequency of 14.190 MHz ± 5 kHz. Equipment will be a FT 757 GX + linear + a 3 element 20m beam and dipoles on all bands. I'm also QRV on OSCAR 10 with 60 W with a 21 element yagi and EME (Moon Bounce) on 144 MHz with a 4 x 20 element antenna 2 kW (beginning in April).

PSE QSL ONLY direct with 3IRC's to FT8XB, PO Box 83, 95101 ARGENTEUIL Cedex, FRANCE, Europe.

CLIPPERTON 1985

The Clipperton 1985 DXpedition is due to leave San Diego on the 27th March, returning on the 18th April. Revilla Gigedo XF4 may be activated for twenty four hours on the outward and return voyages.

It is hoped that the very dedicated operators who lost some $US14,000 over the last venture, and this didn't include air fares, make it this time and propagation is very kind to them. It is anticipated that this trip could cost in the vicinity of $60,000 all up. Quite a sizable expenditure considering conditions of late!

24 MHz

A direction has been issued by the ARRL Board of Directors to the Plans and Programmes Committee to study what existing and/or new DXCC awards, if any, should apply to the 24 MHz band and what considerations should apply to such awards.

VANUATU

New regulations permit the YJ0 prefix to be allo-

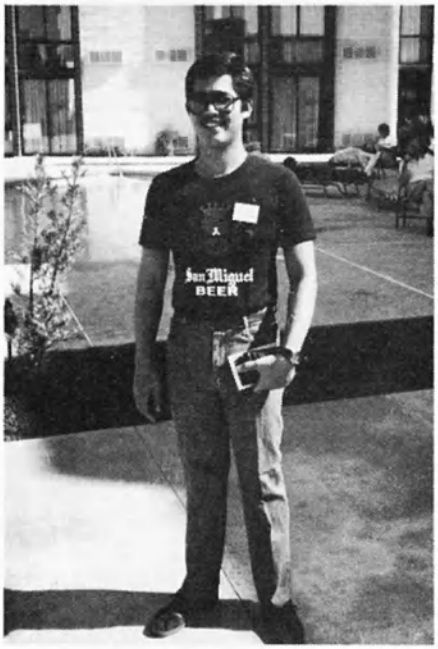
cated to non-resident or short term resident bonafide amateurs. Long term residents, including expatriates on long term employment, will continue to be allocated two letter suffixes with the YJ8 prefix. Any /MM calls will only be legitimate for use within Vanuatu territorial waters.

FAMOUS FACES AT VISALIA 1984

Bill W6VZZ (L) chats with Mario I0MGM.

Mario I0MGM, an Attorney of Law in his home country, is widely known for his dedication in gaining DXCC status for the Knights of Malta amateur station 1A0KM, and the ensuing efforts of keeping it activated whilst also being its main QSL Manager.

The "terrible trio" TI9CC, TI9CF and TI9JVA.

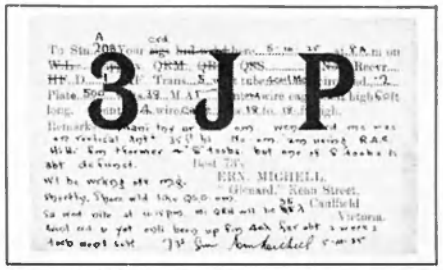


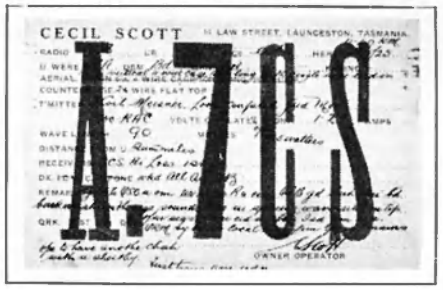
Chito DU1CK.

WB6DXU and Gopal VU2GDG.

CARDS OF YESTERYEAR

Nostalgia again! Some more cards that confirm QSOs of over half a century ago. The cards have been supplied by Arthur VK2JM.





Photographs courtesy of QRZ DX.

QSL MANAGERS

Mark WA60TU has advised that he is QSL Manager for 9K2DX, 8P6CW, 8P6J, KV4FZ 1983 CQWW CW only, N6TJ/TI2, N6TJ/EA9, EA9KF 1984 CQWW CW only and his new QTH is 789 Brookside Lane, Sierra Madre, California 91024 USA.

Bill N4NX, has written a note and included the stations he acts as Manager for. These include all of Martha Henderson's DXpeditions which include WN4FVU/5X, 3D6, A22, TT8AC, 3C0AC and the two stations FR7ZL/T and ZL4LR/A.

IRC'S NOT PROCURABLE

A note from an amateur in Poland advises that IRCs are no longer available in that country also that foreign currency is impossible to obtain. It looks like a 100 percent Bureau mailing for all cards from this country in the future!

LARGE ENVELOPE PLEASE

Denise VK0YL's QSL card is 160 by 100 mm and will not fit in an Australia Post preferred size envelope. For those amateurs and SWLs requiring a direct card please send a self addressed envelope to suit and adequate postage. Thankyou.

CARD OF INTEREST

A special card of interest has been submitted by Stephen VK2PS. Stephen held the SWL allocation of YRR 57 during the years of 1936-1939 and the card reproduced was his first encounter with the VK/ZL contest. The reverse side of the card notes *"THE CONTEST COMMITTEE thank you for your co-operation in making the 1938 VK-ZL the "Contest of*

Contests" — WG Ryan VK2TI, Contest Manager. VK2RA, VK2HP, VK2YC, VK2PX, Committee". Stephen topped the section in YR (now YO) that year of the "Australia's 150th Anniversary Celebrations".

Stephen is now the VK2 Federal Councillor who will assist in celebrating the 75th Anniversary of the WIA on the other side of the world as a member. Congratulations Stephen for your initial achievement and persistence over the years with the hobby.

BITS AND PIECES

The QSLs for CE0AA did not come as a Christmas present as predicted as they were to be held until the festive season mail rush was over so they would not be lost! **** UA9OO/YA was heard in Europe. He claimed to be near the Soviet/Afghan border?? **** Jukka OH2BJL made many QSOs as T52JL before going QRT late last year. **** Malta was well represented on the bands when 9H3DH (DF8ZH), 9H3DI (DL1RK), 9H3DJ (DL1ZQ) and 9H3DK (DF4ZL) made an CW onslaught late last year. All QSLs to DF8ZH. **** Alain 5R8AL has been very active on CW and SSB. **** Do not discard (which would be sacrilege) your 4U1VIC card, it may yet come good. **** The Pribilof Island debate still drags on but I would also file those cards in a safe place to keep the cobwebs off them. **** Nice to hear 1A0KM on as a Christmas present for those requiring it. **** Gerry 5X5GK has still not untangled his problems which have been generated within and between Ugandan Government Departments. **** HU1DX is sponsored by YSDX, a new DX club in El Salvador. **** Father Dave CE0AE still plugging away at 10 metres and having a little success. **** Marion Island ZS2MI, should be activated by a permanent operator this year. **** More BY stations to be activated soon. **** Don't overlook a 3Y Bouvet operation of unknown duration at any time in the next few weeks. **** GB4DIS/MM is a group of Welsh expeditioners aboard the RRS Discovery whilst in Antarctic waters. **** Some VK0 6 metre operation heard in VK and ZL **** The call ZX0ECF is being used by a Brazilian expedition to the South Pole. **** 8J1RL is the call of a Japanese scientific expedition in Antarctic waters. The operator is JR1FVH who is also responsible for the cards. **** Remember Feng who operated XW8BP more than a decade ago? He has just passed his licence test, the first to be held in BV, in October last year and should be active again soon. Massy JH1ARJ, still has the logs for that operation if anyone still requires a card. **** "Project Blizzard" station AX0PB will be returning home early next month and preparing for the next voyage scheduled for November. Neil VK6NE, the group's QSL Manager, requests no direct cards until he receives the logs in April this year. **** 3Y0AA (whereabouts unknown) has been heard but the licencees JF1IST and JR1HHL at the time of writing were still in JA with transportation worries!!! Their other worry is how to land even if conditions are ideal. **** The Japan Radio Ladies Society (JLRS) will make their first DXpedition this year. The venue is the Maldives and they hope to be operational on CW and SSB the 12th and 17th of this month.

OOPs! AN ERROR

Inadvertently the QSL information for OY8R was given in the November magazine as PO Box 88, Moscow. This is definitely a NO NO and it should have read PO Box 343, DK-3800 Torshavn, Faroe Islands or preferably now to Ray at his home call of W0IIM. Apologies to all those that were inconvenienced.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LQNG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, QST, RADCOM, JARL NEWS, KARL NEWS, OZ, WORLD RADIO, BARS, 73, BREAK IN and VERON.

Members who have contributed include VKs 2JM, PS, 3BY, EW, FR, XB, YJ, YL, 4BHJ, and G3NBC. Overseas amateurs include A22ME, G1EOD, I8SAT, JH1KRC, N4NX, WA6OTU, OH2BBF and ON7WW. Sincere thanks to one and all.

QSL ROUTES

1Z9A:JA8IXM, 3A2AF:F5RV, 3A4E:F9RM, 3A4F:3A2LF, 3D2FR:NE4S, 3D6AA:KB5DQ, 3D6AK:G3WPF, 3D6AN:WK4Y, 3D8CW:G4BAC, 3X4EX:N4CID, 4K1ANO:RA3AR, 4K1CEY:UY5DJ, 4K1GAG:UQ2OC, 4N9V:YU4CA, 4U39UN:W2MZV, 4U9ITU:W1RR, 4V2C:W5VUX, 5H3LB:SM5CPC, 5L8M:EL8M, 5N8FOC:G3TXF, 5R8AL:WA4VDE, 5T5CS:F6FNU, 5T5RD:F6IIA, 5V7NG:WB4LFM, 5W1DO:KB6JK, 5W1EZ:JE1JKL, 5X5GK:JA1BK, 5Z4BF:N4IBT, 5Z4DU:N4IPT, 6W1NQ:DL1HH, 6W8AR:WB4LFM, 6W8DS:WA4OVE, 6W8HL:WA4VDE, 6Y5IC:KE3A, 6Y5MC:WA4WTG, 7P8DF:DJ1TC, 8J1ITU:JA1RL, 8Q7BX:I4ALU, 8Q7OW:DJ2OW, 9H1EL:LA2TO, 9I2O:9J2BO, 9J1NO:DL5FX, 9K2BE:G4GIR, 9L1GA:N1AGK, 9Q5MA:K1VSK, 9U5JB:ON5NT, A22CA:AK1E, A22WZ:OE3NH, A35JM:K7KK, A35WW:JA5DOH, A4XJW:N4WF, A4XKC:KA1XN, A6TJC:PA3AUA, A71BK:G4HNP, A92DY:W8LU, A92DZ:G3VIE, AH8A:K6EDV, AH8B:NE4S, AP2ZA:W6NLG, AX0PB:VK6NE, BV8JA:JA8IXM, C30LAZ:EA3DDP, C31IU:W8JAQ, C53CL:EA8ZZ, CE0FCM/CE0Z:WB6WOD, CO2KK:KE5KK, CO7RG:CM7RG, CT1AV:WA3HUP, CT2EV:WA3HUP, DA1WA/HB0:DJ0LC, EL2EF:KM8E, EL2FJ:JF2QHC, FB8WJ:W4FRU, FE5RV:TO5RV—F5RV, FG0HLI/FS7:N6DX, FM7CD:F5FU, FM7WD:W3HNK, FQ8CX--FO8DF—FO8FB—FO8HI—FO8HL—FO8HO:WB6GFJ, FO8JP:F1BBD, FR7BP:W0AX, FW0BX:ZL1AMO, HC1EA:W2KF, HH2VP:W1FZ, HH2WL:KM7Z, HH2WW:N4WW, HI8LC:W2KF, HK0EHM:WD9DZV, HK0HEU:HK0FBF, HL9AH:N7DOF, HL9JT:N2AEW, HL9TA:K0LST, HP1AC:KM7Z, HZ1AB:K8PYD, IY4FGM:I4IKW, J3AVT:W8UVZ, J37AH:W2GHK, J39BS:WB2LCH, J6LJG:W2LZX, J88AO:W2MIG, JT0DJT:I8YGZ, JW0EQ:LA5NM, JY5CI:G4WFZ, JY9TS:WA3HUP, QN6TZ/4S7:ON6TZ, OX3GH:WA2TTI, QZ1FFG/OY:OZ1FFG, OZ5DL/OY:OZ5DL, OZ5UR/OY:OZ5UR, OZ8AE:OY:OZ8AE, PA0VDV/PJ2:PA0VDV, R0K:UA0KCL, SZ2COT:SV2SV, T32AB:N7YL, T32AF:KH6UR, TI9CCC:TI2CCC, TI9J:TI2J, TI9RCM:TI2RCM, TJ1AF:WA4VDE, TJ1OS:F6DZU, TL8DR:W2PD, TL8ER:F6GOK, TL8TX:K0VZR, TT8CK:F6EWM, TT8CW:F6GXB, TZ6FE:DL4BC, UI1CWW:UK1CAA, V2AS:OE3ALW, VK0PB:VK6NE, VK0RK:VK2DEJ, VK0YL:VK3AH, VK9ZR:VK6YL, VP8ASR:G4GHP, VO9DG:WA3HUP, VO9JR:N6AVV, VQ9YR:KA4SPA, VU2JXO:WA3JLB, XE2FU:K5RC, XL1CV:VO1CV, XN3EUP:VE3EUP, XN5RA:VE5RA, XT2BJ:DL6FAL, XU1SS:JA1HOG, XU1YL:JA1HOG, YN1FI—YN1OG:VE3DJQ, ZD7CW:N4CID, ZD9CC:ZS2DK, ZD9SB:G4KIV, ZF2IB:4Z4DX, ZK1XC:PA3BFM.

QSL ADDRESSES

3D6AL PO Box 64, Manzini, Swaziland
9J2LG PO Box 30441, Lusaka, Zambia
9K2DZ PO Box 1262, Kuwait.
9Q5RN PO Box 12646, Kinshasa, Zaire.
AH2AZ PO Box 445, Agana, Guam
BV0JA JG1QGT, PO Box 12, Shinjuka, Kita, Ochiai, Tokyo 161, Japan.
BY1QH PO Box 2654, Beijing, Peoples Republic of China.
C53ES PO Box 553, Banjul, The Gambia
CN8MC PO Box 299, Rabbat, Morrocco
CO2HO PO Box 1, Havana, Cuba
CO2OM PO Box 4940, Havana, Cuba
EL2EN PO Box 2668, Monrovia, Liberia
GJ2LU PO Box 338, St Helier, Jersey.
H44IA PO Box 219, Honiara, Solomon Islands
HI3HRD PO Box 272, San Francisco, Dominican Republic
HU1DX YS DX Club, PO Box 05-43, San Salvador, El Salvador.
J37FH PO Box 29, St Georges, Grenada
KX6GO PO Box 8387, APO, San Francisco, Ca 96555 USA
S79SM PO Box 84, Mahe, Seychelles
TT8CW PO Box 70, F-91605, Savigny Cedex, France
VU2GI PO Box 6674, Bombay 50, India.
YS1TG PO Box 1476, San Salvador, El Salvador.
XN3XN Canadian DX Ass, PO Box 333, Ontario, N4W 9Z9, Canada.
XX9CT PO Box 12727, Hong Kong.
YV0AA PO Box 2285, Caracas 1010A, Venezuela.
ZB2HG PO Box 292, Gibraltar.
ZP5AO PO Box 1554, Asuncion
ZS1YL PO Box 878, Belleville 7520, South Africa

SOME STATIONS WORKED ON THE EAST COAST

15 METRES

BY1PK, T32AF, ZK1XC, ZL1BYB, ZL4AW

20 METRES

1A0KM, 1Z9A, 4K1GAG, 4S7NMR, 4X4DX, 4X4KR, 5N3RTF, 6Y5IC, 8P6AE, 8P6PT, 8R1RBF, 9U5JB, 9J2BO, 9M2DF, 9V1VC, 9V1WA, A35MP, A35SA, A4XJV, A4XJW, A4XKB, A4XKD, A4XKH, A4XND, A4XYR, AH2AW, AP2ZA, BY4AA, BY5RA, BY8AA, C21RK, CE0AE, CE3ACA, CE3AON, CP1CO, CP1RI, CP5RK, E12CN, EA6BH, EI7CW, FH4AA, FK0ATP, GW4NZ, HA6OD, HB9CNI, HB9CSU, HC1HC, HC1OT, HI8LC, HL9TX, HP1XOL, HU1DX, HZ1AB, IY4FGM (Marconi Memorial Station), J37AH, JY3ZH, JY5OL, LU5CAB, LU5DRH, LU9EDY, LZ2YJ, OA4AYY, OH0BA, SU1ER, SP9PDF, SV1NA, TI1C, TI3EMS, UD6DZ, UJ8JCO, UO2GM, V85HK, VK0AO, VK0EK, VK0GC, VR6KY, VR6TC, VU2AIJ (YL), VK0YL (YL), VO9DG, VO9DW, VS6CT, SV5YS, SV8RX, TR8CR, YJ8JH, YJ8RG, YO3FG, YO6AKN, YV5LTA, XX9CW, XX9DX, ZD7CW, ZK1CG, ZK2IK, Z21J, Z21JO, ZS2OM, ZS5G

40 METRES

BY4AA, CT1DF, CT1FL, CT3NL, CT4NW, DJ6EA, EA9IE, FW0BX, FW0BX*, XN7DZR.

** Denotes CW*

INTERESTING QSL's RECEIVED

4K1D, CP5LK, KX6DS, LU4MEE, LZ2RS, VK9LW, VK9LX, Y78XL, ZL7AMO.

CW SWLing WITH ERIC L30042

28 MHz

JH1LME, JA3QGI, JA6YDH, VI3EZ/P, VK2,3,4, YU3MA, Beacons VK2RSY, VK4RTL, VK6RWA

21 MHz

HB9AVW, HL1BLA, HL0Y, JA6FQE/MM, KH6IM, RC2CF, UJ8JD, VU2OBY, YC4FNN, YC7UW, YC9ZEL, YC0DNK, 4S7DO, 9V1VD, 9V1WG.

14 MHz

AH2C, C21FS, K1BAZ/DV1, FK8EY, HK1AQ, HK1AMW, HL1DC, HL4CAE, KG6JJH, KL7UR, KX6LA, LA7XL, UH8ED, RW9US, VI3WI, VS6TA, XE1XF, YB2BNJ, YJ8TT, YV1TO, 9Y4VVT.

10 MHz

F3NB, G8FW, JF1IFP, JH2FKX, JA3SVG/MM, VI3WI, VM4AAA, W1ZLG, K2VA, W3DWI, K4EU, N5VV, ZL1BSG, ZL3BJ.

7 MHz

CT1LF, CT2CO, BV1CH/MM, DK0TU, EA1AYO, EA2OG, EA4MT, F2MA, FM7WD, HA8GZ, HB4FF, HB9CVK, G3UJE, HG19HB, HZ1AB, IK5ZOO, IK8AHH, IT9PZF, KJ9W/KH2, N5BJ/KH8, KX6DS, LX1PD, LZ1UF, OE3ZOC, OH8SR, ON5UK, OZ1JHJ/MM, UA3GAK, UA2FX, UP3BA/UF, UD5GO, UR2FU, UZ9AWZ, RC2AB, RB5QA, P29PL, TI2SKY, VP2VCW, N3RD/VP9, YB5ASO, YU4FDE, 4Z4NUT, 5H3BH, 5W1EZ, 9H3DK.

3.5 MHz

DL1VU, JA1CGM, JA2YKA, JF6DPM, KX6DS, RB5II, RW3QO, SM7ALC, UZ9SWY, VI3WI, YD1FFH, ZL7OY.

1.8 MHz

VK3BEE, VK3DGJ, VK5KL.

QSLs RECEIVED BY ERIC L30042

A4XJP, A9XC, BV2A, CX6CW, CT2CO, K1BAZ/DV1, EA5YU/EA8, FO8JR, FY7YE, GI4FUE, HA4ZZ (3.5), HL5GZ, KC6WS, NP4BN, LU7XP, W1AEL/PJ4, W2BBK/PJ7, T30AT, UJ8SAO, UK7RDX, VK9LW, VP9AD, W0KEA (1.8), SV0AA, YV4BOU, ZK1WL, ZL7OY, 4S7BBG, 4X6GP, OH6XP/4U, 5Z4CQ, 9H1EL and 10 MHz DJ2LS, DL4DX, DL7AFV, DJ7PW, F6HNX, F9YZ, TO6AAX, G3BDO, GW3EHN, OZ1W, OZ1LO, T30AT, VE3FZR, VU2UGI, W1CT, W1OO, 5Y4CS, 9H1BB

AR

PHOTO CORNER

Further to the Japanese Tour page 18, December AR.

Group photograph taken outside Japan CO Headquarters.

Photos by Peter Rodgers VK5KJT.

Hiroshima Kangaroo DX Group. L to R: JE4ERR, JE4WWT, JE4KGL, JE4MMP, XYL of VK5KJT, VK5KJT, JA4TYD, JE4NBF and JR4PWA.

MURPHY'S LAWS

As someone once said "Murphy's laws and electronics were so obviously made for each other!" For the benefit of those who have heard of Murphy but not seen his work before, here it is, kindly submitted by Russell Lemke VK3ZQB, 22 Villiers Street, Port Fairy, Vic 3284). The original source is lost in history.

GENERAL

[1] In any field of scientific endeavour, anything that can go wrong, will.
[2] If the possibility exists of several things going wrong, the one that will go wrong is the one that will cause the most damage.
[3] If nothing can go wrong, something will.
[4] Left to themselves, things always go from bad to worse.
[5] Nature always sides with the hidden flaw.
[6] Given the most inappropriate time for something to go wrong, that's when it will occur.
[7] Mother nature is a wench.
[8] If everything is going well, you have obviously overlooked something.
[9] Never make anything simple and efficient when a way can be found to make it complex and wonderful.
[10] If it doesn't fit use a bigger hammer.
[11] In an instrument or device characterized by a number of plus-or-minus errors, the total error will be the sum of all the errors adding in the same direction.
[12] In any given calculation, the fault will never be placed if more than one person is involved.
[13] All warranty and guarantee clauses become void upon payment of final invoice.

DESIGN

[1] In any given price estimate, the cost of equipment will exceed estimated expenditure by a factor of three.
[2] Dimensions will always be expressed in the least usable terms. For example, velocity will be expressed in furlongs/fortnight.
[3] If the breadbox trial model functions perfectly, the finished product will not percolate.
[4] In a mathematical calculation, any error that can creep in, will. It will be in the direction that will cause the most damage to the calculation.
[5] In any given computation the figure that is most obviously correct will be the source of the error.
[6] The probability of a dimension or value being omitted from a drawing is directly proportional to its importance.
[7] In specifications, Murphy's law supersedes Ohm's.

ASSEMBLY

[1] If a product requires *n* components, there will be n–1 components available.
[2] Interchangeable components won't.
[3] Components that must not and can not be assembled improperly will be.
[4] The most delicate components will be dropped.
[5] The construction and operation manual will be discarded with the packing material. The garbage truck will have picked it up five minutes before the mad dash to the rubbish can.
[6] The necessity of making a major design change increases as the assembly and wiring of the unit approach completion.
[7] A dropped tool will land where it can do the most damage (also known as the law of selective gravitation).
[8] A component selected at random from a group having 99% reliability will be a member of the 1% group.
[9] Tolerances will accumulate unidirectionally toward maximum difficulty of assembly.
[10] The availability of a component is inversely proportional to the need for that component.
[11] If a particular resistance is needed, that value will not be available. Furthermore, it cannot be developed with any series or parallel combination.
[12] After an instrument has been assembled, extra components will be found on the bench.

WIRING

[1] Any wire cut to length will be too short.
[2] Milliammeters will be connected across the power source, voltmeters in series with it.
[3] The probability of an error in a schematic diagram is directly proportional to the trouble it can cause.

TESTING

[1] Identical units tested under identical conditions will not be identical on the final test after being buried under other components.
[2] A self starting oscillator won't.
[3] A crystal oscillator will oscillate at the wrong frequency — if it oscillates.
[4] A P-N-P transistor will be found to be N-P-N.
[5] A fail safe circuit will destroy others.

OPERATION

[1] If a circuit cannot fail it will.
[2] A circuit protected by a fast acting fuse will protect the fuse by blowing first.
[3] Probability of failure of a component is inversely proportional to the ease of repair or replacement.

TROUBLE SHOOTING

[1] After the 24th cabinet to chassis screw has been removed to replace the under chassis fuse, it will be observed that the line cord plug has become disengaged from the AC receptacle.
[2] After the 24th cabinet to chassis screw has been assembled, the driver tube will be found under the schematic on the bench.
[3] The bleeder resistor will quit discharging the filter capacitors, as the operator reaches into the power enclosure.

PROGRAMMING (PECK'S PROGRAMMING POSTULATES — WITH ADDENDA BY GLASSER);

[1] In any programme, any error that can creep in eventually will.
[2] Not until the programme has been in production for at least six months will the most harmful error be discovered.
[3] Any constants, limits, or timing formulas that appear in the computer manufacturer's literature should be treated as variables.
[4] The most vital parameter in any sub-routine stands the greatest chance of being left out of the calling sequence.
[5] If only one compiler can be secured for a piece of hardware, the compilation times will be exorbitant.
[6] If a test installation functions perfectly, all subsequent systems will malfunction.
[7] Job control cards that cannot be arranged in improper order will be.
[8] Interchangeable tapes won't.
[9] If more than one person has programmed a malfunctioning routine, no one is at fault.
[10] If an input editor has been designed to reject all bad input, an ingenious idiot will discover a method to get bad data past it.
[11] Duplicated object decks which test in identical fashion will not give identical results at remote sites.
[12] Manufacturer's hardware and software support ceases with payment for the computer.
[13] At least one critical tape will be lost, misplaced, destroyed or written over.
[14] What goes up must come down — and can be expected to do so in the middle of your job.

FINAGLE'S LAW

[1] No matter what result is anticipated, there is always someone willing to fake it.
[2] No matter what the result, there is always someone eager to misinterpret it.
[3] No matter what happens, there is always someone who believes it happened according to his pet theory.

FINAGLE'S CREED

Science is truth; don't be misled by facts.

ALLEN'S AXIOM

When all else fails, read the directions.

GUNNERSEN'S LAW

The probability of a given event occurring is inversely proportional to its desirability.

GLASSER'S COROLLARY

If of the 7 hours you spend at work, 6 hours 55 minutes are spent working at your desk, and the rest of the time you chat with your cubicle-mate, the time at which your supervisor will walk in and ask what you're doing can be determined to within 5 minutes.

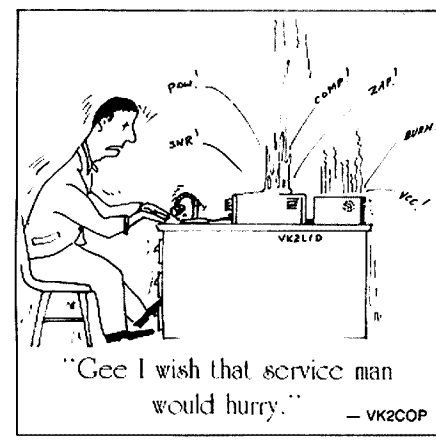
SOME VITAL THINGS TO REMEMBER WHEN DOING LAB WORK

[1] When you don't know what you are doing, do it neatly.
[2] Experiments must be reproduceable. They should fail the same way each time.
[3] First draw your curves, then plot the data.
[4] Experience is directly proportional to equipment ruined.
[5] A record of data is essential, it shows that you were working.
[6] To study a subject best, understand it before you start.
[7] If you can't get the answer in the usual manner, start at the answer and derive the question.
[8] To do a lab job really well, have your report done well in advance.
[9] If it doesn't work, start at both ends and try and find a common middle.
[10] In case of doubt, try and make it convincing.
[11] Do not believe in miracles, rely on them.
[12] Team work is essential, it allows you to blame someone else.

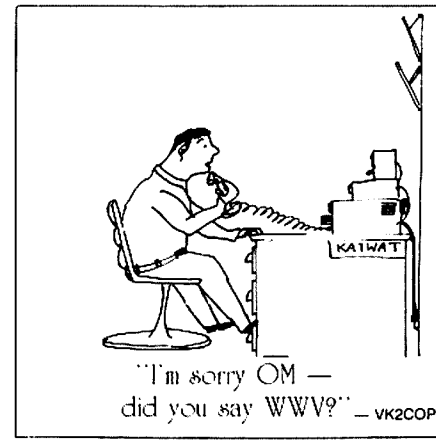
FURTHER HINTS ON WRITE-UPS

[1] In any collection of data, the figures that most closely confirm the theory are wrong.
[2] No one you ask will see the mistakes either.
[3] Everybody who stops by with unsought advice will see them immediately.
[4] If an experiment works, you must be using the wrong equipment.
[5] An experiment may be considered successful if no more than half the data must be discarded to agree with the theory.
[6] No experiment is ever a complete failure. It can always serve as a bad example.

AR



"Gee I wish that service man would hurry." — VK2COP



"I'm sorry OM — did you say WWV?" — VK2COP

LISTENING AROUND

Joe Baker, VK2BJX
Box 2121, Mildura, Vic 3500

During my time at Pine Creek, when the Northern Territory was still being raided by Japanese Zeros, there occurred two incidents which have left a life-long impression on me. Both incidents occurred in the one week, but at this distance of time, I'm not sure of the chronological order in which they occurred. The two incidents concern, Spitfire pilots that were in trouble and a head-on collision of military vehicles at Pine Creek in which one of our officers, and an RAAF truck driver were killed.

Let's take the story of the "Spitties" first. At about this time, there were a number of English Spitfire pilots flying aircraft in the Northern Territory. This particular day, a Sunday morning, we heard the omnious drone of an aircraft approaching the Pine Creek airstrip at the back of our Signal Office. It was the normal custom of an army mail plane (which was the way we despatched and sent letters home) to land here about 11 am on week-days but never on Sunday, so we realised that the visitor was not the regular mail plane. Looking up at the circling aircraft, it was obvious that it was in trouble, so as it headed for the landing strip, a number of sigs took off for the strip also. We ran fast and got there just as it touched down. When the plane came to a stop, a very frightened fighter pilot emerged from its controls and asked who we were. He was as white as a sheet, with good reason.

From his story, it appeared that a short time earlier, he and a mate in another Spitfire had passed over Pine Creek on the way to Gorrie (near Katherine) where they were taking the two aircraft for some sort of overhaul. As they passed over the Ferguson River, our pilot said the other plane appeared to be in trouble as its engine was spluttering, and he quickly decided to bail out. Our man tried to frantically call Darwin by radio but received no answer, he then had the awesome spectacle of seeing his mate landing in the flames of his crashed plane. To add to the strife, just as our pilot was returning to Pine, his own engine started to cut out. He asked us could we get a message off to his base, letting them know what had happened, and to send a part for his aircraft.

We lost no time in getting the message off, and in arranging for the replacement part to be sent, which arrived by train the following day. We also arranged for the RAAF at Pine Creek to give the English pilot overnight accommodation.

The following day, we sigs followed the pilot down to the strip where he fitted the replacement part. He thanked us for our assistance, and although still nervous because of the happenings of the previous day, said he'd attempt a take off, but, just to make sure that all was OK, would fly over our strip several times before going on his way. Reassured that all was now OK with his Spitfire, the last we saw of him was disappearing into the clouds.

The second incident occurred a few days later about 7 pm just as I had started the night shift in front of the switchboard. Because there was an open air picture-show at Pine that night, I thought that I would have a quiet night, and settled down to read some books. It had been the custom of any sigs attending the open air pictures to take the portable telephone to the site, in case anyone at the show was wanted. But this time the portable telephone **was out of order.**

Somewhere about 8 or 9 pm, my reverie in front of the board was shattered when the shutter connected with McDonnel Strip dropped, and a very excited voice cried out *"Accident — accident — get the army and RAAF ambulances!"* and then hung up. I tried to call McDonnel Strip back but there was no answer. Suddenly I realised that army and RAAF personnel would be at the open air pictures — and the portable phone was out of order. What to do? Not realising at that time that Pine Creeks sole civilian Constable was involved in the accident, I tried to raise the Pine Creek Police station, because it was near the site of the open air picture show. Instead of the Constable answering I was greeted by the voice of one of our army linesmen who happened to be up a telephone pole working on the line. When I told him that I wanted an urgent message sent to the picture show site immediately, the linesman said that he himself, would deliver it.

From my location in front of the switchboard I could hear the sound of the picture show. Suddenly the sound was interrupted, and an unknown voice summoned Army and RAAF ambulance crews to McDonnel Strip as soon as possible. About 9 or 10 pm when the show ended and the picture goers returned to their units, I began getting a series of calls, asking if I had any further news as to what had happened at McDonnel Strip. Everyone was still thinking in terms of the Spitfire incident. But I was still unable to raise them.

A couple of hours later, a military vehicle drew up outside the signal office and out stepped the police Constable **covered in blood.** *"Captain Pickett (area officer of Pine Creek) and an RAAF truck driver are dead. Please Joe, listen in on all calls to Katherine, and if anyone mentions me, cut them off will you?"* I asked him for further details and it appears the policeman, and Captain Pickett were returning from a Tivoli concert party, when they rounded a bend and crashed head-on into the RAAF vehicle. Johnno, the policeman, said that his wife was in hospital at Katherine having a baby and that's why he didn't want her to know about what had happened. I offered him a cup of tea but he declined saying that they would have to drive through the night (no streetlights up there then) to take the two bodies to Katherine.

When he left our signal office, I asked permission of our corporal to phone Katherine hospital alerting them to the arrival of Constable Johnstone and the deceased, as Constable Johnstone would need medical attention himself. Permission for me to make the call was **REFUSED,** but after our corporal was out of sight, I took it upon myself to defy this order. The matron at the hospital thanked me very much for alerting them, assured me that she personally would ensure that Constable Johnstones wife was not told that her husband was injured and on the way to the hospital.

A few days later, Constable Johnstone was back in Pine Creek and none the worse for the incident despite some superfluous injuries.

In due course, the baby was born, and according to what I later heard, in its own right it became famous as being the first baby born to a civilian in the Northern Territory since the bombing of Darwin. Because of the war, war correspondents were everywhere and it appears that a BBC correspondent in the Northern Territory got wind of the birth, and it was announced by the BBC in London.

I was very pleased to make contact on air on 80 recently with Mike VK3PID, of the Basin, in the Dandenongs. Mike had not had his call for very long and when I first heard him he was using an ex World War Two Type 122 set on AM. I was at first listening on sideband, but could hear his AM signal, but eventually I found it best when I switched to AM for his signal and came back on sideband. He said that although 40 years old the 122 was in what currency dealers would call "mint condition." Mention of the 122 brought back my own memories of when I saw one of these first while at the Marconi School of Wireless for army personnel then being conducted in a building above Broadway Motors in Sydney. The sets we saw there were also in mint condition, and were there for **show** only while instructors tried to explain how they worked. How were we supposed to know all about these sets while being forbidden to use them is one of the mysteries of World War Two. Anyway, relying on my memory of this set, with nearly half a century having passed since I saw one, according to Mike, my description of the set, was correct in every detail, even to the color-coding system of the locknuts on the two dials — all of which goes to show that my memory is not too bad even after all the things that have happened to me over these past years. **AR**

QSP

PRIME MINISTER IS AN AMATEUR

Rajiv Gandhi VU2RG became Prime Minister of India in the evening of 31st October 1984.

Rajiv passed the 1st Grade amateur examination in 1974 and was allotted the call sign VU2RG on the 1st January 1975. Since this time he has remained active generally on 21/28 MHz but over the past two years, has been active on 144-146 MHz also.

During and after school days Rajiv's interests were aviation and electronics, he became a keen home-brewer in electronics after witnessing amateur radio in action at the home of his uncle. Within three months of obtaining his call sign he made his first homebrew HF CW/SSB transceiver and a two element quad antenna which he used until 1980 making many contacts.

From the time Rajiv became a Member of Parliament in June 1981 he has constantly been working for progressive developments in aviation and electronics, including amateur radio, in India. Due to his constant efforts computer training is available in Indian schools and several relaxations have been given to the electronic trade/industry which benefit the masses.

In amateur activity Rajiv has taken up the cause of amateurs individually and collectively and organised fast amateur participation to maintain communications during a cyclone/flood on the west coast of India at a time when all known channels of civil communications had failed. He also persuaded the Government of India to consider a request from the Amateur Radio Society of India to allow custom duty free import of amateur equipment. Such facilities will be available to Indian amateurs until 31st March 1985.

In 1975 Rajiv's XYL Sonia passed the 1st Grade amateur examination and was allotted the call sign VU2SON. She is also active on 21, 28 and 144-146 MHz.

During early 1985 it is hoped their son Rahul (14) and daughter Priyanka (12) will have call signs and be 'on the air'.

Rajiv is a very avid reader of amateur radio literature and journals and is always endeavouring to keep abreast of the latest developments and modern techniques. In July 1984 he was granted permission to install a 'close repeater' on 144-146 MHz with the call sign VU2RRG. The equipment for this repeater is still awaited from abroad but when installed it will be the first amateur repeater station in India.

from material submitted by Amar Banerjee VU2CZ.

AR

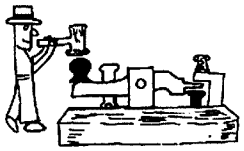
WANTED!!

A letter has been received from Leopold Giesel with a request for an Australian penfriend.

One of Leopold's hobbies is collecting postage stamps.

Anyone interested should write to Leopold at DDR 9472, Schneeberg, Chuhlberggasse 11.

AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

SIGNAL REPORT AMPLIFICATION

Last month we talked about Signal Reporting in terms of the basic Readability/Strength/Tone report. Sometimes there are factors which need to be reported, but simply cannot be considered as matters of readability, strength or tone.

(By the way, if this sounds familiar, it is largely a reprint of a column which appeared about two years ago. It is being repeated for the benefit of newcomers who keep asking me to write about basic CW operations. The great advantage of a word-processor is that chunks of earlier columns can be inserted wherever desired, in the midst of new material. This time, however, the entire column has come across virtually unaltered, so I thought I should explain why it might seem familiar.)

Even when an extremely strong (S9) signal is perfectly readable (R5) it can still have technical attributes which may (or should) be of interest to the other operator. There are a number of one-letter signal report amplifications for this purpose, advised in standard format. They don't take up much space, but convey a lot of information. Typical reports might be 5/9/9X, 5/9C or 3/7 QRN3. The amplification symbols which should be at every op's fingertips are described below.

X Fortunately, most signals could be reported as -/-/9X, for their tone is pure and their frequency is stable. If received signals do not vary in pitch, meaning there is no variation in transmitting frequency, then X can be used to indicate that the signal is as stable as a crystal — (Xtal!) controlled one.

C The symbol C represents "chirp," and is used to describe the sound of a signal in which each character element (dit or dah) changes in pitch in a repetitive fashion. If you hear a CQ which sounds like "cheow-chi-cheow-chi, cheow-cheow-chi-cheow," you are hearing "chirp." The problem is usually caused by an unstable VFO or oscillator which gets drawn off frequency each time it comes under load. Most commercial gear is chirp-free, but you can often hear chirpy signals coming from the USSR, where a lot of gear is home-brewed by members of the Ham Gear Collective of the Lenin Institute of Tractor Repair and Plumbing Radio Sport Club. A stable oscillator with adequate buffering between it and the keyed stage should solve the problem, but is not always possible, particularly in QRP work. When you hear it — report it. The other op may not be aware of it and it may be something he can fix easily if someone tells him it's there.

D Sometimes a signal will drift in frequency (the pitch gradually rises or falls), in which case the symbol D is used. This is often a problem where a VFO or oscillator is subject to temperature changes such as the rig heating up as a transmission progresses. I once heard an op in a contest who sounded like a sports-car going up a steep hill. Each time he transmitted he started zero-beat, then took off for the wild blue yonder, sometimes dropping down a bit between words before taking off again. Most drift is more gentle, and of course you should be sure it is not your receiver which is drifting before you send D. Experience is the best teacher in this regard, but as a general rule, it is probably best to ignore a small amount of drift, especially if you only notice it five minutes into the QSO.

K Key clicks (K) can be a real problem because they are spurious transmissions which may appear quite some distance from the QSO frequency. They are a clicking, static-y noise which occurs in time with someone's sending. They often result from overdriving the transmitter, so it is a good practice to refrain from running flat-out. Just backing off a little bit from full power can make the world of difference.

Interference, in contrast with technical faults, can be either man-made or natural (QRM or QRN, respectively). The basic principle in reporting QRM/QRN is that if it is causing no problems in copying, don't report it. Just because you can hear it doesn't mean it is causing interference, and you should think in terms of readability. A report of 5/9 ORM, for example, means "your signal is perfectly readable with no difficulty, and the difficulty is caused by man-made interference (!)."

The main reason for reporting QRM or QRN is so the other station can adjust his sending to suit. Accordingly, the QRM or QRN should be followed by a number from 1 to 5, representing the degree of interference. For example, if you send a report 3/7 QRN 3, the other operator knows you have noisy conditions and will (theoretically) slow down and/or repeat key words. For that matter, there is nothing to stop you from sending —

"RST 3 7 9 QRM 3 ? RST 3 7 9 QRM 3 PSE QRS 10 ES QSZ 2 QSZ 2" — which translates as "your readability is 3, your strength 7, and your tone 9, with man-made interference causing significant but not overwhelming problems, please slow down to 10 WPM and send everything twice." Your chances of copying his next transmission are a lot better than if you had sent "RST 3 7 9 QRM."

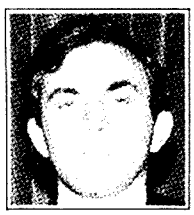
If the strength report is high, but the readability is less than 5, some amplification really should be given.

One last aspect of reporting deserves comment, and that is the tendency for award and certificate managers to demand "minimum reports." To my mind this is about as silly as you can get, especially when some lid keeps you from qualifying for something by giving you a 5/0/9 report. I personally do not chase paper, at least not much, but I would have to rule out anything requiring minimum reports. After all, the purpose of it all is communications, and there have been many occasions where a 3/2/9 report has meant more to me than other QSO's where I was "given" 5/9/9 PLUS 40 dB. If you have exchanged calls, reports, and names you have certainly communicated, and there is much more virtue in having done it under difficult conditions. What do you think?

Keep communicating . . . ES CUL

AR

AMATEUR RADIO MAGAZINE AWARDS



Tony VK3QQ

Reg VK2ELG

Rob VK5RG.

The awards for 1984, which are selected by the Publications Committee are as follows:

The Higginbotham Award for service to amateur radio was awarded to Tony Tregale VK3QQ for his dedication to the subject of EMC.

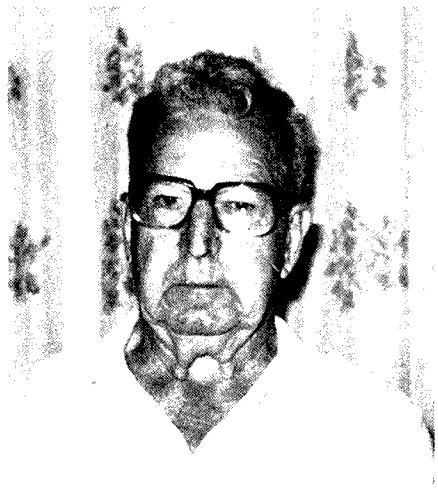
The Alan Shawsmith Journalistic Award was awarded to Reg Glanville VK2ELG for his excellent article "Clandestine SWLing".

Technical Award — which is awarded for the best technical article published in Amateur Radio went to Rob Gurr VK5RG for Rob's Wire Antennas article.

Congratulations and best wishes to all three winners.

AR

Further to . . .



A recent photograph of Roy Jonasson VK4NE who was featured in Thumbnail Sketches page 4, January AR.

Photo courtesy Alan Shawsmith VK4SS.

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199.

I have been asked at times for advice about organising and running classes.

There are no set rules or procedures, so I can only offer some ideas from our own experience and comments collected from other instructors or students.

There are so many variations between classes — level required, numbers and backgrounds of students time available, physical location and facilities, and lecturers available — that each class is different, but there are a few considerations that apply to all.

FIRSTLY — THE COURSE TO USE

Stick to the published syllabus, but be aware that there is a tendency to a change of emphasis as technology develops. When modifications to the syllabus are made, they will be publicised.

THE CLASS

From our experience the one factor most responsible for success of a class is the enthusiasm and dedication of the students themselves. If they are aware that the two or three hours of lectures each week must be backed up with several hours of homework, and are prepared to spend this time on it, their chances of success will be good, and the class will be stimulating and rewarding for all concerned.

Numbers may be limited by the facilities available or by lack of publicity. Notices placed in local shop windows frequently collect new students. There is no minimum number, but more than about 30 is getting too big even in standard classroom conditions. My personal preference is for about 12-20, but remember that there may be a drop-out rate of 10-30 percent of starters. A small group ensures that members are able to ask questions or request repetition without feeling that they are wasting everyone's time.

LOCATION AND FACILITIES

These depend on what is available and the class size. Three or four students can be seated around one table with the instructor — but unless the instructor can write upside down, a better arrangement is to have a lecture type situation, with the assistance of some sort of chalk board or overhead projector. Inexperienced lecturers may need to practise writing so that it can be read from some metres distance.

The instructor may be covering the whole course or just one topic, depending on the people available and their competence/confidence. Ideally, the lecturer should be competent to deal with any likely questions from the class (and there are usually a few curly ones) but more importantly must be able to appreciate the difficulties and limitations of the students. Too often the 'expert' is unable to explain his specialities in the simple language needed by the newcomer. (This complaint is by no means restricted to amateur radio.) This problem is compounded by the different levels at which students may be starting. It is worth spending some time sorting out the backgrounds of the students, and, if necessary, putting in a few extra sessions with those who need, for example, some maths revision.

THE LENGTH OF THE COURSE

Can be varied to some extent. We have found that about eight months of two hours per week adequately covers the Novice syllabus.

Do not try to cram too much into one session. The new science graduate will cope, but the middle-aged truckdriver will become bogged down and lose interest. A break every hour is essential for both students and instructor — preferably with tea or coffee facilities to encourage movement and interaction.

FINALLY, QUESTIONS AND EXAM TECHNIQUE

Most students will need practice in reading and answering multi-choice questions. This should begin early in the course — perhaps a few questions on the previous week's topic before starting the next. Questions can also be set for homework, but I think new questions tackled under exam conditions and against the clock are better practice. A full scale one hour exam on the work covered so far can be given two or three times during the course, with a full scale trial exam at the end. In each case, check the questions where most failures occur, and use this as the basis for revision sessions.

I would be interested to hear other peoples' ideas on classes, either by mail or on the Education Net (Thursday 1030 UTC near the top end of the Novice band on 80 metres or 1130 UTC at about 3.685 MHz).

Best wishes to all who are getting involved with classes for the first time this year, and best of luck to those preparing for the February exams.

73 Brenda VK3KT.

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

This report is coming to you from a caravan park at Portland. George and I will be here for 2 weeks until mid January.

We are looking forward to some nice sunny calm weather to enjoy all the area has to offer.

The contest results will be in the next months comumn sorry to say but we left home before the deadline. Up to date 40 logs have been received — more from OMs this time and it is very pleasing to have the response from the men folk. Thank you for taking the time to encourage the YLs and we do look forward to having you join in again next November, for No 5.

Some comments I received with the logs, *we were disappointed in lack of ALARA members on CW.* Come on girls, it's not too hard, so start practising for this years contest.

The certificate for the Mrs McKenzie CW section of the contest is making slow progress but hopefully will be on its way to the lucky YL very soon now. She will have been notified prior to this article.

SUBSCRIPTIONS

Were due and payable by 31st December 1984. $5.00 for Australian members and also for overseas with Newsletter going air mail. $3.00 if sent by sea mail.

Membership now is very close to 200. We have 4 new G-land YL's who have been sponsored into ALARA (call signs next month).

Good luck to all who are sitting exams again this month, do hope this is the lucky one for you. If not, well keep trying. It really is worth it in the end.

VK3 State Co-ordinator — Bron VK3NDT/XTD has very kindly volunteered to be our VK3 state representative. Marilyn VK3DMS was trying to wear 3 hats at once and asked for a volunteer in the Melbourne area. So many thanks Bron for the offer and we hope you enjoy your new job and welcome to the committee of ALARA.

Good to catch up with you at Echuca in December too Bron, always nice to say hello in person.

Thank you also to Marilyn for your time as State Representative — and hope this has eased the load somewhat. It is better to share the load around, all the more the merrier.

While I am saying thank you — a very special thank you to all associated with AR. It was a lovely surprise for me when I found the page of Mildura photos in December AR.

My little contribution is always well presented and the photos do add a lot of interest. Still have quite a few to be printed this year, so if you have one of some YL who hasn't appeared I'll use it then return to you if wanted.

ALARA by now has stickers printed for use on QSL cards, stationery etc, these will be for sale. Price on application (until I can get them from Valda and they appear in AR) to Valda VK3DVT, PO Box 4, Brighton Vic 3186.

Also still available are charms, badges and teaspoons all with ALARA logo depicted.

1985 is ALARA's tenth year and we are hoping to celebrate in some way. Possibly in each State a lunch or afternoon tea will be held. A pity our get-together in Mildura did not co-incide with this year but we will be holding national get-togethers at intervals. A poll has been organised in the Newsletter and no results as yet.

Until next month 73/33/88. Margaret VK3DML

AR

MAX LOVELESS MEMORIAL COLLECTION

This collection of valve era communications equipment was briefly outlined in the August 1984 AR.

Barry Riseley, the collection co-ordinator has advised us that the collection is now definitely underway and has begun to get together some really fine examples of valve era equipment.

Hopefully as the collection becomes more organised and developed it will be possible to run some pictorial articles, which judging from the correspondence Barry has received arising out of the initial article would be of considerable interest to many WIA members.

At the moment the collection is anxious to obtain "Ham Band" crystals in the old FT243 and/or RAAF "D" type holders. These ARE URGENTLY REQUIRED to enable some of the old gear to be reliably operated on air and if you have old "Ham Band" crystals or empty holders or any frequency crystals in older type holders that are outside ordinary amateur bands then they could be put to good use by the Loveless Collection.

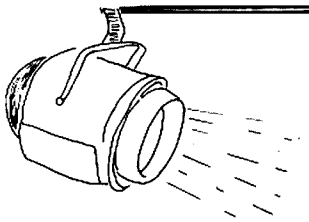
We are also most anxious to get hold of some old type plug-in coil formers with 4, 5 or 6 pin bases, as marketed by Marquis, RCS, Jabel and probably others over the years.

Another item required is a "plate" modulation transformer suitable for use in a small "demonstration" AM transmitter of say 38-50 watts or thereabouts.

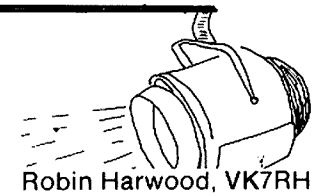
MOST IMPORTANT PLEASE — before your toss out your old junk valves, components, books, magazines, etc. give the Max Loveless Pioneer Memorial people an opportunity to take it off your hands. Your assistance will help ensure that at least part of our communications heritage is preserved for posterity.

Should you feel able to assist us in this most worthwhile venture please contact VK7KAD by telephone in Hobart (002) 28 6351 BH or (002) 43 7504 AH or perhaps write to GPO Box 215C, Hobart. Collection anywhere in Australia could be arranged.

AR



SPOTLIGHT ON SWLing



Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Most of the monitoring I do these days is of Utility or Non-broadcasting services. These stations extensively use HF to conduct their everyday communications and are specifically designed for the broadcast listener. The majority of these services can be found between the various international allocations assigned for broadcasting stations, although with the crowded spectrum, they have been known to increasingly utilize both exclusive broadcasting and amateur allocations.

One indispensable aid to the Utility DXer/Monitor is the Confidential Frequency List published by Gilfer Associates Inc. This contains an extensive listing of Utility Services from monitoring by the author, Oliver Ferrell, aided by reports submitted from fellow enthusiasts from throughout the world. All utes above 4 MHz are listed in frequency order. Because of the number of service employing RTTY, a separate guide was published dealing with RTTY services.

It was the wish of "Perry" Ferrell that these two lists be combined in one volume, and to this end, he set out to compile and update material for the sixth edition of the Confidential Frequency List. Tragically, in April of last year, "Perry" was killed in an automobile accident before the basic research and checking had been completed. Several well-known communications monitors stepped in, working in close co-operation to complete the Sixth Edition out of regard for "Perry" and also to see the CFL continue as a viable information and data source for other enthusiasts.

I recently obtained my copy of the CFL Sixth Edition through one of the DX Clubs in Australia. This volume contains the listing of Utility stations by frequency order from monitoring observations. Another aid is the inclusion of some international broadcasting stations transmitting on allocated frequencies normally reserved for utility services, although in some instances the location and/or identity of these is incorrect. However, it serves as a propagational indicator to have some of these listed.

The volume also has background articles on the various modes employed by utes such as Piccolo, AMTOR, RTTY both standard and non-standard, non-synchronous formats. Also an article was reprinted from the RTTY Guide on deciphering Russian language shifts.

I have found that the listings are fairly up to date, although it can readily be appreciated that there are considerable alterations made by utility services on a more frequent basis than the international broadcasting stations. It is to be anticipated that the CFL will continue in the future with further updates from monitoring. I myself do regularly update the information by scanning the Utility trails from DX magazines such as ADXN or DX Post, both of whom have a very good utility section.

Another Utility Guide has been edited by Joerg Klingenfuss. This Guide contains 27 pages of addresses of Utility Stations world-wide. But a word of warning: it is an offence in the majority of countries to reveal or divulge the contents of any traffic passed by any non-broadcasting transmissions including within Australia. So if you do wish to forward reports to these services, please confine your details to Callsign(s) Date, Time, Frequency etc. However, as the majority of utility stations are not interested in receiving or obtaining reports, or to know that for that matter, unauthorized persons are monitoring their transmissions, I would strongly recommend that you desist from forwarding them reports, confining your activity to sending reports to amateur or broadcasting services.

Both of these guides are extremely helpful to the identification of Utility Services together with their approximate location, especially in my IW monitoring. As well, GFS Electronics have, I believe, several utility guides available. The addresses for these Guides are as follows:

CFL'6 Gilfer Associates INC, PO Box 239, Park Ridge NJ 07656 USA.	Guide to Utility Stations Joerg Klingenfuss, Panoramastrasse 81, Hagelloch D-7400 Tuebingen Federal Republic of Germany.

On the 15th of December last year, as part of a five hour Talk Show over the giant ABC Network in the USA, there was a phone-in devoted to shortwave listening. Participating in it were Arthur Cushen, Glenn Hauser as well as other well-known DXers, all publicizing the hobby. However, the programme was scheduled from midnight and 5 am local time, when the majority of the listening audiences would be insomniacs or night shift workers. However, it is perhaps a concept that the WIA could put into practice to publicize amateur radio, and the 75th Anniversary of the Institute in particular, as there are plenty of similar programmes on our domestic stations in Australia.

Radio Australia's programme "Australia Tonight" hosted by Barry Seeber was voted by the SPEEDX Club of North America as the most popular SW programme by its members. Barry was also in equal top position as personality of the year with Clayton Howard of Radio HCJB, who is now retired. RA's popular programme devoted to SW listening, continues to be popular. As part of their recent first anniversary programme, they conducted an experimental slow-scan TV transmission and pictures were received in many parts of the world.

You may remember that last year, the BBC conducted a competition amongst their listeners to pick out the Seven Wonders of the Modern World. Hundreds of listeners sent in their suggestions and these will be considered by a panel of judges who will decide which are the Seven Wonders of the Modern World. Paddy Feeny will chair the discussion as well as present the series of eight programmes devoted to finding out as from the 12th of February at 0730 UTC in the BBC World Service.

While we are with the BBC World Service, there will be a series of programmes devoted to two Giants of Music, Georg Friedrich Handel and Johann Sebastian Bach, both being born 300 years ago exactly. There will be a series of concerts and documentaries celebrating the tercentenary. During February, Handel will be featured, while Bach will be featured later in the year.

Drama of the Month on the BBC W/S will be Robert Bolt's play "A Man For All Seasons", telling of the story of Sir Thomas More and Henry the VIII and of the struggle between the two, leading up to More's execution on the scaffold in 1535. I seemingly recollect hearing this not so long ago, but it is worth hearing it again.

For those lucky owners of a Racal receiver, regarded as the cream of professional receivers by many, there is now a non-profit organization with the aim of providing a mutual service to owners of surplus RACAL equipment. Known simply as the RACAL User Group, they issue a quarterly newsletter to keep the owners informed. Further details can be obtained from Peter Barker G8BBZ, 8A Alwynne Place, London N1 2NL, England.

Well, that is all for this month. Until next time, the best of 73 and good monitoring! — Robin VK7RH.

AR

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

You will have noticed by now that I have changed my call-sign to that appearing at the top of the column. I have not changed QTH, however, and any enquiries can still be directed via my call-book address, listed under my old call, VK2EBM.

Another change to report, this one unfortunate, is that we have lost our IW Co-ordinator for VK1, as he has moved into VK2. I won't make any comment as to whether that was a good move or a bad move! Grahame VK1GP, has been with us quite a while, and will be hard to replace. Thanks, Grahame, for your assistance with the IW in the VK1 area.

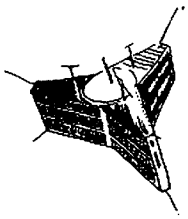
Good news from ZL1BAD, is that he has had a reply to his letter to the "Office des Postes et Telecommunications, Polynesie Francaise". Bob wrote to them, after having amassed quite a deal of information through the Intruder Watch, on carrier and telephone activity spilling over onto the lower end of the 40 metre band. These transmissions have been heard daily for months, and the French Polynesian Office in Papeete has written to say that they have moved frequency from 6.999 MHz, and, hopefully, they will no longer interfere with this section of the band, which had been successfully wiping out from about 7.0 MHz to about 7.006 MHz. Many thanks to those observers who took the time to report this particular intruder.

In an interview in CO Magazine, July 1984, Dr Robert S Powers, Jr, Chief Scientist of the Office of Science and Technology, FCC, was asked by the magazine to comment on some aspects of the 'Woodpecker'. As early as 1976, the USA Administration sent telegraphic messages to the USSR re the Woodpecker, and received no reply. (*Sound familiar?*). They then went to the IFRB, who also complained in writing; the USSR replied that "*the operations involved were experimental-; that they would cause interference of short duration-; and that action was being taken to decrease the incidence of interference.*" *(Hl)* . . . The important thing that comes to our attention as a result of this interview, is that Dr Powers has said that the Department is maintaining a file of complaints which can be drawn upon for negotiating purposes when the appropriate occasion arises. This means to me that we should continue to report intrusions into the amateur bands by the Woodpecker, for the information of the USA Administration.

So let's hear from you on all intruders, and keep the reports on the Woodpecker coming.

See you next month.

AR



AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.680 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
Control: W6CG
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

The only contribution this month is from Bob VK3ZBB, to whom I am greatly indebted for his monthly Ups and Downs listing.

OSCAR 10 APOGEES

A careful survey of the Oscar 10 Apogees listed this month highlights the significance of things to come, a look at both orbits of the day. Refer to Sydney and Perth Apogees around the 12th, 13th and 14th February. At this time the prospect is insignificant, time-wise, however as the apogee drifts slowly southwards total hours of operation through Oscar-10 will be extended over those currently enjoyed.

OSCAR-10 APOGEES — FEBRUARY 1985

				SATELLITE		BEAM HEADINGS					
			APOGEE	CO-ORDINATES		SYDNEY		ADELAIDE		PERTH	
DATE	DAY #	ORBIT #	UTC HHMM:SS	LAT DEG	LONG DEG	AZ DEG	EL DEG	AZ DEG	EL DEG	AZ DEG	EL DEG
Feb 1	32	1232	0603:00	7	261	299	18	310	27	335	42
2	33	1234	0522:05	7	251	307	25	320	33	349	45
3	34	1236	0441:10	6	242	316	31	331	37	3	45
4	35	1238	0400:15	6	233	326	37	343	41	18	44
5	36	1240	0319:20	6	223	338	41	357	43	31	40
6	37	1242	0238:25	6	214	352	43	11	42	43	35
7	38	1244	0157:30	6	205	7	44	25	39	52	29
8	39	1246	0116:35	6	195	21	42	37	35	60	22
9	40	1248	0035:40	6	186	33	38	47	30	67	14
9	40	1250	2354:45	6	176	44	33	56	23	73	7
10	41	1252	2313:50	6	167	53	26	63	17	78	-1
11	42	1254	2232:55	5	158	61	20	70	9		
12	43	1256	2152:00	5	148	68	12	76	2		
13	44	1257	0931:33	5	324					280	-5
13	44	1258	2111:05	5	139	74	5				
14	45	1259	0850:37	5	314					285	-3
14	45	1260	2030:10	5	130	80	-5				
15	46	1261	0609:42	5	305					291	13
16	47	1263	0728:47	5	296			283	1	297	21
17	48	1265	0647:52	5	286	281	-1	289	9	305	28
18	49	1267	0606:57	5	277	287	7	295	16	314	35
19	50	1269	0526:02	5	268	293	14	303	23	324	41
20	51	1271	0445:07	4	258	299	22	311	30	337	45
21	52	1273	0404:12	4	249	307	29	321	36	352	47
22	53	1275	0323:17	4	239	317	35	333	41	8	48
23	54	1277	0242:22	4	230	328	40	346	44	23	45
24	55	1279	0201:27	4	221	341	44	1	45	36	41
25	56	1281	0120:32	4	211	356	46	16	44	47	35
26	57	1283	0039:37	4	202	11	46	29	41	56	29
26	57	1285	2358:42	4	193	25	43	41	36	64	21
27	58	1287	2317:47	4	183	38	39	51	30	70	14
28	59	1289	2236:52	3	174	48	33	59	23	76	6
Mar 1	60	1291	2155:57	3	165	57	26	67	16	82	-2
2	61	1293	2115:02	3	155	65	19	73	9		
3	62	1295	2034:07	3	146	71	12	79	1		
4	63	1296	0613:39	3	321					280	1
4	63	1297	1953:12	3	137	77	4				
5	64	1298	0732:44	3	312					285	8
6	65	1300	0651:49	3	302					291	16
7	66	1302	0610:54	3	293			283	5	297	24
8	67	1304	0529:59	3	284	281	2	289	12	305	32
9	68	1306	0449:04	2	274	286	10	295	20	314	38
10	69	1308	0408:09	2	265	292	18	303	27	326	44
11	70	1310	0327:14	2	256	299	25	312	34	340	48
12	71	1312	0246:19	2	246	308	32	322	40	356	50
13	72	1314	0205:24	2	237	318	39	335	44	13	50
14	73	1316	0124:29	2	228	330	44	350	47	28	47

SATELLITE ACTIVITY FOR PERIOD 22 SEPTEMBER TO 31 OCTOBER 1984

1 Launches

NUMBER	NAME	NATION	DATE OF LAUNCH	INITIAL DATA			INCLN DEG	REMARKS
				PERIOD MINS	APOGEE KM	PERIGEE KM		
1984-102A	COSMOS 1599	USSR	25th Sep	88.7	275	179	67.2	SI TM
1984-103A	COSMOS 1600	USSR	27th Sep	90.4	404	215	70	SI TM
1984-104A	COSMOS 1601	USSR	27th Sep	94.5	521	477	65.8	SI TM
1964-105A	COSMOS 1602	USSR	28th Sep	97.8	680	648	82.5	SI TM
1984-106A	COSMOS 1603	USSR	28th Sep	102.2	877	852	71.2	SI TM
1984-107A	COSMOS 1604	USSR	4th Oct	709	39342	613	62.8	SI TM
1984-108A	STS 41G	USA	5th Oct	88.9	229	216	57.0	Manned flight*
1984-108B	ERBS	USA	5th Oct	92.9	421	408	57.0	From STS 41G
1984-109A	COSMOS 1605	USSR	11th Oct	104.9	1031	969	82.9	SI TM
1964-110A	NOVA III	USA	12th Oct	98.1	541.5	180	90	Navigation
1964-111A	COSMOS 1606	USSR	18th Oct	97.7	678	649	82.5	SI TM
1984-112A	COSMOS 1607	USSR	31st Oct	89.6	280	256	65	SI TM

SI TM Scientific Instruments & Telemetry.
** Carrying Astronauts R Crippen, J McBride, S Ride, K Sullivan, D Leestma, P Scully-Power, and M Garneau.*

2 RETURNS

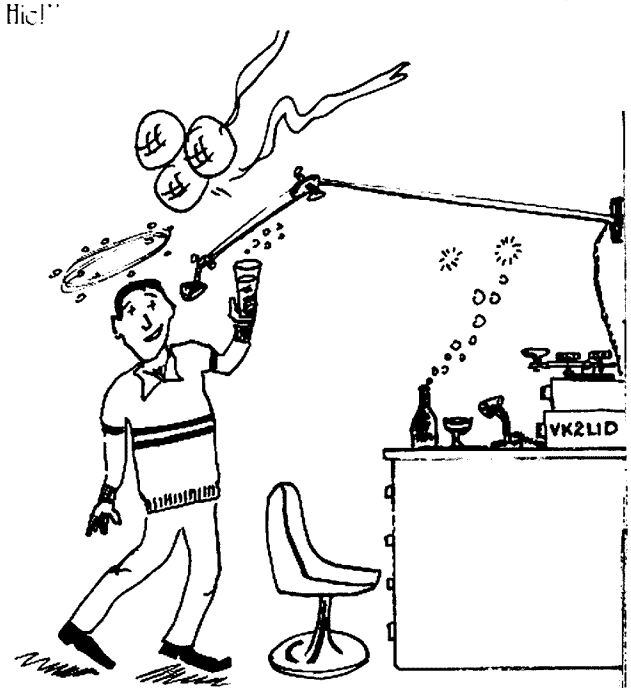
The following satellites returned or decayed during the period:

1984-032A	SOYUZ T-11	2 Oct
1984-065A	USA-2	18 Oct
1984-103A	COSMOS 1600	11 Oct
1984-108A	STS 41G	13 Oct

Together with thirty-two other objects.

de Colin VK5HI

"Yes OM . . . I am well known for my home-brewing . . . Hic!"



— VK2COP

HELP

A WAYWARD TROPHY FIND ITS WAY HOME

The VK Novice Trophy has slipped away whilst no one was looking and has now got itself lost. The where-abouts of this trophy were last known in 1982. Anyone who may be able to assist please contact the Federal Office on telephone (03) 528 5962 or write to the Federal Secretary at PO Box 300, Caulfield South, Vic., 3162.

AWARDS

VICTORIAN NATIONAL PARK ACTIVITY WEEKEND — 9-11 MARCH 1985

A former Victorian Division President, Keith Roget, originally suggested an award to encourage amateur radio activity from Victoria's National Parks. In the early 1970s a number of radio amateurs activated Victoria's National Parks and the award was popular.

Following the untimely death of Keith Roget, the WIA Victorian Division Council was given permission by his widow to re-name the award in his memory. In 1984 the award was revised to reflect the increase in National Parks and the first and only recipient of this award in 1984 was Ralph VK3BRF.

As a special event to help celebrate Victoria's 150 years anniversary, the Victorian Division is asking Clubs and individual radio amateurs to support a National Park Activity weekend. This will be held over Victoria's Labour Day holiday long weekend, the 9th-11th March 1985. The purpose is to promote activity from Victoria's 31 National Parks and to promote the Keith Roget Memorial National Park Award. Clubs and individual radio amateurs are asked to operate from Victoria's National Parks to help shortwave listeners and fellow radio amateurs to make contact to and/or from a specified number of National Parks for the Award. For those living in VK3 call area this is 16 Parks. Award claimants in Papua New Guinea, New Zealand and VK call areas other than VK3 require 5 National Parks, while overseas (other than P29 and ZL) need only 2 parks.

A brief outline of the 31 National Parks in Victoria follows:

East Gippsland
Alfred — On Princes Highway between Cann River and Genoa.
Croajingolong — South of Princes Highway between Cann River and Genoa.
Glenaladale — 30 km north of Princes Highway from Fernbank.
The Lakes — East of Loch Sport.
Lind — Off Princes Highway between Orbost and Cann River.
Snowy River — South of Mackillop Bridge.
Tingaringy — North of Mackillop Bridge on the Buchan-Delegate Road.

West Gippsland
Baw Baw — Approach via Yarra Junction or Moe or Erica.
Bulga — Eastern end of Grand Ridge Road, near Balook.
Morwell — 16 km south of Morwell. Approach via Jeeralong Junction and Junction Road.
Tarra Valley — On Tarra Valley Road, 30 km from Yarram.
Wilsons Promontory — Approach on South Gippsland Highway via Meeniyan or Foster.
Wonnangatta-Moroka — Via Licola or Mansfield.

North East Victoria
Bogong — Via Ovens Valley Highway to Harrietville or Myrtleford, or via Omeo on Alpine Tourist Road.
Burrowa-Pine Mountain — North West of Corryong. Approach from Cudgewa or Walwa.
Fraser — On the western shores of Lake Eildon 17 km from Alexandra.
Mt Buffalo — 30 km from Porepunkah.

North West Victoria
Grampians — Via Stawell, or Horsham, or Hamilton.
Hattah-Kulkyne — 36 km north of Hattah township.
Little Desert — South of Western Highway between Dimboola and Nhill.
Wyperfeld — 50 km north of Rainbow.

South West Victoria
Lower Glenelg — North of Portland-Nelson Road, along the Glenelg River.
Mt Eccles — 9 km west of Macarthur which is 33 km south of Hamilton.
Mt Richmond — 32 km west of Portland.
Otway — Via Great Ocean Road, or Princes Highway to Apollo Bay.
Port Campbell — South of Great Ocean Road between Princetown and Port Campbell.

Metropolitan
Brisbane Ranges — Off Anakie-Ballan or Anakie-Marsh Roads.
Churchill — Rowville, off Stud Road near Wellington Road north of Dandenong.
Fern Tree Gully — Just north of Upper Fern Tree Gully.
Kinglake — West of Kinglake township. Approach from Whittlesea or Yarra Glen.
Organ Pipes — Off Calder Highway, 8 km past Keilor.

Many of these parks are within easy range of 2 metre repeaters, and with plenty of trees and natural supports for field day type antennas, HF operation can be very rewarding. The Mildura Radio and Electronic Club members will be operating from the Hattah-Kulkyne National Park and you are asked to join them from any National Park and make this long weekend not only an enjoyable break in pleasant surroundings, but a rewarding one with plenty of National Park contacts for everyone.

Contributed by Peter Barclay VK3FR
National Parks Award Manager, WIA Vic. Division.

AR

Radio Amateur Old Timers Club

Each year, two QSO parties are held for members of RAOTC Australia, and Old Timers' Club New Zealand.

Members are requested to cut out this notification and keep it before them as the days, times, and bands will remain fixed.

RULES

ELIGIBILITY — The parties/contests are open to members of RAOTC (Australia) and OTC (New Zealand).

Note — There are members of the Australian Club in overseas countries who could possibly participate at the times laid down.

CONTEST EXCHANGE — Members will exchange:

1 Their Club membership number. VKs prefixed by "A", ZLs prefixed by "Z".
2 Year of first licence.
3 Name.
4 Age.

Eg Number A256 1951 Bill 49
Number Z128 1923 Harry 78

SCORING — One completed contact with a member on CW or SSB but not both, will score 5 points.

MULTIPLIER — the total of VK, ZL and Overseas call areas contacted.

FINAL SCORE — Contact points times multiplier.

DATES, TIMES, AND BANDS

No 1 — Second Monday in March — 20 metres 0200 to 0500 UTC.

Please spread out around centre frequencies CW 14.050 and SSB 14.150 MHz.

No 2 — Second Monday in August — 40 metres 0800 to 1100 UTC. Centre frequencies CW 7.035, SSB 7.100 MHz.

ENTRIES — Claimed scores showing mode (CW, SSB or CW/SSB), number of QSOs and multiplier should be forwarded to John Tutton VK3ZC, 11 Cooloongatta Road, Camberwell, Vic. 3124.

All amateurs who have been licensed for a period of 25 years or more are eligible to join the Radio Amateur Old Timers' Club. A self-addressed envelope (9 x 4) to the Secretary, Harry Cliff VK3HC, PO Box 50, Point Lonsdale, Vic 3225 will bring you a membership application form.

1985 Contests — 11th March and 12th August.

AR

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

FEBRUARY

9-10 QCWA CW QSO Party
9-10 YL — OM Phone Contest
16-17 ARRL DX CW Contest
23 RTTY World Championship Contest (Rules AR Jan 85)
22-24 CQ WW DX 160 metre SSB Contest (Rules AR DEC 84)
23-24 John Moyle Memorial National Field Day Contest (Rules this issue)

MARCH

9-10 Commonwealth Contest 1985 (Rules this issue)
10 WIA 75th Anniversary CW Contest (Rules this issue)
23-25 BARTG Spring RTTY Contest 1985 (Rules to appear March issue due to large volume of contest material for this issue)
30-31 CO WW WPX SSB Contest

In this issue are provided the rules for the John Moyle Memorial National Field Day Contest. It might be suggested that you read these rules very carefully as they differ in many ways from previous rules laid down for the annual field day contest. Such changes as are embodied in the rules for this year are not necessarily radical and indeed merely reflect the implementation of some of the items which have been Federal policy of the WIA for quite some time. *Please look most carefully at the rules concerning QSO Points, Multipliers, Bonus Points and Repeat Contacts.*

You will note that there is now another category for home stations using emergency power. This means that such stations must be operated independently of power mains and serves to further the aims of the WIA to prepare operators for emergency situations.

I have also attempted to make things more interesting for VHF/UHF operators by introducing the multiplier system for varying distance contacts. I have also deliberately tried to deter stations from operating along the lines of working strings of overseas home stations, an approach which seems to be somewhat against the overall aims of the Field Day contest.

I have only recently received the rules for the British Amateur Radio Teleprinter Group (BARTG) Spring RTTY Contest, 1985. Just a little advance information so that you can make arrangements to have the necessary time made available for this contest. This contest will be held from 0200 UTC Saturday 23rd March until 0200 UTC Monday 25th March 1985. The total contest period is 48 hours but not more than 30 hours of operation is permitted. Time spent as listening periods counts as operating time. The 18 hours of non-operating time can be taken at any time during the contest period, but off periods may not be less than 3 hours at a time.

CERTIFICATES

I am still having quite some difficulty in catching up with the backlog of certificates to be issued for past contests. Final sorting out of the problems associated with certificates for the 1983 Remembrance Day Contest has yet to be reached. I sent out all the certificates for the 1983 VK Novice Contest only to find that none had been sent out for the 1982 VK Novice Contest. I also discover that no certificates were sent out for the 1984 Field Day Contest. If you are amongst those who have not yet received a certificate which you were entitled to please do not give up hope. Be patient.

Just a final word regarding the Field Day event this month. Might I modestly suggest that you review my comments regarding Field Day operations which appeared in this column in the November issue of Amateur Radio. I will look forward to working you in this contest and hope that there will be plenty of activity.

1983 VK NOVICE CONTEST

Photograph by Ken McLachlan VK3AH

Pictured is David McAulay, VK3EW, (now updated from VK3KHI), receiving his Certificate for this event from Jim Linton, VK3PC, the Victorian Division President.

David should have also held for 12 months the Novice Trophy, as he scored 1652 points thereby being the overall winner, but unfortunately, as readers are aware, we are currently having difficulties locating this trophy.

JOHN MOYLE MEMORIAL NATIONAL FIELD DAY CONTEST 1985

Contest Period: From 0100 UTC 23rd February 85 to 0700 UTC 24th February 85.

Object: To encourage portable operation on the amateur bands by Australian operators. This form of activity is intended to help operators become familiar with portable operation and thus assist in training them for preparedness in emergency situations.

Call Area Definition: (a) Within one's own call area. VK1 to VK1 etc. (b) Outside one's call area VK1 to VK2. VK1 to ZL etc.

RULES:

1 Divisions: There will be TWO divisions. (a) 24 Hour. (b) 6 Hour. In each division the operating period must be continuous within the time period allocated for the contest.

2 Sections: In each division there will be separate sections as follows:

(a) Portable field station, transmitting phone, single operator.
(b) Portable field station, transmitting CW, single operator.
(c) Portable field station, transmitting open, single operator.
(d) Portable field station, transmitting phone, multi-operator.
(e) Portable field station, transmitting CW, multi-operator.
(f) Portable field station, transmitting open, multi-operator.
(g) Home transmitting stations, emergency powered.
(h) Home transmitting stations, mains powered.
(i) Receiving stations.

3 Station Definition: A portable field station is one which operates from a power supply which is independent of any permanent installation. The power source must be fully portable, ie batteries, solar panels, wind or motor generators etc. A station located in an automobile and completely self contained, apart from antennas, is classed as being portable whether in motion or not.

4 Installation: No radio apparatus, including masts, antennas, feeder cables etc, may be erected on the site more than 24 hours before the contestant(s) begins operating.

5 Bands: All amateur bands may be used WITH THE EXCEPTION of the 10, 18 and 24 MHz HF bands.

6 Contacts: Cross band contacts are not permitted. Cross mode contacts are permissible, however they will count only as phone contacts for scoring purposes.

7 The size of any portable field station shall be restricted to approximately that of an 800 metrre diameter circle.

8 Multi-operator Stations: Such stations will provide a separate log for each band. Only one transmitter may be used on a given band at any one time, be it operating in a phone or CW mode. Only ONE callsign may be used from a multi-operator station.

9 Number Exchange: The exchange between stations will consist of a number/letter combination comprising the RS or RST report as applicable, followed by a serial number commencing with 001 and increasing by one for every contact. Should the number 999 be reached the series must then be re-commenced at 001. Following the serial number a letter must be added indicating the Section (a) through (h) in which the station is competing. eg Number sent by multi-operator station transmitting phone for the first contact would be 59001D.

10 Scoring

For Portable Field Stations. Contacts within Australia.

(a) Portable/Mobile outside entrants call area — 20 points.
(b) Portable/Mobile within entrants call area — 15 points.
(c) Home Stations/Section G outside entrants call area — 10 points.
(d) Home Stations/Section G within entrants call area — 5 points.
(e) Home Stations/Section H outside entrants call area — 2 points.
(f) Home Stations/Section H within entrants call area — 1 point.

Contacts outside Australia.

(g) Contacts with overseas stations, ie other than VK — 2 points.

For Home Stations/Emergency Powered. Contacts within Australia.

(a) Portable/Mobile outside entrants call area — 15 points.
(b) Portable/Mobile within entrants call area — 10 points.
(c) Home Stations/Section G irrespective of call area — 5 points.
(d) Home Stations/Section H irrespective of call area — 1 point.

For Home Stations/Mains Powered. Contacts within Australia.

(a) Portable/Mobile outside entrants call area — 10 points.
(b) Portable/Mobile within entrants call area — 5 points.
(c) Home Stations/Section G irrespective of call area — 1 point.

11 VHF/UHF Multipliers

For contacts made on frequencies from the 50 MHz band and upwards the QSO points score for each contact is multiplied as per the following table:

[illegible]	[illegible]
Under 50 kilometres	2
50 to 150 kilometres	5
150 to 300 kilometres	10
over 300 kilometres	20

12 Bonus Points

For any contact made using a 'Natural' Power Source a bonus score of 10 points may be added to the QSO points score. added A 'Natural' Power Source is regarded as one where power is derived from such as solar cells, wind, methane gas etc, as well as from batteries completely charged by 'natural' means. All power produced under this category must have been derived independently of

commercial mains or the use of petroleum derivatives.

13 CW Contacts CW to CW contacts earn double points. These points must be shown as claimed on the log sheet prior to the application of any multiplier or bonus points.

14 Repeat Contacts Portable Field Stations and Home Stations under Section G may contact other stations within these categories (Sections A to G) for repeat contacts provided that a period of at least 3 HOURS has elapsed since the last contact with the station concerned. Home stations operating under Section H may be contacted on a repeat basis provided that a period of at least 6 hours has elapsed. This applies for each band and mode.

15 Receiving Stations Stations in this section must record the serial number being sent by any of the stations operating in the contest within Sections (a) to (g) inclusive. QSO Points Scoring will be on the same basis as for Home Stations/ Section H as per Rule 10 above. VHF/UHF Multipliers and Bonus Points as indicated under rules 11 and 12 also apply.

16 Repeaters Operation through any active earth repeaters is not allowed for contest contact purposes, however, the use of such is allowable for the purposes of making contact arrangements. Contacts made using orbiting satellites or EME as a medium are acceptable.

17 Modes of Operation AM, FM and SSB all count as PHONE operation. RTTY and CW are regarded as being CW. It would not be expected that more exotic modes such as SSTV or Fast Scan TV would be used in this contest.

18 Log Format All logs shall be set out under the following headings and in the order shown. *Data, Time UTC, Callsign, Band, Mode, RST No Sent, RST No Received, QSO Points, Multiplier, Bonus Points, Total Points Claimed.* NB: The last three columns need only be shown where applicable. Contacts must be listed in order of time and serial number. Each log page must also carry a progressive Total Points Score Claimed at the bottom of each sheet.

19 Summary Sheet A summary sheet must be included which indicates the following details: *For each contact to which a multiplier is applicable the serial number of the contact and also details of the respective station locations which apply to the contact. Such details must include either latitude/ longitude references for each station or some satisfactory proof, by such as map reference or distance calculation, as to the distance over which the QSO was conducted. For bonus points to be claimed suitable evidence must be provided as to the method of natural power generation employed. Such evidence could take the form of a photograph of the generating equipment used or a signed statement by another amateur showing his callsign declaring that he has inspected the generating equipment referred to.*

20 Front Sheet Each log must be accompanied by a FRONT COVER SHEET which provides the following information: *Name, Address, Callsign, Division, Section, Number of Contacts, Claimed Score.* This sheet must also indicate station location, equipment used, power generating system employed and in the case of MULTI-OPERATOR stations a list of operators names and callsigns together with their signatures. This front sheet must also carry a declaration signed by a licensed operator as follows: *DECLARATION: I hereby certify that this station was operated in accordance with the rules and spirit of the contest. Signed* .....
Date .....

21 Multiple Station Operation In the case of operators who have entered the contest in the *6 Hour Single Operator Section* it is allowable for them, upon their return to their home station, to make contacts with portable field stations. For this purpose they must submit a separate log which will be regarded as a Check Log only. ie they cannot enter into more than one section of the contest for competitive purposes. Operators who are interested in providing more field day activity are however encouraged to adopt this practice where possible.

22 Certificates Certificates will be awarded to the winner of each section in both the 6 and 24 hour divisions of the contest. The 6 hour certificates cannot be won by the 24 hour entrants. The Contest Manager also reserves the right to award other certificates where the effort made by a particular station is of special worthiness in his opinion.

23 Disqualification The general 'Contest Disqualification Criteria' as published on page 44 of the Amateur Radio for August 1984 apply to this contest. It is again pointed out that you should read the above rules properly so as to understand them and ensure that your log does comply with the contest rules laid down. See particularly rule numbers 18, 19 and 20.

24 Log Submission Logs should be forwarded to the Federal Contest Manager, Box 1234, GPO Adelaide, SA 5001. The front of the envelope containing the log should be marked 'John Moyle Memorial Field Day Contest'. Closing date for entries is 5th April 1985.

REMEMBRANCE DAY CONTEST 1984

CONGRATULATIONS TO VK2 DIVISION — WINNERS FOR 1984

The 1984 Remembrance Day Contest was won by the VK2 Division. Listed as part of the results below are various statistics for your interest together with totals of Divisional scores and a complete listing of individual scores by call area. The statistics will allow a comparison of operations in the contest for 1984 compared with the entries in the previous year, 1983. You may be able to draw some conclusions from such figures, however, I personally shudder at the thought of anybody suggesting any other schemes to make the contest more equitable. A great deal of work in the past has gone into solving this problem and those who have attempted such are very much to be admired. Nevertheless, should you have any useful comment to make I would be pleased to hear from you.

It will be noted that the number of logs submitted as against last year is down (by 60) making a percentage participation drop overall from 4.56 percent down to 3.9 percent. This to my mind seems to indicate that even though the Remembrance Day Contest is our main national contest each year it really does not receive the amount of support it deserves. You might also like to ponder this fact whilst looking at the state by state figures. One of the tables of interest is the number of logs per mode, Phone, CW or Open. This indicates very clearly that phone is the mode most favoured. It is interesting to note that whilst the number of operators using CW exclusively decreased significantly the number operating in the Open section, and thus employing both modes, did increase. One wonders whether or not this backs the argument for double points for CW. Personally I do not accept that this is so as the CW operators in each contest are only competing one against the other, however, for the time being I will hold any further opinion on this and ask rather that you let me know what you think. Maybe some of the operators in the Open section could throw some light on this aspect.

Many complaints were received about the mistakes in the rules. Apologies are proffered in this regard and I would again point out that I did my best to correct same. I would hope that this situation will not exist in the future. Very few stations submitted 'dupe' sheets as called for, however I have not penalised anyone for this. I believe that such are not necessary except perhaps for stations which submit larger logs. In general stations submitting larger logs seem to do their best to provide a log of better than average quality thus showing some pride in their entry. There are always some exceptions and several logs have been disqualified. *Many* entrants did not seem to understand that Section (d) All modes, as shown in the rules, was in fact the Open Section in which one operates using a mixture of Phone and CW and that this section did not apply to an operator who simply used a transceiver which was capable of 'multimode' transmissions. This rule will thus be made much clearer for the next contest. With regard to disqualified logs I would like to make it clear that such were only disqualified after consideration by a panel deliberating on an independent basis and that in almost all cases the decision was unanimous. It may seem significant that no logs from VK5 were in this category. I hasten to assure you that the VK5 logs received extra attention on this score.

I would hope that provided I can convince the Federal Authorities of the need to make a standard log sheet available for contest purposes the use of same together with a properly printed Summary and Front sheet will go a long way to solving many of the problems encountered with logs. Harking back to the 'dupe' sheet issue, it may even be possible to have suitable sheets for this purpose printed up although I would believe that you should be expected to do something for yourselves and the sheets as described in the December issue of this contest column are really not too difficult for you to produce.

As intimated in last issues column I have already learned a great deal about handling quantities of logs from my experience of this Remembrance Day Contest and have been able to realise some of the mistakes I have made this time. As a result I would hope in future to be able to present results somewhat sooner than on this occasion. Due to the fact that the Novice Contest follows right on the heels of the Remembrance Day contest the checking of logs and production of results have been held up too. I should have those results ready in time for the March issue of the magazine. I would also hope that in the not too distant future the dates for our Australian contests will be on a much more rational basis and that will also help to solve many of the problems encountered time wise.

For your interest here are some extracts from letters received with log entries.

'I have never entered any contest before . . . I'll do better next time.' 3DVW

'I would suggest that all concerned have an early consultation and make sure the rules are cleaned up well before next year.' 2RP

'Many stations did not observe 15 minutes silence at the beginning of the contest.' 1RM

'I almost did not enter this year as a protest over the way the RD has been messed about over the last few years . . . I may sound pedantic but I refuse to use the term "full call" anybody can be that if they have enough 807s under the belt. HI.' 3WW

'I enjoyed the contest thoroughly as it is the only contest I enter because my mum's husband was killed in action in WWII . . . My husband Adrian is VK2DZF as he deserves a special thanks for taking care of our kids, from 5-14 years, getting the meals etc, so I cud enter the contest hi!' 2ELF (2DZF is obviously a real gentleman — FCM)

'Because of declining activity . . . bonus points for operation on say 21 to 30 MHz could be considered.' 2RJ

'Many thanks for a beaut contest.' 2BO

'You will note that there is no column provided to show the frequency band used . . . Several operators new to RD were confused about this point but I put them right.' 2AGF re sample log.

'Not to have to log RST as well as a number was also appreciated.' 5KEN

'I was most impressed with the good natured spirit of the contest.' 5ATN

'Enjoyed contest as always but condx on 15 m poor . . . 10 m hopeless as anticipated.' 4LT

'Things started OK, then at contact 018 the computer had a hardware failure (terminal), next the HF transceiver would not receive, finally traced to faulty relay. But luck was with me . . .' 3VT. (He had a spare relay and backup dupe sheets —FCM)

'I hope the sample logs dupe sheet material is not repeated again next year.' 3FR

'We noted that activity was considerably down on last years . . . had a fine time just the same.' Wickham Amateur Radio Club. VK6

Now to list some of the many comments regarding the six hour rule. These are in proportion as received in favour and against.

'I own only VHF gear and in previous years have found the RD to be a hard but very satisfying contest. This year . . . found the contest still hard work but very satisfying, hence would like to see the one hour rule re-instated.' 3BMV

'. . . For these reasons we ask you to either return to one hour between contacts or reduce the time from 6 to 2 hours.' 3CNE North Eastern Radio Group.

'I didn't think I would enjoy the contest as a Z call with the new 6 hour rule and nearly didn't enter. I did however and enjoyed what there was of it but the interest and challenge is gone. The only reason I heard for the 6 hour rule was that the city operator had an unfair advantage. As it's a state (Division) contest I don't see the logic in this as all states have cities. I wonder how many Z calls enter the contest and reside in the bush?' 1ZAR

'I wish to protest in the strongest possible way to the restriction of VHF calls to 6 hourly . . . I reside 180 miles from Sydney. The new rule has reduced my score — and involvement — to insignificant proportions. If you wish to deter VHF operators just leave the rules the way they are.' 2ZZX

'If this method is continued I feel it will make the Remembrance Day contest a non event.' 5ZBC

'Given that it needs to be more than one hour, possibly even more than two hours but surely not as much as six hours.' 3YRP

'. . . predominantly a VHF station, the new rule virtually eliminated any prospects for anything other than a fairly boring contest.' 3CGH

'I could not help feeling during the weekend that the people we remembered on this day would have been totally opposed to any rule restricting the activities of some of our amateur friends who were unable to operate on DX bands. As a result many 'Z' calls were very conspicuous by their absence on the VHF bands . . . so next year could we have a less restrictive rule . . . even at one hour restriction I'm sure none of the VHF contestants gave any of the section winners any kind of fright.' 4BNL

'Limited Licencees and to only a slightly lesser extent full calls were vocal in their criticism of the "6 hour limit" for local VHF.' 5EA

The final word is given by Harry VK6WZ who indicates that he is a little bashful about my quoting from his letters, however I believe it is worth it.

'I missed out for 20 years 1958-1978 because of family and business commitments when I gave everything to do with amateur radio away, except the callsign and licence, but I'm "back in business" now and retired (contradiction?) and mean to go on supporting this great once-a-year event till my key becomes officially and permanently silent.'

COMPETITION RESULTS

The formula for the determination of results for each Division is:—

Total Points/Total Divisional Licences multiplied by weighting factor.

VK1	5456/ 315	x	1.48	25.63
VK2	14959/4652	x	11.91	38.29
VK3	15207/4431	x	8.21	28.18
VK4	9578/2439	x	7.55	29.65
VK5	24380/1709)	x	1.72	24.54
VK8	448/ 160)			
VK6	13608/1324	x	1.54	16.06
VK7	4641/ 160	x	1.43	12.70

Note: VK8 points and licence totals added to VK5.

Statistical Data Comparison 1984 to 1983

1984	No of Logs	Total Score	Avg Score	Licences	% Entry
VK1	34	5456	160	315	10.79
VK2	87	14959	172	4652	1.87
VK3	127	15207	120	4431	2.87
VK4	65	9578	147	2439	2.67
VK5	160	24380	152	1709	9.36
VK6	96	13808	144	1324	7.25
VK7	37	4841	131	545	6.79
VK8	6	448	75	160	3.75
Totals	*612*	*24828*	*41*	*15575*	*3.9*
1983					
VK1	30	6518	217	324	9.26
VK2	92	12239	133	4478	2.05
VK3	85	17497	206	4138	2.05
VK4	77	10013	130	2303	3.34
VK5	193	36320	188	1622	11.90
VK6	141	21451	152	1226	11.50
VK7	44	7410	168	478	9.20
VK8	10	1909	191	167	5.99
Totals	*672*	*113357*	*169*	*14736*	*4.56*

Distribution of Logs per Mode Comparison 1984 to 1983

	1984				1983		
	Phone	CW	Open		Phone	CW	Open
VK1	28	1	5		24	3	3
VK2	56	15	16		61	14	17
VK3	100	11	16		64	12	9
VK4	49	6	10		59	8	10
VK5	123	9	28		160	15	18
VK6	66	9	21		117	14	10
VK7	28	5	4		34	4	6
VK8	4	1	1		7	1	2
Totals	*454*	*57*	*101*		*426*	*71*	*75*

Logs listed below were not accepted for the 1984 Remembrance Day Contest for two or more of the following reasons:—

No Front Summary Sheet, No Declaration, No total Claimed Score Shown, Untidy or Illegible, Incorrectly Claimed Score.

None of these logs incur any other penalty prescribed under the general 'Contest Disqualification Criteria'.

VK1BM, VK2ZL, VK2BQO, VK2AXT, VK3BIT, VK3YNB, VK4ACC, VK4NUP, VK6YG, VK6WU, VK6IM, VK7RX, VK7WZ, VK7WZ.

A total of at least 24 logs were closely scrutinised for possible disqualification, quite a number of them being logs submitted by radio clubs. I can only indicate this as a warning chaps that you must improve greatly on the quality of the logs and other necessary data required by the rules of the various contests as in future a much stricter approach will be adopted by the Contest Manager.

DIVISIONAL SCORES

VK1	
A Phone	3486
B CW	322
C SWL	263
D Open	1385
TOTAL	**5456**
VK2	
A Phone	8432
B CW	2515
D Open	4012
TOTAL	**14959**
VK3	
A Phone	10144
B CW	1530
C SWL	364
D Open	3169
TOTAL	**15207**
VK4	
A Phone	5361
B CW	838
D Open	3379
TOTAL	**9578**
VK5	
A Phone	16516
B CW	1230
C SWL	857
D Open	5777
TOTAL	**24380**
VK6	
A Phone	7355
B CW	1374
C SWL	1767
D Open	3312
TOTAL	**13808**
VK7	
A Phone	3604
B CW	672
D Open	565
TOTAL	**4841**
VK8	
A Phone	212
B CW	200
D Open	36
TOTAL	**448**

Licences per Division as provided September 1984 VK1 — 315, VK2 — 4652, VK3 — 4431, VK4 — 2439, VK5 — 1709, VK6 — 1324, VK7 — 545, VK8 — 160.

INDIVIDUAL SCORES

Callsign	*Score*
VK1 Section A (Phone)	
MX	312
ZL	303
PMN	276
PP	271
BG	242
GB	195
BAT	168
LF	138
SR	130
KV	123
ZAR	122
KRS	115
OK	112
HF	85
VK1 Section B (CW)	
XX	322
VK1 Section D (Open, Phone & CW)	
RM	533
GP	458
KAL	211
VK2 Section A (Phone)	
DCL	667
BFR	657
DVJ	559
DM	537
DQR	495
BAM	360
BTZ	360
HT	280
AGF	276
PD	261
SAR	247
PMX	246
AOA	228
WI	219
NW	208
BDN	181
DHU	166
PFQ	142
BID	133
APP	130
BDT	126
UC	116
AMV	113
AIC	112
PN	112
KHZ	85
KAA	83
NCB	77
RH	76
KEN	75
ZQR	73
CAY	68
RJ	63
RG	60
NM	50
ST	35
KAP	33
FM	21
WW	15
VK1 Section C (Receiving)	
L10071	263
OH	132
CZ	51
DUA	106
EJW	100
ELB	97
RP	90
KGX	85
BMX	82
BUT	78
RX	60
WT	52
CF	50
PY	50
DUS	49
NV	44
KCV	42
BGS	42
FJ	40
DXG	40
RE	34
XT	33
PS	32
AXJ	30
ERS	30
VYP	30
IV	30

Callsign	*Score*
CDG	30
EIA	30
AGB	29
BVU	23
VK2 Section B (CW)	
ELF	338
AQF	312
KM	294
EL	274
II	232
TR	206
SU	193
DID	172
VK2 Section D (Open, Phone & CW)	
BO	579
ANO	475
CGL	437
DXS	419
DVU	344
DQP	296
DOQ	266
EBM	240
VK3 Section A (Phone)	
ADW	596
PUB	483
DSI	476
CNE	429
DMZ	310
AKK	294
DMW	249
BJN	244
BRZ	241
DAK	240
NLS	212
AMM	207
FR	203
DKS	200
UV	200
XO	178
KJI	178
BGS	174
SZ	162
DWG	160
CRA	159
YRP	148
DBQ	142
KJH	142
DNM	135
DHF	134
BMV	132
BME	131
PW	131
ZI	127
PBD	124
AYF	124
ZJ	119
AMW	111
QZ	109
ABP	105
AOJ	105
KCT	103
ANP	100
C1F	94
DVT	86
GA	81
WU	81
BYA	80
YKT	76
KEJ	76
ZNE	76
DSW	70
XDJ	70
BFN	63
VK3 Section B (CW)	
KF	250
BDH	200
ANJ	174
DG	148
PL	146
FC	140
VK3 Section D (Open, Phone & CW)	
BUR	545
VT	538
BOD	395
XB	320
DNC	278
KS	233
XF	177
AMD	150
VK3 Section C (Receiving)	
L30037	300
DEW	22
NKN	20
ZZX	17
AZR	140
QL	120
BRC	64
VM	54
XQ	50
SW	34
AV	32
BQS	213
BHO	186
RJ	182
ALZ	146
PRB	83
BQ	64
ADR	42
HQ	40
BEE	62
NBL	60
DET	60
JI	58
ZFI	56
OM	53
DBS	51
BJM	50
XH	50
BAS	48
ATL/P	46
KPH	41
KAV	37
KK	35
DWF	35
DVM	34
BRY	32
XYX	31
DIP	31
PC	30
DS	30
AIH/M	30
AGJ	30
AWI	29
AN	28
XBA	27
CGH	27
BGW	26
AOM	26
NBE	26
PJS	23
BQB	22
KAH	21
VKC	19
ZBI	19
ZWI	18
NZR	16
ZPP	16
BYY	14
BZQ	14
QT	13
ARA	12
PBO	12
YW	12
VAN	12
2KQF/3	11
BLE	11
2EFJ/3	10
DMS	10
ALD	10
RJ	124
YK	112
8KU	100
DPW	94
DVW	42
BSF	149
SM	120
AWY/P	65
DOV	60
KPP	48
KCC	36
DNP	30
WW	25
L30371	64

VK4 Section A (Phone)

Callsign	Score
VAT	665
AEV	417
WIZ	391
ARD	286
VR	263
AGL	240
NIL	195
YX	156
AZA	153
AWO	144
JFA	140
YN	139
BNL	135
FN	135
AOE	126
ACW	118
ZA	118
PJ	115
UJ	112
AMB	111
AKI	109
ABY	101
AEM	100
ZBV	96
AGQ	80

VK4 Section B (CW)

Callsign	Score
BDR	262
XA	248
BRZ	194

VK4 Section D (Open, Phone & CW)

Callsign	Score
AEB	812
LT	745
WIS	549
AOH	360
YG	321

VK5 Section A (Phone)

Callsign	Score
QX	768
ATN	666
CGR	662
NX	577
ADD	569
FF	532
KCX	512
ALE	501
BJA	480
DJ	451
SU	442
KLJ	362
AC	356
DI	352
OR	330
JM	307
ABX	245
XC	244
TZ	233
NMR	214
KMH	207
SS	207
TP	204
AQZ	203
YJ	200
DK	190
OZ	173
ANW	165
AGW	165
EA	162
KPM	158
TC	144
FV	141
AVQ	141
AEI	136
OU	135
NTX	130
LP	124
ZDJ	120
ATM	116
KLH	114
KCR	114
AAJ	112
SG	110
LL	110
AJG	106
ATW	103
AWF	102
KX	102
GN	101
CY	100
UJ	100
AIM	100
RR	100
ACW	100
TW	98

Callsign	Score
AGP	66
ALM	62
CZ	60
BDE	57
AUK	46
HZ	39
WIN	38
NYE	36
ASB	31
BPW	30
BOB	30
DV	29
VS	24
OY	22
KD	20
QW	20
RC	20
GT	15
YEA	14
AGS	13
RE	12
RX	12
BB	10
ZN	10

SF	56
XJ	52
NBL	24

AQD	164
NUN	142
AIX	140
BG	96
UG	50

KMJ	95
ACE	92
QH	86
BXG	83
ZBC	81
NWT	80
ZB	78
FA	77
AJK	73
GV	71
APD	70
XT	69
BVJ	65
KAA	63
KV	62
JO	62
NEI	61
PPN	60
ZHV	60
ZZ	59
ADR/P	55
KF	55
NF	55
OF	53
AMF	51
EC	50
AOL	50
FL	47
CO	46
ST	45
NOS	45
PBY	44
LN	44
ABS	42
KCI	40
IT	35
EV	35
WS	35
AMW	32
YO	31
BGY	31
HM	30
DH	28
RF	27
SCN	25
ZJ	25
KJT	23
ALD	22
NPC	18
KAK	17
ZFH	17
BDG	16
KRC	16
WO	16
CA	15
ML	15

Callsign	Score
NEG	15
VY	15
JK	15
LC	15
IX	15
ZPT	12

VK5 Section B (CW)

Callsign	Score
BN	394
AGX	368
AK	106
HO	106
FM	100

VK5 Section D (Open, Phone & CW)

Callsign	Score
AYD	527
FN	462
GZ	418
APC	414
AH	360
AAC	351
ARC	342
BPA	311
ZN	308
NOD	282
XI	257
BI	230
LZ	229
AOZ	169

VK5 Section C (Receiving)

Callsign	Score
Whitford	618
L50122	129

VK6 Section A (Phone)

Callsign	Score
AAE	613
XV	410
DE	399
JP	395
FE	317
OR	295
KLZ	264
CX	249
WH	244
HM	241
AR	240
NWA/P	203
ZLZ	184
NTJ	179
DA	161
ARG/P	144
KG	135
BO	135
QH	130
ALD	128
ON	125
FC	123
NTZ	119
WIA/P	117
WL	108
ZOT	101
WT	95
ZRE	92
NMS	87
DC	85
MY	80
ZKL	77
NOM	76

VK6 Section B (CW)

Callsign	Score
HQ	370
WT	292
AFW	192
RF	136
AJ	114

VK6 Section D (Open, Phone & CW)

Callsign	Score
ED	548
UH	420
ZIT	256
OF	249
FS	231
AD	212
RU	206
NLD	205
AGC	205
ABR	144
RO	133

VK6 Section C (Receiving)

Callsign	Score
L60051	963
L60228	480

VK7 Section A (Phone)

Callsign	Score
KZ	493
NW	480

Callsign	Score
3BRL/5	12
AG	12
ZKK	11
AMK	10
AGR	10

TL	60
VW	42
JG	34
BY	20

RA	139
ZTJ	119
ZOB	112
FX	103
IM	92
KL	84
AOK	81
RG	76
AUS	75
AO	68
MX	58
RK	49
ZML	44
AIF	17

L50065	110

LC	73
ZMG/P	73
SE	72
KVV	69
AIH	61
MM	53
TO	48
ABM	47
SDW	40
ABD	40
ANT	38
NJK	38
UV	35
NPL	28
ML	28
CZ	22
KJ	21
AO	19
JY	18
ACG/P	17
UX	17
UF	16
CU	14
YF	13
ATE	12
PV	12
NSU	12
AOK	12
KH	12
EB	12
SO/M	11
YL/M	11
UU/M	10

SM	106
BO	100
HX	42
RS	22

JU/P	112
HK	73
MG	55
LV	50
RZ	43
WZ	43
PM	41
GA	36
BE	28
DM	22

L60036	188
L60068	136

PL	267
ML	203

Callsign	Score
HK	201
KC	197
HD	159
FL	159
NMU	145
NAI	141
JU	130
NIM	107
NWR	107
DG	105
QF	92
SA	85

VK7 Section B (CW)

Callsign	Score
CH	230
RY	218
SB	174

VK7 Section D (Open, Phone & CW)

Callsign	Score
JE	252
KR	159

VK8 Section A (Phone)

Callsign	Score
BD	100
DI	67

VK8 Section B (CW)

Callsign	Score
HA	200

ZL Section A (Phone)

Callsign	Score
2ADN	54
1IM	30

ZL Section D (Open, Phone & CW)

Callsign	Score
1GO	518
4QY	83

Callsign	Score
RM	80
RN	62
LH	61
ZPK	53
BM/P	50
KAJ	46
KKR	45
MX	30
BJ	30
KAB	28
ZJG	26
FD	22

RQ	26
NBF	24

AL	107
GB	47

KTT	23
GB	22

VK8 Section D (Open, Phone & CW)

Callsign	Score
DH	36

ZL Section B (CW)

Callsign	Score
2BDC	68

P2 Section A (Phone)

Callsign	Score
9ZL	257

THE WIRELESS INSTITUTE OF AUSTRALIA CW CONTEST

This contest was inaugurated to celebrate the 75th Anniversary of the formation of the Wireless Institute of Australia — the oldest radio society in the world.

It was considered that with the advent of modern equipment and methods, there was a need to further the ability of Morse knowledge, practice and skill.

This contest is not directed at speed but at promoting CW — the communication mode used by radio amateurs since the very first days.

A suitable certificate has been prepared but for this special year all logs returned by VK amateurs with more than 75 contacts will receive a specially prepared commemorative memento.

The overall VK winner will also receive the "FEDERAL PRESIDENTS CUP". This cup was first

Photograph by Ken McLachlan VK3AH

presented in the year 1930 to the "KEY SECTION WIA".

RULES

PERIOD 0000 UTC 10th MARCH to 2359 UTC 10th MARCH 1985
MODE CW-CW ONLY, single operator
CALL CQ 75 TEST
EXCHANGE RST+ 3 FIGURE SERIAL NUMBER
BANDS ALL EXCEPT 10, 18, 24 MHz
SECTIONS (a) FOREIGN — single band
(b) FOREIGN — multiband
(c) AUSTRALIAN — single band
(d) AUSTRALIAN — multiband.
OBJECTS FOREIGN — one contact per band with any Australian station.
AUSTRALIA — one contact per band with any other station.
POINTS 3 points for contacts on 1.8 and 3.5 MHz
2 points for contacts on 7 MHz
1 point tor contacts on all other bands
SCORING SINGLE BAND points on that band multiplied by the number of dilterent prefixes worked on that band. WPX RULES APPLY.
MULTIBAND as above for each band added together.
LOGS TO: CONTEST MANAGER, CW75, BOX 1065, ORANGE, NSW 2800.

COMMONWEALTH CONTEST 1985

WHEN 1200 UTC Saturday 9th March to 1200 UTC Sunday 10th March.

MODE CW (A1A) only in the 3.5, 7, 14, 21 and 28 MHz bands. Call is CQ BERU. The Commonwealth Contest is a single operator, single transmitter event.

Eligible entrants are radio amateurs licensed to operate in British Commonwealth call areas as listed below.

A Contest exchange consists of RST plus a three figure serial number commencing with 001 and increasing by one for each successive contact throughout the contest, irrespective of band in use. Serial numbers sent from non-competing stations must be recorded.

SCORING 5 points for each contest exchange 20 bonus points for each of the first, second, and third contact in each call area, as listed, on each band. Contacts with ones own call area do not count at all. Note that G, GD, GM etc are counted as one area.

LOGS Separate logs are required for each band showing columns

1 Date and time UTC
2 Station worked
3 RST/Serial number sent
4 RST/Serial number received
5 Band
6 Leave blank (for checking)
7 Contact points claimed
8 Bonus points claimed

Separate band totals should be added together and the total claimed score entered on a cover sheet giving particulars of station, QTH, equipment, power, antenna and a declaration that the rules and spirit of the contest have been observed.

It is important that logs are carefully checked for duplicate contacts. Unmarked duplicate contacts for which points have been claimed will be heavily penalized, and logs containing in excess of five will be disqualified.

Entries may be single or multiple band. Single band entries should claim contacts on one band only, but details of contacts on other bands should be submitted for checking purposes only.

Entries should be addressed to

AK GRAY G4DJX,
44 Sherwood Avenue,
St Albans Herts AL49PO, UK

Closing date 13th May 1985.

All entries become the property of the RSGB. In the event of any dispute, the ruling of the Council of the RSGB shall be final.

AUSTRALIAN AWARDS

1 An individual award to the highest VK scorer — a gold medallion.
2 A State Team award — 4 silver medallions to the state team of 4 which achieves the highest aggregate total. If the "individual" winner is a member of this team, he will receive the gold medallion instead of the silver one.
3 An award to the middle placing among VK entrants i.e. to, say the 27th placing among 53 or 54 entrants — a bronze medallion.

Note that there have been a number of additions to the call areas this year — ZC4 and 5B4, 9H and 9H4, VO1 and VO2, and ZL0 are now separate areas.

It is to be hoped that conditions have picked up a little by BERU week-end. Let us see if last year's record entry of 66 VKs (VK1-2, VK2-13, VK3-23, VK4-8, VK5-7, VK6-7, VK7-6, VK8-9-0 nil) can be improved on in 1985.

COMMONWEALTH CALL AREAS

The following call areas are recognized for the purpose of scoring in the 1985 Commonwealth Contest:

A2	Botswana
A3	Tonga
A5	Bhutan
C2	Nauru
C5	Gambia
C6	Bahamas
G/GB/GD/GI/GJ/GM/-GU/GW	
H4	Solomon Is
J3	Grenada
J6	St Lucia
J7	Dominica
J8	St Vincent
P2	Papua New Guinea
S7	Seychelles
T2	Tuvalu
T30	W Kiribati
T31	C Kiribati
T32	E Kiribati
V2	Antigua, Barbuda
V3	Belize
VE1	Maritime Provinces
VE1	Sable Is
VE1	St Paul Is
VE2	Province of Quebec
VE3	Province of Ontario
VE4	Province of Manitoba
VE5	Province of Saskatchewan
VE6	Province of Alberta
VE7	Province of Br. Columbia
VE8	North West Territories
VK1	Australian Capital Ter
VK2	New South Wales
VK3	Victoria
VK4	Queensland
VK5	South Australia
VK6	Western Australia
VK7	Tasmania
VK8	Northern Territories
VK9L	Lord Howe Is
VK9N	Norfolk Is
VK9X	Christmas Is
VK9Y	Cocos Keeling Is
VK9Z	Mellish Reef
VK9Z	Willis Is
VK0	Heard Is
VK0	Macquarie
VK0/VP8/ZL5	Antarctic
VO1	Newfoundland
VO2	Labrador
VP2E	Anguilla
VP2K	St Kitts, Nevis
VP2M	Montserrat
VP2V	British Virgin Is
VP5	Turks & Caicos
VP8	Falkland Is
VP8	S Georgia
VP8	S Orkneys
VP8	S Sandwich Is
VP8	S Shetland Is
VP9	Bermuda
VQ9	Chagos
VR6	Pitcairn
VS5	Brunei
VS6	Hong Kong
VY1	Yukon
VU	India
VU	Laccadive Is
VU7	Andaman & Nicobar Is
YJ	Vanuatu
Z2	Zimbabwe
ZB2	Gibraltar
ZC4	Cyprus (UK Bases)
ZD7	St Helena
ZD8	Ascension Is
ZD9	Tristan da Cunha, Gough Is
ZF	Cayman Is
ZK1	Cook Is
ZK1	*Manihiki*
ZK2	Niue
ZK3	Tokelau
ZL0*	
ZL1*	
ZL2*	
ZL3*	
ZL4*	
ZL7	Chatham Is
ZL8	Kermadec Is
ZL9	Auckland & Campbell Is
3B6/3B7	Agalega & St Brandon
3B8	Mauritius
3B9	Rodriguez Is
3D2	Fiji
3D6	Swaziland
4S	Sri Lanka
5B4	Cyprus
5H	Tanzania
5N	Nigeria
5W	Western Samoa
5X	Uganda
5Z	Kenya
6Y	Jamaica
7P	Lesotho
7Q	Malawi
8P	Barbados
8Q	Maldives
8R	Guyana
9G	Ghana
9H	Malta
9H4	Gozo & Comino
9J	Zambia
9L	Sierra Leone
9M2	W Malaysia
9M6/9M8	E Malaysia
9V	Singapore
9Y	Trinidad & Tobago

* Due to recent changes in the New Zealand licence allocations ZL0, ZL1, ZL3, & ZL4 will count as separate call areas for the purpose of this contest

1985 CLARA AC/DC "MYSTERY" CONTEST

SPONSORED BY THE CANADIAN LADIES AMATEUR RADIO ASSOCIATION.

STARTS: 0000 UTC TUESDAY 28TH MAY, 1985.
ENDS: 0000 UTC WEDNESDAY 29TH MAY, 1985.

The AC/DC Mystery Contest is open to all YL and OM amateurs as well as SWLs. Each CLARA station may be worked twice, once on CW and once on PHONE, or same mode on two different bands. Exchange name, serial number starting with 001, RS(T), QTH and if a CLARA member. Three unidentified "Mystery" stations will be operating.

SUGGESTED FREQUENCIES: PHONE
28.488 28.588 21.300 14.160 14.280 7.150 3.775 3.900 MHz

SUGGESTED FREQUENCIES: CW
28.035 21.035 14.035 7.035 3.690 MHz

All contacts must be made in accordance with operator and station licence regulations. No net or list operations, no crossmode. No 10 m or 2 m repeater contacts.

SCORING: For the base score, CLARA members score one point per contact with non members (whether OM or YL), two points per contact with CLARA members, and three points for each CW contact.

NON-MEMBERS: For the base score count two points for each CLARA contact, three points for CW contacts. Multiply the Base Score Points by the number of Canadian Provinces/Territories worked for the total score. The Contest Manager will add ten points to the base score of each log for every "MYSTERY" station contacted.

AWARDS: CLARA MEMBERS:
1st place. "CLARA CUP" and certificate.
2nd place. Certificate.

NON-MEMBERS:
1st place. Plaque.
2nd place. Certificate.
SWL. Certificate.
DX station. Certificate.
All logs submitted are eligible for the Mini prize draw.

LOGS: Single log entry. Logs must show DATE/TIME UTC, BAND, MODE, CALLSIGN WORKED, REPORT AND SERIAL NUMBER SENT, REPORT AND SERIAL NUMBER RECEIVED, NAME OF OPERATOR OF STATION WORKED, QTH and points claimed.

LOGS MUST BE SIGNED. Logs also to show full name, callsign and address of operator, and show final score (points claimed not including mystery stations). Logs must be legible. No carbon copies. No logs will be returned. Decision of the Contest Manager will be final. Logs must be received by the contest manager before 15TH JULY, 1985.

CONTEST MANAGER: Muriel Foisy VE7LQH
RR#1, PENDER ISLAND, BC,
CANADA V0N 2M0

AR

USE OF DUAL CALL SIGNS

The Department of Communications does not wish to encourage this practice, but confirms that there are no basic objections to a qualified amateur holding more than one amateur station licence (call sign). It is stressed, however, that in such cases it is the amateurs responsibility to ensure that operation is in accordance with the conditions applicable to the class of licence in use.

AR

VIDEO TAPES — BETA

A reminder to all amateurs. Video tapes from the WIA Video Cassette Library are now available in the BETA format as well as VHS.

Full information for using the Video Library appeared in October AR, page 36 or contact the Video tape Co-ordinator, John Ingham VK5KG, 37 Second Avenue, Sefton Park, SA, 5083. **AR**

WIA VIDEOTAPE PROGRAMME TITLE LISTING

See Note	TITLE (in chronological order within each subject grouping)	Lecturer	Prod.	Approx. Dur.	Col./ B&W	Year Prod.	Description and Other Information
	GENERAL PROMOTIONAL FILMS						
–	The Ham's Wide World		ARRL	30 mins	Colour	1969	Superceded by "The World of Amateur Radio"
–	This is Amateur Radio		ARRL	15 mins	Colour	1970	Pitched at teenagers
–	Moving Up to Amateur Radio		ARRL	15 mins	Colour	1975	Pitched at CBers
©	7J1RL DXpedition		JARL	50 mins	Colour	1978	General amateur radio interest; *Loan Only*
–	This Week has 7 Days looks into Amateur Radio		HSV7	25 mins	Colour	1978	Pitched at teens; includes some ARRL footage
–	Amateur Radio – The National Resource of Every Nation		VK5KG	6 mins	Colour	1979	Encapsulates AR; good for public exhibitions
–	The World of Amateur Radio		ARRL	30 mins	Colour	1982	Pitched at adult level
	HISTORIC INTEREST						
©	Wireless Telegraphy – circa 1910		?	10 mins	B&W	1910	Archive material courtesy David Wardlaw, VK3ADW
–	Opening of Burley Griffen Bldg – SA HQ		VK5KG	50 mins	Colour	1977	Archive material
–	History of ATV in South Australia		VK5KG	30 mins	Colour	1980	Archive material, still building
–	ATV in Australia 1978 – made for British ATV Club		VK5KG	30 mins	Colour	1978	Archive material
–	ATV in United Kingdom 1978 – reply from BATC		G8CJS	30 mins	Colour	1978	Archive material
©	Heard Island Expeditions	ch	2,7,9,10	20 mins	Colour	1984	Archive material, *No Loan of Copy Available*
	ANTENNAS & PROPAGATION						
©	G6CJ's Aerial Circus	G6CJ	WIA	90 mins	B&W	1977	The Definitive Antenna Lecture; *Loan Only*
–	Wire Antennas	VK5RG	VK5KG	40 mins	B&W	1978	Antennas for HF and Antenna Tuners
–	Loaded Wire Antennas	VK5NN	VK5KG	50 mins	Colour	1980	Using Inductive and Capacity loaded Antennas
–	Getting Started in Understanding the Ionosphere	VK5NX	VK5ZBD	50 mins	Colour	1983	How the Ionosphere aids HF communication
	SPACE – GENERAL INTEREST						
–	Apollo 13 Disaster	VK5JN	VK5KG	90 mins	Colour	1980	Australian tracking procedure saved Apollo 13
–	SSTV Pictures from Space – Voyager		VK6KG	15 mins	Colour	1983	SSTV pix converted from Saturn fly-past
*	Amateur Radio's Newest Frontier		ARRL	24 mins	Colour	1983	Shows "Ham in Space" – Shuttle STS-9
–	Aussat – Australia's Domestic Comms. Satellite	VK5JN	VK5KG	?	Colour	1984	In Production
	AMATEUR SATELLITES						
–	Lecture – Tracking Oscar	VK5HI	VK5KG	40 mins	B&W	1978	Superceded (see below)
–	Getting Started in Amateur Satellites	VK5HI & VK5AGR	VK5KG	60 mins	Colour	1983	Superceded (see below)
–	An Introduction to Amateur Satellites (Pt 1)	VK5AGR	VK5KG	60 mins	Colour	1984	An overview of Amateur Satellite working
–	Micro-Computer Aids to Satellite Tracking (Pt 2)	VK5AGR	VK5KG	30 mins	Colour	1984	Programmes for tracking & decoding telemetry
–	Using Phase III Amateur Satellites	VK5HI	VK5KG	90 mins	Colour	1984	History, construction & use of high orbit sats.
	DATA TRANSMISSION						
–	Lecture – RTTY	VK5QX	VK5KG	40 mins	B&W	1978	Superceded (see below)
–	Getting Started in Amateur RTTY	VK5JN	VK5KG	85 mins	Colour	1983	RTTY using Teleprinters and Micro-Computers
–	Amateur Packet Radio	VK5AGR	VK5KG	60 mins	Colour	1984	Theory and Demonstration
	AMATEUR COMPUTERS						
–	Demo of VK5RTV's Micro-Computer Controller #1	VK5KG	VK5KG	10 mins	Colour	1979	First u-Computer controlled repeater in VK
–	Lecture – History of Micro-Processors	Rick Matthews	VK5KG	60 mins	Colour	1979	Now somewhat dated, but still sound
–	Understanding Micro-Processors	VK5PE	VK5KG	60 mins	Colour	1980	A somewhat dated technical description
–	An ATV Hamshack Micro-Computer	VK3AHJ	VK3AHJ	10 mins	Colour	1981	Describes now unavailable Micro-Computer kit
–	Getting Started in Amateur Micro-Computers	VK5IF	VK5KG	33 mins	Colour	1983	Demo of hard & software for amateur radio
	AMATEUR TELEVISION – TECHNICAL						
–	The Signal to Noise Story	VK3ATY	VK3AHJ	45 mins	Colour	1982	Superceded by "UHF Pre-amplifiers" (see below)
–	UHF Preamplifiers	VK3ATY	VK3AHJ	45 mins	Colour	1983	Explanation and demo. of low noise preamps
–	Getting Started in Amateur Television	VK5KTV	VK5KG	55 mins	Colour	1983	How to set up an ATV station
–	Testing ATV Transmitters	VK5KG	VK5KG	50 mins	Colour	1983	How to correctly measure ATV systems
*	High Definition TV Tutorial	Don Fink	WB2LLB	60 mins	B&W	1983	A look at what is to come in broadcast TV
*	ATV Hamfest, York, Pennsylvania, Sept. '83	Various	WB2LLB	6 hrs	Colour	1983	Various ATV technical lectures from USA
	AMATEUR TELEVISION – ACTIVITY						
–	ATV in Australia 1980/81 – Made for British ATV CLUB		VK5KG	60 mins	Colour	1980	Clips from ATV Groups in VKs 2, 3, 4, 5 & 7
–	ATV in United Kingdom 1978/81		G8CJS	30 mins	Colour	1981	Remake of their previous effort
*	OQ ATV DX International 1983		WB2LLB	60 mins	Colour	1983	ATV in USA and Europe
–	ATV in Victoria, 1984		VK3AHJ	54 mins	Colour	1984	Courtesy of "The Roadshow Gang"
	AMATEUR TELEVISION – GENERAL INTEREST						
–	Low Definition Television	Chris Long	VK5KG	25 mins	Colour	1982	Re-creation of TV as transmitted by Baird
*	Overseas TV Clips about ATV, etc.		WB2LLB	60 mins	Colour	1983	Broadcast TV clips from USA and Europe
–	Model Aero-Nautical Mobile ATV	VK5GO	VK5KG	6 mins	Colour	1983	ATV camera & Tx mounted in a model aeroplane
	MISCELLANEOUS						
–	An Auxiliary Battery Charger	VK5NX	VK5KG	30 mins	Colour	1981	Charging a second mobile battery
–	Lecture – Winning Foxhunts	VK5TV	VK5KG	45 mins	Colour	1981	How to do it from one who has!
–	Getting Started in Amateur Construction	VK5AIM	VK5KG	50 mins	Colour	1983	Mechanical hints for novice constructors
–	Comms. Consequences of Nuclear War	Dr. John Coulter	VK5ZBD	60 mins	Colour	1983	Why your gear may not survive even if you do!
–	The Far Eastern Broadcasting Company		VK5KG	50 mins	Colour	1984	How a Short Wave Broadcaster operates
–	The Australian "Over the Horizon Radar"		VK5KG	60 mins	Colour	1984	How the "Australian Woodpecker" works

NOTE: © = Copyright; no copy service is available. * = Optically Converted to PAL from NTSC by WB2LLB; some flicker evident.

*** NEW What to Expect When the "RI" Calls! by Geof Carter. Geof is a Department of Communications Field Officer. The video runs for 34 minutes, is in colour and was made in 1984.

CLUB CORNER

CENTRAL COAST AMATEUR RADIO CLUB

AN INVITATION: All amateur radio operators, their families, friends and all interested in amateur radio are invited to attend the Club's 28th Annual Field Day on Sunday, 17th February 1985 at the Showground, Showground Road, Gosford, NSW.

REGISTRATION: Men: $4, Women: $2, Children 16 years and under: $1 (Includes morning and afternoon tea, event entry and outings).

FAMILY GROUPS: Mother and father plus two or more children 16 years and under together: $7.

PENSIONER CONCESSION: 50 percent on production of appropriate pensioner concession cards.

FOOD SERVICE: Tea, coffee and biscuits 08:00 — 17:00 hrs in the Dining Room at no additional charge. Takeaway food will be available in the Showground. You may bring your own lunch and avail of tea or coffee from dining room at lunch time.

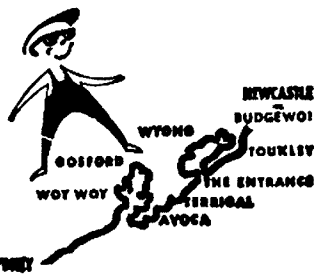
EVENT ENTRY: If you are planning to enter any radio event (including junior events) please fill in an EVENT REGISTRATION card. Cards will be available after entry to the Showground.

SCRAMBLE RULES: No operation in Showground or 1 km radius. No operation on Gosford repeaters or within 1 km radius of repeater sites. Log extract to "EVENT ENTRY REGISTRATION" before 10:00 showing time of contact, station worked, mode, band and full serial numbers. Incomplete or late logs are not eligible. Scoring 1 point per station per band regardless of mode. You may rework the same station on several bands.

OUTINGS: (a) Reptile Park (b) Bus Tour (departs 12:30). Obtain complementary tickets for either outing by presenting registration card to "TICKETS". Transport to and from Reptile Park is by private car. Reptile Park tickets are valid for any time of the day 17.2.85 only. Bus Tour tickets are limited to one bus load on a first come basis.

DISPOSALS: Obtain catalogue forms and lot numbers in advance of the Field Day from Bill Smith VK2TS, RMB 4525, Mangrove Mountain, NSW 2250 (phone after hours (043) 74 1207). Forms and lot numbers also available at the Showground on Saturday afternoon, 16.2.85. All items for disposals must be booked in before 09:30 17.2.85. Late arrivals or equipment improperly tagged or catalogued may be refused.

CENTRAL COAST



TRAINS: The following trains will be met by a special complementary bus at Gosford Railway Station: 07:15, 08:15 and 09:15 from Sydney; 07:47 and 09:03 from Newcastle. For return transport to station in the afternoon, contact "INFORMATION" at least one hour before departure time.

IF IT RAINS? The Field Day will be held wet or dry; there is plenty of shelter in the Showground.

CALLS PRESENT: Bring your QSL card for the "CALLS PRESENT" board.

PARKING: Off street at Showground. Please observe IN and OUT gates.

SPECIAL ATTRACTIONS: Trade Displays, Ladies Stall, Children's Events.

AR

NATIONAL PARKS (FUN WITH A GOAL)

The Mildura Amateur Radio Club set out for a fun-filled weekend of camping and radio operating — the goal set was to activate the National Parks Award. Participation and interest proved to be beyond our wildest dreams. Unfortunately, with the minimal research conducted, we found the award had not been active for some time. However, since then the award has been reactivated including a new park.

As said before, this activity raised a lot of interest, and the camp-out was so enjoyable it was decided to make the outing an annual event, on the Labour Day long weekend in March.

The camp on the banks of the Murray River, at a place called Chalker Creek, is not so hard to find if you turn off the highway at the Hattah Store and follow the signs. It's easy, as the Park Ranger found. We were confronted by a six foot individual in uniform — very official looking — saying *"Is this VK3BUR?"* Our first thought was *"What have we done wrong?"*, only to be congratulated on keeping a tidy camp. It was at this moment he made a monumental mistake and asked if we had any rubbish. We then proceeded to place truckloads of full rubbish-bags into the back of his four wheel drive, and he hasn't been seen since.

One essential for a successful camp is a raging great camp fire and ours was no exception, with a communal hotplate. After the noon meal, we set out fishing. The evening brings a satisfying meal and a lot of conversation around the campfire.

You might ask one question — *who operates the radio, and when?* Well, whoever feels like it, and when someone relinquishes the operating chair. The frequencies used are 40 metres during the daytime, 80 metres at night and channel 50 on 2 metres for directions to incoming parties to our camp of merriment.

Obviously our club alone cannot offer award-seekers a large amount of assistance, but if other clubs were to participate in similar activities it would make a near impossibility a reality.

So, the obvious thing is we would like other clubs to participate finding the closest mutually agreeable National Park and operating from that location. Details of the award are available from the WIA Vic Div or see page 42, August 1984. Any individuals wishing to participate are more than welcome to join us at Hattah National Park. An amateur call sign is not necessary to participate. Non-licensed operators will be supervised by licensed amateurs using the club call VK3BUR.

Any further enquiries relating to the weekend can be directed to — David Norris VK3DWN, PO Box 231, Mildura, Les VK3BPW, Marlene VK2KFQ, Ron VK2EFJ or Maurie VK3CWB.

Contributed by David Norris VK3DWN

* See Awards column on page 40 for an update of the National Parks in VK3.

CAIRNS AMATEUR RADIO CLUB

For amateurs in the Cairns area of Queensland please note that the Cairns Amateur Radio Club meets on the second Tuesday of each month except January when there is no scheduled meeting.

At a recent Annual General Meeting, Colin Swinburn VK4EX was re-elected President and Anne Benson VK4FAB was re-elected Secretary.

Monthly meetings are held in the State Emergency Service building, McNamara Street, Cairns at 8 pm.

Contributed by Anne Benson VK4FAB
Secretary
AR

THE SEVENTH ANNUAL GOLD COAST ARS HAMFEST

This function is held annually to raise funds for the building of the Society's Club Rooms and Headquarters, which have now reached the stage of having the roof put onto the building.

The Hamfest raised over $700 and was attended by between 600 and 1000 persons, including several overseas amateurs.

A very good media coverage of the Hamfest and amateur radio in general was given by the Gold Coast Bulletin by their feature journalist John Dwyer.

Prior to the Hamfest the GCARS received two generous donations — for the building fund — $3000 from the QEII Jubilee Trust for Young Australians because of the Society's interest in training youth, Girl Guides, Scouts etc in communications and for upkeep of the repeater station — $200 from the Gold Coast City Council.

Contributed by Bill Stevens VK4YN
President.
AR

TOWNSVILLE ARC

Late last year the TARC elected office bearers for the next twelve months. President is Bob Mann VK4WJ and Secretary is Arnie Katarzynkski VK4JXZ.

AR

GYMPIE ARC

See cover photograph

On Sunday the 25/11/84 it was working bee day at the repeater site of the Gympie Amateur Radio Club at Boulder Mountain, 20 km SE of Gympie.

The club has been operating a 2 metre repeater on the site for one year and recently finished construction of a 70 cm repeater for the site.

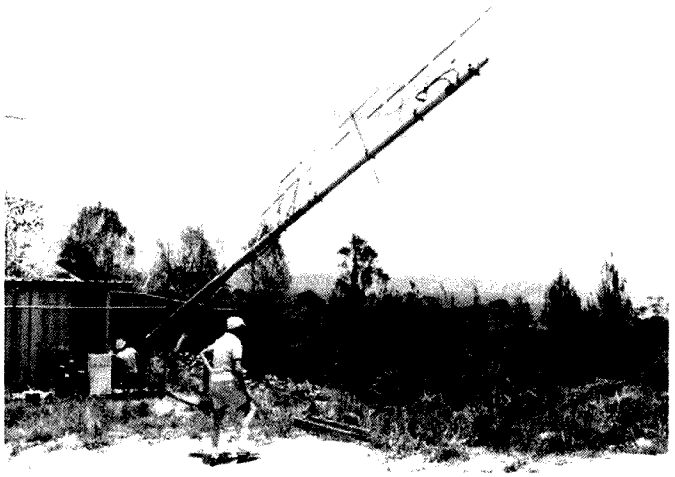
It was decided to extend the height of the metal free standing tower another 6 metres to allow for the extra antennas and separation.

A special hydraulic ram machine was made by one club member for the lowering of the 15 metre tilt over tower and it was with a great deal of enthusiasm members left Gympie on the 28 km drive to the mountain.

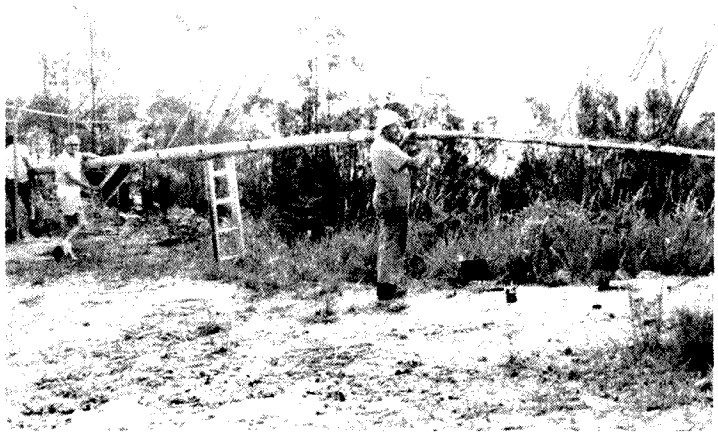
The Hydraulic lifter in place to lower the tower.

Upon arriving, we removed the 70 cm test antennas and proceeded to gingerly test our lowering device. All went well and within 10 minutes of arriving, we were working on the antennas.

With the extension in place, the 2 metre colinears



Harry VK4KHG supervising the final lowering of the tower.



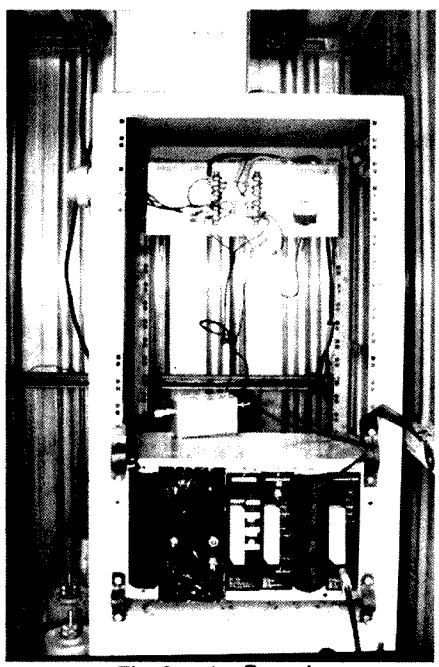
Working on the tower.

were given a little extra separation.

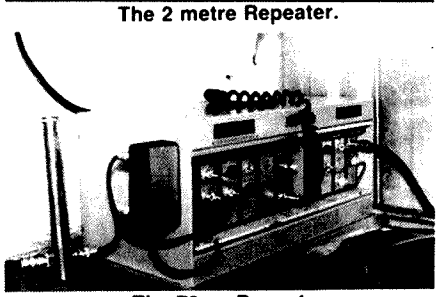
The site is quite isolated so the only power on the site is from solar energy, and the club is using a solar panel with an output of 2 amps maximum charging a 200 AH 12 volt battery.

The solar panel was mounted on the tower also, so that it would be uneffected by shadows.

The 70 cm antennas were home-brew coaxial colinears, sealed inside fibreglass fishing-rod blanks, and were mounted on 50 cm stand-offs. These were clamped to the tower at 10 foot vertical separation, and 2 runs of heliax installed in place. Everything was clamped up and the hand pumping of the lifting gear commenced. Within 10 minutes the tower, now with an all up height of over 65 feet, was again vertical.



The 2 metre Repeater.



The 70cm Repeater.

The coax was first connected to the 2 metre unit and was checked. All was as before. Then the 70 cm coax was connected to the Philips SC-9, through the GaAsFET pre-amp, and with a bit of tuning, was found to be performing very well, with little or no desensing on the input signal.

To date, regular callers as far as Surfers Paradise (250 km) to the south and Bundaberg to the north (160 km) have been working through the 70 cm repeater, and performance has been at least on par with the 2 metre repeater.

In future projects, the Gympie club is looking towards the possibility of a beacon of some type, but at this stage it is only a pie in the sky, not an antenna.

Story and photographs contributed by Tony Clarke VK4AJB

AR

SPECIAL NOTICE FOR ALL VK6 MEMBERS

The Annual General Meeting of the Western Australian Division of the WIA will be held on the 16th April, 1985. Full details will appear in the WA Bulletin column of March AR.

NEW DEBEGLASS WIRE

That's stronger than wire . . .
Is non-conductive . . .
Is non-corrosive . . .
Virtually no elongation . .

NOW GUY YOUR TOWERS WITHOUT HAVING TO BREAK THE GUYS USING DOZENS OF EGG INSULATORS OR WORRY ABOUT THEM CORRODING AWAY WHEN IN A HIGH SALT AREA. OUR NEW DEBEGLASS WIRE IS MANUFACTURED FROM CONTINUOUS FILAMENT FIBREGLASS YARN JACKETED IN UV STABILISED VINYL CHLORIDE. JUST COMPARE THE FIGURES IN THE TABLE OPPOSITE.

Trade enquiries are welcome

COMPARISON OF WIRE STRENGTH	DB-4 (4mm dia) CORE DIA mm	DB-4 (4mm dia) WEIGHT OF 200mm	DB-4 (4mm dia) TENSILE STRENGTH kg	DB-5 (5mm dia) CORE DIA mm	DB-5 (5mm dia) WEIGHT OF 200mm	DB-5 (5mm dia) TENSILE STRENGTH kg
DEBEGLASS	2.5	3.9	430	3.0	6.3	560
STEEL WIRE	2.5	5.6	370	3.15	9.3	530
MANILA ROPE	4.0	2.35	130	—	—	—
CREMONA ROPE	4.0	2.10	176	5.0	3.10	264
POLYETHYLENE ROPE	4.0	1.66	180	5.0	2.60	270
NYLON ROPE	4.0	1.97	330	5.0	3.08	500

MAKE SURE YOU ARE EQUIPPED FOR YOUR TOWER WORK THIS SUMMER. GET OUR DEBEGLASS WIRE NOW!
DB-4 (4mm) ..... $0.46/m DB-5 (5mm) $0.68/m
Write for a brochure.

LOW LOSS FOAM DOUBLE SHIELDED COAX CABLES

1 *Heavy gauge soft drawn copper centre*
2 *Low loss foam dielectric*
3 *Aluminium-mylar contiguous shield*
4 *High density tinned copper braid*
5 *Heavy duty UV stabilised sheath*

LOSS IN dB/20 METRES				
TYPE	100MHz	200MHz	400MHz	900MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-58/AU	4.32	N/A	N/A	16.50
RG-8/AU	1.95	N/A	N/A	7.44
RG-213/U	1.74	N/A	N/A	7.20

FB SERIES COAX RIVALS HELIAX TYPE CABLES BUT AT A MUCH LOWER PRICE.

5D-FB $2.20/m
8D-FB $3.20/m
10D-FB $4.80/m
12D-FB $6.90/m

N-CONNECTORS TO SUIT

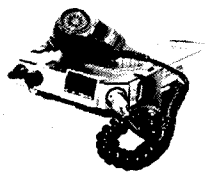
NP-5DFB $9.10
NP-8DFB $9.40
NP-10DFB $9.70
NP-12DFB $10.40

Write for a brochure.

SPECIAL

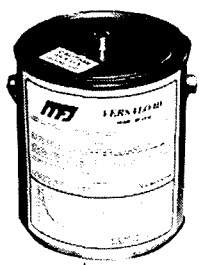
2m, 800ch, FM
0.15μV for 12dB
10 watts

STANDARD C-8900
$239
+ $12 p&p



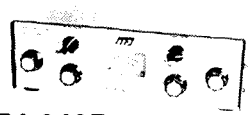
MFJ-250 2kW LOAD

Supplied complete with high quality transformer oil. Covers 0-400MHz



$71
+ $12 p&p

$326
+ $12 p&p

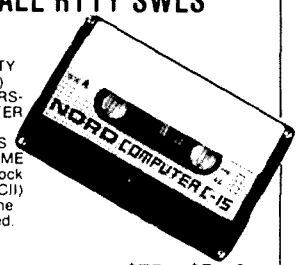


MFJ-949B
ANTENNA MATCHER

• 300 watts • BUILT-IN DUMMY LOAD
• ACCURATE SWR/POWER METER
• BUILT-IN 4:1 BALUN

CALLING ALL RTTY SWLS

Now monitor CW-RTTY (SITOR & BAUDOT) (FEC, ARQ) on your TRS-80C COLOR COMPUTER with our DATA COMMUNICATIONS MONITOR PROGRAMME (Cat DCM). We also stock a RTTY (BAUDOT-ASCII) Transceive Programme (RBA). Min 4k required.

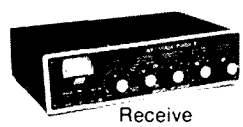


DCM ..... $75 + $5 p&p
RBA ..... $55 + $5 p&p
Write for further details

NEW MFJ-941D

• 300 watts • FRONT PANEL MOUNTED COAXIAL SWITCH • 4:1 BALUN • SWR-POWER METER • LARGE INDUCTANCE RANGE WITH 12 TAPS

$267
+ $12 p&p



$108
+ $8 p&p

Receive 154-158MHz (Marine) & 160-164MHz on your 2m Hand Held.

MFJ-313
Simply plugs in series with your hand held rubber ducky and is protected against up to 5 watts of RF.

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FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

This month, as in every February, the VK1 Division will hold its annual general meeting. This will be on Monday, 25th of February, commencing at 8pm in the Studio room, Griffin Centre, Bunda Street, Civic. Anyone who wishes to nominate for a committee position should contact Alan Hawes, in his role as Public Officer, soon. Alan can be contacted on 58 8115 (BH) or 58 2568 (AH).

VHF BEACONS

The VK1 2 metre beacon has been reinstalled at its Mt Majura site, to the north-east of the centre of Canberra, operating on a new frequency of 144.410 MHz. It runs 10 watts into a "halo" antenna, and identifies as VK1RTA. The 6 metre beacon, on 52.410 MHz, will hopefully be installed at the same location in the next month or two. Any reception reports would be greatly appreciated, either via the QSL bureau, or direct to PO Box E46, Queen Victoria Terrace (or QVT), Canberra, ACT 2600.

AOCP AND NAOCP CLASSES

Provisional dates for the start of this year's classes are: AOCP: 7 February
NAOCP: 5 February

These will be held in the Griffin Centre, the same as last year.

FIELD DAY CONTEST

Once again, VK1WI will hit the airwaves for the annual John Moyle Field Day Contest. Previous year's efforts have been reasonably successful, as well as being a good way to demonstrate our hobby. If you would like to assist with the running of this station, contact any of the committee. It is good fun, so if you haven't tried a field day activity before, why not give it a go?

AR

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

A new year also is the start of a new Divisional year. This month we call for nominations for next year's Council as well as agenda items for the AGM. The closing date for both is 27th February at the Divisional Office, 109 Wigram Street, Parramatta. Council nomination forms are available from the office. The following week is the production and enveloping of the annual report, notice and business paper for the AGM and hopefully the ballot papers for the election. I say hopefully an election because as mentioned in last months notes the Division has not had sufficient Council nominations to require one for some years. The AGM will be held on Saturday afternoon the 30th March.

27 Feb — Close of Council nominations
Close of AGM agenda items
30 March — Annual General Meeting.

REMINDERS

Don't forget the John Moyle National Field Day on 23/24 February, help VK2's score. In March the programme is starting to fill up. Besides being the 75th year of the formation of the Institute in March 1910 it will see the running, by the Orange Amateur Radio Club, of the State Fox Hunting Championship as a forerunner to the National Event in VK1 later in the year. Write to OARC at PO Box 1065, Orange NSW 2800 for details.

The next Conference of Clubs will be held over the weekend 13/14th April in Sydney. Business will include the usual Club submissions, together with discussion on agenda items for the Federal Convention. As part of the weekend the annual Dural fireworks evening has been scheduled for Saturday evening at VK2WI.

A reminder that the best way to be up to date and informed on events and happenings is to listen to one of the Sunday broadcasts. The printed lead times (the majority of these notes were written last year) means that we have to know well in advance what is happening. At the same time we can only put on the broadcasts those things that we know about, so club publicity officers and all amateurs, if you have something that you think others should or would like to know about then write up the item and send it via the Divisional postal address. If you prefer, a cassette tape (up to 3 minutes) may be submitted. Dates for your club events are also required for the AR Event Calendar.

WICEN

Coming events for WICEN will be the annual Co-ordinators Conference to be held in Sydney on the weekend of 23/24 February. There is the annual caving exercise in March. Annual dues to WICEN became due on 1st January. Reminder notices have been sent. For further information about WICEN check in on the Thursday evening Sydney net on repeater VK2RWS 7150 at 9 pm, or drop a line via the office for some printed details.

FIELD DAY

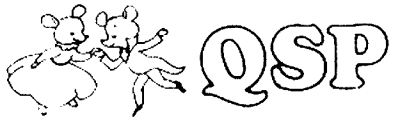
The first post-war Divisional Field Day was held at the Wyong Golf Club on Sunday the 26th January 1947. The programme for the day was to meet at the Club by 11 am for golf, tennis, table tennis and a novel Morse receiving contest. Then there were 2 sessions of luncheon. The afternoon was a 7 Mc (MHz) hidden transmitter hunt with the day ending with afternoon tea at 4.30 pm. Trains from Newcastle and Sydney were met. The cost for the day was 7/6 (75 cents) per head and included food, beer (18 gallons) and soft drink. It appears that the day was very successful for the 85 who attended. The Morse receiving contest 'provided a great deal of amusement' and the transmitter was so well hidden that it was not found in the prescribed time.

Twenty eight years on the tradition continues when the Central Coast Amateur Radio Club hold their Field Day at the Gosford showgrounds. With an invitation to all, the packed programme of events gets underway at 8 am on Sunday the 17th February 1985, and concludes with prize giving at 4.15 pm. There is good cover at the showgrounds so the event is held regardless of the weather. A copy of the full programme may be had by sending an SAE to CCARC, PO Box 238, Gosford NSW 2250. The entry fee is $4.00 for OM, $2 for XYL and $1 for harmonics. Family at $7. Pensioner concessions are available. Tea, coffee and biscuits available through the day, event entry and outings included in registration fee.

There is an 'Open Mobile Scramble' on the way there between 7.45 — 8.15 am. Once there the radio events are a range of short and long Pedestrian Fox Hunts on 2 metres, sniffers required, in both AM and FM modes. There is the usual range of commercial displays and trade tables, ladies stall and children's events. The Disposals is on as usual, but remember to obtain lot numbers in advance from Bill Smith VK2TS, RMB 4525, Mangrove Mountain, NSW 2250 or phone after hours 043 74 1207. The trains will be met and bring your QSL card for the 'Calls Present' board. Further details and reminders will be given on the Divisional broadcasts.

CENTRAL COAST AMATEUR RADIO CLUB
28th ANNUAL FIELD DAY — Sunday 17th February
Gosford Showground.

AR



TWO UP

Recently in Melbourne, a driver came alongside me as we pulled up at an intersection.

He gave me what I mistook to be the two-finger salute and I thought "what a rude man". So I returned it!

We met up again at the next set of traffic lights by which time his passenger, presumably XYL, had scribbled out his call-sign on a card which he held high out the window along with his mike stretched to the limit!

Then the penny dropped. He'd seen my small whip and the call-sign on the back of the van and was asking me if I could come up on TWO METRES!

How naive can you get? Perhaps I could be excused though because I wasn't into two metres then.

Contributed by Alan Campbell-Drury VK3CD

AR

AMATEUR POPULATION IN CANADA

As of the 24 August 1984 the breakdown of amateurs in Canada is as follows:

British Columbia — 3916, Alberta — 1928, Saskatchewan — 791, Manitoba — 791, Ontario — 8633, Quebec — 4016, New Brunswick — 722, Nova Scotia — 1118, Prince Edward Island — 206, Newfoundland and Labrador — 456, Yukon Territory — 51, and Northwest Territories — 69, for a total of 22,697 amateurs in all.

The Amateur Service is growing, but only by 3-4% a year. Total amateur population for 31 March, 1983 was 21,822, for 31 March, 1982 was 21,225.

from The ARRL Letter — Vol 3, No 22

AR

Unfortunately there are no Ionospheric Predictions this month due to the Holiday Season.

VK3 WIA NOTES

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

VICTORIA 150

VK3 BEACON FREQUENCIES

FREQ. IN MHz	CALLSIGN	LOCATION
52.330	VK3RGG	Geelong
52.435	VK3RMV	Hamilton
144.430	VK3RTG	Waverley
144.435	VK3RMV	Hamilton
144.530	VK3RGG	Geelong
144.535	VK3RGI	Gippsland
432.430	VK3RTG	Waverley
432.435	VK3RMV	Hamilton
432.530	VK3RGG	Geelong
432.425	VK3RMB	Ballarat

A completely integrated education service is now provided through WIA Victorian Division.

Following the decision last year by the Department of Communications to have quarterly theory exams, the WIA classes were restructured. Education Officer, Fred Swainston VK3DAC scheduled both the Novice and AOCP thoery and Morse classes so they would run six months, ending in time for the DOC exams.

This has made it possible for someone to start in the Novice classes, pass the exams, then move straight into the next AOCP class. The previous practice of having theory classes run nine or twelve months has been proved unnecessary — and the same amount of theory is being taught by slightly extending class nights.

Family and work commitments had also made it impossible for some aspiring radio amateurs to attend night class for up to twelve months.

Morse classes run by Ron Cannon VK3BRC are popular with not only the WIA theory class students attending. Novices who want to get their CW speed up to the AOCP level and Limited Call holders wanting a K-Call and Full Call are also taking advantage of Ron's excellent tuition.

Theory revision weekends, pioneered by Fred VK3DAC, are held just prior to the DOC exams, giving candidates an opportunity to brush up on their theory knowledge.

The VK3 Division also has a range of theory text books at discount prices for members.

Revision weekends:
Novice — 2nd and 3rd February.
AOCP — 9th and 10th February.
Classes commence:
Novice — 26th February.
AOCP — 25th February.
To enrol or for further inquiries, contact:
Education Officer,
Wireless Institute,
412 Brunswick Street,
Fitzroy, Vic 3065 or
Phone (03) 417 3535.

FEDERAL CONVENTION

Work has begun in preparation for the WIA Federal Convention to be held in Melbourne on the weekend of 26th-28th April.

This convention is the coming together of representatives from seven WIA Divisions to consider national and international matters affecting our hobby.

At the 1984 Federal Convention this Division put up twelve policy motions which were passed. These covered a range of topics, including WARC bands, Packet Radio, RTTY Speed, the WIA Federal Tapes, Special Callsign Prefixes, Certificates of Proficiency, the Call Book and AR Magazine.

Any Zone, Club or individual wanting to suggest a VK3 motion for this year should contact the Federal Councillor, preferably in writing, complete with supporting argument, and not of a subject already rejected by an earlier Federal Convention, unless it adds something new.

For example, suggestions of increased Novice allocations and operating privileges have been fully discussed, but not supported at Federal Convention.

MEMBERSHIP SUBSCRIPTION RENEWAL

Renewal notices were sent to members in October/November, and if you haven't paid please do so immediately.

This Division has the highest number of WIA members numerically when compared with the other Divisions. The Vic Div Council believes this situation is due to the strong active role VK3 plays in Institute affairs, and the value-for-money service it gives to members.

YOUR SUBSCRIPTIONS — AN EXPLANATION

Why has the membership subscription gone up and why is VK3 dearer than other divisions?

This double-headed question has been put to several Vic Div Councillors by members since the membership renewal notices were posted.

The WIA like everyone else is faced with cost increases — postage, power and municipal rates are just a few. Putting cost increases aside, there are many other good reasons why fees have gone up.

Looking at the Division's financial situation it can be seen we have no debts, own the Wireless Institute Centre, but we are in need of money to get things done.

During 1984 $10,000 was spent on maintaining and upgrading the network of more than 30 VHF/UHF repeaters and beacons in Victoria. This network is vital to enable the Amateur Radio Service, through WICEN, to play its rightful role in disaster preparedness, and at the same time is part of amateur radio in the 1980s.

Repeaters are but just one of the capital works projects being tackled in Victoria.

The weekly broadcast through VK3BWI is due for new equipment, and it's planned this year it will get a modern operating console.

A WICEN control centre and the broadcast studio will also hopefully share a new suburban site later this year enabling further improvements from VK3BWI as a service to all of which radio amateurs can be proud.

A minimum of maintenance has been done on the Wireless Institute Centre and 1985 will see refurbishing work undertaken within restraint of our budget.

About $2 of your subscription will be used on public relations and membership recruiting activities during the Institute's 75th Anniversary year.

Our hobby is international and through the International Amateur Radio Union the WIA contributes financially and participates in matters affecting the Amateur Radio Service.

Negotiations with the Department of Communications cover every aspect of amateur radio in Australia.

As a member you know the WIA represents the radio amateur at a local, national and international level.

However you deserve an explanation of why (apart from cost increases and the capital works projects) the subscription rates are higher than other Divisions.

It's not possible to simply compare the various fees without considering the free services and level of service provided by your Division.

We have a free QSL bureau service to members — others charge their members on every card handled.

The Victorian Division pays the licence, insurance, power and site costs of most repeaters.

The Divisional Headquarters is open five days a week to handle book sales at a discount price, disposals sales and membership inquiries.

We maintain a library of reference books, magazines and publications of interest to radio amateurs and shortwave listeners.

Members from throughout the Division take advantage in person or by mail of the photocopying facility for published articles and circuit diagrams.

If you live in one of the six WIA country zones, part of your subscription goes in funding local activities through Zone committees.

The Vic Div Council considered all aspects when setting the fees to finance the Division in 1985 and for the future.

I'm sure you'll agree WIA membership which costs 75 cents a week (even less for pensioners, students and family members) is value for money in terms of service provided and as an insurance policy for your hobby.

VICTORIA 150

As previously announced on the VK3BWI broadcast and through various nets — Victorian radio amateurs can use the alternative prefix VI3 until March 31.

Following representation from the WIA, the Department of Communications approved use of the prefix as part of the Victoria 150 celebrations.

The commemorative callsign VI3WI has been highly successful and continues to be activated by various WIA zones and member clubs.

If you intend to use the VI3 prefix, remember your QSL will be sought after so in the best interests of Australia's image overseas plan to have a card bearing the special prefix.

Keith Heemskerk VK3AIH using the callsign VI3WI from Victoria's birthplace, Portland, on the state's birthday, 17 November. He shared activation of the commemorative callsign with others in the Portland area, Jack Heaver VK3VNQ, Ray Elliot VK3LK, and David Armstrong VK3XJP.

Photograph courtesy Barry Wilton VK3XV

AR

ATTENTION RSL MEMBERS

The hobby of amateur radio is going to be promoted among returned servicemen and women.

Already four WIA members, who are also Returned Services League members, have volunteered to help with this project, but more RSL members are needed to make this special effort a success.

To enlist in this project, aimed at helping returned servicemen and women join the ranks of radio amateurs — submit your name to the WIA Public Relations Officer, 412 Brunswick Street, Fitzroy, Vic 3065.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Back in December I mentioned the history of the WIA which Marlene Austin VK5QO had compiled for this Division. Council decided that one means that we had at our disposal to thank Marlene was the ICS Award, which for the December quarter, is for services to amateur radio. The only problem was, how to get Marlene to the Christmas meeting in order to present it to her. We enlisted the help of her OM Brian VK5CA and also Joy VK5YJ. I'm not sure when Marlene started to get suspicious, but even Joy inviting both of them to tea and then suggesting that they go on to the meeting from there (after tea had been eaten) was to no avail. However, it was presented to Marlene later that same week when President Dick Boxall VK5ARZ and I took it up to their QTH. A start has been made on copying the original manuscript so hopefully it won't be too long before it can be viewed by everyone, and copies will also go to Federal Office, the State Library, DOC, etc.

JUMPED THE GUN

Also back in December I made comments regarding a new broadcast announcer. Apparently I was a little previous with my news as things were still being negotiated and had not, as I thought, been finalised. My apologies to anyone who might have been embarrassed by this.

CLUBS

Club news this month comes from the South Coast ARC my thanks to President John Gill VK5AJG for copies of their interesting newsletter "SCARCHAT". Club meeting nights are the first and third Thursday every month, at 12 Baden Terrace, O'Sullivan Beach, the kettle is always boiling, visitors are welcome — BUT — *"prospective members they positively embrace"* (sounds like a very friendly club!) Club Secretary is Graeme Langshaw. The club net, known as the Southern Vales Net, is on 3.595 MHz +/-, at 0930 UTC — every Tuesday. Their Southern Vales Award can be yours if you QSO with 10 club members (or 8 and the club station, which counts double).

The Port Adelaide ARC have also sent me an update on their information. The President is Donald Hobbs VK5AS and Secretary/Treasurer is Harry Hillard VK5PIH. Club callsign is VK5APC and a net is held daily on 28.440 MHz at 7.00pm local time. Meetings are alternate Wednesdays at 7.30pm local time, at 155 Hart Street, Glanville.

DIARY DATE

General Meeting — 26th February. The speaker will be Ted Dobrzynski (from the Walkerville Car Club, and organiser of many of the major car rallies) who will speak on "Map Reading and Navigation".

AR

WA BULLETIN

Fred Parsonage VK6PF
Acting Secretary
Box 10, West Perth, WA 6005

Since the arrival of the 1985 subscription renewal notices, there has been many queries as to "where the money goes". To attempt to show how the subs are divided, note the table headed Subscription Rates and Joining Fees 1985 in Amateur Radio dated December 1984.

Briefly, this shows that for WA the basic rates are:

Full Member	*$31.50*
Associate	*$30.50*
Pensioner	*$24.50*

Unfortunately the table fails to show a breakdown which is:

Federal		*$12.27*
Amateur Radio		*$11.76*
IARU		*.47*
	Total	*$24.50*

Which leaves the Division:

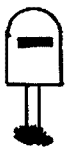
Full Member	*$7.00*
Associate	*$6.00*
Pensioner	*$0.00*

From this the Division places 50 cents per member into a contingency fund for WARC 99 leaving:

Full Member	*$6.50*
Associate	*$5.50*
Pensioner	*-50*

There has been no increase in the Divisional portion of the subs for four years and in this time we have absorbed the Federal increase twice and passed it on in the other two.

AR



LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

MURPHY STRIKES

I note an error in my article "A Horizontal Loop Antenna" (Dec AR) due to incorrect conversion to metric measurements by the Technical Editor. In the article in the first column I read — "The poles are at each corner of the yard which is about **28 metres square** thus giving a loop of about **112 metres total length**" — The remaining measurements are near enough but the above could cause confusion.

The measurements should have been 18.3 metres square and 73 metres total length.

Best regards
Bruce Hannaford VK5XI
57 Haydown Road,
Elizabeth Grove, SA 5112
AR

THANKS FOR JOTA

Thank you once again on behalf of all members of the Girl Guide Association of Australia for assistance given by members of the Institute during the 27th Jamboree on the Air.

All may be assured that members contribution to this major event in the Girl Guide year is appreciated by all of our members who took part.

Yours faithfully,
Mrs WP (Irene) Daniel,
Australian Guide Liaison for JOTA.
4 Cypress Drive,
Cypress Gardens, Qld, 4217
AR

FEELING PROUD

Thanks for the fine effort of all the people who give so much each year to us, the radio amateurs, through the excellent journal.

One feels proud to be a member of such a prominent organisation that has done such magnificent work, in particular for the novice cause and with the government bodies for radio in general.

James McLeod VK2LVQ,
43 Westbrook Street,
Beverly Hills, NSW.
AR

EMC VERSUS AMATEUR RIGHTS

Dave VK2BBT (letter September 1984) cautions against the view that being in the right is all that matters and that anything which degrades a good public image should be avoided unless there are powerful arguments for it. I can appreciate the idea that we live in a community and must balance our rights but what is the result?

A survey by RSGB of amateurs in the London area showed a quarter had voluntarily given up HF operation because of EMC problems. Did they give up their operating rights to give our hobby a better image or because others exercised their rights and amateurs were prepared to give them up? Should we amateurs give up our right to erect an aerial mast on our own property because neighbours complain and we don't want them or council to have a bad image of us?

Sometimes compromise is possible but many times the new amateur is intimidated by the situation or an amateur just does not want the hassle of the approaching conflict and is forced to give up the hobby.

If we cannot freely exercise our right to enjoy this hobby then for all practical purposes we will end up with no rights or rights which can be unjustly suppressed. We should not be deflected from paths which increase the diversity and breadth of our hobby. The higher power being proposed for AOCP is within the rules for amateur radio as laid down by the ITU. It is yet another extension to the capability and diversity of our experimenting and communicating endeavours.

The USA, having the same EMC problems as Australia, is a place where the power level of 1000 W has been part of amateur radio for over 80 years. Based on this experience, amateur operators via ARRL and the licensing authorities via FCC did not hesitate to introduce still higher power levels for all amateur radio classes in the USA. The Novice power level rose from 75 W input to 200 W output (more CW output than permitted to an Australian holder of the AOCP!) and all other licence classes were raised from 1000 W input to 1000 W output CW and 1500 W output SSB.

73, **Sam Voron VK2BVS,**
2 Griffith Avenue,
Roseville, NSW, 2069
AR

HIGHER POWER

Neil VK6ANB, re your letter October 1984. You reported that several amateurs within a 3 km radius appeared to have broad signals and that increasing AOCP privileges to 1000 W CW, 1500 W SSB as used in the USA would broaden signals so much that only one could use the band at a time.

It sounds like the problem is one of overload in your receiver. In fact a 30 W or a 1500 W signal should occupy the same bandwidth.

A product review on the receiver in the FT102 (QST October 1983 page 44) demonstrates that the bandwidth of a signal is dependent not on output power level but on receiver performance.

From a listening test two blocks from the "high power onslaught of W1AW" (the ARRL HQ station, presumably using their full 1500 W) came these results *"No problems were noted when the preamplifier was not in use. In fact I was able to copy weak signals within 5 kHz of the W1AW frequency."*

73, **Sam Voron VK2BVS,**
2 Griffith Avenue,
Roseville, NSW, 2069
AR

HIGH POWER PERMITS

I wish to express support for the view of Neil Basden VK6ANB and others regarding high power licences as proposed by Sam Voron VK2BVS.

Licences are issued for the purpose of experimentation with radio communication on the amateur bands. In keeping with this, if communication cannot be established with another part of the globe, a number of remedies can be tried. These would include different bands, antennae, and/or modes of transmission. In certain circumstances, high power transmission can be useful as an experimental technique, and a permit can be obtained for this from the Department of Communications.

Amateur radio is not about the establishment of global third party traffic nets. If this can be done within the limits of existing licences, to the public benefit, (ATN, WICEN, etc) well and good. However, except in emergency, amateur radio is not a vital communications link and the potential threat to low-power band users is far too great to allow large numbers of high power transmitters on air.

If the traffic to be sent is vital enough to require absolutely reliable global transmission, amateur radio is the wrong medium. Telecom and OTC exist purely for such traffic and if the traffic should be handled by them, don't clog up the already congested amateur bands with it.

Yours faithfully,
Colin de Kantzow VK2JCD
42 Nelson Street,
Gordon, NSW, 2072
AR

ATTENTION ALL AMATEURS — ESPECIALLY THOSE INTERESTED IN WICEN

During the WICEN involvement with the Alpine Car Rally in November, I had discussions with Mr Tom Snooks of NSW. Tom is a partner with Mr Hans Tholstrup, both of whom are organising a Safari from Melbourne to Darwin on 24th to 29th August 1985 with motor vehicles consisting of trucks, car, cycles, four wheel drives, etc.

The proposed route is via: Mildura, Broken Hill, Birdsville, part of Simpson Desert, Alice Springs, part of Tanami Desert, Katherine to Darwin. This route will avoid main roads as much as possible but seems accessible to 2WD vehicles.

In the time allotted it is obviously a fast journey with long driving hours — an endurance test at least!

I asked his opinion about a possible WICEN involvement for ongoing communications, and although expressing surprise at the suggestion thought the idea first class. This letter is to sound out amateurs in all states, particularly WICEN groups, for their thoughts on the matter, thinking along the lines of a series of portable and perhaps mobile points along the route, to pass progress, and other information during the trial.

If such could be organised, and I'm sure it could be, it would provide a unique and valuable exercise demonstrating the effectiveness of amateur radio from bottom to top of Australia in conditions removed from fixed home locations.

At the same time the interest in visiting some of the remoter areas in the Centre and Northern Territory, should have considerable appeal.

I do not wish to organise such an undertaking, but am able to offer considerable assistance, and would be willing and able to go to any part of the route.

Is my idea interesting, or in dreamland?

Could this letter provoke some answers via the magazine?

73, **Keith Scott VK3SS,**
34 Henry Street,
Maffra, Vic. 3860
AR

BROWNIE MORSE

Early in March 1984, in course of conversation, the possibility of teaching practical Morse to a Brownie pack became the subject. The Brownie/Guider, Mrs Nelson, considered it could be a very good challenge for the first Brownie Pack.

The group consisted of quite a number of young girls, only four decided to go the distance.

One night per week was available, and for one hour only. The standard aim was for five words per minute, sending and receiving under novice conditions laid down in the DOC Amateur Handbook. However, as I believe in letter speeds of not less than ten words per minute, I used a double barrel method.

The results were fascinating, as while they could handle the computer style slow speed spacing and letter formation, they did not like it at all.

Around October we went to two periods per week of approx 45 minutes, and finished in early November.

As their letter recognition speed was amazing, it became greater than their ability to write. There is a message in here somewhere in relation to cursory script or block letters as against running hand.

However, the final result was that three girls completed the course at 5WPM in fine style. (One unfortunately lost interest in the last month.) The exercise was immensely rewarding to me, the girls enjoyed it, and it was an association that I will remember for the rest of my life.

As an OLD TIMER may I suggest that other old pre-war amateurs try this as it is quite the most

From left — Bill VK3XC, Karen Little aged 11, Kellie Adcock, 11, and Melissa Humphrey aged 10½ years.

refreshing thing I have done in years.

Mrs Nelson took them on a visit to OTC where the operators really opened their eyes to traffic speed.

The girls presented me with a beautiful book as a token of thanks.

C (Bill) HOLLAND, VK3XC.
Box 12,
Maryborough, Vic, 3465.
AR

Footnote: Bill would be interested to compare notes with others on this subject.

RIGHTFUL RECOGNITION — BUT . . .

In an article on p. 14 of 'AR' for December 1984 titled "Cyclone Tracy — 10th Anniversary", the author, Jim Linton, VK3PC, rightly recognises the efforts of some of the operators who participated in the WICEN National Net for Darwin.

The dedication displayed by 'Slim' Jones VK8JT, is recognised and praised by all those who operated with him during this epic network.

The author has given his version of the operational details of the net. However the true version based on the facts, is as follows:

1 The first amateur radio signals to come out of Darwin were transmitted at 250001 UTC by VK8RR, Bob Hooper, the manager of the OTC communications facility which was completely destroyed.

2 Many amateurs in five states were on the air between 250001 and 250115 UTC to contact and help Bob who was describing the general destruction.

3 The WICEN National Net for Darwin was activated at 250115 UTC by the Cairns controller of the North Queensland WICEN group [VK4YG] in response to an appeal by Bob, VK8RR, for an urgent message to be passed to OTC HQ in Sydney concerning Darwin Radio, VID.

4 Nth Qld WICEN arranged for the Cairns OTC manager, VK4VI, Keith Parker to talk to Bob and swift action resulted in the restoration of VID Darwin Shipping Radio using equipment on board the MV 'Nyanda' in Darwin harbour.

5 At 250230 UTC, VK8OM, Owen Marshall [now ZL1BKF], mine manager at Koongarra NT checked into Cairns control with weather reports and site status.

6 'Slim' Jones, VK8JT, after salvaging equipment and erecting aerials, came on air at 250430 UTC and checked into the net.

7 Later in the afternoon WICEN COMCEN at Police Headquarters in Melbourne came on air and net control was passed to Ken, VK3AH by VK4YG.

8 The statement: "History-making permission was then given to handle Third Party Traffic telegrams" is NOT correct.

Amateurs in NSW and Qld handled TPT telegrams in emergency networks in 1948-50-54 and 56 during floods and cyclones and received letters of thanks from the Postmaster General of the day to testify to this fact.

9 The telegram which was sent to the PMG and the PM was to prevent the net from being closed down by an officer of the Victorian Radio Branch — not primarily to get permission to handle TPT telegrams — that followed later.

10 After WICEN COMCEN was closed down on 29/12/74 Nth QLD WICEN continued to operate in a WICEN-SES-NDO operation until all communications were restored.

This group operated for seven days with an 'on air' time exceeding 85 Hours.

The WICEN national net for Darwin following "Cyclone Tracy" December 1974 finally closed on 31/12/74 after a marathon emergency effort by many Australian Amateur Radio Operators.

73
Ted Gabriel VK4YG,
PO Box 245,
Ravenshoe, Qld, 4872.

WICEN

I am in the process of writing an article of historical value concerning the role of WICEN in the national communications network for the city of Darwin following Cyclone 'TRACY' on Christmas Day 1974.

I would appreciate the assistance of fellow amateurs who may have tape recordings, media cuttings, log book information or personal recollections of this major event.

All contributions will be acknowledged and, where needed, material returned.

Since the facts of this network and the work of those who participated have never been fully documented it is therefore fitting that it should be recorded in this, the 75th anniversary year of the WIA.

Regards
Ted Gabriel VK4YG
PO Box 245,
Ravenshoe, QLD, 4872
AR

WHAT'S YOUR VALUE?

I think it is rather urgent that the matter mentioned below be given some publicity.

I wonder how many amateurs have assets test problems? As the typical pensioner amateur looks over his beloved equipment and mentally adds all the purchase prices he might well be surprised to get a total of five to ten thousand dollars. Added to other things it might well push him over the assets threshold and mean a much reduced pension. Of course we tend to think of our gear being worth much the same as when we purchased it but this is not really the case.

In the assets test you are asked for YOUR estimate of what things are worth. You are asked to use a value for things such as you would get if you sold them NOW. The key words are YOUR estimate, and sold NOW. Don't value your items with a loving eye. Do a role change and think of yourself as a professional Auctioneer Valuer come to buy all your goods as a job lot. This steely eyed emotionless professional valuer will see your possessions in a quite different way and if such a person did give you a price you would probably faint at how low it was. Such a price would be far more accurate than yours and would be perfectly legitimate to use for the assets test.

With professional valuers the idea of non-professionals making their own valuations is a great joke. They say things like — "It took me 20 years to learn the trade, what hope have inexperienced old people got of making a reasonable valuation?" Yes indeed, your valuation will not be very accurate. But even if you are a bit out, YOUR valuation will be accepted and no one will enter your house to check it.

Your valuation should be as if you sold NOW. Not waiting for a good buyer. More like you would get at auction with no reserve price, to sell without delay. At auctions, often goods don't bring anywhere near what they could have if the seller had waited for a keen buyer.

The assets people say advertised prices for similar items are a good guide. Maybe, but don't forget that most people optimistically advertise goods at prices they only hope to get and usually finish up selling at a much lower figure.

I trust all this will help you take off those rose-coloured glasses as you value your beloved gear etc. so you will see things as they really are and estimate accordingly.

Best regards to all.
Bruce Hannaford VK5XI,
57 Haydown Road,
Elizabeth Grove, SA, 5112
AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

73 Magazine. October 1984. Special antenna issue, Feeders and test equipment. (CN) NEVER SAY DIE. (G) Regular editorial comment for those interested in the future of amateur radio.

73 Magazine. November 1984. Color Computer SSTV. (P) Cure for TVI. (P) Sealing coax cable joints. (P)

73 Magazine. December 1984. Touchtone decoder. (C) Weather Satellite SSTV. (P) Transistors. (N)

CQ. September 1984. World wide DX Contests (G)

VHF Communications. 2/1984. RF Millivoltmeter. (C) GOES weather satellites. (G) VLF receiver (C) Spread Spectrum technology. (T)

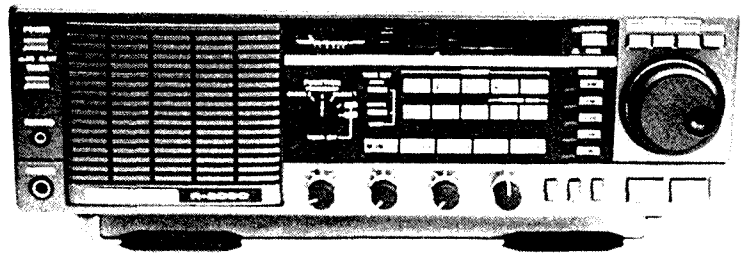
Break In. October 1984. Two metre preamps review. (P)

AR

KENWOOD

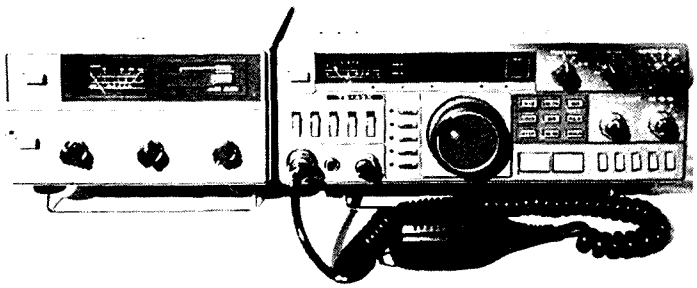
R-2000 COMMUNICATIONS RECEIVER

THE WORLD AT YOUR FINGERTIPS



The R-2000 provides outstanding performance through use of micro-processor controlled operating functions, allowing maximum flexibility and ease of operation throughout its operating range. An all mode receiver, it covers 150 kHz-30 MHz in 30 bands, on SSB, CW, AM, and FM. Key features include digital VFO's, ten memories that store frequency, band, and mode information, memory scan, programmable band scan, digital display with 24 hour dual clock, plus timer, and a host of other features to enhance the excitement of listening stations around the world.

THE MOST VERSATILE HF TRANSCEIVER OF THE 80s TS-430S HF TRANSCEIVER



The TS-430S combines the ultimate in compact styling with its counterparts in advanced circuit design and performance. An all solid-state SSB, CW, and AM transceiver, with FM optional, covering the 160–10 metre Amateur bands including the new WARC bands, this remarkable radio also incorporates a 150 kHz — 30 MHz general coverage receiver having an extra wide dynamic range. Key features include dual digital VFO's, eight memory channels, memory scan, programmable band scan, IF shift, notch filter, fluorescent tube digital display, built-in speech processor, all-mode squelch circuit, and a host of other features designed to enhance its versatility and flexibility of use in Amateur operations.

TRIO-KENWOOD (AUSTRALIA) PTY. LTD.
(INCORPORATED IN N.S.W.)
4E WOODCOCK PLACE, LANE COVE, SYDNEY, N.S.W. 2066.
Ph. (02) 428 1455.

Further, beware of dealers not listed in this advertisement who are selling Trio-Kenwood communications equipment. All Kenwood products offered by them are not supplied by Trio-Kenwood (Aust.) Pty. Ltd. and have no guarantee applicable.

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SUMNER ELECTRONICS — 78 KING STREET, BENDIGO (054) 43 1977
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WATSONS WIRELESS — 72 BRISBANE STREET, HOBART (002) 34 4303
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MARINE & COMMUNICATION — 19 CHARLES STREET, LAUNCESTON (003) 31 2711
V.K. ELECTRONICS — 214 MOUNT STREET, BURNIE (004) 31 7733
QLD: MITCHELL RADIO CO — 59 ALBION ROAD, ALBION (07) 57 6830
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N.T.: INTERNATIONAL COMMUNICATIONS SYSTEMS PTY. LTD. — 8 NILE ST., PORT ADELAIDE (08) 47 3688
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WILLIS ELECTRONICS — 445 MURRAY STREET, PERTH (09) 321 2207
BAY RADIO — 18 BANKSIA STREET, BUNBURY (097) 21 2236
FORD ELECTRONICS — 209 HANCOCK STREET, DOUBLE VIEW (09) 446 4745

Silent Keys

It is with deep regret we record the passing of —

MR T W AUSTIN	L40787
18-09-84	
MR J H L BADENOCH	VK5LB
MR FRANCIS WILLIAM BEADLE	VK6FW
12-11-84	
MR ANDRE DOMJAN	VK1XX
MR W HAMPSON	VK3AWH
21-12-84	
MR G HEINRICHS	VK3NQ
MR L J MACRAE	VK2EEV
14-08-84	
MR BRUCE MILLER	VK2VRG
MR R C MORRIS	VK4MT
MR CLEMENS EDGAR SCHMIDT	VK5WG
06-11-84	
MR L H SEIDEL	VK6WN
MR JOHN ERNEST TELFER	VK2BTQ
14-10-84	
MR HANS THUMFORT	VK6ATT

Obituaries

JOHN ERNEST TELFER VK2BTQ

It is with deep regret that I advise of the death of the Past President of Mid South Coast ARC, John Ernest Telfer VK2BTQ on 14 October 1984.

John Ernest Telfer was born on 15 January 1910 in Subiaco, WA. He subsequently moved to NSW and served with AWA for 50 years and retired from the position of "Special Projects Manager and Trouble Shooting Officer".

He retired to Mollymook on the south coast of NSW and obtained his AOCP on 17 July 1975 with the call sign VK2YDQ.

He was the founder of the Mid South Coast Amateur Radio Club and the instigator of the current repeater, VK2RMU. He worked tirelessly for the club magazine, Lyrebird, producing it for many years and was club president for the year 1982/83.

His main interest was in the two metre band and he was proud of the fact that he had had in excess of 400 ZL contacts.

Although he had recently returned to Sydney to live, he attended the quarterly meetings at the club and had in fact attended the last meeting on the day he died.

Deepest sympathy is extended to his wife Gwen and their children.

David Parry,
Hon Sec.
Mid South Coast ARC
AR

ANDRE DOMJAN VK1XX

Andy passed away at Royal Canberra Hospital on 7th December 1984 after a short illness, aged 66 years.

VK1XX joined the VK1 Division in February '84 when he came to reside in Canberra to be near his family. He held the call VK3AEW when living at Box Hill, Victoria.

Andy was a keen CW operator and was close to gaining his DXCC Award. He will be sadly missed by his many amateur radio friends in Australia and overseas.

To his wife Gabriella, sons Andrew and Peter and daughter Gabriella, amateurs extend their deepest sympathy.

Jock Fisher VK1LF
AR

BRUCE MILLER VK2VRG

Bruce died in a motor accident early on the 28th of December 1984, aged 21. One of the first YRS student members of the Liverpool and District Amateur Radio Club, Bruce attended the novice classes and obtained his callsign at the age of 15.

He assisted in club activities and later served a term as secretary. Continuing his interest in electronics, he became a trainee technical officer with OTC.

Bruce was notable for his cheerful outgoing personality, always prepared to assist and brightening any occasion. A regular field day participant, he was known as a considerate and fair competitor. He was a true and inspiring friend.

His death at 21 is a sad loss to his family and friends.

Athol Tilley VK2BAD
AR

HANS THUMFORT VK6ATT

We regret to announce the passing of Hans Thumfort VK6ATT in November. He was known only to a few operators in WA as he was relatively new to the state, having only obtained his resident visa in January 1982.

Hans arrived with his wife Hilde VK6AHT, his son Hans VK6ZBA and wife Barbara and son Mark and his younger son Peter who is at present doing his BA in Chemistry at Perth University.

We first met Hans and Hilde on the 28 MHz band in 1980 as OE6TT and OE6YBG respectively and those who might have tuned into 28.340 at 4 pm local time would have heard us waffling away in German daily.

He had a zest for life and was a keen amateur, having been a Sparks in the German Navy.

Nothing was too much trouble for Hans to help his fellow amateur. He also had a wonderful sense of humour. He was also a keen slow scan enthusiast. He was a very colourful character, sadly missed by all his close friends.

Heartfelt condolences and sympathy go out to his surviving family Hilde, Hans, Barbara, and young Mark and Peter.

Goodbye Hans and thank you for your friendship. We all miss you and you will always be in our thoughts.

Norman Schroeder VK6NS and Helene VK6HI
AR

CLEMENS EDGAR SCHMIDT VK5WG

Clem was born at Point Pass SA on 21/12/1911 and fanned his father's property at Ngapala during World War II until his marriage to Joyce in 1950 when he built his first home at Eden Hills SA.

His business interests consisted of breeding tropical fish and the culture of aquatic plants. He won many prizes at the Adelaide Royal Show and was a member of the Aquarium Society.

In June 1962 he passed his AOLCP and was first licensed as VK5ZES. In December 1963 he passed his AOCP and received his full call of VK5WG ("Witchety Grub") as he was affectionately known to his amateur friends.

In 1967 he moved back to Ngapala, on the farm, where he built his present home.

Clem was widely travelled overseas, including Israel which he visited a number of times.

He made many friends among the amateur fraternity particularly on the daily 40 metre net.

Over the last few years he did not enjoy good health and received many and varied treatments (one of which he called "weedkiller") for the disease which was to claim his life. He passed away on 6th November 1984.

Throughout his sickness he never lost his sense of humour.

He will be greatly missed by his many friends.

To his wife Joyce and only daughter Carolyn we extend our sincere sympathy.

Vale Clem

Keith Ring VK5KH
AR

NOTICE

All copy for inclusion in April 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 22nd February.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE TO: RJ & US IMPORTS. Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken Street, Oakley, 2223).

□ WANTED — NSW □

DRAKE L-7 AMPLIFIER, MN-2700 antenna turner, Yaesu FT-726R tcvr, CD-44 or Ham-M antenna rotator. Please contact VK2OE, PO Box 1914, Wollongong NSW 2500.

HARD DISK DRIVE to suit PDP 1103 computer. Any of the following 5+5 mb drives would be suitable Wangko, Caleus, Hawk, Western Dynes. VK2BZE. Tel: (042) 96 4595.

MANUALS/CIRCUIT DIAGRAMS or photo copies for McGraw-Edison MOD 65-B standard sig gen. All costs gratefully paid VK2AVU QTHR. Tel: (02) 644 4507.

MANUAL: Operational manual for a Taylor 45C valve tester wanted urgently. Will buy manual or photo copy and return. Replies to Ken VK2ZIO, PO Box 916, Orange NSW 2800.

MANUALS: Any copies of "Official Radio Service Manuals", "Gernsbacks Radio Encyclopedia" or old radio books. Tel: (066) 55 6135.

PROP PITCH MOTOR any condition. Please phone or write, Spencer VK2KC, OTHR Tel: (043) 88 2356.

□ WANTED — VIC □

COMMAND RECEIVER BC946B 520 kHz to 1.5 MHz. Any condition. VK3ZF QTHR Tel: (03) 435 1697.

MORSE KEYS — young enthusiast collects Morse code keys. Straight keys, "BUGS" (semi-auto), sounders, ex PMG military etc. Cash and freight paid. Accept reverse charges. Maurie VK3CWB, OTHR Tel: (050) 22 2120.

RECORDS — I collect 78 RPM records. Will pay cash for jazz, dance band, and pop vocals from the 1930s. Ken VK3NJ. Tel: (03) 561 4124.

□ WANTED — QLD □

BUZZA AND PENDAGRAPH (any model) semi auto bugs. Any condition. Write VK4SS, 35 Whynot St, West End, Old 4104 or Tel: (07) 44 6526 before 10 am.

COAXIAL CABLE — 2 metres of 93 Ohm or 125 Ohm Coax for Phasing Harness. Bevan VK4ABV, QTHR, Tel: (071) 63 1477.

COUNTER DIAL FOR ATU. FT241 & FT243 xtals any freq. Len VK4JZ new QTH 33 Hill Cres, Carina Heights, Old 4152. Tel: (07) 398 2002 after 6 pm.

EXAM PAPERS OF THE 1930s VINTAGE. Al VK4SS needs a copy of AOCP Exam papers set in the 1930s, if anyone can help please write VK4SS, 35 Whynot St, West End, Old 4101 or Tel: (07) 44 6526 before 10 am.

VALVES type 811A. Lionel VK4NS, QTHR.

□ FOR SALE — ACT □

YAESU FT-757GX tcvr bought last June, still under warranty, $950, Yaesu FC-700 antenna tuner, bought last July, still under warranty, $145, both in perf cond. Owner moving to UHF. VK1KEL. Tel: (062) 54 2679. Write: 23 Shumack St, Weetangers 2614.

□ FOR SALE — NSW □

EQUIPMENT DESK in ex cond. Metal framed with Teak Formica top size 3.5 ft by 2.5 ft and with 2 drawer $75 also swivel chair $20. Al VK2AXR. Tel: (02) 477 6275.

FT-107 TCVR. Complete with mems, digi memory shift, power supply & hand mic, immaculate. $800 ONO. Mirel VK2BOD. Tel: (02) 601 2560 AH.

ICOM MODEL AGI — GAaSFET masthead preamp 420-450 MHz 15 dB gain 50 ohms in & out 15 W max feed through power. Brand new $75. Kenwood model VFO-120 remote VFO 5.50-6.00 MHz to suit Kenwood models TS120V/s, 130, 530 & 830. Brand new $100 ONO. Art VK2AS, QTHR. Tel: (02) 467 1784.

KENWOOD TS-130S, fitted with additional CW and SSB filters type YK-88C and YK-88SN respectively. Kenwood Power Supply PS-30. MC-50 Desk mic, H55 headphones. Handbook for TS-130S and Data sheets for other items. All in VG condition, ex deceased estate. $675 the lot ONO. VK2BFJ, QTHR. Tel: (043) 32 5758 (Central Coast).

SHACK CLEARANCE. Icom IC701 with PS $550: Diawa CNW418 ATU with SWR meter $220: Icom IC502 6 m SSB portable $100: Icom IC255A 2 m FM 25 W mobile $300: Yaesu FT290R 2 m SSB/FM portable with Nicads & charger $300: Yaesu FP707 power supply, 20A $150: 2 kVA Generator $400. Ron VK2EFJ, QTHR. Tel: (050) 27 3262.

SIGNAL GENERATOR. 2.0 to 400 MHz in 6 bands. US Measurements Corporation Model 80. Comp with manual and 240/110 V transformer, $50 ONO. Ken VK2BIW, QTHR. Tel: (02) 449 2198 AH, (02) 221 2244 BH.

YAESU FRDX400, FLDX400 tx, rx. Rx covers 160-2m, AM, FM, SSB & CW. Tx covers 80-10m. $300 the pair. VK2BZE. Tel: (042) 96 4595.

YAESU FT102, WARC bands, MH-1B8 mic. A1 cond, $950. VK2AEZ, QTHR, Tel: (065) 54 8269.

YAESU FT707 tcvr $550, Kyokuto FM2025 MKII 2 m tcvr $220, Siemens M100 W/punch & reader 45 Baud $60 Wilson MC103C 10/11 m beam $50, Gordon VK2AVU, QTHR, Tel: (02) 644 4507.

□ FOR SALE — VIC □

BEAM — HB35C 5 el 3 band beam $299. HB443DX 4 el 4 band beam $449. 6 ft, 20 m helical whip free with each beam. VK3ARZ, QTHR, Tel: (03) 584 9512.

MARCONI TF-995-A5 SIG GEN 1.5-220 MHz $500. Marconi TF-791D deviation meter 4-1024 MHz $250. AWA G996 freq conv 100-200 MHz in, 400-500 MHz out. For use with TF-995 or similar sig gen $150. Hewlett Packard 310A wave analyser, 1 kHz-1.5 MHz, with all options $300. All equipment is complete with handbooks & in EC. Kenwood MC-50 desk mic with Shure 444 insert $40. Icom FL-34 AM filter. Suits IC-720A $35. Peter VK3AWY, OTHR. Tel: (03) 697 6161 BH or (052) 82 2751 AH.

REALISTIC DX-200 5 band. Used once otherwise new in cartoon. $180 — cost $250 in late 1982. Also 2 PC. DC motors $60/pair (or offer). Tel: (052) 61 2948.

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Thumbwheel Channel Selection.

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3.5 watt/350 mW

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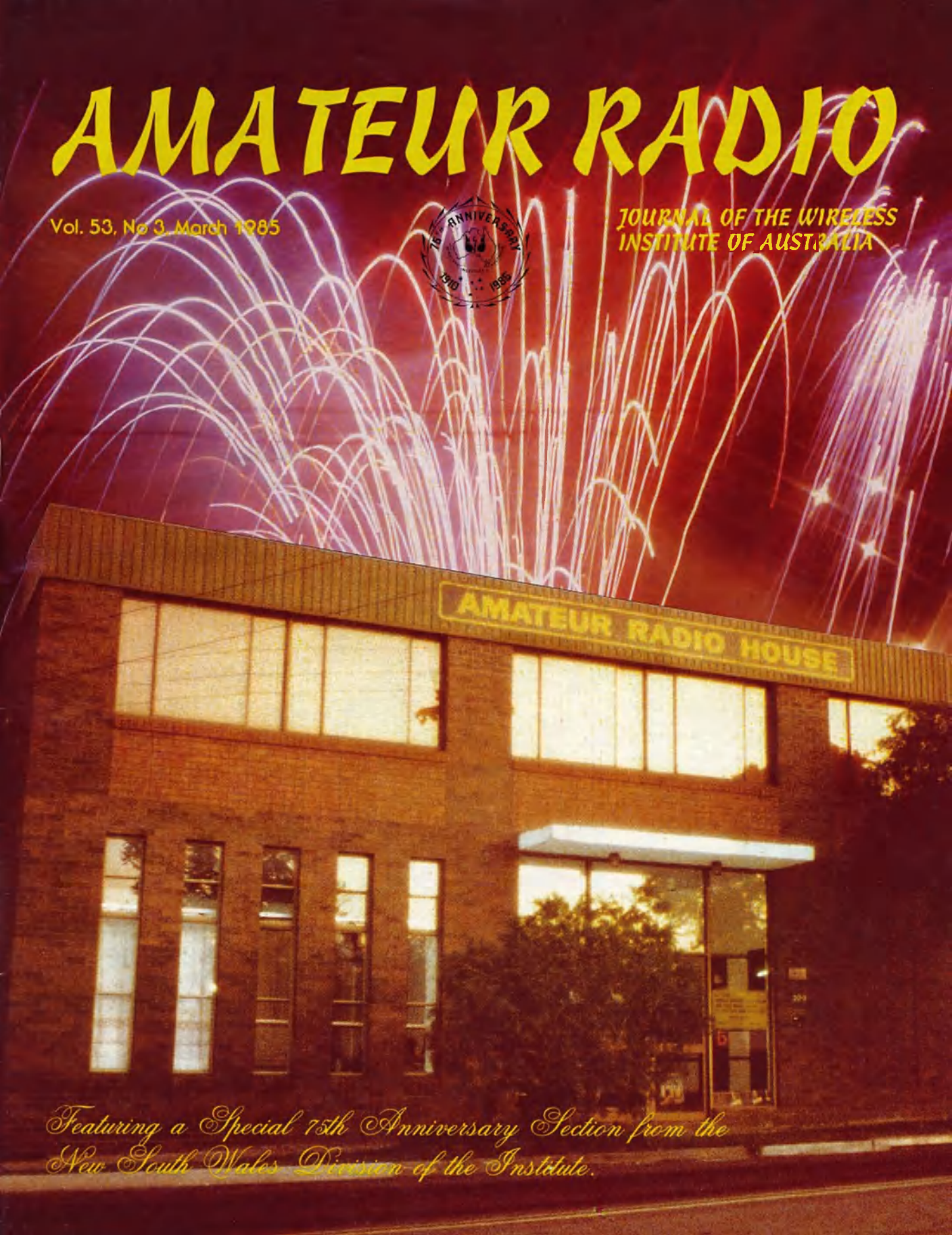
AMATEUR RADIO

Vol. 53, No 3 March 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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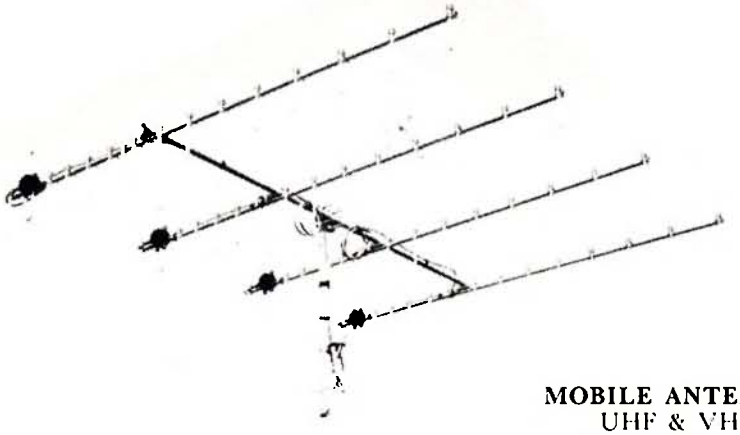

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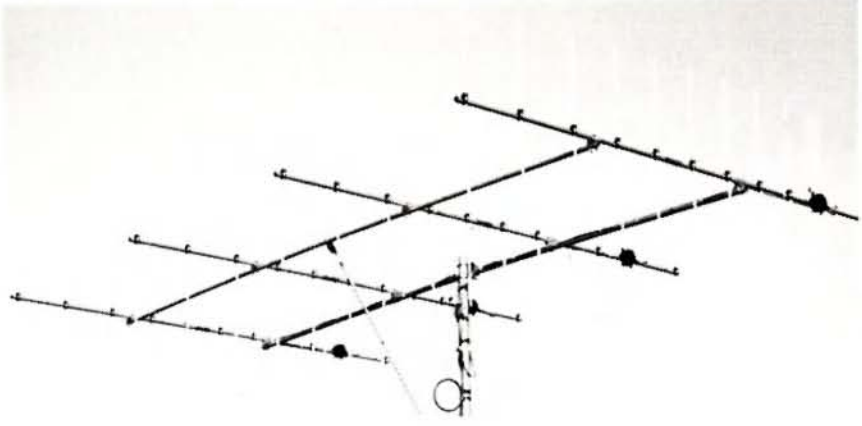

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Cover Photograph by Harry Lundell VK2ZHE & Ken McLachlan VK3AH
Combined by Betken Productions

Watch for the details of the fireworks display at Dural in April.

TECHNICAL FEATURES

SPECIAL FEATURES

REGULAR FEATURES

It has been very exciting putting this magazine together as there is so much diversified information in it.

Firstly this issue has a special VK2 Anniversary feature with much information which is not just VK2 orientated. Tim VK2ZTM and his helpers are to be commended for the amount of time and work they have put into this special section.

It is to be hoped to have a special feature from each division throughout this 75th Anniversary year. Next month's feature will be contributed by VK1 and from the copy that has already arrived from Fred VK1MM it will be well worth watching for.

For the Drew VK3XU fans, this month, page 14 is a construction article for an 80 metre transmitter. It is believed Drew has a special following for his well-designed gear and this transmitter is up to his usual excellence.

The Red Cross Marathon was staged again from Boxing Day and last month Gil VK3AUI gave us a photographic view of the race. This month we have another look from a different angle. David VK3YDF and the Melbourne Packet Radio group were in charge of the computers which were used for placings etc. On page 44 David shares the trials and tribulations of keeping computers cool and dust-free on the banks of the Murray.

STOP PRESS: *Ian VK5QX finally received the rules for the CQ WW WPX SSB contest after the magazine had gone to the printer. The rules are however the same as last year. See Ian's column, page 54, for his prior comments and the dates for this contest.* (BP)

DEADLINE

All copy for May 1985 AR (including Hamads, columns) must arrive at PO Box 300, Caulfield South, Vic 3162 at the latest by midday 22nd March 1985.

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BEAT THE PRICE RISE!

Here's the equation:

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+ Japanese Yen all time high as well
+ Factory price rises in Japan last year

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That's right: no matter which currencies amateur gear is purchased in, it is all imported. And because of the weakening Aussie dollar PLUS hefty price increases overseas last year, prices of all amateur gear in Australia will increase – drastically – very shortly.

A word to the wise: if you want to re-equip your station, do it this month!

Even if you have to obtain credit (Bankcard, Visa, Mastercard or even personal finance through Custom Credit Corp*) you'll be much better off buying now and paying interest than waiting!

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AR85

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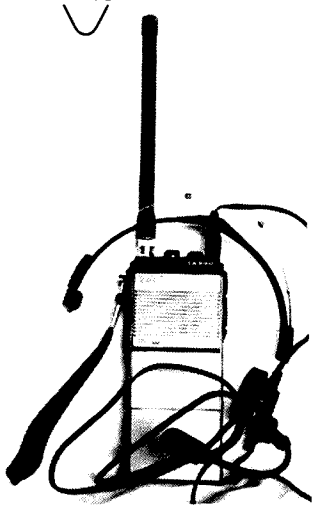

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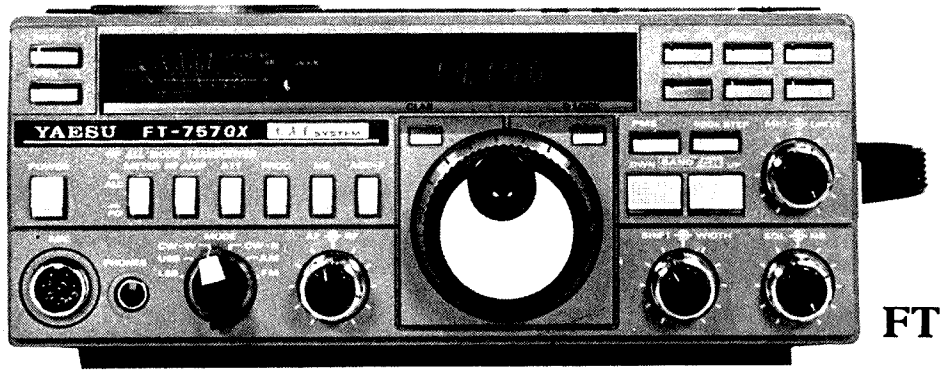

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AR85

a word from your EDITOR

1910 TO 1985

On the 11th March 1910 the foundation meeting of our Institute was held in Sydney. This is the month of the 75th anniversary of the oldest amateur radio society in the world. And as you may have realised by now, we are celebrating!

How has radio evolved over those 75 years? Broad-band brute-force spark telegraphy was succeeded by pure CW as the advent of valves in 1913 and developments during the 1914-1918 war made stable frequencies possible. Telephony appeared at this time, and by 1920 the first broadcasting stations, many run by amateurs, were on the air.

As the new entertainment medium expanded enthusiasts built their own broadcast receivers, and were motivated to transmit as well. The number of amateurs increased steadily. Ships, aircraft, as they progressed from wood and wire, and later, automobiles, were to gain much in safety and profitability by the evolution of mobile radio. Much of the improving technology was initiated and developed by people who were operators, technicians and engineers during working hours and amateur experimenters as well.

Television came, with the first regular programmes, from London, in 1936. Then the world erupted into the 1939-1945 war. Amateurs became military technicians and operators, and the pace of development accelerated tremendously. Pre-war, the amateur market had been the main source of income for many manufacturers, and their amateur-band gear was often the prototype on which military equipment was based.

Of the thousands of amateurs in uniform during the war, many sacrificed their lives in action. Each August the WIA renews their memory in the Remembrance Day Contest.

Peace had barely succeeded war, when in 1948 came possibly the greatest development ever to shape the course of history. Without the transistor there would be no airborne or spacecraft computers, no spacecraft, no satellites, no world-wide TV, little international telephone traffic, no pocket radios and calculators. Our present lightweight mobile radios, with digital synthesizers and readouts would simply be impossible. Personal computers? Ridiculous!

Amateurs joined the Space Age in 1961 with OSCAR 1. The WIA was involved with the construction of OSCAR 5 in Melbourne in 1969. We now have OSCAR 10 relaying amateur messages internationally.

If there is one word which crystallizes the aims of the WIA in 1985 it is "international". Yes, we now have members from several overseas countries. But our purpose is to join together all Australian amateurs in working towards consistent international frequency allocations, regulations, licensing, satellite system standards and so on. This will increase international understanding by facilitating contact between more and more amateurs in all countries.

You can help! Join the WIA. If you are a member, but only passively, there may be a place for you in your Divisional Council, on Executive, or in one of many committees. We want to hear your ideas and opinions. There's a whole future in front of us!

Bill Rice VK3ABP
Editor
AR

SPECIAL DEPARTMENT OF COMMUNICATIONS RELEASE

Robert Lionel Lear of Blaxland, a suburb of Sydney, was convicted in a Parramatta court on Monday, 14th January 1985 of two counts of erecting and establishing a transmitter without authorisation, and two counts of using a transmitter without authorisation for the passing of messages.

Mr Lear was sentenced to six months gaol on each of the four counts, to be served concurrently.

Mr Lear had previously been convicted of an offence of establishing an unauthorised transmitter, in February 1984, and was then fined $100.

The Department of Communications has seized 78 items of radio equipment from Mr Lear. Some or all of these items may be forfeited to the Commonwealth under the provisions of the Wireless and Telegraphy Act 1905.

Mr Lear was prosecuted under the Wireless and Telegraphy Act. A new Act governing use of the radio frequency spectrum, The Radiocommunications Act, will soon come into force and provide for far higher penalties for breaches.

This new Act also contains provisions for seizure of and forfeiture of equipment used in committing offences.

The Department is stepping up its investigations of illegal use of the radio frequency spectrum across Australia because of the extent of interference to other services caused by these activities.

AR

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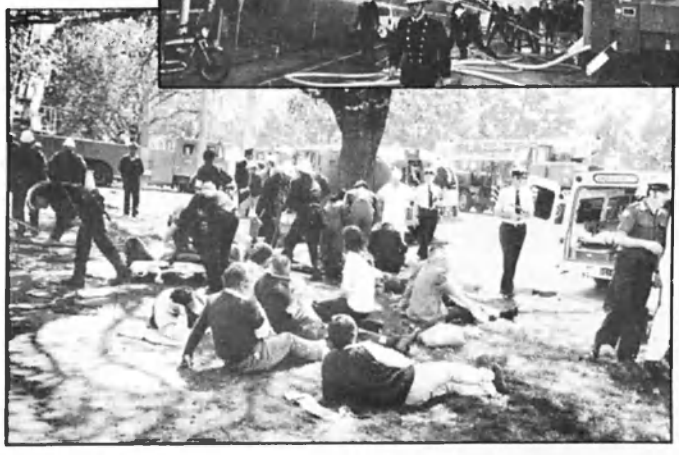

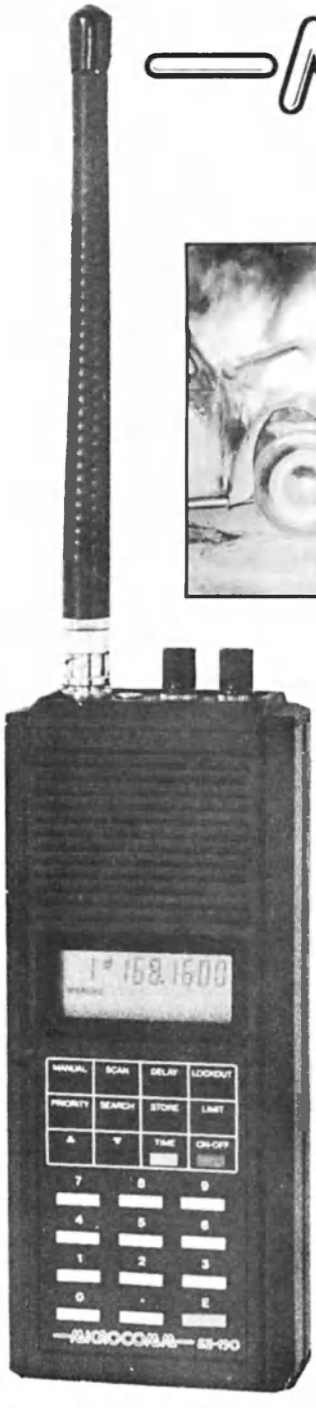

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SX-155

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For example the SX-155 has 160 memory channels which can be programmed in either of two modes. The first allows you to manually program the entire 160 channels. The second mode provides for manual programming of the first 40 channels with the top 120 reserved for use by the SX-155 while in its SEARCH mode. It uses these channels to automatically store frequencies on which it has found signals during the search phase.

The SX-155 also features a Priority Channel (for that important frequency). An LCD display providing readout of all receiver functions including an accurate crystal controlled 24 hour clock. Supplied complete with rechargeable Nicad batteries, charger, and BNC rubber duck antenna, the SX-155 is a must for anybody with an interest in monitoring.

ARR5

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Marconi is acknowledged as being the first to demonstrate the ability to communicate without *wires* between two points. That was in 1895, only 90 years ago. His discovery started to end the isolation of the (then) remote parts of the world like Australia and in less than a century our lives are almost totally dominated by electronic technology.

Isolated though Australia may have been at the start of this century it is a credit to our early experimenters that they appeared to be ahead of their counterparts in other parts of the world. That they found the need to come together and form an *Institute* is amply demonstrated in the newspaper report "A WIRELESS ENTHUSIASTS' INSTITUTE" reproduced elsewhere in this Amateur Radio.

That first meeting — the records indicate — was this month in 1910 and resulted in an organisation almost as the 'science' itself. That meeting in 1910 was the first in the world to result in a national organisation and was two years ahead of Great Britain and four years before American experimenters decided that they had a need for a national representative body.

One wonders, as we enter the fourth quarter of this century, what it holds in store for both the Institute and the hobby in general. The end of each previous quarter saw a change in direction:

1935 ended the period of the Great War, start of broadcasting, the Great Depression and the formation of a professional body from our ranks (See IREE story Jan A R.)

1960 ended the period of another war and its resulting electronic development which provided an endless supply of 'disposal equipment'. It was also the start of television, space communications and 'off the shelf equipment' which changed many from constructor to purchaser and perhaps from experimenter to user.

1985 ends a period almost too complex to record and although we are living in it one can only speculate what it will be like in 2010.

This year should see the Radio Communications Act coming into effect, hopefully to the benefit of our hobby. At the Division's seminar last year on "Amateur Radio — towards new horizons", Roger Harrison VK2ZTB postulated on the future trends in amateur radio and predicted that increasing leisure time together with higher education standards would lead to unprecedented growth, particularly in the field of digital communications.

As David VK3ADW, Federal President, outlined in his Christmas message, the hobby of amateur radio has become diverse and complex. The Institute was formed to represent the experimenters movement and right through its history — while every amateur may not have been a member — it has tried to determine and represent their views. The common point of contact and ideas exchange allows the Amateur Radio Service to follow a united, rather than a fragmented course, for I am sure that the Institute will celebrate many more multiples of its 75th.

May I wish the Institute and its Members all the best as it enters the last quarter of its first century.

Jeffrey L. Pages VK2BYY
President — NSW Division of the WIA.
10th January 1985.
AR

MARCH 1985

SUN	MON	TUE	WED	THU	FRI	SAT
Palm Sunday CQ WW WPX SSB Test Conclusion of V13 prefix *Summer Time comm in Europe*		Dates correct at time of printing.			**1** St David's Day *Look for GB2SDD*	**2** ARRL DX Phone Test
3 ARRL DX Phone Test M-85 Period Shifts Commence VK Daylight Savings Ceases	**4** Labour Day (VK6 & 7)	**5**	**6**	**7** Educ Net 80 m 1030 & 1130	**8** VK2 GM	**9** VK3 Nat Park Activity Commonwealth Test QCWA Phone QSO Party
VK3 Nat Park Activity WIA Annix CW Test VK75A used for 1st Time Commonwealth Test VK2 Dural BBQ QCWA Phone QSO Party	Labour Day (VK3) VK3 Nat Park Activity RAOTC QSO Party Final Date for WIA Poster Comp	**12**	**13** VK3 GM	**14** Educ Net 80 m 1030 & 1130	**15** VK4 GM Hungarian Nat Day	**16** YL ISSB CW QSO Party Bermuda Test
17 YL ISSB CW QSO Party VK2 Fox Hunt Championship St Patrick's Day Bermuda Test	**18** Canberra Day VK2 Fox Hunt Championship	**19**	**20**	**21** Educ Net 80 m 1030 & 1130 Autumn Equinox	**22** AR Copy Deadline	**23** BARTG RTTY Test "Open line" from HCJB at 0700 UTC VK5 GM
24 BARTG RTTY Test	**25** BARTG RTTY Test Greek Nat Day VK1 GM	**26**	**27**	**28** Educ Net 80 m 1030 & 1130 UTC	**29** Sydney Show Opens	**30** VK2 AGM CQ WW WPX SSB Test

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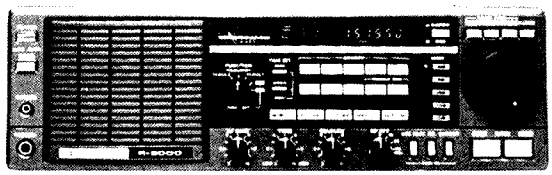

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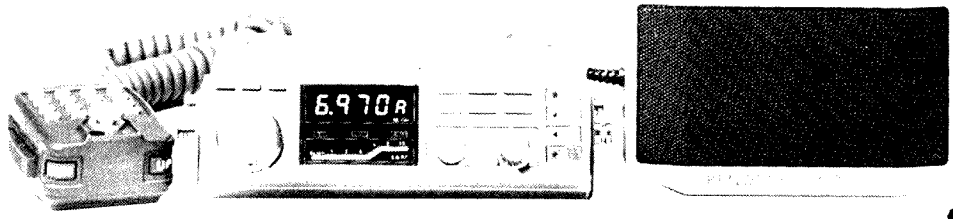

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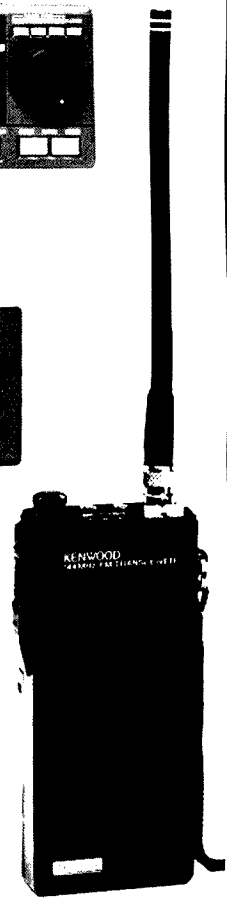

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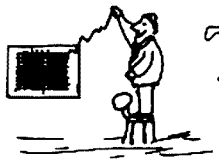


TREASURY REPORT

YOU AND YOUR SUBSCRIPTION

When you pay your subscription to the WIA what happens to your hard earned cash?

At each annual convention, held in April, the Federal Finance Committee presents a budget for the year ahead concerning income and expenditure of the Federal Executive.

In August the budget is revised and the figures are used as a base for setting Federal dues payable from Divisions for the following year. In turn this enables Divisions to calculate the subscription rates for their members.

From the chart below you will see the largest income component is subscriptions and on the expenditure side "Amateur Radio" magazine.

This magazine accounts for approximately $12 of the Federal Component ($24.50 for 1985) of your annual subscription.

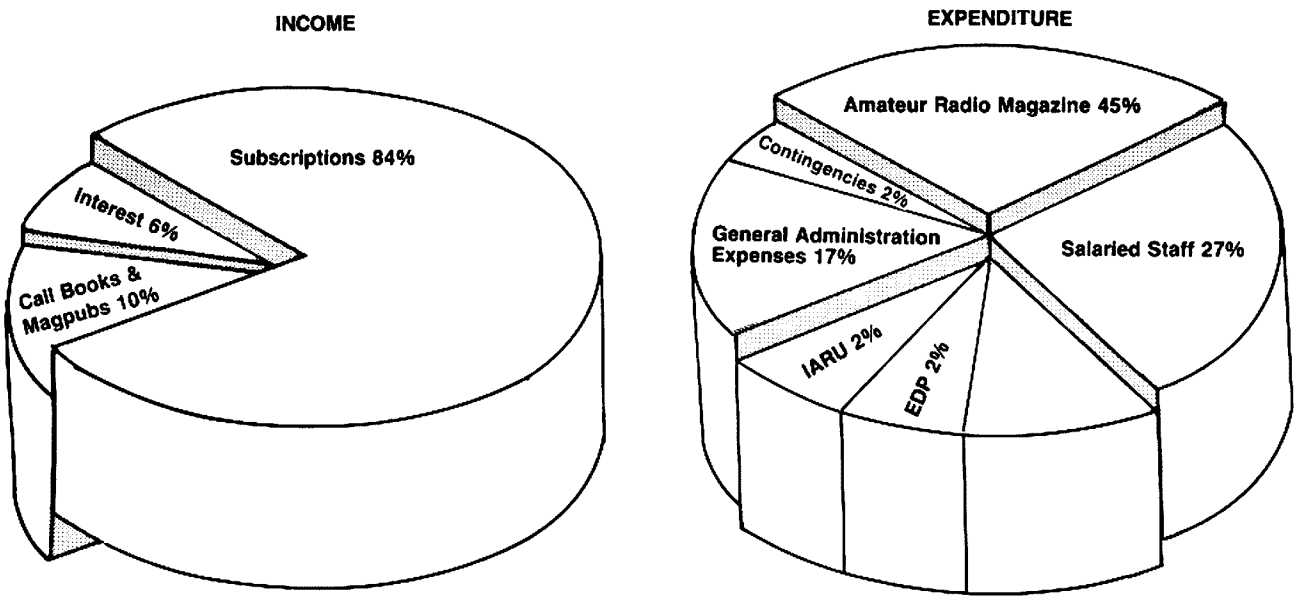
IARU membership absorbs approximately 50 cents per member of the Institute and the balance of the Federal Component is used by the Federal Executive in the performance of their various functions. One of their major expenses is the operations of the Federal Office, which assists the Federal Executive in their major function of acting in the interests of members by co-ordinating and dealing with Federal matters and major issues, so that our hobby is enhanced and does not go backwards, which could be so easy in this day and age. The remaining amount of your subscription goes to your Division who also need to act in our interests at a local level.

We need more members to make sure our hobby is never in jeopardy. Please endeavour to join a new member today. Approx 50 per cent of all amateurs are members of the WIA. Additional members will also help to keep our subscriptions down by sharing the costs.

Ross Burstal VK3CRB
FEDERAL TREASURER

AR

FEDERAL INCOME & EXPENDITURE FOR YEAR ENDED 1984



Amateur History

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld, 4101.

As the history of early OOTers is researched, it is apparent that many outstanding DX achievements occurred pre-WW11; it is a pity no official record book was created to register them for posterity. Almost all were made on QRP or QRPp — simply because those who used big bottles (QRO) were very much in the minority.

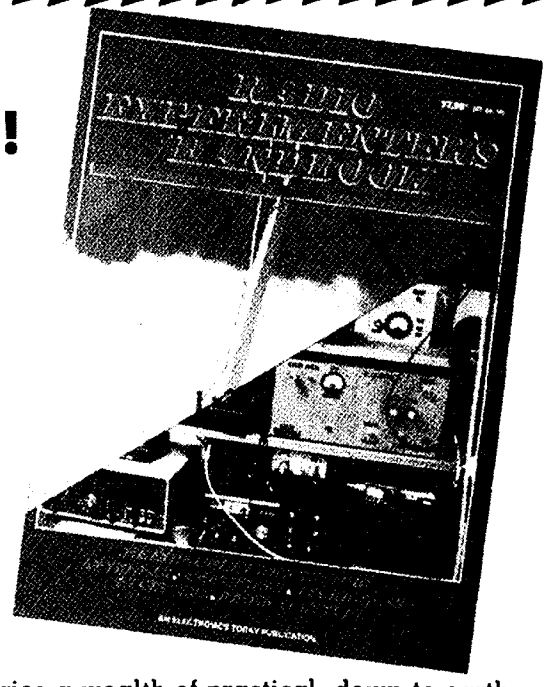
The three watt SPARK VK-W QSO by Roy Jonasson VK4NG is an outstanding effort; Marconi would have beamed with satisfaction. There were many others of equal merit, of course, Eric Lake VK4EL, credited with working more Gs than any other VK pre-WW11, also WACed with one-half watt into a simple vertical antenna, during a period when sun spot activity wasn't all that good. My next door neighbour of early days, George (Len) Greenhill VK4LE worked regularly into Europe LP 0700 UTC using loop modulated five watts phone (at best 1½ watts in the aerial which was a 66 feet end fed Zepp with fairly long 600 ohm feeders). Even the first Down Under DJs, ie those who operated on MW received some remarkable reports on their Broadcast Band activities. The official station of the Queensland Listeners League VK4QL was heard at good strength in the Eastern and Southern States, New Zealand, Fiji and Papua New Guinea — all on QRP.

It is only natural to ask, "*How was it all accomplished?*" That, like Marconi's spanning of the Atlantic Ocean in 1901, is something of a sixty-four dollar question. Lack of QRM and QRN (man made) no doubt played a big part. Most city suburban amateurs are now knee-deep in appliance pollution; this and low solar activity presently make QRPp DXing virtually impossible.

A record of another kind must be the re-joining of the WIA by an OOTer after a lapse of forty years. Norm VK4NR became an Institute member back in 1932 but let his membership lapse early post-war — now, after four decades, he has 'come in from the cold'. DOC would not re-issue him with a call until he sat for and passed his AOCP again. A stout effort for any OOTer, you'll agree! Norm's new call is VK4BNR.

AR

THE ONE YOU'VE BEEN WAITING FOR!



The Radio Experimenter's Handbook, Volume 1, from Electronics Today International is 132 pages chock-full of circuits, projects to build, antennas to erect, hints and tips. It covers the field from DX listening to building radioteletype gear, from 'twilight zone' DX to VHF power amplifiers, from building a radio FAX picture decoder to designing loaded and trap dipoles.

eti

Edited by Roger Harrison, VK2ZTB, this book carries a wealth of practical, down-to-earth information useful to anyone interested in the art and science of radio. $7.95 from your newsagent or through selected electronics suppliers. It is also available by mail order through **ETI Book Sales, P.O. Box 227, Waterloo NSW 2017** (please add $1.75 post and handling when ordering by mail).

AR85

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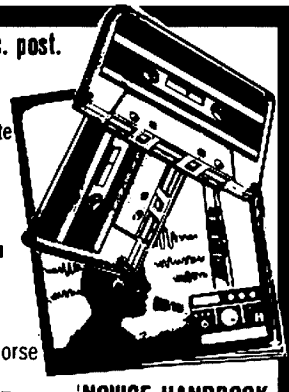

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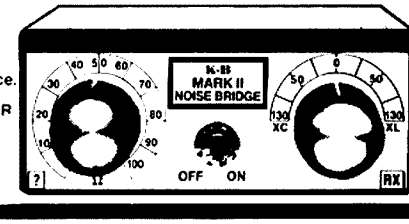

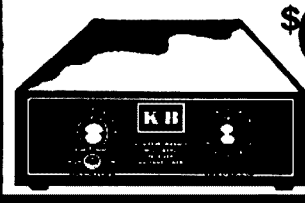

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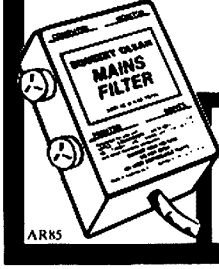

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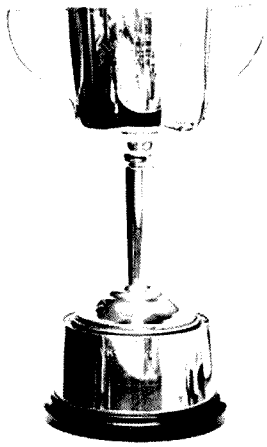
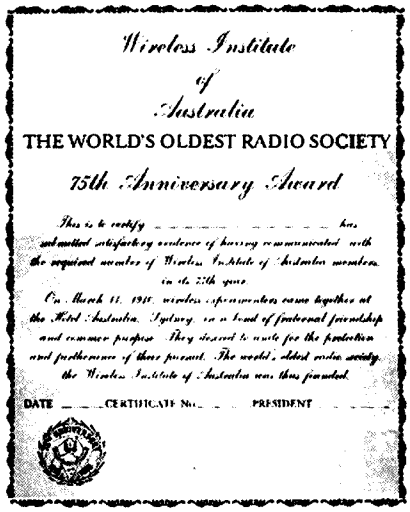
WIA Seventy Fifth Anniversary News





This month — March 1985 is the ANNIVERSARY founding month of the Wireless Institute of Australia and is the real start of the celebrations of our 75th ANNIVERSARY year.

To celebrate the opening of the year the Institute has arranged that major events take place:

ANNIVERSARY CALLSIGN

After lengthy negotiations with the Department of Communications, a special callsign VK75A has been issued to the Federal body to celebrate the 75th anniversary.

This callsign will be activated for special events during the year.

The approval for the use of this callsign has been given subject to special conditions:

This station is authorised for use by a single "anniversary" station.

This station may, at the discretion of the WIA Executive, be rotated to locations in all states of Australia. Use of the station in this manner will be subject to normal operating conditions relating to amateur stations operating in a mobile capacity.

Approval for the use of this special non-standard callsign is given on a strictly "one off" basis, in the light of the exceptional circumstances of the 75th Anniversary of the Institute.

This special callsign will be used in the first instance during the 75th Anniversary year CW contest and then during special events and contests during the year. A special QSL card is being produced, and will be despatched to amateur stations contacted by this anniversary station.

There is no need for QSL cards to be sent to VK75A. Validated SWL reports will be QSLed.

CW CONTEST

Over the period from 0000 UTC to 2359 10 March 85 a CW contest is being run on behalf of the Institute by the VK2 Division. Rules for this event were published in the February issue of AR. The overall VK winner will hold the "Federal Presidents Cup" for 12 months, certificates and momentos will be awarded to all entrants whose logs show the necessary 75 contacts.

75TH AWARD

This award being run by the VK3 Division, on behalf of the Institute, commences this month – rules are published elsewhere in this issue.

Those entrants who qualify will receive a special certificate.

Be sure to make a note of the number primed on your AR address label for use during this award.

BOOK PACKS

To celebrate the 75th Anniversary of the Institute it has been decided to make book packs available for presentation by Divisions, Clubs and groups of amateurs to local schools and colleges.

These packs, provided at cost price to the donors, will contain basic readers and information on amateur radio for schools to hold in their libraries to enable study to be carried out. Included in the package will be material for use by the club or group making the presentation, on how to obtain some publicity for their club or group and amateur radio.

Two standards of book packs are available, $30 and $50 post free from the Federal office. To participate in this scheme, groups who wish to donate a book pack to a school should write to the Federal Secretary giving details of the proposal with a cheque for the pack required.

We would remind members that 1985, beside being the 75th Anniversary of the Institute, has also been declared the International "Year of Youth". This book pack scheme is one way that the Institute and its members can make a contribution to the Year of Youth.

NATIONAL FOXHUNT CHAMPIONSHIP

Supported by ICOM (Australia)

This event programmed to take place over the weekend 5/6th October 85 is being supported by ICOM (Australia) Pty Ltd. For this anniversary year the winning team will receive a handsome prize donated by ICOM (Australia) as well as an Institute Trophy and certificates.

FORMAL DINNER

As announced in the January edition of AR plans are going ahead for an Anniversary Dinner to be held in Melbourne on 9th November 1985. Invitations are at this time being prepared for posting to the presidents of all our sister societies, along with many for distinguished personalities in Australia and overseas. As previously mentioned in earlier editions of AR any member of the Institute who wishes to attend this important function should register their interest with the Federal Secretary. Space is limited, but a percentage of tables at the dinner are naturally being reserved for members who wish to attend.

DO YOU OWN A PIECE OF HISTORY OR ARE YOU A PIECE OF HISTORY?

As a result of the January article a number of members have contacted the Federal Secretary giving information.

Alan VK4SS has notified that he is aware of a couple of amateurs who are still active, Harry Angel VK4HA, 93 years young with a clear wit and voice who has held a licence since 1935 and is on air each day. Also Ock Alder VK4JB who was licensed in 1920.

Norman VK4BHJ writes to say that he celebrates his Silver Jubilee on air in June this year, having held a licence since 1925. He also mentions that he has some original papers from the GPO regarding his licence, one in particular from the Postmaster General authorises Norman, through his father to carry out experiments at 150 to 200 metres, shorter wavelengths could only be allowed where special justification could be shown.

The Federal office was visited by Bill Sievers VK3CB to pay his subs and during a quick chat it was discovered that Bill was operating as an amateur in Australia during 1918 and joined the Institute in 1922. *Is this a record?*

AR

SOME THOUGHTS ON RADIO FREQUENCY OSCILLATORS.

Harry Voake VK3AVQ
21 The Cresent,
Invertoch, Vic. 3996

For some time the writer has been interested in constructing a low drift 7 MHz variable frequency oscillator with its obvious advantage of shift as the frequency source of a low power (QRP) transmitter. With this in mind, considerable reading was done on the subject before attempting the construction of Hartley, Colpitts, Clapp, Seiler and Varkar oscillators. After several months, it was found that the last three configurations gave the best results but they failed in the goal set, which was less then 100 Hz frequency drift in the first hour from switch on.

All the oscillators used a field effect transistor (FET) either a 2N3819 or MPF102 as the active component followed by a two transistor buffer amplifier whose output was fed to a frequency counter. The unit was mounted on a printed circuit board made by the masking tape method (1). The power supply was a regulated 12 volt supply and the oscillator supply was further regulated by a 9 volt zener diode.

The capacitors in the tank circuit were of polystyrene type and the capacity values were made up by at least two smaller capacitors in parallel to reduce heating caused by circulating radio frequency current. (*Probably not significant — Tech Ed.*)

The tank coil was of square dimensions, ie the diameter and winding length were approximately equal. I used 24 SWG enamel copper wire for a high Q value without the use of a ferrite core; which is a potential source of drift. The wire was close wound on a thin wall plastic former and glued with Araldite. The inductor was found to have a positive temperature co-efficient — it caused a large frequency decrease in drift. So the coil was rewound on a ceramic former, obtained from a stripped down 20 watt wire wound resistor, and this gave considerable improvement by reducing the frequency decrease.

The unit was housed in a metal box bent up from 26 gauge galvanized iron sheet and pop rivetted/soldered together. Holes were drilled in both top and bottom to provide adequate ventilation.

The ceramic former coil and the associated polystyrene capacitors produced a drift of increasing frequency of about 300-400 HZ in the first hour. Many other capacitors — styrene, mica and NPO ceramic were tried in turn but no consistancy was obtained. the ceramic types were not satisfactory in that they occasionally caused frequency jumps of approximately 500-1000 HZ.

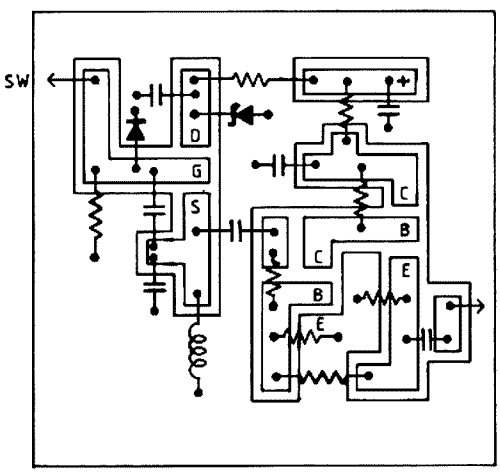


Figure 2 — VXO Board — copper side — full size

The internal heating of the FET was then considered and a flag heat sink using silicone grease was fitted around the plastic body. Also the clamping diode was changed from a silicon diode to a hot carrier diode. These actions made no detectable reduction of drift.

As a last resort, ceramic capacitors of suitable value and positive temperature co-efficient to cancel the small negative temperature co-efficient of the polystyrene capacitors were sought but could not be bought from radio retailers.

By this time — *The constructor's brow was furrowed*
The constructor's brow was low
Darkly looked he at the counter
And darkly at the VFO.

So the search for a low drift VFO was abandoned and a variable crystal oscillator (VXO) with its greater stability but less frequency shift was next considered.

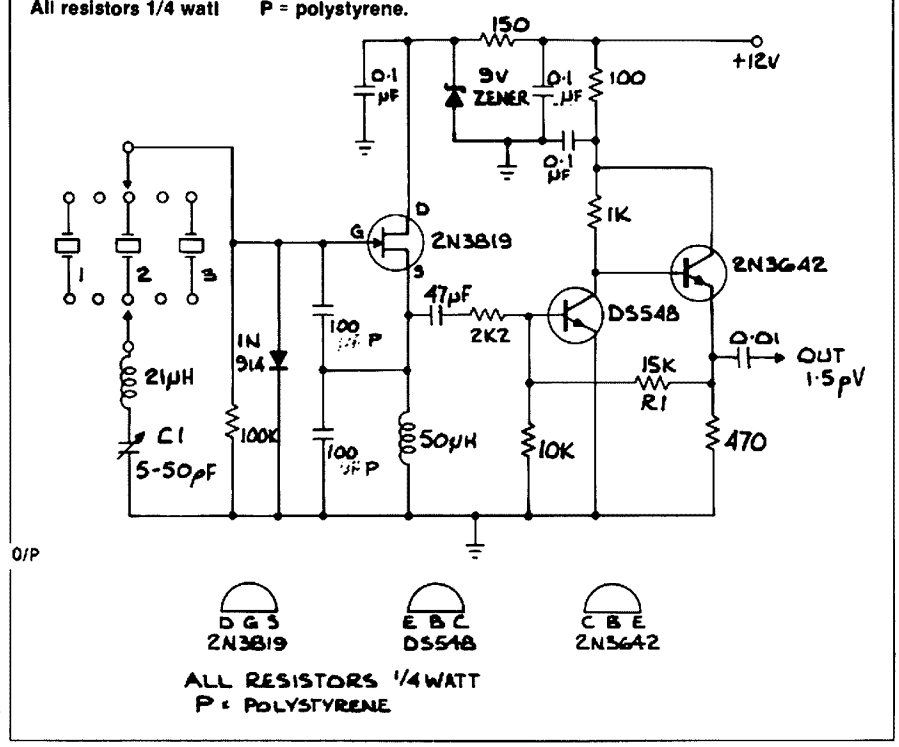
The VXO circuit decided upon was published some time ago in this magazine (2) and appealed to the writer because no special parts were required apart from suitable crystals (3).

The circuit diagram is shown in fig 1 and the printed circuit board, full size in fig 2, was made by the masking tape method (1) and mounted on 1/4 inch metal pillars in a metal box described above.

Some explanation of components might be helpful. The variable capacitor C1 is a small single bearing Polar type, approximately 5-50 pF which is mounted on the box wall through a 3/8 inch hole. This straight line capacity type will not produce a linear frequency scale unfortunately but is somewhat crowded towards the high frequency (low capacity) end.

The three crystals used are soldered directly to a two pole, five way wafer switch without the use of sockets to reduce interwiring capacities. Locate both the switch and the variable capacitor in the box in such a way as to reduce capacity to earth, for in keeping these unwanted capacities small, the fre-

Figure 1 — Circuit Diagram of 7 MHz VXO.
Crystal 1 — 7.002 MHz
Crystal 2 — 7.008 MHz
Crystal 3 — 7.017 MHz
All resistors 1/4 watt P = polystyrene.



quency shift is inceased.

The 21uH inductance is made by winding twenty six turns of 24 SWG enamelled copper wire on a Neosid 4327R/1/F25 toroid. The use of a toroid here is justified in that a small unit results with bearable drift. This inductance value in conjunction with the variable capacitor C1 produced the frequency shift that the writer required.

It should be noted that if an inductance alone were used in series, the crystal would be pulled to a frequency lower than its fundamental and the greater the inductive reactance (a larger inductance) the more the pulling effect. Similarly with a capacitor only in series, the crystal would be pulled to a higher frequency than its fundamental and a larger capacitive reactance (a smaller capacitor) produces more pull.

Therefore with both inductive and capacitive reactances in series with the crystal, the action of tuning the capacitor C1 will ensure that the reactances that are naturally in opposition will predominate in their turn and so produce a frequency shift spanning below and above the crystal fundamental frequency. If this pulling effect is carried too far, the oscillator will be no longer crystal controlled but rather a VFO with its greater drift problems.

Nominal Crystal Frequency	C1 — maximum Frequency	Drift	C1 — minimum Frequency	Drift	Frequency Shift
7.002 MHz	6,999,170	.39	7,005,160	-18	5990
7.008 MHz	7,004,850	-52	7,013,804	-22	8954
7.017 MHz	7,014,735	-23	7,019,715	-11	4980

FIGURES ARE IN HERTZ
DRIFT IS FOR FIRST HOUR AFTER SWITCH ON.

Figure 3 — Frequency shift and drift of VXO.

Fig 3 shows the results obtained and that the goal of less than 100 Hz drift in the first hour of operation is realized. The figures arrived at are an average of three experimental runs. Crystals 1 and 3 were bought recently and crystal 2 was a Pye type bought from disposals many years ago. Possibly this fact could explain the difference in drift figures.

The buffer amplifier is the well known shunt feedback, direct coupled amplifier. The combination produces a reasonably constant output level (a 10 percent decrease at the high frequency end). The radio frequency voltage output can be varied within limits by changing the value of the feedback resistor R1.

The frequency stability of the VXO is relatively insensitive to changes of supply volts, variations of voltage from 10 volts to 15 volts did not have any effect but did have an effect on output voltage as expected.

The tuning control can be calibrated with a frequency counter, or perhaps a reliable receiver to make sure the oscillator stays in the 7 MHz amateur band but nothing is better than continuous monitoring of the signal by a counter. Direct adjust of tuning is critical so if possible use a vernier drive to make things easier.

References: 1 "A Regenerative Receiver", H Voake, Amateur Radio August 1984 — p 8-9.

2 "A Simple VXO", N Larelle, Amateur Radio March 1976 — p 13.

3 Rakon Australia Pty Ltd, 39 Scoresby Road, Bayswater, Vic 3153. **AR**

THUMBNAIL SKETCHES

Mark and Verle.

MARK WESTON — VK4XO

Mark Weston VK4XO (presently VK2CM Bateman's Bay, NSW) is an OT amateur who, until his retirement, was usually going somewhere — in almost every sense of the phrase he seems to have been forward bound in a positive manner. Here is a verbatim extract of some of his activities in AR. He says:

"First became interested in amateur radio in 1936 when I used to potter around in the projection room of the Paramount Theatre in Bundaberg and a chappie named M Laurie-Rhodes had an AR station set up in the back of the theatre. He used to broadcast on the Broadcast Band on Sunday mornings, callsign VK4XU. I enrolled with VK4 WIA for a correspondence course (Instructor Eric Lake VK4EL) CW; used to have three lessons a week (sixpence an hour) from Terry Tunny VK4TN who was a clickety-click on the Railways. I passed my AOCP late 1937 and first transmitter was 42ECO-42-42/42 with 10 watts input and a Hertz antenna — all CW. Had a 6pm sked daily with Cedric Marley VK4CJ until we were put off air late in 1939.

"During my pre-WW11 amateur days I used to go down and chat with the wireless operators on the sugar ships that came into Bundaberg and saw that was my future — so enrolled with The Marconi School in Sydney for a correspondence course. Obtained my Second Class COPC early 1940 and a couple of weeks later was a 'seagoing wireless operator'. Spent the war years mainly overseas on loan from AWA Marine Dept to Marconi Co and Notraship (Norwegian Government) — then later left the sea and joined Qantas Airways.

"My post-war equipment — well'. Until 1964 — Homebrew! Actually spent a lot of time with Screen-grid and Suppressorgrid Modulation. Then with the Geloso 209 Twins. Then in 1964 my wife got her AOCP — so we went into commercial sideband with a Swan 240. Have been retired for eight years. We now have a Yaesu FT77 and dipoles all over the place, ha!"

After the war Mark held the calls VK2WE, VK2AWE, VK2AYK and since 1964 VK2CM. His main interest is on 80, 40 and 15 metres using both modes. He doesn't chase DX much now, mostly relaxes and rag chews. His outside interest is lawn bowls.

Mark feels that future AR will tend towards CB-type operation — and this will be unfortunate (I agree — AI).

An OM and YF team is always an asset in amateur radio; there should be many more such combinations — so, if you should hear Mark VK4XO/VK2CM or Verle VK2MR on air, give them a shout!

AR

DSB/CW TRANSMITTER FOR 80 METRES

Drew Diamond, VK3XU
Lot 2 Gatters Road, Wonga Park, Vic 3115.

Like to try your hand at building a little double sideband/CW transmitter? A DSB signal is easy to generate, and is a permitted mode (8K00A3E) on all bands. The only difference between DSB and SSB is that both sidebands are transmitted for the DSB signal. By ensuring that the audio is shaped or tailored before it is applied to the balanced modulator, tuning at the receiving end is easy, and an ordinary SSB receiver will resolve it. In addition, the listener has the choice of LSB or USB!

This transmitter was empirically designed using locally available parts. Output power is sufficient to drive previously described linear amplifiers.

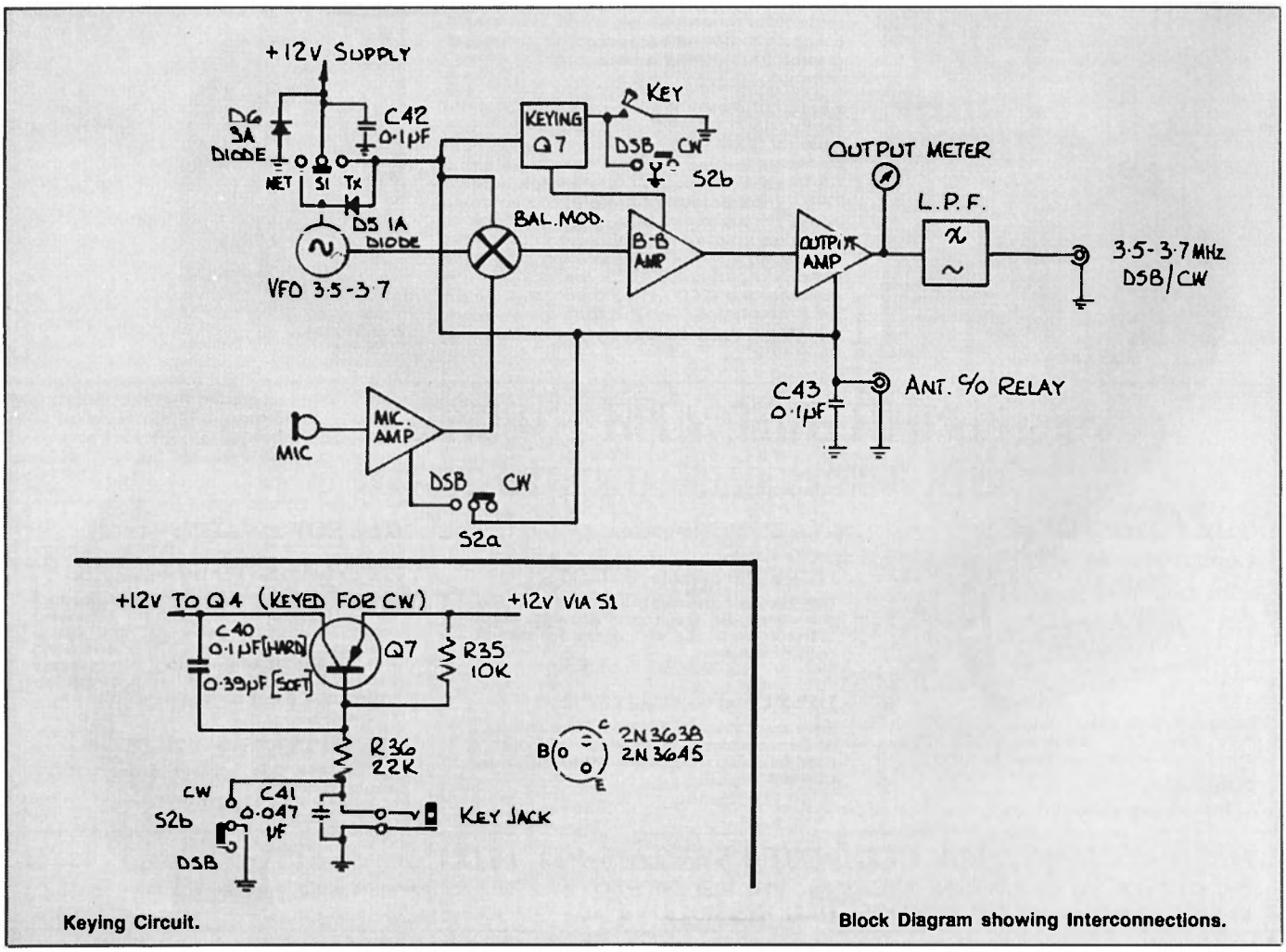
PERFORMANCE

Frequency Range:	3.5 to 3.7 MHz.
Modes:	DSB or CW.
Output Power:	1W PEP DSB, 1W rms CW.
Spectral Purity:	All harmonics at least -50dBc.
Carrier Suppression:	At least 35dB.
Frequency Stability:	Less than 50Hz/5min from cold.
Power Supply:	Nominally +12V at 300mA.

BLOCK DIAGRAM DESCRIPTION

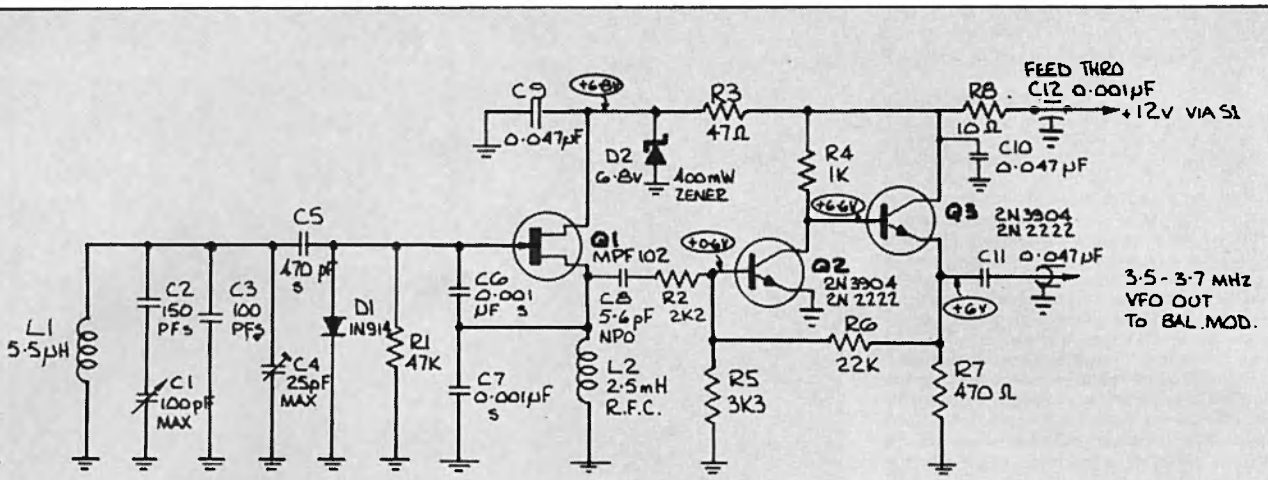
The VFO generates the output frequency, which is adjustable from 3.5 to about 3.7MHz. This frequency is applied to the RF input port of the balanced modulator. Amplified audio energy from the microphone is applied to the AF input port differentially. For DSB operation; the balanced modulator operates in the balanced mode, and produces a DSB signal at the output port. This signal is then raised to about the 1W PEP level by a two-stage broadband amplifier. A low-pass filter is provided to attenuate any harmonics of the RF output signal.

For CW operation; the balanced modulator is deliberately unbalanced to supply a carrier. Keying is obtained by interrupting the +12V supply to the first



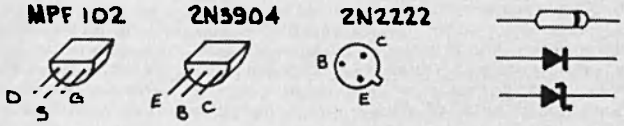
Keying Circuit.

Block Diagram showing Interconnections.

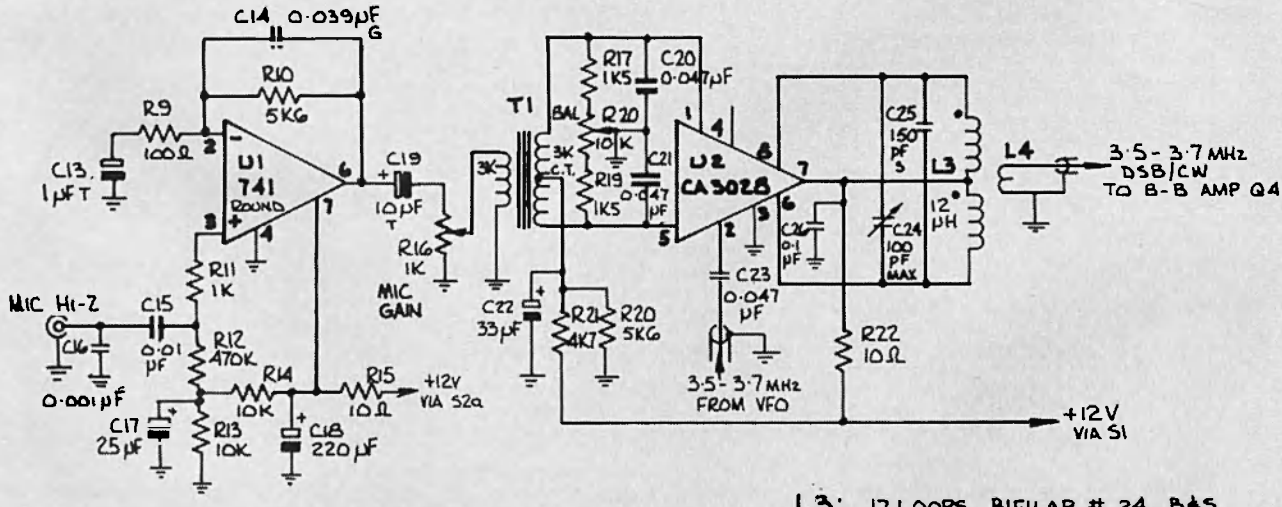


L1 : 32 TURNS
22 B&S
ON AMIDON T68-2
TOROIDAL CORE

ALL CAPACITORS >16V
S = STYROSEAL (POLY)
OTHERS DISC CERAMIC
ALL RESISTORS 1/4 W 5%



VFO.



S = STYROSEAL (POLY)
G = GREENCAP
T = TANTALUM
ALL OTHER CAPACITORS
DISC CERAMIC
ALL CAPACITORS >16V
ALL RESISTORS 1/4 W, 5%

L3: 17 LOOPS BIFILAR # 24 B&S
ON AMIDON T68-2 CORE
OR
10 LOOPS BIFILAR # 24 B&S
ON NEOSID 4327R/1/F25 CORE

L4: 6 TURNS #24 B&S WIRE
IN GAP LEFT BY L3

Microphone Amplifier and Balanced Modulator.

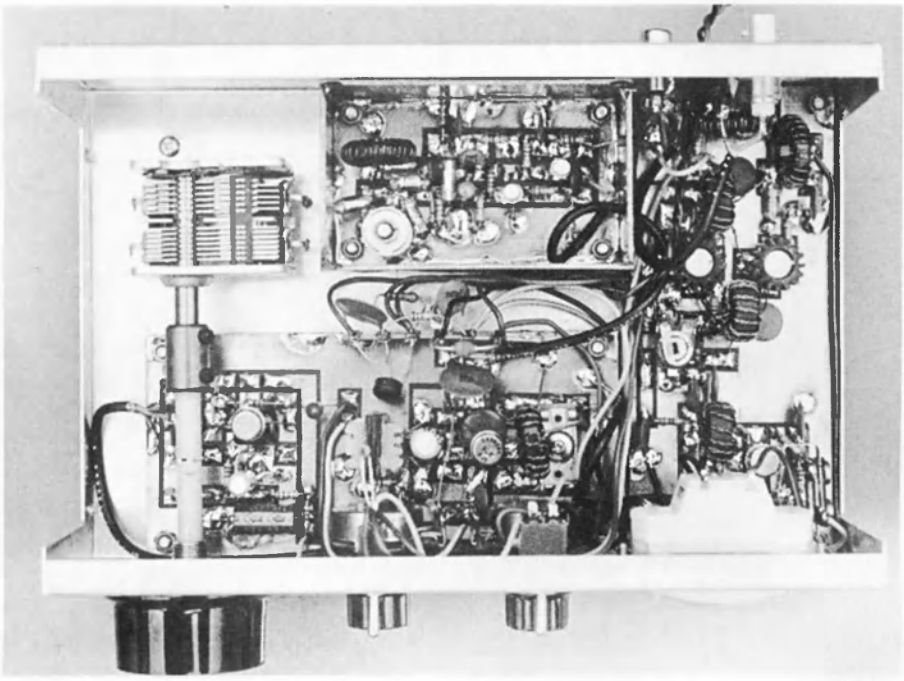
stage of the output amplifier. The AF amplifier +12V supply is removed during CW operation to prevent spurious microphonic noises from being applied to the carrier.

CIRCUIT DESCRIPTION

A Colpitts VFO at Q1 produces the chosen frequency between 3.5 and 3.7MHz, and is buffered by Q2 and Q3. The balanced modulator consists of a CA3028 differential amplifier IC. The speech signal from the microphone is amplified and shaped at U1. High and low audio frequencies are rolled off in this stage to provide a telephony type signal with a minimum of redundant frequencies. This is done so that the DSB signal occupies a minimum of spectrum. The response of the microphone amplifier is determined mainly by C13 (lows) and C14 (highs). T1 applies a differential (or push-pull) signal to the differential input of the balanced modulator at U2. "Carrier" frequency from the VFO is applied to the bal mod in common-mode at pin 2. Precise carrier null is obtained by R20. The resulting DSB signal is extracted with a bifilar tuned circuit at L3 C24 C25, which is tuned to the middle of the band; 3.6MHz. The single-ended broadband amplifier at Q4 has about 20dB gain, and the signal level is raised by this amount before it is applied to the push-pull broadband linear amplifier at Q5 Q6. This output amplifier is very stable and tolerant of poorly matched loads. The amplified signal is passed through a lowpass filter to attenuate any harmonics. For CW operation; the microphone amplifier is switched off, and the bal mod is unbalanced by adjusting R20 to allow some carrier to leak through to the B-B amplifier. This potentiometer is also used to adjust the drive level for the CW mode, so R20 has a dual function. Keying is implemented by interrupting the 12V supply to Q4 in a shaped manner by Q7. The rise and fall time for keying is largely determined by the value of C40. The value shown; 0.1uF, gives hard crisp keying. A larger value, eg 0.39uF would give softer keying.

CONSTRUCTION

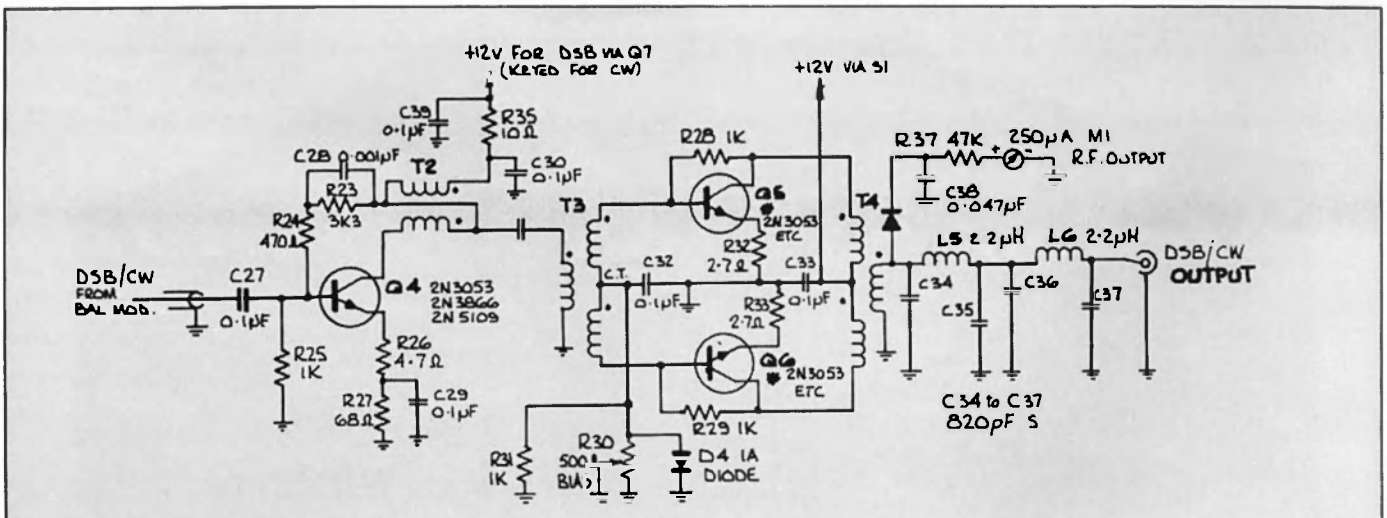
Case size depends upon whether an internal or external power supply is required. The prototype uses an external supply, and is housed in a factory-made



case measuring 204mmW x 65mmH x 130mmD. The photo shows how the boards should be arranged inside. It is important that the VFO is kept separated from the output amplifier to prevent leak-through or feedback problems. The placement of an internal supply is not critical but it must be remembered that the power transformer should be located as remotely as practicable from the toroidal inductors, and particularly the audio transformer T1. The cover must have some holes in the top and sides to allow ventilation of Q5 Q6. Protection diode D6 is only required if an external supply is employed.

All components except those for the keying circuit are accommodated upon the copper side of home-made printed wiring boards. The keying circuit components, and D6 C42 may be installed upon a 7-lug tag strip. Diode D5 may be soldered to the tags of S1.

To ensure VFO stability it is necessary that styroseal (poly) and NPO capacitors are used where specified. Of course, silver-mica capacitors may be used if they are available. The same applies to those in the low-pass filter (ordinary disc ceramic capacitors are rather lossy and change their value greatly with temperature, and should therefore be avoided in these applications).



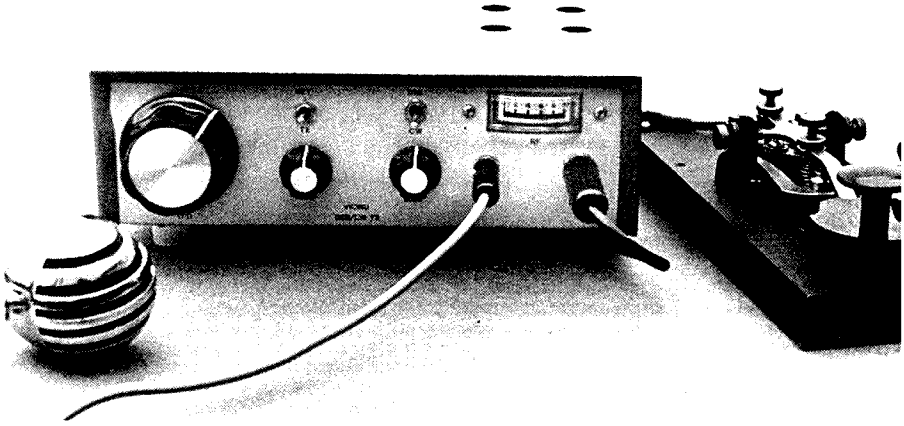
T2: ≈ 13 LOOPS BIFILAR # 24 B&S ON NEOSID 4327/2/F25 CORE
OR
AMIDON FT50-43 LACQUERED CORE

T3 & 4: ≈ 11 LOOPS TRIFILAR # 24 B&S ON NEOSID 4327/2/F25 CORE
OR
AMIDON FT50-43 LACQUERED CORE

Q5 - Q6 HAVE TO5 HEATSINK ATTACHED

L5 - L6 7 TURNS # 18 B&S ON NEOSID 4327R/1/F25 CORE
OR
11 TURNS # 22 B&S ON AMIDON TG8-2 CORE

Output Amplifier.



The PWB's may be mounted upon standoffs. Ideally, the VFO should be enclosed in its own little box; but the construction of such a box may be difficult for some, and the cost of die-cast boxes has become rather expensive. The photo shows the compromise reached; The PWB for the VFO has four 25 mm high walls around it as a shield. These are made of double-sided board material. Any other conducting sheet material, such as tinplate, would do. Three holes are required in the walls; one to allow connection to C1, one to admit the coaxial cable carrying the VFO signal, and another to accommodate the +12V VFO supply feedthrough capacitor, C12. VFO inductor L1 should be painted with shellac or dipped in Estapol to ensure mechanical rigidity of the windings.

Broadband transformers T3 and T4 are made as follows: Take three 300 mm lengths of 24 B&S enam wire. Lay them parallel to each other, twist them together at one end and fix that end in a vice. Draw a cloth through the wires to remove any wrinkles, then twist the other ends together and fix the group into the chuck of a hand drill. Whilst keeping the wires taut; turn the drill until there are about three twists per cm. Give the drill a pull to set the twists, then remove the group. Carefully thread them through the specified core until there are about 11 loops. It is essential that the end ol one winding is connected to the start of another winding to form the centre tap (ct). Respective windings may be identified with a multimeter set to ohms. Connections should be double checked before the transformers are soldered into circuit. T2 and L3 are made in a similar way, but with two wires. Once again it is essential that the end of one winding is connected to the start of the other winding. The start of a winding is represented schematically with a dot. L3 is a bifilar wound inductor to provide a balanced load to the output of U2. If Amidon cores are used for T2-T4, they should first be coated with some kind of enamel such as Estapol or shellac to prevent losses due to scratching of the wire enamel. Neosid cores require no treatment. Choke L2 is available ready made from several sources.

The choice of dial drive for the VFO capacitor must be left to the individual constructor. Indeed, it is possible to get by without a reduction drive, and accurate netting is not difficult. If a drive is used, it should be connected to the capacitor shaft via a flexible coupler. As these also have become difficult to obtain, a short length of plastic number 3 (6.5 mm) knitting needle will do the job. Four slots may be cut at right-angles with a hack-saw to give some flexibility.

All tests and adjustments must be carried out with a dummy load connected to the output. This could consist of 2 x 100 ohm 1 W Philips cracked carbon or metal-film resistors connected in parallel and soldered to a male coax connector to suit.

ADJUSTMENT

When construction is complete, and component locations/wiring checked; bias pot R30 must first be adjusted so that the output amplifier draws a quiescent current of about 100mA. This may be done by measuring the current drawn from the 12V supply with S1 in the Tx position and S2 in the DSB position. R20 must first be adjusted as described in Operation below. As this current forms the major component, that drawn from the other parts of the transmitter may be ignored for this purpose (provided of course that no fault exists).

The VFO tuning range is adjusted as follows: With C1 set at full mesh; C4 is adjusted so that the VFO generates 3.500MHz. It should be found that when C1 is at minimum C, the frequency is about 3.7MHz. If greater range is required, C2 may be increased to the next higher value (180 or 220pF). If for some reason C4 does not bring about the required frequency as described above. C3 may be changed to correct the problem. 82pF would raise the frequency, and 180pF would lower it.

L3 is brought to resonance by unbalancing the bal mod with R20 and peaking C24 for maximum output as indicated on M1. This adjustment should be done at about mid-band (3.6MHz).

Feel the heatsinks of Q5 Q6 occasionally to make sure that they are not running too hot to touch. If they do get too hot after some minutes of keyed CW operation; reduce the quiescent bias current.

OPERATION

To operate DSB; S2 is placed in the DSB position, and the carrier bal pot R20 is adjusted for a null as indicated on M1. A more precise null can be obtained by listening to the signal on the station receiver. Whilst speaking in a normal voice; mic gain pot R16 is advanced until M I flicks up to about 3 on a scale of 10. If an oscilloscope is available, the DSB output waveform can be viewed and R16 adjusted to the point where flat-topping just occurs then backed off slightly from that point. The signal should sound clean with a minimum of splatter when it is checked on the station receiver. The operator will have to wear headphones during this set-up to avoid audio feedback problems. Better still — have another person listen to the signal and adjust R16 to a point where maximum undistorted output is obtained.

Incidentally, AM operation is possible by inserting an appropriate level of carrier by careful adjustment of R20.

To operate CW; S2 is placed into the CW position and bal pot R20 is adjusted out of the null position to set the output level required between 0 and 1W.

CONCLUSION

Although 1W may be considered a very low level of power, it is possible to work stations far and wide, and interstate QSO's should be obtained. Later, if desired, a linear amplifier can be added as an "afterburner". Details of two amplifiers have been published, and the author can supply information on these if required.

Send a large SASE, with two stamps please, to the author for a copy of the PWB artwork, component location diagrams and a list of parts and parts sources.

Photography: Drew Diamond VK3XU

References:

Solid State Design — ARRL.
Radio Communication Handbook — RSGB
Practical RF Design Manual — DaMaw.

AR

A TELEPHONE THAT DOES WHAT IT'S TOLD

Dials and even push buttons may become a thing of the past on telephone. Instead you will simply tell them to make a call.

Such a phone has already been developed by engineers at the British Telecom (BT) research laboratories at Martlesham Heath in eastern England. It is known there as ASCOT which is short for automatic speech controlled telephone.

ASCOT looks a fairly normal telephone but has a built-in-microcomputer and a tiny display screen which displays the numbers being automatically dialled in response to voice commands spoken into the mouthpiece of a normal handset. The next step Is to get rid of the handset so that users simply speak to the unit.

Up to 50 useful words such as "dial" and "home" can be stored in the telephone's computer memory. Each instrument is at present programmed to respond to the voice of a particular user but eventually the phone is expected to accept instructions from anyone. At the moment, each time it receives verbal instructions it compares the voice pattern with its computer "template" before making the call.

The phone will take over once the user has given the command "dial" followed by the wanted number. Alternatively, frequently used numbers can be stored under a name. This means, for instance, the user simply says "dial home" to get the phone to make a call automatically to his home.

The secret of the new phone is its computerised vocabulary memory which engineers have succeeded in getting into a neat table-top unit little bigger than an ordinary telephone.

BT believes ASCOT is likely to be used initially to help physically disabled people who may not be able to move an ordinary telephone dial or press buttons.

ASCOT could also become a lifesaver by enabling the disabled simply to say "emergency" to the phone, which would be programmed to respond by calling up the police, fire brigade or an ambulance.

From New Technology in Britain

AR

FEBRUARY BEST PHOTOGRAPH

In February the judges selected the group of photographs depicting the Red Cross Murray River Marathon. in the centre pages.

The winner at the end of the competition in June will win the Agfa-Gevaert prize of film and video tapes to the value of $100.

CASSETTE LOG PROGRAMME

Neil Cornish, VK2KCN
56 Sherwin Avenue, Castle Hill, NSW, 2154

High on the list of tasks that amateurs purchased a computer for, is log-keeping. To be able to store such information and quickly retrieve it, is the aim of most amateurs. To do so quickly, it is desirable to have a disk-based programme such as my DISKLOG programme printed in AR in December. Programmes that rely on tape storage tend to be too slow to be practical, however, this programme overcomes the speed problem.

```
           AMATEUR CASSETTE LOG
        DE, NEIL CORNISH - VK2KCN

         JAPAN FILE IN MEMORY

  F1 .. LOAD   LOG FILE FROM TAPE
  F3 .. SEARCH LOG FILE IN MEMORY
  F5 .. UPDATE LOG FILE IN MEMORY
  F7 .. ADD TO LOG FILE IN MEMORY
  F2 .. SAVE   LOG FILE IN MEMORY
  F4 .. START  NEW FILE FROM SCRATCH
  F6 .. QUIT   RETURN TO BASIC

 SELECT FUNCTION F1,F2,F3,F4,F5,F6,F7
```

Screen Dump of the Programme Menu.

The TAPELOG programme is designed to store references to your written log in such a way that you can find the details of a prior QSO with any other station in the first minutes of a QSO.

So that the files do not become huge and take time to load, a number of cassettes are used, each with a section of the world on file. The number of cassettes that you choose to use will vary on your operating habits. You could simply have one cassette per continent, or one cassette per ITU zone. For the more active amateur, you may need one cassette per countries, or even one cassette per call area. Probably, you will need a mixture of the above, with some countries needing to be broken up into call areas, whilst some continents (eg. South America) would not make too great a file on one cassette.

Having decided the general outline of the cassette file you wish to create, you will be facing the task of entering your current logbook(s) into the file. The programme has a special function for this task of setting up your computer log, suppose you decide that you need one cassette file for ZL. Run the programme; select the START A NEW FILE function and go through your log entering ZL callsigns and the log page number. When you have entered all the ZL calls in your log the file is SAVED on tape by the programme.

Next you enter, say, previous VK QSO's and perhaps you may need separate cassettes for each call area. This process is repeated until all the log is neatly stored on cassettes. The *programme* is *now ready* to use and as you work DX and make contact with, say, a ZL, you simply LOAD the ZL file from the ZL tape; SEARCH the file for the log page of any prior QSO and then UPDATE the file if the prior QSO is found or ADD to the file if this is the first QSO.

As you can see, a written log is still required, but the restriction of the tape files is paramount and thus the files are kept as brief as possible. The programme is written for the Commodore 64 and allows 500 callsigns per cassette file. More will fit in the 64, but the tape takes longer to read. Splitting your log up as described above will give the SEARCH part of the programme its great advantage . . . SPEED.

For the past active amateur, there is a lot of typing ahead, so, as usual if you would rather use it than type it, $5 for a tape to the author will get one for you. A highly abridged version for the unexpanded VIC-20 (max 250 calls per cassette) is also available from the same source.

AR

```
1000 REM TAPELOG        30.09.84    VOL.    DE, NEIL CORNISH  VK2KCN
1010 GOSUB2120:GOSUB2030
1020 GOSUB1970
1030 ONYGOTO1040,1120,1220,1350,1440,1520,1630

1040 REM   LOAD    LOG FILE FROM TAPE
1050 GOSUB1730:GOSUB1930:GOSUB1900:IFY$<>"Y"THEN1020
1060 R=8:C=4:GOSUB1700:R=8:GOSUB1950:PRINTR$(R);C$(C);
1070 PRINT" ENTER THE NAME FOP THIS FILE ":INPUTFI$
1080 GOSUB1950:PRINTR$(R);" LOADING "FI$" FILE":I=1:OPEN1
1090 INPUT#1,Q$(I),P(I)
1100 IFQ$(I)="*"THENCLOSE1:I=I-1:GOSUB1870:GOSUB1800:GOTO1020
1110 I=I+1:GOTO1090

1120 REM  SEARCH LOG FILE IN MEMORY
1130 IFITHEN1150
1140 GOTO1460
1150 GOSUB1730:IFASC(FI$)=32THENGOSUB1950:FORK=1TO3:GOSUB1870:NEXTK:GOSUB1020
1160 R=8:PRINTR$(R);C$(C):" ENTER CALLSIGN AND HIT [RETURN] ":PRINT
1170 INPUTCA$:R=8:GOSUB1950:PRINTR$(R);C$(C):" CHECKING LOG FOR QSO WITH "CA$
1180 FORF=1TOI:IFCA$<>Q$(F)THENNEXTF:GOTO1210
1190 R=8:GOSUB1950:GOSUB1870:PRINTR$(R):C$(C):" QSO WITH "CA$" LOG PAGE "P(F)
1200 GOSUB1850:GOSUB1900:GOTO1020
1210 R=8:GOSUB1950:GOSUB1870:PRINTR$(R):C$(9):" FIRST QSO WITH "CA$" ":GOTO1200

1220 REM  UPDATE LOG FILE IN MEMORY
1230 IFITHEN1250
1240 GOTO1460
1250 GOSUB1730:R=8:GOSUB1950:GOSUB1870
1260 PRINTR$(R):C$(2):" WARNING -- ONLY USE THIS FUNCTION  "
1270 PRINTC$(2);"              AFTER A SUCESSFUL SEARCH ":PRINTC$(2);
1280 PRINT"Y TO CONTINUE OR ANY OTHER TO ABORT":GOSUB1900
1290 IFY$<>"Y"THEN1020
1300 R=8:GOSUB1950:RRINTR$(R):C$(1):" RE-ENTER LOG PAGE CURRENT QSO WITH..."
1310 PRINTC$(17)CA$:PRINT:INPUTP(F)
1320 R=6:GOSUB1950:PRINTR$(R):C$(12)" FILE UPDATED! "
1330 PRINTR$(6):"DON'T FORGET TO SAVE THE FILE ON TAPE--"
1340 GOSUB1850:GOSUB1900:GOTO1020

1350 REM  ADD TO LOG FILE IN MEMORY
1360 IFITHEN1380
1370 GOTO1460
1380 GOSUB1730:R=8:GOSUB1950:GOSUB1870
1390 PRINTP$(R);C$(2):" WARNING --- ONLY USE THIS FUNCTION  "
1400 PRINTC$(2):"           AFTER AN UN-SUCESSFUL SEARCH ":PRINTC$(2):
1410 PRINT"Y TO CONTINUE OR ANY OTHER TO ABORT":GOSUB1900:IFY$<>"Y"THEN1020
1420 R=8:GOSUB1950:PRINTR$(R):C$(2):" ENTER LOG PAGE # FOR THIS QSO WITH "
1430 PRINT:PRINTC$(17):CA$:I=I+1:INRUTP(I):Q$(I)=CA$:GOTO1320

1440 REM  SAVE    LOG FILE IN MEMORY
1450 IFITHEN1480
1460 R=4:C=4:GOSUB1950:GOSUB1800
1470 GOSUB1870:GOSUB1850:GOSUB1900:GOTO1020
1480 GOSUB1730:GOSUB1930:GOSUB1900:IFY$<>"Y"THEN1020
1490 R=8:GOSUB1950:PRINTR$(R);C$(C):" ENTER THE NAME FOR THIS FILE "
1500 R=10:PRINTR$(R)
1510 INPUTFI$:GOSUB1750:GOTO1020
1520 REM  START NEW FILE FROM SCRATCH
1530 GOSUB1730:R=8:GOSUB1950:PRINTP$(R):C$(C):" ENTER THE NAME FOR THIS FILE "
1540 PRINT:INPUTFI$:R=4:GOSUB1950:GOSUB1800:I=1
1550 C=0:R=6:PRINTR$(R);C$(C);" ENTER EACH CALLSIGN FOLLOWED BY IT'S"
1560 PRINTC$(C):" PAGE NUMBER IN YOUR LOG, SEPARATED BY"
1570 PRINTR$(8);C$(C);" A COMMA - THEN PRESS [RETURN]
1580 R=11:PRINTR$(R):C$(C):" AFTER THE LAST ENTRY, TYPE *,0 [RETURN]":PRINT
1590 INPUTQ$(I),P(I):R=13:GOSUB1950:IFQ$(I)<>"*"THENI=I+1:GOTO1580
1600 C=4:R=6:GOSUB1950:PRINTR$(R);C$(C);" WRITING LOG ON TAPE ":R=10:GOSUB1930
1610 GOSUB1900:IFY$<>"Y"THEN1550
1620 GOSUB1750:GOTO1020
1630 REM  RETURN TO BASIC
1640 GOSUB1730:GOSUB1930:GOSUB1900:IFY$<>"Y"THEN1020
```

```
1650 GOSUB1950:GOSUB1870:PRINTR$(R);C$(C);"▒ HAVE YOU SAVED THE LOG FILE?  Y/N "
1660 GOSUB1900:IFY$<>"Y"THEN1020
1670 END
1680 REM;▒          SUB ROUTINES          ▒
1690 :
1700 REM;▒  INSERT CORRECT TAPE S/ROUTINE  ▒
1710 PRINTR$(R);C$(9);"▒ INSERT COPRECT TAPE ":GOSUB1850:GOSUB1900
1720 GOSUB1830:GOSUB1900:RETURN
1730 REM;▒  CLR PART SCREEN DISPLAY FUNCTION S/ROUTINE  ▒
1740 R=6:GOSUB1950:PRINTR$(R);C$(C);S$(Y):RETURN
1750 REM;▒  WRITE FILE TO TAPE S/ROUTINE  ▒
1760 C=4:R=6:GOSUB1950:GOSUB1830:GOSUB1900:GOSUB1950:PRINTR$(R);C$(C);
1770 Q$(I+1)="*":FORN=1TO2:OPEN1,1,1,FI$
1780 FORT=1TOI+1:PRINT#1,Q$(T);",";P(T)",";CR$:NEXTT
1790 CLOSE1:NEXTN:RETURN
1800 REM;▒  STATUS LINE S/ROUTINE  ▒
1810 SL$=FI$+" FILE IN MEMORY":PRINTR$(4);B$
1820 C=INT(40-LEN(SL$))/2:PRINTR$(4);C$(C);SL$:C=4:RETURN
1830 REM;▒  REWIND TAPE S/ROUTINE  ▒
1840 PRINTR$(8);C$(9);"▒    REWIND THE TAPE    ":GOSUB1850:GOSUB1870:R=R-2:RETURN
1850 REM;▒  PRESS ANY KEY S/ROUTINE  ▒
1860 PRINTR$(10);C$(6);" PRESS ANY KEY TO CONTINUE!":RETURN
1870 REM;▒  WARNING HORN S/ROUTINE  ▒
1880 POKESD+24,15:POKESD+6,240:POKESD+5,12:POKESD+1,20:POKESD+2,1
1890 POKESD+4,65:FORT=1TO500:NEXT:POKESD+4,64:RETURN
1900 REM;▒  GET Y$ & RETURN S/ROUTINE  ▒
1910 GETY$:IFY$=""THEN1910
1920 RETURN
1930 REM;▒  ARE YOU SURE ? S/ROUTINE  ▒
1940 R=R+2:PRINTR$(R);C$(9);"▒ ARE YOU SURE ?  Y/N ▒":RETURN
1950 REM;▒  CLR PART SCREEN S/ROUTINE  ▒
1960 FORT=RTO23:PRINTR$(T);B$:NEXTT:RETURN
1970 REM;▒  MAIN MENU S/ROUTINE  ▒
1980 R=4:GOSUB1950:GOSUB1800
1990 FORT=1TO7:PRINTR$(T+5);C$(4);S$(T):NEXTT
2000 PRINTR$(3);"▒SELECT ▒FUNCTION▒ F1,F2,F3,F4,F5,F6,F7":C=4
2010 GOSUB1900:Y=ASC(Y$)-132:IFY<1ORY>7THENGOSUB1870:GOTO2010
2020 RETURN
2030 REM;▒  START UP S/ROUTINE  ▒
2040 DIMQ$(500),P(500):CR$=CHR$(13):SD=54272:POKE53280,7:POKE53281,7
2050 PRINT"▒▒          AMATEUR CASSETTE LOG          ":FI$=" THERE IS NO"
2060 PRINT"▒▒        DE. NEIL CORNISH - VK2KCN        ":FORT=1TO7:READS$(T)
2070 NEXTT:RETURN
2080 DATAF1 .. LOAD   LOG FILE FROM TAPE,F3 .. SEARCH LOG FILE IN MEMORY
2090 DATAF5 .. UPDATE LOG FILE IN MEMORY,F7 .. ADD TO LOG FILE IN MEMORY
2100 DATAF2 .. SAVE   LOG FILE IN MEMORY,F4 .. START  NEW FILE FROM SCRATCH
2110 DATAF6 .. QUIT   RETURN TO BASIC
2120 REM;▒  SCREEN CONTROL S/ROUTINE  ▒
2130 DIMC$(25),R$(25):B$="▒                                       "
2140 R$="▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒":FORT=1TO25:R$(T)=LEFT$(R$,T):NEXTT
2150 C$="▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒":FORT=1TO25:C$(T)=LEFT$(C$,T):NEXTT:RETURN
```

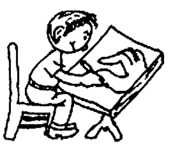
AMATEUR RADIO OPERATORS IN THE USA AGREE ON PACKET-RADIO PROTOCOL

The Board of Directors of the American Radio Relay League (ARRL), Newington, Connecticut on 26 October, 1984 approved a standard protocol for amateur packet radio. A document with detailed specifications, *AX25 Amateur Packet-Radio Link-Layer Protocol*, by Terry Fox, is available from ARRL Headquarters for $8.00 US, $9.00 Canada and elsewhere.

This protocol was *developed over a* three-year period by amateur volunteers and amateur packet-radio clubs throughout North America. Earlier versions of the protocol have been in daily use since early 1983 by the approximately 2000 amateur packet-radio stations. Many of these are in populous areas of the US, such as San Francisco, Boston, Miami, and Washington, DC, and others are active in Europe, Africa, East Asia, Australia and New Zealand. Amateur packet-radio enthusiasts ("packeteers") have a wide choice of transmission modes: high-frequency ionspheric, very-high-frequency terrestrial, amateur satellite, and meteor-scatter communications. Transmission speeds are now in the 300 to 1200 word-per-minute range and will be much higher in the near future as new equipment designs are completed.

Although it is early in the development of amateur packet radio, it will eventually become an international integrated network offering a wide variety of data communications services to amateur radio operations. It will be capable of providing the public with emergency communications in times of disaster as amateurs have done for many years by manual message processing. Other network services will be automatic weather reporting, data bases, still photographs, and compressed-bandwidth television.

AR



THUMBNAIL SKETCHES

Alan Shawsmith, VK4SS
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HARRY S DEARNESS VK4KW

Harry S Dearness convinced the PMG he should be allowed to go on air by attaining his AOCP in Mackay, Queensland in May 1939. Unfortunately, as Australia's participation in WWII began in September 1939, like so many others, Harry just got started when he had to 'pull the big switch'; a most frustrating move for those at the height of their enthusiasm.

Again, like so many others, VK4KW enlisted and saw service with the 2/122 Aust Brigade AIF 9th Division 1941-1946.

The war over, Harry continued professionally with electronics as a Radio and TV technician until his recent retirement to the near coastal town of Strathpine, thirty kilometres north of Brisbane.

As an amateur he has remained most active, participating in almost all aspects and activities, one of the latter being JOTA. An all moder, after a period of homebrewing, he now uses Yaesu gear to good effect in DX and contests. A visit to the shack of VK4RM was the catalyst to his interests in AR.

Harry VK4KW lists his other hobby as gardening — which, combined with amateur radio, seems to this writer an *ideal* way to spend one's later years.

AR

HARRY (TIBBY) SCHOLZ VK4HR (SK)

VK4HR was yet another unforgettable character of AR's halcyon days. He was first licensed in Gladstone in 1933 and shortly after moved to Brisbane where he soon made his mark on the local scene.

Harry participated with much success in all levels of the hobby, viz administration, technical and social. He served on the WIA Council in VK4 in more than one capacity; a homebrewer of ability, he constructed both his amateur and broadcast band gear and he was the creator of the very active South Brisbane Radio Club. His DX achievements were legion and many trophies graced his shack.

VK4HR was a good socializer and popular but he possessed a sharp and sometimes cutting wit and the urge to instigate practical jokes. May I relate just one of many — *'Tibby' VK4HR and yours truly worked together for a period as PMG Broadcast Technicians. Another amateur workmate, who shall remain nameless, habitually wore the most outrageous ties to work — vulgar by any standards. 'Tibby's' incisive comments about this enraged him.*

"Aw, cut it!" said the nameless amateur heatedly, unable to stand the jibes any longer.

It so happened that VK4HR was standing at a workbench with a large pair of scissors in his hand. "You said 'Cut it'," inquired 'Tibby'.

"Yes," said the amateur, "I meant it!"

Whereupon, VK4HR simply reached up and cut off the offending necktie at the knot. What followed is not for the print media.

How Harry VK4HR came by his nickname is not known. It could be related to his lack of 'tibia' (shin bone) length. He was slightly shorter than average.

Sadly, post-WWII he fell ill and prematurely went into a long physical decline; his wit, however, remained with him to the end. AR is much the poorer for his passing.

AR

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HOW TO CONVERT COMMODORE SYMBOLS FOR USE ON OTHER COMPUTERS

Hove you ever seen a programme that will do just what you always needed only to discover that it was written for the Commodore 64 with all those odd looking symbols that you can't make head or tail of?

So to help in converting C-64 programmes to other micro computers, here are some commonly used symbols, POKEs and other commands for the '64 that must be changed or disused on other computers.

USED IN A PRINT STATEMENT

CLEAR SCREEN HOME - TOP LEFT CORNER OF SCREEN
CURSOR UP CURSOR DOWN CURSOR LEFT
CURSOR RIGHT

REVERSE ON - PRINTS WHITE ON BLACK
REVERSE OFF - PRINTS BLACK ON WHITE

INSERT DELETE

BLACK	WHITE	RED	CYAN
PURPLE	GREEN	BLUE	YELLOW
ORANGE	BROWN	LT RED	DK GREY
MID GREY	LT GREEN	LT BLUE	LT GREY

THESE ARE MOST LIKELY TO BE USED WITH AN IF STATEMENT

F1 KEY	F2 KEY	F3 KEY	F4 KEY
F5 KEY	F6 KEY	F7 KEY	F8 KEY

EACH COLOR ALSO HAS A NUMBER STARTING FROM 0 (BLACK), 1 (WHITE)
ETC IN THE ABOVE ORDER.

POKE 53281,X CHANGES THE INNER SCREEN COLOR.
POKE 53280,X CHANGES THE OUTER SCREEN COLOR.

ANY VALUES POKED BETWEEN 54272 AND 54296 CONTROL THE
THREE VOICES IN THE C-64.
EG. POKE 54296,X CONTROLS THE VOLUME. X MAY BE FROM 0 (OFF) TO 15 (LOUDEST).

EVERY PERIFERAL CONNECTED TO THE COMPUTER HAS ITS OWN DEVICE NUMBER.

1 - CASSETTE 2 - MODEM 3 - SCREEN 4 - PRINTER 5 - 2ND PRINTER
8 - 1ST DISK DRIVE 9,10,11 - ADDITIONAL DISK DRIVES

OPEN 2,4 WOULD OPEN FILE NO. 2 TO THE PRINTER.
PRINT#2,A$ WOULD PRINT A$ ON THE PRINTER.

OPEN 3,8,3,"0:15/12/84,S,R" MEANS ...
OPEN FILE#,DEVICE#,CHANNEL#,"0:FILE NAME,FILE TYPE, DIRECTION"
FILE TYPE IS S FOR SEQUENTIAL.
DIRECTION IS R FOR READ OR W FOR WRITE.

INFORMATION IS READ BY INPUT#3,A$ (OR GET#3,A$ FOR A SINGLE CHARACTER)
OR WRITTEN TO DISK BY PRINT#3,A$

OPEN15,8,15 OPENS THE DISK COMMAND CHANNEL.

INPUT#15,E1$,E2$,E3$,E4$ READS THE DISK ERROR CHANNEL.

E1$ - ERROR NO. E2$ - ERROR NAME E3$ - TRACK NO. E4$ - BLOCK NO.

PRINT#15,"N0:NAME,ID" - REFORMATS THE ENTIRE DISK.
PRINT#15,"C0:NEWFILE=0:OLDFILE" - COPIES A PROGRAM ON THE DISK.
PRINT#15,"R0:NEWNAME=OLDNAME" - RENAMES A FILE.
PRINT#15,"S0:NAME" - ERASE (SCRATCH) A FILE.
PRINT#15,"I" - INITIALIZE.
RETURNS THE DISK TO THE SAME STATE AS WHAEN POWERED UP.
PRINT#15,"V" - VALIDATE.
REORGANIZES DISK TO ENSURE THAT AVAILABLE BLOCKS ARE FREE.

THE @ IN SAVE"@0:XXXXX",8 MEANS THAT THE FILE XXXXX IS TO BE SAVED
OVER THE EXISTING FILE XXXXX

LOCATIONS 1024 TO 2023 ARE SCREEN POSITIONS.
EG. POKE1024,1 WOULD PUT THE LETTER A IN THE TOP LEFT CORNER OF THE SCREEN.

A - Z ARE NUMBERED 1 - 26.
32 TO 63 ARE THE SAME AS THE ASCII/CHR$ CODE.
NUMBERS ABOVE 63 ARE THE SYMBOLS DISPLAYED ON THE C-64 KEYBOARD.

LOCATIONS 55296 TO 56295 CONTROL THE COLOUR OF THE SCREEN POSITION.
EG. POKE55296,1 WOULD CHANGE THE COLOR OF THE LETTER A TO WHITE.

SO YOU'VE BOUGHT A PERSONAL COMPUTER?

Bill Martin VK2COP
33 Somerville Road, Hornsby Heights, NSW 2077

Well, so have I . . . and of course, the first thing you find out is that you're not as smart as you thought you were. Many months of agonising over *which* PC to buy, *what* I wanted it to do for me, what *I* wanted to do to it, and whether the PC and I could come to some arrangement, suitable to both of us. Well, the computer has come to some arrangement alright — it does what it wants to do, when it wants to do it! But, let me say this in my defence; I have learnt a few things about it — let me enumerate them;

I have learnt what a Syntax error is; an illegal variable error; and unpaired bracket error; a multiple statement; a nothing to exec; a mixed mode; a next without for error; an unknown function (?); a bad load (this is a cardinal sin); a can't continue; a gosub stack error, but have not yet received the 'Option Not Fitted' error message.

Not bad, eh? So you can see I've learnt quite a few things about it. (I hope it's not listening at the moment.) I've learnt what 'Hardware' is; I've learnt what 'Software' is; I've learnt all sorts of computer nomenclature and the only thing left to learn about it is **HOW TO OPERATE THE BLASTED THING!**

And I must put a 'pot' across the speaker to wind down the audio on the speaker a little. A couple of times, when I've really been concentrating on serious programming, the rotten thing has BEEPED at me, causing me to nearly fall off the chair! Actually, even today, I took the thing to pieces to do just that, and must admit I was tempted to leave it in pieces, so it couldn't insult me any further! Anyway, there I was, with the covers off, and still no evidence of the speaker, or it's connections. Not being a person who is easily daunted, (I am the holder of the AOCP), I continued with the screwdriver, and removed the top board . . . HORRORS! The speaker is under the 'Mother board'.

Consider, for a moment, the situation . . . here I am, with the computer in complete disarray on the bench; my brain working overtime to try and keep up with what I'm trying to do; a top board full of IC's shaking in my trembing hands, AND STILL CAN'T GET AT THE SPEAKER.

By this time, you're probably thinking *"Well, he's outsmarted himself this time."* Not so . . . I have exigency plans for just this type of situation: I simply put every bit back together, and attack on a future occasion, when I have had time to think about it.

And that is exactly what the situation is at the moment. As a matter of fact, when I come to think about it, the audio level of the speaker is not so bad — I think I could learn to live with it, in time . . . But the BITS, BYTES, POKES, PEEKS, PIXELS, et al, I think (on reflection) may just prove too much for me. However, my address is in the call-book, and I am always open to advice and suggestions from those who have more of a flair in these matters than I do.

On the plus side, (in case you thought I had been regretting the purchase of the PC), my children think it's marvellous, with it's games, etc. And it looks good in the shack — impresses the itinerant visitor; dresses up the decor; and leaves friends with the impression that *"he must be smarter than I thought"*. As is my wont, I don't relieve them of their erroneous ideas — I simply blind them with computer double-talk and leave them thinking that I am some sort of electronic high-brow. (HI HI). If only they knew — Of course, anyone who knows me won't be fooled. They all realise my capabilities, as I do (SIGH).

IN CONCLUSION: (As they say in the equipment reviews), I would certainly recommend the purchase of a personal computer for the average amateur, and, everything else aside, it is a good companion when the solar cycle is at the bottom of the graph. In short, you have HF, SSB, CW, VHF possibly, and NOW — computership, glass RTTY, Keyboard CW, and all sorts of goodies.

Buy a computer, by all means, just don't ask me what brand to buy, or how to operate it!

AR

DOC WARNS ABOUT ILLEGAL LINEARS

An investigation had found that a number of taxis in the Sydney area had been installed with linear amplifiers in an effort to increase the range of their radio and as a result get more jobs.

A DOC spokesman said use of linear amplifiers by some Sydney taxis caused interference to other radio communications services, harmed radio frequency management, and made taxi drivers liable to prosecution.

The problem had first arisen about two years ago, but reports of interference had increased significantly over the past six months.

DOC had warned it would crack down if the amplifiers were not voluntarily withdrawn.

Unauthorised use of a linear amplifier is illegal under the Wireless Telegraphy Act 1905 and operators can face penalties including confiscation of equipment and a fine of up to $1,000.

Fines would increase to $10,000 under the new Radiocommunications Act which will take effect this year. Under this Act it will also be illegal to install such equipment without authorisation.

Contributed by Jim Linton VK3PC

AR

MORE ON MURPHY

I have always been curious to know just how it came about that Murphy got lumbered as the poor fellow responsible for all the snags that seem to be an intrinsic part of electronics.

Readers may remember, that in an earlier column, I described how a social misfit named MUR-FE, deported from the land of the Pharaohs of Egypt, finally found his way to the 'Land of the Shamrocks'. Finding the Emerald Isle very much to his liking, he set about this favourite pastimes of procreating, imbibing and spoiling others fun. It is claimed that all those going under the name of Murphy are descendants of this particular Arab.

Now, by another stroke of luck, I have come across the activities of one of his twentieth century descendants. Christened Michael Meehan Murphy, born into the modern era of Science and Technology and claiming to be an electronics engineer, he developed one of the most profound concepts of this new age — MURPHY'S LAW. His real contribution to S&T lay not merely in its discovery but in its universality, application and impact. The law itself is inherently simple but it will form the foundation on which future engineers will build.

In short the law says: "If anything can go wrong, it will".

Michael Meehan Murphy has provided endless examples of the universality of Murphy's Law.

Unfortunately, Mr Murphy fell victim to his own law. He overlooked the fact it applies to *all* things — and not solely to inanimate objects. While avidly courting a lady to whom he had no intention of honorably pledging his troth, she informed him one day there was to be an heir to his hard-won estate. The photo of Mr Murphy was taken just after he received the news. His expression reminds this author of the fellow who read the following in his local village rag —

"Would the young gentleman with moustache and thinning hair, who met the small blonde lady in Brighton last year, please contact her . . . he will hear something that will wipe the smile from his face!"

AR

MURPHY

Beware the fate of Harry Steed,
— was warned, but wouldn't heed;
That Murphy does his nasty best,
Just before a big contest
He's out, a-spoiling bent
Sabotaging some event —
Or messing up the beam, or gear.
So have a thought and a fear
Touch naught that has no need —
Lest you wind up like Harry Steed,
Who spent the week-end on repair
But never did get back on air.

Alan Shawsmith
VK4SS

AR

"FORGOTTEN GENIUS"

By G. Mowat, ZS5KL

History praises such pioneers as Marconi, Edison, Graham Bell to name a few, but one man, Nikolas Tesla often unknown and delegated to the back pages of scientific journals, is responsible for a gigantic measure of scientific and industrial progress that has taken place during the past eighty years.

In the words of Tesla's biographer, John O'Neill, this is the man who gave us the twentieth century. This truly remarkable genius invented or described in detail alternating current, the modern AC induction motor, the electron microscope, the turbine, a system of arc lighting, neon and fluorescent lighting, radar forty years before it was "invented", high frequency currents that are in universal use in the medical and industrial fields, remote control by radio, harnessed the mighty power of Niagara falls, produced huge artificial lightning bolts, described the laser sixty years before it became a reality. He also lit 200 electric lights at a distance of twenty five miles WITHOUT connecting wires and in 1898, demonstrated the working principles of wireless and described in detail the radio controlled rocket forty five years before the Germans used it in World War 2.

Tesla rejected the Nobel Prize, not from vanity, but because he would have shared it with Edison who, much to his later regret, had spurned alternating current and belittled Tesla's work in this new sphere. Living in poverty, Tesla tore up a contract worth many millions of dollars because it would have caused heavy financial loss to a friend.

Tesla died in 1943, alone and in poverty in a seedy hotel room in New York, ignored and swindled by the twentieth century world he helped create.

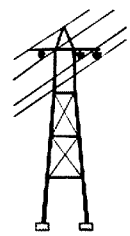
A strange, lonely man who never married, Nikolas Tesla was born in 1856 in the town of Smiljan, Austria Hungary (now Yugoslavia). He choose electricity as a career and attended the University of Prague. After graduation he secured employment as a draughtsman in Budapest and later moved to Paris where he worked as a telephone engineer. It was at this time Tesla worked out his idea of an induction motor that ran off alternating current, hitherto declared impossible by the scientists of the period as it necessitated a rotating magnetic field. Direct current motors then in use were cumbersome and heavy, the commutator and brush assembly an additional drawback which required frequent cleaning and replacement as they used a form of soft carbon. Tesla constructed his first AC motor in 1883 which he immediately patented.

In 1884 he emigrated to the United States where he shrewdly realised all future, major electrical development would take place.

After landing in New York, Tesla through a letter of introduction, secured employment with Edison. Their characters were in direct contrast with each other and inevitably, friction developed. Thomas Edison was dedicated to his direct current system and refused even to consider the alternative AC method. Tesla realised the severe limitations of the DC network with a generating station in each precinct. Power distribution outside a relatively small area being impossible without voltage loss and heavy, cumbersome power lines.

In 1887 Tesla parted company with Edison and for a period worked as a ditch digger before opening a very modest workshop which he named, The Tesla Electrical Company. It was here, although hamstrung by very limited finances, he produced many improved motors working on single, two and three phase AC systems. At this time Tesla was contacted by George Westinghouse of the Westinghouse Electric Company who offered to purchase the existing AC patents for a million dollars, plus royalties of one dollar per horsepower of future generating potential. Tesla accepted the offer and the foundations of a giant nationwide electrical network were laid. A firm friendship sprung up between the two men in direct contrast to those which existed between Tesla and Edison.

In 1893 the huge World Exposition in Chicago was illuminated by alternating current and Westinghouse secured the contract for development of the Niagara Falls power system. It was not that the full implications of the Tesla contract was realised by attorneys acting for George Westinghouse. They pointed out that the dollar/horsepower clause was not feasible when huge power systems were constructed. It was impractical and would bankrupt the Westinghouse company. Reluctantly Westinghouse explained the predicament to Tesla who immediately tore up the contract, thereby giving up claims to many millions of dollars of future income.



Nevertheless, Tesla threw himself into new development work and produced many inventions, especially in the high frequency current fields. He unfortunately failed to file patents for these, much to his everlasting regret and in later years these same developments were blatantly pirated around the world. Even the famous Tesla HF coil was not protected by patents.

After discovering "terrestial stationary waves", Tesla's burning ambition was the transmission of power without wires and the broadcasting of intelligence by wireless waves, culminating in a world wide power and broadcasting network. In 1892 he described in minute detail the electronic valve several decades before it was "invented". It was during this period that Tesla was able to demonstrate publicly the transmission of HF power without wires to light two lamps. Neon and fluorescent tubes were illuminated in public, all without the vital patent protection. He was able to demonstrate in his laboratory what he called "special radiation" waves which were able to penetrate metal and register on a photographic plate. Again he had made a revelation three years before Rontgen in Germany announced his discovery to the world of X-rays.

Another of Tesla's inventions was what he called his "telegeodynamic oscillator". This device, operated principally by compressed air, was able to shake buildings violently in the immediate neighbourhood of his laboratory identical to an earthquake. As the oscillations built up in strength, complete buildings rocked about shattering glass and peeling plaster off in sheets, water and gas pipes sheared and the panic stricken populace rushed into the streets convinced New York was in the grip of a major seismic quake. Only police intervention stopped the experiment and the destruction of the area. It is not recorded what the aftermath of the experiment produced, but Tesla claimed he could destroy the tall Chrysler building (then New York's highest) in thirty minutes using a total of 2½ horsepower to drive his oscillator.

He also claimed by using a modified version of his oscillator, it could be used to locate ore and oil deposits far underground. Another "first" by over forty years when a similar method using small controlled explosions was used by geologists to locate ore, water and oil.

In 1898 he publicly demonstrated his remote controlled model boat at Madison Square Gardens using "wireless" control and power. The demonstration was an unqualified success and the experts were agog over his servo mechanisms which altered the direction and speed of his model boat. The transmitter and receiver were separated by several hundred feet and the boat carried bow and stern lamps lit by remote power. Again this experiment was forty years ahead of identical methods used by guided missiles, pilotless target planes and torpedoes. Once again patent rights were not taken out to protect these important developments.

In 1899 Tesla, with finance provided by J P Morgan, moved his workshop to Colorado Springs. The building was constructed on the summit of a small mountain with power supplied by the local generating station in the nearby town. Here he constructed a giant Tesla coil which built up a potential of 12 million volts creating miniature lightning flashes 135 feet long. During one experiment he delayed throwing the discharge switch and promptly burnt out the alternators at the town generating plant. Nothing daunted, he rewired the damaged alternators within a week and carried on with his experiments! Further finance was provided by Colonel John Astor and eventually Tesla moved his laboratory back to New York. As his work failed to show returns over the investments provided by Morgan and Astor and coupled with the failure to secure patent protection, both these wealthy men withdrew their sponsorship and Tesla found himself without a backer. Only very small occasional grants were forthcoming and Tesla was forced through circum-

stances to abandon his dream of a world power and broadcasting network.

In the period between 1906 and 1914 Tesla began to develop the turbine. He joined forces with the Allis Chalmers company in this venture which after a period, failed because of his abrasive personality and his determination not to commit anything in writing or on paper. Although the Tesla turbine was different in design to the now accepted type, it differed only with the blade construction. Once again, Tesla made nothing out of his work on the turbine.

In 1917 during a lecture tour he theoretically demonstrated the main principles of radar and earlier, had demonstrated in his laboratory, how wireless waves could be deflected by metal objects. Again, radar was anticipated by over thirty years.

Following a disastrous fire which destroyed his New York laboratory and workshop, Tesla was hamstrung by lack of finance which prevented him from developing new inventions. His cardinal error was failure to secure patent protection and whilst manufacturers made fortunes from his ideas and developments, the man who had invented them grew poorer and poorer.

In 1915 Tesla made an unsuccessful attempt to obtain a court injunction against Marconi. Tesla maintained he had demonstrated in theory and in practice wireless transmission as far back as 1890. However, in later years the US Supreme Court reversed the decision and upheld Tesla's claim and cancelled Marconi's patents on the grounds that they had been anticipated and demonstrated by Tesla long before the patent rights had been issued. This momentous decision by the courts did nothing to aid Tesla financially.

His last serious work was the development of the so called "death ray", which some believe was an early attempt to produce a laser. Others maintain it was a development of a high frequency, concentrated beam of some sort that was powerful enough to stop an internal combustion engine or cause serious burns and even death, to anyone who stood in its path. Unfortunately, Tesla never committed anything to paper except for a few odd notes. His agile brain stored every detail of his many creations and he could totally recall ideas and data years later.

Even his own laboratory assistant knew little of a particular project as Tesla never discussed anything in detail. The assistant worked under direction and instruction knowing almost nothing of the details until the particular scheme was completed. With very good reason Tesla was highly suspicious of having his ideas stolen and pirated by others.

As he was unable to develop genuine friendships with others, particularly women, he was branded as distant, cold and without emotion. Shunned and cheated by the industrial world he helped create, plagued by poor health and almost penniless — his only friends were the pigeons of New York. With these birds he was able to demonstrate an unknown side of his character — that of love and affection. The answer to this enigma possibly lies in his complete lack of faith and trust with his fellow men who, almost without exception, openly used him and his remarkable talents, discarding him when his usefulness was over.

When he was unable to feed the pigeons himself because of illness, Tesla engaged a messenger boy to perform the duty for him. He befriended these birds and went to any length to provide them with food and care, sometimes to his own detriment. To one particular white pigeon Tesla was very attached and a special understanding and bond developed between them; almost a unique relationship, but founded on complete trust between man and bird.

One day this bird flew into the room and Tesla instinctively knew it was dying and had come to bid its friend farewell. He was heartbroken and disconsolate over its death and for days he wandered moodily about the streets grieving his loss.

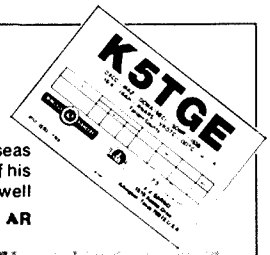
His health gradually deteriorated and he breathed his last on a frosty morning in January, 1943. It is said that when he died a great wave of pigeons rose up into the cold, wintry New York sky as a farewell and tribute to their friend and benefactor.

When next you are out beyond the city limits, observe the power lines with their sentinel pylons that march across the countryside bringing power to homes and industry. These are indeed a reminder, as well as a lasting monument, to the man who gave us the twentieth century.

Nikolas Tesla, the forgotten genius . . .

Reprinted from Radio ZS
February 1983 **AR**

WIA MEMBER FROM OVER-THE-SEAS



Jim Sarno W5TGE is one of our many overseas members. He has been an amateur for fifty five of his seventy six years and is pictured here in his well appointed shack.

AR

Amateur Radio Abbreviations

These abbreviations are frequently used throughout this magazine and other amateur radio publications. They are printed here to assist new amateurs and amateurs-to-be. The abbreviations appear throughout many articles and also in Hamads.

A — ampere
AC — alternating current
ACNF — **AMSAT** co-ordination and network frequency
A/D — analog-to-digital
AF — audio frequency
AFC — automatic frequency control
AFSK — audio frequency-shift keying
AGC — automatic gain control
AH — ampere hour
AH — after hours
ALC — automatic load (or level) control
AM — amplitude modulation
am — morning
AMSAT — Radio Amateur Satellite Corporation
AMTOR — amateur teleprinting over radio
ANL — automatic noise limiter
AOCP — Amateur Operator's Certificate of Proficiency
AOS — acquisition of signal
AR — Amateur Radio Magazine
ARA — Amateur Radio Association
ARC — Amateur Radio Club
ARES — Amateur Radio Emergency Service
ARRL — American Radio Relay League
ARS — Amateur Radio Society; Amateur, Radio Station, amateur radio service
ASCII — American National Standard Code for Information Interchange
ASSC — Amateur Satellite Service Council
ATV — amateur television
AVC — automatic volume control
AWG — American wire gauge
az-el — azimuth-elevation

BASIC — beginner's all-purpose symbolic instruction code (computer language)
Balun — balanced to unbalanced transformer
B — Byte; a group of bits or binary digits, usually eight
BC — broadcast
BCD — binary-coded decimal
BCI — broadcast interference
BCL — broadcast listener
BH — business hours
BIT — binary digit
BFO — beat-frequency oscillator
BPF — band-pass filter
BPL — Brass Pounders League
Bps — bits per second
BPT — bipolar transistor
BW — bandwidth
BWL — loaded bandwidth

C — Celsius
CAC — Contest Advisory Committee
CATVI — cable-television interference
CB — citizens band
CCIR — International Radio Consultative Committee
CCITT — Consultative Committee for International Telegraph and Telephone, a part of **ITU**
CCW — coherent cw; counterclockwise
Ch — channel
cm — centimetre
CMOS — complementary-symmetry metal-oxide semiconductor
coax — coaxial cable or connector

COR — carrier-operated relay
CPU — Central Processing Unit
CRRL — Canadian Radio Relay League
CRT — cathode-ray tube
CSMA — carrier sense multiple access
CT — center tap
CTCSS — continuous tone-coded squelch system (**PL**)
CW — continuous wave (code); clockwise

D/A — digital-to-analog
dB — decibel
dBc — decibels referenced to carrier level
dBd — antenna gain referenced to a dipole
dBi — antenna gain referenced to isotropic; a dipole has a gain of 2.14 dBi
dBm — decibels referenced to 1 mW
DBM — doubly balanced mixer
DC — direct current
DEMUX — demultiplexer
DF — direction finder; direction finding
DIP — dual in-line package
DOC — Department of Communications
DPDT — double-pole double-throw
DPST — double-pole single-throw
DSB — double sideband
DTL — diode-transistor logic
DTMF — dual-tone, multi-frequency
DVM — digital voltmeter
DX — long distance
DXAC — DX Advisory Committee
DXCC — DX Century Club

E — voltage
EAROM — electrically alterable read-only memory
ECL — emitter-coupled logic
ECO — electron-coupled oscillator
EHF — extra high frequency
EIRP — equivalent isotropically radiated power; erp referenced to an isotropic antenna
el — element
EME — earth-moon-earth (moonbounce)
EMF — electromotive force (voltage)
EMI — electromagnetic interference
EMP — electromagnetic pulse
EOC — emergency operations center
EPROM — erasable programmable read-only memory
EQX — equator crossing
ERP — effective radiated power
EUV — extreme ultraviolet radiation

f — frequency
F — farad; Fahrenheit
FAX — facsimile
FCC — Federal Communications Commission
FD — Field Day
FET — field-effect transistor
FF — flip-flop
FL — filter
FM — frequency modulation
FMT — Frequency Measuring Test
FSD — full-scale deflection
FSK — frequency-shift keying
ft — foot

g — gram
GaAs FET — gallium arsenide field-effect transistor
GDO — grid-dip or gate-dip oscillator
GHz — gigahertz
gnd — ground

h — hour
H — henry
HAAT — height above average terrain
HDLC — high-level data link control
HF — high frequency
HFO — heterodyne-frequency oscillator
HI — greetings
HPF — highest possible frequency
Hz — hertz

I — current
IARU — International Amateur Radio Union
IC — integrated circuit
Id — identification, identifier
ID — inside diameter
IF — intermediate frequency
IMD — intermodulation distortion
In — inch
In/s — inches per second
I/O — input/output
IRAC — Interdepartment Radio Advisory Committee
IRC — International Reply Coupon
ISB — independent sideband
ITU — International Telecommunication Union
IW — Intruder Watch

J — joule
j — indicator for reactive component of an impedance (+j inductive; −j capacitive)
JFET — junction field-effect transistor

K — kilobyte, Kelvin
k — kilo, 1000
KB — keyboard
kg — kilogram
kHz — kilohertz
km — kilometres
km/h — kilometres per hour
kV — kilovolt
kW — kilowatt
kWh — kilowatt hour

LAOCP — Limited Amateur Operator's Certificate of Proficiency
L — inductance
lb — pound
LC — inductor-capacitor
LCD — liquid crystal display
LED — light-emitting diode
LF — low frequency
LMO — linear master oscillator
LO — local oscillator
Loran — long-range navigation
LOS — loss of signal
lp — log periodic
LPM — letters per minute
LSB — lower sideband
LSI — large-scale integration
LUF — lowest usable frequency

m — metre (distance or band)
M — mega
mA — milliampere
mAh — milliampere hour
MARS — Military Affiliate Radio System
MDS — minimum discernible signal
MF — medium frequency
mH — millihenry
MHz — megahertz
mi — mile
mic, mike — microphone
mini-DIP — dual in-line package, 8 pins
mph — miles per hour
mps — miles per second
mix — mixer
mm — millimetre
MO — master oscillator
modem — modulator/demodulator
MOS — metal-oxide semiconductor
MOX — manually operated switching
ms — millisecond
m/s — metres per second
MSB — most-significant bit
MSI — medium-scale integration
MSTV — medium-scan television
MUF — maximum usable frequency
MUX — multiplex; multiplexer
mV — millivolt
mW — milliwatt

NAOCP — Novice Amateur Operator's Certificate of Proficiency
NBFM — narrow-band frequency modulation
NBVM — narrow-band voice modulation
NCS — net control station
NF — noise figure
nH — nanohenry
NiCd — nickel cadmium
NL — noise limiter
NMOS — n-channel MOS device
NPN — negative-positive-negative
NPRM — Notice of Proposed Rule Making
ns — nanosecond
NTS — National Traffic System (ARRL).
NZART — New Zealand Amateur Radio Transmitters
OD — outside diameter
OM — old man
op amp — operational amplifier
osc — oscillator
OSCAR — Orbiting Satellite Carrying Amateur Radio
OTA — operational transconductance amplifier
OTC — Old Timer's Club
oz — ounce

p/pp — page/s
P — power
PA — power amplifier
PC — printed or etched circuit
PCB — printed circuit board
PEP — peak envelope power
PEV — peak envelope voltage

pF — picolarad
Ph — phone
PIV — peak inverse voltage
pk — peak
pk-pk — peak-to-peak
PLL — phase-locked loop
PM — phase modulation
pm — afternoon/night
PMOS — p-channel MOS device
PNP — positive-negative-positive
pot — potentiometer
ppd — postpaid
PROM — programmable read-only memory
PRV — peak reverse voltage
PSK — phase-shift keying
PSU — power supply unit
PTO — permeability-tuned oscillator
PTT — push-to-talk
PV — photovoltaic
PVC — polyvinyl chloride

Q — reactance — resistance ratio
QCWA — Quarter Century Wireless Association
QRP — low power (less than 10-W input)
QTHR — address correct in current WIA Call Book

R — resistance
RAM — random access memory
R/C — radio control
R-C — resistor-capacitor
RCC — Rag Chewers Club
rcvr — receiver
rev/min — revolutions per minute
RF — radio frequency
RFC — radio-frequency choke
RFI — radio-frequency interference
RI — radio inspector
RIT — receiver incremental tuning
RM-(number) — number assigned by FCC to a petition for rule making
RMS — root-mean-square
ROM — read-only memory
RS — Radiosport Satellite (USSR)
RSGB — Radio Society of Great Britain
RST — readability-strength-tone
RTL — resistor-transistor logic
RTTY — radioteletype
Rx — receiver

s — second
SAE — self-addressed envelope
SASE — stamped s.a.e.
SCR — silicon-controlled rectifier
SET — Simulated Emergency Test
SHF — super-high frequency
SM — silver mica (capacitor)
SNR or S/N — signal-to-noise ratio
SPDT — single-pole double-throw
SPST — single-pole single-throw
SS — Solid State
SSB — single sideband
SSC — Special Service Club/AMSAT Phase III special service channels
SSTV — slow-scan TV
STD — subscriber trunk dialling
SWL — shortwave listener
SWR — standing-wave ratio

sync — synchronous, synchronizing
SYNCART — synchronous satellite carrying Amateur Radio transponder
TA — technical advisor
TC — technical co-ordinator
TCA — time of closest approach
Tcvr — transceiver
THz — terahertz
THD — total harmonic distortion
tpi — turns per inch
T-R — transmit-receive
T-T — Touch-Tone
TTL — transistor-transistor logic
TTY — teletypewriter
TV — television
TVI — television interference
Tx — transmitter
UHF — ultra-high frequency
UJT — unijunction transistor
UoSAT — University of Surrey educational/research satellite (Great Britain)
USB — upper sideband
UTC — Universal Co-ordinated Time
V — volt; voltage
VCO — voltage-controlled oscillator
VCXO — voltage-controlled crystal oscillator
VFBO — variable-frequency beat oscillator
VFO — variable-frequency oscillator
VHF — very-high frequency
VLF — very-low frequency
VMOS — vertical power FET
VOM — volt-ohm-milliammeter
VOX — voice-operated switching
VR — voltage regulator
VSWR — voltage standing-wave ratio
VTVM — vacuum-tube voltmeter
VXO — variable crystal oscillator
W — watt
WAC — Worked All Continents
WARC — World Administrative Radio Conference
WAS — Worked All States
WBFM — wide-band FM
WPM — words per minute
wVOC — working voltage, dc
X — reactance
xcvr — transceiver
xvtr — transverter
xmtr — transmitter
xtal — crystal
XYL — married lady
YL — young lady
Z — impedance
Z — see UTC
5BDXCC — Five-Band DXCC
5BWAC — Five-Band WAC
6BWAC — Six-Band WAC
5BWAS — Five-Band WAS
° — degrees
α — alpha; angles; common-base forward current-transfer ratio of a bipolar transistor
β — beta; angles; current gain of common-emitter transistor amplifiers
γ — gamma; angles
Δ — delta; increments
ο — gamma; angles
ε — epsilon; base of natural logarithms (2.71828)
θ — theta; angles
λ — lambda; wavelength; longitude
μ — mu; micro (10^{-6}); amplification factor; permeability
μP — microprocessor
π — pi; 3.14159
Σ — sigma; summation
τ — tau; time constant; time phase displacement
φ — phi; angles; latitude
Ψ — psi; angles
Ω — omega; resistance in ohms
ω — omega; angular velocity, $2\pi f$
33 — fondest regards (between females)
73 — best regards
88 — love and kisses

THUMBNAIL SKETCHES

Alan Shawsmith, VK4SS
35 Whynot Street, West End, Qld 4101

R JOHN THORLEY VK4RT

There are those amateurs who, into whatever era they are born, are destined to leave their mark upon it. One such was R. John Thorley VK4RT who first gained his AOCP in 1936 while residing at the suburb of Annerley, Brisbane.

John was a Mechanical Engineer by trade, consequently homebrewing presented few problems to him. His immediate post-WWII four element wide spaced Yagi atop a tall slender lattice tower, built by his own hands down to the last nut and threaded bolt, stood as a symbol to his ability. His first receiver and transmitter was the usual 1-V-1 and MOPA —but he soon advanced to using war disposals gear and a Hallicrafters SX28 Receiver (one of the most popular amateur sets ever produced).

VK4RT had the honor of serving a term as VK4 WIA President, early post-WWII. He also capably handled the Disposals Equipment Department. John was a very able 'after dinner speaker' — an ability which qualified him admirably for the job of President and one he used on every possible occasion to promote the WIA and AR.

He was a keen DXer, close to the top of the ladder when active and always maintained that his interest in AR was first stimulated by Fred VK4RF, another keen DXer.

Professionally, John VK4RT was self-employed, running his own engineering shop for many years. Eventually he sold out and accepted work less exacting and taxing, ie: a commercial traveller in mechanical hardware. It was in the course of this duty that he met with a fatal road accident, thereby sadly cutting short a promising career in his work and amateur radio, in the prime of his life. He was acutely missed by this writer, a personal friend. **AR**

Newspaper Clipping of John's Exploits.

Spoke to 70 friends in 35 countries—all in 24 hrs

By a Staff Reporter, who "sat in" with a "ham" during the week-end's long-distance contest.

JOHN THORLEY, of Emma Street, Holland Park, yesterday "travelled" the world scores of times at 669,600,000 miles an hour.

And he had plenty of time to stop and talk to more than 70 friends in 35 foreign countries.

John is not a miracle man. He is just one of about 1000 radio "hams" in Australia and New Zealand who did the same thing yesterday.

They were competing in a long-distance contest arranged for all Australasia "hams" by the wireless associations of both countries.

Their aim was to log the most foreign stations in 24 hours.

Five-hour break

John began at 6 pm on Saturday, and apart from a forced five-hour break due to interference, did not leave his transmitter until 6 pm last night.

Yesterday I watched him steer his 186,000 miles-a-second voice waves to all parts of the globe.

Walo, in Chile (South America), 8000 miles away, was "just going to bed." He apologised for his bad English, and wished John the best of luck.

"Charlie" in Portugal, 12,000 miles away, wished Brisbane "good morning" in broken English. It was good weather in Lisbon, he said.

"Good hunting"

Glib American "Harry," from Honolulu, said: "Good hunting, John. Boy, you're sure coming over fine."

John wished them "all the best from Brisbane" and promised to "see" them again when he had more time to "yarn" at length.

He exchanged a number with each station operator he contacted, and they exchanged one with him.

All foreign "hams" will forward their logs to the Australian Wireless Institute and John's final tally of calls can be confirmed.

Among countries he spoke to yesterday were: Germany, Japan, French Morocco, Switzerland, Israel, Spain, Lebanon, France, Italy, Brazil, Ecuador, and Peru.

Results of the contest will not be known until about March next year.

FOOTNOTE: John, who owns a small city engineering shop, bought about £200 worth of equipment from army disposals to build his home radio station. "It is purely a hobby," he said

HOLLAND PARK radio "ham" John Thorley did not leave his radio set for lunch yesterday during his marathon talk with overseas enthusiasts.

SAFETY RECALL NOTICE

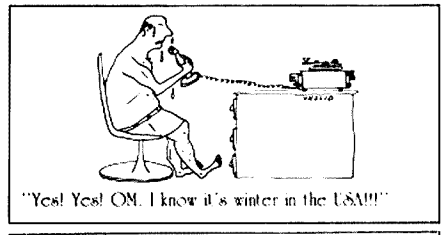
Purchasers of **Six Outlet** power boards marketed under the 'Click' brand name and marked **Series 106** are warned that they are unsafe to use. Purchases may have been made between 21st September, 1984 and 14th December, 1984 from Target Stores. Please return for free replacement from the store of purchase. The new model marked Series 106B now on sale is completely safe to use and is covered by Certificate of Suitability CS/436/Q.

Please note: This Safety Recall applies only to 'Click' 6-way White Power Boards marked Series 106, not to 'Click' 4-way Power Boards or any other 'Click' product. The replacement model Series 106B is completely safe to use.

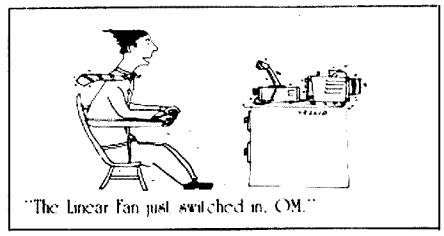
Click Industries Pty Ltd 297-305 Victoria Street, Brunswick Victoria 3056. Phone (03) 387 2499

This article appeared in the Sunday Morning Herald 19 January 1985 and was contributed by Tim Mills VK2ZTM for the interest of amateurs.

AR



"Yes! Yes! OM. I know it's winter in the USA!!!"



"The Linear fan just switched in, OM."

Cartoons by Bill Martin VK2COP

NOVICE NOTES

JUST A PIECE OF WIRE

Ron Cook, VK3AFW
Technical Editor

Well here I am for my first appearance in 1985 — better late than never! As I first started out in amateur radio on VHF at a time when home-brewing was essential I automatically cast a critical eye over any piece of wire carrying RF. Consequently I have avoided some problems which can be very puzzling to those that encounter them.

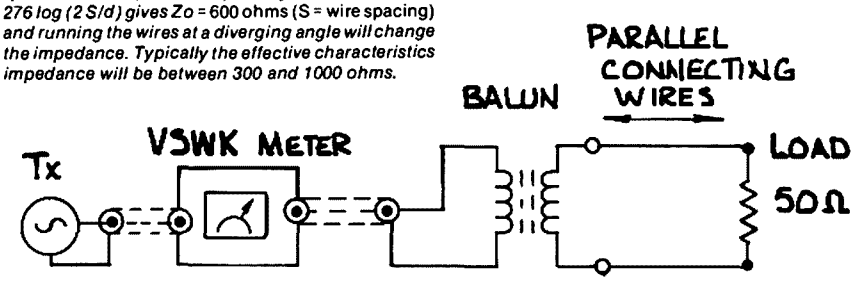
Any piece of wire has inductance, even if it is quite straight; the longer the wire the greater the inductance. A piece of wire only 100 mm long and 0.1 mm in diameter has an inductance of 0.1 microhenry. Further all pieces of wire have some capacitance associated with themselves and their surroundings. When you build equipment such as an ATU or antenna you are likely to use some reasonably heavy gauge wire for interconnections. The wire makes the connections but also adds some unwanted inductance and capacitance. In the case of the ATU it is unlikely to be noticed as the ATU will tune it out. In the case of an antenna you may not be so lucky. Suppose you have bought or built a balun to match your 50 ohm coaxial cable to the dipole of a beam. You will use some wire to connect the appropriate terminals of the balun to the dipole element. *What can go wrong?*

Well if that is all you do, and if the wires are of equal length and as short as you can conveniently make them, probably you will notice no ill effect. The beam may be resonant a little lower than you expected but it will probably work very well. Now suppose that you wanted to check the balun prior to installation, which you would probably want to do if it were home brew.

Firstly you would obtain a balanced 50 ohm load that was non-reactive at the test frequency. Next you would get a VSWR meter that was reasonably accurate at the test frequency, you would connect the load to the balun with two equal length pieces of wire and measure the VSWR with the lowest power level necessary to give accurate readings. Remember that most VSWR meters use diodes and these need up to 0.6 volts to make them conduct. Using too little power can give a better VSWR reading than actually exists. Test this out yourself by comparing the results for a VSWR of about 1.3:1 measured with just enough power to get FSD in the "Set" condition and again with the power level at maximum. Most VSWR meters will give a more optimistic reading at the lower powers.

Well let's assume that you can make accurate VSWR measurements. You may be dismayed to find that your "Yewbeaut" balun appears to introduce a VSWR of 1.3:1 or more. Actually the problem is most likely those two short pieces of wire. If they are around 40 mm long and the test frequency is 28 MHz then they would account for all of the VSWR.

Figure 1(b) Assumed Test Arrangement
The connecting wires were taken to be 14 SWG spaced 121 mm (4.8 inches). Using the formulae Zo = 276 log (2 S/d) gives Zo = 600 ohms (S = wire spacing) and running the wires at a diverging angle will change the impedance. Typically the effective characteristics impedance will be between 300 and 1000 ohms.



What happens is that the two pieces of wire appear to be a short length of open wire transmission line. To analyse what happens I chose two 14 gauge wires spaced 121 mm apart. This gives an impedance of 600 ohms. Next, using a programme supplied by Evan VK3ANI, I set to work with my calculator. Fig 1 shows the assumed test setup which is as discussed earlier.

Electrical length (degrees)	Length at 28 MHz		VSWR seen by balun
	mm	inches	
0	0	0	1.00
1	29.8	1.17	1.23
2	59.5	2.34	1.51
3	89.3	3.5	1.85
4	119.0	4.7	2.25
5	148.8	5.9	2.71
10	297.6	11.7	6.12
12	357.1	14.1	8.01
15	446.4	17.6	11.4
20	595.2	23.4	18.6

Table 1: Calculated VSWR for circuit in Fig 1(b).
The lengths can be calculated at any frequency by finding the length equal to 1 electrical degree. The formulae for the length of 1 electrical degree is: length = 5/6f metres where f is in MHz. eg at 1.84 MHz 1 electrical degree is 453 mm.

Table 1 shows the results of the calculations. If the wires have no length at all they have an electrical length of 0 degrees. An electrical quarter-wavelength is 90 degrees, a half-wavelength is 180 degrees and so on. To give a better insight into what this means, physical lengths for a frequency of 28 MHz are included in the table. I was surprised to see how short the wire had to be to introduce a VSWR of less than 1.5:1. Indeed the whole exercise was triggered by the experiences of another amateur who was carrying out some tests on several baluns, all of which seemed to be poor on 28 MHz. Changing the connections to the balun made a tremendous improvement.

The moral is, of course, keep connections short. As mentioned at the beginning, the problem is not so noticeable when the balun is connected to an antenna. The centre of the antenna is moved to the balun and the dipole is made longer by about the length of the wires. Two pieces of wire 40 mm long could move the resonant frequency of a dipole out of the novice segment on 28 MHz. Trimming the outer ends will of course bring the resonance back quite easily.

Well that's all until next time. *73 de VK3AFW.*

References: The Radio Amateur's Handbook, ARRL, 1982 ed.
The VHF Handbook, WI Orr, HG Johnson, first ed.
Smith Chart Programme for Programmable Calculators, E Jarman, private communication.

AR

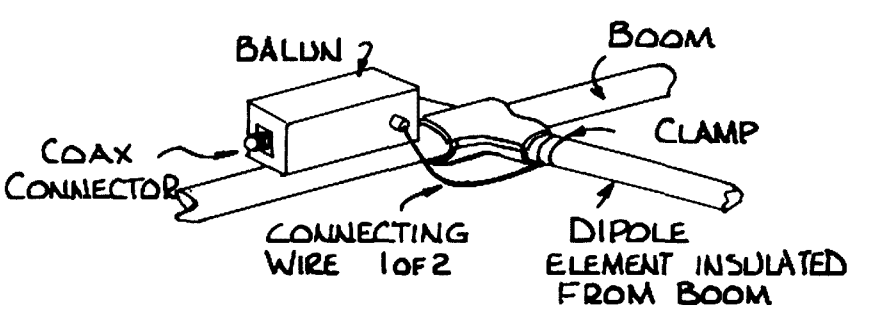


Figure 1(a) Simplified sketch of a typical connection of a balun to a beam.

BRITISH PARTNER FOR EUROPE'S LARGEST COMPUTER CHAIN

A $12.6 million joint venture company has been formed by Applied Computer Techniques (ACT) of Birmingham, in the English midlands, and the Tandy Corporation of the United States to form Europe's largest retail computer chain with some 500 outlets.

In Australia, ACT is represented by Barson Computers Pty Ltd, a distributor which recently won several major contracts to supply Apricot computers to the Government of New South Wales.

From New Technology in Britain

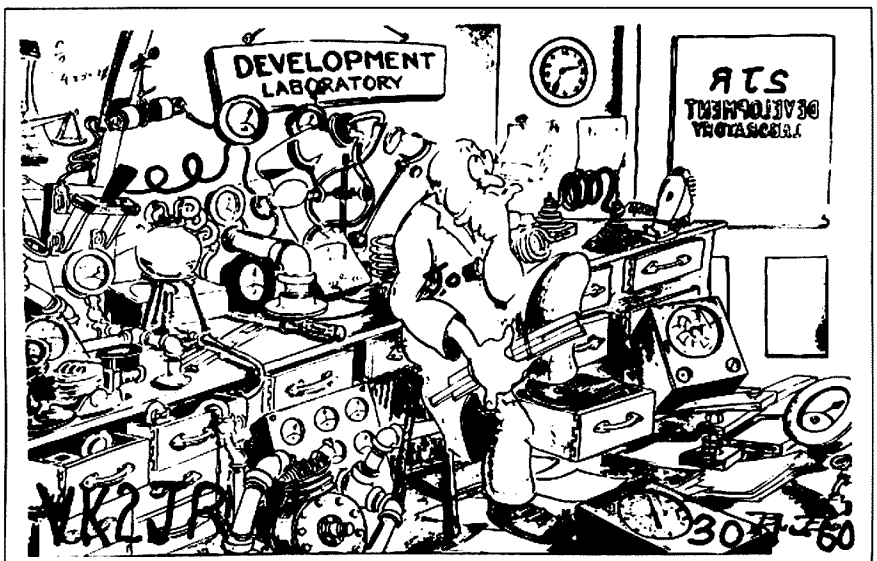
AR

Special 75th Anniversary

VK2 MINI BULLETIN

Feature

EVERYTHING HAS A BEGINNING



"Let's See, Now — What Is It I Am Developing?"

It is understood that dissatisfaction with the treatment from authorities in 1910 forced the 'experimenters' together to improve their lot.

The late Joe Reed VK2JR presented the newspaper cutting in article "The WIA in VK2" this issue to the Division in 1960 — at the 50 year point — which seems to fix the commencement date.

Does any reader have any material which has historic significance to the early Institute activities as well as amateur radio in general? Are you in a position to donate it or allow copies to be made of same? Perhaps the best thing to do in the first instance is to contact your local Division's Historian.

Some of the VK2 Division's current research is being undertaken by Jo Harris VK2KAA. Her particular interest is tracing early amateurs and the callsigns in use. To date there is a gross indexed collection of over 8000 names. Jo will have an article on her findings in AR later this year.

A lot of material that comes to hand covers amateur radio from the national point of view and this work is being done by the Federal Historian Max Hull VK3ZS.

There are many others who, in their own way, are collecting or recording history. The Institute would like to hear from you so that your work may be noted in a master record of research that is being undertaken. Those interested in some recorded history will find a wealth of information in the WIA Book Volume 1 which came out in 1982. Copies are available from Divisional bookshops. By now there should be sufficient material on hand for the next edition.

The VK2 and Federal Historians are as follows:

VK2 Jo Harris VK2KAA, c/- PO Box 1066, Parramatta, NSW, 2150

Federal Max Hull VK3ZS, c/- PO Box 300, Caulfield South, Vic, 3162

The late Joe Reed VK2JR (he passed away on 23rd July 1969) was a wealth of information. An excellent speaker and story teller, much of his knowledge has been retained by way of the reel to reel tapes and slides in the Division's lecture collection. These were developed during the late 50's and early 60's period when Harold VK2AAH was the Lecture Officer. It is pleasing to be able to report that the majority of the collection remained intact during many years at Atchison Street when many must have felt anything no longer in use or state of the art recontents was so much junk. It will only be a matter of time when researchers and historians will find their contents invaluable.

The sketch above Joe appears to have considered as perhaps a self portrait for written on the back is *"This amusing QSL card illustrates a typical scene in VK2JR's development laboratory at his Northbridge QTH . . . JR. 30.1.60"*

AR

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

It is an honour for VK2 to have a feature section in the March issue, 75 years on, since that meeting in the Hotel Australia on the afternoon of the 11th March 1910. Regrettably that grand old hotel has fallen, in the name of progress, to the wrecker's hammer. In its place is part of the skyscraping MLC Centre. This month it was our turn to provide some extra content, each Division having been asked to provide something in their nominated month. There is a considerable volume of material available, the enclosed is but a small part of it. It is hoped that a further selection will be presented later in the year.

CAUGHT/COURT

Several VK2s have been approached to contribute something and more yet to be approached. If you are missed don't let that deter you for a magazine like "Amateur Radio" is not just for the regular contributors but every member. Preparing for this month required considerably more involvement than the usual Mini Bulletin. As the deadline approached the 'main stories' kept changing. First, following months of problems with abuse on and at the Sydney repeaters, in particular VK2RWI 7000, several offenders have been apprehended. In particular, one was detained on 10th January, and held in custody until a further court appearance on 14th January. Found guilty by the court, he was sentenced to two concurrent terms of 6 months with hard labour for some of the offences. In recent times other offenders have been apprehended and have yet to face the courts. When these matters have been finalised some background information can be released, however because of matters and investigations pending such details must remain suppressed, for the moment. *See special report elsewhere in this issue.

CHANGES

On Wednesday 16th January an adjourned Council meeting, to discuss planning for the 75th commemorations, had some extra business. A couple of days previously Divisional Secretary Peter VK2PJ had been advised by his employer to prepare for a training course in east coast USA, leaving before the end of January. As the trip would extend past the end of the Divisional year, Peter requested leave of absence from Council and his secretarial duties. To complete the balance of the Divisional year, council considered several options. It was decided to make some position changes in that Jeff VK2BYY would take over secretarial duties and relinquish the presidential role. Tim VK2ZTM would move up from Vice President to President. Roger VK2ZIG/NWH added Vice President to his duties. Other Council positions remained unaltered. The other Members being Les VK2KCP, Max VK2YKF, Mike VK2AUE and Peter VK2PJ (on leave of absence).

I personally would like to thank Jeff for a difficult year in the presidential role, having been in the position before myself. With so little of the year left I would like to see the records show the positions held by each Council Member for the majority of the year, otherwise the future historians may 'become confused'. Jeff is also about to change his occupation to an even more demanding role which will force him to forgo some of his Institute involvement.

FEDERAL CONVENTION

The Federal Convention is to be held in Melbourne 26th-28th April. Agenda items should reach Divisional Council by mid March. They have to be checked before submission to ensure that they are not existing policy etc. The Conference of Clubs (13/14 April), at Amateur Radio House, includes discussion of all Federal items, not just those submitted by VK2. Some of the early items are included in Amateur Radio, the later ones aired on broadcasts. Copies of all are circulated to affiliated clubs. Any member who would like to express comment on the agenda items should seek out their club delegate prior to 13th April. Council renominated the present Federal team for 1985, being Federal Councillor Stephen Pall VK2PS, and alternates Tim Mills VK2ZTM and Wally Watkins VK2DEW. Stephen has given notice that he will not be seeking renomination after the end of 1985.

HISTORICAL RESEARCH

This is a time consuming function. For some months now Jo Harris VK2KAA has undertaken an aspect of this in VK2 and has specialised in callsigns — current and previous — and into the people who are or were their holders. Now some of the time spent is starting to show results as there are over 8,000 cross indexed references. Jo would like to hear from everyone in due course and a questionnaire form is available (inquire from the Divisional Office). In turn Jo can assist you. Perhaps you are the new holder of a callsign and would like to know of its previous holders. Get in touch with Jo VK2KAA. It is hoped that later this year a short article will be written of aspects of Jo's research.

As mentioned elsewhere, if you are doing any research please log into the Division so that the knowledge of who is doing what is centrally co-ordinated.

SEARCHING FOR ANSWERS

In preparing some of the material for this issue I kept coming across interesting things. These are some of the questions I would now like to find an answer to —

George A Taylor called the first meeting in 1910 and still appeared to be involved during the 1920 s, however no record can be found of callsigns he may have held . . .?

The Division has held many postal and (VK2WI) station addresses. The longest appears to be Box 1734 GPO, the 30's to the late 70's. At one stage it was also 1734 JJ. What others have been held?

VK2WI is listed in callbooks in the 50s as having station addresses of Kingsford, Castlereagh Street, and Clarance Street before it was transferred to Dural about 1957. What were these locations?

What was the Co-op during the 1950's?

In a 1938 callsign list there were about 25 radio clubs. After the war (1946) there were only two listed — in many cases the previous callsigns were not listed — and by 1950 only VK2BV and VK2WI carried on. In a future article club calls over the years will be featured in the hope that some old timers will remember and advise before all details escape.

LIBRARY TARDINESS

Council has recently looked at the library facilities at Amateur Radio House. It was noted that some items are not being returned within the borrowing time limits. It was also found that many of the new issues were being borrowed for up to a month at a time which reduced their availability to others. To make these new editions available to a wider range of the membership they will only be available for reading within the library for the first few months of their life. The Divisional Librarian will monitor these arrangements during the next few months. Members comments are sought on ways of improving facilities.

HISTORIC DISPLAY

For some time consideration has been given to mounting a display area for historical items of amateur radio at Parramatta. It had been considered that a range of display cabinets be obtained. It is now felt that the section towards the front windows at the head of the stairs may be more suitable if it is glassed in to provide a large secure area. Further thoughts will be given, as a project like this could be a fitting finale to the 75th celebrations.

AR

Photographs courtesy Les Pall VK2KCP.

Above: Jeff VK2BYY at the Secretary's Desk.

Left: Divisional Group minus Mike VK2AUE. From left: Steve VK2PS, Max VK2YKF, Tim VK2ZTM, Jeff VK2BYY, Peter.VK2PJ, Roger VK2ZIG and Les VK2KCP.

The WIA in VK2

Tim Mills VK2ZTM,
Box 1066, Parramatta, NSW, 2150

The foundation for this article was first published in Amateur Radio for June 1980. The format has been retained and expanded to cover the past five years in the Division's life.

It is seventy five years this month since a group of "Wireless telegraph experimenters and enthusiasts" met to co-operate and improve their lot with the government of the day. From records to hand, the meeting was held on the 11th March 1910, in the Hotel Australia, Sydney, and as a result of that meeting the Wireless Institute of Australia was born. *See newspaper cutting of the meeting.* Soon after groups began forming in other States.

The WIA was formed two years ahead of what is now the RSGB and four years before the ARRL.

REGISTERED ASSOCIATION

In the early 20s the amateurs in the group drew up the Memorandum of Association of the Wireless Institute of Australia, New South Wales Division. In doing so it took over the effects and liabilities of the then unincorporated club of the same name. Seven amateurs moved to form a company on the 26th of May 1922, and on the same day registered an Association of the above name as a limited company.

NEW SOUTH WALES.

Certificate of Incorporation.

No. 86355

The Companies Act, 1899.

I Certify that an Association styled Wireless Institute of Australia New South Wales Division has been registered this day as a limited company, the Governor-in-Council having directed such Association to be registered with limited liability without the addition of the word "limited" to its name, pursuant to the provisions of Section 32 of the Companies Act, 1899.

Given under my hand, at Sydney, this Twenty sixth day of May, one thousand nine hundred and twenty two

Registrar of Joint Stock Companies

Exd.

A copy of the Company Certificate.

DIFFERENCES AROSE

In the early 1930s differences arose between the professional and hobbyist within the Division and for some time the hobbyists became the "New South Wales Amateur Transmitters". The professionals became the IRE (now the IREE), and the Division absorbed the hobbyists to again become the WIA NSW Division.

See the 'beginning of IREE' in January 1985 issue of Amateur Radio for details about this period.

In 1939 permission was granted by the Radio Branch for Divisions to conduct broadcasts to inform their country members of happenings. Outbreak of war, however, stopped amateur activities and during this period the WIA was kept operational by the Federal Executive, who were located in Sydney.

A WIRELESS ENTHUSIASTS' INSTITUTE.

THE GOVERNMENT AND LICENSES.

"THREE GUINEAS FOR THE USE OF THE AIR."

Wireless telegraphy experimenters and enthusiasts are beginning to co-operate, and a number met last afternoon in the Hotel Australia in order to take the preliminary steps towards forming an institution. Vigorous comment was made upon the Government's action in regard to experimental licenses, and it was plain that besides a feeling for mutual help and interest, the restrictions alleged had had a large share in hurrying on the movement. Two ladies were among those present.

Mr. G. A. Taylor, who was elected chairman, explained the object of the meeting, and touched on the wonderful future ahead of the movement. "It is wise," he said, "to put our heads together and profit by each other's discoveries. Experimenters did not think the authorities were giving them fair encouragement. Every experimenter was at the beck and call of the military, naval, and postal authorities, and was allowed no legal redress if departmental officers thought he was breaking the rules. Mr. Taylor proposed the formation of an institution amongst experimenters and enthusiasts in wireless, for their mutual benefit. The object of founding the institution was to obtain justice, he explained; it would not be founded in opposition to any Government institution or department.

Mr. W. H. Hannam, seconding the motion, repeated the account of his attempts to obtain a Government license, which were described in "The Daily Telegraph" last week. "I have had a great deal of trouble with three Postmaster-Generals," said he, "and haven't got my license yet. They're still quibbling. We have all been treated in the same way, but no one has said or done anything until lately. Seventeen months of my time have been wasted since I was ready to erect my plant. Why should we have to pay three guineas for the use of the air, so far as experiments are concerned? The aerial navigation experimenters are charged nothing." One regulation, he complained, penalised an experimenter if the chief electrical engineer of the Postmaster-General's Department should certify telegraphic communication had been interfered with by his wireless appliance used "or intended to be used"!

Mr. J. H. A. Pike also supported the motion, which was carried, and a provisional committee was appointed to arrange for the next meeting.

Later, a general meeting of those interested will be called, and officers elected. It is proposed to assist in the formation of, and perhaps affiliate with, similar organisations in other States. The provisional committee is as follows:—Messrs. J. H. A. Pike, W. H. Hannam, F. Bartholomew, W. H. Gosche, F. and H. Leverrier, C. A. Cleary, and A. Garnsey, Major Rosenthal, Captain Cox-Taylor, Dr. Brisenden, and the chairman. Mr. Hannam will act as hon. secretary pro tem. Besides these gentlemen, the Misses Perratt Hill, and Messrs. R. B. Armstrong and J. A. Henderson attended, and gave in their names as prospective members.

PRESENTED BY JOE REED. VK2JR.

Left:
A copy of the 12th March 1910 Daily Telegraph report outlining the feeling against licence fees for radio experimenters. (Joe Reed VK2JR passed away on 23rd July 1969)
See also page 27.

A HOME FOR VK2WI

At war's end amateur radio boomed with trained personnel from the Services coming into the ranks. The early 1950s saw many activities in the Division. Meetings at this stage were held at Science House in the city. A move was begun to establish a "Home for VK2WI" and a five acre property, on what was then very much the edge of Sydney, was purchased at Dural. Work commenced around 1953 and the building formally opened in 1957, after untold hours of work by members and friends. The property is the site of the Division's repeater and beacon facilities, . . . *together with a broadcast network from 160 metres to 70 cm. See the report "DURAL — 25 years of service" by Jeff Pages VK2BYY in AR for May 1982.*

The late Jim Corbin VK2YC, Divisional President, turning the first sod on 5th August 1956.

A working bee held on the 12th August 1956 with, from left: VK2s EO, GE, ANP, AAJ and EN.

The Official Opening on the 15th May, 1957.

The First Station as it was at Dural in 1957.

In 1954 the amateur service saw the introduction of a new class of licence, the Limited. This licence enabled those not proficient in Morse telegraphy to participate in the wonderful hobby of amateur radio, thus swelling the ranks with many more operators aspiring for the "Full" ticket.

DISPOSALS FOR MEMBERS BUY A PROPERTY

During the same period interest was shown in obtaining a city property for the Division and a Co-op was formed. However, nothing came of this venture. The end of WW2 had left this country with enormous stocks of radio equipment, and the Division set up a disposal buying and selling section for its members. The operation of this section produced the money used to purchase the Atchison Street property in 1960. With surplus funds the hall and basement area were soon added. Since then considerable development has occurred in the area with several highrise buildings nearby.

Many new clubs had been formed in Sydney to cater for the needs of amateurs, as the Crows Nest location of the WIA was prohibitive to some.

The property was sold in 1982 and the headquarters of the Division moved to the present location at Parramatta. The old 14 was demolished and in its place a three story structure similar in concept to that which existed at number 16. In early 1985 the remaining old properties on the railway side of 14 (# 6 to 12) are in the stage of being demolished, no doubt for a high rise. One of these old properties was where the "Dick Smith" chain had its first retail outlet.

THE OLD ATCHISON STREET PROPERTY

EDUCATION

The Division has for many years been heavily involved in education with personal classes. For twenty years the Correspondence Course has helped thousands both in Australia and overseas to join the amateur ranks. The Division pioneered the CW practice format and still conducts nightly on-air Morse training. To supplement this HF session one of the Sydney clubs developed a continuous transmission VHF Morse training facility which utilizes a microprocessor for programme control. To cater for training the younger members of our community the Youth Radio Scheme came into being during the 60s. With the explosion for knowledge during the mid-1970s the YRS expanded to become the Division's Education Service, who have since published several books to help intending amateurs with studies.

EMERGENCIES

The Division has an active WICEN facility at the moment. Over the years it has had its ups and downs. The Amateur Radio Service has always been available in times of communication needs. This Division's WICEN has become recognised by our State's authorities as a trained, reliable reserve communication facility.

ALWAYS CHANGING

Amateur radio is always changing, new modes, new equipment, but perhaps the area which technically altered amateur radio the most in recent times was the granting of permission in 1968 for VHF repeaters. VK2, considered at times by other States to be out of step, has always been in the middle of band planning (??) and utilization of more channels than most of the other areas put together. We cannot help it if they did not smooth off the hills when "they" made the place. (It's always "they" who did it.) Also in 1968 the Division hosted, during the Federal Convention held at Atchison Street, the formation of the Region 3 section of the IARU.

The 70s saw the introduction of the third class of amateur licence — the Novice — and VK2 quickly took the lead in numbers. Only now in ratio are other areas catching up. VK2 now has a little over one-third of the nation's amateur population. This number has expanded the OSL bureau from a few cards a week to a thousand plus a day.

MOVING BUREAU

The VK2 Bureau has had many homes in Sydney. During the 50s it shared space between the bottles in the late Jim Corbin VK2YC chemist shop at Eastlakes. It then spent some years with various other Sydney amateurs as well as a time at Atchison Street. It next found a home in Newcastle for many years with the Hunter Branch before a brief trip back to Atchison Street. It finally returned to Newcastle where it is today under the guidance of the Westlakes Amateur Radio Club. *(See item elsewhere this issue.)*

Expansion of the scale of the last few years means that we no longer know everybody and the Institute may appear to some to have become a little distant or impersonal. The last decade has seen the great expansion of interest in radio spectrum utilization by others, and the Division has done what it could to knock on the doors of the government to put the amateur case. And what of the 80s?

THE LAST FIVE YEARS

The last five years has seen a direction change for the Division. A new 'Constitution' was introduced in the latter part of the 70's. It was felt that the monthly meeting — in a capital city — did not enable all members access to decision making, so they were replaced by club affiliation with the Division. This concept is for these clubs to provide representation for members through the club. Delegates from the clubs meet twice a year in a "Conference of Clubs". The Constitution changes were not without their hassles. An interpretation of a meaning of one part ended up being resolved in a Court of Law.

An ever increasing range of amateur equipment enabled one to become easily involved in any facet of the hobby. Computers are a rapidly increasing electronic hobby facility in the 80's and have many applications in todays equipment. Also the computer integrates with amateur radio, none more so than the 'packet radio' systems which are just starting in this country.

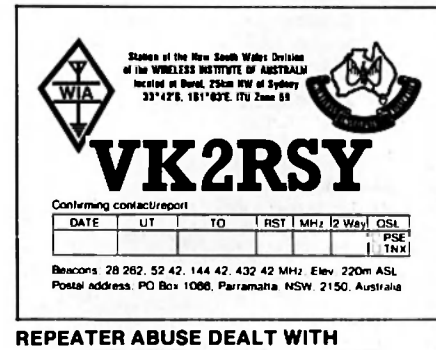
HEADQUARTERS

For over 20 years the Division had maintained a headquarters at Crows Nest. During that time Sydney grew and spread in the only direction it could — west. Faced with a changed role and a building in need of ultimate redevelopment, the membership decided it was time to move. In 1982, Crows Nest was sold and after looking at several Parramatta area properties, 109 Wigram Street was purchased. This is a new building of two levels. The ground floor contains car parking with access from a side lane, toilets and a small office, which has been rented out. The upper floor is the NSW Headquarters. There is an office and storage facilities but the majority of the area is devoted to an open members' lounge/library. While monthly meetings are no longer held, there is sufficient space to hold functions like the Seminar last year (see page 18, November AR). The building was officially opened by The Honourable Gary Punch, MHR, Member for Barton, on 28th May 1983. This months AR cover features the front of the building, named 'Amateur Radio House'.

Photograph courtesy Les Pall VK2KCP.

REPEATERS

Expansion of the Divisions technical facilities has continued at VK2WI — Dural (see AR, May 82). There is an extensive range of transmitters for the two Sunday broadcasts. The beacon installation has continued to be expanded (VK2RSY) from 10 metres on HF, 6 and 2 metres on VHF and 70 cm on UHF. Work is underway for 23 cm and will continue into the higher frequencies as circumstances permit. While some Divisions have largely provided all their States' repeater facilities, most of the VK2 fifty odd systems have been set up by local clubs and groups. The Division has VK2RWI at Dural on 7000 and 8525. WICEN has established VK2RWS on 7150 and 8275. To date VK2 have not ventured into 6 metre repeaters, but this is to change with a joint venture between WICEN and the Dural committee.



REPEATER ABUSE DEALT WITH

The 80's have unfortunately seen some changes in societies attitude and behavioural patterns. Sydney in particular has just been through a period of repeater abuse, most frequently on VK2RWI 7000. The authorities, despite the difficulties the old act presented, have located and prosecuted several offenders. Last January, one offender was jailed for some of these offences. There are more cases pending.

ONGOING EDUCATION

Educating the new generation of amateurs is an ongoing function of everybody. Many clubs have and still do conduct a range of courses. While at Atchison

Street the Division, under the guidance of Cec VK2IR, conducted an annual personal class as well as the Correspondence Course which hundreds, maybe thousands of amateurs have utilised over the years. The Correspondence Course continues today, with both a full theory as well as a Novice bridging section. For perhaps even more years, various members have provided nightly on air Morse training on 80 metres through VK2BWI, which is followed by the VK5 session. The Hornsby and District ARC some years ago, combined computers and amateur radio and produced an automatic Morse sender — VK2RCW — on 2 metres. At present attempts are being made to extend the facility to HF.

THE FUTURE

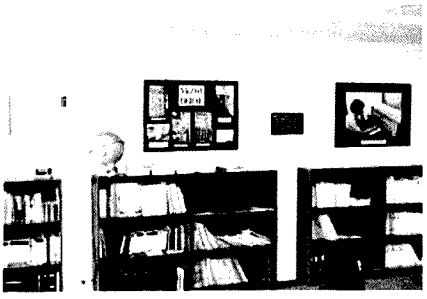
Roger Harrison VK2ZTB speaking at last years Seminar, used as his theme the possible development of amateur radio for the remainder of this century. While Roger predicted that we would all end up with more leisure time, it seems that the requirements to conduct the affairs of the Division are becoming more complex and demanding. Circumstances have made the workload of Council and its other office bearers rather less than enjoyable at times. Many spend a lot of time in travel and this and other costs mount up by the end of a year, all coming from his pocket as he serves his fellow amateurs. This should not deter everybody from doing their bit from time to time, for it provides an insight into the affairs of the Division and the Institute as a whole.

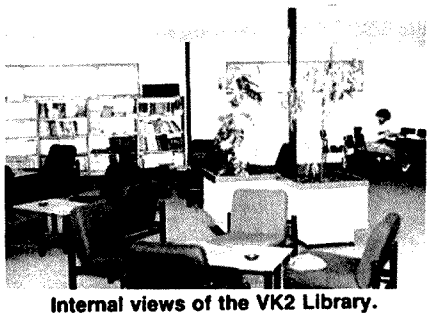
TIME CAPSULE

Recording and retaining history is hard. Todays papers are tomorrows rubbish but next years forgotten information. As part of the Division's celebrations a *Time Capsule* is to be started on 10th March at Dural. Throughout the year it will be added to and then sealed on 11th March next year. We intend that it remain sealed until 11th March 2010. A range of Divisional material will be included. Members are being invited to submit one of their QSL cards for inclusion. It will be interesting for the Institute's members during the centenary to have a year of history already there for the 'reading'.

It is an important year ahead for all members of the Institute and the Amateur Radio Service in general. During this year there will be further articles from VK2 as well as all other Divisions. Read again this monthly 'Editorial' by Jeff VK2BYY. At regular intervals the Division will hold functions to commemorate the year. Divisonal Council and its office bearers look forward to meeting you at one of them, so do come along and join in where practical and celebrate entry into the last quarter of the Institute's first century.

AR





Photographs courtesy Les Pall VK2KCP.

Internal views of the VK2 Library.

A DIRECTORY OF SOME VK2 SERVICES AVAILABLE

DIVISIONAL OFFICE

Amateur Radio House, 1st floor, 109 Wigram Street, Parramatta. Postal — PO Box 1066, Parramatta, NSW 2150. Phone (02) 689 2417 Office hours 11 am to 2 pm. Mon to Fri Wed evening 7 to 9 pm.

BROADCASTS AND DIVISIONAL STATION

VK2WI — 63 Quarry Road, Dural. Phone (02) 651 1489 Broadcasts 11 am and 7.30 pm (local time) Sunday. HF: 1.825, 3.595, 7.146 and 28.320 MHz. VHF: 52.120, 52.525 and 144.120 MHz and several relays are made to both HF and repeaters by arrangements with local clubs. Beacons: VK2RSY on 28.262, 52.420, 144.420 and 432.420 MHz. Repeaters: VK2RWI on 7000 and 8525.

QSL BUREAU

Conducted on behalf of the Division by the Westlakes Amateur Radio Club. Postal — PO Box 73, Teralba, NSW 2284. Phone (049) 58 1588.

CORRESPONDENCE COURSE

Details from Divisional Office at PO Box 1066, Parramatta, NSW 2150.

EDUCATION SERVICE

A range of publications written in recent years by members of the Education Service, to aid those studying for a licence. Inquiries via the Divisional Office (as above).

MORSE TRAINING

Nightly sessions on 3.550 MHz under the call VK2BWI. In Sydney, HADARC maintains VK2RCW, an automatic various speed transmission on 147.400 MHz.

DIVISIONAL LIBRARY

An extensive range of magazines and reference books are maintained at the Divisional Office.

WICEN

A state group as part of the Institute's role of personnel available to supplement communications in times of overload or breakdown in other authorities systems. Information from the Divisional Office or PO Box 154, Roseville NSW 2069. WICEN maintains repeaters VK2RWS 7150 and 8275. Training courses are periodically held in Sydney and country regions.

AFFILIATED CLUBS

Many clubs have become affiliated with the Division, as outlined in the Constitution, to provide a local liaison point for Members of the Institute. Conferences are held twice a year.

AWARDS

The Division does not currently have any awards. There are several available from VK2 groups and details may be found on page 164 of the 1984/85 Call Book.

INTRUDER WATCH

A small active team look after the VK2 region. More personnel are required for the team. Details from the office.

PUBLICATIONS AND SMALL COMPONENT SERVICE

The Divisional Office has a range of amateur publications. In addition there is a small range of components. Space precludes the handling of a large range. Visit or call the office for details.

STOLEN EQUIPMENT REGISTER

For those who have the misfortune to have equipment stolen, the Division (as do others — the Federal office maintains a central register which is regularly published in AR) maintains a file which can aid those checking on possible purchases. Stolen items reports are included in the Sunday morning broadcasts.

Photographs courtesy Les Pall VK2KCP.

Display Boards at 109 Wigram Street, Parramatta.

VIDEO TAPE LIBRARY

A range of the material available from the Federal Videotape facilities is maintained at the office in the VHF and Beta formats for club and member borrowing.

AR

A PICTURESQUE LOOK A


1

1 Keith VK2AKX keeps a writte
and outwards even though the c
instant recall. 2 Cards for members
letters in sorting racks. 3 Most da
busy. 4 The open drawers show so
cards. 5 The computer keeps all r
programme by Milton VK2DCW
general work area. 7 The plastic se
overseas and some heavy local p
own individual file. Arthur VK4PW
packets are wrapped and sealed
computer generated label affix
frequent despatch. High volume t
weekly.


2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3


4

T THE VK2 QSL BUREAU

en record of all cards, both inwards omputer keeps a tally available for are sorted into first and subsequent ays at least four volunteers are kept me of the thousands of uncollected records on disc. A custom prepared keeps track of 4,000 files. 6 The aling machine used for wrapping all postings. 8 Every member has their NK checks the "P" file. 9 Overseas d in plastic bags before having a ed. 10 All DX cards are sorted for ureaus, like JA and UA are cleared

A MEMO FROM THE VK2 QSL BUREAU

With some 5000 collsigns in the VK2 coll area a percentage of these belong to active DX type persons who make full use of the QSL Bureau. There are others who DX, may not be interested in QSLing and forget to tell the overseas contact accordingly, so become recipient of cards. Then there are the cards which just seem to arrive and the bureau has no instruction from the addressee as to what action is required. A card takes up some space and only so many will fit into a bureau, so in due course its destiny has to be determined. The message from this is every amateur, regardless of their QSLing habits should keep their bureau advised on cord handling requirements and callsign changes should they occur.

Notification forms are available from both the VK2 Divisional office and the VK2 Bureau, but if not to hand just write to them and the details will be upgraded in the computer. You may prefer to ring the bureau answering machine on (049) 58 1588 and tell it everything in 30 seconds.

The VK2 Bureau is operated on behalf of the Division by members of the Westlakes Amateur Radio Club from their *club rooms located in the Newcastle* suburb of Teralba. Needless to say the bureau is the biggest customer of the local Post Office facility.

Phil VK2JPC on behalf ol the VK2 Bureau, would like to remind all bureau users of a few points many which apply to other bureaus. The facilities are available to any amateur within VK2 whether a member or non member of the Division. Full details and requirements may be obtained from the Divisional office or the bureau. Check also with your local club since many have a handling arrangement with the bureau. Interstate readers are encouraged to read on but as there may be some slight differences with your bureau please check with them should you be unsure of their requirements.

Now here are the comments from Phil:

Members now report few problems with the operation of the bureau. There are however some difficulties which are best explained in detail.

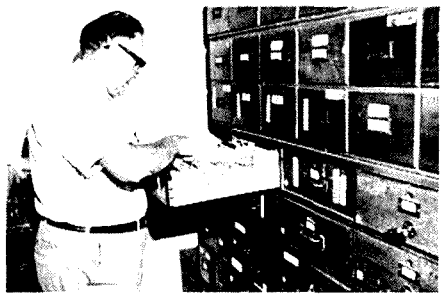
CHANGES OF CALLSIGN:

Unless a change of callsign is notified to the Divisional Office, which then reports the change to the bureau, there is no way that the bureau knows of a callsign alteration. When a callsign is changed, a note to the Parramatta office will be sufficient to alert both the Federal Office and the bureau, both the new and old callsigns together with the date of changeover need to be notified.

The most frustating situation occurs however when a callsign is cancelled and immediately reissued by the DOC. This leads to all kinds of administrative problems in the bureau. It is just impossible for sorting staff to know that a QSL is for either the "old" or "new" holder. What is more, the new callsign holder is frequently unaware that the call has ever been used before and the old callsign holder that it will be used again. Until the DOC amends this practice, the problem will continue to arise. Please remember that the confusion is not the fault of the bureau.

OVERDRAWN ACCOUNTS:

The bureau computer is set to exclude all accounts which are overdrawn. No "final notice" or anything of this kind is sent to the member as a reminder. However, a posting which will result in an overdrawn account will have the callsign and balance "highlighted" on the label as a reminder. If this is disregarded — no more cards. It's as simple as that. Every debt incurred by a member is a charge against the membership in general as the bureau works on a non profit basis.



Sorted QSL cards are placed in file drawers.

Please check your label, the top line gives your current balance. If it is near zero, please send a remittance with your next batch of cards.

MONEY SENT WITH CARDS:

The best ways to remit money to the bureau is by cheque or money order however stamps may also be used. Whatever method of payment is used, please *do not put* the remittance *amongst the cards.* The bureau is not a one man operation and, although all receipts of cards and money are carefully logged a stack of cards is sent on from the receipts desk to sorters. Imagine the confusion when a cheque, some stamps, or even a money order falls to the floor as a group of cards is picked up. There is no knowing where it may have come from.

Please pin or otherwise affix your remittance to a slip of paper bearing your callsign and the amount enclosed.

SAVING POSTAGE:

It is amazing how many members overcharge themselves when sending cards to the bureau.
The "steps" for charging are:
standard article (bureau sized envelope which will pass through the Australia Post gauge)
100g; 250g and 500g.
Above 500g mass the parcel rates apply and it is always cheaper to send 2 x 500g packets than a 1 x 1kg parcel!

Unsuspecting members extrapolate this theory to small mass packets *and it doesn't work.* It is definitely not cheaper to send 2 x 100g packets than 1 x 200g! Nor any other combination either. It is very worthwhile using the kitchen scales to get your cards as close as possible to the 100g, 250g or 500g steps if the despatch is more than about 18 cards (standard). But, don't make the mistake of trying to cheat Australia Post because the sorters in the Newcastle exchange are extremely vigilant and all over mass or non standard packets are taxed at *double* the deficiency. This tax is passed *on* to the bureau and, yes, you've guessed it — the tax paid is debited against the member's account. It just isn't worth it.

PRE SORTING:

The volunteer sorters at the bureau just love to receive 500g packets of cards in *logbook* order. After sorting a few, the rest are put in the "sort later" stack where they could remain for weeks. After all, who wants to dash back and forth along the DX pigeonholes when the next packet, sent by a considerate amateur, has all the cards in *prefix* order. Although some members band each callsign prefix this isn't really necessary but it certainly speeds the process of getting your cards up and away if they are in prefix sequence and, for those most difficult of all cards, the "W" lot, in numerical sequence as well. It won't take you very long but if it isn't done it will at least double the sorting time at the bureau.

THE FAMOUS FIVE WORDS RULE:

The old story about "no more than five words" on a card is a myth — via the bureau anyway. If you want the whole story, drop a line to the bureau and you can have a copy of the postal regulations — free!

Briefly, you can write all you like on the QSL but, here's the strange thing. Try to send this card as a "postcard" or "greeting card" singly to a DX address and you'll discover that it costs just like a letter. Through the bureau — in bulk, no problem but please *don't* send sealed letters for transmission with cards in bulk. This definitely contravenes Universal Postal Union rules.

If you don't know the address of a DX contact and you want to send the letter sealed, the bureau will find the address for you if it is held at the bureau and send it as a single letter, air mail or surface as directed by the member.

NEW POSTAL CHARGES

The new postal charges are programmed in the bureau computer and will be adjusted automatically. There is no need for members to take any action. There will be a minor service charge adjustment also because of an increase in stationery costs. Full details are available on request. A standard article gauge and a rate card will be sent on request. Extracts from the postal regulations as they apply to QSL cards are available on request. A complete printout of a member's bureau listing is available. Bureau standard pre-addressed envelopes and self adhesive labels are available for a small charge. A standard envelope is sent with each posting but if you require more, just ask. Of course they are not free.

Finally, if you are interested in economics, can you imagine how far you can drive your car or travel by train or bus for 33c? Sending and collecting cards by post has got to be cheaper than any other way.
For "Via the Bureau" service:
Box 73, TERALBA. 2284

AR

SPECIAL EVENTS FOR 1985 IN VK2

10th March

The closest weekend to the formation date. There is to be an informal gathering at VK2WI Dural. Meet after the morning broadcast and partake in the monthly barbeque (bring your own basis.) At 2 pm a short ceremony will be held with a 'Time Capsule'. It is planned to start the Time Capsule on this day and hold it open for a year. It will then be sealed, to be opened again on 11th March 2010. During the year it will have added to it Divisional material of happenings during the year. On the 10th we invite all members to take part by submitting their QSL card for inclusion. Include on your card information like the date you obtained your call, together with calls held, etc. If you live within the metropolitan and surrounding area, attend in person or have someone bring it along for you. For those living further out in the country, you can post it to — Time Capsule, PO Box 1066, Parramatta, NSW 2150. On the back of the envelope name and callsign/s. Do not include any normal mail matters or it may be a while until you receive a reply. If there is not room on the card for all you might like to include, enclose further information on a sheet of paper, attached to the card, pertaining to yourself and activities within amateur radio. Clubs and groups are also invited to supply material about their organisation. Material will be date stamped on the day. 11th March starts the years activities and a lot will happen before 11 March 1986 arrives. Material will continue to be collected during the year.

10th March

The Division is managing the 75th Anniversary CW Contest on behalf of the Institute — rules published in the January issue of AR.

17/18th March

State Fox Hunting Championship hosted by the Orange Amateur Radio Club, PO Box 1065, Orange, NSW 2800. Programme and details on receipt of an SAE. 80 metres, 10 metres and 2 metres. National championships will be conducted by the VK1 Division later in the year.

30th March

Annual General Meeting at 2 pm. A separate posting is being made to members with annual report, accounts and matters relative to an AGM.

Easter 85

Urunga Field Day weekend on the North Coast. No details where to hand as these notes were prepared. Details via Sunday morning broadcasts when available.

13/14th April

Conference of Clubs to be held at Amateur Radio House, Parramatta. Discussion includes club submitted as well as the Federal Agenda items. Details will appear on early items in AR, later ones via broadcasts and copies will be sent to affiliated clubs. Check with them for details.

13th April Evening — Dural

Annual fireworks night at VK2WI. Details will appear in April AR. There will be limited catering available on the grounds. Bring family and friends. Conditional on fire restrictions at the time, it should be the first fire works display for the year rather than being one of many in June.

26/28th April

Melbourne Federal Convention. Members or groups with items for discussion please arrange that they arrive at the Divisional Office by mid March for checking and submission.

25th May (tentative)

Seminar. Four speakers on a range of topics.

8/9th June

Port Macquarie. Annual field day. Programme to follow.

Photograph courtesy Ken McLachlan VK3AH.

22nd June (tentative) Sydney

75th Anniversary Dinner and associated events.

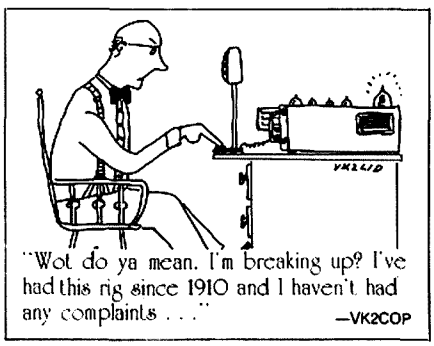
5/6th October

Wagga Wagga. South West Zone Convention.

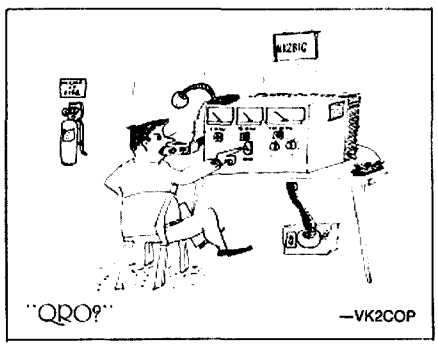
Clubs and groups with coming events, field days etc, please send details early (at least three months) for publication. Later items will only receive broadcast coverage.

The input to the next Callbook will be closing soon. Clubs, groups and amateurs should check the current listings and submit any changes required. Remember that callsign listings are taken from the Department of Communications records, so adjust records with them and send a copy to the Federal Office so they may update their records.

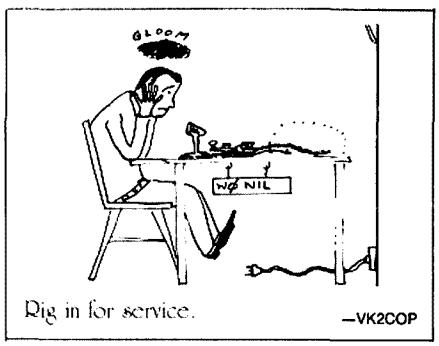
AR



"Wot do ya mean. I'm breaking up? I've had this rig since 1910 and I haven't had any complaints . . ." —VK2COP



"QRO?" —VK2COP



Rig in for service. —VK2COP

BEACONS in VK2

The Division maintains a beacon network at VK2WI — Dural. Currently there are four bands with 23 cm under construction. Additional UHF/microwave bands will be added as circumstances permit. Help is required in their construction. Contact the Beacon Officer, John Marshall VK2EGI with any offers of assistance. In addition there are 6 metre beacons at Gunnedah and Newcastle sponsored by local clubs. VK2RSY run constant carrier with identification every 30 seconds. Due to broadcast requirements they are turned off at 10.45 am and 7.15 pm Sundays for 1½ hours.

2 metres 144.420 MHz. 2 stacked Horizontal Crossed Dipoles at 15 m 20 watts FSK.

10 metres. 28.262 MHz. Vertical ¼ wave at 20 metres. 25 watts Keyed carrier (not FSK).

23 cm 1296.420 MHz. Under construction.

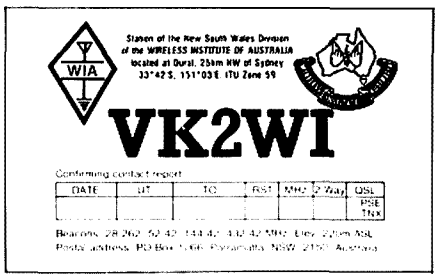
6 metres 52.425 MHz. VK2RGB — Gunnedah.

23 cm Planned Central Coast.

6 metres 52.420 MHz. Horizontal Crossed Dipoles at 14 m 40 watts FSK.

70 cm 432.420 MHz. 2 Stacked Horizontal Crossed Dipoles at 16 m above ground 15 watts FSK.

6 metres 52.320 MHz. VK2RHV — Newcastle.



There is one allocation left for a 6 metre beacon, in addition to all our Ch 0 TV systems in VK2. Three each at 2 metres and 70 cm and two at 23 cm. Any clubs or groups with an interest in establishing a beacon should contact the State Repeater Committee. There are no additional 10 metre allocations as these are part of a world wide system. The Australian 10 metre beacon allocation is the block from 28.260 to 28.270 MHz inclusive.

AR

REPERTERS — Friend or Foe!

Tim Mills VK2ZTM
PO Box 204, Willoughby, NSW, 2068.

It is one third of the Institute's life span since I first found myself the owner of a black or was it silver box, in the form of a low band TCA unit which had seen better days in a taxi. Having watched the FM scene ever since through conversions to the desired band, then simplex, repeater permission, planning, disagreements, going it alone and back with the majority (?) I would like to take every amateur through the evolution of Australia's development of today's facilities before some of the events become history that failed to be recorded. Many of the accounts detailed will be as I saw them but I do ask everyone to join in with a contribution of an event they feel should be part of the recorded history. A line to me at the above address would be most welcome.

Many of the newer (and perhaps older) amateurs may take for granted the facilities that repeaters offer without a thought of how or when they came into existence, both in terms of permission as well as their physical installation.

FM is not new but the first general form of modulation used was AM. In the late 40s it appears the first general useage FM commercial mobiles in this country came into service on the 70 MHZ band for general use. These took the form of large valve units, often in several boxes, transmitter — receiver — vibrator power supply to fill the boot of even the largest car of the day, which in turn rapidly drained its 6 volt battery. The base stations were even bigger, often a 2 metre high rack cabinet with a .25 kW output. The channel spacing of the day was 240 kHz. During the same period amateurs intentionally experimented with FM, usually in the narrow mode, or unintentionally when their supposed stable transmissions weren't and the local amateur advisory committee sent them a 'blue' — please explain/correct memo!

By the late 50s the commercial network had expanded and the 240 kHz channel spacing had been halved to 120 and then again to 60 kHz. While predominantly FM, there were a few AM services. (The Aviation industry was and in most cases still today is an AM service in the 108/136 region.) Equipment design became smaller and one usually saw it in taxis so it acquired the "Taxiradio" handle. In those days there was more room under the the dashboard and the taxi operator's radio was installed in most cases, under the fare meter. The radio — valve era — produced heat, the fare meter was well lubricated in oil so when one obtained a 'taxiradio' from disposals there was no doubting the previous owner. In another episode I will relate the story of cleaning 'these things' to an 'as new' state. Early 60s saw a few units appear on the surplus market. Amateurs — being what they were (or are) — acquired these and moved them to either of the VHF bands at 6 or 2 metres.

The first unit I had was a low band (70 MHz) unit and going to 2 metres (high band) was a case of physically moving the multiplier coil cans down one position and fitting a 4 MHz crystal in place of the original 2 MHz one. In those days operation was simplex and limited planning required. Most aimed for the centre of the band, 146 MHz. For reasons now starting to be lost in the past — some say it was the slide rules of the day —the era between where one had to use the brain controlled long hand calculations and today's pocket calculator — no two groups ended up on the same frequency.

VK3 it is thought aimed for 146.000 but ended up 146 kHz low on 145.854 which became known as channel 'A'. VK2 found their way to 146.000. To compliment 145.854 on the low side, VK3 balanced it on the high side at 146.146. This channel group became known as channels A, B and C. In the mid 60s, VK2 started to obtain some further equipment from a source and that group headed for a common channel and ended up on 146.100.

During the 50s, the 50 MHz region had the old 5 metres, 56 to 60, destined to become channel 1 TV and the newly acquired 6 metre band. This period was a good time for DX on the CW and AM modes. A few of the FM units found their way down to these bands. An easy conversion usually was to squash a coil here, perhaps wind another, or add a capacitor for the transmitter conversion. A similar crystal line up and you had some RF out. The receiver usually meant a bit of front end realignment and running the crystal oscillator injection on the other side of the 10.7 MHz IF chain. Commercially it may have been multiplied up to 60 + 10.7 for a 70 MHz frequency. Amateur wise it was still at 60 but — 10.7 to 50 MHz. While many crystal locked systems developed along the (to the amateurs involved) logic, *"I have a crystal, lets use it"*, some did follow international useage. 52.525 was one such case. Popular almost where ever 6 metres was allowed, it was even used by Radio China as a broadcast link — at least one knew where the band was open to when you heard it.

6 metres has never developed to the extent of 2 metres in VK2. While interstate it was very popular in the 50s and early 60s some well placed Ch 0 TV stations at regular skip distances in major activity centres like Melbourne and Brisbane soon killed off the then high usage. There were more AM than FM net frequencies.

These included (AM) 53.032; 53.035; 53.100; 53.866 and 53.982. On FM there was 52.525; 52.656 in VK6. and 52.700 and 53.950 in VK2. Before this era fades into unrecorded history I would like to log those frequencies so if you had a small (or large) club or group net on 6 metres drop a line to the above address and tell me about it, your location and what equipment you generally used.

Mid 60s found that the commercial spectrum had become so crowded that a major change was planned. Channel spacing was to be reduced to 30 KHz and new equipment specifications introduced. This obsoleted a vast range of — in many cases — modern two way units onto an eager amateur market and whether we like it or not the 'net channel' era began. Now you could leave a squelched (muted) radio running to listen to whoever was about — no more tuning and perhaps missing a snippet of gossip . . . oops I meant news. (Squelch was the term printed under the knob if it was an AM set, Mute if it was FM.) Most people had a single channel unit, some had a 3 channel set, but you had to know someone for the occasional 6 channel unit.

The amateurs became restless, the systems were good. VK2 units were often high power 25 watts to combat Sydneys terrain. Melbourne needed less power so there were many popular 6 watt units. This was still not enough. Those in high locations talked to the world. Somewhat naturally but not necessarily with permission they started repeater experiments. One I became aware of had found a nice high 'country' hill. From the same building, without refinements of things like filters, two units and two aerials appeared. With an input on ch 'B' and the output on 'A' — a mere 146 kHz spacing it worked well. However, a mix between a couple of local services nearby produced a signal on ch 'B' so the input was moved to a 146.100 frequency, which was to have a significant bearing on later repeater channel planning.

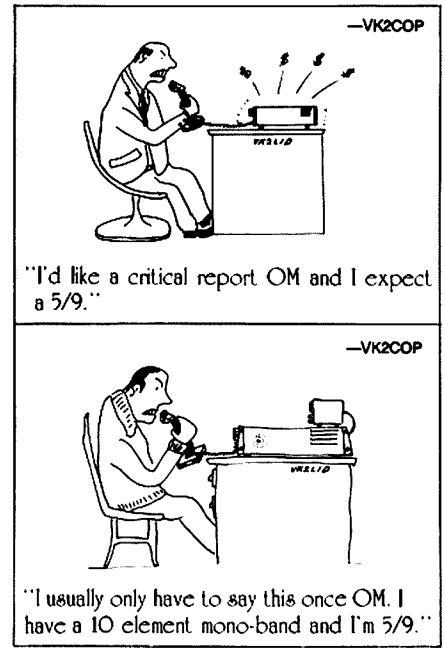
The "experimental" system was a 'well kept secret'. Some years later, during the course of discussion on repeater licensing, I had an occasion to ask if the authorities were ever aware of Its existence. *"Oh yes, about 24 hours after it first went to air"* was the reply. Then followed a detailed discription which indicated they had come to know it on a better than a casual basis. I do believe that this and 'other' experiments helped show that the amateurs could handle repeaters for, when approval was granted, Australia received the then and I still believe the best set of operating conditions (from the repeater committees' point of view) in the world.

That permission came to our notice in VK2 on the first Friday in July 1968 when our Federal Councillor, Pierce VK2APQ attended the VHF and TV Group meeting to tell us the good news.

Well we had permission but no plans, it was all such a surprise. In a short space of time agreement nationally was reached to hold a planning meeting. The location was to be at Wodonga on the VK2/3 border during September 1968.

To be continued.

AR



DURAL REPEATERS

The Wireless Institute of Australia NSW Division operates repeaters in the 2 metre and 70 centimetre bands from its Dural site, under the callsign VK2RWI. This short article describes the operation of these repeaters.

General Information	2 metre	70 centimetre
Output frequency	*147.0 MHz*	*438.525 MHz*
Input frequency	*146.4 MHz*	*433.525 MHz*
Output power	*35 W*	*10 W*
Antenna gain	*10 dBi*	*8 dBi*
Antenna pattern	*Cerdioid (max south)*	*Omni*

CONTROL FUNCTIONS

Both repeaters are controlled by a central microprocessor and operate as follows:

Tail: Normally 0.6 seconds, but extended to 1.2 seconds on weak signals.

Timeout: 3.5 minutes. Timeout is indicated by a 1 kHz tone transmitted for one second. This tone, preceded by an ident, is sent every two minutes while the repeater is timed out. When the incoming transmission ceases, the repeater sends a "raspberry" followed by an ident. Note that the timer resets at the end of the tail, so allow the repeater to drop out fully between overs. Timeout is inhibited automatically at broadcast times, and may also be manually inhibited at other times, and this mode is indicated by a short 1 kHz tone burst at the end of the tail. Timeout is reduced to 20 seconds when the battery voltage is low.

Anti-button-push: All incoming transmissions are checked for modulation content. After four transmissions lacking suitable modulation the repeater shuts down. This is reset on receipt of a suitably modulated transmission — the recommended procedure is to announce your call sign. Note that button-pushing, as well as being annoying to those listening, contravenes the regulations relating to identification of transmissions, Ie. DON'T!

Off-frequency indicator: Transmissions more than 2 kHz off frequency receive a tone during the tail — a high tone (1.6 kHz) meaning high in frequency and a low tone (600 Hz) meaning low in frequency. This function is disabled when the timeout inhibit mode is activated, as a result of abuse during broadcast callbacks.

Low power (2 m only): When switched to low power mode (10 W), the callsign is sent using 600 Hz instead of the normal 1 kHz tone.

Faults: The performance of the repeaters is continually monitored, and abnormal operation of the power supply or transmitter is indicated by a "B" (for battery) or "F" (for fault) respectively being sent at 80 second intervals. The pitch of the tone used indicates the nature of the condition, as in Table 1.

Maintenance: These repeaters are maintained by the WIA Dural Committee, and extensive remote control and telemetry facilities have been provided for this purpose. Note that maintenance and testing operations have priority over normal use (other than emergency traffic). Routine maintenance includes battery cycling several times each year.

AR

	600 Hz	*1 kHz*	*1.6 kHz*
Power Supply ("B")	*Low voltage*	*Mains failure*	*Bat charging*
Transmitter ("F")	*Low output*	*High TX current*	*High SWR*

TABLE 1

A HISTORY OF SOS

G Maxwell Hull, VK3ZS
Federal Historian

During World War II in 1940 dispatches from the wor zone reported that "SSSS" wos rivalling "SOS" as the maritime operators call of distress. If it was fact at the time, the former was not internationally recognised as was the "SOS" signal in the International Morse Code.

In any event, the "SSSS" did not officially mean "Submarine Sighted" or any other words beginning with "S". The explanation was that the dot-dot-dot four times repeated (... ... ...) representing these letters, has a characteristic swing and through common understanding and usage identified the nature of the distress case.

"SOS" does not mean literally "Save Our Souls" or "Save Our Ship" as is sometimes claimed, and more than a previous international distress call "CQD" meant "Come Quick Danger". All such calls are based on the speed and clarity with which they can be transmitted.

There was no special wireless call for sea emergency prior to the turn of the century, according to Federal Communication Records. About that time the Marconi International Marine Company Ltd began equipping ships for radio telegraph communication. In doing so it adopted "CQ", which had been in use in wire telegraph as a "general call" for many years, as a precedence signal for any ship desiring to communicate with another ship or shore station.

The need for a common distress call was recognised at the preliminary International Radio Conference held at Berlin in 1903. Here the Italian delegation suggested that in emergency a ship should send at intervals the signal "SSSDDD". No action was taken at this conference.

In 1904 the British Marconi Company instructed its ship radio stations to substitute "CD" for "CQ". Subsequently, the "D" was substituted in the old "CQ" call. At the 1906 International Radio Conference at Berlin, however, "SOS" was formally adopted. This combination was the outgrowth of "SOE" (... ——— .) which had been used by German ships but which was somewhat unsatisfactory because the final dot was easily obliterated by interference.

Even so, "CQD" was so firmly established with some operators that its use continued for some years thereafter. A notable example was its employment in summoning aid for the steamship "Republic" in 1909. "CQD" finally passed from the sea calls when the international conferences continued to approve "SOS".

From RADIO magazine, May 1940.

AR

INTERNATIONAL YOUTH YEAR

In 1979, the United Nations General Assembly, declared 1985 to be International Youth Year with the theme being "Participation, development and peace".

Let us, in our Seventy Fifth Anniversary Year", as the oldest radio society in the world also remember youth in their year.

May we encourage them to participate in the wonderful hobby of amateur radio and also help them to develop and further the particular facet of the hobby which claims their interest.

The youth of today are the OTs of tomorrow. **AR**

IT BEGAN 185 YEARS AGO

Alessandro Volta is the recognised founder of electrochemistry which has remained a major source of electricity.

The physicist experimenting in Italy developed the first electric cell in 1800 — his name has been given to the unit for electromotive force — the volt.

Although the phenomenon of electricity generation was not completely understood in those days Volta received full recognition for his discovery.

After demonstrating it to Napoleon, the French Emperor made him a count and senator of the Kingdom of Lombardy.

Later in 1815 the Emperor of Austria appointed Volta director of the philosophy faculty of the University of Padua.

Following on from Volta's work dry batteries were developed by Leclanche and rechargeable lead accumulators by Plante.

Without electrochemical cells there would be no portable radios or tape recorders, electrically powered vehicles, portable torches, heart pacemakers, electric watches and clocks, and even hydrogen fuel cells which power spacecraft. **AR**

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

Well into the year and the sunspot activity is still declining, making contacts harder to get on the higher bands on which I normally operate. The signals are there, but not as strong and not as regular, so one has to work harder, improve their station efficiency and vary their techniques.

Of the times I have listened and monitored a rare station for a considerable time, it never ceases to amaze me the number of VKs that I can hear call and after a couple of calls, they give it away. On occasions I have called the station and alerted them to the fact that VKs are listening and calling. Invariably the called station will then look for the nominated station he or she has been advised of, work them and then seek other VKs.

Amateur radio is a hobby to share, and if I have the resources and luck to work a rare station, I am only too pleased to assist others and probably get as big a thrill out of seeing a newcomer or someone who wants it for a new country, get it, as the operator themselves. It is called sharing and from my point of view there could be a lot more of it heard across the amateur spectrum.

In my book, self satisfaction is directly proportional to what one receives in unsolicited personal rewards from what they do, to the amount of time, work or energy that they put into it.

MOUNT ATHOS

Nicola I0SNY, is still having trouble in organising the Mount Athos trip which was intended to be prior to Christmas 1984, but apparently documentation went astray.

As has been said many times SV/A is a very difficult area to gain accredited permission to operate from, and it all depends on the approval of the Council of Abbots which control the area.

Nicola is an experienced UHF orientated gentleman and in August last year established a 24 GHz record of 331 km, from Mount Epomeo on Ischia Island, off the coast of Naples, to Montalto in the Calabria region of Italy. (Refer QST December 1984, p69)

A late news item indicates that the group has the permission and the Easter Bunny could be hopping around while they are operating.

KERGUELEN

FT8XA is quite active on twenty metres. If you are lucky to catch up with him, QSL to F6FYD, Vannick Delatouche, P.O. Box 8, Andresy, France, F-78570.

DON'T FORGET CLIPPERTON

Due to be operational from 3rd to 10th April. More details next month.

ANTARCTICA

The station 4K1CEY, now QRT, was located at Molodezhnaya Base Antarctica, having co-ordinates of 67°S and 45°E which locates it in ITU Zone 69 and CQ Zone 39. QSL to UY5DJ via P.O. Box 88, Moscow or preferably via the Bureau.

PROFILE OF A MODERN DXER

Thirty eight year old Ghis ON5NT (affectionately known as "No Trouble") in nineteen years of operating has accomplished many amateur lifetime ambitions.

Ghis is on the ARRL DXCC Honour Roll and as at the end of 1984, whilst still awaiting the San Felix card his standings were Phone 310/309, Mixed 310/309, CW 306/305 and his figures of countries worked were Phone 325/324, Mixed 325/324 and the CW list was 311 worked with 310 confirmed.

Ghis' wanted list includes XZ, YA, ZA and 7O on both the Phone and Mixed sectors whilst on CW this very keen and astute operator needs A6, C9, XV, XZ, YA, ZA, 5A and 7O prefixes to capture a "full bag".

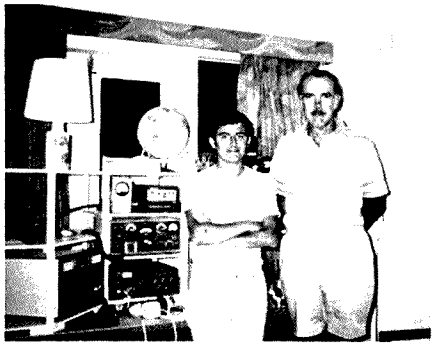
Awards have come his way also as he holds 5BWAC which was gained in 1977, 5BDXCC #487 (1976), 5BWAS #1022 (1982) and he worked and had confirmed the 200 contacts to achieve certificate #35 for 5 Band Worked all Zones also in 1982. Also Ghis proudly displays certificate number 7 for WAZ single band 80 metres SSB and WAZ single band CW on 40 metres, the certificate number is 16. It is a pity that 160 metre operation is not allowed in Belgium or there, I am sure, would be a certificate for that too.

The low bands score is swelling and forty metres has 288 worked with 286 confirmed, eighty metres follows closely with 246/244 on SSB/CW.

Not one to stand still, Ghis has operated 4U1ITU (1975), ON5NT/LX (1976), 10,000 QSOs from TYA11 in 1982, ON5NT/IT4 (1984) and ON5NT/HB0 also in 1984. He is also QSL Manager for a number of stations.

When one reflects on these accomplishments and considers all the hours including the seeing of innumerable sunrises for the low band contacts, any reader would have to agree that Ghis is a dedicated DXer.

Ghis is ably supported in his hobby by his charming XYL Monique and 11 and 7 year old daughters Maggy and Heidi.



Two famous DXers Ghis ON5NT (L) and Bull 9U5JB, presently US Ambassador in Burundi. The photo was taken in 1981 at the TYA11 QTH.

BURUNDI

Ghis ON5NT, hopes to be able to operate 9U5JB over the Easter period. Look on the usual DX frequencies and all QSLs to ON5NT.

NEW BEACON

Another beacon on twenty metres has been activated and will join 4U1UN/B, W6WX/B, KH6O/B, JA2IGY, 4X6TU/B, OH2B, CT3B and ZS6DN/B on 14.100 MHz. The beacon is HK4LR/B and will be operating in number nine time slot. Apart from a guide to propagation a QSL would be appreciated by the sponsors, the Northern California DX Club via W6RQ.

NO GUARANTEE

For those keen DXers who have still not received a card from Ron LU2AH, for AZ5ZA. Ron recommends that one QSL to Gorostiaga 2320, Buenos Aires 1426, Argentina may work as he comments that mail destined to him is being intercepted by a postal worker. Beware, there is no guarantee that you will still receive a card.

YEOVAL-YEOVIL

Joy VK2EBX, whose QTH is Yeoval and is a regular contributor to this column has received a beautiful certificate from the Yeovil Amateur Radio Club confirming her as an Honorary Life Member. Congratulations Joy, and I am sure it takes pride of place near the transceiver. (See page 43 — Nov AR).

MARION ISLAND

ZS2MI back on the air!!! It is believed that ZR6AOJ, has permission to operate ZS2MI for a fourteen month stint. All QSLs will be handled by ZS6BCR. Let us hope that this operation will be a success story as ZS2MI has not appeared in that many DXers logs, particularly VKs.

Marion Island, located nearly 2000 kilometres south-east of Capetown in the Indian Ocean, is the larger of the two islands of the South African dependent Prince Edward Island Group. This sub antarctic island, which is entirely volcanic, has an area of 390 square kilometres and its highest mountain is a dome like shape rising to Jan Smuts Peak, which is snow covered and has an elevation of 1190 metres. In a description of the island, QRZ DX Editor Bob Winn W5KNE, wrote, research has shown that the coastline is very rugged and exposed with steep cliffs rising to around the 150 metre mark.

Bob says, that the climate is cool, with a mean annual temperature of 4 degrees and the island is continually swept by gales which bring heavy rains, up to 2500 mm annually. On average only a few hours of weak sunshine is seen daily as the cloud cover is at about 300 metres.

NEW PREFIX

A new prefix, HW is appearing on the bands and it is a special prefix for the 20th anniversary of UNARAF in France, an association for the visually impaired. Prefix HW3 will substitute a FC prefix, HW4 for FD and HW5 for FE.

ZC4 A NEW COUNTRY

The ARRL DX Advisory Council had recommended on a 15 to 1 vote that ZC4 becomes a separate DXCC country. The ARRL deliberated further and the Awards Committee voted 6 to 1 in favour of the UK Sovereign Base Areas on Cyprus (ZC4) becoming a new DXCC Country.

No credits will be accepted until the 1st of June 1985 but now it becomes difficult. Credits for ZC4 contacts made before the 16th August 1960, will continue to be credited to the Cyprus listing. All 5B4 credits count for the Cyprus listing. All ZC4 contacts made after the 1960 date were not necessarily from stations operating within the Sovereign Base Areas. Cards that show operation from within the Bases will be credited. The ARRL DXCC desk will make every effort to ascertain the location if it is not clearly indicated. If in doubt applicants may submit a number of ZC4 cards (if you have them) and every assistance will be given. More headache powders for the DXCC Administrator Don Search, I would venture to say.

NOT IN THE LOG???

Many amateurs, world wide, seeking a confirmation of the contact with VU7WCY have received the following note.

Dear Friend,

We are sorry to inform you that we have not been able to find your call sign in our log book, although we even checked the day before and the day after for any mix up in dates. We even went to the extent of checking the log books of the other operators to see if you have worked them.

The delay in acknowledging your QSL card was due to the time consumed in going through all the log books.

Wishing you the best of luck the next time.

73's,

GOPAL

(VU2 GDG)

"Boy" VK2DTH, contacted this group twice, on different frequencies and sent the cards off with the usual remittance. No reply, so he sent off again with "green" stamps and in return this carefully and professionally printed explanation.

A VU YL on twenty metres went clear, with many excuses that urgent chores had to be attended to, after having four consecutive calls regarding the cards one evening. Within five minutes she was calling CQ North America, 100 kHz up the band and got many takers. Each very short QSO ended in the phrase "please QSL direct to . . ."

"Boy" at least received recognition that his letter was received, mine with a letter asking for a story and photographs and my card included along with ample funds for return, still remains unanswered.

Many QSOs, lots of IRCs and other good things and no cards. No one could miss that many entries in the log, surely or could they???

JOTA IN MALAYSIA

Peter 9M2PW, now back in Australia after a three year tour of duty at the RAAF Butterworth Air Base, assisted the multitude of Malaysian stations that took part in JOTA 1984.

Peter 9M2PW with 14 year old Debbie Gavin of the 1st Tanjong Bungah Guide Company.

SAN FELIX

The Radio Club de Chile members were so incensed by the bogus operation by Bob Read KF10 (refer AR September 1982 p30) that it was their ultimate goal to make amends to the world wide amateur fraternity with a genuine DX operation from one of the rarest DXCC countries in the world.

Patricio CE3GN, the International Co-ordinator of the Club kindly prepared the story of the expedition for Amateur Radio and it has been professionally and expertly translated by Louis VK3ZLD, a gentleman that has five languages at his finger tips.

SECRECY

All amateurs were bewildered as to why no advance information had been forthcoming as to this important expedition but it was the culmination of seven years of negotiations, always stressing the importance of this country being allowed on the amateur bands, with the Military who control the island, and the government that the final authorisation, with certain conditions, was given on the 21st August 1984 by a telephone call to the Club's President.

The conditions of operation were that the amateurs must be service personnel, be prepared to stay for two months, operate from a specific location and not stray from that area. The reason for these limitations is that San Felix is under strict military control and no civilians are allowed on the area.

PROBLEMS ALREADY

The chosen couple, Fernando CE3GXY and Max CE9DUN, both amateur operators in the Chilean Navy, though expert on CW were not conversant with the English language for SSB operation. The second problem was that they had ten days to arrange leave of absence from the Navy and arrange their transport to the island. These were apart from the organisation of equipment. Not easy tasks to overcome!

L to R: Fernando CE3GXY, Mickey CE3ESS and Max CE9DUN.

PROBLEMS OVERCOME

Fernando and Max had many helpers in assisting them to improve their English vocabulary. Amongst these were German CE3CBG, Enrique CE3BBW, Mickey CE3ESS, Edwardo CE3BOC, Jorge CE3CTI, Marcelo CE3BXP and Celso CE3ACA.

The equipment that was to be used for the expedition was partly supplied by the Club, with further assistance by loans from Club members particularly Pablo CE3JN, Enrique CE3BBW who supplied transmitting equipment, Mickey CE3ESS who supplied the three band antenna and rotator, Celso CE3ACA and Edward CE3BOC, who constructed the dipoles. German CE3CBG, Michel CE3DPD and Marcelo CE3BXP packed and prepared the equipment which consisted of 1 x TS-600, 2 x 830-Ss, with an external VFO, 1 x 130S and an AT230, 1 Honda E-500, 1 TET three band antenna and inverted Vees for 160, 80 and 40 metres, for transport to the island.

The operators getting in practice at the Club.

FAREWELLS

During the week prior to departure Fernando, Max and all the helpers involved in the preparations were treated to a celebration organised by the Club in appreciation of their untiring efforts of assistance.

Fernando making a point to Patricio CE3GN.

L to R: Standing. Patricio CE3GN, Mickey CE3ESS, Max CE0AA, Sitting. Fernando CE0AA and Enrique CE3BBW.

On the 30th August, a farewell was hosted to both expeditioners at a well known Santiquino restaurant, where they made a promise to be dutiful operators. Toasts were made in Chilean wine. Next day the two operators departed for San Felix Island with a feeling that they were doing something worthwhile for all amateur operators.

The island as depicted on the card.

THE ISLAND

The island of San Felix, located at 80 degrees parallel and 880 kilometres from the Chilean coast is 800 metres long and 2400 metres wide, being the result of a volcanic eruption and the surface is nothing other than rocks, with no vegetation of any kind.

The day after their arrival, both operators, by working through the night, had all the equipment operational. The same day at 2207 UTC they established their first contact to test the equipment. A historic occasion, CE0AA, a legitimate station, operational from this lonely and barren island, that would give a multitude of DXers a new DXCC credit.

Fernando starting to climb the tower. San Ambrosia Island can be seen in the background.

Max, at the top of the tower adjusting the rotator.

All contacts were kept short and to the point, so that it would give operators from all continents a chance of working one of the top ten most wanted countries. The

first few days were chaos, then when things settled down, operating was easy and times on all bands were adhered to as close as practicable.

THE CONTROLLERS

The controllers like Enrique CE3BBW, Mickey CE3ESS, Carlos CE3EEO, Michel CE3DPD, Ralf CE6EZ, Mario CE6COR and Carlos CE3NR were magnificent in their handling of the situations. Many other stations spent six to eight hours per day controlling the operation. Many international operators assisted and included Eva PY2PE, Toshi JA1ELY, Phineas W6BF, Ron KB7SO, Jack WB4GCP, Gail KF4IL, Jim KB7OC, John KC0YI, Loren K6EDV, Tex W6AHV, James NB7R, Nell HK0HEU, and many others who voluntarily gave their time to participate.

Patricio CE3GN, on behalf of the Club and its members, expresses his appreciation to the Chilean, international operators and many others that gave their time to participate and says "I cannot express enough happiness at the greatest effort put in by everyone for the common community cause and we also express our gratitude to the operators for the enormous amount of contacts made 6 to 160 metres, which were above our expectations".

RTTY

The 28th September saw another historic event, thanks to Fernando. This operator had received permission from the authorities on the island to operate the RTTY mode and many amateurs were able to conduct two way transmissions on the amateur bands with San Felix.

CLOSING DOWN

Enrique CE3BBQ, was the controller responsible for the expendition and at the beginning of October due to the fact of his commitments overseas, operations had to cease.

In excess of 31,000 contacts were made using the modes of CW, SSB and RTTY on all DXCC bands from 6 to 160 metres and in Patricio's words "The whole expedition came to a perfect ending which cannot be criticised. We are pleased that amateur operators all over the world are happy and to those responsible for the operation we are grateful that during the first few days, despite all the criticism, all went well and we were able to keep over 31,000 operators happy and give them a new country for their DXCC, the Island of San Felix".

It would be ungracious of me if I didn't endorse the last remarks and express sincere thanks to all concerned with the operation on behalf of particularly VK amateurs and amateurs world wide for the dedication of the club and its members in bringing about the activation of this rare DXCC country. (VK3AH).

BITS AND PIECES

News reports indicate that Ampil, the home of XU1SS and gang has been seized by the enemy. **160 metre enthusiasts could look for CE3DPD and CE3EEO who operate around1.835 MHz most days. **Gerry 5X5GK, it appears has some written documentation which will be forwarded to the ARRL DXCC Desk. He gets 100 percent in my book as trier. **Many EM, EO, EU, EW, ER and EV prefixes from the USSR which may be claimed for a special award, the details of which are unclear. Their use is to celebrate the cessation of hostilities of WWII, forty years ago, and apparently the suffix R designates that the operator was one of the veterans. **ZA1ST is working Europeans and advising them to QSL via OH2BDM. One wonders if OH2BDM knows about it, he soon will when the mail arrives. **VK3AH is not QSL Manager for VK0GC whose cards should go to P29JS. Cards for Denise VK0YL go to VK3AH. **OE stations may now use 100 watts CW from 1.850 to 1.950 MHz. **Many HI8 operators using HI0 prefix. **ARRL DX-CC Desk has had no documentation from PS7ABT/S9. Was he "alongside" when he made the calls?? **Betty, XYL or Tom VR6TC is believed to have passed the amateur licence and will appear with the call VR6YL. More operating hours from that QTH, that is for sure. **Les 7Q7LW, due back on the bands after holidays in the UK. **More operating hours from that QTH, that is for sure! **The LA group cancelled their plans for Bouvet earlier this year due to economics, politics and safety. **QSL cards for the special Olympic stations should now go to W6SZN or N6AUV. The P.O. Box has been closed. **The JAs hoped for a few hours operating last month from Bouvet after landing from a fishing boat and the LAs were still hopeful of a few hours operation as 3Y4FG. **RSGB Headquarters is located in Alma House. They have changed the name to Lambda House. Significant? **Dieter DK9KD, advises he is not the QSL Manager for the bogus stations DK9KX/5A or 5A1AA. **Genuine C9 operators may be heard more frequently in the near future. **BY5RF, a newly commissioned station from the Peoples Republic of China is quite active. **YI1BGD say they can now operate on 18 and 24 MHz.

CW SWLing with ERIC L30042

28 MHz
JR2QKH, VK3YK, VK3PIW, BEACONS VK2RSY, VK4RTL, VK5WI, VK6RWA.
21 MHz
HL1LW, IK7ANN, YC0DNK, ZL2ACP.
18 MHz
ZL1BEK, ZL1CZ, ZL4NH.
14 MHz
A35LT, AH2C, BV2B, KD5A/DU5, K7BAZ/DV1, KA3DWU/DV2, DU1UY, FK8DY, FO8HO FO8JZ, EA7FI, EO9AON, JO1FEF, KX6PO, NH6BH/MM, OH1OU, OH8AA, UA0LU/R, UA9SHO, UL7WH, UL8GWB, UZ4PXA, VK0ML/5, VU2BAN, VU2IOC, YB2BNJ, YC2FEA, YC3KG, YJ8JH, YT8TT.
10 MHz
DL7AD/EA8, FO8FO, W2DT, WA1OFP/1, KM3A, W3OV, WB2PMP/4, K4OM, ZL1HY, ZL0AEU.
7 MHz
CT2ON, DJ2EY, EA1CLF, F9XL, FO8JR, EM2C, EW1AA, G4DMZ, G8NV/MM, G4OTU, HA7KSR, HB9IK, IK2EGL, KL7U, KX6DS, LX1PD, LZ1KAZ, OE3ZOC, OK3SIH, OK4PBM/MM, P29PL, P29PR, SP6CIK, UA6ARE, UB5ZZ, UD6CN, UP1BZG, UQ2GD, VS6DO, UM8MLE, YU2AKL, ZK1XS, 3B8CF.
3.5 MHz
JA, W5TZC, UA0ZZ, YD1LB, UP1BWR.
1.8 MHz
P29PR, OE8NOK/ZL5.

The operators and friends at the "welcome home" party.

NOSTALGIA

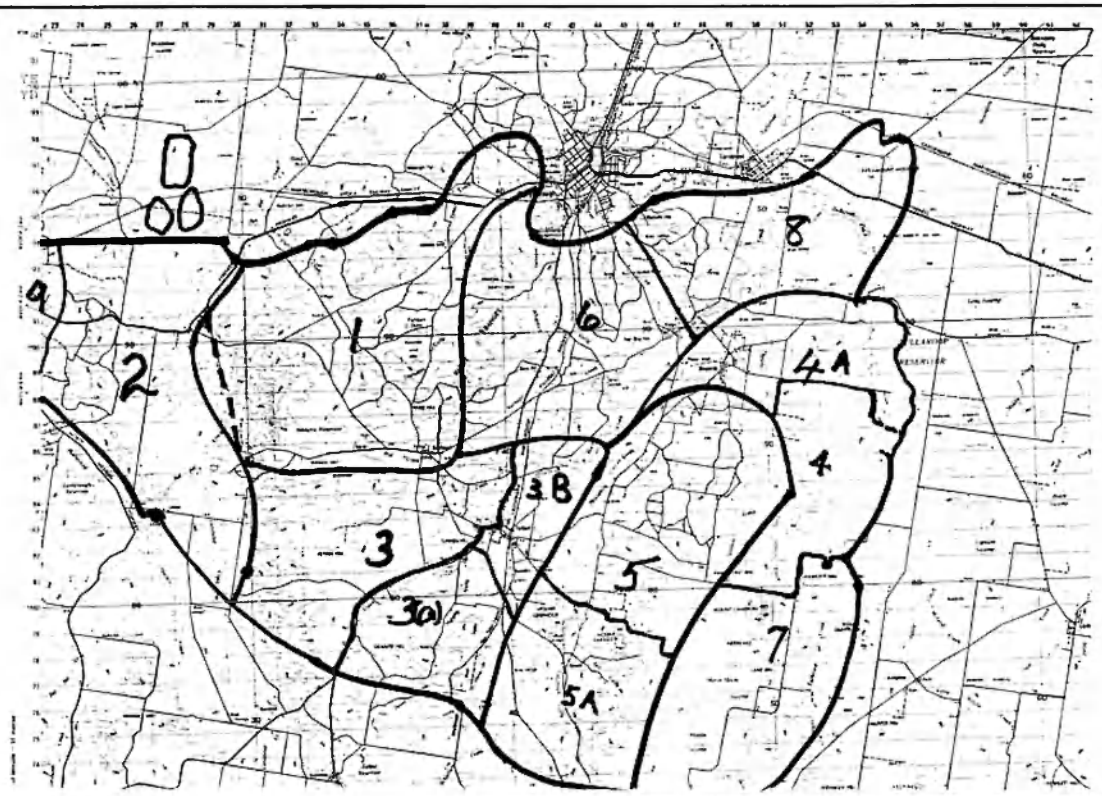
Again is reproduced another card of yesteryear. The card was supplied by Arthur VK2JM.

THANKS

Special thanks go to the following. The Editors of weekly bi-weekly, and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, ORZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, QST, RADCOM, JARL NEWS, OZ, WORLD RADIO, 73, BREAK IN and VERON.

Members who have contributed include VKs 2JM, PS, DTH, EBX, 3BY, EW, FR, YJ, YL, ZLD, 4BHJ, 6NE, G3NBC, WA3HUP and L30042. Overseas amateurs include CE3GN, DK9KD, G1EOD, 18SAT, ON5NT and ON7WW. Good DXing and sincere thanks to one and all. **AR**

Overseas Amateurs are welcome to join the WIA. Meet one who has on page 23.



Approximately 30,000 head of stock were burnt and destroyed in the fire area bounded by the black line. Smaller divisions indicate the area of operation for each field team.

WICEN NEWS

Geoff Smith VK3ADB
PRESIDENT OF BALLARAT ARG
829 Laurie Street, Mount Pleasant, Vic. 3350

WICEN INVOLVEMENT IN THE MARYBOROUGH (TULLAROOP SHIRE) BUSHFIRE AREA ON 14TH JANUARY 1985

On Wednesday 16th January 1985 operators from Bendigo ARC and Ballarat ARG were called out on stand by for WICEN work with the bushfires at Maryborough. Operations began at 0730 EST on 17th January and concluded at 1800 EST on 18th January.

Amateurs participating from Bendigo were VK3's — XBL, DTY DML and DOV whilst from Ballarat — VK3s — ADB, VU, BNC, PAF, NIH, AEX, YMW and ANH.

A base station was set up in the Shire of Tullarbop offices using 146.500 MHz Simplex. To cater for difficult reception in outlying areas a manned relay station was set up on Bristol Hill (about 609.6 metres ASL) approx. 1 km from the base station.

Bristol Hill has a lookout tower about 21.34 metres high on its peak. An antenna (a Slim Jim) was erected on top of the tower which gave an excellent take-off to cover even the remotest corner of the Shire.

Individual field operation was required, in that the operators travelled in a Department of Agriculture/ RSPCA vehicle to various parts of the Shire to assess burnt stock and farm problems such as fencing, feed and fodder needs, arrangements for earth moving equipment to dig disposal pits for stock destroyed on site, location of portable yards and assistance with the personal needs of farmers affected by the fire.

The problem of portable/mobile operation was overcome by the use of magnetic mounted and gutter grip antennas. Rigs used were handhelds and various VHF transceivers powered from the vehicles cigarette lighter sockets. Problems were anticipated and catered for.

HF operation was not used but equipment was available if required.

Photograph courtesy of the Sun News Pictorial. Photographer Janine Eastgate.

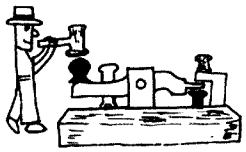
The Aftermath of the Maryborough Bushfire.

In actual operation no problems were encountered with messages due to the excellent location of the relay station.

At the end of each day, at the debriefing session, department heads and field officers stated that the standard of operation was highly professional and enhanced the performance of all in ensuring the various needs were promptly dealt with.

The contribution made by the WICEN operators from Bendigo and Ballarat helped relieve some of the misery endured by the strickened animals in this disaster.

The operation was co-ordinated by Dick VK3AEX and Don VK3XBL. **AR**



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

WHY USE CW?

Quite often people ask me why I am so interested in CW — how can anyone enjoy something so unnatural and so "difficult to learn?" I suppose the easy answer is that people are by nature contrary, and I enjoy doing all sorts of things that other people find a bit odd. Playing tennis, for example, is not natural and for most of us difficult to learn.

In my case, the main reason is that I spend too much time talking at work during the day, and smoke too much (New Year's Resolutions not withstanding) and the last thing I want to do of an evening is sit around yacking into a microphone!

In the January issue of this column I talked about the future of CW as an amateur mode, and now I'd like to devote a little more space to the nifty reasons why people enjoy it, why it is useful, and generally why it deserves to have a future.

The virtually iron-clad arguments which follow were in a large part suggested by a European amateur who can often work VK on CW when the phone bands are dead.

1 The bandwidth argument

Power relationships based on nominal signal bandwidth are summarised from a professional engineering journal in the following table:

Mode	Bandwidth	Power
CW	100 Hz	100
RTTY	400 Hz	96
RTTY	1000 Hz	90
SSB	2500 Hz	75
AM	5000 Hz	50
FM	12000 Hz	1

In addition, it is fairly obvious that detection of the presence or absence of an unmodulated tone is much easier to detect than making sense of human speech in all its various forms. You can filter a CW signal down to as little as 60 Hz width using readily available technology — dots can still be discriminated at 50 WPM. This means theoretically that something like thirty CW QSO's could take place simultaneously in the bandwidth occupied by a single SSB QSO! Thus the essence of the argument is minimal pollution in terms both of power of required bandwidth.

2 The speed of argument

Often turned against CW operation, the speed argument case comes into play once reasonable speeds can be worked with effective use of abbreviations, procedural symbols, and the Q-code. By reasonable speeds I mean as little as 15 WPM, though of course that can be improved upon! Listen to a phone QSO game some time and see just how long it takes to communicate how little.

3 The discipline argument

Learning the code requires a certain amount of self-discipline, as does using it properly. Amateur radio is generally deemed to be "self-regulating". It is also international, and a poor operator brings not only himself into disrepute, but all his countrymen. In my opinion it is not mere coincidence that the pressure for elimination of CW exams has gone hand-in-hand with degradation of manners on the amateur bands.

4 The language argument

It may well be that English is the official language of radio, but sometimes it is all but unrecognizable. Since it is by its very nature a symbolic language, Morse Code represents a far easier means of communicating with foreigners than speech. A Russian operator, for example, may well be thinking "spasibo" as he sends "TNX". Or put it slightly differently — if he wants to say "pagoda xoroshaya" he has to translate into "the weather is fine" if he's working phone, but "WX FB" is all he needs for CW.

5 The homebrew argument

The amateur is supposed to be an experimenter, but who has the money and the skills to homebrew something like a TS 930 or FT One? You can get pretty close to the CW equivalent with homebrew gear.

6 The emergency argument

Put arguments one through five together and you have a pretty useful tool when it comes to an emergency. If your car gets wrecked in the desert, smashing the CB to bits, and you have a good CW operator handy, odds are he can build a transmitter from odds and ends, get it on air, and get help on its way. But seriously, folks, it is a simple and effective means of communication, so long as people take the trouble to learn the skills. **AR**

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

1984 Alara Contest Results

Callsign	*Points*	*Comments*
VK4BSQ	996	Winner overall and VK4 ALARA member.
VK3CYL	892	VK3 AM
VK3DYL	556	
VK6DE	440	VK6 AM
VK2EBX	373	VK2 AM
VK3DVT	335	
VK7HD	283	VK7 AM
VK3DMS	277	
VE7YL	271	VE AM
VK2AHD	267	
VK4VNK	253	Top Novice score and MRS McKENZIE Trophy.
VK2KYL	240	
VK2DJV	235	OM Certificate
VK4VR	210	
VK4XA	205	
ZL1ALK	200	ZL AM
VK2SU	190	
KQ7Y	187	USA ALARA member.
VK4AOE	172	
VK4NUN	170	
VK3XF	140	
VK3RJ	120	
JJ1LOI	118	JA AM
VK6QM	113	

John: Southern Cross DX Club No 490 105 SWL Certificate

VK2NVQ	89	
L40018	80	
DJ0EK	74	European AM
VK2DIX	69	
VK6YF	68	
WB3CQN	41	
VK5ANW	40	VK5 AM
DF2SL	10	

Note: The call signs are in order of placings.

Check logs were received from VK5YL; VK3KS; VK3XB; VK3LC; VK8NW; VK3FG; ZL2BOD and VK5QO.

My very sincere thanks to all who continue to support ALARA through the contest and I do hope to hear from everyone again in November.

Congratulations to Wendy VK4BSQ for a very creditable score with the trying conditions we had, well done.

Jill VK4VNK is our very first winner of the Mrs McKenzie Trophy; it seems appropriate that our first winner is from Queensland and the trophy came from Townsville. Jill's CW score was 162. Congratulations Jill.

This year ALARA will be 10 years old and the Committee are presently looking at having a get-together in Melbourne to celebrate this special birthday. As ALARA was first activated in Melbourne, that would be a good place to meet again. Further details after our next committee meeting.

No definite decision has been made on how often get-togethers will be held as subscriptions are still coming in, questionnaires with them.

Austine VK3YL has asked me to pass on her thanks and best 33 to all ALARA members, she is delighted with her special log book cover and is using it with very happy memories of her surprise afternoon.

Until next month take care and good DX to all.

33/73/88

Margaret VK3DML **AR**

STOLEN EQUIPMENT REGISTER

In accordance with 1984 Convention Motion 84:17:01 the Federal Office has established a stolen equipment register.

Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them may write or telephone to the Federal Office their enquiries.

To update the list published in the JANUARY issue:

MODEL	SER NUMBER	FROM
ICOM IC25A	03831	VK2DPM
ICOM IC45A	01876	VK2DPM
ICOM IC211	6804309	VK3BRV
KYOUTO FM144/10	5027	VK2KUR
OS EXPLORER	70 cm Transceiver (has extensive internal mods	
ICOM IC215	05156	VK2AMX
YEASU FT 209RH	4K050838	VK3CE*

*(Blue vinyl case complete with handbook the outside of which is stained)

AR

INPUT FROM MEMBERS

The 1985 Federal Convention will be held in Melbourne from 26-28 April.

Items which members wish to bring to the attention of the Convention should be submitted to their Divisional Office or Federal Councillor immediately.

As agenda items must arrive at Federal Office thirty days prior to the Convention — 26th March 1985 — it is imperative to move quickly so you don't miss out.

AR

Lost month we viewed rhe Red Cross Murray River Marathon from the camera lens of Gil Sones VK3AUI, a stalwart of the Marathon for many years on the radio side. This month David gives us a look at rhe computer side of things which for rhe past two years have been provided by the Melbourne Packet Radio Group. Read on . . .

PACKET RADIO

David Furst VK3YDF
57 Laity Street, Richmond, Vic. 3121

What I did on my Christmas Holidays

by the Melbourne Packet Radio Group

As many of you will be aware, the WICEN group were assisting the Red Cross after Christmas in running the Murray River Marathon. (see centre pages February) So were the Melbourne Packet Radio Group. This article is not about packet radio as such, but about the type of people and the variety of talents that we hope packet radio will bring to the ranks of amateur radio.

WICEN were up on the Murray because it is vitally important that communications are passed up and down the river as to the state of the race in general and most particularly to make sure that if there are any injuries or mishaps the safety network can respond quickly.

The MPRG is composed of people who have been radio amateurs for many years as well as computer hobbyists. It was in this latter role that we were called upon by the Red Cross to provide a mobile computer centre.

In recent years the Red Cross have had increasing problems producing the results for this race which has been growing steadily. The problem is one of a complex system which grew beyond the means of humans to control it. There are approximately forty classes of entry in the race, 350 competing canoes, 500 entrants in those canoes, and the canoes start each morning in up to 15 starts spread over nearly two hours. All this would be complicated enough, however the race runs over five days and times and placings must be worked out each day. They must be produced quickly and they must be accurate to the last second. (*Unless you don't mind 4,000 irate canoeists and supporters on your back!*)

Originally the Red Cross approached the Micro Computer Club of Melbourne in April of 1983 with a request for help. The two founding members of the MPRG, Peter Jetson and myself, volunteered for this job. It was just as well that we had no idea of what was before us or we would never have done so.

Over the months that followed there were endless meetings so we could form some idea of what had to be done, in what time frame, and how.

Very early in the piece we realised that computer reliability was going to be paramount. This instantly ruled out using one large multi-user machine. These things are difficult to fix and if you have just one and it dies, then all of a sudden you have no computers any more. We decided to use a number of smaller machines because we could theoretically still do the job even if we lost one or two of them — though more slowly of course.

During the mid afternoon we could expect to have boats arriving at the rate of one every 20 seconds or so. As computers are sometimes just plain temperamental (remember Murphy?) we had to come up with a fail proof way of running a computer so that it just could not break down. This seemingly impossible task was accomplished by hooking up two computers so that whatever was typed into the keyboard of one also appeared on the other. If one died, the other would still have the results up to the last second. We used separate power generators and separate power filtering boxes for each machine so that whatever else happened we could only lose one machine at a time.

All this gave us enough computer power to be able to enter the finishing times each day, but when would we have time to do periodical printouts of results during the race? Another computer was added to the plan. This one was to be used to do printouts, to write new programmes and modify old ones as needed.

It was somewhere about this stage of the planting that a realisation struck us: we had to be loco to be trying something like this. Alternative plan Q was put into place. In case everything fell down in a shambles we would leave the cars pointing towards Sydney with the motors running. We don't live in Sydney; we just thought that Melbourne would be the first place that they'd look for us.

More potential problems surfaced: How do you enter 350 boat numbers and times quickly, each day for five days and without errors? The scheme settled upon was where one person read out the information while another keyed it into the computer and both people checked in. As a further check, when the data was entered into the computers one of them printed it out there and then. The numbers on this printout were always compared to the numbers we thought we'd entered.

In 1983 we had the computers travelling in separate cars and we went from site to site finding a room where we could set up a computer centre. In 1984 we thought that it would be better to have everything set up in a travelling computer centre which could be set up on the river bank next to the finish line. Here was another set of problems awaiting solution. First we needed a caravan or bus to put the computers into. National Business Systems were approached and agreed to lend us the bus they normally use around the suburbs demonstrating their range of computers. They sell Sharp computers and the model 3500 was just about perfect for what we were doing; they were kind enough to lend us three of them, plus a fast printer. We added a fast printer of our own plus a slower printer so we had plenty of spares. Having so many computers and printers gave us the ability to produce heaps of reports when called upon — which was surprisingly often.

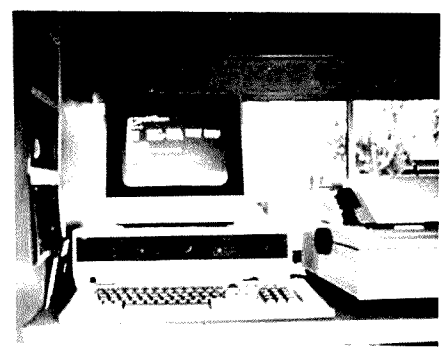
The Micom/NBS Mobile Computer Centre at Yarrawonga.

Since this was the only computer centre we had we protected it jealously. We travelled in convoy with cars preceding and following the bus at all times. We have lots of amateurs in our ranks so each car had a two metre rig running on 147.6 MHz (the Packet Radio channel — remember Packet Radio? This article is supposed to be about it).

Up on the Murray it's pretty dusty. You and I might not like that, but computers positively hate it. Next problem: how do you keep the dust out of the bus and not suffocate or burn up in 40 degrees plus heat? Simple! — get an air conditioner.

Have you ever tried to borrow an air conditioner in mid summer? We spent three weeks phoning around before Ounn Air came to the rescue. Of course buses are not like houses and you cannot mount air conditioners in their walls — particularly when you have to give the bus back in pristine condition. Rayson Industries helped out with some cunning ductwork which allowed us to sit the air conditioner on the ground and pipe the air into the bus. It looked pretty weird, but there was always competition to sit next to the duct where the cold air came out.

Just to finish the list of companies who helped us out so generously. I would like to thank Dabo Computer Supplies of Melbourne who provided the diskettes to put the information and programmes onto. We needed disks that were near bulletproof and their Dysan disks are the best there is.



One of the Sharp Computers lent by NBS for the Marathon.

Liz Moss of National Business Systems went to great efforts on our behalf and I would like to acknowledge them specially. Australian Industrial Publications (my employers) were good enough to provide a petty cash fund for all the various small expenses involved with this project and the State Emergency Service provided generators to provide power (No Matilda, there are no power points installed on the trees next to the Murray).

It is impossible to do something like this without the assistance of others and heartfelt thanks go to those people and companies who have helped so generously.

Of course all the above is only the logistics of getting the right gear in the right place at the right time. Computers won't run without programmes. Our specialist programmer is Peter Jetson from the MPRG. Without Peter's particularly practical way of seeing a computing task and writing particularly practical programmes to do the job all the above would have been wasted.

Peter chose CP/M as the operating system to use. This allowed him to do some rather cunning things with fake submit files to run a few progammes in a row and end up back at the main menu.

The Computer Centre with David VK3YDF, holding Shorty the dog, Sue, David and John.

The computer language he chose was Microsoft Basic. This is easy to write with, will allow a programmer to do almost anything, is understandable to the whole team and lets you easily modify programmes as needs arise.

To print anything you first have to get it in the right order. This is done by sorting it. Peter selected Supersoft because it runs quickly and is a good reliable piece of software.

The programming task was still prodigious. A programme had to be written to get all the names of the competitors, their canoe numbers and their classes into the computer. Another programme had to be written to be able to change any of the above details if conditions changed. A programme had to be written to allow us to enter daily times and points scored as the race progressed.

Other programmes had to be written to produce the various reports needed by the people who run the race.

The people who put the canoes onto the water needed starting lists to tell them which canoes to set off at which time. The chap who decided the starting order needed a similar list, but with the names of all the competitors included. The Race Information Office needed race result printouts for the competitors — two separate formats depending on whether it was a preliminary result during the race or a final printout at the end of the day; he also needed a list of all the canoes in the race in absolute finishing time order, as opposed to printing them out by class. The publicity people needed a list of the fastest twenty canoes for the day and another list of the fastest three canoes in each class. The finishing line people needed a list of which canoes were not accounted for at the end of the day both for accuracy of results and for safety reasons. Everybody needed lists of all the competitors in boat number order and in alphabetical order. We needed programmes just to look after all the other programmes.

The length of a computer programme is measured in K — K stands for 1024 (which is two to the power of ten). Peter wrote 150 K of programmes to do the job. This means that he pressed the keys of his computer terminal about 153,600 times as he wrote these programmes in three weeks of his spare time. It is worth mentioning that if you or I tried to write a couple of K of programmes it would probably be full of errors — 'bugs' in computer terminology. Peter's programmes were error free when we got them to the Murray.

So how did it all go? Well 1983 was our first try at doing this job and we had our troubles. One day we spent the entire night pulling apart every piece of computer gear and extracting the dust from its innards; hence the bus in 1984. The rest of the 1983 Masochism Special went increasingly smoothly, culminating in our team being able to set up the computer centre in any room anywhere in about seven minutes.

In 1984 things went even better, with a couple of minor exceptions. One of our generators went west which forced us to (HORROR!) half air conditioning. Someone had changed the gearbox in the bus a couple of weeks prior to the race and forgotten to tighten the bolts which hold the driveshaft to the gearbox. Naturally this broke down at an inopportune time. A combination of a couple of our people, one of the Land Patrol people from the Land Rover Club and

"Dead Bus Blues".

some help from the people of Yarrawonga put it right in two and a half hours. The rest of that day passed in a pleasant flurry of action culminating in a mess because someone on the finishing line gave us numbers which didn't make sense. This is where it is appropriate to mention a golden rule of computing — GIGO (Garbage In — Garbage Out). None the less everything was sorted out and final results for the day were duly printed.

At this point it was decided to change the starting times for all the canoes but eighteen. Having a computer centre allows the marathon officials to change the starting times so that the slowest canoes get onto the water earliest and consequently finish earlier than they otherwise might. This is useful as it lets all the safety people and other officials get back to camp for dinner before 10 pm. This took until almost two the next morning which happily provided us with an excuse to get up late.

Getting up late at the Marathon is not as easy as it sounds. At about 5 am a guy with a nasty sense of humour drives around the whole camp alternatively playing various renditions of 'Morning Has Broken' and cracking jokes about early mornings. We learned two lessons from this. 1 We have all developed an aversion to 'Morning Has Broken' and 2 Any joke is bad at 5 am.

Any article about the Red Cross Murray River Canoe Marathon is not complete without honouring the especially brave amongst the paddlers — remember them? They're the people we're all there to look after. In 1983 Wendy Asche — a young lass from Melbourne was last every day without fail. We all looked forward to her arrival partly because it meant that all the paddlers were in, but mostly because we admired her for doing what we couldn't have. Wendy was back in 1984 paddling a double with her cousin Allison. Thank you Wendy for the inspiration that you gave us.

The 1983 Marathon raised about $90,000 towards the good work of the Red Cross organisation. As this is being written the figures are not yet in for the 1984 Marathon, though we hope to have bettered last year

Wendy Asche at the Final Finishing Line.

The Fastest Boat.

The Red Cross Murray River Canoe Marathon is billed as 'The Great Adventurer' and I commend it to you as one of the most enjoyable and most valuable experiences you could have.

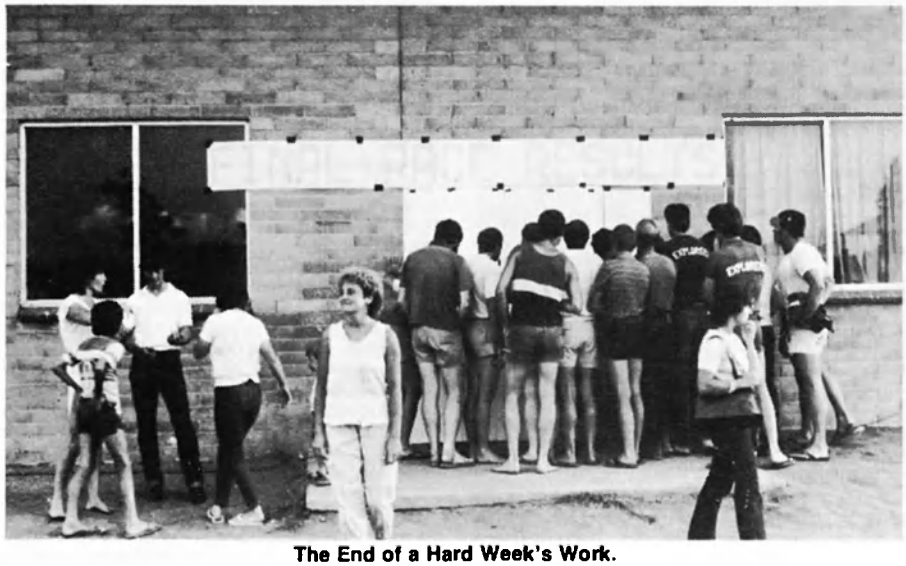
AR

USING MORSE

As from 1st April 1985 to 31st March 1986 United Kingdom amateurs holding a Class B licence will be able to conduct QSOs in Morse code.

It is hoped that this experiment will encourage more to pass the amateur Morse test and upgrade their licences.

AR



The End of a Hard Week's Work.

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BAND BEACONS

FREQ	CALLSIGN	LOCATION
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.045	OX3VHF	Greenland
50.050	GB3NHQ	England
50.075	VS6SIX	Hong Kong
50.109	JDIYAA	Japan
50.945	ZS1SIX	South Africa
51.020	ZL1UHF	Mt Climie
52.020	FK8??	Noumea
52.013	P29BPL	Loloata Island (1)
52.100	ZK2SIX	Niue
52.150	VK0CK	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mt Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.480	VK8VF	Darwin
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.159	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton

(1) Note new call sign and address of former P29SIX beacon.

NEWS FROM VICTORIA

It's not often I get a letter from Victoria, but one has arrived from Eric VK3BXA who lives at Thoona, about 35km north of Benalla. Eric came on 6 metres first in 1979 with an IC502 but found the lack of a suitable antenna quite a problem. Since 11/12/84 he has been able to use a 50 to 600 MHz log periodic antenna at 17m, and his first DX on that date was to hear the VK0CK beacon and then called VK0CK at 0639 but no reply! Although hearing many stations in QSO his first successful contact was VK4ZWH at 0112 on 15/12 followed by VK4ALM at 0134 and VK8ZLX at 0612.

Somewhat elated with the contacts he was having, Eric took his IC560 to work, made up a dipole antenna mounted 2m above the ground, and worked VK8ZLX at 0612. Subsequent contacts were: 16/12: VK8TM, VK4TKA and VK4LE between 0340 and 0400. 19/12: VK4ALM at 0016, then VK3APF followed by his first ZL, ZL1BHX, then ZL2AQR at 0529. 20/12: VK6ZPG; 21/12: VK2HT, VK3UG, VK5PZ (first VK5) at 0347, VK5KPM, VK8GB, VK4ZWH, VK4ALM, VK8VV, VK4AEW. 30/12: ZL2AQR at 0002, ZL2TJX, VK3ANP, ZL2CD, ZL2BGE, VK4PG/P and VK4ZKE.

Eric is nearing completion of the construction of a QQEO6/40 linear for 6 metres which should help. Amongst other things he also lists hearing quite a number of beacons, particularly from New Zealand, and this has allowed me to confirm that a number of those I have listed are in fact working and on frequency.

Eric also listed a number of call signs of 6 metre stations he has heard operating SSB in the CW segment which according to the WIA Band Plan is from 52.000 to 52.050, with the first 10 kHz being for EME only, and *accordingly* has asked *me to* list his objections to this useage.

My comment: Eric's objections as a CW operator are valid but he may have a long hard journey trying to enforce compliance. I have been operating on the VHF bands for 25 years and subject to being corrected, I believe il has only been of recent years that a band plan for VHF and UHF has been produced, and wherein it was natural enough to follow the trend of HF and have the lower part of the band for CW operation. However, as in a lot of other areas and fields of endeavour, useage tends to dictate acceptance, and the level of CW operation on 6 metres has been so fow and still is after many years, that you would have a major task achieving compliance.

Further, with the now world wide acceptance that 52.050 is the VK calling frequency, which took years to be acknowledged in other countries, it seems unlikely those interested in the band will push for it to be changed. The position is entirely different on HF where the CW segments are in constant use, often on a world wide basis, but it is difficult to justify 50 kHz on 52 MHz for the same reasons. It seems to me that the lower portion of 52 MHz, say below 52.020, is not greatly used by SSB stations and I wouldn't know when I last had a contact down there. If I make a contact by using the calling frequency of 52.050, and the contact is going to be more than a few moments, I invariably suggest shifting higher up the band rather than going lower, and I note many other stations do this too.

It is interesting to campare the present day with the days when AM operation reigned supreme. Stations then, during a big Es opening, would be spread from 50.000 to 50.600 (later 52.000 to 52.600) and you could often identify a station by his frequency. Mainly due to the lack of good VFO's and transceivers, split frequency operation was the order of the day. Today, with so much commercial equipment in use, the tendency to follow the HF pattern of both stations working on the same frequency is the norm hence less spectrum space generally is involved. Whilst this may be a pity in some ways when considering the need to use the bands, that's how it is at the moment, if you want a contact you call on the other operators frequency.

To round off the discussion, I think it would be unwise to try and change the present 52.050 calling frequency. Some measure of success might be gained by trying to keep say the first 20 or 25 kHz of the band for CW despite what the band plan indicates. Myself, I *am not* against CW at all, in fact, some of my most prized VHF and UHF contacts have been made using CW. I recall successfully working FO8DR once on 52.010 with signals too weak for any hope of SSB getting through. However, generally speaking, I think 6m is still not too cluttered for CW to be unsuccessful wherever used, and the least useage by SSB stations is certainly towards the zero end of the band. I expect to receive some flak because of the sentiments expressed, but that won't worry me providing views expressed are based upon a realistic approach to the situation and are constructive. A dogmatic approach purely based on a set of figures quite out of touch with reality will not receive very much support from the VHF fraternity. Thanks for an interesting letter Eric.

NEW VK — ZL CLAIM

Wally VK2DEW at Orange would like to lay claim to being the first operator to work both ways across the Tasman on 144 MHz tuneable. Before some of you start looking at dates this refers to someone who first of all worked across the Tasman FROM New Zealand, and has now worked across the Tasman FROM Australial

Wally worked Hughie VK5BC on 23/12/65 when Wally had the call sign of ZL2TCW (Tea Cup Wally!). On 29/12/84 at 0740 Wally, as VK2DEW worked ZL1BHX at Kaitaia on 144.100 SSB, which incidentally was the strongest signal Wally had ever heard on 2 metres, with the needle of the S metre refusing to leave the stop!

In 1965 the contact was on AM using 30 watts to an 832 and a 4 over 4 slot antenna and a 6CW4 Nuvistor pre-amp and a R and H convertor to a homebrew receiver. The 1984 contact was 30 watts from a homebrew amplifier solid state to an 11 element swan type yagi, masthead pre-amp and an IC202.

The opening lasted only 10 minutes into Orange and Tony called on "Fred" the Orange repeater and Wally worked him again 5 minutes after the initial contact. Congratulations Wally. Can anybody take up the challenge, if so, please let me know with relevant dates for verification.

VK3UM AND EME

Doug VK3UM continues to have much success with his 432 MHz EME setup. All of his contacts have been random QSO's. This indicates both the high degree of activity which exists on the band and the fact that his large EME antenna array must be working very well.

On 7/12/84 he worked JR4AEP at 1700; 8/12 JA4BLC at 1756 and again at 1810. On 15/12 at 2325 he was echo testing and was called by G3LQR; 30/12 HB9SV at 1350. On 2/1/85 JA3IAF at 0617 and JR9AOH at 0645; 4/1 ZL2AQE at 0922; 5/1: N4GJV 0910, JA4BLC 1015, OH2DG 1440, OK1KIR 1500, I5MSH at 1618 with 549 reports both ways, the I5 station was using a 35 foot dish, 1635 F1FHI 539 and then G3SEK. 6/1: K2UYH 0950; at 1600 conditions were rather poor and no echoes were heard. 11/1: at 2300 HB9SV and others were very good with reports up to 569. Between 2315 and 2337 they tried SSB (to HB9SV) and reports were 5x3 both ways. 16 yagis were in use at both ends of the contact!

Overall, not a bad effort for random contacts. Thanks Doug.

METEOR SHOWERS

A letter to hand from John Moen VK2KA, of 6 Gordon Street, Armidale, NSW 2350, raises the subject of possible VHF wave propagation by reflection from meteor showers, when, we are told, distances of 2000km or more can be covered. He is particularly interested in the Eta Acquarids which come within the limits of 1st and 8th of May, and are a type D stream, considered to be a major stream but owing to their latitude give very weak displays in north temperate latitudes, and the Orionids from 15 to 25 October and are considered to be an A stream and giving regular annual meteor showers of good strength. There is evidence that these two streams are associated with Halley's Comet, and reference can be found in Dennis Di Cicco's article in "Sky and Telescope" September 1983, page 212.

John is hoping to be able to arrange some skeds in advance of May 1985. Even negative results in the way of observation would be important, as comparison could then be made with the same period in 1986, which almost coincides with the closest approach of Halley's Comel to the earth at only 0.42 AU distance, on 24th April 1986. Angles of altitude and azimuth would have to be calculated for the observer of his particular longitude and latitude. The optimum times would occur on 5th and 6th May between 1.30 and 5.30 am local time. Aquarius rises due east at 1.30 am. As an example, early on Sunday morning at 1930 UTC

on 4/5/85, for communication between Adelaide and Sydney, the following beam headings would be required: Adelaide: 58° 9' AZ and 37° 6' EL. Sydney: 46° 0' AZ and 45° 58' EL.

John says he is in regular contact with Cyril Rice VK6MY, Co-ordinator of the WIA Comet Sub-committee, and Mostyn Lower VK5ALH is the representative in SA.

If you are interested in arranging skeds for attempts to make any VHF contacts via these meteor showers, then it is suggested in view of the rather short notice you contact John direct at the address given above.

THE ANNUAL TWO METRE OPENINGS

For quite a few years now January has provided conditions suitable for an excellent range of contacts right across the southern portion of Australia on two metres and 70cm. January 1985 was no exception.

Owing to the lack of a two metre beacon in Mt Gambier it was a little more difficult to judge the conditions, but the weather maps seemed to show something was about to happen. My first indication was a 5x7 contact with Chris VK5MC at Hatherleigh near Millicent in the south east at 0942, followed later at 1035 by Trevor VK5NC in Mt Gambier at 5x2, the conditions not having got quite as far as Mt Gambier at that time. Weak signals were also heard from VK5ADT, VK3ZHP and VK3ZBJ around 1240. About this time Colin VK5DK was 5x6 with his antenna on Melbourne which probably would have been 5x9 if turned my way. At this time, as far as I was concerned, there was no sign of any activity from Albany and the two metre beacon from there was not audible, although with my 30dB hill attenuator this never really surprises me!

Throughout the next day, 8/1, a few signals were noted here from the Melbourne area but they were weak. It looked to me as a prime example of coastal ducting because it was not reaching far enough inland for me to enjoy enhanced signals. Bob VK5ZRO at 1120 on 8.1 worked Wally VK6WG on 144 at 5x9 and 70cm 5x3. At 1207 he worked Aub VK6XY on both 144 and 70cm but there was no sign of either station here! Bob reported later to me that the band had been open on 2 metres all day on the 8th and 9th, and he had a number of contacts from time to time into Albany.

10/1: This seemed when condilions really peaked. At 1045 Bob VK5ZRO had a contact with Rob VK3BHS at 5x3/5 on 144.080, and Bob has a very difficult path to VK3. At 1052 Bob worked VK6WG and at odd times throughout the night whenever he felt like it, signals were so consistent. At 1114 even VK5LP managed to work VK6WG on 144.1 at 5x4! Rob VK3BHS was also 5x4 at 1118. At 1146 I worked Aub VK6XY on 144 at 5x7.

1296 MHZ FM

A number of contacts have been made between Albany and Adelaide on 1296 in the past, but on 10/1 at 1215 Wally VK6WG transmitted a signal to Bob VK5ZRO on 1296.1 on FM and was received at the Adelaide end 5x9 + 60dB! Bob's return signal was also S9 but Wally was unable to adequately resolve the FM, desperately trying to slope detect the signal on his transceiver! They tried on and off for some time as the signals were available for hours. How frustrating!

FIRST TIME INTO PERTH

The next morning still on 10/1 (UTC day) at 2247 VK5ZRO and VK5KBU were still working VK6WG when VK6KRC in Perth was heard calling by Brian VK5KBU. They quickly concluded a 144 MHz contact then went over to 70cm and at 2248 VK5KBU worked VK6KRC for the first ever 70cm contact into Perlh, the distance being about 2280 km. VK5ZRO worked VK6KZ at 2301 on 144 at 5x6 and then 70cm at 2305 5x7, and at 2310 VK6HK on 144 5x7 and 70cm at 2315 5x5. At 2318 VK5ZRO also worked Bernie VK6KJ in Albany on 70cm at 5x7, indicating the band was open to both Perth and Albany at the same time. At 2330 VK6KZ was worked again by Bob on 70cm at 5x6. Others to work into Perlh around those times included VK5ZTS, VK5ATV and VK5ZDR. Although alerted by telephone to what was happening by VK5ZRO there was no sign of any signals from the west on either band at the VK5LP OTH! Later VK5 worked to VK6ZFY at 2334 and 2345 at 5x5.

Congratulations to Brian VK5KBU for being the first to work from VK5 to Perth, generally acknowledged as being a fairly difficult path.

While all the excitement was going on in the west on 70cm VK5LP had to be content by working Roy VK3AOS at 2306 5x7 and Les VK3ZBJ at 2320 and David VK3AUU 5x3, the latter two being in Melbourne metropolitan area and 50 miles east of Melbourne respectively. But I don't mind, I take what comes!!

PORTABLE OPERATION

In view of all the happenings on 10/1 and with VK5ZRO working VK6FM 5x5 at 0003 on 11/1, it appeared the band might still be in good shape. Accordingly, VK5LP decided a spot of portable operation might be in order so the Kombi van was loaded up with 144 and 432 MHz gear and on the evening of 11/1 a trek was made out to my favourite No 1 hill to see what transpired. A 125 AH battery supplied 12 volts for all the equipment which allowed me to run either 10 or 80 watts on 144, and 10 or 50 watts on 432, each case depending on whether the solid state linears were used. An 8 element yagi on a 14 foot boom sent the signal out on 144 and an ATN type 16LB yagi was used on 432, mounted 15 and 20 feet high respectively.

A check with Steve VK5AIM at 0900 confirmed everything was in order, and Steve agreed to come out and keep me company for the evening. First distant contact was with Trevor VK5NC in Mt Gambier on 144 at 5x9 at 0915. At 0956 it was VK5EE also in Mt Gambier at 5x4. At 1010 worked VK5CI at Port Pirie 5x9, VK5AAC Ron 5x6, then Don VK5ZRG at Whyalla 1025 5x8 and VK5ZGV Graham 5x3 at 1030. All these contacts were on 432.1 which was a big thrill for me as I had never ever been able to hear VK5ZRG on 432 before from home.

At 1112 worked Roy VK3AOS 5x7 on 144, 1130 VK5ZO Des 5x7, and 1142 VK3BVS Bob 5x3 both on 432. At 1288 worked Colin VK5DK in Mt Gambier at 5x9 on 144 who then called up David VK7DC in Burnie whom he had worked on 144 and 432, and I was then fortunate enough to have 5x4 contacts both ways with David on 144 and 432. That was my first 432 contact ever into VK7 so if nothing else the effort had been worth while. 432 contacts with VK5DK 5x6 at 1306 and with Jim VK5ZMJ 5x9 at 1312 ended the nights operations. Steve VK5AIM was very happy to make some /P contacts using his own callsign, particularly to VK7DC.

The antennas were left up over night, and the van was brought out again next morning and at 2105 promptly worked Rob VK3BHS on 144 at 5x9 and at 2116 he was 5x9 on 432. A 432 contact with Roy VK3AOS at 2121 was 5x6, then followed 5x9 contacts on 144 with VK3BHS at 2125, VK5DJ Millicent, VK5ZRO. At 2221 a 432 contact with VK3BVS 5x3, finishing on 144 at 2222 with VK5BMW and VK5DK again all 5x9.

What all this means of course is that the favourable conditions made it worthwhile for me to go to the trouble of going portable (and it is quite a deal of trouble I assure you) but it also meant that people favourably situated like Colin VK5DK in Mt Gambier were *able* to stir up a degree of *interest* in VK7 by working several stations there with 5x9 signals, and of course many contacts into Melbourne. Such a shot in the arm helps to maintain interest in 144 and 432 MHz operations and I certainly was grateful for so many stations being on.

By the night of 12/1 the enhancement had disappeared for most of us so we had to be content working into VK4 on six metres!

OTHER SMALL ITEMS

John VK5KLJ phoned me to say he had worked VK6NE on 144 and 432, and that it was exactly 12 months since his last VK6 opening. He also worked VK6XY at 5x9 on 144 running 2½ watts, all on 10/1.

John also reported on the remarkable coincidence when he worked Frank VK6DM on 14/1 from 1354 to 1401. He said it was 12 months to the day and time that he last worked him, last year the time was 1400 to 1403. You couldn't get much closer than that if you were really trying!

Lance VK4ZAZ was 5x9 on 6 metres on 12/1 at 0101 and mentioned working a FK1 who was running 2 watts from an IC502. VK4LE had worked a ZL on two metres and also P29 on six metres. Mary VK4PZ had worked FK8EM and ZL. The FK8 had been at 1100 UTC on 10/1 which is fairly late for Es.

On 9/1 VK4FU worked into Brisbane on two metres and the same day Russian TV on 49.750 was observed in VK4. Same day George FK1SB was 5x9 into Sydney around 2300. And ZL2TPY worked VK1VP and a station in Dalby, Old on 2 metres.

BAND CONDITIONS

Brian VK2AKU at Narrabri, about 430km north of Sydney, has sent copies of his log for perusal and as he lives in an area with some prime DX potential I thought you might like to know the spread of his contacts on six metres starting from November when the band starts to open.

2/11: VK4 and VK8; 6/11: VK2, 3, 5, 7, 8; 7/11: VK2, 5; 9/11: VK2, 3, 5; 12/11: VK2; 13/11: VK3, 5, 7; 15/11: VK3, 5, 7; 16/11: VK4, ZL1, VK9ZA, JA2DDN; 17/11: VK2, 4, 6, 9ZA, FK1SB; 18/11: VK8; 19/11: VK3, 5; 21/11: ZL2, 3, 1, VK2, 3, 5, 7, 6; 22/11: VK5; 23/11: VK3, 5, 7; 25/11: FK8EM; 26/11: VK7; 27/11: VK6, 7, ZL2.

1/12: VK4, 7; 2/12: VK4; 4/12: FK8EB; 7/12: VK7, VK0CK; 8/12: VK2, 3, 7, VK0CK; 13/12: ZL2; 14/12: VK8; 15/12: VK3, 4, 5, 6, 7; 16/12: VK3, 4, 5; 18/12: P29BH; 19/12: VK7, 8; 21/12: VK5, ZL2, 3; 22/12: VK5, 7; 23/12: ZL2; 24/12: VK6, 8; 25/12: VK4, ZL1, 2; 26/12: VK4.

Brian also operates on 2 metres and says he works Gordon VK2ZAB in Sydney every night at 1030 UTC. Others include VK2KFE, VK2BQW, VK2DFY and VK3XEX.

HF AWARDS AND STANDINGS

After the publication of the Two Metre Standings List awhile back I received a few comments directed towards what could be some reasons for what seemed an apparent lack of interest in submissions for inclusion in the two metre list.

The question was asked of me whether it was allowable for an operator (in this specific case Steve VK4ZSH) to travel around Queensland picking what seemed the most favourable and/or closest spots to other areas and then being able to claim having worked all States. *Were there not limitations on how far an operator could move from his home QTH and still claim to be in the same area?* In Steve's case he had made a contact to VK6 from the western border area of Queensland, also to VK8.

In the back of my mind I seemed to recall years ago that one could only operate within an area of 150 miles of home but not being sure, I wrote to the WIA Awards Manager requesting his views on the matter. A subsequent phone call from him brought the advice that there appeared to be nothing laid down to prevent the contacts Steve had made, but generally fair practice would tend to indicate one would expect an operator to make his contacts within a fair and reasonable distance from the same point. One might then suggest that 250km (about 150 miles) would allow operators some flexibility and overcome the problems of those people having poor locations and still be seen by others to be a reasonable distance from the home QTH. Just how they view this situation will be up to Steve and any others concerned, but I do suggest future claimants ought to consider making all their contacts within those limits, or if having moved permanently to another location a dispensation sought for the new location.

GOOD CONTACTS FROM SYDNEY

Ross VK2ZRU has written to say that on checking the bands on 17/1 he found two metres open to ZL during the afternoon and building up to a peak around 1100. He contacted Brian ZL1AVZ on 70cm at 1040, others who worked Brian included VK2BDN, VK2DFM, VK2YYO and VK2BXT.

At this time signals were over S9 so they went to 1296.1 MHz and contact was made around 1050 between ZL1AVZ and VK2ZRU and VK2BDN with signals to 5x8/9 both ways. ZL1AVZ was running 0.5 watts to a 3m dish and VK2ZRU 1.5 watts to 4 x 25 element loop yagis. MMW transverters at both ends.

The first such contact was made across the Tasman in February 1983 by Dick VK2BDN and Brian ZL1AVZ. The path is most likely open on 1.2 GHz when such conditions exist on 144 and 70 cm. There are at least six stations active on 1.2 GHz in Sydney. Congratulations to all the operators, a good effort indeed.

END OF THE CARNARVON BEACONS

Andy VK6OX has advised that the Carnarvon beacons operated for the last time on Christmas Day 1984, and the reasons for their closure are included in the following statement.

"After several years of almost faultless operation, the decision to cease operation of the Carnarvon beacons came as a result of several factors which I shall briefly describe.

"I have personally maintained the beacon equipment for some years, since the Carnarvon Amateur Radio Club exists now, only on paper. In early 1986, the operation of the OTC Satellite Earth Station, where I am employed, will cease for all practical purposes, and employees will be transferred to other stations.

"As the number of active amateurs in Carnarvon is extremely low, it would be very difficult to engage the services of a beacon custodian.

"In November 1984, the Carnarvon Shire Council advised that as Council-provided accommodation was at a premium, they had no alternative but to utilise the room in which the beacons were located, for another local organisation. The Council had allowed the operation of the beacons on their premises 'gratis', so I agreed to the equipment's removal.

"On Boxing Day, the beacons were de-powered, in preparation for removal. Not wishing to see the beacons 'die an un-natural death', I made enquiries to determine whether any other amateur clubs in the north-west would be interested in operating beacons. John VK6AFA, of the North West Radio Society, indicated their interest, and arrangements were made for members passing through Carnarvon to pick up the equipment. On 14th January, Graham VK6KAE, en route from Perth back to the Pilbara, dropped in, and the equipment was soon after uplifted for delivery to the NWRS.

"I realise many people in the south (and elsewhere) will regret the passing of VK6RTT from Carnarvon, as its monitoring resulted in many contacts on 2m, 6m and 70cm. However, there is not much to be gained when so many people, reporting VK6RTT signals from far afield, are unaware of the fact that no-one is available at the other end of the circuit, to provide two-way communications. With this in mind, the relocation of VK6RTT will open up new possibilities for propagation experimentation, with at least a few amateurs at both ends of the path!

"Finally, I would like to take this opportunity to thank all those who reported the reception of VK6RTT beacon signals over the years, and also to those amateurs with which I personally made contact, as a result of the beacon monitoring. The path between the Pilbara and down south will be a lot more difficult to work, but that's part of the fun of VHF!"

Thankyou for the information Andy, and as representing those people who have been on the receiving end of the VK6RTT signals, may I thank you for your efforts in the past to provide a medium which obviously has assisted so many to make contacts on the VHF bands. We wish you well wherever you may finish up, and hope to hear you on the VHF bands from time to time.

Incidentally, Andy reported six metres was relatively quiet during 1984, with December providing the only Es contacts to VK2, 3, 5, 6, 7 plus one ZL.

CLOSURE

Just before closing may I suggest you be vigilant at least on six metres during March and April as there may still be a few long distance contacts available, particularly out across the Pacific.

Closing with the thought for the month: "You can get friction for nothing — harmony costs courage and self control."

73. The Voice in the Hills

AR

WICEN NEWS

WICEN VK3 ATTENDS "DISPLAN" DISASTER MANAGEMENT SEMINAR AT CROYDON

The format of the seminar was to pose four disaster scenarios over the two days and to split into syndicate groups to discuss how each part of the scenario would be handled by all combating authorities.

The disasters ranged from a rail car carrying LP gas exploding to bush fires and car accidents and chemical spills with toxic gas release.

Groups attending include: *Victorian Police, CFA, SES, Forestry Commission, Red Cross, Public Works, Road Construction Authority, Metropolitan Fire Brigade, MMBW, St John Ambulance, SECV, Community Welfare Services, and a number of shire and council officials.*

Police Superintendent, Don Boisen convened the sessions and the overall conduct of the seminar was by Inspector Bruce Bingham.

Some films were used to graphically illustrate disaster situations. The most horrific one was probably the scene of devastation caused by a "BLEVE" which is the term for a LP gas cylinder which has 'gone-up'. We were told that one of these large rail car tanks are highly dangerous at over 304.8 metres! So the name of the game is to evacuate the area. With chemical spills the same procedure is also the best action.

One scenario included total loss of roads, bridges, power and phones. This one caused considerable discussion as can be imagined! WICEN was asked to put its views on a number of occasions and it was obvious that most of those attending were knowledgeable of WICEN and had a high regard for the role that radio amateurs could play under such circumstances.

At the end of the two days, I was asked to brief the meeting on WICEN's role and so I concentrated on these points:

1 we are a large force of volunteer operators
2 we can provide emergency radio links fairly quickly and easily
3 we have access to our own network of VHF and UHF repeaters
4 we can provide UHF and VHF mobile/portable stations
5 we also can establish HF radio links for short and longer range communications
6 we have operators trained in message-handling and efficient procedures.

DO WE LIVE UP TO ALL OF THESE ATTRIBUTES?

Not always, but we aim for them and more, don't we?

What are we doing about it in VK3? Well, we are embarking on a series of training programmes in the regions.

One was conducted at Pakenham in May 1984. There were sessions on: message-handling procedures, how to set up a station easily in the field, and practical message-handling exercises using 2 metre hand-held sets.

The programme was highly successful and all those attending learned a lot from the experience.

VIDEOTAPE:

An attempt was made to produce a videotape on the spot but due to microphone problems it was not considered successful.

A decision was then made to assess the feasibility of producing at least four training tapes as it was felt that all regions could use them when conducting training sessions.

The proposed format was to design each tape for a playing time of about 10 minutes and to have a response sheet afterwards to recap the key points and to promote discussions. This project has now become a "financial planning" issue to be addressed in 1985.

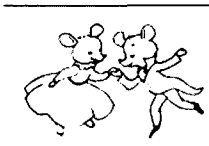
SOME THOUGHTS WHICH STEM FROM THE MAY EXERCISE, THE OCTOBER DISPLAN SEMINAR AND OTHER DISCUSSIONS:

Should WICEN have more portable repeaters for quick deployment when needed?
WICEN should have a central control location from which stations and operators can be co-ordinated. (Phones and other links can then be established with least chaos under pressure)
Operators need training in efficient message handling
WICEN needs to define its most important user groups and establish close links with them on a personal basis
WICEN stations need to be set up at such places as: St John's HO, Red Cross HO
We need battery back-up at repeaters as 240 V power can often fail in disasters
Key WICEN personnel need a clear chain of command and relief staff to cope with prolonged disasters such as Ash Wednesday.
Should WICEN have scanner receivers to allow it to monitor other services traffic.
WICEN can encourage general community awareness of what to do in case of emergency — one good way is to get involved with groups who need communications such as the Alpine rally, bike rides, car rallies, walkathons etc. These all provide us with training experiences in establishing portable stations and operating them. As well, we get message processing practice and in the process build-up good public relations!
WICEN should have a plasticised card (or cards) to give each operator for quick reference on such things as: frequencies, prowords, phonetics etc
Should we identify with abbreviated callsigns? eg "WICEN Warburton calling WICEN SES." This would reduce the length of callsigns and identifies you by ACTUAL location. Then there is NO error in your location! There is a precedent in this procedure; I am told that the Fire Brigade is permitted this type of procedure.

In conclusion I guess we could use the scouts motto — BE PREPARED.

Contributed by Graeme Scott VK3ZR
WICEN (Victoria) Region 13 Co-ordinator

AR



QSP

THE ROYAL WE

I know you have to be rich to afford radio amateur equipment these days, but how is it so many amateurs are rich enough to have a staff to run their station? Clearly they have a staff of technicians as they refer to themselves in the plural "we". "We have a tribander Yagi, and our rig is a Fox Tango 107. We should be happy to QSL via the bureau."

The other possibility is that they are royals and thus have a legitimate right to the use of the plural. But how can I tell whether to say "73 to all of you" or "73 your Majesty"?

Contributed by Sidney Bockner, VK5VN/G2DHI

AR

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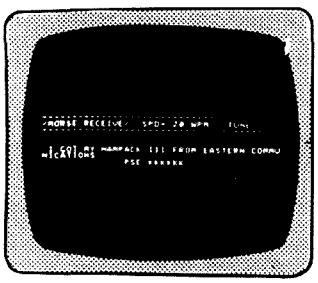

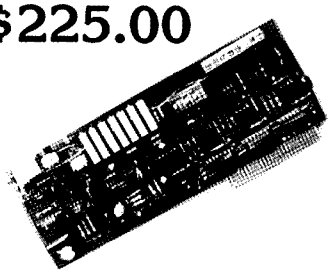

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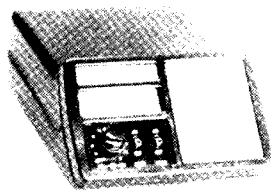

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ARBS

LISTENING AROUND

Joe Baker, VK2BJX
Box 2121, Mildura, Vic 3500

It's late afternoon Sunday 11 November, 1984 (Remembrance Day) and earlier, by invitation, I was at the annual break-up of the Buronga Sunday School, where my special job was to run one of my silent films called "The Three Musketeers." It's a job that I take special delight in doing every year as the Buronga Sunday School kindergarten kids, are a wonderful lot. Their teacher is Mrs Cox. They had been awaiting my arrival, and as soon as I got there, I was ushered into a classroom and had my Bolex Palliard 18-5 connected up and operative in a fairly short time. And while I was preparing the machine, Mrs Cox and her assistants tuned the kids up by getting them to sing "We Wish You a Merry Christmas" and other seasonal songs.

The Eleventh Hour of the Eleventh Month came and went without any significance for the kids, and I must confess that I forgot about it also, yet later when I did remember, my mind went back to other places and other years where I have been when Remembrance Day came around.

In other years, when doing this show for the kids I've usually brought along a comedy, for no matter how corny these old silents are, they always get some really good laughs from the kids. One of the most popular has been one, originally made somewhere about 1928 by Stan Laurel and Oliver Hardy called the "Christmas Tree." In this low budget slapstick film, Laurel and Hardy decide to make some Christmas cash by becoming door-to-door salesmen selling Christmas trees from their old jalopy. One customer proves to be a bald man who refuses to buy their trees, so they squirt him with a hose (the kids love seeing that bald-headed man getting a "right dousing"), thereupon he chases them out on the road and proceeds to dismember their jalopy while a sleepy headed local policeman looks on.

Not to be outdone, Laurel and Hardy then proceed to chop his house down with the local constabulary watching with puzzled amazement. It was only a 15 minute film, and its final scene shows a local bobby chasing everyone into a distant horizon. *Why don't they make films like that now?* We could do with a few Mack Sennett comedies, particularly when what we see on the 7 o'clock news is all bad.

Now I've side-tracked myself — let's get back to the original theme — Remembrance Day.

Remembrance Day and Sundays at Pine Creek in the Northern Territory during World War Two was not much different to any other day.

We were surrounded at all times with everything that seemed to be painted khaki in color, with rarely a civilian in sight, except for the periodic visit of an area chaplain such as the Catholic priest who occasionally said Mass at Pine Creek. His parish extended from Darwin almost as far south as Katherine. I can remember attending Mass at Pine Creek in the small tent that had been provided for the chaplain. His alter was his bed on which he had placed a suitcase, with the chalice and Bible on top. His audience consisted of two soldiers — myself and another, and a bicycle bell was used at the Consecration. When the padre was not able to be present, a Corporal held a Bible reading class and all of us — irrespective of religion took part in that.

The monotony of life in the Territory during wartime is something that would be difficult for anyone to appreciate, so when it came time for a soldier to go on leave, it was looked forward to months in advance. In wartime, it was said that the only way you could get out of the army was to die, for there was no other way out. So the next best thing was not to turn your nose up at a spot of leave.

There was this night when I was on duty at the switchboard, when a troop train carrying some hundreds trundled through Pine Creek station on its way south. Heavy rain was falling, and I didn't take much notice of the train with all those lucky fellows on their way to freedom. The train, trundled through and after it was gone — I went back to sleep in front of the switchboard, dreaming that perhaps one day I might be on that train also.

Several hours passed and about midnight I was awakened again by the sound of a train grinding to a halt. Soon an officer presented himself at the signal office, saying that he was the officer in charge of that train. It was the same train that had passed through some hours earlier. It appears that the train had gone on past Pine, to the Ferguson River. On reaching there it was discovered that the river was in flood and the railway bridge impassible. As the line, was a single-track, the train had shunted all the way back to Pine Creek. The officer said that he wanted his troops billeted at Pine Creek, and instructed me to telephone all nearby units to see what could be arranged. The troops were still asleep in the train as it back-tracked to Pine Creek, yet the officer awakened them all requiring them to awake from their peaceful sleep and disembark in the drenching rain so that they could be quartered elsewhere.

The local Area Officer was anything but pleased at this situation, which required the troops from the train to be marched in the dead of night to wherever accommodation could be found for them. Many of them dossed down on whatever floor space was available at the Signal Office as we had no extra beds. Within a few days food supplies in the units that had extended hospitality to the visitors began to run out and there was much discontent in the area.

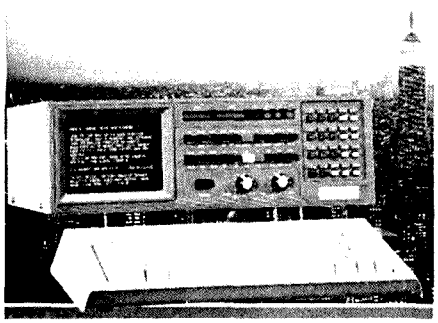
The empty train remained at the Pine Creek station for almost a week, while our linesmen, using railway trollies, did periodic forays down towards the Ferguson river to see how the flood position was. Eventually one day, a linesman climbed a pole and cut in on a circuit to Pine Creek, to ask me to tell the officer in charge that the bridge over the Ferguson was now safe for the train to cross.

Did I tell you about the way I used to do a daily check of the phone lines outgoing from Pine Creek? Well it was a routine every morning that the switchboard operator on duty check all 30 lines at 9 am Adelaide River Time. I say Adelaide River Time because we used to have to obtain a daily time check from 17 lines of Communication HO at the River, and very often the time as given by them, did not coincide with the time signals from Radio Australia. It was obligatory when doing the daily check, for me to give the Adelaide River time check to the units on the other end of the line, yet I was conscious that Adelaide River Time (official military time) was not always right. So I used to solve the problem by saying something like this *"The time by Radio Australia is XYZ by Adelaide River time is ZYX"* and let them take their pick.

That's all for this time. I've got one or two more stories about my adventures in the Northern Territory, and later there will be much about what happened when I was on Morotai Island in what was then the Netherlands East Indies (now Indonesia). Thanks for all your encouraging remarks, and for those I haven't yet spoken to — I'm usually on every night round about midnight on or near the Cocktail Net on 3.584 MHz.

73 from Joe.
AR

AR SHOWCASE



TONO PRODUCTS

The name TONO is well known to radio amateurs all over the world.

Their latest products, the O -5000E and the 9100, are new additions which would be an asset to any amateur station.

To mention a few of the 5000E features:

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The last two items are particularly suitable for Morse code classes and individual learners.

The 9100E keyboard and terminal unit with AMTOR offers the most up-to-date computer technology allowing complete automatic send/receive of Morse code, RTTY (Baudot and ASCII) and AMTOR (ARQ and FEC).

The unit can be used as a CRT terminal with RS232C serial interface and can handle up to 9600 Bauds in send/receive.

Using a light pen, graphic patterns can be drawn on the screen and easily sent.

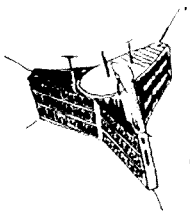
Emtronics, at 94 Wenlworth Avenue, Sydney have these units in stock and will only be too pleased to supply you with further details. Emtronics phone number (02) 211 0988.

3WZ
AR

NEW NAME

As of 1st January 1985 the Headquarters of the RSGB will be known as Lambda House. Prior to this it was Alma House.

AR



AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.680 MHz Summer: 7.064 MHz

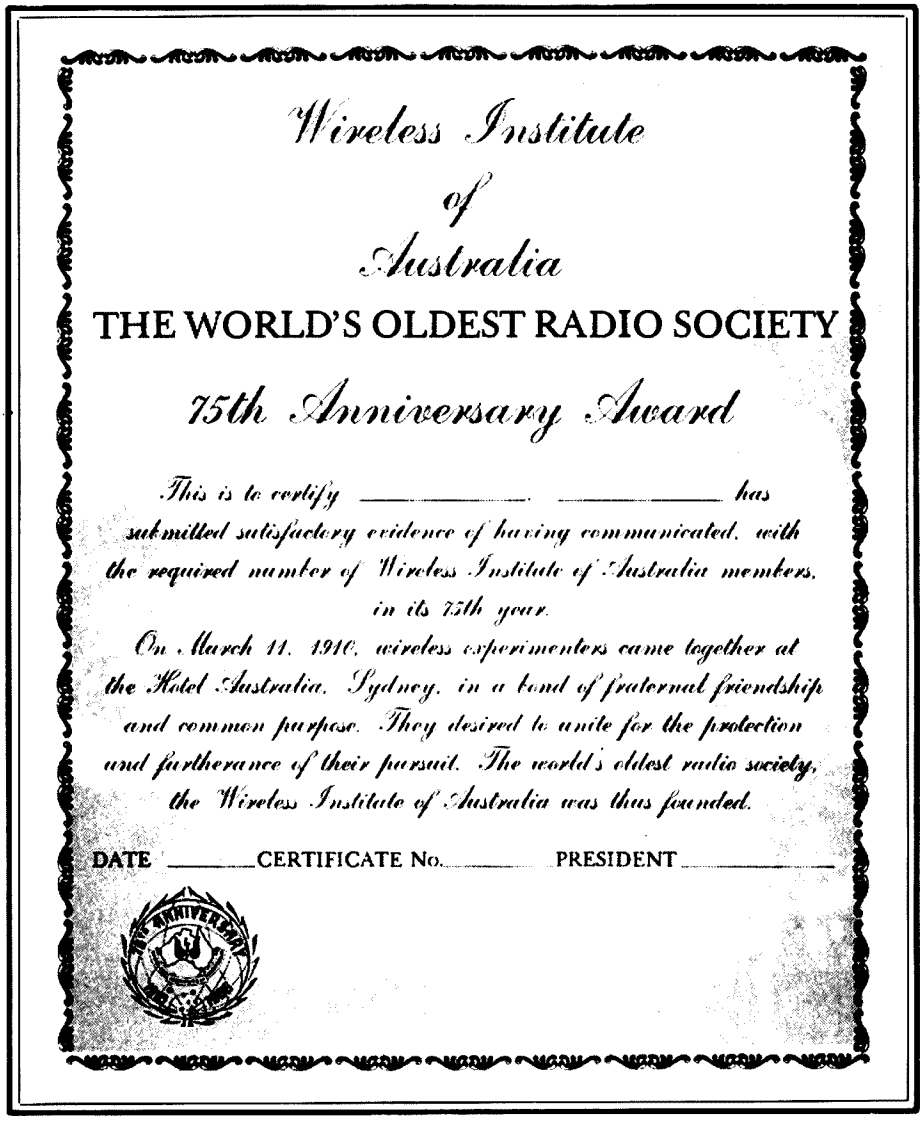
AMSAT PACIFIC	**AMSAT SW PACIFIC**
Control: JA1ANG	*Control: W6CG*
1100 UTC Sunday	*2200 UTC Saturday*
14.305 MHz	*21.280/28.878 MHz*

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

OSCAR-10 APOGEES **MARCH 1984**

DATE	DAY #	ORBIT #	SATELLITE APOGEE UTC HHMM:SS	SATELLITE CO-ORDINATES LAT OEG	SATELLITE CO-ORDINATES LONG OEG	BEAM HEADINGS SYDNEY AZ OEG	SYDNEY EL OEG	ADELAIDE AZ OEG	ADELAIDE EL OEG	PERTH AZ OEG	PERTH EL OEG
MARCH 1	60	1291	2155:41	3	165	57	26	67	16	81	-2
2	61	1293	2114:45	3	155	65	19	73	9		
3	62	1295	2033:49	3	146	71	12	79	1		
4	63	1296	0813:21	3	321					280	0
	63	1297	1952:53	3	137	77	4				
5	64	1298	0732:24	3	312					285	8
6	65	1300	0651:29	3	303					291	16
7	66	1302	0610:33	3	293			283	4	297	24
8	67	1304	0529:37	3	284	281	2	289	12	305	31
9	68	1306	0448:41	3	275	286	10	295	20	314	38
10	69	1308	0407:45	3	265	292	17	303	27	326	44
11	70	1310	0326:49	2	256	300	25	312	34	340	48
12	71	1312	0245:53	2	246	308	32	322	39	356	50
13	72	1314	0204:57	2	237	318	38	335	44	12	50
14	73	1316	0124:01	2	228	330	44	349	47	28	47
15	74	1318	0043:05	2	218	344	47	5	47	41	42
16	75	1320	0002:09	2	209	359	48	20	46	51	35
	75	1322	2322:39	2	200	15	48	34	42	60	29
17	76	1324	2241:43	2	191	30	44	45	37	67	21
18	77	1326	2200:48	1	181	42	39	55	30	74	13
19	78	1328	2119:52	1	172	52	33	63	23	79	5
20	79	1330	2038:56	1	163	61	26	70	16	85	-2
21	80	1332	1958:00	1	153	68	19	76	8		
22	81	1334	1917:03	1	144	75	11	82	1		
23	82	1335	0656:36	1	319					279	3
	82	1336	1836:08	1	134	80	4				
24	83	1337	0615:40	1	310					284	11
25	84	1339	0534:44	1	300			277	-0	290	19
26	85	1341	0453:48	1	291	275	-3	282	8	297	27
27	86	1343	0412:52	0	282	280	5	288	15	305	35
28	87	1345	0331:56	0	272	286	13	295	23	315	42
29	88	1347	0251:00	0	263	292	21	303	30	327	47
30	89	1349	0210:04	0	254	299	28	312	37	342	51
31	90	1351	0129:08	0	244	308	35	323	43	360	53
APRIL 1	91	1353	0048:12	-0	235	319	42	337	47	17	52
2	92	1355	0007:16	-0	226	331	47	353	50	32	48
	92	1357	2326:20	-0	216	347	50	9	50	45	42
3	93	1359	2245:24	-0	207	3	51	25	47	56	36
4	94	1361	2204:28	-1	198	20	49	38	43	64	28
5	95	1363	2123:32	-1	188	34	45	49	37	71	21
6	96	1365	2042:37	-1	179	47	40	59	30	77	13
7	97	1367	2001:40	-1	170	56	33	67	23	82	5
8	98	1369	1920:44	-1	160	65	26	73	15		
9	99	1371	1839:48	-1	151	72	18	80	8		
10	100	1372	0619:20	-1	326					273	-1
	100	1373	1758:52	-1	142	78	11	85	0		
11	101	1374	0538:25	-1	317					278	7
	101	1375	1717:57	-1	132	84	3				
12	102	1376	0457:29	-1	307					284	15
13	103	1378	0416:33	-1	298			276	3	290	23
14	104	1380	0337:03	-2	289	274	0	282	11	296	31

AWARDS



ANNOUNCING THE WIA 75 AWARD

A special award certificate has been struck to mark the 75th anniversary of Australia's and the world's oldest national radio society.

Called the WIA 75 Award it will be sought after by both award chasers and those who have not gone in for awards previously.

The handsome award certificate features a sepia background depicting a radio amateur during the pioneer days of our hobby — taken from an actual historic photograph of the late Max Howden VK3BQ in the early 1920s.

The certificate citation encapsulates the scene, desires and aims of those wireless experimenters who met at the Australia Hotel, Sydney, on 10 March 1905.

Nearly two years planning has gone into the award including input from award chasers and DXers aimed at making it a success.

The rules (detailed below) were basically the idea of Gray Taylor VK3JQ/VK4OH — and his daughter Grayleen Taylor used the award artwork as her school art studies assignment.

The WIA Victorian Division took on the task of developing and conducting the award — printing of the certificate has been paid for federally.

At the 1984 WIA Federal Convention a motion proposed by the Victoria Division which spelt out the award's concept was passed unanimously.

RULES:

To qualify, radio amateurs (and shortwave listeners) need to contact (log) 75 WIA members during the period 1 March-31 December 1985.

A contact will only be valid if the WIA membership number is logged. The membership number can either be the one on your WIA membership certificate, or the special number appearing for the first time this month on Amateur Radio magazine address labels.

MR W.M. RICE
54 MAIDSTONE STREET
ALTONA VIC 3018
F 3 00 1 00 VK3ABP
142123

All WIA stations, VK1WI, VK2AWI, VK3BWI, VK4WIA, etc, will use 75 as the membership number.

No more than 30 WIA members may be logged in any one callsign area by radio amateurs permitted to use HF bands and shortwave listeners — this restriction does not apply to Limited Licensees.

Contacts can be made through repeaters, and this is encouraged to enable maximum participation in the award.

CLAIMS:

A log extract of the required contacts and $2 should be sent to:
WIA 75 Award,
Wireless Institute of Australia,
412 Brunswick Street,
Fitzroy, Vic 3065, Australia

PARTICIPATION:

Duration of the award is 10 months which should be more than adequate for anyone to qualify.

Every member no matter where they live can actively support the WIA in its anniversary year by being ready to give their membership number over the air.

Exchange your number during routine contacts or put out a special call "CQ CQ CQ WIA 75" to indicate you're looking for WIA membership numbers.

Some WIA members intend to chase numbers on nets and during/after divisional broadcast callbacks.

This is an international award available to all radio amateurs and SWLs — mention the WIA 75 Award and its rules during your DX contacts.

Contributed by Jim Linton VK3PC

AR

THE QUEENSLAND GOLDEN ATV AWARD

This award is introduced to commemorate 50 years of experimental television in Queensland and is for 70 cm contacts made using fast scan, high definition television systems only.

Successful applicants will receive a certificate awarded by the South East Queensland Amateur Television Group for the accrual of 50 points according to rules.

Award Year: This award shall be available for contacts made between 1 January 1985 and 31 December 1985. No contact points will be considered outside of these dates.

Contacts: A station may be worked once only per day for the purpose of this award. However the same station may be worked many times. Contacts through repeaters or on other than 70 cm do not count. To encourage portable activity, one contact among those claimed **must** exceed 50 km.

Sections: This award is available to both transmitting and receiving enthusiasts in any part of the world as follows:

(a) Transmitting: For 70 cm pictures transmitted which have been successfully identified by another station; claim five points. When the transmission path exceeds 50 km, count ten points instead.

(b) Receiving: For successfully identifying and reporting 70 cm pictures transmitted by another station; claim points as for transmitting.

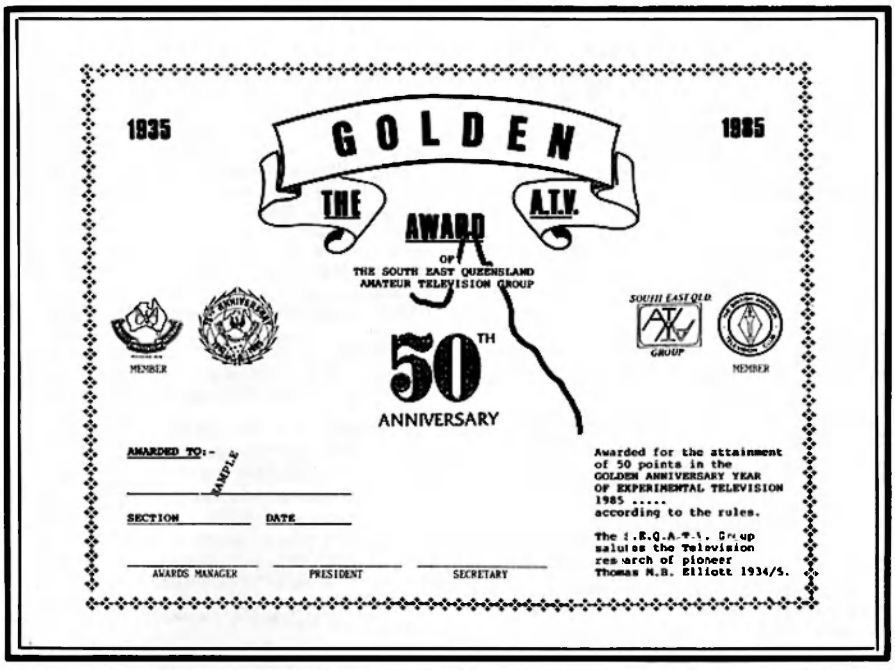
Applications: Applications for this award should include log details consisting of claimant's call sign, call sign and location of station worked (including distance), date and time, points claimed and IRC's or $1.00 to assist with tube postage.

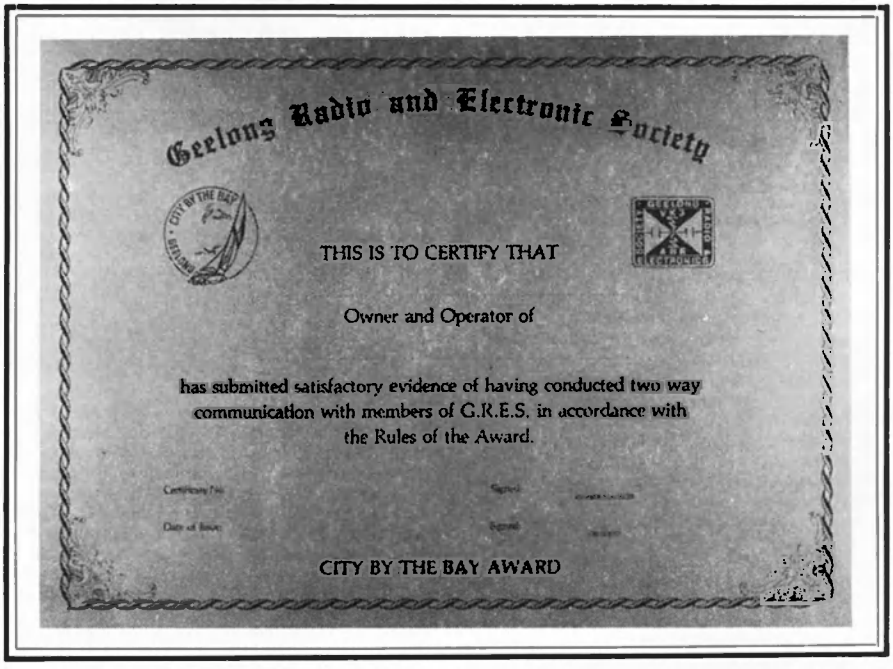
A claim form is available from the SEQATV Group but is not essential provided details as requested above are provided.

QSL cards are not required, but the application should be checked and signed by another amateur.

Applications should be made to: *The Awards Manager, South East Queensland Amateur Television Group, Post Office Box 3, Chermside, Qld. 4032, Australia.*

AR





GEELONG "CITY BY THE BAY AWARD"

The Geelong Radio and Electronic Society is starting an award and hope this effort will be a real success both for the Geelong Club and for amateur radio.

The name will be "CITY BY THE BAY AWARD" and will be on a bronze background, the idea behind this is, that there may be a silver award and a gold award sometime in the future. CITY BY THE BAY is the slogan for the City of Geelong, with a logo and the necessary permission in writing from the Geelong Regional Commission to use the heading and the logo has been received.

The Geelong Radio and Electronic Society has been going for 21 years, as a teaching club for candidates for the DOC exams. There are also special interest groups to cover RTTY and computers.

RULES:

Points will be awarded as follows

Contact with club station VK3ANR	*5 points*
Contact with club members (mobile)	*2 points*
Contact with club members (fixed station)	*1 point*

Number of points needed to gain the award

Club members require	*20 points*
Non club members require	*15 points*
Oversees station require	*10 points*
SWL Stations require	*8 points*

The award will be worked on all amateur frequencies and include, CW, RTTY, ATV and SSTV. A combination of different modes will be accepted. Each award station can only be logged once.

Amateur stations seeking this award, should submit a copy of their log entry to have their contacts confirmed.

SWL stations who wish to gain points towards this award must maintain a record in log form of contacts that they have monitored between the amateur station seeking the award and the club member or club station.

Points will only be awarded to SWL stations which monitor amateur stations actually seeking this award and not ordinary communications between club members.

The cost of the award will be $3.00.

All awards are numbered and the award will finish with the issue of number 500.

Contributed by Roy Whiteside
Awards Manager
Geelong RES
AR

RON WILKINSON ACHIEVEMENT AWARD

There were two nominations this year from the VK2 and VK3 Divisions.

The Executive decided that the award should be given to **LYLE PATISON VK2ALV.**

For well over a decade Lyle has been the driving force behind the Illawarra Amateur Radio Society's Moonbounce Group.

Lyle's achievements in the Moonbounce area of our hobby, represents and exemplifies the spirit of technical investigation associated with the late Ron Wilkinson.

The Executive, in making this award, are recognising the high standards set by Lyle. **AR**

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

MARCH

2-3 ARRL DX Phone Contest
9-10 Commonwealth Contest (rules February)
9-10 QCWA Phone QSO Party
10 WIA 75th Anniversary CW Contest (rules February)
16-17 YL-ISSB CW QSO Party
16-17 Bermuda Contest
23-25 BARTG Spring RTTY Contest
30-31 CQ WW WPX SSB Contest

APRIL

No firm dates or rules for contests to hand for this month. It's anticipated that the Polish CW Contest will be held on the weekend of 6th April and the Phone Section later in the month.

I note from last years calendar that the DX YL North America phone and CW contests were also held in April.

MAY

28-29 CLARA AC/DC Mystery Contest (rules February)

It's also anticipated that the CQ WW WPX CW contest will be held probably on the weekend of 25th May.

RULES FOR ARRL DX CONTEST

Unfortunately I do not have to hand a copy of the rules produced by the ARRL for this contest, however I would like to quote to you from the column produced for CQ magazine by Frank Anzalone WIWY. Incidentally, Frank is most helpful each month as he regularly sends a copy of information contained in his column and I hereby acknowledge his assistance in this regard.

The CW Section of the contest will have been run before you read this and the Phone Section is as listed in the above calendar. Frank writes, *"Rules are the same as last year. However, I strongly recommend that you study the announcement in the December issue of QST for more details.*

"All bands may be used 1.8 thru 28 MHz, but not 10 MHz. Aeronautical or maritime mobile stations cannot be worked for contest credit. Following is a brief outline.

***"Categories:** Single operator, both single and all band. Multi-operator, one transmitter and two transmitters. Also multi-operetor, multi-transmitter. QRP all band only. Multi one and two transmitter stations must remain on a band at least 10 minutes once a contact is made. Multi-transmitter stations no limit, but only one signal per band.*

***"Exchange:** RS(T) and state or province for W/VE. RS(T) and power input for DX stations. (Three digit number).*

***"Multiplier:** Each DXCC country worked on each band for W/VEs. DX stations use US States (48) and VE districts VE1-8, plus VO for their multiplier. (9). (Maximum multiplier of 57 per band.)*

***"QSO Points:** W/VE stations earn three points for each DX contact. DX get three points for each W/VE contact.*

***"Final Score:** Total QSO points times the sum of the multiplier from each band. Entries with 500 or more QSOs must include QSO Check Sheet.*

***"Awards:** Certificates given in each category, in each country, and in each ARRL section, plus a wide selection of plaques. Also certificates to DX stations making over 500 QSOs.*

"Disqualification regulations will be strictly enforced and are listed in the official rules. Logs are to be mailed to ARRL DX Contest, 225 Main Street, Newington, CT. 06111."

YL ISSBers QSO PARTY

In this case the phone section will have been held last month, so for those interested in the CW Section here are the details also from Frank's WIWY column.

"CW on 16-17 March. 0001UTC Saturday to 2359UTC Sunday. Rules are quite lengthy. Therefore I suggest you send and SASE to K0RDJ for a detailed copy. The party is open to all, but the emphasis is on membership participation.

"The same station may be contacted on each band for QSO points, but it counts only once as a multiplier. You are required to take two rest periods of 6 hours each during the 48 hour contest period.

***"Exchange:** Name RS(T), SSBers Number, US State, VE Province, country and DX/WK partner, (non members send no number).*

***"Categories:** Single operator, DX/WK partners and OM/YL teams.*

***"Points:** Three points for each member contacted on own continent, six points if on a different continent. Non-member QSOs count only one point.*

***"Multiplier:** Only member stations count as a multiplier. One for each of the following both DX/WK partners worked, each US State, VE Province and DX country worked. Two when DX/WK partners work each other and two if your DC power input is 250 watts or less.*

***"Frequencies:** Use the general class portions of the US bands for both phone and CW. On 20 metres avoid the net frequencies on 14.313, 14.332 and 14.336 MHz. Check 40 and 80 metres on the hour. VHF and UHF may also be used, but simplex only.*

***"Awards:** Special certificates to the overall winners in each category. Regular certificates to the winners in each US State, VE Province and DX country.*

"Logs should be set up as outlined in the 'Exchange' section above. They go to Rick and Minnie Connolly K0RD and NA0V, Star Route No 1, Crocker MO. 65452. USA."

BARTG SPRING RTTY CONTEST 1985

The rules for this contest have been forwarded to me by Peter Adams G6LZB who is the BARTG Contests Manager. Peter writes also regarding RTTY contests. *"At the moment I am preparing my 'RTTY Contest Calendar' for next year, but in order to complete this, I need to know the dates of the major RTTY Contests.*

"It would be very much appreciated if you could let me know, as soon as possible the date(s) of any RTTY contests sponsored by your organisation during the coming year.

"For the moment I just need the title of the contest together with the date(s). Further details and information will be needed later on so that BARTG can give the events as much publicity as possible in our quarterly magazine DATACOM and also via the regular RTTY news — GB2ATG.

"I thank you for your help in this matter and look forward to hearing from you in the near future. In the meantime I close with best wishes to you and the members of your group."

Well, it so happens that whilst the WIA does not directly sponsor any RTTY contests there are at least a couple of RTTY groups operating within Australia. Therefore, if they have not already provided their information to the BARTG as requested above they may wish on the basis of this detail to do so. Any such information may be sent to Peter at the address shown for contest logs as listed in the following rules.

RULES FOR BARTG RTTY CONTEST

(As per copy supplied direct from BARTG)

WHEN — 0200 UTC Saturday 23rd March until 0200 UTC Monday 25th March 1985. The total contest period is 48 hours but not more than 30 hours of operation is permitted. Time spent as listening periods counts as operating time. The 18 hours of non operating time can be taken at any time during the contest period, but off periods may not be less than 3 hours at a time. Times ON the air must be summarised on the summary sheet.

WHO — There will be separate categories for single operator, Multi operator and short wave listener stations.

BANDS — 3.5, 7.0, 14.0, 21.0 and 28MHz amateur bands.

STATIONS — Stations may not be contacted more than once on any one band but additional contacts may be made with the same station if a different band is used.

COUNTRIES — The ARRL DX COUNTRIES LIST will be used, and in addition, each W/K, VE/VO and VK call area will be counted as a separate country.

NOTE: W/K, VE/VO and VK count once each only for QCA purposes.

MESSAGES — Messages will consist of:
(a) Time UTC. This must consist of a full four figure group and the use of the expression "same" or "same as yours" will not be acceptable.
(b) RST and Message number. The number must consist of a three figure group and start with 001 for the first contact made.

POINTS — Points can be claimed as follows:
(a) ALL two-way RTTY contacts with other stations within one's own country will earn TWO points.
(b) ALL two-way RTTY contacts with other stations outside one's own country will earn TEN points.
(c) ALL stations can claim a BONUS of 200 points for each country worked, including their own. Note that any one country may be counted again if worked on a different band but continents are counted once only.
NOTE: Proof of contact will be required in cases where the station worked does not appear in any other contest log received or the station worked does not submit a check log.

***Scoring** — (a) TWO-WAY contact points times the total of countries worked.*
(b) TOTAL country points times 200 times the number of continents worked (Max 6)
(c) Add (a) and (b) together to obtain the final score.

LOG AND SCORE SHEETS: Use a separate sheet for each band and indicate all times on the air. Logs to contain: Date, Time UTC, Callsign of each station worked, RST and message number sent, Time, RST and message number received and the points claimed.
NOTE: Logs received from short wave listeners must contain call sign of station heard, report sent by that station and call sign of the station being worked.

ALL LOGS MUST BE RECEIVED BY 31ST MAY 1985 IN ORDER TO QUALIFY.

Send your contest or check log to: PETER ADAMS G6LZB 464 WHIFFENDELL ROAD, WATFORD, HERTS, ENGLAND WD1 7PT.

If you are one of those readers who take note of just what is mentioned in this column, and not just scan it through quickly, you will have gathered that I seem to be slightly perturbed at the very poor quality of logs which I am receiving for contests. At this stage I would like to retail to you a true story about one occurrence since I began the task of Contest Manager. I use this story as an example only of the type of thing which happens and which is in some ways somewhat disheartening when one tries to do the right thing by a contest entrant and with proper motives for the benefit of all other contesters.

After the Remembrance Day Contest in August 1984 I began to receive logs for that contest. Amongst the logs received early was one, the callsign and name for which will always remain anonymous, which did not measure up in a number of ways to what was required and laid down in the rules. I then sought to

'kill two birds with one stone' and wrote the entrant a letter which was worded as follows: *"Dear . . ., I received your Remembrance Day Contest log In the mail today. I am however returning it to you for the reasons explained below. I wish to explain to you that under the rules of the contest your log in its present form is unacceptable and would be disqualified.*

"The rules for the contest appeared in the July issue of Amateur Radio magazine with corrections to mistakes contained in an insert to the August issue. (I would hasten to point out that I have only just stepped into the post of Federal Contest Manager . . .)

"The sections of the rules with which your log is not in compliance are however quite clear.

"Rule 9. Cyphers: The serial number will consist of THREE figures that will be incremented by one for each successive contact, etc. In other words no RS(T) figures should be added. You have in fact listed VK5QX in two places in your log and claimed that he provided you with 5 figure serial numbers. I can assure you that this was not the case. The same applies to your listing of contacts with VK . . . and VK . . .

"This may appear to be a minor point, and I agree that it is, however, a couple of principles apply here. Firstly if I wish to be pedantic I could simply say that the rules as written should be complied with, (and that also is probably a fair enough requirement) however secondly, and more pointedly I would say that the addition of the extra figures printed amongst a mass of figures simply complicates the issue and makes it somewhat harder when it comes to cross checking of the logs entered for the contest. I will also admit that I heard a number of stations using 5 figure serial numbers, so I guess that I can expect other offenders in this regard. You may well have also used the example Tx log shown in the July issue. This example was definitely incorrect, both as pointed out in the insert referred to and as can be observed by reading the rules.

"Rule 13. ALL LOGS shall be set out as in the example shown and, in addition, MUST CARRY A FRONT SHEET showing the following information in this order: Section, score, callsign, mode, name, address and page tally. Declaration. "I hereby certify that I have operated in accordance with the rules and spirit of the contest." Signed . . . Dated . . .

"It is mainly with respect to this latter rule that your log does not conform and I maintain that with this information spelled out so clearly in the rules it should reasonably be expected that people abide by same. Further, you claim 61 contacts on the SSB mode and then a points score of 20.33 points. How you obtain this I cannot imagine as the rules quite clearly indicate that each contact on this mode is worth ONE point. (See Rule 5 as originally published and also as more completely explained in the insert in the August issue of AR.)

". . ., yours was the very first log which I opened and looked at. It is in its basic form neat and tidy and probably in a number of ways superior to quite a number of logs which I will encounter when I open up other entries. I had decided though to write to you about your entry as an example, and explain where you had not complied. I discussed the matter with a couple of my assistants on the Contest Committee which I have formed and they agreed first of all that your log could be ruled invalid, and one member independently suggested that I write to you.

"Now . . ., I wish to enlist your co-operation, having seemingly been somewhat hard on you to this point with some criticism implied.

"You can imagine that as the new Federal Contest Manager I do not wish to appear either harsh or unfair to entrants. I might also point out though, that if everybody or even a fair proportion of entrants fail to observe the rules, particularly with respect to their log entries, it can make the Contest Manager's job so much more difficult.

"I would thus request that you complete the necessary extra paperwork for your entry, correct the log as necessary and return it to me so that I can accept it as a valid entry.

"I would then propose that I publish a copy of this letter to you, with any item which would tend to identify you removed from the context, in Amateur Radio magazine. This I would intend as a warning and a means of pointing out to others that IF THEIR LOGS DO NOT COMPLY with the rules I will be quite ruthless and disqualify such logs without further ado.

"Whilst I have singled you out for special treatment I can assure you that I have no intention whatsoever to write to each individual who submits a log which is not according to the rules.

"I simply ask that those who enter contests PLEASE read through the rules properly, do their best to understand and comply with them and ensure that their log entries are correct. This will make the job of myself and my assistants so much easier. Yours faithfully etc.

"PS: I realise that I am not aware of your personal situation and that such could perhaps have some bearing on the above situation. So please don't think me too rude in taking this action. I have also made a copy of your log as so far provided by you."

I did receive a reply to my letter, however the person concerned apparently did not properly recognise my motives in writing to him and did not take the opportunity offered to him and nobody else in this way to send back a corrected log. He seemed to still blame both myself and AR for the mistakes which were originally made in the publication of the rules, suggested that as he had not complied with same the best course of action I could take was to disqualify his log and intimated that if he ever went in another contest "and that's a big if" etc.

So, obviously one of my aims, that of offering an opportunity for him to correct the situation as far as his log was concerned, was not achieved. My second aim of obtaining his co-operation to provide a lesson and example to others was only partially successful, however I decided that my effort would not go entirely to waste as I could still use my letter to him as an example to many as to what can go on in the matter of logs. Please allow me just a couple more comments in the way of explanation and to make a few final points.

The log submitted in this instance was apparently done with the aid of a computer. I have a pretty fair understanding of the capability of computers in general although I also realise that not everybody can afford to buy, for their own use, the most expensive units. I do see through the logs submitted, which have been computer generated, that there are some excellent programmes which produce beautiful logs which fit exactly to the rules laid down. There are also many which do not.

The suggestion here is that some entrants may not be as good at programming their computers as are others therefore I suggest that they keep working at the problem but keep their computer generated logs until they get them right. If your computer is not up to it please send instead a properly laid out manually produced log and just use your computer for your own duplicate contact checks etc.

My PS to the letter incidentally was due to the fact that I realised the possibility that the operator concerned may have had some disability unknown to me which may be the reason for his log not fitting the rules. In any case I feel that in this instance I was more than fair in my actions.

I hope that by providing this story I may have been able to awaken in the minds of all of you who enter contests, and not just contests organised by myself for Australian contesters but contests which are conducted and sponsored by overseas organisations, an understanding of the need for logs submitted to be in accordance with the rules and format laid down. After all, I have yet to see rules published for any contest where a log format has not been included as part of same.

Those people producing contest rules do so for good reasons otherwise why bother having any rules at all. Once again my plea, PLEASE DO READ PROPERLY the rules for all contests, make sure that you understand them thoroughly and then follow through by carrying them out to the letter.

If any rules seem to you to be capable of misinterpretation by all means bring such fact to the attention of the applicable contest manager. I am sure that he will be most happy at your show of interest.

VK NOVICE CONTEST 1984

In this issue is contained the results of the VK Novice Contest for 1984. I would like particularly to make some comments regarding the logs submitted for this contest. Vic VK5AGX assisted me greatly by going through the logs initially and pointing out to me a few areas where a number of operators had slipped up. Many of the logs left a great deal to be desired and came very close to receiving disqualification by not adhering to the format laid down in the rules. I will descibe some of the problems encountered along these lines.

One log, the operator will recognise my description, was set out in such a complicated manner that it made it most difficult to check. This operator had gone to a great deal of trouble too. He had a different section of the log for each band and mode and then had split the log up further by breaking each of these sections down into separate pages for each call area. All this was done in a very neat fashion too. Such a log whilst perhaps well intentioned simply does not comply with the rules and although I was loath to do so I decided that I had no recourse other than to disqualify same. Incidentally, this log did not show the full RS(T) number exchange either. Another log was simply a carbon copy, in blue, and so smudged that in some places it was all but illegible. This log was almost disqualified. Another listed times as infrequently as up to 53 minutes apart and some mixed both modes together in the one log despite the fact that the contest rules showed each mode as being a separate section in the contest. Perhaps the need for separate logs for each section must be spelled out more fully although almost everyone else seemed to have recognised this fact.

At least two operators completely ignored the requirement for a front sheet containing details of the entry and the declaration called for. One station incorrectly claimed points for the contacts made totally different to the method laid down. I find it embarrassing to have to disqualify logs but unless the rules are adhered to I have no other alternative except to do so. It certainly would pay for would be contesters to read the rules more carefully and make sure that their log formats do agree with that laid down. As per the disqualifications for the Remembrance Day Contest and again with this contest I am virtually serving notice that if entrants do not conform to the rules their logs will be disqualified. Those concerned this time may perhaps be able to console themselves with the thought that they are simply being made examples of, without any animosity, and perhaps are victims of a situation which has been allowed to develop over the years where contest managers seem to have been prepared to accept almost anything. Again I would re-iterate my opinion that a common standard log sheet made available by the WIA would go a long way to alleviating this problem.

It would appear to be disappointing that so few logs were sent in, a total of only 40, whilst quite a number more did operate in the contest period exchanging numbers. This number is considerably down on last year's entry of 61 and should this state of affairs continue I would query as to whether or not such a contest is at all worth the trouble of organising. Perhaps if this contest can be changed to a date further removed from other contests as I have been trying to ask for it may become much more popular. Only time will tell.

KEITH HOWARD VK2AKX TROPHY

The winner of the contest as top Novice scorer for 1984 is VK5NOD with a total score of 807 points. To achieve this score he operated consistently for somewhat in excess of 19 hours of the total 24 hour period to make 231 contacts. He is to be congratulated on this fine effort and also on his log entry of which he can be proud. It was one of the most tidy logs received. When the trophy is available it will be forwarded along, meantime I will arrange for his certificate to be forwarded to the VK5 Division so that arrangements can be made for it to be presented, possibly through the auspices of the South East Amateur Radio Group at Mt Gambier.

One other most meritorious entry and extremely neat and tidy was that of VK3PFG who was runner up in the contest. He deserves a special mention. Whilst not attempting to take away anything from any of the past winners of the VK Novice Contest I would like to

broach the possibility of changes to the contest rules. Reading into the rules the intent to promote the art of CW Operation, as well as provide a contest basically for Novice operators, it would seem to me that the trophy winner should also have to qualify for same by having submitted a log for both the CW and Phone sections of the contest. I would note that unfortunately several of the logs which were disallowed for this year's contest included both CW as well as phone operation.

INDIVIDUAL SCORES — VK NOVICE CONTEST 1984

PHONE/NOVICE

VK2PZC	333 points
VK3PFG	743 points
VK3PSA	197 points
VK3KAV	104 points
VK5NOD	797 points
VK5NMR	463 points
VK6NLD	290 points
VK6NOX	86 points
VK7NAI	431 points

PHONE/FULL CALL

VK1LF	232 points
VK2BOS	471 points
VK2CDS	464 points
VK2PS	91 points
VK3DAK	536 points
VK5FF	279 points
VK5AGX	180 points
VK5UY	79 points
VK6CZ	730 points
VK7FD	101 points
ZL11M	168 points

CW/NOVICE

VK3PSA	134 points
VK5NOD	10 points

CW/FULL CALL

VK1XX	73 points
VK2PS	79 points
VK2DID	53 points
VK3DNC	96 points
VK3XB/P	50 points
VK4BRZ	88 points
VK5AGX	62 points

PHONE/CLUB

VK2ZL	593 points
VK4WIC/P	153 points

LISTENER

L30371	184 points

The following logs were disallowed for reasons outlined above: VK2KGX, VK2VZB, VK3NLS, VK4NUN and VK5GZ.

TOTAL CONTEST ENTRIES

25 phone. 12 CW. (7 combined Phone/CW.) 2 Club. 1 SWL. Grand Total 40.

AR

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

ATTENTION TO ALL INSTRUCTORS IN PARTICULAR

Last month I passed on a few hints to those wishing to run classes for novice or AOCP students. Many experienced instructors would be able to add considerably to those ideas.

LET'S SWAP IDEAS

It is very easy to decide that one's own methods and opinions are the best if we have not considered any others. We do not often get the chance to sit in on someone else's class and see their different approaches of explaining a technical point or interpreting a section of the syllabus.

FORTY CLASSES — NO MORE?

I have, on record, the addresses of about forty clubs or individuals involved in some sort of radio class, and there must be many more of which I am unaware.

LET'S HELP NEW INSTRUCTORS TO HELP WOULD BE AMATEURS

It seems to me that there must be a vast store of knowledge and experience around the countryside which could be put to good use, and which would be of great benefit to those trying to set up their first course.

It may be my natural laziness showing through or it may be my personal indebtedness to those who have helped me, but I cannot help feeling that the newcomers should be given as much assistance as possible.

Instructors are not competing against each other — there is no pre-arranged pass rate of say 35 percent of candidates sitting. So anything we can do to improve the quality of instruction available can only benefit the students as individuals and the amateur body as a whole.

REGULAR CONFERENCE ONCE A WEEK

Ideally, I would like to be able to hold regular conferences of all instructors to discuss syllabus interpretation, exam procedures and mutual problems but I realise this is hardly possible with such a number of volunteers scattered throughout Australia. However, as the majority of our teachers are licensed amateurs, we have a communication resource to which no other group of teachers has access.

It is with this in mind that I have been trying to establish a weekly Education Net on 80m, but I have been disappointed with the response.

I have been calling 'CO Education Net' at 1130 UTC on about 3.685MHz each Thursday evening for some time now.

In response to several comments I have also tried calling near the top of the novice section — 3.610-3.625MHz wherever I can squeeze in — at 1030 UTC, but have had very few replies on either frequency.

Is this just a sign of poor publicity? Are the instructors uninterested in sharing ideas? Or am I just too over optimistic?

DON'T WHINGE

This net could also be valuable when I need some informal input on matters such as syllabus revision, text books to recommend or exam procedures. It is a chance for those who are most concerned with such matters to be heard. I cannot act on secondhand or overheard WHINGES!!!!

JOIN THE EDUCATION NET AND ADD YOUR POINT OF VIEW

It is also an easy way for you to let me know of classes being run. I would greatly appreciate ANY information about classes for 1985 as soon as possible. In return, you will be rewarded by having your club or class put on the mailing list for sample examination papers as they are produced. SURELY AN OFFER TOO GOOD TO MISS.

AR

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Several DXers were recently surprised to hear Asian and African signals coming through at around 0200 UTC, which corresponds to midday in the eastern states, over the Christmas-New Year period. Naturally, reception only lasted for a short period, but normally DX signals are absent at that time. The frequencies involved were between 5 and 7 MHz, where very few signals, let alone any from these areas, can be easily heard.

STRANGE PROPAGATION

Naturally, several theories have been advanced explaining why DX from these regions have been observed. They all have credibility but the low sunspot count figures prominently in all theories. I believe that propagation from Africa comes from the Antarctic regions. Transmissions, in particular from Radio RSA in Johannesburg, I have heard, are directed to North America, and the signals on 9.630 MHz around 0200 UTC would therefore be coming off the back of the beams. But propagation is fickle and is not as reliable as the normal transmission paths. All this highlights the unpredictability of shortwave propagation.

Over the summer months, I was unable to receive any worthwhile DX, particularly on the lower frequencies, because of the incessant levels of atmospheric static and noise. Fortunately, propagation opened up on the higher frequencies to give some interesting listening, especially around 1300 UTC. This more than compensated for the loss of the tropical bands. Hopefully by now, the static levels will have quietened down as the equinox is on the 21st of this month, allowing the lower frequencies to be monitored once more.

FREQUENCIES SHIFT

Don't forget that the M-85 period commenced on Sunday 3rd March. That is when there is a major shift of frequencies to take account of seasonal fluctuations. Also, I have frequently noted that the Utility Services alter their schedules to take account of other variables. This is primarily because they are engaged in point to point service and not designed for the general or casual listener. You will have noted that stations are beginning to come in from different locations from that during the summer months. On the 60 metre band in particular, you will begin to observe Latin American as well as Indonesian low powered senders.

SUMMERTIME COMMENCES

Also don't forget that Summer Time commences on Sunday 31st March throughout Europe and in the USSR on the 1st April. Programmes for audiences within Europe will be one hour earlier, which will mean some frequency re-arrangement. Traditionally the USSR makes extensive frequency alterations on the 1st April and the 1st October as well.

NEWS AROUND THE WORLD

I would surmise that the majority of listeners to shortwave broadcasts would mainly tune in for news programmes. Many who have emigrated wish to keep in touch with developments in their homelands. But many others are listening to gain a wider perspective than is provided by their local media sources. One can readily come to an accurate assessment of a situation by comparing coverage of the news from a variety of sources. As the output from the local media sources does somewhat tend to exclusively concentrate on local rather than international issues, it is becoming mandatory to gain a wider base of information before forming an opinion. We do have a wide variety of news and information at our fingertips, instantaneously, instead of relying exclusively on a very narrow, brief encapsulation of what the news is from your local media source.

Now with the advent of RTTY demodulators interfacing with your home computer and TV set, more are tuning in to press services to print up the news before it is broadcast over the electronic media, or later see it included in the print media. But alas, these services are relying more on satellite or cable facilities to transmit their data. Only about 35 per cent of RTTY signals currently being monitored on HF will easily print out, for increasingly the traffic is encrypted or encoded. However, there are still a number of press frequencies still operational. I will not include them here, because they frequently alter both their transmission times and frequencies, depending on the availability of copy. Reuters, for example, has reduced their output on HF to a single operational channel of 18.338 MHz at about 1200 UTC.

Also the French News Agency (AFP) recently discontinued their newscasts from their Hong Kong relay, although reportedly still utilising sites from France and elsewhere. The Korean Central Newsagency (KCNA or ATCC) in Pyongyang, North Korea is a prolific source with several senders comparatively close to the 20 metre amateur band. Try either 13.790 or 13.580 MHz at around 0900 UTC or 14.350 MHz at 1130 UTC. They are usually at the standard 50 Baud rate with a shift of 525 Hz. The Soviet TASS agency can also be frequently observed on a number of channels simultaneously. Try 14.700 MHz around 1200 UTC. They are at 50 Baud with a 425 Hz shift. Other smaller newsagencies are occasionally observed from time to time, yet I find the broadcasting news sources far more reliable than expensive demodulators or VDUs, as one's ears are less expensive and more reliable.

ANTENNA WORKING

Radio HCJB has recently begun to utilise their new 49 metre antenna array. Signals to Europe and the South Pacific will hopefully improve with this latest addition. I have noted HCJB on a new frequency of 6.205 MHz, broadcasting to Europe in English. As well, the station has continued the "Open Line Programmes" where the listeners can phone in and participate. The "Open Line" this month will be on the 23rd March at 0700 UTC on 6.130, 9.745 or 11.925 MHz to the South Pacific, and simultaneously on 6.205 and 9.655 MHz to Europe.

Well, that is all for this month. Until next time, the best of 73 and good listening! — Robin VK7RH. **AR**

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

As I type this column, the temperature in the shack is 35 degrees celsius . . . As a matter of fact, it's so hot that the fan on the FT107 came on, and the rig isn't even switched on! I look forward to winter for cooler weather, and for tolerable conditions on 80 metres.

Was waitng last night to check into a net, and the noise was so bad on 80 metres, that the signal only improved about one 'S' point in half an hour, which brought it up to S1! I didn't get into the net.

Not much in the way of reports on 5AN, Adelaide lately, *so can I assume that the harmonic is no longer being heard*? Radio Budapest came up on 14.160 MHz, but am of the opinion this was an honest mistake.

Radio Moscow seems to be having trouble with their spurii again, this time on 7.070 MHz. It's about time their engineers looked to their laurels. SGJ is still operating on 7.060 with CW, in spite of ARRL protests. Am also receiving more and more reports on apparently cordless phone operations, which are causing a problem.

In spite of a well-planned and exhaustive campaign against USSR intruder UMS, the DOC has not replied to my correspondence on the matter.

Have been using the newly-acquired personal computer to assist with Intruder Watch paperwork, which is a help, but am not realising the full potential of the computer yet, as the operator, I'm afraid, is a bit hopeless so far! However, intruder reports are put into the computer as received, which nicely does away with the 12 hour typing job at the end of each month as was the case before the computer.

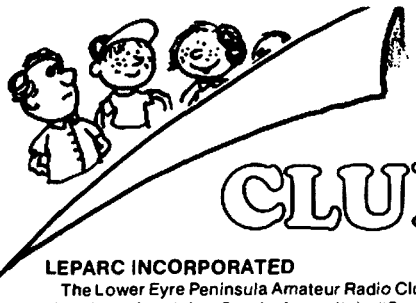
Received a letter from ZL1BAD recently, and, amongst other things, he mentions the 80 metre band, and repeats that "*. . . in Region 3, the band 3.5 to 3.9 MHz is allocated to the fixed, mobile and amateur services on an equal footing, mutual non-interference, basis. THE ONLY INTRUDER THAT CAN EXIST ANYWHERE IN THE WORLD ARE STATIONS OF THE BROADCAST SERVICE.*"(Bob is Region 3 IW Co-ordinator)

Incidentally, saw a picture of Bob's shack, and am green with envy! Just in passing, this was nearly the last column by this amateur, as only this morning, whilst working on an oscilloscope, I took 240 volts across the chest! Left me with sore arms for a while. Let this be a lesson to us all . . . observe the "one hand in the pocket rule", and never become blasé about mains-supplied gear. It doesn't often give you a second chance.

Been hearing quite a lot of activity on SSTV lately, on 14.231 MHz. Don't mistake these strange signals for intruders, as this is a common frequency for this mode, and I know at least ZL1BT and VK4ZG won't appreciate any deliberate QRM!

Better wind-up now, or the AR Editor will get upset, so 73 for now, please keep the intruder reports coming, and, next time you are QRM'ed by an intruder, don't mumble to yourself in the shack — make a note, and send in an intruder report. All reports are welcomed, and help us to help all other Amateur Operators. See you next month.

AR



CLUB CORNER

LEPARC INCORPORATED

The Lower Eyre Peninsula Amateur Radio Club are planning ahead for South Australia's "Sequi — Centenary" Celebrations.

They have acquired a twin city in Texas, USA — the City of Orange.

There are two amateur radio clubs in Orange and it is intended to have scouts and guides from the Port Lincoln area speak to their counterparts in Orange during JOTA '85.

Contributed by Jack Kleinrahm VK5AJK
Honorary Secretary — LEPARC Inc.

AR

EASTERN AND MOUNTAIN DISTRICT RADIO CLUB

The Annual General Meeting of the EMDRC will be held at 8 pm on Friday the 1st of March 1985 in the Willis Room at the Nunawading Civic Centre, Maroondah Highway, Nunawading.

AR

SOUTH WEST AREA CONVENTION

The South West Area Convention which was held at Young Showground in the Central West of NSW on the long weekend of 29th and 30th September 1984.

Testing equipment for the Fox Hunt.

Contributed by Jeff Lange VK2EJJ
Photographs courtesy John Meagher VK2AMV

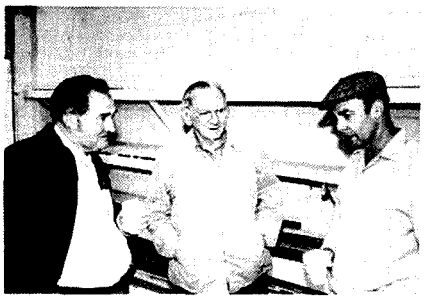
L to R — Jeff VK2EJJ, Stan VK3BSR and Norman Lange at the Bail Electronics trade display.

A good attendance, and weather on the Sunday was enjoyed by all, with keen interest shown in the various fox and hidden transmitter hunts. An interesting incident being that one of the hidden transmitters was left behind on the outskirts of Young near where it was hidden. Luckily enough it was still there when Peter VK2APP, went to pick it up 2 weeks later.

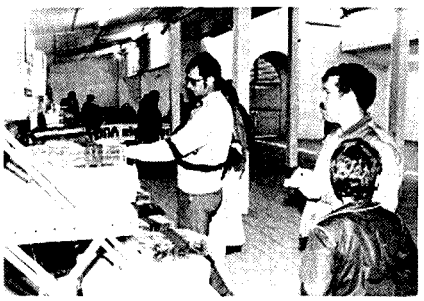
The evening dinner was held at the Guide Hall and enjoyed by all who attended.

Returning from the Fox Hunt.

From left — Peter VK2APP, Ross VK2BRC and Peter VK2DBI.



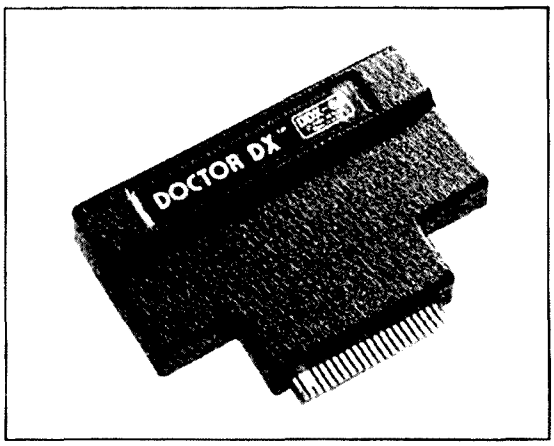
From left — VK2DBI, VK2DDN and VK2BRC enjoy an eyeball QSO at the Convention.



From left — Jeff VK2KBK and Rod VK2DNP.

WORK THE WORLD WITH NO ANTENNA

$158 plus p&p



- *No Antenna!*
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- *No TVI!*
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- *Operate Anytime You Want!*

DOCTOR DX™

For the active CW operator, there is nothing more fun than operating with the "Doctor DX" CW DX simulator. For the person who has never liked CW, Doctor DX will show you what real fun is. Doctor DX has something for everyone from the aspiring novice to the experienced amateur licensee. And you need no DOC licence to operate Doctor DX!

With Doctor DX, all you need is a Commodore 64 computer, a key (or keyer), and a TV set or monitor. There is no need for an expensive transceiver, amplifier and antenna farm to enjoy the thrill of working "rare DX". No more TVI or dead bands! Doctor DX is more than the most sophisticated CW trainer ever developed, it is your DXpedition ticket to anywhere in the world at a very affordable price.

Doctor DX simulates real HF CW band conditions. All the stations you will work are generated by the computer. As you tune up and down the particular band you have selected, you will hear realistic sounding stations in contact with other stations (some within your skip zone). There is also the normal QRN and QRM one would expect to hear in the real world. All call letters heard are totally random (subject to the country's callsign assignment rules). The prefixes are weighted according to the amateur radio population density, with 304 possible countries represented. The speed of stations operating in the lower portion of the bands is much faster than those operating in the upper band segments. The "operators" are also more polished in the lower portion of the bands.

Radio propagation (programmed for each band) represents what you would expect to hear on a good propagation day at the peak of the sunspot cycle. The propagation follows the internal real-time clock that you set before beginning operation. All the simulated stations you hear (with proper prefixes) are at distances you would expect to hear for the time of day and band selected.

You can learn and enhance your CW operating skills with Doctor DX. Doctor DX will not reward bad habits. Advanced Electronic Applications even offers an awards programme to owners of Doctor DX that work all zones, 100 countries, 5 band Dr DXCC, or Doctor DX Honor Roll.

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AR85

VK3 WIA NOTES

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

NEW MEMBERS

A warm welcome is extended to the following who have recently joined the WIA, Victorian Division.

Reece Baines VK3KRB, Joseph Ellul, Peter Hamilton VK3XFO, Christopher Morley VK3YSS, Trevor Paul, Stephen Pierrehumbert VK3XSP, Steven Price, Alan Robinson, Heinz Ruef, VK3DWO, Daniel Vits, C Walton VK3PWA, K West VK3PKW, R Young VK3BIC.

Klaus Brandt VK3DUX, Hartmut Budde VK3DYD, Chinese Radio Sport Association BY4AA, Max Colebourn VK3KMD, Mark Eichler, Harry Groot VK3PHB, Neil Hartley VK3BUL, S Heath VK3VSH, Ben Jones, John Read, Neil Watt VK3XNW, Valerie Watts VK3PVW, Alma Webster VK3PIP, Jan Zukowski VK3XJZ.

R Fenn W0LXQ, Timothy Adams, Michael Bisak VK3XAS, Paul Bradbury VK3XGP, Paul Butler VK3DBP, David Byrne, Joseph Chan, Christopher Chapman, Frederick Elliott VK3ZAQ, John Elliott VK3PEX, Alan Foulstone VK3VAF, Albert Gnaccarini VK3ZZX, Ivanhoe Grammar School Radio Club VK3IE, David Milner VK3KJN, Frederick Naylor VK3AQN, Barry Nolan, Maurice O'Keefe VK3KO, Vivian Ryan VK3VRM, Ross Swinton VK3ZNR, A Verbove VK3YVJ.

New members are always welcome, so join a friend now.

AR

VK4 WIA NOTES

Guy Minter VK4ZXZ
FEDERAL COUNCILLOR
Box 638, GPO, Brisbane, Qld 4001

This year for the first time in a few years VK4 have forwarded two motions to be considered at the Federal Convention.

The motions are as follows:—

MOTION 1

Moved VK4 that all Australian Amateur Radio Contests be frequency restricted such that scoring contacts be limited to no more than two-thirds of each of the amateur bands, with specific frequency limits on each band to be determined by the FCM.

Supporting Comments

1 Contests encourage the use of our Amateur Radio Bands and therefore must be supported by the majority of operators. However the right to use non-contest spectrum by those who do not wish to participate in contest operation should, at all times, be respected, and as such, reasonable spectrum allocation should be made for each group.

2 Participation in Amateur Radio Contests does improve the skills of contacting, operating, log keeping and QSLing and in the best traditions of amateur radio must therefore be supported.

3 It is known that a significant proportion of Amateur Radio Operators enjoy lengthy OSOs, and do not wish to be involved in time-efficient contest-type QSOs. These operators do not fully enjoy their chosen hobby during contest periods. The specifying of at least one-third of available spectrum/per band for non contest use will ensure that amateurs who are not involved in contests will still be able to enjoy their hobby.

4 For some time now radio amateurs throughout the world have been requesting some contest-free operating spectrum space. Whilst the WIA strongly supports the concept of contests, the rights and privileges of the individual must, at all times, be respected, and as such, this proposal will receive the support of all operators.

MOTION 2

Moved VK4 that an Australian Standard on packet radio be established, such protocols to be widely circulated to ensure full Australian participation in this aspect of our hobby.

Supporting Comments

1 Through the use of satellite systems, all such user systems should be fully compatible with recognised international standards.

2 Unattended operation is now a vital part of our hobby eg repeaters, and as it is an integral part of packet radio, suitable protocols should be established by user groups (to be further co-ordinated by FTAC) to ensure efficient use of our spectrum.

AR

WA BULLETIN

Fred Parsonage VK6PF
Acting Secretary
Box 10, West Perth, WA 6005

NOTICE OF AGM

Notice is hereby given that the AGM of the West Australian Division of the Wireless Institute of Australia will be held on Tuseday the 16th April 1985 at the Institute of Engineers, 712 Murray Street, West Perth at the conclusion of the General Meeting. Business to be transacted will be:

1 Consideration of Councils Annual Report
2 Election of Office Bearers vis:
a President.
b Vice President.
c 7 Other Councillors.
3 Election of two Auditors.
4 Appointment of a Patron.
5 General Business which has been duly notified.

Agenda items will be advised on the Divisional news broadcast on the three Sundays prior to the AGM.

Members unable to attend may appoint a proxy in writing in the following form:

I ..... being a member of the Institute hereby appoint ..... also a member of the Institute to act for me as my proxy and in my name to do all things which I myself being present could do at the AGM of the Institute to be held at the Institute of Engineers, West Perth on Tuesday the 16th April 1985.

Signature .....

Witness .....

Date .....

Nominations for Council must be tendered in writing to the Secretary, signed by two members and the nominated members acceptance 42 days prior to the AGM.

General Business Agenda items must be tendered in writing to the Secretary signed by three members 42 days prior to the AGM.

AR

TASMANIAN NEWS

NOTICE OF MEETING

The Annual General Meeting of the Tasmanian Division of the Wireless Institute of Australia will be held on Saturday, 16th March 1985, commencing at 2pm.

The venue will be the Beaconsfield Council Chambers in Eden Street, Riverside, Launceston.

All welcome. Come along and have your voice heard in your Institute.

NOTICE

All copy for inclusion in May 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 22nd March.

The VK2 Mini Bulletin, usually on these pages, has been incorporated into the special Seventy-Fifth Anniversary Feature. See pages 27 to 37.

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

**Standing L to R — Dick Boxall VK5ARZ, Janet Bulling VK5NEI, John Bulling VK5KX.
Seated L to R — Pat Boxall and Gillian Wardrop at the WIA Picnic, November 1984.**

From left — Trevor Wrigley VK5ATW, John Butler VK5NX, Ian Fisk VK5IF and Mitch Hamilton VK5AZM at the Picnic.

At the November General Meeting we were unable to conduct a business meeting after the speaker because everyone (or most) left with the speaker and we were unable to raise a quorum. As we cannot run the Division without the business side, it has been decided to start the meetings at 7.45 pm in future, and to hold the business first. The speaker will start around 8.30 pm (earlier if there is less business) and if the business looks like going over time, then it will have to be postponed until later that night or some other appropriate time.

DIARY DATES

26th MARCH General Meeting (speaker unknown, listen to the Broadcast for details) (and don't forget those nominations for Council positions).
18th-23rd MARCH Jubilee 150 Launch in Rundle Mall. Listen to the Broadcast for details.
23rd APRIL. AGM (not 25th as published in the Events Calendar).

AR

PRESTIGIOUS AWARD FOR AWARD CUSTODIAN

Dr Peter Barclay VK3FR, was the recipient of a prestigious Australia Day inscribed medallion presented by Dr John Zillman, Director of the Bureau of Meteorology, at a gathering in excess of 150 staff members on the 25th January, 1985.

The award was instigated by the Australia Day Committee in 1984 for ones leadership and dedication to their chosen profession. In presenting Peter's medallion, the only one presented within the Meteorological Bureau this year, Dr Zillman praised the work of Peter and his colleagues on a specific project over the last few years and stated "While I know you see that these are very much team achievements, I am sure there is a universal agreement that the most significant contribution over the years has come from your personal leadership and high professional standards which have set an excellent example to your colleagues throughout the Bureau".

Peter, well known in amateur circles, including being custodian of the Keith Roget Memorial National Parks Award, has been with the Bureau for 22 years. In that time, apart from being with many departments, he has seen service overseas, firstly as an exchange scientist for twelve months in the USA in 1969 and later in Pakistan in 1978.

Congratulations Peter.

AR

Photograph by Keith McLachlan VK3AH

Peter (L) receiving the Medallion from Dr John Zillman, Director of the Bureau of Meteorology.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

MORE DRIVE IN 85

We, as licensed Novices, wish to raise a few ideas which we believe, if addressed, could lead to an increase in WIA membership and more enjoyable participation of amateurs who are striving to broaden their knowledge.

In the June 1984 AR, it was stated that we need to get new members or there will be an increase in subscription. Again in January 1985 AR, we find the Federal Office offering incentives to join or re-new subscriptions to WIA — yet another plea for membership.

It is contended that the greatest potential area for new members is the "new novice" and especially one who is from "outside" the electronic world. These people wish to learn and enjoy their new hobby and one or two complimentary copies of AR could help encourage these people to become members.

To do this there is a definite need to cater to his bands. What good is VHF, UHF, RTTY, Satellites, Computers, Competitions and the many aspects of advanced (Full Call) activities if the reader fails to understand terms like Keplerian elements; Points and Multipliers; or the time variations between satellites. They may have some passing interest but do not help the new or old Novice who finds the full call beyond his aptitude and time available with other commitments of family and possibly even finances. Look at last year's issues of AR and work out the percentage of articles directed to the Novice or SWL who is feeling his way into their chosen hobby. What we ask is that the experienced remember that they were once new, when maybe the pace was slower — your problems, aspirations and queries are ours today. Help the many new or outside Novices because we are the membership of the future.

We realise the cost of running the WIA and these costs must be paid by the members, but give the illusion of providing something more than a $35 pa magazine subscription. Perhaps the possibility of extra benefits to members could be explored for example, perhaps the retail price of the call book should be more ($10) with a reduction (half price) for WIA members.

The figures clearly show that many do not consider the WIA worthwhile as they have either left or not joined because nothing of interest was offered, or they were told it was of no value. Obtaining articles is an acceptable and real problem which will require some effort.

Both of us are office holders in our local amateur radio club and support the WIA so we hope this will be taken in the spirit in which it is written because we have thought about this for many months. At a recent club meeting we outlined to members the points covered in this letter and those present could accept the points raised.

In this 75th Anniversary Year there could well be a renewal of interest that could give the WIA the opportunity to bring new members to the fold.

Yours in radio,
Concerned Novices,
VK5NIK VK5PWA
Signed Ian Phillips VK5NIK
Box 425,
Port Lincoln, SA, 5606
AR

POLARISED SOCKETS

May I congratulate VK2BZC on bringing up the subject of orientation of pins on Clipsal 495 polarised sockets in WICEN News AR, Jan. 1985.

I have had it pointed out to me, rightly or wrongly, over many years, that in the world of amateur radio, the vertical portion of the T is positive and the horizontal is negative.

Would someone care to give the amateurs, present and future, a definite and authoritive ruling so that an Amateur Radio Operators Standard, may be applied.

In the interests of equipment safety, and otherwise, the standard for radio use of 2 pin polarised Extra Low Voltage plugs and sockets should be recorded under Data Sheets in catalogues and handbooks and be given far more publicity.

More and more of these fittings are coming into use with the construction of heavy duty 13.8V regulated power supplies.

73

Ross Dowsett VK6RD
53 Fesling Street,
Albany, WA 6330.
AR

REPEATER MOUNTAINS

In the north east of Victoria there are two 2 metre repeaters, one at Mount Wombat VK3RGV Channel 6650 and much further up into the mountains to the east of Wangaratta and south of Wodonga on Mount Big Ben is VK3RNE Channel 7000. Mount Big Ben will be joined by another repeater on Mount Mittamatite, which may even be coupled to Mount Big Ben providing approval is given.

Mount Big Ben repeater, uses a Philips FM-828 transceiver, has an Effective Radiated Power over a ½ wave dipole of about 35 to 40 watts. In the near future an improved antenna will be placed on a new tower about 30 metres higher than at present and will have an ERP of about 120 watts.

All of the above work is expected to give the repeater a better range and make copy solid in some doubtful areas. As most would be aware the north east of Victoria is mountainous and as such many areas do suffer with weak signals. The use of efficient antennae on vehicles and at least 10 watts is desirable if you want to be heard. A handheld sitting on the seat of a car with a rubber ducky antenna is not the way to work this repeater. When climbing mountains on foot, however, handhelds have proved very useful and have featured in rescue situations. Yours faithfully,

RD Champness VK3UG
(Sec/Treas NE Zone Repeater Group)
31 Helms Court,
Benalla, Vic. 3672.
AR

CONGRATULATIONS

I was sorry to see just recently that Tony Tregale VK3QQ was relinquishing his post as Federal EMC Co-ordinator. From what I have seen of Tony's efforts I believe we have been most fortunate in having someone as enthusiastic as he has been, over what is probably one of the most critical periods in the on going battle to achieve reasonable Electro-Magnetic Compatibility between various electronic equipment, eg Video Recorders and radio transmitting stations.

Congratulations Tony on the work you have done, I hope that we can find another keen and capable person to fill your shoes. Yours faithfully,

RD Champness VK3UG,
31 Helms Court,
Benalla, Vic. 3672.
AR

THANK YOU AMATEUR OPERATORS AND RADIO CLUBS:

1984 has come and gone, and with it the 27th Jamboree on the Air, which once again, has been an outstanding success, thanks to the support of amateur radio operators and radio clubs.

27,800 Scouts, Guides, Leaders and supporters took part in the 27th Jamboree on the Air from just over 500 amateur radio stations, thanks to the generosity of 1,050 operators who gave so freely of their time and facilities. 5,700 contacts were logged, of which 1,000 were DX, down 50 percent on last year, and due no doubt to the poor propagation conditions this year. However, ever resourceful and "prepared" the Scouts and Guides turned these conditions to their own advantage by enjoying longer contacts with Australian stations and some extremely long QSOs were reported.

Some idea of the contribution by amateurs in Australia can be gauged from the results of a survey conducted last year by the World Scout Bureau into participation in JOTA in the various scouting nations. Not surprisingly Australia polled very well, as will be seen from the following figures given by the Bureau with amateur station involvement indicated in parenthesis in each case. When one looks at the population of some of the other countries, particularly the USA and the UK, Australia did very well. Figures for the five leading countries were as follows — United States, 75,000 (2,500); Australia, 20,000 (460); Netherlands, 15,500 (210); Brazil, 15,000 (650); and United Kingdom, 12,500 (455).

The National Opening Ceremony from the grounds of Government House, Canberra, again played a significant part in this year's Jamboree, with technical facilities again provided by the Royal Naval Amateur Radio Society, under the direction of Rear Admiral Jim Lloyd (Ret) — VK1JL. Again Their Excellencies gave the Opening Addresses supported by the Australian Chief Commissioners of Scouts and Guides.

Some operators were again confused by the operating procedures during the call backs after the Opening Ceremony. Perhaps it should be pointed out that to provide the widest possible coverage and to include facilities for novice operators, the National Opening Ceremony and call backs go out simultaneuosly on three separate tranceivers (live) on three separate frequencies — 7.090, 14.190, and 21.190 MHz. There does not appear to be any problem with the Opening Ceremony itself, but when all the call backs are accepted they are acknowledged on the three frequencies but accepted on a single frequency when the Official Guests reply. The silence on the other two frequencies apparently causes some concern and we will be looking at ways in 1985 of keeping the listening stations on the "quiet" frequencies informed as to what is happening at that time. However, despite all that, the call backs in 1984 were the best ever, and we were, in fact, inundated being able to accept only a representative number from each State in the limited time available.

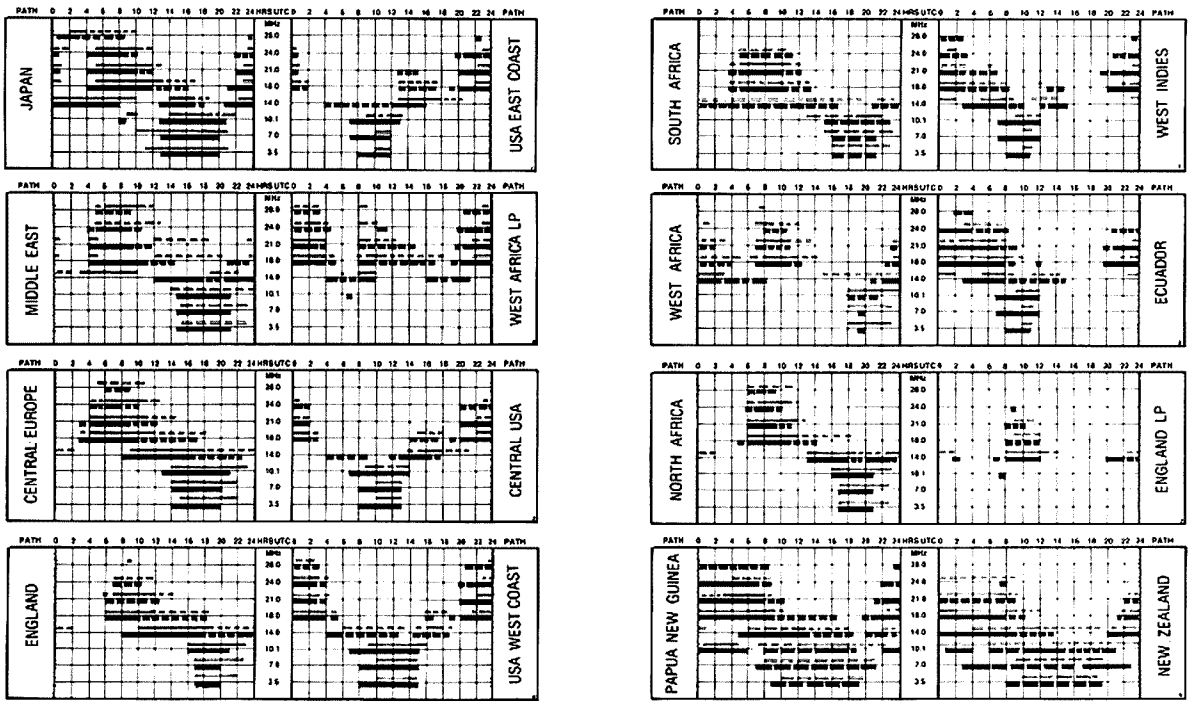
The Report on the participation in the 27th Jamboree on the Air was my last report as National Co-ordinator. After 21 years in that appointment, I tendered my resignation as from 31st December 1984. I am very pleased to be able to announce that my successor is the Branch Commissioner for Radio Activities in the Western Australian Scout Branch — Peter Hughes VK6HU, a well respected Scouter and well known amateur radio operator in the VK6 Division. Like myself, Peter has been associated with JOTA since the first one in 1958 and is Australia's longest serving Branch JOTA Organiser, having held that appointment since 1969. Peter takes over my appointment from 1st January 1985 while I continue in my support role only until after the next National Opening Ceremony.

So let me express once more my appreciation for the efforts of the amateurs in supporting not only the 27th JOTA but for the invaluable help and support since my appointment as National Co-ordinator in 1964, and for the 6 years prior to that when I was associated with JOTA at state and scout group level in Queensland. Please continue to give Peter Hughes the same support in the years ahead!

Noel Lynch VK4BNL,
National Co-ordinator 27th JOTA,
15 Noeline Street,
Dorrington, Qld, 4060
AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



Bill Goes Shopping

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

Bill Blitheringtwit managed to locate the building housing the famous Richard Smith establishment and felt happy with anticipation as he wedged his ancient Holden into the car park. In his pocket he had a list of things he wanted and he had even remembered to bring some money. He hadn't forgotten that argument last time about the out of date Bankcard!

He entered the swing doors and almost immediately found himself trapped in the revolving turnstile. Pushing this vigorously aside, he instantly discovered himself out in the street again. Another attempt and he succeeded in entering the shop.

It was quite some time since he had been in the place. He hadn't been game enough to return since that unfortunate incident with the loudspeaker unit. It had been standing on the floor and Bill had, quite inadvertently, put his size nine boot through it whilst wandering around gazing skywards. The speaker had sailed through the tair, as though propelled from a gun, and demolished a plate glass display cabinet. The result had been rather spectacular. Crashing glass fragments flew in all directions and the silence afterwards could be felt, as all eyes turned towards him. Luckily for him, nobody was quite sure what had really happened and Bill, of course, was all innocence.

This time most of the assistants seemed to be new. All, that is, except one. He spotted Bill, frowned, and came over to him.

"Can I help you, sir?" he enquired politely. But his eyes never left Bill's boots.

"Looking for a few bits," said Bill, handing over his now crumpled list.

The assistant took out his glasses and read it. Then he went to some shelves and pulled out some boxes, taking components out as he did so.

"There we are, sir," he said. "Anything else?" It was obvious that he wanted Bill out of the place as rapidly as possible, but Bill had other ideas.

"Think I might have a wander round," said Bill, handing over his money and collected his tightly stapled plastic bag of bits.

The assistant said nothing. Instead, a grey ashen look came over his normal healthy features and he turned and he turned and whispered something to a fellow assistant. The latter reached down and switched on a surveillance camera and both gazed fixedly at a TV screen as the overhead camera followed Bill's progress around the store.

However, the camera couldn't follow Bill everywhere and it was whilst he was out of camera view behind some shelves that there was a sliding sound, followed by a heavy thump. Assistants rushed from all directions and they found Bill staring down at the remains of an expensive oscilloscope draped over one of his boots. Whilst they watched, almost paralyzed with amazement, a piece of the tube fell from the number 9 with a gentle tinkle.

"Didn't touch it," Bill declared firmly. "Damned near broke my toes. Lucky for you it didn't!" Indeed this would have been a miracle, since Bill's boots were lined with steel toecaps.

Then he strode decisively out, with numerous sets of eyes following him. A brief struggle with the turnstile and he was out in the street again. He felt slightly annoyed. What was the matter with them all? Couldn't a fellow just look at things and occasionally try some of the knobs and switches? Damn it all! they never seemed to worry in disposal stores. . . .

Silent Keys

It is with deep regret we record the passing of —

MR ALFRED ISAACS **VK2AVI**
15-01-85

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE TO: RJ & US IMPORTS, Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken Street, Oakley, 2223).

"FROM PASTURES GREEN TO THE SILVER SCREEN" A 20th century autobiography comprising 156 episodes and 273 illustrations by John W Gerard VK2ADN (since 1936), a wireless experimenter since 1917, who joined the original 'Picture Show Man' (Lawrence Penn) in 1924 and became a radio amateur in 1936 and an active member of Lions International since 1953. After almost a lifetime devoted to wireless, moving pictures and scientific achievements, the author spent 5 years transferring memories of a series of exciting experiences and remarkable events to paper. Price $14.95 plus $2.50 postage and packaging. Available from John W Gerard, East Bonville Road, Bonville, NSW. 2441.

□ WANTED — ACT □

CATSWHISKER CRYSTAL DETECTOR. Prefer barrel type. Ted VK1AEP, QTHR. Tel: (062) 41 7376.

ICOM HF LINEAR AMPLIFIER, solid state. Barry VK1ABR, QTHR. Tel. (062) 72 4172 BH or (062) 86 5652 AH.

TOWER. A 35-45' tilt-over or crank-up tilt-over tower for HF Yagi installation. Details of condx, age, price and estimate freight costs to Canberra are requested. Also any of the following valves wanted. 6AZ8, 6BN8, 6CL6, 6CD6, 6EB8, 12AT7, 6CQ8, 6U8 and 811. Info to Dan VK1ST, QTHR. Tel: (062) 58 5664 AH.

□ WANTED — NSW □

COMMERCIAL LOW BAND FM TCVR — converted to or suitable for conversion to 6m. Also Kenwood SP-520 or SP-820 spkr unit. Peter VK2APJ, QTHR. Tel: (047) 59 1651.

KENWOOD 2400 HANDHELD or similar unit. Also Kenwood 599 tx. VK2BYK, QTHR. Tel: (047) 21 4205.

SOLID STATE LINEAR AMP — 200/250W. Needed for RTTY contacts. Exchange "Microbee" IC32 computer, stacks software. Cash either way or purchase outright. Quote price to VK2BBD, Longford, Bendemeer, NSW. 2352.

YAESU QTR 24 CLOCK. In good condx. R Murphy VK2ERM. Tel: (075) 36 4915.

□ WANTED — QLD □

CIRCUIT DIAGRAMS of AMR-300 rx, 62 and A-510 tx/rx, AT-21 tx, Type 5 pwr supply for ex-serviceman/restorer. Pay good price. VK4EF, QTHR. Tel: (07) 38 1803.

FR-100B/FL-200B — FRDX-400/FLDX-400 or **FTDX560** or similar. Also Eddystone GC rx EG-680. State price and condx to VK4CB, QTHR. Tel: (07) 202 6566.

VALVE TESTER, old valves (any condx) for collection. Old radios, JR colour TV circuits publications, Dick Smith 27MHz rx and tx tester for CB radios. VK4DY, QTHR. Tel: (071) 96 1186.

□ WANTED — WA □

ANY INFORMATION on Heathkit general purpose CRO, Model 10-21. Arthur VK6SY, QTHR.

□ FOR SALE — ACT □

COLLECTOR ITEMS: Crystal set, a good example of home-brew, probably 1920s vintage. Has varicouple honeycomb coils, square busbar, Hiz phones etc. WWII army telephones. One each JAP, Aust'set "F" MKII, teleset "D" MKV. Philips batt charger type 1016/1017, probably 1920s or early 30s vintage. Prices negotiable. Ted VK1AEP, QTHR. Tel: (062) 41 7376.

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FT-901 WITH MEMORY. CW filter and YD-148 desk mic. $795. FL-2100B linear amp. $300. VK2AAB. Tel: (02) 487 1428.

DECEASED ESTATE OF VK2ETV — Kenwood PS-30 power supply, Kenwood TR-7800 2m tcvr, Kenwood 530S tcvr, Kenwood VFO-230, Kenwood AT-230 ant tuner, Kenwood HC-10 digi world clock, Kenwood DM-81 dip meter, Kenwood MC-50 mic, Yaesu YM-38 mic. Clipsal brass key, Centron "Big Dummy" 1kW dummy load, National DR-48 comm rx. Black CTW all band ant. Rob VK2ERA. Tel: (02) 692 0886.

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KENWOOD TS-130S TCVR — power supply, desk mic and headphones. $595 ONO. Fred Jenkins VK2BFJ.

KENWOOD TS-520S TCVR. Very good condx with CW filter, ext VFO, digi readout, mic and manual. $575 the lot. John VK2NV, QTHR. Tel: (02) 525 4652.

MICROBEE IC-32 COMPUTER — lots cassette software. All manuals plus working RTTY decoder. $375 post paid. Will exchange 2m all mode tx/rx. VK2BBD, Longford, Bendemeer, NSW. 2352. All mail answered.

OSCAR 10 ORBITAL DATA FOR YOUR OTH, 1 mth $10, 2 mths $18, 3 mths $25. Send SASE for sample printout. FT-243 xtals. 20 diff freq between 3.5 and 6MHz. $10. Ian VK2ZIO, QTHR. Tel: (02) 680 2112.

SHACK CLEARANCE. Hustler LBTV with 80m resonator. $65. Kenwood TR-2200G 2m, 12 ch and MC-10 mic $90. MFJ-410 professor Morse $110. Random CW and keyer $110. MK-701 sideswiper CW paddle $25. Denis VK2AOO. Tel: (063) 62 5977.

SWAN 240 SSB TCVR — 80, 40, 20m with ext VFO, power supply and spkr. Manual included. $150 ONO. Comms rx DX-150A, 0.5-30MHz. Ex condx $100. Calculator Hewlett Packard HP-38E with power supply. Faulty display. Also 2 incomplete AWA MR-6A low band tcvrs with circuit diagram. What offers? Bruce VK2BHW. Tel: (02) 46 3706.

□ FOR SALE — VIC □

IAMBIC KEYER — MFJ-408 delux, as new. Full Iambic or semi-auto modes. 8-50 WPM, speed meter, weight control, practice side-tone. $150. Graeme VK3BGH. Tel: (03) 870 4371 AH.

IC-251A — 144MHz all mode tcvr. 12 mths old and little used. Mutek frontend for IC-251A, new and boxed. Belcom 70A 432MHz tcvr, all mode base station. Have worked 67 countries on Oscar 10 with this rig. VK3XEX, QTHR.

ICOM IC-560 6m FM/SSB/CW tcvr $350. Yaesu FT-901D tcvr, fitted with AM/CW filters, 10/24MHz WARC bands $720 ONO. Ten Tec Argonaut 509 tcvr $240 ONO. Icom IC-290A 2m FM/SSB/CW tcvr $350. Trio 9R59D rx $80. Yaesu FRV-7700 118-130, 140-150, 50-59MHz converter $75. Helray Mk11 peak power indicator. 200W model $20. Hi-Mound HK-702 Morse key (marble base) $25. 2 Type 15 teletypes $25 each. Creed 7B teleprinter $15. Swap 4CX350A valve for 4CX250B valve or sell for $20. Eric VK3BXA, QTHR. Tel: (057) 65 2384.

ICOM 22S. As new, no mods. $200. Hy-Gain TH3 jnr. Good condx $170. VK3EC, QTHR. Tel: (03) 541 2598 BH.

SHACK CLEARANCE. Superb DX rig. FT-102 as new. 1.8 kHz SSB narrow filter. Full workshop manuals. Will demo $750. FT-101ZD as new, used only as stby rig. Full shop manuals $550. Yaesu YM-38 desk mic $30. Shure 444 desk mic $75. Barry VK3XV, QTHR. Tel: (03) 527 4029 after 5 pm.

SYSTEM 80 COMPUTER — w/expansion unit, monitor, 2 disk drives. NEWDOS-LDOS-many programmes. $900. John VK3WZ. Tel: (03) 557 1771 AH.

□ FOR SALE — QLD □

ICOM 502 in good condx with h/book. Home brew transverter 52-144MHz. Lin amp 25W, 52MHz. Lin amp 25W 144MHz. All transistorised, neat clean units. All for $225. New 866A valves. Many others new and used. Enquiries welcome. VK4ZAL, QTHR. Tel: (07) 269 5832.

YAESU FT-7B. Less than 2 hrs tx time. Ideal for novice ot mobile. No mods. 13.8V. $400. VK4UQ, QTHR. Tel: (075) 45 1708 evenings.

□ FOR SALE — SA □

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PHILIPS FM-321 70cm **FM** tcvr. 80ch mod. Remote control and rx preamp fitted. $200 ONO. Good condx Trevor VK5ZTJ. Tel: (08) 254 7876.

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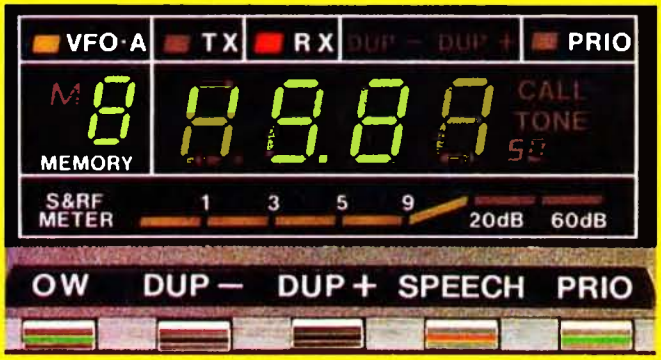

32 PL Frequencies Option. The IC-27A is available with optional 32 PL frequencies ready to go and controlled from the front panel knob. Each PL frequency may be selected by the main tuning knob and stored into memory for easy access along with frequency.

10 Memories. The IC-27A has 10 tunable memories available to store receive frequency, transmit offset, offset direction, and PL tone.

Memories are backed up by a lithium backup battery, which will store memories for up to seven years

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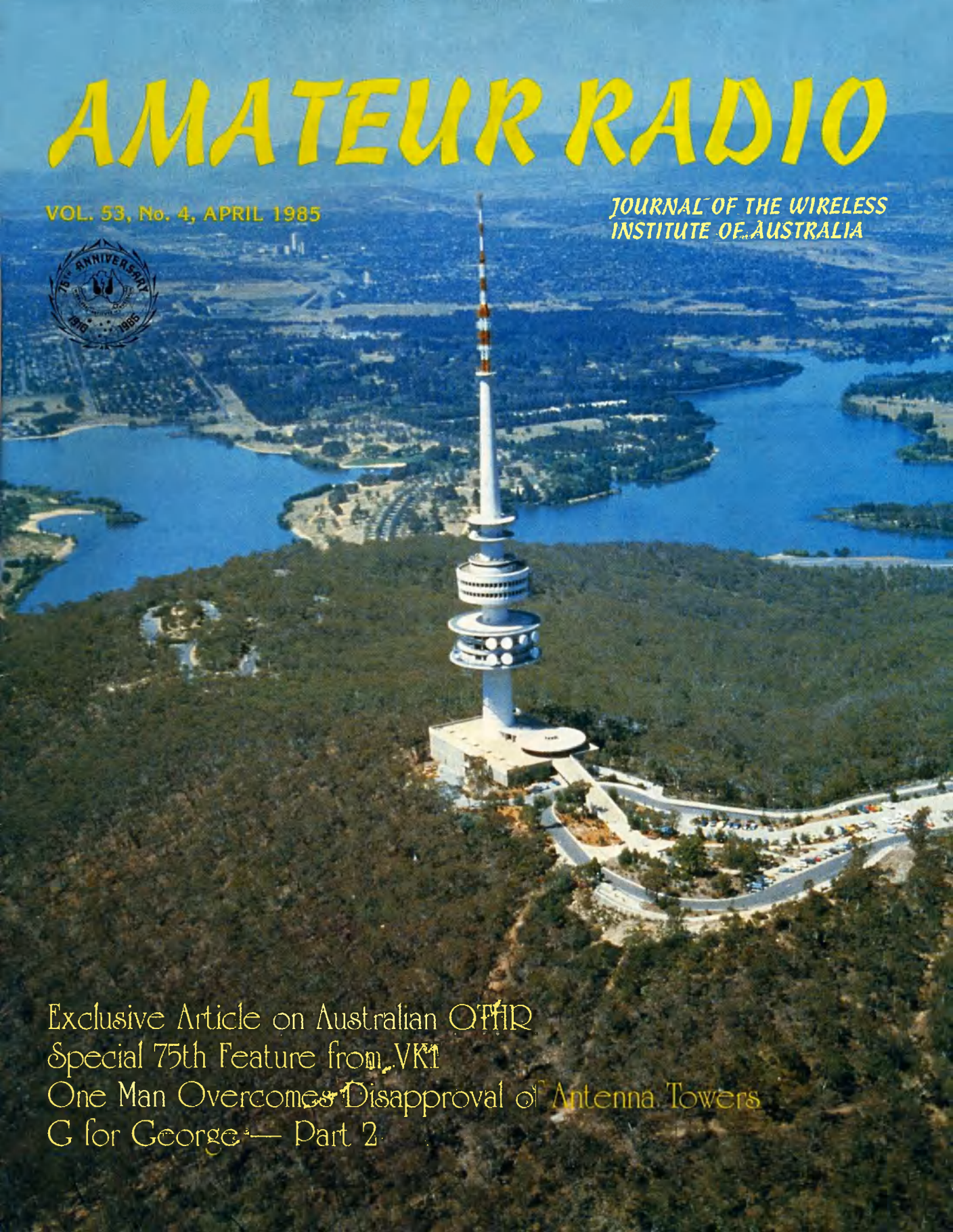
AMATEUR RADIO

VOL. 53, No. 4, APRIL 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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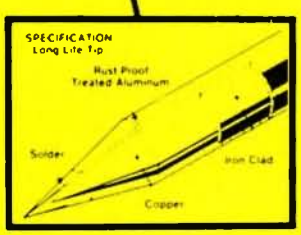

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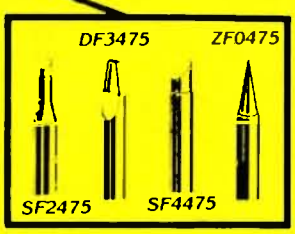

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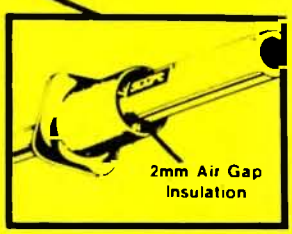

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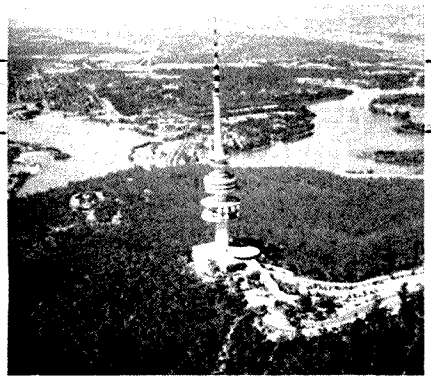

This month, the youngest Division of the WIA, VK1, have a special feature as part of the Seventy-Fifth Anniversary Celebrations. The cover photograph shows the Black Mountain Telecommunications Tower. Turn to page 35 for full details of this working landmark.

AMATEUR RADIO

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SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

This month's magazine features an exclusive article, written by Ian VK5QX, about Australian Over the Horizon Radar. Ian had to receive special dispensation with the article and explains how it works and what it is used for. Included are some marvellous colour photographs which we trust will not lose too much impact when they are printed in black and white. See p8.

It is sad to report the untimely passing of Peter VK3CIF on the 4th March. Peter was Secretary/Manager of the WIA for many years and since his retirement has contributed many titbits to the How's DX column, the most recent being in December page 46. Peter was a much travelled man and held many call signs. Deepest sympathy is extended to Peter's wife, Barbara, and children. (BKP)

DEADLINE

All copy for June 1985 AR (including Hamads, columns) must arrive at PO Box 300, Caulfield South, Vic 3162 at the latest by midday 22nd April 1985.

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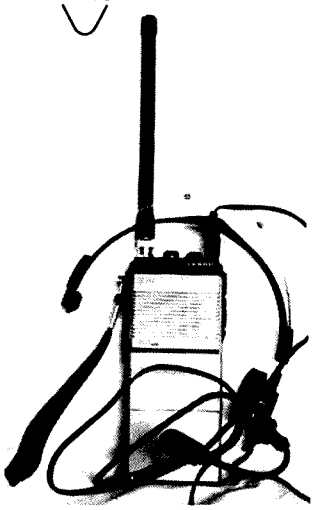

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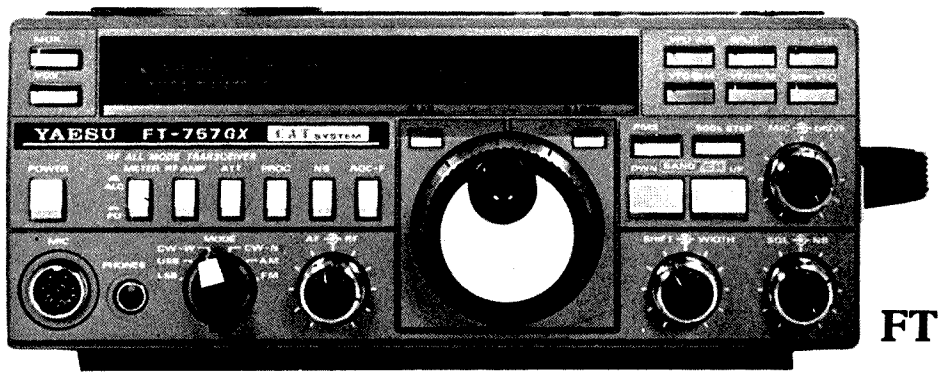

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AR85

a word from your EDITOR

CRYSTAL BALL

We have looked briefly at the radio world in 1910, the year of our Institute's foundation. We have touched lightly on the tremendous expansion of radio and electronics up to this, our 75th Anniversary Year. Now, in this historical light, can we guess what may evolve over the next 75 years.

Many have tried to foretell the future, before and since Tennyson wrote, over a hundred years ago, "*For I dipt into the future, far as human eye could see . . .*". Some have been remarkably successful. Arthur C. Clarke in 1945, before transistors or any but extremely sub-orbital rockets, suggested the geo-synchronous communications satellite. Forty years later, the world's communications largely depend on such satellites. Real-time international colour TV, complex computers exchanging data at incredible speeds, Smith chatting to Jones 3 continents away. Parking space 36,000 km above the Equator is the most valuable real estate "off Earth".

By 2060, we may expect space travel within the Solar System to be frequent, if not scheduled. There will be a flourishing human community on the Moon, and space stations in many orbits in between, serving all kinds of constructional and technological purposes. There may be a colony on Mars, and we may have begun to cool the climate of Venus. Communication with intelligent life elsewhere in the Cosmos may be a reality. Instantaneous electronic translation will have unified languages. Nuclear fusion will be the major source of energy for all, and the problem of radio-active waste will have been solved.

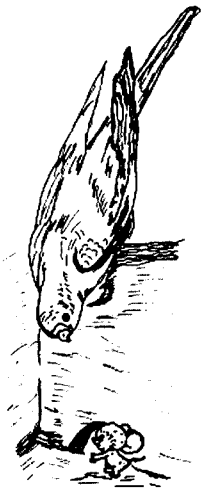
But all of this may never be, unless, as Tennyson hopefully proclaimed, "*. . . the war drums throbbed no longer, and the battle flags were furled. In the Parliament of Man, the Federation of the World.*" The terrible alternative is that because of national misunderstanding, jealously and hate, the human race may have obliterated itself in nuclear war.

We, the radio amateurs of the world, may well play a key part in saving this planet from destruction. Unique among communicators, we are ordinary citizens of all countries, able at will to reveal ourselves to each other as sharing the same interests and aspirations and a common humanity. May we hope that there will never be a 150th anniversary of the WIA as a sovereign national body, but that by then a fully international World Society will have united the interests of all mankind.

In the meantime, all Australians amateurs should be members of the WIA. In every aspect, nations must reflect the wishes of *all* their people, before a global society can unite all nations. There may be a future for "lone voices", but not when they are "crying in the wilderness". Most of you, reading this, are members. But if not, join us and play your part in the Federation of the World!

Bill Rice VK3ABP
Editor
AR

QSP



WHAT IS A RADIO AMATEUR?

This is a very difficult question and after serving two years as the Divisional President for VK1 I am still unable to answer it.

From one end of the spectrum of amateur radio we have the amateur who spends a considerable amount of time and money building and experimenting with equipment. At the other end we have the amateur who gains enjoyment from his hobby by chatting with amateur friends, either within Australia or overseas.

There are many facets of amateur radio — CW, VHF, HF, RTTY, Contesting, Seeking Awards, ATV — to name but a few. No matter which part we enjoy we should always be aware of our fellow amateurs point of view.

With our hobby we claim we can communicate all over the world but *do we communicate?* I think not!

There have been times when differences of opinion on various subjects have arisen between amateurs which, with better communication between them, could have been solved amicably.

Let us therefore — in our 75th Anniversary Year — resolve to communicate points of view within Clubs, Groups or Divisional Council, instead of complaining when decisions are made.

Without communication the many volunteers who work untiringly for your benefit in the hobby cannot be expected to perform as you would like.

COMMUNICATE AND BE HEARD!!

Alan Hawes VK1KAL
President VK1 Division
AR

CONGRATULATIONS RECEIVED

A cable has been received from JARL wishing the WIA well for the 75th Anniversary of its founding. The cable reads:

On the occasion of the 75th Anniversary of the founding of the Wireless Institute of Australia, I wish to express our heartiest congratulations on behalf of the JARL with best wishes for the success of the celebration and all other events.

Shozo Hara,
President of JARL.

WIA Seventy Fifth Anniversary News

BOOK PACKS

As announced in the March issue of AR, the Institute is making Book Packs available for presentation to school libraries.

Since the announcement in March the VK2 W1A Education Service has joined with the Federal body and as a result of this we are combining resources and are now in a position to offer a third book pack for $15 which will enable smaller clubs to participate in this scheme.

As 1985 has been proclaimed the Year of Youth, an event which is sure to gain more attention than World Communications Year, what better time to bring our pastime to the attention of the youth of Australia.

We would encourage you to get together and make a presentation pack of books on our hobby available to your local school or college.

SEVENTY FIFTH SUBSCRIPTION RENEWALS

As announced in the January issue of Amateur Radio on page 5, find below the second listing of members who have qualified for the gift packs and draw.

D Gibson VK1DG, K Pyett VK1NDK, D Thorne VK7MR, J Oliver VK7JO, J Davis VK7OW, B Wilson, VK8UW, S McNamara VK5ZH, C Judd VK5HQ, K Lord VK5NKN, D Shinkfield VK5BDS, D Robb VK5NDX, J Andersen VK5ZFO.

C Nielson L20065, B Connolly VK2BJC, P King VK2QK, J Crisp L20278, L Christensen VK2BLZ, A May VK2DHF, G Oates VK2DJA, G McLeod VK2FF, M Gunning VK2XAV, D Foster VK2VE, B Wade VK2AXI, P Malaney VK2AXU, N Cosby VK2ZBT, M Austin VK3DPG, R Magilton VK3DRC, D McManus VK3NG, P Lee L30172.

WGS Smith L30550, K Benson VK3ZGX, M Dods VK3ACX, J Martin VK3DEK, N White VK3NZ, P Milne VK3BEJ, C Baker VK3BXS, B Boyce L30425, A Woodward VK3BCJ, G Eves VK4JGE, V Lamprecht VK4MK, A Kearney VK4UH, M Downing VK4FX, G Cullen VK4NNA, G Dew VK4BOG, C Everdell VK4ZAO, K Aumann VK4NKR, L Buchbinder L60118.

W McGeogh VK6WL, J Lampert L60266, Mrs P Bradshaw VK6YF, J Sime VK6HN.

The Seventy Fifth Anniversary Sub-Committee, at its meeting in the Federal Office on the evening of the 21st February, supervised the selection of the draw for the Citizen Quartz Clocks and the recipients are listed below.

RW Elliot VK1ZAH, G McLeod VK2FF, FW Tam VK2TAM, J Martin VK3DEK, AL Ward VK3DAW, C Everdell VK4ZAO, J Jones VK4QP, HR Hodgson VK5AP, K Lord VK5NKH, P Bradshaw VK6YF, FA Page L60354 and J Oliver VK7JO

The clocks and gift packs will be dispatched to the members listed shortly.

FEDERAL SEVENTY FIFTH ANNIVERSARY DINNER

This function, as previously announced in earlier editions of AR, will be held at the Southern Cross Hotel in Melbourne.

Mr Richard E Butler, Secretary General of the International Telecommunication Union, has confirmed with the Federal Secretary that he will be attending. As many members will be aware, Dick Butler is an Australian holding this high ranking position in Geneva.

Other personalities have also indicated agreement to attend.

Members are again reminded that any who wish to attend this function should register their interest with the Federal Secretary. Again to remind you, space is limited, but a percentage of tables have been reserved for members who wish to attend this important function.

For out of state members negotiations are taking place with the internal airlines to obtain concession fares for this function. Details of the result of these talks will be printed in a later edition of AR.

WARD — WORLD AMATEUR RADIO DAY

The 18th April 1985 is World Amateur Radio Day and this day is proposed as an activity day for the 10, 18 and 24MHz bands.

During this day these bands will be monitored by executive members and by your Divisions. A random selection of call signs heard on these bands during the twenty four hours will be placed in a draw for commemorative momentos.

MEMBERSHIP DRIVE REMINDER

As announced in the January edition, members are reminded that proposers of new members will receive small gifts during this anniversary year.

There is also the opportunity for each seventy fifth new member to receive a presentation clock for their shacks from the Federal Office.

Also the special limited edition Seventy Fifth Anniversary Membership Certificate is being issued to new members in this anniversary year.

AR

APRIL 1985

SUN	MON	TUE	WED	THU	FRI	SAT
	1 April Fool's Day	**2**	**3** 10th Chipperton DX Dve til 10th	**4** Narassa DX Dve VK4 School Hols	**5** Good Friday	GARTG SSTV Test Easter Saturday Jewish Passover Festival to 13th Polish CW?
7 GARTG SSTV Test	**8** Easter Monday	**9** Easter Tuesday	**10** Croatian National Day	**11**	**12** VK5 Clubs Convention	VK5 Clubs Convention Moorabbin & Dist RC Trade Day VK2 Conference Clubs Annual Fireworks Dural
14 VK5 Clubs Convention VK2 Conference Clubs Orthodox Easter Icom Day	**15** VK4 School Hols end	**16** VK6 AGM	**17**	**18** World AR Day	**19**	**20** ARCI QRP SSB Test VIGO World Fish Test
21 ARCI QRP SSB Test VIGO World Fish Test Queen Elizabeth II born 1926	**22**	**23** VK5 AGM St George's Day Shakespeare Born 1564-1616	**24** AR Copy Deadline	**25** ANZAC Day	**26** Annual Convention Dayton Hamvention USA	Annual Convention Dayton Hamvention USA Westlakes ARC 21st B'day
28 Annual Convention KARL 30th Anniversary Dayton Hamvention USA	**29** Cook in Botany Bay 1770	**30** Dutch Festival Day Queen Juliana's B'day		Dates correct at time of printing.		

CHRISTMAS ISLAND

Dennis Hardie VK9XZ/VK6CZ
Box 99, Christmas Island, WA. 6798

Christmas Island is a small island in the Indian Ocean at 105.6 degrees east by 10.5 degrees south and is about 2300 km NNE of Perth, WA. The Island was sighted in 1643 on Christmas Day by Captain William Mynors of the East India Company. A party from the Cygnet is reported to have landed in 1688. Later, members of the Clunies Ross family visited the island to cut timber for boat building.

L to R: Charles VK9ZAB, Dane VK9XD, Ron VK9XA, Tony VK6ATI, Ron VK9XJ, Lindsay VK6LJ. Front: Craig VK9XW and Dennis VK9XZ.

In 1887 an expedition from HM Egeria collected the first phosphate specimens. Then in 1888 the Island was annexed by Captain W H May of HMS Imperieuse as part of the British Dominions and placed under the supervision of the Straits Settlement's Government for administrative purposes. Later a small settlement was established by Mr Clunies Ross and in 1891 he and Sir John Murray were granted a 99 year lease of the Island. The lease was transferred to the Christmas Island Phosphate Company Limited, with Murray as chairman and shares divided between the Clunies Ross and Murray families. In 1900 the Island was incorporated with the Settlement of Singapore and Chinese phosphate workers were recruited to the Island. In 1919 the railroad across the Island's central plateau to phosphate deposits in the south was completed.

The Island was occupied by the Japanese from 1942 to 1945. They were unsuccessful in their attempts to export phosphate during the war years. In 1949 the British Phosphate Commissioners became the managing agents for the Christmas Island Phosphate Commission, a joint enterprise of the Australian and New Zealand Governments.

On 1 January 1958 the Island was gazetted a British Crown Colony then finally on 1 October 1958 it became an external Territory of the Commonwealth of Australia. On 24 June 1981 the Phosphate Mining Company of Christmas Island Limited, a company with limited liability with the Australian Government being the only shareholder, became the successor organisation to the British Phosphate Commissioners.

Lastly and most importantly on 27 November 1984 Christmas Island saw its most significant achievement — the greatest number of amateur radio operators ever on the Island at any one time. For quite some time there had been three operators, Craig VK9XW, Dane VK9XD and Ron VK9XA then Charles passed his exam to become VK9ZAB. November was to see the arrival of two more amateurs who were to work for the mining company. They were Dennis VK9XZ and Ron VK9XJ but on the day that Ron arrived there was a surprise. Tony VK6ATI had been on the Island for a week and the pilot of the Airlines of Western Australia F28 was Lindsay VK6LJ which made a total of eight amateurs on the Island, for a short time anyway.

Since the arrival of the two new amateurs there has been an increase in activity on air, especially to the mainland, however the conditions are a little primitive at the moment as all are operating off 80 metre dipoles through antenna tuning units. In the near future there should be a dramatic improvement as towers are under construction which will mean that better signals will be heard from this beautiful tropical island in the Indian Ocean. If you hear Christmas Island then please call in, we will try to give as many people as possible a QSL card from VK9X. **AR**

HIGH FREQUENCY RADAR AND THE AUSTRALIAN AMATEUR RADIO OPERATOR

Ian Hunt,

Electronics Research Laboratories,
Defence Science & Technology Organisation,
Department of Defence,
Box 2151, Adelaide, SA 5000.

All amateur radio operators are conversant with the term 'propagation' and most of them have some understanding of the subject. It is likely that candidates for amateur radio certificate examinations will encounter questions designed to ensure some knowledge of radio propagation. This knowledge may at first be small, but when an operator expands their interests into more serious aspects of communicating and experimentation they find that a more detailed study of what propagation is about can help. Such an understanding can make all the difference between success and failure.

Many amateur radio magazines regularly publish predictions for 'Ionospheric propagation' for various paths of interest. These refer to the expected way in which radio signals will travel via the ionosphere to be reflected or refracted so as to return to the surface of the earth at the location desired. The predictions which appear in Amateur Radio magazine are provided on the basis of data gathered by the Ionospheric Prediction Service here in Australia. This service is provided by the Commonwealth Department of Science with its headquarters located in Sydney. The service even provides up-to-date information in the form of recorded announcements on a Sydney telephone number. The American National Bureau of Standards provides a similar service via their Time and Frequency Standard stations WWV and WWVH which operate continuously in the high frequency portions of the radio spectrum.

As one learns about propagation and how it occurs it becomes apparent that radio signals can be reflected from various objects and under varying conditions and that sometimes rather strange effects may be noted. For many years amateur radio operators, and particularly professional scientists have studied these effects both to increase knowledge and to use the effects to good purpose Most people are aware of the use of reflected radio signals for the purpose of 'radar'. The most obvious uses are the tracking and positioning of aircraft for safety purposes, the location of other ships at sea so as to avoid collision and even the rather unpopular use of the effect to detect speeding drivers. Most of these uses involve frequencies in the higher UHF and microwave regions of the spectrum.

At high frequency, particularly on those bands regarded as best for DX operating, we soon discover that the method whereby our signals travel to distant parts of the earth is rather complex. We begin to hear terms such as Sunspot Number and Eleven Year Cycle Enquiries soon elicit the fact that these terms refer to the effects which the sun has upon those layers of the earth's atmosphere known as the ionosphere Around the earth, at varying heights ranging from 80 to 800 kilometres are layers of atmosphere which become ionised due to the effects of ultraviolet radiation from the sun. These layers are fairly well defined and each has a central region of relatively dense Ionisation with density tapering off both above and below.

It is not the intention of this article to give a detailed description of how the ionospheric layers work. Suffice to say that the subject is very interesting. Much can be learnt about the ionosphere by reference to handbooks such as the ARRL Handbook and by reading back issues of Amateur Radio, QST etc, and reference to learned papers presented in various widely available scientific journals.

It will be sufficient, although a simplified approach, to regard the ionosphere as a large mirror which reflects radio signals. The reflecting capability of this mirror does not remain as stable as we perhaps would like and this leads to a number of problems when it comes to the ability to bounce a constant signal off this distant mirror back down to the earth's surface Much experimentation has been conducted over the years addressed to these problems. The references at the end of this article will give the reader some insight as to the nature of these experiments. As a result it has been discovered that the ionosphere as a reflecting medium is suitable for radar work at High Frequencies. For example the author was some years ago involved in the operation of a sounder which swept through most of the frequencies in the HF portion of the spectrum and made continuous measurements, on virtually a twenty-four hour basis, for a period of eighteen months. The transmitting equipment for this experiment was located in the north of South Australia and the receiving gear located at Broome on the north-west coast of Western Australia. The system employed used low power and very narrow bandwidths and was such that other users of the HF spectrum either were not aware of its existence o· would not be troubled by the momentary appearance of the signal as it passed by the frequency they were using. This ionospheric sounder was one of many which have operated continually all over the world gathering various types of information as to just what our somewhat fluid reflecting mirror is doing. Work to develop radar systems using the HF portion of the spectrum is of great interest to the scientific and military sectors of many nations as such systems have a great potential for surveillance of wide areas of land and sea at great distance Further comments on this will be provided later in this article

Any operator who has used HF receiving equipment for a reasonable time will have encountered, what has been dubbed by amateurs as, the 'Russian Woodpecker'. This nickname for a most objectionable interfering signal describes well the harsh repetitive tapping sound produced by the signal which emanates from one of apparently several installations at which HF Radar experiments are being conducted by the USSR. You may wonder why it is that you hear such signals here in Australia so distant from their source This may be because such radar systems are intended to be capable of seeing objects at such large distances. The nature of the radars referred to earlier, working at UHF and above, is such that detection can only be carried out over a fairly short range (ie to the horizon) despite the use of high power and large high-gain antenna arrays and dishes at those frequencies. In connection with the HF radars in use the terms Over-The-Horizon-Radar (OTHR) and Over-Horizon-Detection (OHD) have come into common use

Following the World Administrative Radio Conference (WARC) held in 1979 the Wireless Institute of Australia Representatives reporting on the Conference to the Annual Federal Convention of the WIA, in Melbourne referred to the Russian Woodpecker. Complaints have been formally made by various nations through WARC procedures and the USSR delegation replied to the effect that the signals complained of were simply those produced by a system studying Ionospheric propagation. Other countries were stated as being involved in similar experiments and the USSR intended to continue these scientific investigations until such time as it no longer saw the need.

It is no particular secret that some other countries have in fact been carrying out studies for the development of Over-Horizon-Radars, however it certainly does not seem that experiments by these other countries, included amongst which are our own country, Australia, as well as the USA and the United Kingdom, have created any interference along the same lines and to the same extent has occurred with the very much disliked 'Russian Woodpecker'.

Here in Australia we have only one OTHR Facility. This is located in two sections, for fairly obvious technical reasons. Both are in the general area of Alice Springs in the Northern Territory. The receiving site is in an area known as Mount Everard and fairly close to Alice Springs with the transmitter site at the location of Harts Range some 100 kilometres to the north east. Separation of the sites in this manner overcomes the difficulties of having sensitive receiving equipment close to powerful transmitters.

An extremely good description as to just what was being done in the USA in this field was provided in an article by O G Villard published in QST magazine for April 1980. In general the description of the methods used by the USA explained in that article also applies to the methods adopted by Australia particularly in regard to interference to other services.

I well remember the subject of interference from the Russian OTHR being discussed at a Federal

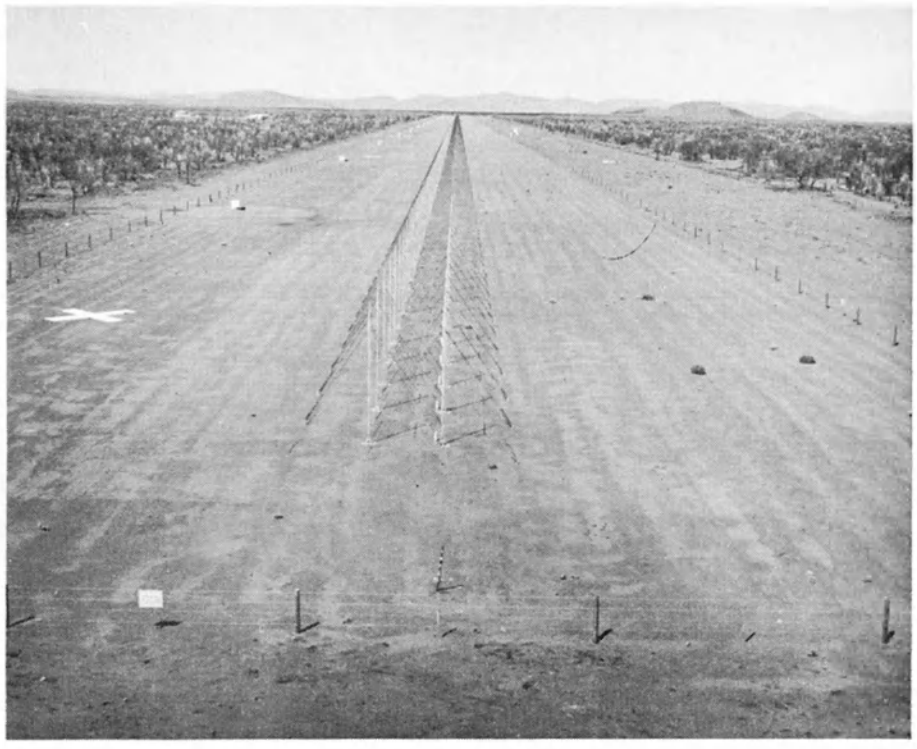
Convention of the WIA. One theory was put forward that by placing your amateur transmitter on the frequency where the signal appeared to be loudest and keying your signal on and off at the same rate as the pulsing 'Woodpecker' signal you could cause interference to the radar receiver and thus cause the operators of the 'Woodpecker' to change to another frequency. However this suggestion was not accepted as a recommended practice as reason fortunately prevailed. Anyone familiar with signal processing methods in use today would realise almost immediately that with advanced modern techniques such interference could often be easily discerned and separated from the required signal. It was also pointed out that it was not a good approach to try and fight pollution with pollution. The situation could easily exist where, even though the 'Woodpecker' intertered with you, it might not do so to some other operator some distance away. Your deliberate interference could however in turn present a problem for him where otherwise he would have no trouble. So, we should stop and think carefully about what we are doing. However back to the matter of our own OTHR.

The Australian OTHR project was given the name Jindalee and was announced by the then Minister for Defence, the Honourable Lance Barnard MP, on 11th April 1974. Around 1978 the first (Stage A) portion of the project was completed. This stage had proved the approach adopted and had successfully tracked such targets as commercial aircraft flying along the air route from Singapore Much data was also collected from associated experiments on the various conditions of the Ionosphere

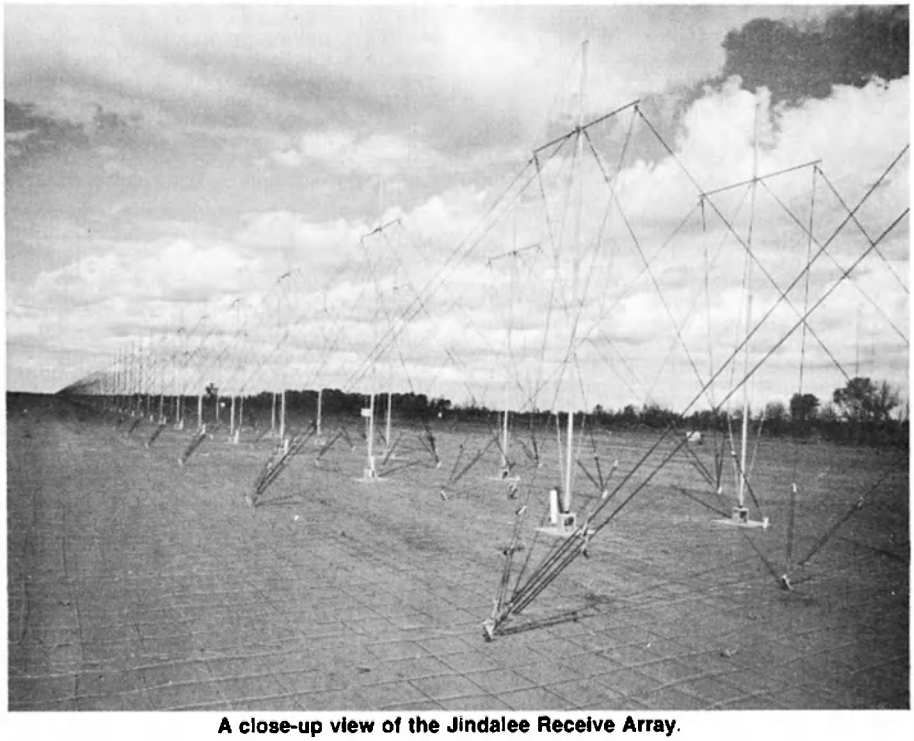
Following this encouraging success the project was then expanded (Stage B) and a much larger receiving antenna array was installed which has the capability of beam steering. Such an antenna system is certainly spectacular to see as it comprises a total 486 pairs of broadband monopole antennas with each pair phased and sitting on top of a very large ground mat. This receiving array stretches over a distance of 2.8 kilometres.

The pairs of monopoles (or aerial elements) feed via very high quality coaxial cables to underground bunkers where groups of elements can be controlled through sets of many relays which switch in and out additional phasing lengths of cable With all this controlled by computers it can be imagined the complexity required to provide the switching and phasing apparatus to be able to steer the radar receiving beam to aim in the direction necessary to receive a particular reflected signal. The cables and switching equipment are installed underground as this approach undoubtedly assists in stabilising the system temperature. Also running cables and placing equipment underground improves the shielding of equipment and thus produces an advantage both regarding normal reception and pick up of unwanted signals. The signals which are received are generally at very low level. This is understandable since the wanted signals are those sent out by the transmitter, reflected by the ionosphere back to earth at a distance of perhaps 3000 kilometres away and then scattered again from the earth's surface or target object to arrive back at the receiver site again via the Ionosphere These signals are called Back-scatter signals and from this comes another term also used to describe the radar, that being an Over-The-Horizon, Backscatter System. (OTHB).

The power output of the transmitter located at Harts Range is not officially disclosed, although one publication has given it as being in the order of 400 kilowatts This transmitter feeds into an array of vertically polarised log periodic antennas. These antennas, like those at the receiver site, are aimed generally north-west, the beam being again steerable in azimuth. The transmitted signal covers an area dependent upon the height of the Ionosphere and the frequency in use Transmitter parameters can be altered by control from the receiving site VHF links are provided between the transmitting and receiving sites for control purposes. The system allows the receiving beam to be steered so as to only receive



Jindalee Receive Array.



A close-up view of the Jindalee Receive Array.

or look at signals coming back from a small sector of the area being illuminated by the transmitter. The area under total surveillance illuminated by the transmitter is known as the radar 'footprint'.

While all the action described above is going on, the received signals and the data they contain are being analysed by the powerful computers associated with the receiving site Frequency shifts on the returned signals caused by targets which are moving are known as doppler shifts, and the amount of shift gives an indication of the radial speed of the target. Thus the return signal and its shift for a large and fast commercial aircraft will be fairly easily detected as against the return from a small ship or other surface vehicle.

To make the most effective use of the Ionosphere a backscatter sounder examines the HF spectrum continuously to determine the state of propagation conditions and from the information thus obtained to decide the best operating frequency for the

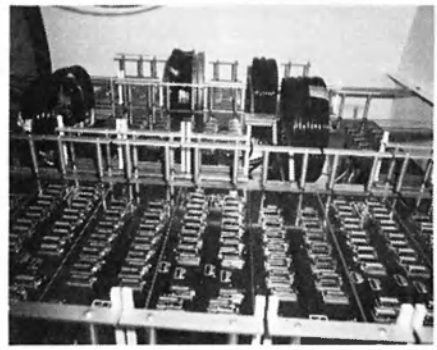
Entrance to an underground bunker.

transmitter. Concurrently a frequency surveillance system provides a continuous monitor of HF spectrum occupancy. This system ensures that interference is not suffered by other users, as the transmitter is barred from operating on any occupied channel. The computer systems also contain information of other frequencies on which it is required that the transmitter must not operate. I can state with certainty that such frequencies include the whole of the HF amateur radio bands. This fact, as well as the information so far given, should make it obvious that statements that OTHR signals emanating from the Jindalee system are observed in the amateur bands would be ill advised, alarmist and irresponsible in nature. The same can be said of such uninformed comment referring to 'portable' Jindalee systems. Many experiments, such as those conducted with the Jindalee system, and other projects associated with ionospheric studies which employ wide frequency ranging equipments in the HF region have been carried out and in fact produced very little, if any, harmful interference over many years. Most programmes of this nature are sponsored or carried out by Government organisations and Universities. Such agencies, particularly in the Western world, would be very sensitive to any suggestions that they were likely to cause any interference to essential and emergency services operating anywhere in the radio spectrum let alone on internationally allocated HF portions of the spectrum.

The modulation system for Jindalee is such that it does not provide rapid rise and fall times with pulses as does the 'Woodpecker'. It would seem unlikely that an observer would confuse one with the other. I have heard of no word of complaint from any amateur radio sources about Jindalee operations to date during either Stage A or Stage B.

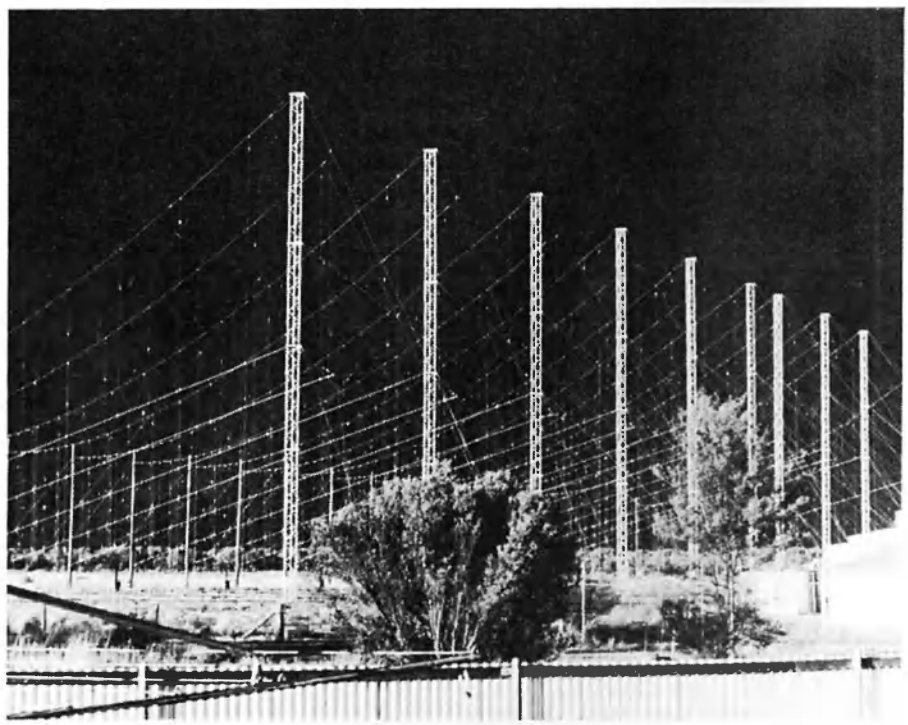
Many of the uses of OTHR would seem to be associated with defence work, however there are probably other benefits which can be realised. Surveillance is not only necessary for military purposes. Observation of aircraft on commercial routes can be of great importance from a safety point of view. Very early in the development of the Jindalee concept, referring to a watch on our Australian coastline, the possibility was suggested of detecting unauthorised flights such as by drug-runners crossing our shores by aircraft and landing on small hidden or disused strips.

Another aspect of great interest is the fact that waves travelling on the surface of the ocean can be detected by such radar systems. This could assist with the safety of shipping and also in connection with the detection and tracking of tropical "lows" and cyclones. An increase in the knowledge of the characteristics of the Ionosphere and its behaviour resulting from the associated experiments could be of benefit to all who use radio for long haul communication. The techniques involved in dealing with detection of small signals and other problems such as cross-modulation free front ends for sensitive receiving gear as well as the use of broadband radiators and active receiving antennas are other spinoffs which can benefit our society, including amateurs, in many ways. Computers are playing an ever increasing part in the handling of our communication systems and in controlling the units which we use even in the amateur radio shack, so more information may become available to assist in updating and improving our technology in general.



Relays and Phasing Cables in Bunker.

In conclusion just a little more information regarding our own Australian OTHR Jindalee. The design and development of the system has been mainly carried out by the Electronics Research Laboratory which forms part of the Defence Research Centre, located at Salisbury, South Australia. It is rather interesting to note that from its inception there have been a number of workers who are also amateur radio operators on the project technical team. I am sure that in their own way they have made a useful contribution to this project and at the same time have gathered knowledge which they have put into practice in their pursuit of our hobby. Much of this knowledge will be passed on to others of our fraternity. Also, this project has, to a very large extent, made use of Australian industry and materials locally available.



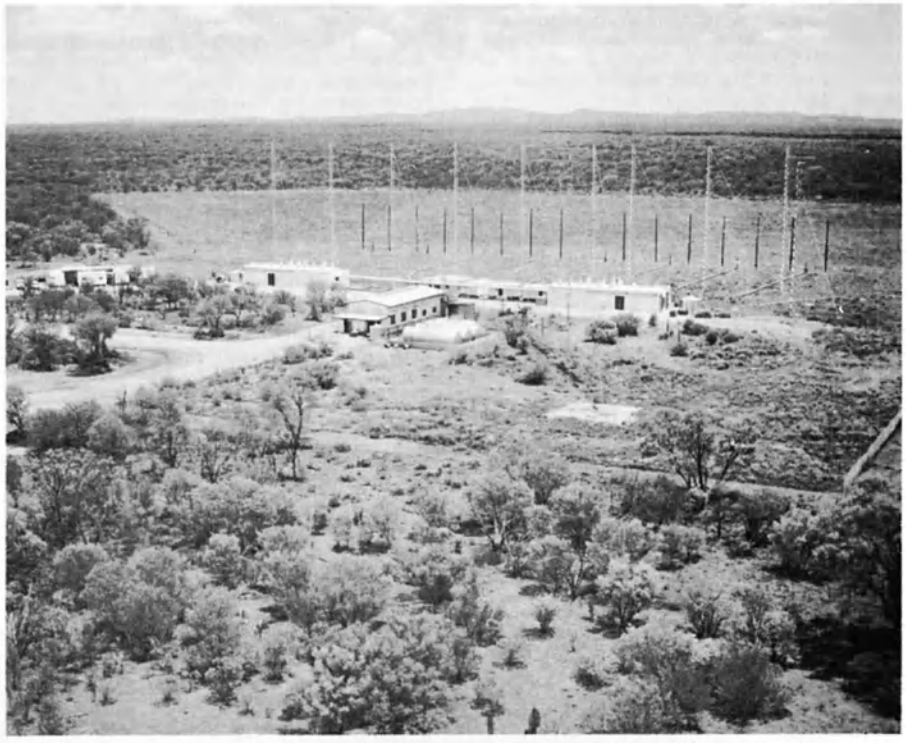
The Transmitting Aerials.

I am indebted first of all to the Superintendent of Radar Division, Mr Lester Soden for his advice and encouragement in the preparation of this article I wish to acknowledge the benefit of being able to talk in general with various professional and technical officers (who I regard as both friends and colleagues) with whom I have been associated both in connection with Project Jindalee as well as some of the preliminary projects and other activities far removed from this field.

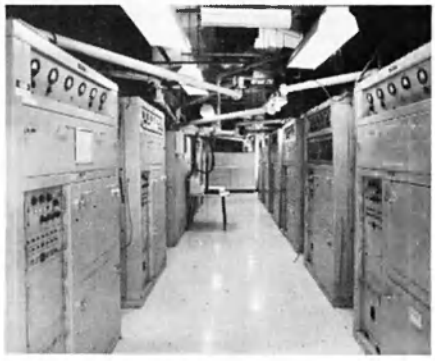
Approval by the Director of the Electronics Research Laboratory, Defence Research Centre, Salisbury for publication of this article is acknowledged.

Should readers wish to view a video-tape which provides a good background to better understanding of Project Jindalee I am sure that the WIA Federal Videotape Co-ordinator would be very pleased to accept requests for a copy of the videotaped lecture which was given to a Divisional monthly meeting of the South Australian Division of the WIA by a member of the Jindalee Team from the Electronics Research Laboratory.

I trust that this article has perhaps given a small insight into just what is occurring in the field of High Frequency Radar in Australia and that it will also allay some of the unnecessary fears about its impact upon amateur radio activities. I must however add that, as there are a number of aspects associated with Project Jindalee which are classified for reasons of national security, I would not be prepared to enter into a discussion of the subject on the air via amateur radio. Should readers wish to ask questions of a reasonable nature I would be prepared to receive any letters and endeavour to reply in writing as and when time and need permit.

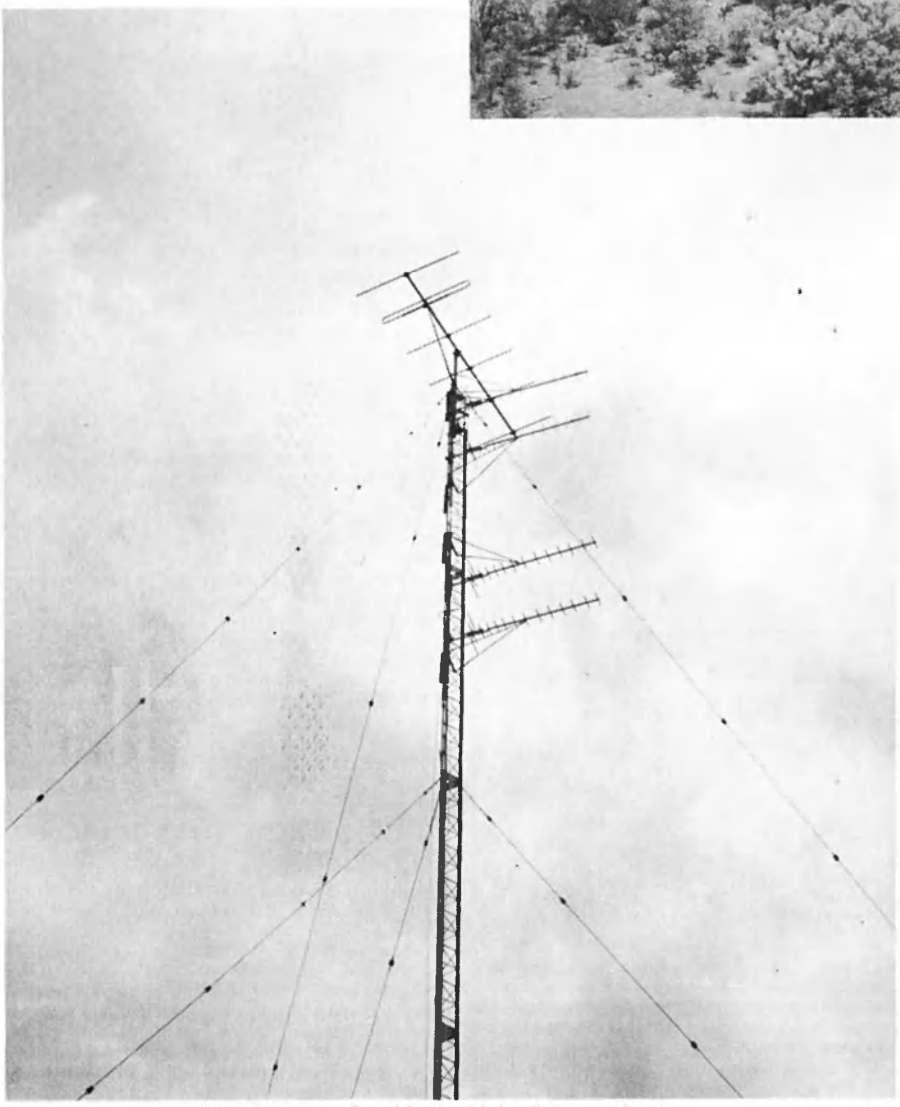


Transmitting Station and Antennas.



Transmitters.

Phasing Cables in the Bunker.



VHF Antennas Provide the Links Between Stations.

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Beyond the Horizon — a new concept in detection. Bernard Blake.

ABOUT THE AUTHOR

Ian J Hunt VK5QX has held an amateur licence for 26 years. His previous callsign was VK3ZX. He is an Honorary Life Member of the Wireless Institute of Australia and has served on both the Victorian and South Australian Divisional Councils. He is a Past President of the South Australian Division and was also a Federal Councillor. He is a keen contest operator and DXer. Ian says that he is only five countries off having worked 300 on one band, one mode since 1981. He has been employed by the Federal Government since 1954 following service in The Royal Australian Signal Corps. He was stationed at Woomera for a period of seven years and whilst there worked at the NASA Satellite Tracking and Data Acquisition Network Station at Island Lagoon as well as at the Missile Range where he was involved in Telemetry work. He is currently a Technical Officer and employed with the Electronics Research Laboratory, Defence Research Centre, Salisbury, South Australia.

AR

THE VK6NMS HALO

(A 1 wavelength loop)

© 1984

"Rev", VK6NMS,

Box 261, Mandurah WA 6210

I am prepared to wait for my harp, but I thought I would try to make a halo for myself that could be used until (if ever) I qualify for a smaller, mode-to-fit variety.

SHAPE SELECTION

There is common accord that the best shape for a loop antenna is the one that encloses the greatest area for a given perimeter. The practicalities of construction limit the number of possible shapes to several simple geometric figures.

If we take a perimeter of 10 metres we find that an equilateral triangle embraces 5 square metres, a square 6 square metres and a circle 8 square metres. Expressed in ratios this is 1, 1.2, and 1.6 as illustrated Fig 1.

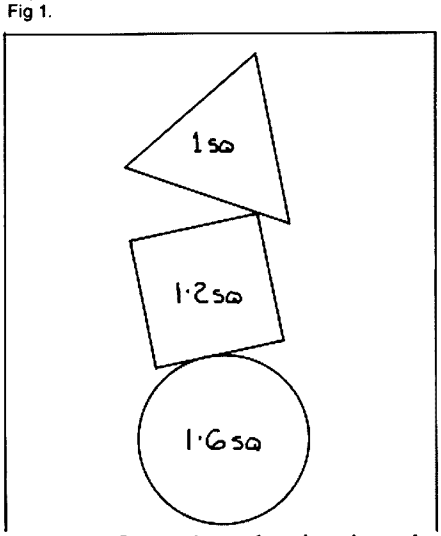


Figure 1 — Comparison of enclosed area for different shapes with the same circumference.

Delta loops and quads have their devotees whose signals boom around the world in cascading cacophony, but why can't a purist have a "halo".

DESIGN DETAILS

You could do as I did and read a text and follow the formulae. For 28 MHz the appropriate sizes are:

Reflector 11.0 m
Driven ele. 10.68 m
Spacing 1.3 to 1.5 m

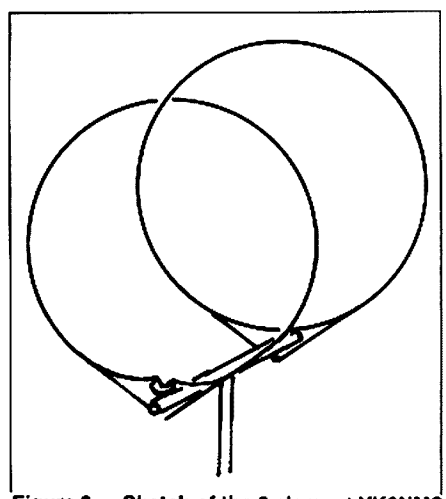
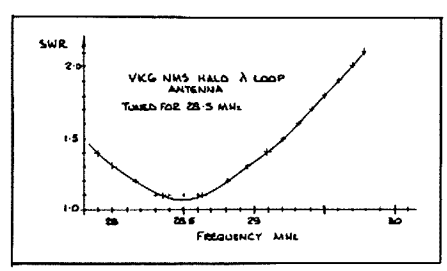


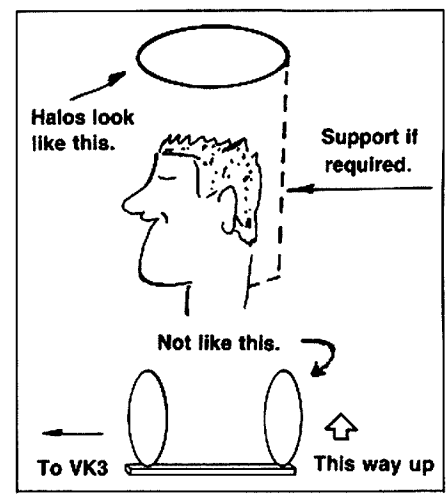
Figure 2 — Sketch of the 2 element VK6NMS "Halo".



CONSTRUCTION DETAILS

Deltas and quads can use wire elements supported by straight lengths of fibre-glass rod but the construction of a wire loop needs a different approach. My solution involves bending two glass-reinforced plastic (fibre-glass) fishing rod blanks and placing the wire elements inside the blanks.

The longest fishing rods I could find were 6.4 m long telescoping blanks, known by name as "Shakespeare" and "Wonderpole". They were obtained locally for $23 each.



The thinner ends of the blanks were joined together and the wire threaded through. The wire element's ends were brought out through small holes about 0.5 m from the large ends.

The large ends were butt-opposed and fitted into a .91 m length of 50 mm waterpipe which had been bent to an angle of 100 degrees. Silicone filler was used to cushion and hold the butts.

The wire ends of the reflector were joined and a 1:1 balun used to connect the driven element to 50 ohm coax.

Now assuming you have followed my method you would be ready to hang the loops off your boom and, as they say in the bush, "Bob's yer quagmire". But why hang it? Why not stand it on the boom? This gives some extra height. If you go mobile this is important — but watch out, you could swallow every truck on the Nullarbor.

(Tech Ed's Note: The "halo" antenna is traditionally a horizontal half-wave dipole, bent to form a circle with the ends mechanically constrained by an insulator. It is often used on 52 MHz and 144 MHz and occasionally on 28 MHz as an omni-directional antenna. A gamma match is generally used to match to 50 ohms.)

AR

TALKING ROPE THAT COULD SAVE LIVES

A mountaineering rope that carries an integral communications cable has been developed by a British manufacturer.

The Elite Contact 2000 talking rope system utilises a climbing rope, tested to 2200 kg, in which is a spirally coiled cable, allowing it to be stretched, knotted and shocked loaded without loss of transmission. The basic system consists of two individuals linked together via the rope. Each man wears a throat microphone and a hardhat with a built-in headset. Communication is possible up to 4 km.

From New Technology in Britain

AR

PORTABLE AROUND SYDNEY

or how to promote amateur radio . . .

Sam Voron VK2BVS
2 Griffith Avenue, Roseville, NSW, 2069

GOING TO THE BEACH? One table, some chairs, dipoles for 1.8 to 30MHz, Mark VK2PIX at the controls shows how it's done. A 12 volt generator to a regulator, a bag with 10amp battery as back-up (all on grass) ensure a great weekend day and night away from it all on the North Cliff side of Coogee beach overlooking Wedding Cake Island.

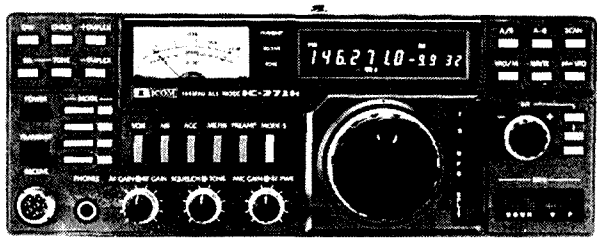
SHOPPING PLAZA PORTABLE. One day local shoppers stared with amazement at the 9.1 metres aerial mast under all that radio gear. A simple request to Bankstown Council *"Can I set up a radio display day and night for 48 hours in the middle of Bankstown Plaza?"* The answer *"Would you like us to provide 240 volts?"*

THE PUBLIC LOVE SENDING MESSAGES VIA AMATEUR RADIO. Sending greetings to friends and loved ones is a lovely way for people to come in contact with our hobby for the first time. It encourages people to learn more about the diversity of our hobby.

MESSAGE HANDING, SSTV AND BEING FRIENDLY. Were all combined outside the Grace Brothers store in the middle of Chatswood Shopping Centre to celebrate with the public "World Telecommunications Day" and activate the AX prefix from this spot for 24 hours.

Sam's Home Antennas.

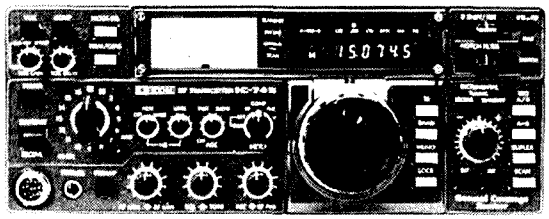
AT HOME.



All mode 2m 100 watt base
The Ultimate in two metre communications, large dynamic range receiver and a full 100 watt output combine with the microprocessor control system to give you the best in VHF performance. 32 memories, scanning, VOX, all the features you have come to expect from ICOM.

ICOM IC-271H

Frequency Range	144Mhz to 148Mhz all mode
Power Output	100 watts (IC-271A 25 watts)
SSB Sensitivity	Less than 0.5μV for 10 dB S + N/N
Stability	10ppm (−10 to +60 c)
Audio Power	2.0 watts



Your new work horse
An easy radio to use. The general coverage receiver, and multi step memories are a part of the system concept ICOM engineers employed when they designed the IC-745. IF shift, PBT, and a Notch filter will help you clear the air for that unique QSO. In spite of all the features built into the 745, it is very easy to use.

ICOM IC-745
Take a look at the front panel. The sensible layout is segmented into the logical control sectors ... Phew. Built in scanning will help you find that clear spot in the band, or listen for the rare voice from Verkhoyansk. Where?

ON THE ROAD.

The Fabulous IC-27A
A 25 watt mobile that will fit just about anywhere. Nine memories available are backed up by lithum battery providing approximately seven years life. Scanning and priority scanning allow you to get the best from this tiny package. As an added feature, a digital voice synthesizer is available as an option. Check it out now.

Typical Specifications

Frequency Coverage	144Mhz to 148Mhz
Power Output	25w (high) 5w (low)
Sensitivity	Less than 0.4μV for 20 dB Noise Quieting
Audio Output	2.0 watts
Size	140mm (w), 38mm (h), 177mm (d)

Check out these and other ICOM radios at your local authorised ICOM dealer. Write for product catalogue today.

ICOM The World System

7 DUKE STREET,
WINDSOR, VICTORIA. 3181
PHONE (03) 51 2284

ALL SPECIFICATIONS ARE TYPICAL ONLY

AR85

TUNED FEEDERS FOR VERSATILITY AND EFFICIENCY

Vic Joyce VK2EVJ, ex VK2AEN

After a break of 25 years the little "black boxes" appeared miraculous!! Ten bands!! and receiver too!! But ten bands called for serious antenna study. The result — the "Centre Fed Zepp" wins hands down as the only antenna to work perfectly on any frequency on any band! Not with an SWR up to 2:1 on what should be a flat line, but perfectly tuned to any chosen frequency.

To get on the air I put up a "Centre Fed Zepp" with 24m flat top and feeders approx 18m. One end was over a neighbour's tree, the other on the TV mast on the house.

The results exceeded expectations and it operated on all bands from 160m to 10m.

The tuner circuit I chose had a split-stator capacitor and tuned primary as this gives tightest coupling. I found it necessary to short all of the taps for the 10m band, probably due to the large size for 160m. The coil was wound on a former of 13mm perspex, grooved every 1/8 inch and glued in the form of a cross. While winding the corners were filled with pieces of broom-stick. Pending finding suitable switches I use a banana plug and sockets on the primary and sockets only *on* the secondary for the tuning and the antenna. The leads are jammed into them with knitting needles! There are two each side for shorting down and another pair for the antenna feeders.

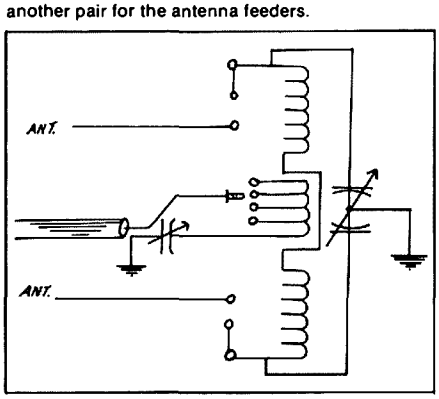


Figure 1 — Tuner Circuit Coil details: Diameter 70mm; Wire 14 gauge; Length, total 300mm; Primary 10 turns tapped at 5, 3, 2 turns; Secondary, each half 33 turns tapped at 26, 11, 7, 6, 5, 3, 2, 1.

Tuning can be very frustrating at first; especially if using clips on enamel covered wire! It is a miracle if all of the clips make contact at the same time and you have to find the tuning too. Then the performance becomes variable and you find one of the clips hot.

Proper tuning depends on the ratio of the primary to the secondary and the ratio of the antenna section to the secondary in use. It is possible to find resonance with almost any combination, but the right one will give an SWR of 1:1, good loading with stable, even broad tuning and primary and secondary tuning basically independent of each other. If the SWR meter moves on CW then you can do better! I would strongly recommend making a tuner for 160m-40m and one for 40m-10m. In fact a separate tuner could be used for each antenna and/or band and then changes can be made using a coaxial switch.

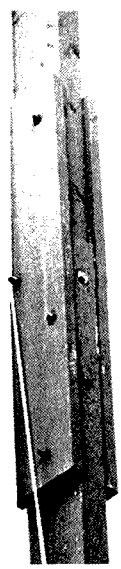
If you consider the length of the feeders as an extension of the antenna you can tell whether you have a current or voltage point at the coil.

I recently made an air wound balun 4:1 ratio and use it with a commercial ATU. To my surprise it appears more efficient than my tuner. This is probably due to even more exact matching.

THE MAST

With the above antenna only 6-8m high I had great success on CW, but couldn't get a good QSO on SSB on 20m or 40m DX. Therefore a mast was necessary! The space I had was 62ft by 50ft, so the tallest it could be was 50ft and it would have to be 12ft from the back fence. Wood was chosen for convenience of manufacture, economy and experience. I feel it proved to be a very lucky choice.

Construction consisted of 2m of 150mm x 50mm hardwood set in the ground with provision for two bolts. 6m of 100mm x 50mm Oregon for the bottom, 3.3m of 100mm x 50mm in the centre and 6m of 75mm x 50mm on top. Each piece was stepped into the next, bolted through and then 125mm x 25mm plates bolted each side. I only used two sets *of guys*, but it really needs three; I use two of the halyards as extra guys now.



Mast joint, showing how plates were used to give them full strength.

Two pulleys were put on the back 1.5m apart in case I wanted to pull up a spike of some sort. Next time I will put a double pulley at the top front and a single one 3.3m down.

The mast was raised using the jury mast principle and some help from friends as a 12ft jury mast is a bit short to pull up a 50ft stick! Lay out the mast dressed with guys, pulleys and halyards, fix two sets of side guys to their pegs loosely, fix a 12ft stick to the base, lying on the ground at right angles and fix the back guys to it. Lift the jury mast with a rope attached to it, fix the mast to the post, put a friend on each side guy and a third on the mast itself. Now cross your fingers and start pulling! You will find it is good when it is up! Hi! The guys are steel and broken every 3m with egg insulators.

Now the mast was in my own yard and only 20m from the TV mast. I thought that probably a 24m antenna with a 4m overhang would be better than a shorter one. Feeders were 14 gauge with perspex spreaders of 13mm dia and spacing 100mm.

Well, it certainly worked OK and signals jumped 2-3"S" points everywhere!! It runs east and west and is ideal for north and south, but also constantly received outstanding signal reports from the USA on 40m CW. On 20m it has some gain to the north. *Moral — Antenna height of 50ft is dramatically better than 25ft.*

THE "CENTRE FED ZEPP" VERTICAL

I still felt it should be possible to do better to the east. My first thought was two verticals in the form of a beam, so up went a vertical on the mast itself. I was glad it was wood! The antenna is 12m long centre fed with the same type of open wire feeders, approx 18m long and pulled out at right angles for 12m. Then I started to learn something about mast and halyard loading!

I could not pull the antenna up straight against the feeders. The spreaders were changed to 6mm and spacing increased to 1m. The effect was great for both antennas and halyards, but I still could not pull the vertical straight. This was eventually solved by pulling up another pulley on the mast for a halyard to the antenna centre.

The results were amazing. On 20m first up reports were S7-9 from Europe to the USA which was impossible off the end of the horizontal antenna. On 40m reports were 1/2 "S" points better in the States although this fell off later for some unknown reason.

Notice that antenna lengths are not critical, be very careful with halyards, polypropylene appears susceptible to ultra-violet rays, so choose dark colours and heavy gauge and check frequently. I did provide a 2m fold back at each end in case I wanted to increase the effective length by pulling them out sideways. At this stage I could see it would be impossible to support another vertical from the horizontal for a beam, but there had to be some way to aim more to my many friends in the States!

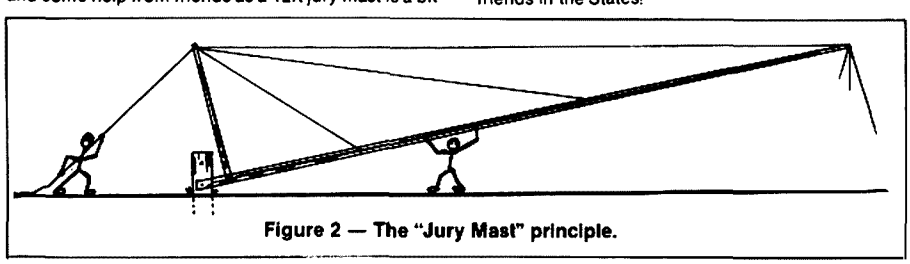
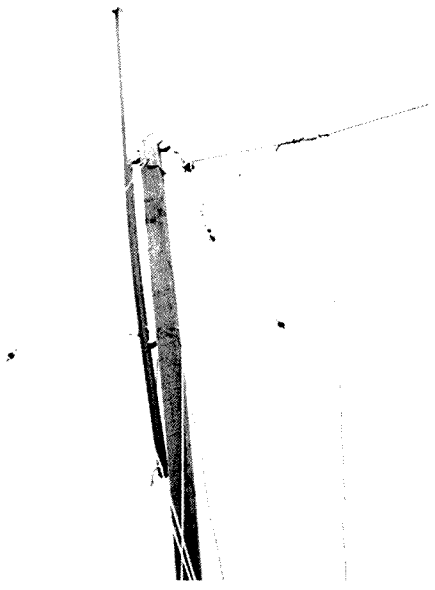
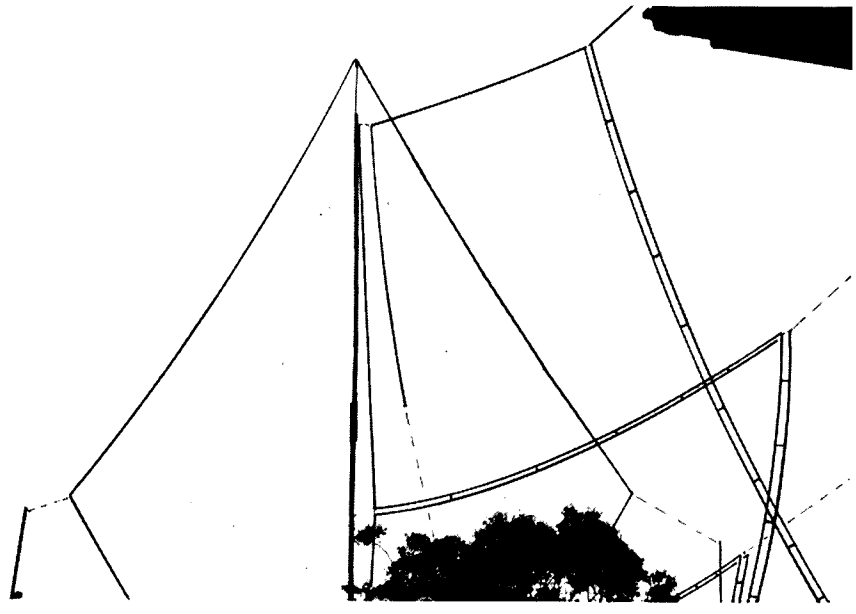


Figure 2 — The "Jury Mast" principle.



Extra pulleys on the back of the mast can be useful.



The Antenna "Farm" at VK2EVJ

THE DIAMOND QUAD

There it was — the solution to my problem — in the ARRL Antenna anthology! A 6m piece of 50mm x 50mm tied to each fence and I had supports for the sides, guys were not needed. These can be extended further with 50mm x 25mm if desired. A 4m stick was pulled up the back of the mast to gain another 2m for the peak. The antenna now looks east and is made of 14 gauge soft copper as were the open wire tuned feeders which were attached at the bottom of the diamond. Tuning was no trouble at all.

Reports indicate ½ to 1 "S" point improvement over the horizontal in the States, though it may have been better, but usually seems 2 "S" points better on receive. The most amazing thing is the very deep null to the north which is extremely convenient. Now my thoughts turn to a beam again, it must be highly possible to support another Quad from the horizontal! My next project! I think too that by using tuned feeders a quad could be reduced in size by the addition of loading coils on the sides of the diamond. This would tend to make the tuning too sharp for a constant impedance line. Possibly a 2 element rotatable quad would then be feasible for 40m!

While the quad does not compare with a 4 element Yagi at 30m the results certainly justified the comparatively small effort. It is basically a one band antenna, but probably OK for 80m. Actually my next project might be 20m and 10m elements inside the present 40m one.

AR

SHIFT LIGHT FOR MECHANICAL RTTY

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA, 5112

Those who touch type watching the print out as they type will not need this aid as they will immediately notice any failure to shift from one case to the other. However a major problem for not-so-good-typists who do need to watch the keys as they type is to always remember whether they are typing in letters or figures.

Sometime ago a RTTY friend of mine Len VK5VM alerted me to a signal light system to show carriage return, letters or figures. Len whose hearing is rather poor often did not hear the end of line bell, rigged up an indicating light so even when watching the keyboard he knew when he had reached the end of a line. For most of us poor typists with good hearing we know when a line is ending but we do need something such as a signal light system to remind us whether we are typing letters or figures.

In my case I found all I needed was one light showing when I was in figures and I will now describe this system. A micro switch or magnetic reed type switch that will operate a light when the typing carriage is in the figures position is all that is required.

A look at the "works" of your teleprinter when changing from letters to figures will indicate many spots where a switch can be mounted without interfering with normal functions. With the signal light mounted very close to or even under the keys a reasonably bright dial light or LEDs will do fine.

With my Siemens M100 I mounted a micro switch having a long lever and roller on its end on the side of the transformer cover so that the roller would be hit when the bar carrying the typing carriage lifts for figures. The transformer has a 6V winding used for the copy reading light so this is additionally connected through the micro switch to a 6.3V dial light mounted just to the right of the keyboard about 7 cm below the Baud rate window. As all is fixed to the machine proper its cover can be replaced or removed without any problems.

To use the system you just train yourself to look for the light from the corner of your eyes when typing figures or punctuation marks etc. Spend a few moments typing your call sign and you will soon get used to expecting to see the light for figures and not seeing it for letters.

A simple and very useful modification, many thanks to Len VK5VM for the original idea.

AR

QSP

SUPER RADIO!

The 1st February 1985 was yet another monumental step for radio in Australia. On this date all AM stations on the Broadcasting Band became licensed to broadcast in stereo.

Stereo AM is the most important technical development in the sixty year history of Australian radio.

Although achieving the same result — stereo broadcasting — the FM and AM modes behave differently when transmitted. FM travels in tight lines which bounce off objects like tall buildings and fly off in various directions whilst AM carries through the atmosphere in broader waves which go around obstacles, is not disrupted by solid masses and produces a continuous, strong signal.

It is necessary to have a stereo AM receiver to receive stereo which are now available however stereo AM may still be heard on mono receivers.

AR

ANOTHER CELEBRATION

The Korean Amateur Radio League are celebrating the Thirtieth Anniversary of KARL with a special ceremony on April 28th, 1985.

A special station, HL30HQ, will be operating from 25th April to 1st May, 1985. Special QSL cards will be issued to those stations who make contact with HL30HQ.

Also to promote KARL a 30th Anniversary Award will be issued to amateurs making contact with thirty HL stations during the period 1st January to 30th April, 1985.

Applications should be submitted to KARL, GPO Box 162, Seoul, Korea 100 no later than 31st August, 1985 with 8 IRCs and GCR.

Hyung Suk Song HL1CG
President of KARL

AR

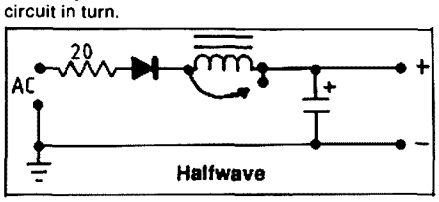
DIODE POWER SUPPLY CIRCUITS

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA 5112

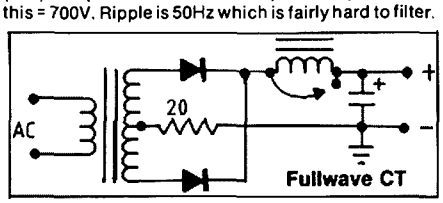
I well remember the valve era with bulky heat producing rectifiers and how difficult it was to use bridge or voltage doubler circuits etc because many separate, well insulated rectifier heater windings were needed. In the present solid state era all sorts of fancy power supply circuits are now possible with very few problems indeed. Over the years I have gathered a collection of useful circuits some of which will be new to many amateurs.

In this article I am describing medium and high voltage circuits such as are required for valve plate and screen supplies etc but of course the same circuits can be used for low voltage solid state supplies with suitable component value changes. In all the circuits shown the AC supply is 50Hz and is 250 volts except where transformers are shown and in this case the secondary windings are 300 volts each side of the centre tap. The rectifiers are 1000V PIV 1 amp types and all electrolytics are 33 microfarad 500V. Where electrolytics are shown connected in series to increase voltage ratings the resistors shown across them are 470k. The 20 ohm resistor is not an exact calculated value and normally will not be required if the secondary of the transformer supplying the AC has a reasonable amount of DC resistance. This 20 ohms resistance is a typical value where such a resistance is actually required for medium or high voltage supplies.

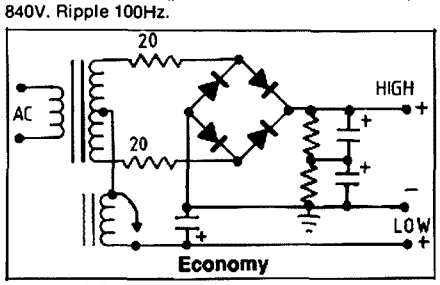
Looking at the circuits you will note that the first three show a filter choke that can be shorted out to make the filter capacitive input instead of inductive input, the reason for this is as follows. When the voltage obtained with capacitive input is too high it is often handy to use a filter choke rather than a resistor voltage drop to reduce output to the required lower voltage. The choke will decrease the voltage without any appreciable power loss and may often be preferable to a large power wasting, heat producing resistor. The choke shown is 10 H 250mA and 140 ohms. With each circuit I will give some approximate DC output voltage readings at different load values and these readings will give you a chance to compare the efficiency of each circuit. Now let's deal with each circuit in turn.



In circuit 1 we have the half wave circuit, it will be noted that the voltage regulation is very poor indeed especially with the filter choke in circuit. With 250V RMS AC input the no load (NL) output volts will be about 340V with or without the choke. With the choke in, the voltage drops rapidly with increasing load. At 10mA 185V, at 20mA 125V and at 40mA 40V. With the choke shorted out NL = 340V, 50mA = 315V, 100mA = 305V and 200mA = 290V. The diode peak inverse volts (PIV) is equal to twice the AC input volts peak value this = 700V. Ripple is 50Hz which is fairly hard to filter.

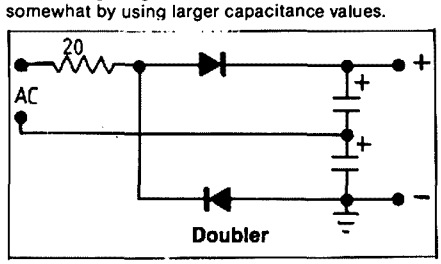


In circuit 2 we see the well known full wave centre tapped circuit each half of the 300V secondary winding with its diode supplies half the total output current. With the choke in circuit NL = 400V, 50mA = 255V, 100mA = 250V and 200mA = 235V. Without the choke NL = 430V, 50mA = 400V, 100mA= 390V and 200mA = 365V. PIV (peak volts of entire secondary) = 840V. Ripple 100Hz.

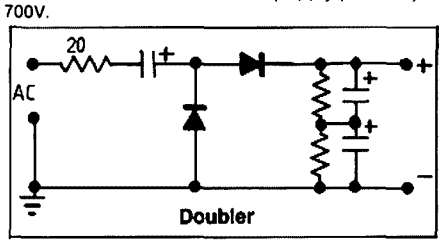


In circuit 3 we have the well known economy power supply giving both full and half voltage outputs from the one centre tapped transformer. This circuit is often used with a transformer salvaged from an old valve type TV. The voltage each side of the CT is usually about 300 to 350 volts, 350V is a bit high for safety with single 1000V PIV diodes so I have shown a 300V transformer. You will note the high voltage circuit is the well known bridge circuit and the low voltage circuit is normally a bit high for receiving type valves and in this case the choke input is very useful. First the high voltage circuit. NL = 840V, 50mA = 800V, 100mA = 760V and 200mA = 720V. Low voltage with choke. NL = 400V, 50mA = 250V, 100mA = 240V and 200mA = 220V. Without choke. NL = 430V, 50mA = 400V, 100mA = 385V and 200mA = 365V. PIV for any diode (peak volts of entire secondary) = 840V. The left side diodes carry both high and low voltage load currents and the right side diodes only high voltage load current. There is very little interaction between the two outputs. With the high voltage supply delivering 200mA changing the low voltage supply current by 100mA only altered the high supply voltage by 7 volts. Ripple is 100Hz for both supplies.

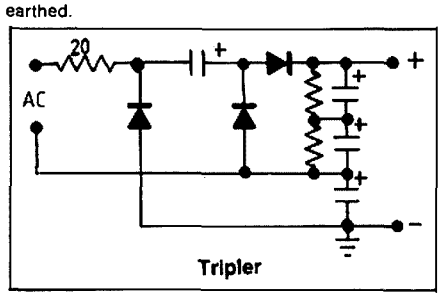
In circuits 4 to 9 we see voltage multiplier circuits. In these circuits capacitors and diodes are arranged so capacitor charges add either with each other or by their being in series with the instantaneous AC input voltage. Generally speaking many of the circuits give poor voltage regulation and this can be improved somewhat by using larger capacitance values.



Circuit 4 is easy to understand. One capacitor charges for one half of the AC input cycle and on the opposite half cycle the other capacitor is charged. The capacitors are in series aiding so the output voltage is doubled. Both half cycles are fully used, the voltage regulation is fairly good and the ripple is 100Hz. However it will be noticed that with the negative output earthed both AC input terminals are above earth and this is sometimes a disadvantage. This is the preferred doubler circuit giving best voltage regulation and using less components. With 250V RMS AC input. NL = 690V, 50mA = 652V, 100mA = 605V and 200mA = 578V. PIV (supply peak x 2) = 700V.



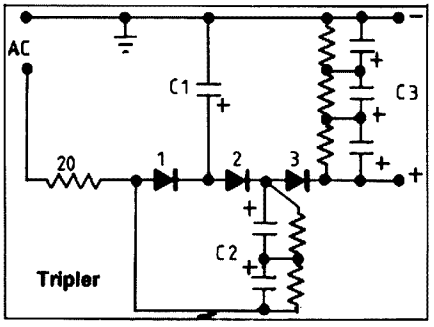
In circuit 5 we have a doubler circuit with one input and one output in common, in this case both being earthed. On one half cycle of AC input the first capacitor on the left charges to the polarity shown, on the next half cycle the lower diode in non conducting, the AC input voltage for this half cycle is in series aiding with the left hand charged capacitor and so the output capacitor (two in series) is charged through the top diode to twice the peak AC input volts. These statements, of course neglecting slight losses in the 20 ohm resistor, the diodes and assuming no load current is drawn. With 250V RMS AC input. NL = 690V, 50mA = 625V, 100mA = 565V and 200mA = 465V. The PIV for each diode is peak AC input x 2 = 700V. Ripple is mainly 50Hz and voltage regulation is poor compared to circuit 4. The main advantage of this circuit is the common input and output terminals which may be earthed.



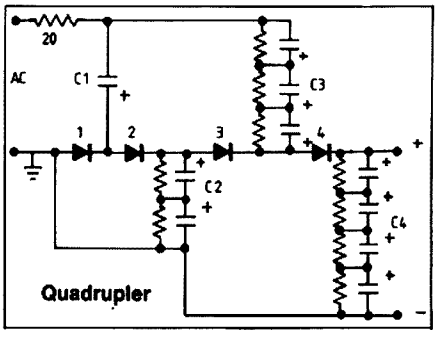
In circuit 6 we see an extra diode and capacitor have been added to the circuit 5 doubler. The extra capacitor at the bottom of the output string of capacitors is charged independently of the doubler circuit and its charge is added in series with the doubler output making this circuit a voltage tripler. It will be noted that both AC input terminals are now

above earth. This circuit is the preferred circuit if both input terminals can be above earth. The voltage regulation for a tripler is quite good. With 250V RMS AC input. NL = 1040V, 50mA = 940V, 100mA = 800V and 200mA = 710V. PIV for all diodes 700V. Output has both 100 and 50Hz ripple components.

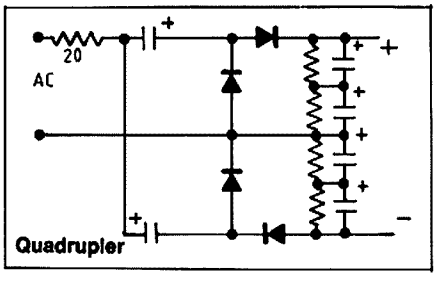
In circuit 7 and 8 one input and one output terminal are common and can be earthed as shown. These circuits have been drawn in an unusual non draughtsmanship like way, but this is done to help you understand how charges are passed from left to right, to emphasise how all diodes are in series and how all electrolytics have their positive ends towards the diode string. In 7 and 8 the diodes have been numbered from left to right and likewise the capacitors.



In circuit 7 giving a very brief explanation, C1 is charged through diode 1 to the peak volts of the AC input this capacitor charge is then added to the AC input volts peak on the next half cycle of AC input this then charging C2 to twice the AC input peak voltage. On the next half cycle C2 with its x 2 voltage is in series with the mains voltage and C3 is then charged to x 3 AC input peak volts. Once again we have neglected slight losses and assumed no output load current. Under operating conditions actually C1 and C3 charge on one half cycle and C2 on the other. As you study output voltage under load you will note voltage regulation is rather poor compared with circuit 6. With 250V RMS AC input. NL = 1030V, 50mA = 900V, 100mA = 870V, and 200mA = 600V. PIV for each diode = 700V.



In circuit 8 the charges from C1, C2 and C3 are passed on in the same way as in circuit 7 but an extra stage has been added and C4 will charge up to x 4 the peak AC input volts (if no losses and load). When this passing on charges from one capacitor to another has been done so many times as in this type of quadrupler circuit considerable losses occur and voltage regulation becomes very bad. The circuit is useful where a common input and output terminal are needed and voltage regulation is not very important. With 250V RMS input. NL = 1370V, 50mA = 1120V, 100mA = 930V, and 200mA = 700V. PIV for each diode 700V.



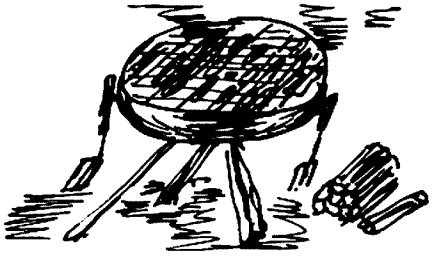
In circuit 9 we have the preferred quadrupler circuit however both input terminals are above earth. This circuit is actually two doubler circuits back to back (compare with circuit 5) the lower doubler having diodes and capacitor polarities reversed. As the outputs of the two doublers are in series the voltage is quadrupled. Because the capacitor chargers are not handed on so many times the regulation is much better than circuit 8, also note less components are used. With 250V RMS AC input. NL = 1380V, 50mA = 1240V, 100mA = 1080V, and 200mA = 920V. PIV each diode 700V.

As mentioned earlier these circuits can also be used for low voltage solid state supplies if component values are changed to suit. This usually means hundreds of microfarads for the capacitors. The number of capacitors in series will give you a clue to how the voltage builds up in each circuit I have shown so you can determine the ratings required in any part of a circuit. The 20 ohm resistor will of course need to be much reduced to probably a fraction of an ohm. With such large capacitors being used it is Important that this resistor be of sufficient size to protect the diodes. Most low voltage transformer windings will not have sufficient resistance to protect the diodes.

Finally when diodes have their ratings exceeded they usually short circuit and often explode taking filter capacitors with them. Often junk box diodes have no visible markings and a test is needed to determine the PIV ratings. I find the following method useful — Connect the diode in series with a voltmeter 0 to 1000 volts range with the diode in the non conducting direction. Connect this combination across different values of DC voltage, at low voltages you get no reading on the voltmeter but when the PIV rating of the diode is exceeded you do get a reading as the diode breaks down passing current in its reverse direction. because the resistance of the voltmeter is so high very little current is passed and the diode will not be damaged. Try this test with some diodes of known ratings so you will know what to expect as usually the break down point is considerably higher than the official ratings. Note diode ratings decrease as operating temperature is increased.

AR

Jill & Paul Weaver VK6OF & VK6KOF
23 Waddell Road, Palmyra, WA 6157



FOSTERING INTERNATIONAL FRIENDSHIP

Recently the writers had the pleasure of playing host to a team of Japanese Scientists, some of them amateurs, enroute via Fremantle to the Antarctic.

Although the Japanese spoke little English, entertaining them proved no problem. They showed a great preference for Australian sausages as in Japan sausages are gourmet food.

The visitors, some were physicists, rocket engineers, medical doctors and communications experts, enjoyed a visit to the "Wireless Hill Communications Museum" and the "Fremantle Maritime Museum."

Whilst in the Antarctic the JAs will be operating 8J1RL from Syowa Base and 8J1RM from Mizuho Base.

AR

Back Row from left: VK6OF, VK6KOF, Yamagishi, Furudata, Mural, Maelo JE2HHR, Nomura JR0AOY, and Hiroaki JA1ZII.
Front: Terry, Ken and Luke Weaver, Nogucthi JA8EXE, Satoh JR4HEO and Koeda JA7CDX.

AMATEUR CELEBRATES ANNIVERSARY

On All Saints Day a special Eucharist was held at St Nicholas' Church, North Goulburn to celebrate the 60th anniversary of the ordination as a priest of Canon Monty Nell VK2JQ.

Monty was ordained at Glen Innes and has served in Canberra, Moruya, Binda, Crookwell and Junee. He was elected a Canon in 1943.

Congratulations and best wishes Monty.

AR

Australian Traffic Network

international third party traffic exchange between ATN and the National Traffic System of the US and Canada have taken place over the International Assistance and Traffic Network at 1130 UTC on 14.303 MHz daily over a 4 year period 1981-84. Due to poor propagation over a 3 month period two new networks are now carrying this traffic — effective January 1985.

The International Morse code section of the ATN daily at 0700 UTC on 7.037 MHz ± QRM.

The International phone section of the ATN daily except Sundays 0800 UTC between 7.225 to 7.300 MHz.

Several operators in Canada and the US pass traffic using RTTY, AMTOR, FEC or Packet. If you wish more information check into the national phone section of the ATN daily 1030 UTC 3.570 MHz ± QRM.

Contributed by Sam Voron. VK2BVS Co-ordinator ATN

AR

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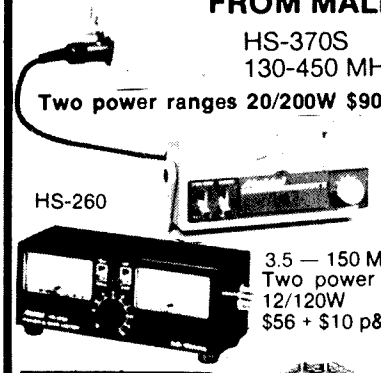

HS-370S
130-450 MHz
Two power ranges 20/200W $90 + $10 p&p

HS-260

3.5 — 150 MHz
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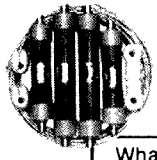

A-2480 3.5, 7 & 14 MHz trapped dipole is only 60 ft long. **$132 + $10 p&p**

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HF-5DX is a fully self supporting HF vertical 3.5, 7, 14, 21, 28 MHz with its own loaded self supporting radials. Overall height 26ft **$252 + $14 p&p**

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5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8AU	1.95	N/A	N/A	7.44
RG-213	1.74	N/A	N/A	7.20

COMPARE THESE PRICES

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5D-FB	$2.60/m
8D-FB	$3.80/m
10D-FB	$5.80/m
12D-FB	$7.90/m

N Connectors

NP-5DFB	$10.90
NP-8DFB	$11.30
NP-10DFB	$11.60
NP-12DFB	$12.50

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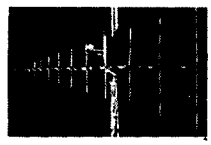

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LOG-SP, LOG-SP, 65 to 520 MHz $177 + $14 p&p.
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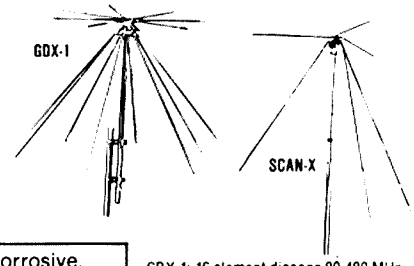

GDX-1: 16 element discone 80-480 MHz suits transmitters and receivers. **$132 + $14 p&p.**

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What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators, or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

	DB-4 (4mm)			DB-5 (5mm)		
	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)
Debeglass	2.5	3.9	430	3.0	6.3	560
Steel wire	2.5	5.6	370	3.15	9.3	530

DB-4 (4mm) $0.58/m DB-5 (5mm) $0.82/m
We also have DB-6 (6mm) available on special order.

HIGH GAIN 2Mx GUTTER ANTENNA

The Oscar-2ND is a phased ⅝ wave lay-over gutter mount whip. It has a gain of 4.5 dB. **$76 + $19 p&p.**

RUBBER DUCK FOR OSCAR-2ND

The F-1E is a screw on replacement for the Oscar-2ND whip, for use when a low profile antenna is needed. **Price $19 + $6 p&p.**

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HS-FB is a new mobile antenna mount designed to mount on the tow hook of your car. **$49 + $8 p&p.**

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The G-58 is the original and best Vocom high gain antenna for handhelds. Price $52 + $5 p&p.

FREQUENCY LISTS FOR THE SERIOUS LISTENER

Shortwave Frequency Directory (SFD) lists nearly all commercial users of the HF band, and their frequencies. $28 + $5 p&p.

RTTY PRESS BROADCASTS (RTPB) lists the range of Press RTTY frequencies, over 1500 listings $25 + $5 p&p.

WORLDWIDE WEATHER FREQUENCIES (WWB) lists a range of weather frequencies, as well as their modes. $18 + $5 p&p.

RTTY FREQUENCY LIST (WWRS) lists nearly all RTTY users and their frequencies, as well as modes. $23 + $5 p&p.

WORLD EMBASSY FREQUENCIES (ERCW) lists a number of diplomatic embassies and their frequencies. $25 + $5 p&p.

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The GP-1217 is a 17 section collinear vertical with 10.8dB gain. **$119 + $14 p&p.**

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MDK-17 (KIT)
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A high performance modem kit for use on a computer or teletype. Offers high noise immunity on receive **$118 + $8 p&p** (kit) or **$181 + $8 p&p**, (assembled).

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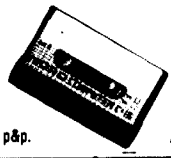
Versatile RTTY/CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64. **$345 + $14 p&p.**

RTTY/SITOR FOR TRS-80C

DCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR. RBA provides transceive on RTTY (BAUDOT) — ASCII.
(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programs.
DCM **$75 + $5 p&p**, RBA **$55 + $8 p&p.**



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APPROVAL FOR AERIAL TOWERS

Sam Voron VK2BVS
2 Griffith Avenue, Roseville, NSW. 2069

Is the obtaining of approval to erect aerial towers a dream, a nightmare, or our right? Read how Sam Voron overcame the objections of 79 neighbours and persuaded his local council to approve his application.

Using aerials at 18.29 metres I have, over three years, built up friendships with people around the world who operate daily on the International Assistance and Traffic Network (IATN). Recently repairs taking some months were necessary to my aerial mast. Temporarily, I set up a dipole on the roof to get back on air. But even with the 400 watts legal power limit my friends worldwide could not hear me. Consequently my international public service message handling capability was gone. The value of a tower as part of one's amateur station is evident.

Here is advice about obtaining a tower approval despite; as in my case, a counter petition signed by many local residents. I know of other amateurs fighting for this right and hope this information will assist. Although each local council has its own guidelines for examining tower applications much of this material should be relevant.

(1) Fill out the building application form, include manufacturer's tower design plans and site plan. Do not include aerial details unless requested. Make friends with council employees. In my case the clerk was a CB operator and very helpful.

(2) Find out what the voting procedure is. In my case 5 out of the total 10 councillors sit on the building sub-committee. If all 5 vote unanimously then that's council's decision. If not unanimous the application goes before the whole council for a majority decision. If they vote against, you can appeal to the Land and Environment Court, in NSW.

(3) Ask the building department council employees if they see any problems. They are responsible for preparing the application details for the council meeting. I was told the following petition signed by 79 local residents had been lodged.

'We, the undersigned, vehemently object to the radio-transmitting aerial tower on the following grounds:

(a) The unsightly nature of the structure constitutes visual pollution.

(b) The structure is not in keeping with the residential nature of the area and the surrounding development.

(c) The presence of the structure lowers the value of the surrounding properties.

(d) The structure detrimentally affects the amenities of the local population.

(e) The transmission of radio signals interferes with TV reception and use of other electronic apparatus in the immediate neighbourhood and reduces the enjoyment of the lifestyle of the nearby residents.

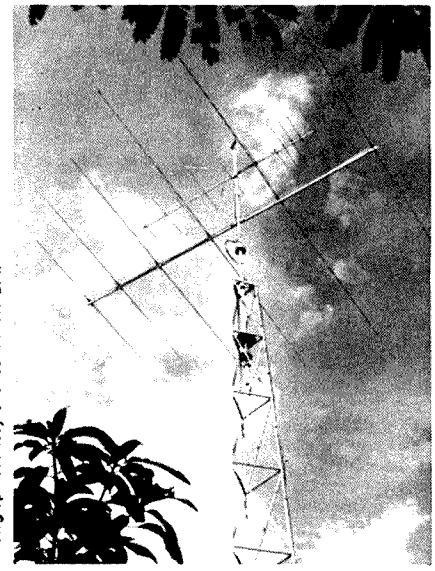
(f) The structure is likely to cause danger through lightning unless suitably earthed . . .'

(4) Provide council with a written response to any objections. Point by point, mine were —

(a) Just as power poles are needed to carry electricity, just as TV aerials are needed to watch TV, the structure is needed to participate in the hobby of worldwide communications.

(b) Amateur radio is a residential recreational hobby activity.

(c) ***(As heard on WIA Federal tape and received from FE office).*** In January 1984 Mr and Mrs Dale Green won the 'house of the month' award after being selected by the Sierra Vista beautification commission. Clearly the commission did not see the hobby of amateur radio detracting from the value of surrounding properties. On receiving the award, the owner Mr Green said his antenna a top a 18.5 metre



Photograph courtesy Charles Irvin VK4BPI.

tower enhances his ability to provide community service using amateur radio.

(d) The hobby of amateur radio enhances the amenities of the local area because it enables people especially the young, retired or handicapped to enter into a unique recreational modern day activity.

Having myself been introduced to the hobby at the age of 11, I have always enjoyed encouraging others to the hobby; But it is a unique hobby which requires the sitting of an examination in International Morse Code, International radio regulations and radio theory.

My father, brother and myself are all licensed radio enthusiasts. Amateur radio is a worldwide hobby. It is a local, national and international amenity which encourages people to communicate with each other irrespective of colour, race, religion or national boundaries, from the comfort of their own homes.

In a disaster, amateur radio operators make themselves and their equipment available to their local community at no charge. For example, during the Darwin cyclone, Victorian bush fires, NSW floods and in Sydney during the 1981 STD telephone breakdown. Here I was involved in sending 100 urgent health and welfare messages from distressed members of the public to their friends and relatives around Australia and overseas.

I have a letter from President Reagan, referring to the International Assistance and Traffic Network. In this my station has faithfully represented Australia almost daily since 1981, helping to link the world particularly during times of disasters, to help relay messages from the public to their loved ones during times when all commercial and government services have been disrupted or overloaded.

Local activities include communications assistance for the Red Cross, Salvation Army, Fun Runs, Autistic Childen's Association Bicycle Race and other community groups requesting such help. I have made my home available every second Friday for newcomers to meet and organise activities, in a club called the Amateur and Citizens Radio Club, formed in 1977. Our club patron is David Connolly, a member of Federal Parliament, who has supported our community activities.

(e) As regards interference, two inspection reports dated 1980 and 1984 verify my station complies with all regulations. These regulations require my station not to be the cause of interference. Where interference does occur, the complainant should refer the problem to the Department of Communications, Interference Division, who will determine the source of the interference and whether the fault lies at the transmitting station or is the result of poorly designed and/or faulty consumer equipment.

(f) The structure conforms to all requirements regarding earthing.

The petition, advocating a prohibition on any structures, towers or aerials, in effect seeks to outlaw the hobbies of amateur radio, citizens band radio, worldwide shortwave listening, improved VHF/UHF TV reception and extended range AM/FM radio reception. All these are legitimate recreational activities within the domestic environment and should not be prohibited.

(5) *Ring the councillors (5 in my case) who will vote on your application. This is a most important step to ensure each knows what amateur radio is and the necessity of the proposed structure for the pursuit of your hobby. I was surprised that all at least knew of an amateur; one's wife was studying for a licence and another's son was "into CB". During daytime working hours, council buildings are normally manned by employees. Councillors themselves have ordinary outside jobs, so are used to being telephoned at reasonable hours after work at home. Their numbers are listed in council information booklets. As a resident you are entitled to seek the help of these elected officials. Explain the hobby, the importance of the tower, ask if they see any problems and say you will be at the meeting.*

(6) *Find out the time and place of the council meeting and be there. These are normally open meetings and all may attend.*

I hope my experience will encourage others who may have been intimidated by such situations, and not proceeded, to try again.

Were the results worth it?

To begin with, the neighbours stopped complaining once the council decision was made. I have a 7 element TH7DXS for 20, 15 and 10 metres at 15.24 metres a 2 element 402 beam which works into the USA every day on 40 metres from the 18.29 level, a 6.1 metre 27MHz CB vertical which could be a "beaut" lightning rod to save my more expensive aerials below as well as put out 'Sydney hobby newsbroadcast' each Sunday. Quarter wave slopers for 1.8 and 3.5MHz towards USA and Europe give me S7 to 9 many nights a week to USA on 75 metres.

After several months using 1.8 to 30MHz daily and 400 watts no one has reported interference except to video recorders. Here I have referred to the Minister's warning to consumers and advised them to sort out the problem under the VCR warranty.

By the way, one VCR picked up 5 watts AM on 27MHz the other 2 metres FM. The 1.8 to 30MHz 400 watt SSB which I use extensively with my new set up does not worry any of the 80 neighbours here in residential Sydney.

AR

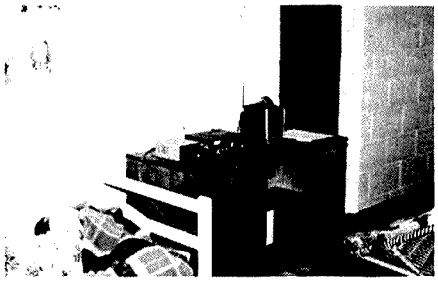
HAVE SIX — WILL TRAVEL

Lionel Curling VK3NM/ZL1SW
18 Lexington Street, Vermont, Vic. 3133

Lionel has recently returned from o six week trip to New Zealand, Norfolk and Lord Howe Islands. On the trip he took an IC-505 6 metre transceiver, homebrew two element, 6 metre quad made of PVC conduit fittings and an IC-25A 2 metre FM mobile transceiver in the hope of hustling some VHF activity.

Upon arrival in Auckland a rental car was collected and I drove off to my cousin's home in Whangarei to arrive at 12.30 am Christmas Day. Several 2m FM contacts were had en route.

After a scrumptious meal of turkey, Christmas pudding and all the trimmings it was time to erect the quad up on the balcony using willow branches and doweling, which was handy, for a mast. By 2pm I was listening on 6m and had the first of many OSOs with Roger VK2XJ.



The Shack — NZ.

Kirk ZL4PX very kindly loaned his HF transceiver but due to a poor aerial and poorer conditions very few HF contacts were made.

From Boxing Day to New Years Day we all went for a trip to Devonport, Auckland and using 6m from the car with a 2m magnetic mount five-eighth whip, contacts were made with VKs 2, 3, 5 and Chris ZL7OY. Most contacts were in the evenings. Most of the daytime was taken up with sightseeing around Auckland and Rangitoto Island.

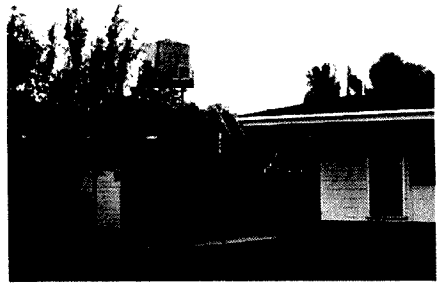
Old Signal Station at Mt Victoria, Auckland.

The rest of the stay in New Zealand was spent around the Onerahi, Whangarei area working VK2,4 and Pierre FK8EM. VK TV was heard nearly every-day, sometime with TV "crud" so strong it lifted the S meter well into the red. One morning channel 0 in Brisbane was so strong that it sounded like a local station however it was impossible to raise any VK4 amateurs.

With all the openings across the Tasman I did not work any South Island stations on Es although a very weak ZL4 was heard but was unreadable for contact purposes.

After a four week sojourn in New Zealand it was time to dismantle the quad, donate the HF dipole to my uncle for use in his garden, send the HF rig back to Kirk ZL4PX, pack the bags and set off for the next stop, Norfolk Island arriving there around 9am.

I arrived at the hotel at 10am and immediately set about making 6m operational. By noon the rig was running and contacts were made with VK2 and ZL in two very good openings during the stay. VK and ZL TV was heard most days.



6m Quad — Norfolk Island.

Norfolk Island has a local radio station, VL2NI, operating on 1.566MHz and 93.9MHz FM. The station relays Radio Australia during the afternoons until 7pm in the evenings.

During the stay on Norfolk I met with local resident John VK9JA who operates a slide commentary on Norfolk Island wildlife and a movie on Pitcairn Island. It was very interesting to listen to John's talks. John keeps regular scheds with Tom Christian VR6TC on Pitcairn.

Norfolk Island is eight km long by five km wide with Burnt Pine as the main town. There are many modern shops, car rental firms with very reasonable rates and unlimited mileage, duty free goods, restaurants, etc and the lifestyle is pleasant with friendly people and is free of crime.

Cows have right-of-way on all roads and there is a $200 fine if you should run into one.

Norfolk is steeped in history. Pitcairners arrived in 1856 after a 4000 mile sea voyage to settle on Norfolk, hence a lot of the present Norfolk Islanders are direct descendants of Fletcher Christian who settled on Pitcairn Island after the Bounty Mutiny.

Things became very harsh on Norfolk during the two convict settlement days with the second settlement being so ruthless it was closed down after word about it got back to England. Many of the convict buildings can still be seen in Kingston.

Kingston.

Norfolk is famous for its Norfolk Island Pine, a conifer which grows to great heights and is great for the stringing of high dipole antennas.

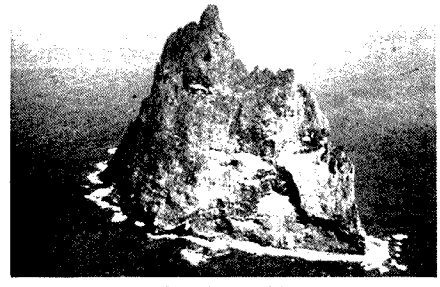
Anson Bay and Norfolk Island Pines.

From Norfolk I flew to Lord Howe in a small Beechcraft plane, sitting up in front with the pilot.

Upon arrival the first priority was setting up the 6m gear but due to the short distance to VK2 I only managed to work a couple of ZLs one morning and there were very few bursts of VK TV.

Lord Howe is a moon shaped island, 11 km by 1-2 km wide with two large mountains, Mount Lidgbird and Mount Gower. There are plenty of bush walks for the energetic as two thirds of the island is kept in its natural state.

One day I took a plane ride out to Ball Pyramid, which is a jagged pinnacle jutting out of the sea, and the next day took a six hour fishing trip there however the fishing trip was not a great success due to sea-sickness.



Ball Pyramid.

A fascinating bird that lives on Lord Howe is the wood hen. It comes to investigate if one bangs two rocks together. It is brown in colour with wings like a domestic fowl but cannot fly and has a long beak which it uses to forage food similar to a New Zealand kiwi.

Whilst on the island I met with Dick VK9LH and Ken VK9LK. Ken is the islands doctor and Dick runs an art gallery. Both are not very active at present but Dick does show an interest in 6 metres which could be a good indication.

Radio Lord Howe transmits on 1.494MHz usually with a relay from a Brisbane radio station.

Power is generated from diesel at the Department of Transport building with a capacity of 700kVA from three generators.

Finally it was time to head for home via Sydney but I would highly recommend an amateur holiday to these islands as there are no ugly high-rise hotels and other typical tourist traps.

AR

REPERTERS — Friend or Foe!

Tim Mills VK2ZTM
PO Box 204, Willoughby, NSW, 2068.

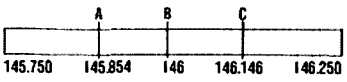
Last month I traced the early FM era up to the permission to develop repeaters in Australia. A meeting of interested amateurs had been arranged.

Wodonga — Saturday afternoon 21st September 1968. An assortment of amateurs from the eastern states of Australia gathered in a hall (hut) on the army base at Wodonga, the twin town with Albury on the VK2/3 border. In addition, members of Federal Executive were present. Upon opening the meeting the delegates were welcomed and congratulated on the generation of such a gathering to develop a technical standard and agreement for a new mode. The minutes of the meeting were later formally ratified as a Federal meeting and became the basis of policy.

It was agreed by all that the repeater era was arriving and while each system was for local area coverage, mainly to extend mobile range, people were travelling about and hence standard frequencies were required. It was a crystal locked era but the Channel "B" in each mobile showed that each general region relied on a slightly different standard reference. It usually showed who was the visitor in the group.

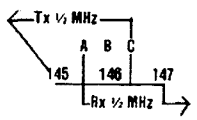
Meeting introductions soon gave way to technical discussion. Most of the equipment coming into service was ex commercial and tended to be 'peak aligned' so that it had a switching range of ⅞ .25 MHz of the centre frequency in use, before receiver sensitivity or transmitter tuning dropped off. (The day of the broad tuned front ends had yet to be developed and Japan's electronic industries had not discovered the VHF amateur market. The American repeater scene was similarly based on the ex commercial equipment market.)

The obvious frequency sub-band was that already in use, based on channel 'B', 146.000 MHz. Taking ⅞ .25 MHz, would be a range of 145.750 to 146.250. This covered the existing simplex channels A — B — C (145.854 — 146.000 — 146.146). In order that a system could operate in a — talk through — repeating mode, different frequencies had to be used, for the receiver and the transmitter, since both are on at the same time. A transmitter will desence a receiver, which becomes worst with the closer the frequency spacing. In the commercial world of the day, the few systems (repeater/duplex) then in use had a separation of several megahertz. Amateurs however still wanted to retain their simplex ability for when they were out of the range of repeaters.



Most felt it was unlikely that many channels would be required but it would be nice to retain the existing simplex. It was decided to have the (repeater) transmitter to operate on the low side of 146 MHz and the receiver to listen high.

A bit of drawing on the blackboard soon made clear the discussion at hand.



(As seen from the repeaters point of view. It is the reciprocal for the user.)

Accurate frequency measurement was difficult in 1968 for the average amateur and ideally frequencies should end in hundreds. The lowest practical transmit frequency was 145.600 and the highest receive was 146.400. The 50's were out since these were where A and C occurred.

Tx	145.6	145.7	145.8	145.9
Rx	146.1	146.2	146.3	145.4

With that it fell into place. By using an input — output spacing of 500 kHz there could be 4 channels, and still have the (3) existing simplex.

Discussion then came round to what was a practical utilisation. It was felt that 3 channels in the rig was about the limit, since many existed or could be modified from single channel units. In addition there was the crystal costs. There were large distances between sites etc. hence sharing was practical. (The total band plan now has 31 channels. In major population regions most are in use.)

Different simplex frequencies prevented a national calling channel so it was decided to adopt "B". This left two spaces on the channel selector. To tell the difference it became 'alpha' for simplex and numeric for repeaters since there was 146.1, 146.2 etc *but which two to pick?* In part 1 mention was made of the 'VK2' experimental system. It was suggested to the meeting that since they had already done a frequency change — B-A which moved to C-A, they should not be subject to a further major change. So channel 1 was chosen and from the other end channel 4. To further provide standardisation it was suggested that ch 4 be used in each capital city and ch 1 in country regions. Not everybody remembered that and in due course when each State came to develop their first system, some thought it meant the first used was to be ch 4. (In todays numbering ch 1 is 6700 and ch 4 is 7000). Geelong was the first VK3 system and Mt Barrow in VK7, both were ch 4s. At least Adelaide, Brisbane and Sydney ended up with a ch 4, Hobart, Melbourne and Perth have ch 1s. Channel 2 and 3, by a policy decision, were not to be used at that stage. Something to be misunderstood later and helped lead to a further meeting in 1972. In 1968 the amateur satellite programme had not settled internationally in 145.8 to 146.0 MHz.

The meeting then went on to other business. They moved to adopt 438.000 MHz, the 3rd harmonic of 146.000, as the FM simplex in the new 70 cm band (acquired in 1964). They also decided that a national co-ordinating body was required. Since VK2 had arranged the meeting, the meeting suggested VK2 should fill the role. Later Federal Executive confirmed the appointment and this committee became known as the Federal Repeater Secretariat, with a set of guidelines drafted by FE. (A 3 person committee.)

The meeting went on to discuss grandiose schemes for the new found mode, like a link from Melbourne to Sydney. The meeting then closed and the various State delegates went home fired with enthusiasm, most soon submitted their first repeater applications. It was to be a long wait for many however. In VK2, permission came through in September 1970.

To be continued.

GLOSSARY OF REPEATER TERMS

In these articles I make use of a selection of terms to describe operations. My meanings in the context used are:

SIMPLEX — To receive and transmit on the same frequency.

REPEATER — The device at the heart of the system. Usually frequencies referred to are those in the repeater. Where a channel number is used — eg 6700 this is the transmitter frequency and is short for 146.700 MHz.

DUPLEX — A commercial term for a system which works like a telephone in that the user can talk and listen at the same time.

OPERATOR — My term for the group who set up and maintain the repeater system.

SPLIT — A slang term for repeater offset. On 2 metres Australia tended to follow America in that the planners felt that a users receiver had less bandwidth than the transmitter. By basing the centre of the 2 metre band on 147 MHz. (Part of the thinking at the 1972 meeting), the receiver only had to cover ⅞ .25 MHz of 147.000 while the transmitter had to go from 146 to 148. The offset became 600 kHz and except for 7000 any channel number starting with 6 is a minus offset and anything with 7 is a plus offset.

TRANSLATOR — Term used in the handbook. My understanding is that a system which receives on one frequency and retransmits on another without demodulating the RF signal is a translator. The principle used in most TV service translators. If the signal is demodulated to audio which is then used to remodulate the transmitter this is a repeater, when used in the Amateur Service. The TV service uses this term for systems at remote mining sites where the TV programme is prerecorded elsewhere, taken to the region and used to modulate a local low powered Tx. It was usually a day behind major centres in programme content. Now mostly phased out of service since most areas have satellite or terrestrial links.

HAPPY ANNIVERSARY

As the WIA celebrates the Seventy Fifth Anniversary of its inception this year so too are celebrations in order in the UK.

The July issue of Radio Communications will mark the diamond anniversary of the RSGB journal which was first published as T&R Bulletin in July 1925.

Shortwave Magazine also celebrates its fiftieth birthday this year.

from Radio Communication — February 1985

AR

NEW VHF CONFERENCE FORMAT AT DAYTON

The Dayton Hamvention's International VHF/UHF Conference will have a new improved format for 1985. The dates this year are 26, 27 and 28 April.

- *There are no VHF Conference forums scheduled on Friday this year so that attendees are free to explore the giant Flea Market and Exhibits during the day.*
- *The unique Noise Figure Contest will be held at Hara Arena beginning at 1800 on Friday. The Arena will be closed to all other Hamvention activities so that the potential RF interference is eliminated. Prizes awarded to winners in the Homebrew category for 144-2304 MHz.*
- *Technical Forums begin at 0900 on Saturday with topics covering Antennas, Propagation, Contesting, Dynamic Range Measurements, and much more.*
- *The Antenna Gain Measurements begins at 0900 on Sunday behind the Arena. Certificates awarded for Highest Gain and Best Figure of Merit, and prizes for winners in the homebrew category. Bands covered are 144, 220, 432, and 1296 MHz.*
- *THERE ARE NO VHF CONFERENCE ACTIVITIES AT THE IMPERIAL HOUSE THIS YEAR.*

For further information contact Jim Stitt WA8ONQ, VHF/UHF Conference Moderator, 311 N. Marshall Road, Middletown, OH 45042.

AR

CALL SIGN INFORMATION

Members are reminded that production of the 1985/6 Callbook is in hand. Would all members please check their AR address label to ensure their call sign and address are correct.

Please notify the Federal Secretary, WIA, PO Box 300, South Caulfield, Vic 3162 of any inconsistencies.

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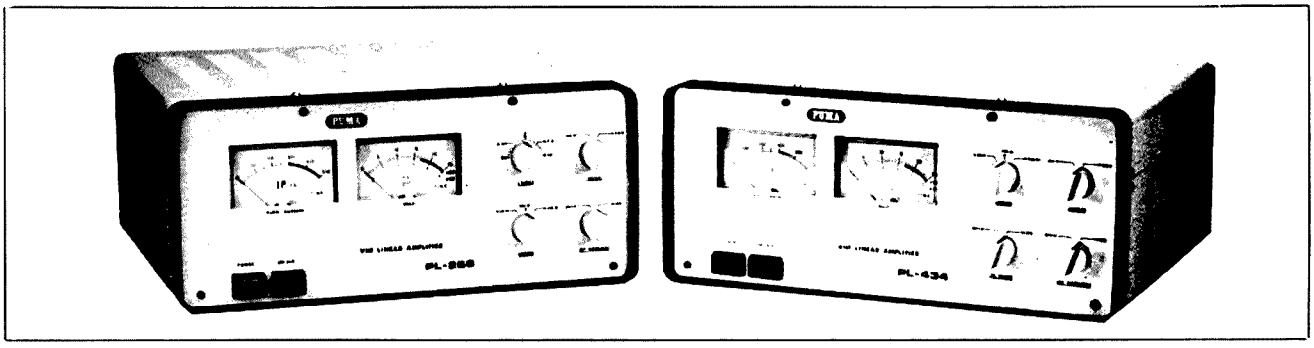
PL-25SG, PL-434G — VHF-UHF Linear Amplifier

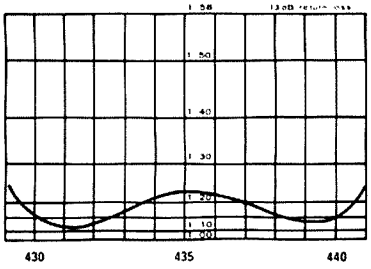


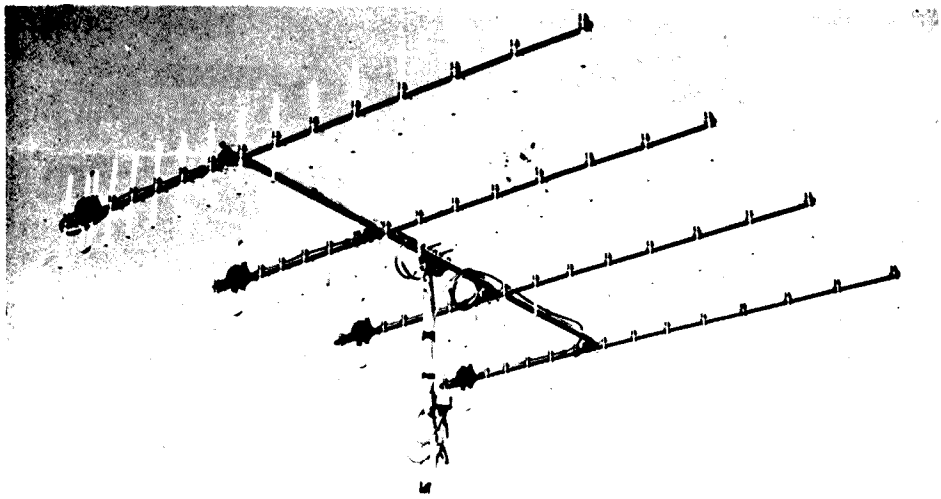
	PL-25SG	PL-434G
Circuit	Class AB, GK	
Frequency	144 ~ 148 MHz	430 ~ 440 MHz
Input Power	600 W	500 W
Plate Voltage	2000V	
Output Power	300W	250W
Mode	SSB, FM	
Drive Power	Under 10W	
Input Impedance	50Ω	
Output Impedance	50 ~ 75Ω	
Cooling System	Sirocco Fan	
Power Requirements	240V 3A	240V 3A
Dimensions	(D)310 x (W)340 x (H)155 mm	
Weight	17.5 kg	
Tube Complement	EIMAC 4X150A (7034)	EIMAC 4CX250B(7203)

Accessories: RF Amplifier included (PL-25R, PL-434R)

GY-715Q
GY-715Q
20.0 dBi

GY-715Q





AUSTRALIAN
AGENTS FOR

ANTEN

BASE ANTENNAS

AR85

G-GEORGE PART 2

Alan Hawes VK1KAL
35 Jacobs Street, Evatt, ACT 2617

G-George was given to the Australian War Memorial in 1955 after being flown from the UK. When it was handed over to the Memorial it was only a shell with most of the internal equipment missing. However, recently Eric Gledhill was engaged by the memorial to begin the task of restoring and maintaining the aicraft.

Eric is a former RAF airframe fitter who had by chance, extensive experience on Lancaster planes and the sister aircraft the Lincoln.

The Memorial would be pleased to hear from anyone who knows the whereabouts of any original equipment for Lancasters or Lincolns. Items they are on the look out for are, instruments, fuel cocks, switches, internal lights etc.

During September 84 Morrie O'Keefe VK3KO contacted the VK1 Division to ask for assistance in providing local contacts and operators for the proposed handover of the restored radio equipment for G-George.

Contact was made with the Memorial staff to investigate possible sites for an antenna. At first the Memorial staff where less than enthusiastic about the prospect of an antenna being mounted on the building, but it was explained to them that the antenna was designed to sit on a flat roof with weights to stabilise the mounts.

On Thursday 15th November Alan VK1KAL, Ken VK1NDK met with Morrie to erect the antenna. The selected site was a 20m x 30m flat zinc roof, an excellent ground plan for the 5 band trap vertical antenna. During the erecting process it was decided to add extra weight to the base, which took the form of a "25lb bomb" dating from 1914 which just happened to be at hand.

The most interesting moment for the writer was clambering along the wing of the Lancaster to catch the coax cable being lowered from the upper windows of the aircraft hall. While on the wing I was encouraged by cries of "don't slip", "mind the canvas", "the wings are moving", etc. I need not have worried as after the event I was shown a photograph of the entire squadron's air crew standing on both wings of the Lancaster, a small testimony to the strength of the plane.

The antenna and power were connected ready for a test to see if the equipment had survived the journey from VK3. The first contact on the set up was with Dave VK1DG not exactly rare DX but at least it proved everything was operational.

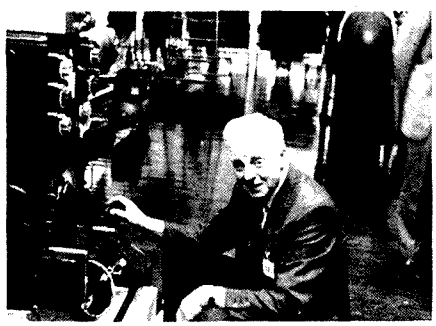
L to R: Jack Wilson and Peter Burnham.

The following day at midday Morrie and approximately forty fellow members of No 460 Sqd Association, together with visitors and friends from NSW, Victoria and the ACT assembled in the aircraft hall of the War Memorial for the presentation. On behalf of the No 460 Sqd, Jack Wilson presented a bound volume to Peter Burnham, curator of Heraldry. Contained in the volume are the names of the 978 members who died while serving with the Squadron.

The voice for G-George, the Marconi Radio Equipment was presented to Jim Heaton, curator of weapons by George Kirk, President of the Victorian Branch of the Association.

L to R: Jim Heaton and George Kirk from Marconi Equipment Centre.

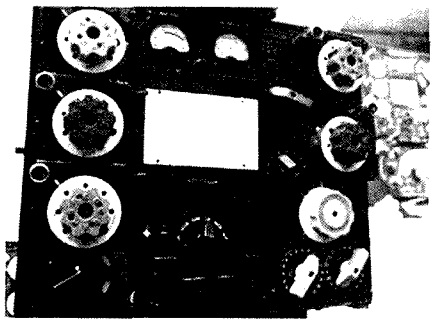
Now all of Morrie's work was to be put to the test. Morrie made contact with the following stations *John VK1NCO operating VK1RM from the Royal Military College, Duntroon, Ces VK1NCX operating VK1WI and Roy VK2DO in Yass.*



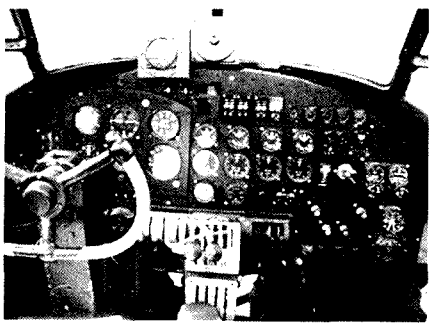
Morrie O'Keefe VK3KD with the radio gear.

Contact was attempted with the No 460 Sqd National President in Adelaide, but unfortunately band conditions were not good not to mention the mercury vapour lighting in the aircraft hall.

The Marconi equipment restored by Morrie was a T1154 transmitter and its companion receiver the R1155. It is interesting to note that these types of equipment provided the mainstay of equipment for amateurs after the Second World War. I have seen advertisements in English post war magazines advertising these items of equipment complete with spare valves for 13/6d, a far cry from today's prices.

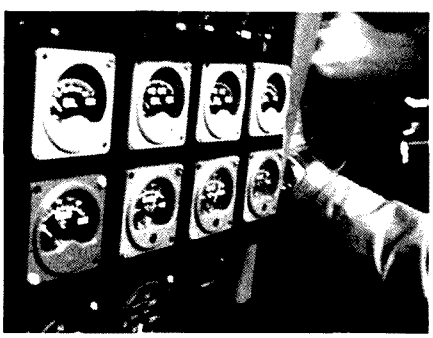


Marconi T-1154.



G-George Cockpit.

Looking towards the Radio/Navigators Post from the Cockpit. On left is Eric Gledhill.



Engineers Panel.

At the moment the radio equipment is on display beside G-George. It is intended to eventually install the equipment in its correct position in the aircraft. When the interior of the aircraft is more fully restored a walkway is to be built up and around the aircraft so that visitors may view the interior.

See also page 19 November AR.

AR

EQUIPMENT REVIEW

Ron Cook VK3AFW
TECHNICAL EDITOR

ICOM-04

Hand-held transceivers are getting smaller. In the Bad Old Days the rule was the higher the frequency the bigger the rig, but not any more. The IC-04 is the latest in a line of high quality, high performance hand-held FM transceivers from Icom. It is only 157 mm (h) x 65 mm (w) x 35 mm (d) and weighs in at around 0.5 kg with battery pack attached. And it can produce up to 5 watts of output with the appropriate battery pack!

I found this unit to be easy to use once I had a little practice and was pleased with the reports on both simplex and repeater operation. Setting the repeater channels into memory gave me some problems initially but this was overcome after re-reading the manual and trying again. The rig came complete with the ubiquitous "rubber ducky" flexible whip. Using this and 3 watts I was able to operate through the repeaters on Mt Dandenong and Mt Macedon from Oakleigh. Mobile operation, using a 1/4 wave 2 m whip was also surprisingly effective. The programmable scan is a nice feature as is the ability to set up a "priority" channel. In use, this last feature allows you to scan channels set in memory yet not miss a call on your special channel. Another fine design point is the battery back up of memory channels — no longer do you need to key in all those frequencies and their offsets every time you switch battery packs or change to another power source.

The only performance parameter that I could check with any useful accuracy was the power output. This was 3 W or slightly more across the band.

Should you wish to operate in the shack or from the car then this little rig can be plugged directly into a 12 V supply or into the cigarette lighter outlet. (Ah ha — a use for it at last!). While you operate the batteries are charged — another nice feature. A range of accessories such as a leatherette case, seven alternative battery packs, headset with boom microphone, variable rate chargers and external speaker/microphone make this a very versatile UHF station.

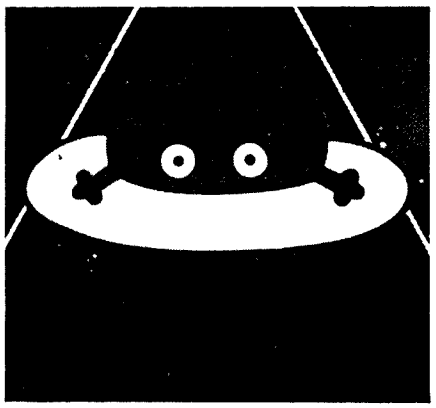
The construction is solid and professionally finished. The aluminium back is used as a heatsink — very necessary when running 5 W. Because the unit is so compact I would not be keen to service it. Of course full back-up is available from Icom (Australia) Pty Ltd should you be unlucky enough to need a repair.

The world of UHF is something like two metres was twenty five years ago. It is not difficult to get a contact but the pace is noticeably slower and the operators seem friendlier. The dreaded "kerchunka bird" has not yet come to roost on UHF. So if you are interested in UHF FM then I recommend this rig as being worthy of consideration.

The unit evaluated was kindly provided by Icom (Australia) Pty Ltd. For the current price, check the advertisements in this magazine or enquire at your nearest dealer.

AR

AR SHOWCASE



TOUR TO EXPO '85

Travelaw, the travel agency which organised some very interesting tours for radio amateurs, is planning another tour to Japan.

This tour will include the Expo '85 exposition which is based on "Science and Technology — in the Service of Man".

For further information refer to their advertisement in this issue.

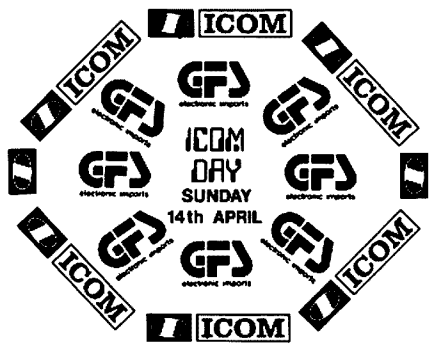
AR

ICOM DAY AT GFS

Icom Australia in conjunction with GFS Electronic Imports are staging, on Sunday 14th April an event unique in Australia to amateur radio. Known as Icom Day, it will be held between 10 am and 4 pm in GFS's showrooms at 17 McKeon Road, Mitcham.

All are welcome to take part in this free event. An I-2A 2 metre handy talky will be provided as a door prize along with free refreshments.

Apart from the chance to meet many other amateurs and SWLs it will provide an opportunity for viewing the latest equipment releases from Icom. Included will be their new HF transceiver, new VHF/UHF



Duoband transceiver as well as Icom's latest entrant to the programmable VHF/UHF scanning receiver market.

Additionally GFS and Icom hope to be able to demonstrate satellite TV from the USA.

Some of Icom's popular products will also have their prices marked down especially for the occasion. All things considered, Icom Day promises to be an interesting and entertaining day. If you would like further details contact either GFS Electronic Imports on (03) 873 3777, or Icom Australia on (03) 51 2284.

AR

HF TRANSCEIVER — THE TS-940S

A new exciting product from Kenwood the TS-940S will be available in Australia very soon.

The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 180 through 10 metre amateur bands, including the new WARC bands. It incorporates an outstanding 150 kHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 metres, 50 kHz spacing, 500 Hz CW bandwidth).

Engineered with the serious DXer/contest operator in mind, the TS-940S features a wide range of

innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT. The use of a new microprocessor with advanced digital technology controlled operating features, plus two VFOs, 40 memory channels, programmable memory and band scans, a large fluorescent tube digital display with analog-type sub-scale for frequency indication, and a new dot-matrix LCD sub-display for showing graphic characteristics and messages, all serve to provide maximum flexibility and ease of operation. In addition, a CW full break-in circuit, switchable to semi break-in, a built-in automatic antenna tuner, a solid-state final amplifier that is powered from a higher voltage source, a speech processor, all-mode squelch, and a host of other convenience features all add up to even greater versatility of use in fast-paced DX operations. With its power supply and antenna tuner built-in, and with its new whisper-quiet cooling system, the TS-940S is a complete, all-in-one type transceiver that brings tomorrow's sophistication to today's serious enthusiast. The unit may be ordered with the antenna tuner installed or available as an option.

AR

THANK YOU

The Federal Office of the WIA gratefully acknowledge the donation of Volumes 1 and 2 of "Handbook of Wireless Telegraphy" 1938 editions by John Gerber VK1EG on behalf of Mr T S Philpott, Esq, recently retired from the Department of Defence.

AR

BOOK REVIEW

FROM PASTURES GREEN TO SILVER SCREEN

Autobiography by John W Gerard VK2ADN

Published by the Author

PETER WOLFENDEN VK3KAU

Wireless and Cinematography, two spectacular achievements, paralleled themselves in development. They both became realities during the late eighteen hundreds.

The year that a Lumiere Cine-cameraman, Maurice Sestier, cranked his machine to record the 1896 Melbourne Cup; Melbournian, George Selby, was corresponding with Sir Oliver Lodge about "wireless". During the following year Marconi successfully demonstrated wireless over an eight mile path.

For the next twenty years or so both sciences developed greatly with major improvements being made — often in spectacular ways, much to the delight of a fascinated public. It could be said that both wireless and cinematography converged on each other during the late 1920s with the advent of sound on film.

John Gerard VK2ADN witnessed the spectacular growth of both wireless and motion pictures and has recorded his involvement through the pages of his recently released autobiography.

There is little doubt that John lived a full and interesting life. Growing up in the country with all of its advantages — and many disadvantages — working for and later as a partner with Lawrence (Pop) Penn of "Penns Pictures on Tour" (The Original Picture Showman), hearing the birth of broadcasting and later in life operating and managing the famous Tasma Picture Theatre in Coffs Harbour, NSW. John is also a life member of Lions International.

This autobiography is certainly extensive covering a large range of topics. The contents include 156 episodes with some 270 illustrations. Some of the titles to the episodes are as intriguing as their subject matter. Episode 61 recalls the Monopole Cigar which cost ten pence to buy but 24,000 pence to light. A naked bird — featherless type — is featured in Episode 150.

Amateurs, however, will be most interested in the sections dealing with the first wireless receivers and broadcasting, together with John's involvement in amateur radio. Many old timers — and some not so old! — had associations with Australia's motion picture industry, both in the production of films and the operation of picture theatres. A few amateurs were involved in the development of early Australian sound film equipment. I personally found John's experiences of running film shows and the description of film projection equipment of great interest.

The autobiography is easy to read, covers a wide range of subjects and should appeal to both OMs and YLs wishing to glance back through the first eighty years of this century, through the eyes of John VK2ADN.

Our review copy was made available by the author, John Gerard VK2ADN, QTHR, from whom copies may be obtained. Price is $14.95 plus $2.50 postage and package.

AR

CONFIDENTIAL FREQUENCY LIST by Oliver P. Ferrell

Ron Cook VK3AFW
TECHNICAL EDITOR

If, like me, you are inclined to tune over frequencies other than amateur ones, you may have wished to identify some of the many signals that are without obvious identification. The international broadcast stations always give periodic identifications, but many of the point-to-point or ship to shore stations use callsigns which are less informative. Well help is at hand in the form of Ferrell's book. Unfortunately Ferrell was killed in an accident just before the 6th edition of his book was printed.

This edition is also significant because it includes RTTY stations as well as CW, FAX and of course SSB and AM. It is perhaps stretching the point to call this a confidential frequency list as it is the sixth edition to go on sale to the public however much of the information would be difficult to obtain otherwise. The author and associates have used both government documents and reports from SWL's to check and cross check the listing to ensure that it is as accurate as possible. Of course the nature of utilities is such that some changes occur every day. The 300 pages of listings are quite comprehensive and are accompanied by some 35 pages of explanatory notes.

The advent of little boxes to add to home computers to allow copying of CW, RTTY etc, has increased the appeal of listening in to the utilities and other transmissions not intended for public broadcasting. (Provided you make no use of the information you overhear — other than to entertain yourself — then there is no reason why you should not listen in.) Many SWL's have specialised in listening to utilities around the world. They don't usually get QSL cards for reports on signals from suspected CIA operatives! You might doubt whether these would be on HF but according to this book certain bands often have badly sent CW signals which consist of code groups and whose source seems to be Central America, etc. These are more likely to originate from military or similar exercises although some covert or illicit activity cannot be ruled out.

I found the listings of shore stations running regular weather forecasts to be most Interesting. These p· CW and operate in a similar manner to a beacon in between bulletins. While checking some of these from interstate (to predict band openings into particular areas) I noted a weak signal in the background. The book under review enabled me to quickly identify the signal as being of Canadian origin and having a power level of 1 kW. The region 4.5 to 11.5 MHz is apparently good for working VEs for many hours of the late afternoon and through the evening. Regular DXers are probably aware of this but amateur signals are not sent on a continuous basis and surveying band conditions at times of low activity is difficult.

The listing is in ascending frequency from 4.000 to 25.000 MHz. The stations's mode, call, location, type of service, power and some clarifying remarks are given.

I recommend this book to anyone with a general coverage receiver. Get your copy from AR advertisers such as GFS. The review copy was kindly provided by the publishers Gilfer Associates.

AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

QST. November 1984. Digital processing explained. (NG) Coaxial Cables. (N) Smith Chart in Basic. (C) Curtain-quad antenna. (P) The Maxcom antenna matcher. (Product Review.)

SHORT WAVE MAGAZINE. December 1984. Facts about SWR. (GN)

WORLDRADIO. January 1985. American and international news and views for amateurs. Satellite, maritime, etc. (G)

QST. December 1984. Portable 2 metres helical antenna. (C) Practical RF filtering. (PN) Coaxial cable traps. (CN)

AMSAT OSCAR NEWS. December 1984. Satellite information. Helical antennas, etc. (G)

CQ-TV No 128. November 1984. Developments in SSTV. (G) Coaxial sockets. (G) Equipment reviews, etc.

VHF Communications. March 1984. Low noise preamp for 1.7GHz (C) Spread Spectrum Technology. (T) CMOS Frequency Counter. (C)

AR

OVERWHELMING RESPONSE

All involved would like to thank all relevant members for returning the AR Questionnaires.

The response was far beyond expectations and must almost collect the record for the most returns for a voluntary return. As soon as the information is formulated on the WIA computer we hope to publish the results in the magazine.

Overall it appears most members are basically satisfied with the magazine, with only a few minor alterations.

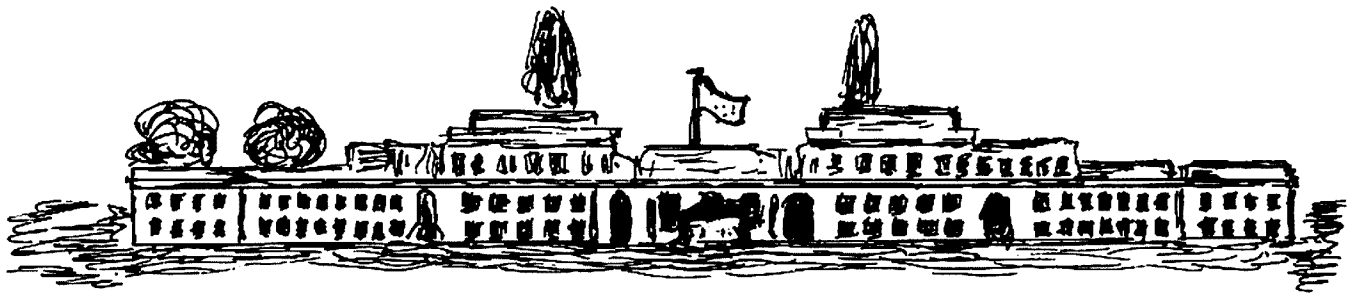
THANKYOU ALL.

Special 75th Anniversary

FORWARD BIAS

VK1 DIVISION

Contribution



AMATEUR RADIO IN THE ACT

Ron Henderson VK1RH
171 Kingsford Smith Drive, Melba, ACT 2615

In preparing this contribution on amateur radio in the ACT for the WIA's Seventy Fifth Anniversary it was the writers aim to concentrate upon the VK1 Division, or to give it its formal name — The Wireless Institute of Australia (ACT Division) Incorporated. However, as the historical research progressed, it was soon obvious that the history of the Division, although in excess of ten years, extended over only portion of the thirty three years that amateur radio has had representation in the Territory. Consequently this article starts with the formation of the Canberra Radio Club, which after five years was renamed the Canberra Radio Society, follows its history briefly through the Riverside Hut Clubroom days and an early abortive effort to form a VK1 division, to the successful establishment of the Division in 1974. The influence of the CB boom is then examined and the history concludes with the current era of stability arising out of maturity.

THE EARLY DAYS OF THE CANBERRA RADIO SOCIETY

We read in the NSW Divisional notes in Amateur Radio in the late forties and early fifties that Roy Rayner VK2DO, of Yass was the zone correspondent and he reported activity from the ACT by VKs 2PM, 2PI, 2TV, 2GU and 2ANR (*remember until 1956 all ACT amateur stations had VK2 callsigns, VK1 being allocated to the Antarctic Territories*).

By December 1951 AR was reporting the formation of the Canberra Radio Club with Ron VK2PM as President, Les VK2PI as Vice-president, Stan VK2ASB as Secretary and twelve other foundation members. The club had some early achievements such as the first Sydney-Canberra two metre contact on 5 December 1951 between VKs 2GU and 2ANF, participation in the VK2 Field Day in October 1952 and allocation of the distinctive club call VK2ACA in November 1952 at which time the membership reached a total of 40. In September 1953 we read of a Canberra get-to-gether, the fore-runner of the famous Canberra conventions. This one was at "*the club-rooms with all mod cons*", Riverside Hut 4, and was attended by the VK2 Divisional President.

From 1954 to the early sixties little can be gleaned of the CRC's activities, no regular notes were submitted to the VK2 Divisional column in AR and the minute books have still to be located. During that period, 1956 to be precise, all ACT amateur station call signs changed to the VK1 prefix, largely through the efforts of Les Pitts VK1PI and Arch Cox VK1GU. The Club's name change also took place in that year.

Photograph courtesy E Penikis VK1VP

The late Les Pitts VK1PI.

By 1961 we find moves afoot to create a VK1 Division, indeed it became an agenda item for the 1962 Federal Convention in Perth. The Convention directed the Executive together with the VK2 and VK3 Federal Councillors to visit Canberra in 1962 to negotiate the matter, but at the 1963 Convention the Federal President reported that the CRS advised they did not wish to pursue the matter at that time.

It was late in 1961 that the President of the CRS received a mild letter of reprimand for his annual report in the CRS Journal which was considered outspoken on Geneva WARC matters by the Federal President.

By the 60s the regular pattern of weekly meetings at the Riverside Hut 4 clubrooms was established, construction of a club station was underway and the first 6 metre contact from VK1 was achieved by VK1PM in February 1962.

The first Canberra Easter Convention was held in 1964 at the Riverside clubrooms and this set the pattern for a series of such activities.

On the VHF front AR for December 1964, in the VHF notes, records three active VK1 stations, 1CR, 1VP and 1ZRX, also that there was an OSCAR 3 satellite capability. In the second half of the sixties we find efforts to make the ACT a separate call area for contests and awards, a growing dis-enchantment with the VK2 Division which was entering a VHF expansion phase and in the view of country members not providing them much support or service.

Near the end of the decade the WIA held a successful 1969 Federal Convention in the ACT but even this action provoked some acrimonious correspondence between Sydney, Melbourne and Canberra.

RIVERSIDE HUT 4 CLUBROOMS

Very early in its existence the CRS was able to

Photograph courtesy E.Penikis VK1VP

Canberra Radio Club outing near Mount Gingera in September, 1952.

obtain a lease of Riverside Hut 4 as a clubroom. The area had originally been a hostel but was later utilised by the Department of the Interior as accommodation for clubs, societies and civic groups.

With the formation of the Council of Cultural Societies and construction of the Griffin Centre in Civic, the Department commenced a demolition programme at Riverside. The CRS correspondence files show letters dating from 1964 requesting vacation of Hut 4 but alternative premises, at no or low cost, were not easy to come by. Indeed it was not until June 1971 that the Society vacated its old clubrooms after negotiating with Civil Defence to use their training room in Civic on a weekly basis. Interestingly enough one very sub-standard Riverside hut remains today, as a snackbar/canteen for government workers in the area.

FORMATION OF THE VK1 DIVISION

Following involvement in the WIA novice licence Inquiry and re-forming of a WICEN register of interested amateurs, the CRS turned its attention to the formation of a VK1 division. The minute book records that in June 72 Federal Executive was asked about the requirements to set up a division and VK2 support was requested. The club membership list showed 40 names (39 callsigns) and the majority were in favour of forming an ACT division.

The mechanics of forming a division first called for the creation of an incorporated body separate from the CRS and at the October 1972 AGM the membership voted for this action. In April 1973 the constitution was forwarded to Federal Executive and the 1973 Federal Convention specified several matters requiring resolution prior to formal admission as a new division. Despite this affirmative decision the 1974 Federal Convention spent a considerable time in committee discussing the pros and cons of small divisions with equal voting rights and an inability to bear a large proportion of WIA convention expenditure before voting for the immediate admission of the ACT Division to the Federal body. The new Federal Councillor and Alternates then took an active part in the Convention.

Up until this time the CRS was obliged to tread a wary path in its dealings with the VK2 Division. Much concern had built up nationally over 2 metre repeater band plans coupled with a lack of confidence in the management of the VK2 Council. Indeed on at least two occasions in two years the CRS was represented, with large proxy lists, at Special General Meetings in Sydney.

Upon formation of the incorporated, but not yet Federally accepted VK1 Division the CRS handed over all its assets except for a token sum of cash, with provisos, including one that the Division renew the VK1ACA callsign for a number of years. The beacon and repeater projects were also handed over and the CRS went into recess in August 1973.

Some of the early actions of the new Division were to replace the CRS bulletin "The Repeater" with a new newsletter "Forward Bias" so named to indicate leadership rather than reiteration; to obtain a licence for VK1WI and to originate news broadcasts weekly on Sunday evenings at 8pm local time on 80 and 2 metres. A WICEN co-ordinator was appointed and AOCP classes were commenced.

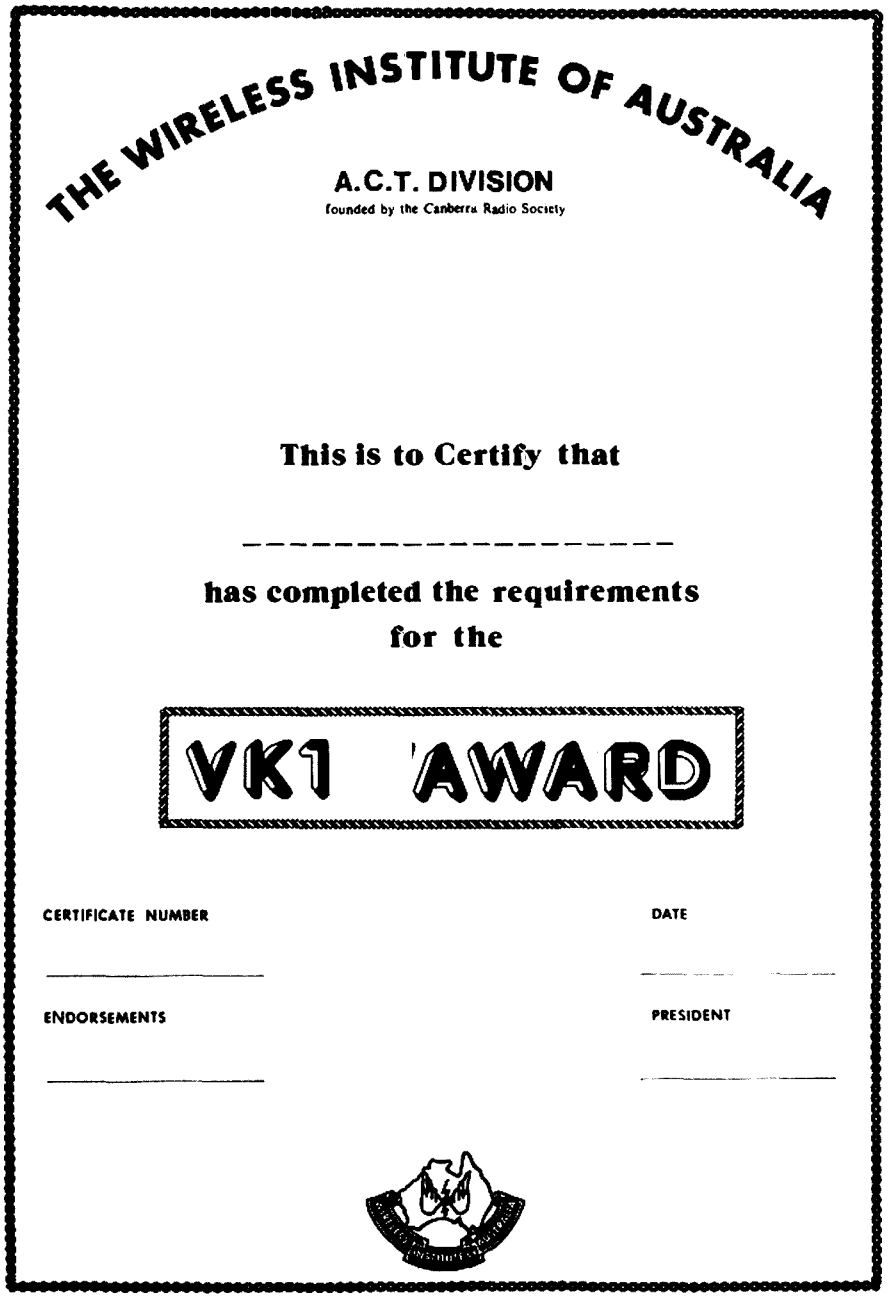
An Easter Convention was held in 1975 and that year saw the expulsion of a member for unlicenced CB operations culminating in a prosecution. At the request of the membership the monthly meeting format was revised to reduce business matters and place increased emphasis on technical lectures and presentations. Fox hunting commenced in 1976 and hunts were held regularly, both of the direction finding and talk-in variety. These afforded members practice which showed up at amateur radio conventions in NSW and the ACT.

Once again the matter of a home or clubrooms for the Division was raised and a sub-committee was formed to examine the situation; sadly their recommendations led to no permanent solution and monthly meetings continued at the Griffin Centre, Civic.

THE CB ROOM

The mid seventies brought with them the Citizens Radio boom and its inevitable impact upon amateur radio. The ACT Division was very active in the formulation of a WIA policy on CB, extending to liaison and technical advice to the newly formed National Citizens Radio Association in their quest to legalise CB. The Division and indeed most thinking members of the WIA saw the citizens radio boom as a potential source of expanded WIA membership, despite its attendant interference and "pirate" operator problems, due in part to an out-of-date Wireless Telegraphy Act which severely constrained Departmental control of illegal operating.

Following a good start with CB liaison an incident arose which led to the resignation of the Divisional President of the day and an attempt to *reform the* Canberra Radio Society as a society of amateur radio "excellence". The President held strong views on the value to the Division of its own clubroom premises, indeed some ten years earlier when President of the CRS he had proposed a similar course of action, without success. The Division entered into negotiation with the WIA Federal body with the aim of


THE WIRELESS INSTITUTE OF AUSTRALIA

A.C.T. DIVISION

founded by the Canberra Radio Society

This is to Certify that

_____

has completed the requirements for the

VK1 AWARD

CERTIFICATE NUMBER

DATE

ENDORSEMENTS

PRESIDENT

building a National Headquarters in Canberra; utilizing a portion of the building eventually for a Federal office, a portion for an ACT Divisional office and letting the remainder to secure income to finance the investment. In the event the proposal caught the WIA at a time of expanding inflation accompanied by budget over-runs which meant they were unable to pursue the scheme. The President then consulted with CB organizations as to their interest, but this was considered by the membership beyond his terms of reference and his resignation was accepted.

STABILITY WITH MATURITY

Following the CB boom the VK1 Division settled down to steady progress on several fronts. VHF enthusiasts were catered for by the installation of a second 2 metre repeater, this time located on Mt Ginini in the Brindanella Range. The repeater, having one of the highest sites in Australia, provides a coverage extending from Albury in the south to Newcastle in the north east and Tathra on the south coast when conditions are good. Interest in WICEN was revived and a portable generator was purchased, financed partially by a community assistance grant.

April Fools Day 1978 brought a major setback to the Division, the Mt Ginini repeater was stolen and use of the site came into jeopardy. The same year VK1PA sailed as a radio operator/scientist crew member of Solo on a voyage to Antarctica, "Forward Bias" went bi-monthly as, in the editors words, *"a measure of the apathy in the Division"*, then to cap it all VK1 won the Remembrance Day Contest and coveted trophy.

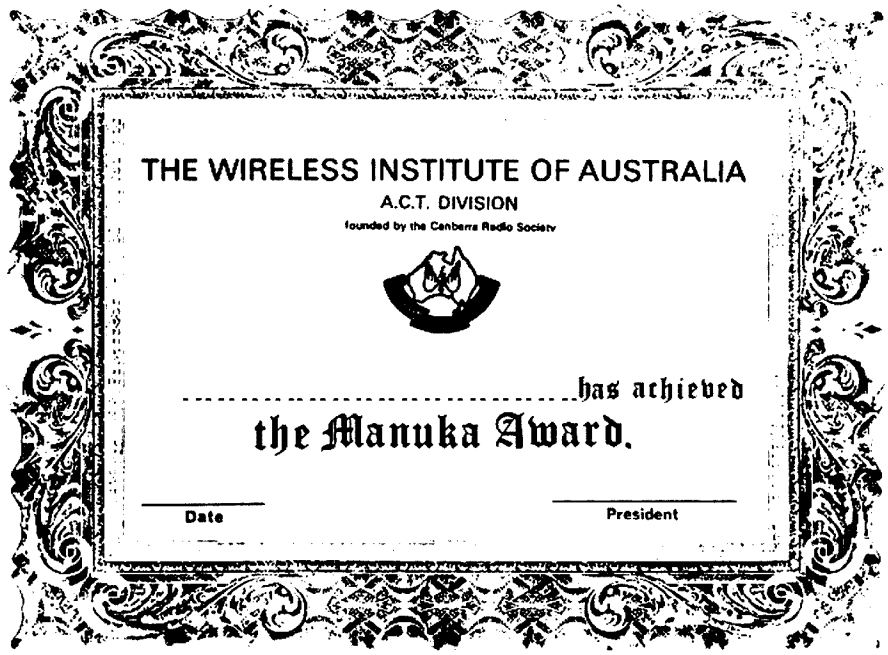
The membership voted unanimously to restore the repeater, an appeal for donations was launched and construction of a replacement unit commenced. In parallel a concrete block house was constructed on Mt Ginini by volunteer labour to guard against a repeat of the theft. Much later the original repeater was recovered by police in Melbourne and the Division ended up with a reserve unit which permitted maintenance by exchange of major assemblies.

As part of a move to publicise the VK1 call area and ensure that VK1 stations were available for contacts, a sub-committee was set up to plan a VK1 award. The Award which was introduced in 1980, has higher level endorsements for contacts with greater numbers of VK1 stations. A net has operated on 80 metres after the Divisional Broadcasts on Sunday evenings for over four years and several Australian stations have achieved the 100 contacts endorsements, no mean achievement when there are only some 320 licences total in the ACT.

Late 1979, early 1980 interest in UHF led to the commissioning of a temporary 70cm repeater by the CRS. This project was later taken up by the Division, however the repeater is still not operational on its final site, Mt Ginini. This long gestation is indicative of activities of a complex nature when supported by a small active UHF membership base.

An original Gestetner quality QSL.

By 1980 the *"Worked All Manuka Mobiles"* or *"WAMMY"* Award had arisen to bring a degree of levity to serious award hunting. To achieve the award stations must contact other stations mobile in the Canberra suburb of Manuka and exchange odometer readings. Gestetner quality paper QSL's frequently are issued by the activating station at Manuka and the award is a high quality photo copy of a "rare master" certificate. With the incorporation of Divisional newsletters as columns in the journal, Amateur Radio, June 1980 saw the last local issue of "Forward Bias". Even so news sheets have appeared from time to time at monthly meetings to bridge the leadtime gap of the magazine.



The year also saw the relocation of the Mt Majura 2 metre repeater to Black Hill, near the Tidbinbilla tracking station and installation of the 2 metre beacon at the vacated site.

In the International Year of the Disabled, 1981, Chitary Moriyama JH6THP visited Australia and coupled with his visit a radio club and station VK1WVH was set up in the rehabilitation unit of the Woden Valley Hospital.

By now the Division had formed strong views on its operations and objectives. A membership drive was made and free QSL services restricted to members. The annual JOTA involvement brought co-ordination difficulties, lack of control of youthful participants and a perceived lack of awareness in the scouting organization, a situation fortunately not as apparent with the guiding movement.

Prudent financial management, based upon an annual budget, allowed surplus funds to be invested in both 1982 and 83; perhaps this is a small beginning to realisation of the vision of Divisional clubrooms.

In 1982 the first of a successful annual public relations exercise was conducted with the operation of a special event amateur station, AX1ITU, in a public shopping mall on 17 May, ITU day. This first display station was manned by the local 10-X Chapter but the Division has organised it in recent years. Public exposure of amateur radio has also been achieved by operating the Divisional station VK1WI from a public recreational park each John Moyle National Field Day, utilising a roster of volunteer operators to submit a 24 hour multi-operator contest log entry.

Amateur television and amateur satellites came to the forefront in 1983 and 84. The Division, after a successful ATV demonstration night by the VK3 roadshow, formed an ATV group whose efforts will culminate shortly with the commissioning of an ATV 70cm to 50cm repeater at the Black Hill site. An amateur satellite interest group, which included several tracking station employees amongst its numbers, set up and operated a special station, VK1ORR, for the STS-9 Shuttle Mission in which Owen Garriott, W5LFL made contact from space with amateur operators around the world.

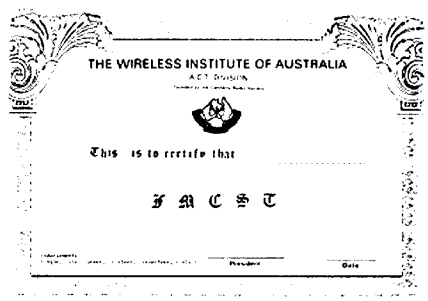
By 1983 sizeable elements of the Department of Communications had moved to Canberra, a move to be completed in June 85 when the last branch, the Operations Branch relocates. The VK1 Division, perceiving a need for the WIA to maintain close relations with the Radio Frequency Management Division policy makers of the Department, offered to assist the Federal Executive by providing two Canberra liaison officers, VK1RH a former Federal Councillor and VK1JL (formerly VK1CDR) a former member of Executive.

The Division holds the view that much of the routine supportive work for amateur radio in Australia can be carried out by small informal, as well as formal, sub-committees of the Federal Executive, tasked to progress specific issues. This approach utilises the existing specialist and diverse skills of members and reduces the demands on the VK3 membership who must not only appoint office bearers for their own Division but also provide the greater number of Federal Executive members. It also delays the time when further paid staff need to be employed by the Institute.

SUMMARY

Amateur radio has been alive, well and represented in the ACT for over thirty three years. For the greater period the voice of the amateurs was the Canberra Radio Society. Building upon that foundation the ACT Division, the newest division in the WIA, is now in its eleventh year and has passed through the restless years of adolescence to become a mature responsible body, not afraid to voice its opinion and contribute to the future of our hobby.

AR



An early VK1 award

CHRONOLOGICAL LIST OF PRESIDENTS

Canberra Radio Club

1951 Ron May VK2PM
1952 Stan Brown VK2ASB
1953 Norm Ritchie VK2ANR
1954 Norm Ritchie VK2ANR
1955 Norm Ritchie VK2ANR
1956 Ken Finney VK2AIL/1AIL

Canberra Radio Society

1957 Ken Finney VK1AIL
1958 ?
1959 ?
1960 Bud Pouncett VK2AQJ — Les Pitts VK1PI
1961 David Gothard VK1DG
1962 David Gothard VK1DG
1963 John Bennett VK1ZJB
1964 John Bennett VK1ZJB
1965 Ken Mattei VK1KM
1966 Ken Mattei VK1KM
1967 Steve Grimsley VK1VK
1968 Chas Rann VK1CR
1969 Chas Rann VK1CR
1970 Ted Pearce VK1AOP
1971 Steve Grimsley VK1VK
1972 Rej Miles VK1MP
1973 John Lauton VK1JL

Wireless Institute of Australia (ACT Division) Inc

1973 John Lauton VK1JL
1974 John Lauton VK1JL
1975 Ted Pearce VK1AOP
1976 Ted Pearce VK1AOP
1977 Steve Grimsley VK1VK — Ted Howell VK1TH
1978 Ted Howell VK1TH
1979 Andrew Davis VK1DA
1980 Andrew Davis VK1DA
1981 Bill Maxwell VK1MX
1982 Bill Maxwell VK1MX
1983 Alan Hawes VK1KAL
1984 Alan Hawes VK1KAL

CANBERRA'S PIONEER BROADCASTER

Fred Robertson-Mudie VK1MM
Box E46, Queen Victoria Terrace, ACT 2600

Jock Ryan, who was the founder of Canberra's first radio station 2CA, died in June 1984 at the age of 87. He left behind a tape of memoirs which provides a delightful insight into the early days of radio in Australia. The tape has been transaibed into a booklet by 2CA.

Ryan's first contact with wireless was during the Great War when he served for about six months with the 1st AIF Wireless. This was totally CW, of course, and using spark equipment. He later gained a Marconi Marine Operators Certificate, also on spark equipment, as he noted, he had never seen a valve. He also did about seven years in the Post Office as a cadet mechanic, doing just about everything that could be done in telephony and telegraphy at that time. Ryan mentioned that his other 'qualifications' included having done a little electrical contracting, a Mines Department certificate to drive a steam engine and a diploma for playing the piano!

OUTSTANDING RESULTS

By the late 1920s, Ryan was running a small radio, electrical and musical business in the Canberra suburb of Kingston, and struggling to make a living — the population of the "Bush Capital" was then around 8,000. About 1930 he was "bitten by the mad wireless bug" and, with his Marconi certificate, obtained an amateur licence. In those days, of course, the amateur licence was still called an experimental licence (in both Australia and the UK the experimental licence became an amateur licence after World War II), and he was issued with the callsign VK2LE. This must have been one of the first VK prefix callsigns in this area as the VK prefix was adopted in 1929 to replace the OA series, and, of course, the ACT was not allocated the VK1 prefix until 1957. As Ryan had to rely on his memory to make the above mentioned tape (most of his radio related records were destroyed in a fire at 2CA in 1955) he was not able to recall too much detail of his purely amateur activities. He did note though, that his equipment was home brewed and "very primitive", and that he started operating on the 40 metre band with about 2 watts on CW. He had a lot of fun with a lot of other amateurs in the same position, particularly on their Sunday morning sessions. They were all very keen, all experimenting, and some achieving outstanding results.

MAN IS KING

Around that time, the news came out that radio station licences were to be issued for country areas and Ryan applied for a licence for Canberra as he thought "*it wouldn't be a bad idea to help sell radio sets and records*". Whilst he didn't consider himself to be qualified to run a radio station, he relied on the fact that "amongst the blind, the one-eyed man is king"! In his application he promised to give them church services and whatever else seemed, at the time, to be the proper thing to be put in an application for a radio station licence.

LOAN OF A JAR

When the licence was issued for 2CA, with a power of 50 watts, Ryan was deluged by people trying to sell him a transmitter, including AWA, but he decided to build it himself. He then turned his attention to acquiring equipment and parts, and bought a 5kV oil filled transformer from the Department of the Interior "for a song", two towers from the Royal Military College for a similar price, and steel cable for guy wires from a rain making balloon experiment. He also acquired various second-hand parts from disposals stores, the Post Office, the Navy or from wherever he could get it. The Institute of Anatomy lent him a large glass jar to make a variable condenser for his linear after two had broken on the way up from Melbourne. Ryan recalled that "*In desperation, they took a body or something out of one of their jars and lent it to me until a third jar successfully arrived unbroken*". He had to buy some of the equipment new, including the valves, but at a total cost of £200, 2CA officially opened on 14 November 1931 from his shop in Kingston.

FROM THE LION'S DEN

Ryan estimated his listening audiences at that time was around 800 but, despite this, he did everything he could to get as much variety into his programming as possible, musically, topically and to an extent politically. He broadcast concerts from the Albert Hall, regattas from the aerodrome, political broadcasting from Parliament House, and a broadcast from inside a lion's cage at a local circus (and even managed to get in an advertisement for Arnott's biscuits whilst doing it). He did what was probably the first Australian broadcast for the Communist Party, and charged their President, Lance Sharkey, the unheard of sum, in those days, of £10 for a ten minute broadcast.

HERE IS THE NEWS

It was not long before 2CA decided to start a news broadcast, and Ryan hoped to buy news from the local paper, the Canberra Times, but this fell through due to the paper's news being under contract thus not allowing them to sell it to a third party. Ryan's solution to the problem was simple, he picked up a copy of the Sydney Morning Herald at the railway station on his way to the transmitter, which was by now located at Molonglo, took what he wanted from the paper and paraphrased it here and there to avoid any copyright problems. The station also began another practice which, nowadays, would be considered highly unethical. Every now and then, in among the general news, they'd say things like "*There's no truth in the rumour that hats can be bought anywhere cheaper than at Maloney's*". They would then go on with the next news item. In Ryan's words "*Nobody seemed to mind and I think that Reg Maloney sold quite a few hats out of things like that*".

THE SPORT OF KINGS

The Melbourne Cup was another feature which was unethically acquired. Ryan used to go a few miles out into the bush away from interference, pick up an appropriate station broadcasting the Cup, dial 2CA from a handy telephone and hook the radio receiver across the telephone line. This resulted in a no noise, no interference perfect broadcast of the Cup from 2CA.

COOKING BAKELITE

By about 1935 the station was still broadcasting in sessions, usually at breakfast time and lunchtime, and the station was given permission to up the power to 500 watts. Ryan, like many amateurs since, found out what RF can do by way of heating. They had a fixed condenser made of fragile zinc plates and, to provide a bit of strength, had slips of bakelite placed between the plates. The bakelite started to cook so they had to pull it out smartly and put in slips of glass instead. This had the happy result of causing a great improvement in the power output, but also resulted in the insulation on the jumper wires between the tank coil and the variable condenser bursting into flames.

METEOROLOGY SERVICE

In between sessions, the station also doubled as Canberra's first Air Traffic Control centre. The notorious winter fogs in Canberra made it difficult for aircraft to find the airfield and the Department of Civil Aviation made a contract with 2CA to work the Sydney flight into Canberra. This continued for about eighteen months from 1935. As the station broadcast on 285 metres and the aircraft were on 900 metres,

they made a receiver to cover the aircraft's frequency and the Department installed receivers in the aircraft to cover the 2CA frequency. The arrangement should, in theory, have made two-way conversations, most of which were in CW, possible but the 2CA carrier tended to swamp everything including the broadcasts of the horse racing by inter-state stations which were avidly listened to by Canberrans when 2CA had shut down between sessions. This problem was solved by working the aircraft between races! Ryan and his off-sider even provided weather reports for the aircraft, and swotted up on sufficient meteorology to be able to provide this service. They were, however, always 610 metres out in their cloud heights as they gave the heights above sea level instead of above airfield level, but all the pilots had instructions to make allowance for the error.

Ryan's interest in aviation may have arisen out of this branch of his broadcasting career, and he became a foundation member of the Canberra Aero Club — although he almost put the club out of business when he crashed its only aeroplane.

INK RECORDER

By 1938 the station had increased its power to 2,000 watts and had shifted the transmitter to the present site at Belconnen — though the first site they chose at Belconnen was gazumped by the ABC. They imported a Blawknox tower from America, believed to be the first and only one ever imported here, for the cost of £1,200 installed. It had no guys and was supported on large insulators which would take either pressure, compression or tension, according to the wind. It was of sufficiently unique design that all the mast and tower manufacturers came and had a good look at it. By this time 2CA had become part of the Macquarie Network, and they installed what was called a Caihlo circuit on the line to 2GB in Sydney. This circuit allowed a Morse key to be used for sending messages over the line without interrupting the programme. An ink recorder was installed in the studio to give a hard copy of any messages and to allow anyone to decode the messages.

THE END OF AN ERA

Ryan sold most of his holdings in 2CA, but stayed with the station as Chief Engineer. During the Second World War he joined the RAAF where his talents were quickly recognised and he made contributions in the radar section. After the war he taught electronics in the Newcastle area with an outstanding pass rate among his students. His death last year marks the passing of an era in both the amateur and broadcasting history of Australia.

AR

THE BLACK HILL ATV REPEATER — VK1RAC

Kevin Olds VK1OK
238 Southern Cross Drive, Latham, ACT, 2615

They say everything comes to those who woit which, it is hoped, will be true when the VK1 ATV repeater goes to oir early this year. This is the story of the repeater thus far.

The story began in mid 1962 when it was decided by the ACT Division of the WIA to bring the ATV roadshow gang from Melbourne to speak at the October 1982 General Meeting. This involved a host of arrangements including changing the usual meeting night from a Monday to Saturday. This was all duly accomplished and a very successful meeting was held which lit the spark of ATV in VK1 land.

A group of those interested in ATV got together and began the process of getting active on 70cm ATV. Before any transmitters were on air it was known that Canberra's terrain was going to make simplex ATV a difficult proposition. Thus was the repeater born.

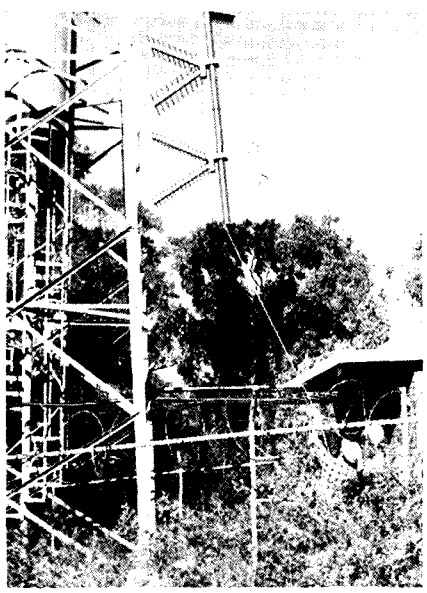
As the Division already had two active repeater sites it was decided to use one of these, Black Hill the site for VK1RAC the 2 metre repeater on CH 6900. Black Hill is the site for the collimation tower for the Tidbinbilla Deep Space Communications Complex and also houses Telecom equipment. The site is closer to the city than Mt Ginini and despite its lower elevation is a far better prospect for ATV. A 90 degree beamwidth antenna could cover all Canberra. The site owners agreed to our use subject to one condition — the fourth harmonic of the repeater's output frequency, which falls in the 2300 MHz band, must be unmeasurable on the Tidbinbilla equipment. This equates to being — 184dBW! The 2300 MHz band is of particular interest to the Tidbinbilla complex hence the condition.

Undaunted by this constraint planning continued. Contacts were made with the VK3 and VK5 ATV repeater groups and ideas gathered. The basic design principles were then laid down:

- *Input 426.25 MHz ATV with output on 579.25 MHz.*
- *A voice input would also be provided on 147.4 MHz to permit full duplex audio operation.*
- *All control would be by microprocessor, thereby allowing for greater facilities largely by software development.*
- *Repeater control would be via touch-tones on either audio input.*

Facilities to be provided ultimately include:

- *full duplex audio using 2m*
- *test pattern generation*
- *walking board displays to publicise coming events etc*
- *audio source selection*

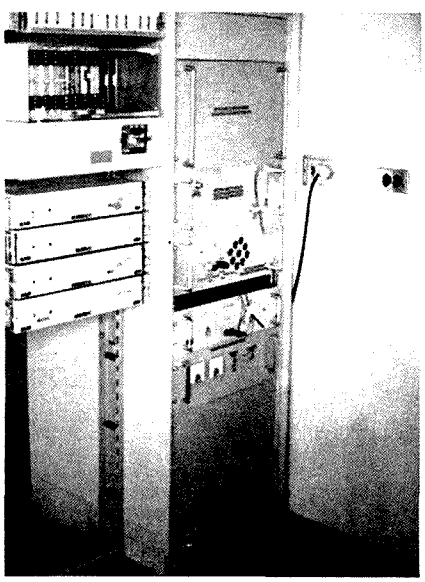


The Corner Reflectors being raised up the Collimation Tower.

- *video source selection*
- *video processing*
- *display of repeater command codes etc*

Detailed design and construction work commenced during 1983 and efforts to date were shown to the Division at the October 1983 meeting — the October meeting had become ATV night. Test transmissions using portable equipment had confirmed the suitability of Black Hill for an ATV repeater.

Work continued in 1984 as the small group pressed on. Some antenna hardware was erected on site and coax cables installed before winter set in. A recent change in antenna design due to feed problems will mean some changes to the hardware already installed but such is life. The microprocessor controller has grown to two, one for control purposes and one for the video display functions. October 1984's ATV night saw the demonstration to the membership of the receiver, audio and video selection and micro-processor controller. The transmitter was also displayed in its non-working state. Work is now (Jan 1985) almost complete on the transmitter stages and filters and systems testing will begin soon.



The VK1RAC equipment rack.

It's been a long hard road but there is light at the end of the tunnel. In true amateur tradition the repeater is largely home brew which adds to the development time but keeps the cost down, the knowledge level up and guarantees that the end product will do exactly what we want. When complete the repeater will be a valuable asset to the Division. Most members will be able to watch its output on their home television sets. Proposed uses already include Divisional broadcasts, broadcast of educational material for members as well as delayed broadcasts of the monthly meetings. No doubt other applications will suggest themselves.

Top Left
From left: Dick VK1ZAH, Bill VK1MX and Neville VK1NE starting to haul all the equipment out of the truck.

Bottom Left
VK1MX and VK1ZAH with some more equipment including the corner reflectors.

The corner reflectors being raised up the collimation tower. Various other NASA antennae is on the tower and the channel 6 repeater VK1RAC antenna is at the very top.

The collimation tower.

This story wouldn't be complete without mentioning the people whose hard work and effort have made the repeater possible — Paull Bell, Greg Black, Jim Clark, Reg Dwyer, Dick Elliot, Neville Eyre, Dennis Gibson, Ron Henderson, Bill Maxwell, Kevin Olds, Brian Rhynehart and Richard Siede plus those others who have helped in many small ways.

AR

COMPANY ANALYSIS BY COMPUTER

The first phase of a $36.75 m computerised business reporting service, which delivers print-out assessments on 250,000 UK businesses directly to its international customers' print terminals and personal computers has been inaugurated by Dun and Bradstreet, the London-based commercial information agency.

Named DunsPrint, the service is claimed to be the first of its kind in the world. Separate European databases will be computerised on a phased basis with the Netherlands, France, Belgium and Eire having their own centres by 1985. By that time, DunsPrint files will have information on more than five million European businesses. Information can be cross-referenced and transmitted internationally.

Other European countries, including West Germany, Italy, Spain, Switzerland and Portugal, will be brought into the DunsPrint scheme by 1986.

A customer needs a print terminal or personal computer and a telephone. He or she dials an assigned telephone number which connects to the firm's database in London. Hard-copy business information can be printed in seconds, providing a summary of a company's history, status and credit-worthiness.

from Information Technology from Britain

AR

BLACK MOUNTAIN TELECOMMUNICATIONS TOWER

Fred Robertson-Mudie VK1MM
Box E46, Queen Victoria Terrace, ACT, 2600

The ACT hos quite a number of important communications facilities in both Canberra city and the surrounding territory ranging from the Naval and RAAF stations at Belconnen (both of which are well known to amateurs due to their potential and actual interference abilities at times), to the Space Tracking stations in the southern ACT and the Department of Aviation facility on Mt Ginini. In fact, a large number of the hill tops have antennas of some form or description on them. However, the most outstanding and arguably the most important facility is the Telecommunications Tower on Black Mountain. The tower itself is not unique, there being at least two dozen others in various ports of the world, nor is it the tallest as at 183 metres it is only about one third the size of the Toronto tower. It is though, one of the most outstanding due to its award winning design and its location on a mountain top in the middle of the city, and provides Canberra with a unique land-mark.

The necessity for the Tower came about through the dramatic growth in telecommunications traffic in the region over the past thirty years. Canberra is a significant source and sink for trunk line traffic as well as a major repeater in the main Sydney-Melbourne trunk route. The increasing traffic on the trunk route, in the SE region and in Canberra itself was liable to be severely inhibited by the limitations imposed by the finite number of lattice type towers that could be accommodated on the various hill tops around Canberra. The only options open were to further clutter up the hill tops or to try and centralize as many of the facilities as possible in the one unit — with the added advantage of being able to remove quite a number of the existing lattice towers some of which were beginning to look like veritable hedgehogs due to the number of antennas on them.

The desire for a centralized facility evolved into the concept of a single aesthetically acceptable tower which would meet all requirements known and predicted, and flexible enough in design to cater for shifts in emphasis between the types of services to be catered for. These services included telephony and TV relays, mobile radio and paging and TV/FM broadcasting. It was also considered that such a tower should provide facilities for all requirements for up to fifty years, without any significant extension to the tower structure or associated buildings.

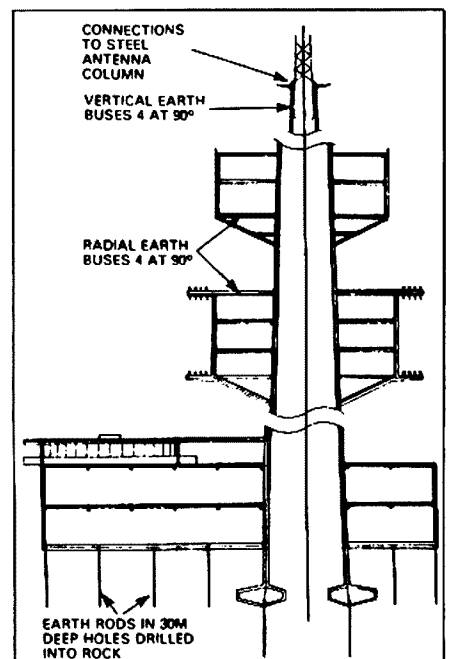
The design of the tower had, among other things, to take into consideration the number of antennas likely to be required as well as the types of antennas needed to achieve the ERP's required for TV and FM broadcasting. In view of the rather broad vertical radiation patterns needed, it was not possible to use very high gain antennas which would have given narrow vertical radiation patterns with resultant difficulties in achieving sufficient "null fill" down to the 10 degree depression angle specified. It was also desired to minimise the cross sectional size of the tower to reduce the visual impact and, as the antennas for the broadcasting services were to be co-masted, each had to be limited in vertical aperture and hence gain. In view of the large number of TV and FM channels to be catered for, it was decided that multi-channel systems should be employed as much as possible. The solution adopted was to design for four stacked antenna systems as follows:

- *TV band II (channel 3 and 5 later changed to channel 3 and FM)*
- *TV band III (channel 7 and 9 later changed to channels 7, 9 and 10)*
- *TV band IV (up to four channels)*
- *TV band V (up to four channels)*

The design also had to take into account antennas for around 80 channels mobile and radio paging, and the parabolic dishes required for the full deployment of the microwave frequency bands between 2 GHz and 15 GHz in each of three directions. In the case of the microwave dishes it was considered essential to reduce waveguide losses and intermodulation noise as much as possible by locating the transmitters as close as possible to the dishes. Thus, the three floor "drum" design evolved, with the height of the bottom of the drum being set by the minimum height needed to give satisfactory paths to existing and future repeater sites. The required co-masting of a number of antenna systems with the electrical requirement to have a decreasing maximum cross-sectional size of column with increasing frequency band of operation resulted in the need for a long and fairly slender structure which would have to take account of the effects of wind loading, solar heating and the low temperatures experienced in the Canberra area. The resultant tower design is shown in figure 1.

Another design problem to be overcome was to allow for sufficient space inside the tower column for cables, feed systems and access, particularly for the large diameter TV/FM broadcasting feeder cables. The usual practice was to feed each antenna with two cables and, in the case of the UHF bands, this involved plastic jacketed corrugated outer co-axial cables of 6 1/8 inches diameter with a large bending radius. For runs from the microwave equipment to their associated dishes, flexible corrugated plastic jacketed elliptical waveguides were adopted. There was also the need for, where cable penetrated through the concrete tower shaft, floor slabs and building walls, the penetrations be fire rated and weatherproof. Eventually an existing commercially available multi-cable transit frame (MCT) system was adopted which consisted of a cast-in steel frame with modular silicon rubber locks, either solid or in two halves, with an appropriate sized hole in them to seal the cable to be installed.

An important aspect of the tower design was the need for the protection of both personnel and equipment from lightning strikes. This was accomplished with a standard lightning rod atop the antenna column, with the column tied to the reinforcing steel of the tower structure, various radial earth buses and 30.5 metre earth rods at the base of the tower. The system was also tied to various vertical down conductors, reinforcing in wall columns, antenna mounting rails, window frames and other metal components. The resultant system encloses both the public and communication drums in a Faraday cage. The system is shown in figure 2.



Lightning Protection System

Figure 2.

Apart from its importance as the transmitting station

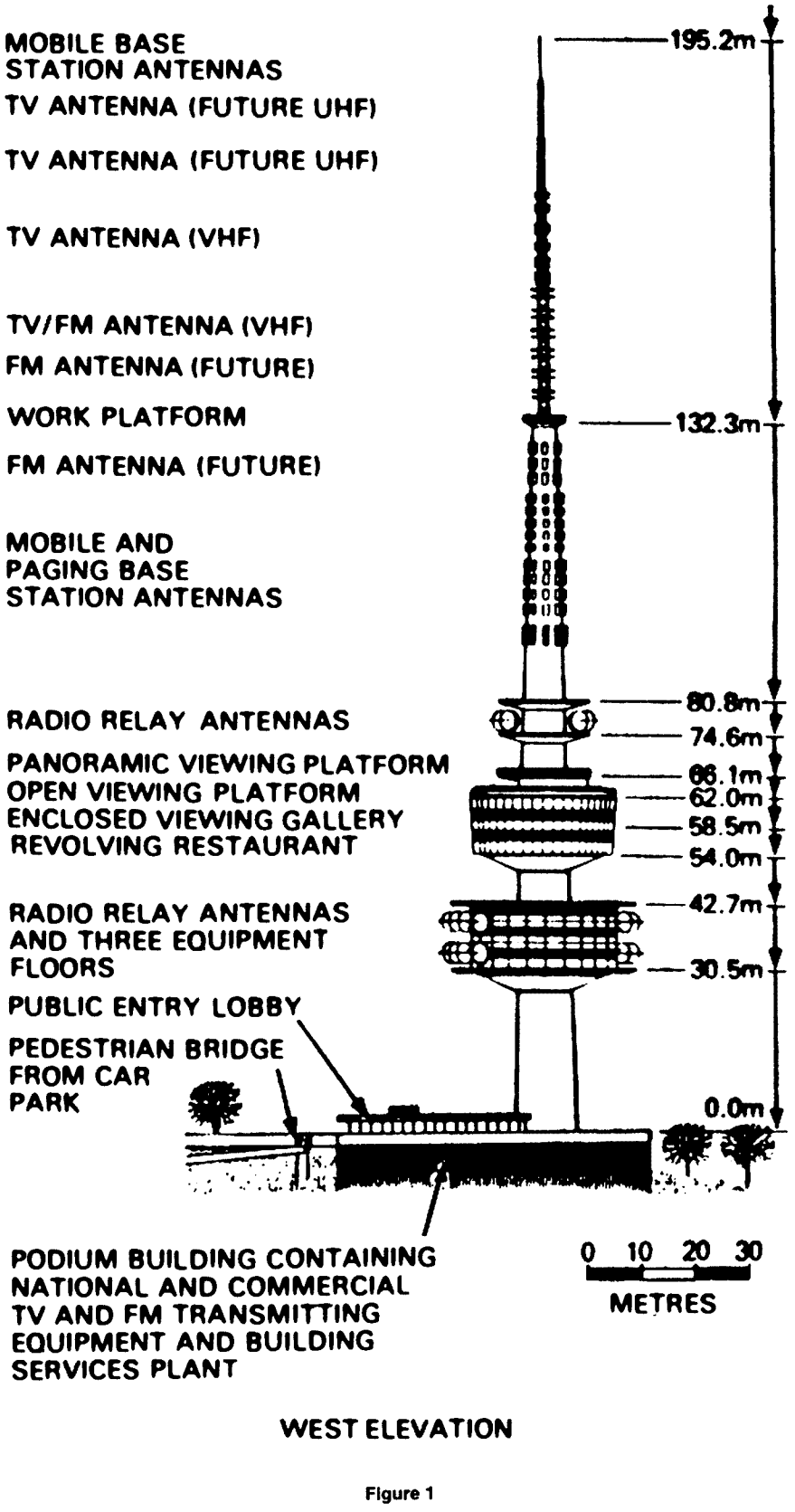


Figure 1

for Canberra's TV and FM broadcasting services and as a base station for other radio communication facilities, the tower is, as mentioned above, a key station in trunk communications for Canberra and an important node in the intercapital broadband network. Digital and analogue bearers routed through the tower are carried on both co-axial cable systems and on microwave radio links and, in addition to the telephony links cater for up to five simultaneous interstate television relays as well as national regional relays from Sydney and Melbourne and relays originating in Canberra. It is expected that many of the TV relays will transfer, in due course, to the national communications satellite and that, in the longer term, a trunk optical fibre cable system will be installed on the route. This will allow for recovery of some of the capacity for other services which, at the current rate of growth will be completely taken up in five to ten years. There is also expected to be considerable growth in the mobile radio services on the 80, 160, 450 and eventually 900 MHz bands, and the tower will accommodate the public mobile telephone service which is scheduled for Canberra in May 1985.

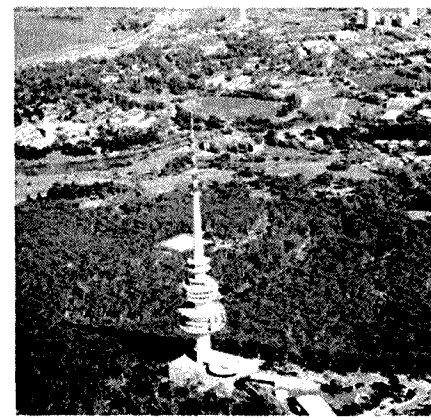
Briefly, in regard to the technical side of the broadcasting equipment in the tower, the national television service is provided via two AWA type TVB-10C transmitters operating in a parallel arrangement with an output power rating up to 12 kW peak vision power. The associated sound transmitters are frequency modulated and produce 1 kW output power. The Marconi driver stages of the transmitters are IF modulated with the VSB shaping done at low level with an IF of 38.9 MHz. The FM sound and VSB outputs are combined into one feeder in an external diplexer. Each complete transmitter uses three air cooled valves, one each for the vision and sound amplifiers and one for the driver stage vision output.

The FM transmitter is a Siemens type SU 10/6209, though the spare NEC unit is currently in use. The stereo multiplexed signal is fed to a 50 watt VHF FM modulator which is used to drive a 10 kW PA stage. The output is fed via a directional coupler to the TV/FM diplexer and then to the antenna system via a patch panel/antenna splitter.

The antennas for the national and commercial services are identical designs and comprise sixteen broadband dipole panels, four on each face at four levels. Each panel contains two or four full-wave dipoles on a reflecting screen and are fed in parallel to obtain the desired radiation pattern. The antennas have approximately 10 dB gain.

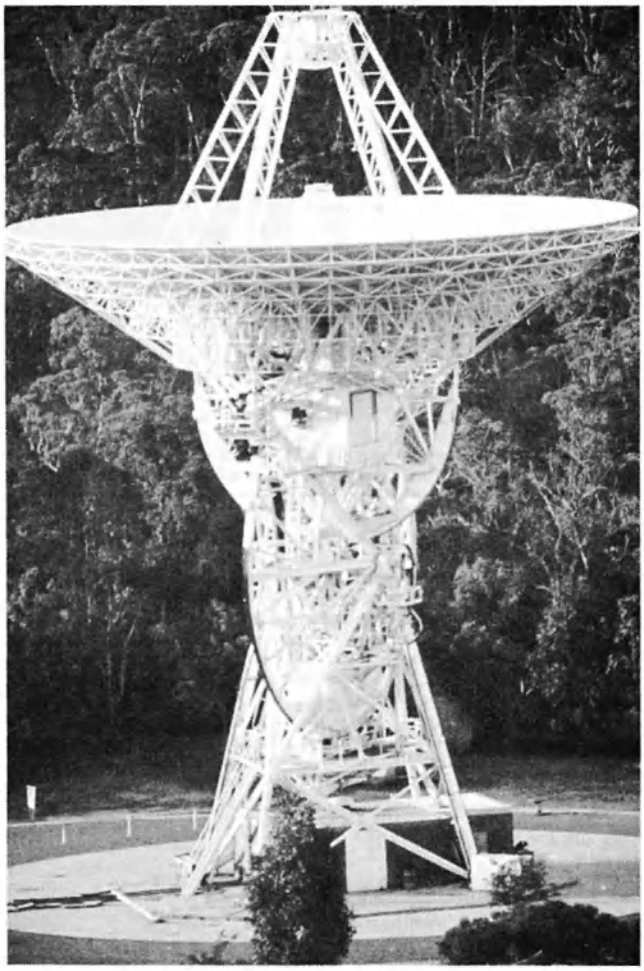
The commercial transmitters are in a separate, locked area and are remotely controlled from the studios of the commercial station. Their transmitters comprise a pair of NEC units rated at 20 kW. The SBS UHF transmitter, which utilises a water cooled 40 dB gain Klystron, is also an NEC unit, and is rated at 30 kW. It is, however, run at 20 kW due to antenna problems.

AR



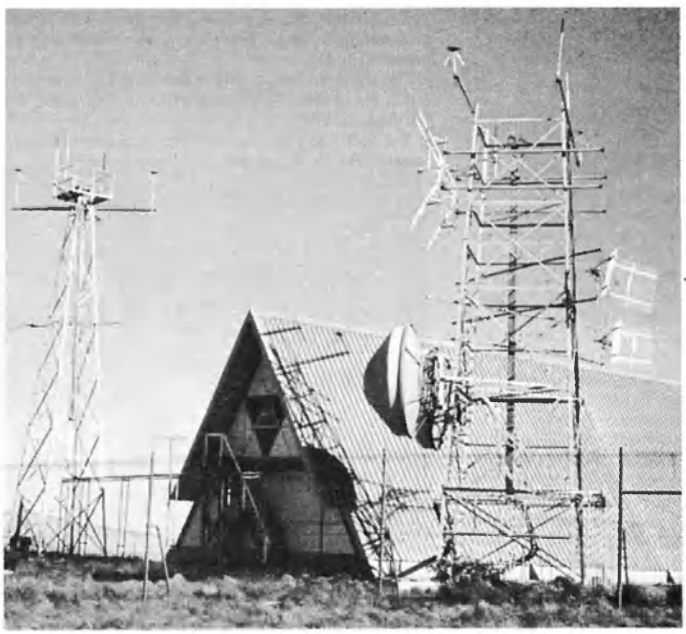
Black Mountain Telecommunication Tower.

COMMUNICATIONS TOWERS IN THE ACT

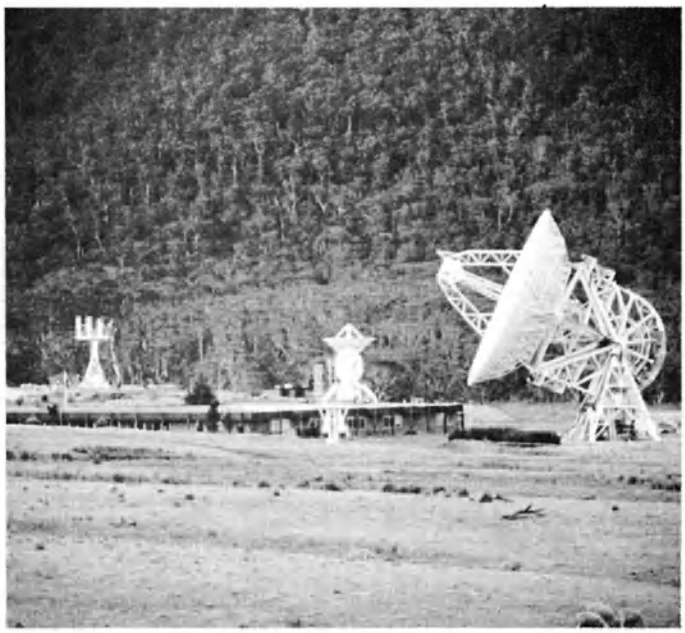


Honey Suckle Creek Tracking Station.

Tidbinbilla Deep Space Tracking Station.



Transmitter Relay at Mount Ginini.

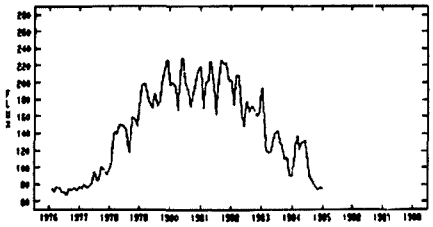


Orraral Valley Tracking Station.

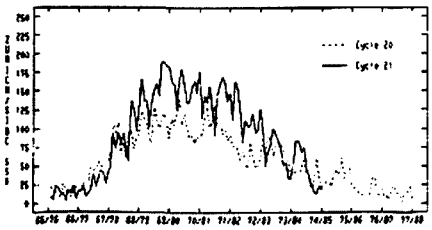
HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

Is it possible for band conditions to become less productive than they are at the present time? Well according to Lee in KH6BZF Reports and by looking at the graphs he has produced, they can and will. The graphs reproduced from Lee's publication indicate that we have not reached the bottom of the barrel yet. Not a pleasant thought but the bands do behave unnaturally at times and one can be quite surprised. 28 MHz, for example, should never be overlooked. For proof, listen when a JA contest is on, and at times like this, it can be quite active.



SOLAR CYCLE 21 — 10.7 cm FLUX



SUNSPOT CYCLES 20 and 21

Reproduced by courtesy of Lee KH6BZF and KH6BZF REPORTS

Newcomers need not be deterred, there is plenty of DX around for the patient operator with the correct technique. Listen and join in some of the contests this year. You will increase your operating skills, make new friends and formulate your own style of chasing the elusive countries that you need. Good luck and good hunting.

A tip of good news from Lee is that good HF possibilities could occur between the 4th and 12th of this month. That would be a nice Easter present for all DXers!

CLIPPERTON

At the time of writing these notes, the countdown for the Clipperton Expedition was still proceeding. The boat, a 35 metre sport fishing vessel named the "Royal Polaris" was due to leave San Diego, duly loaded with all the necessities for a successful expedition, on the 27th of last month, picking up the operators who include W6s-SZN, OAT, RGG, N6GJ, KK6X, N7NG, K3NA, WA7NIN, F6GXB, F9LX, DJ9ZB, TI2CF, XE1ZZA, JG3LZG, FO8GW and HL, in Mexico three days later and an estimated time of arrival at Clipperton is the 3rd of this month.

All QSLing will be done through the Yasme Foundation, PO Box 2025, Castro Valley, CA 94546. Cards with no return self addressed envelope will be sent via the bureau.

The operators are planning for three stations to be on air around the clock and hope to utilise all bands from 160 to 10 metres on CW and SSB with maybe some RTTY. If the equipment can be obtained Oscar will be catered for too.

The cost per operator is in excess of US$3,500 and that will not cover even a small proportion of the total expenditure. Donations are sought and in the event of a non event they would be returned immediately.

Let us hope we hear Clipperton activated for the first time in more than half a decade.

Those that have worked it and have it confirmed please give the "newer" licensees a big chance at this one!

NAVASSA

Another DXpedition scheduled for the 4th to 9th of this month is Navassa, which is being actuated by mainly Jamaican amateurs. According to all reports the US Coast Guard has given approval and it will not be like the HH0N operation, which didn't obtain accreditation.

SILENT KEY

Hilda "Gem" Collins VE3COA/G3YXT passed away on the 30th January. "Gem" as she was affectionately known by DXers world wide, from the various areas she operated, will be sadly missed. Condolences to George VE3FXT.

GOING HOME

John ZD9CC, who has been the School Principal at Tristan de Cunha, has completed his tour of duty. QSLs to ZS2DK.

CHINESE STATIONS ACTIVE

The Chinese stations are very active, including the latest addition, BY5RF, the station of the Chinese Science and Technology Association of the Fujian Government. This well equipped station also runs Oscar 10, Mode B.

CZECHOSLOVAKIA

The licence structure in OK falls into the three following categories "A", "B" and "C". The "A" licences is allowed 300 watts output whilst the "B" type is allowed 50 watts on all modes. Class "C" are allowed use of part of the 1.8, 3.5 and 28 MHz band with 25 watts output. There are also phone only 144 MHz licences and "youth" type permits for those between 15 and 19 years of age who use 1.8 and 144 MHz with 10 watts output.

The prefixes denote the following: OK1 Bohemia, OK2 Moravia, OK3 Slovakia, OK4 is used for maritime operation (/M for rivers and /MM for the open sea), OK5, 6 and 7 are special stations, OK8 are guest licensees, OK9 denotes an experimental station and OK0 is used by beacons and special stations.

AUSTRALIA POST

Much criticism is often needlesly attributed to the shortcomings of our postal system. I have had two problems in ten years with missing mail and have the highest praise for the staff of my local Post Office, where I get excellent service.

An approach was made to Mr Jim Foley, Public Relations Manager for Australia Post, as to the best methods of dealing with certain problems that are pertinent to our hobby. Jim in his amiable and meticulous fashion has written the following pointers for the readers of this column.

POSTAL POINTERS

Amateur radio operators have a fair amount of overseas correspondence so some overseas posting advice could be of help.

Australia Post has a range of overseas mail services designed to meet the requirements of most customers.

The most widely used is the Air Mail Service for envelopes bearing the familiar blue sticker.

Charges vary according to size and destination.

Postcards are cheaper and the popular aerogrammes are a standard rate no matter what their destination.

The fastest international mail service, indeed the fastest mail in the world, is INTELPOST.

INTELPOST is a document facsimile system that enables typed or handwritten documents, drawings, sketches and, yes, even radio circuit plans, to be transmitted to a wide range of countries in minutes.

Material can be collected and delivered by Australia Post Express Courier at this end and, where possible, arrangements can be made for delivery at the other.

On the heels of INTELPOST comes International Priority Paid, a premium service for very urgent items to a number of countries. IPP delivers articles as fast as possible.

The charges for this service will be refunded if the article is not delivered by the scheduled time.

Overseas Express Delivery is designed to expede delivery of postal articles from the delivery post office to the addressee.

The Surface Air Lifted service provides an "in between" service for a number of countries. The mail travels by surface within Australia and within the delivery country and by air in between.

If there is no great rush then mail can be sent by surface at a considerable saving on the rates for the faster service.

Australian stamps depict many aspects of our national life and are well regarded overseas. They are often referred to as our nation's calling cards.

Alternatives to stamps are available in the form of post office cash register receipts or postage labels.

Should you wish to send parcels overseas there is a wide range of packing materials available from post offices in the Post Pak range.

They include padded bags, boxes, tubes and packing and sealing materials.

International Reply Coupons are a popular service and are exchanged in the country of destination for a stamp to prepay surface mail postage on a return letter.

Your *local* post office will be pleased to provide further information on any of the above services.

From time to time articles of overseas mail can go astray.

Although very few articles disappear altogether, delays can occur in all postal systems.

Unexpected high volumes of mail can lead to temporary backlogs and human error can result in a few articles being missorted.

However, Australia Post's "on time" delivery rate is generally in the 90 percents.

Delays outside the postal system can include industrial action in other areas and poor addressing by senders.

Dead Letter Offices the world over contain mute evidence of partly addressed letters or articles not addressed at all.

Yet every sender, if asked, would swear the envelopes had been correctly addressed.

Anyone concerned about the non-arrival of an article can make enquiries at Post Offices as Australia Post has procedures to help in these cases.

Mr Jim Foley

Thank you Jim, for setting out the above hints and where to get help if you need it. It is much appreciated.

What Jim didn't mention was that Australia Post in 1984 employed a staff approaching thirty three thou-

sand full time employees and had in excess of six million delivery points from 4843 Post Offices, handling the staggering amount of 3,035,060 million articles in the financial year 1983/1984 of which 164,362 million articles were received from abroad.

Quite staggering figures which cause me to forget about my two lost letters in ten years!

CARDS GOOD!!!

As predicted the A61AA cards are good for the ARRL DXCC and also the operation F0ICR/FO8 pasteboard is being accepted. New countries for a lot of operators.

CARDS ARRIVING

According to all reports the CE0AA cards are drifting through and most should have their new country confirmed by now. Those who have not received a reply by this month should apply again, firstly checking the log as to the correct date UTC time group of the contact and marking the card that it is the second attempt!!

A STRANGE CLAIM

Unal, TA1A, claims to be the first officially authorised Turkish amateur with Licence No 0001. No QSL information as yet but the authorities are evidently allowing for a lot of licensees by starting with a four figure number!!! Let us all hope that genuine operations will tend to increase the amateur population in that country as they have suffered problems for a long time now.

ANTARCTICA

The US Bases in Antarctica are quite active on 14 MHz SSB. KC4USX and KC4USV on McMurdo and KC4USB at Byrd.

TRINDADE

Luiz is PY1CR but was allocated PY0TE whilst on assignment with the Navy as a physician and subcommanding officer of troops on the island. Luiz went QRT in early February and his QSL Manager is PT7WA, Rua Ageu Romero 83, Fortaleza, CE 60000, Brazil.

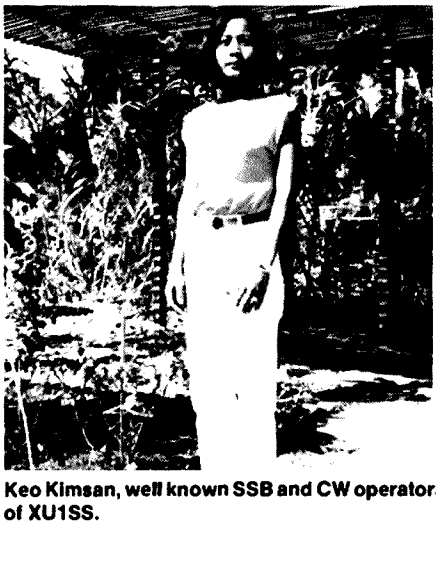
WARC BANDS

YI1BGD and Y2 stations are now permitted to operate on these bands. The East German stations are allowed 500 watts on both CW and SSB.

XU1SS

A letter from the very attractive 26 year old Keo Kimsan who operated both CW and SSB from this station has advised that the Ampil Village is now occupied by the enemy. All the amateur equipment was left behind in their hurry to escape.

I am sure Kimsan, due to her love of the hobby, will reappear from another QTH later this year.



Keo Kimsan, well known SSB and CW operator of XU1SS.

BIG SIGNAL FROM PA6FLD

The weekend of the 16th and 17th of February saw normal transmitters coupled to 20dB high gain arrays which will be used as from the 1st of this month by Radio Nederland Wereldomroep at their new transmitter site.

The antennas are claimed to be some of the largest directional arrays in the world and judging by the signal on 14 MHz I can believe it. It stayed on S9+ at this QTH for hours.

A special commemorative QSL card is available for contacts and SWLs on a heard basis.

FIJI HONEYMOON

Isao JH1RNZ, a medico, is expecting to do a lot of DXing during his honeymoon in Fiji between the 15th and 23rd of this month.

DXpeditions are not new to Isao as he has held the calls of KC6RN and T30RN, hoping to make the trio with 3D2RN. He is taking an FT757 and a FL2100B linear and hopes to operate on 180 through to 10 metres on CW and SSB. Spot frequencies to look for Isao are 1.803, 1.832, 3.507, 7.003, 10.111, 14.025, 14.195, 21.125, 21.295, 28.025 and 28.495 MHz.

QSP's for scheds may be made through Toshi JA1ELY, JH7DNO, JH6SOR and KD7P/KH2 on 14.195 and 7.085 MHz during the expedition. All QSLs to JH1RNZ.

ZC4 CONFUSION

Have I worked it? Is the problem in most peoples mind I am sure and if not, *when will I be able to?*

According to Bob Winn Editor of QRZ DX there appears to be a lot of confusion which stems from the misconception that all ZC4 stations operating after the 16th August 1960, the date of independence, were located within the Sovereign Base Areas. The ARRL News Release that announced separate country status for ZC4 stated "All ZC4 contacts made after the 1960 date were not necessarily operating from within the Sovereign Base Areas".

Bob has published a list, adapted from the DX News Sheet of some of the stations known to be active during this period and the calls noted with an asterisk (*) should be acceptable. Please bear in mind that this is not a complete list nor is it infallible but it is intended as a guide to what could be "good".

ZC4AK* 1967 Akrotiri, ZC4ASG* 1982 Akrotira, ZC4AVU* 1971 Akrotira, ZC4BP* 1969, ZC4CB* 1970 Akrotire, ZC4CI 1966 Famagusta, ZC4CN Famagusta, ZC4DA* 1968 Dhekelia, ZC4EPI* 1960 Episcopi, ZC4GB* 1966 Akrotiri, ZC4IK* 1970 Akrotiri, ZC4JU* 1965 Akrotiri, ZC4MO 1965 Mount Olympus, ZC4PC* 1966 Dhekelia, ZC4RAF* 1970 Akrotiri, ZC4RB 1967 Akrotiri, ZC4RS 1970 Limasol, ZC4SS 1965 No OTH, ZC4TK* 1966 Akrotiri, ZC4TX* 1965 Episcopi.

Well, it is now a hunt in most shacks to sit down and find one that may be good, if in doubt send a selection but not before the 1st June. If all fails and the silverfish have beaten you to the pasteboard, then possibly the best bet is to listen for Martin ZC4MR who is definitely in the new DXCC Country. Good luck and wish me the same.

BITS AND PIECES

DJ4IJ/XZ still operating but not recognised by the ARRL DXCC Desk. **VK75A is a special 75th WIA Anniversary Call that will be heard from all states for selective occasions. **On a four year round the world voyage is the "Sir Walter Raleigh" using the call GB0SWR/MM. **The new Norfolk Island signal is from Les VK9NI. **Two ZC4 stations quite QRV. ZC4MR around 14.213 MHz and ZC4ESB is QRV from Dhekelia **John VU7GV was supposedly active from the Laccadives. QSL via HB9MVW. **The CG3 prefix, in mid February was to commemorate the anniversary of the Girl Guide Movement in Canada. **DP0GVN at George Neumayer Base or (70°36' 15"S, 8° 17' 14"W) will be active until March 1986 on all bands and CW/SSB/AMTOR/OSCAR 10. QSLs via DJ4SO. **The Yaesu Bangladesh team did not work any DX stations during their tests for the government. **Well known DX Editor of NZARTS Break In, Ron ZL1AMM, has not enjoyed the best of health of late. Best wishes from all for a speedy recovery Ron. **JW5E was a group of YL's who entered the CQWWDX Contest. **Still hope for 4U1VIC as a new DX Country. **C73AA if you worked it was a "phony". This call is allocated to the World Meteorological Organisation. **S9 may be have a genuine expedition in early 1986. **Due to business commitments, the "Globe Trotting Colvins'" have deferred their trip to Africa indefinitely. **Activity from Thailand should recommence on a more permanent basis in the near future. **Speedy recovery to Lee KH6BZF after his sojourn in hospital.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S OSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, OST. RADCOM, JARL NEWS, KARL NEWS, OZ, 73, BREAK IN, WORLD RADIO and VERON.

Members who have contributed include VKs 2JM, PS, DTH, 3FR, YJ, YL, 4BHJ, 6NE, G3NBC, WA3HUP and L30042. Overseas amateurs include G1EOD, I8SAT, ON7WW AND ZL1AMM. Sincere thanks to one and all. Good DXing and I am going looking for my ZC4 cards.

QSL INFORMATION

1Z9A+1Z9D+1Z9YL:W7PHO, 3A2EE, 3A4E, 3A4F:F9RM, 3C0A:I8ACR, 3X4EX:N4CID, 4K1A:UY5DJ, 4S7VK:DJ9ZB, 4U39UN:W2MZV, 4V2C:NO4I, 5H3BH:SM0EAI, 5N0ATT: K4PVZ, 5N3RTF:DK2IF, 5N24AMA:5N8AMA, 5R8AL: WA4VDE, 5T5RD:F6IJA, 5T5RY:F6FNU, 5W1EX:W6ZH, 5X5GK:JA1BK, 6W1NQ:DL1HH, 6Y3M:KT3M, 6Y5RL: WA4WTG, 8P6AH:WA4WTG, 8P6GG:N4CTC, 8P6MI:VE3JTQ, 8P6MZ:WA2OGR, 8P6NW:KA9EBM, 9G1CI:LA4O, 9H1EL: LA2TO, 9H3DN:LA2TO, 9J2BO:W6ORD, 9J2TJ:N8JW, 9M2AV:W4SKE, 9M2HB:N4FFN, 9Q5/W9JER:WB0MZB, 9Y4NP:W3HNK, A4XJW:N4WVF, A22BW:OK3KD, A22DP: W7GVZ, A22TE:AK1E, A35SA:JM1MGP, A22WZ:OE3NH, A24DM:AK1E, BV0AB:JH6SOR, BV0W:W4WJ, C30ZA: WP2ABZ, CG3SAS:VE3FOI, CO2KK:KE5KK, CT2CB:N2DUR, CT4NH:W3HNK, EA8/OH2BEJ:OH2BEJ, EL2EF:KM8E, EM5T:UT5UWV, ET3PS:DJ9ZB, FT8XA:F6FYD, G8NV/MM: RSGB, HL9XX:AF3R, J37AH:W2GHK, J73D:W2OB, J88AO: W2MIG, OD5NT:WA3HUP, OX3CX:SM6HCX, OX3KP: OZ1HDF, RI8CA:RA3AR, SV0AC/SV9:WB5GCP, TI2WI:TI2J, UR1RWW:W7PHO, V85MS:N2OO, VK0GC:P29JS, VK0GL: VK3YTU, VK0PB:VK6NE, VK0YL:VK3AH, VQ9AC:KA3EDN, VQ9SK:WB6SKS, W7TSM/HK1:W7, Buro, ZK1XV:PA2DXY, ZK1XS:PA2DXY, ZL7OY:VK3DWJ, ZS3GB:N0AFW.

ADDRESSES

FO8HO	PO Box 5684, Papeete, Tahiti.
FT6FYD	PO Box 8, F-78570, Andresy, France.
H44IA	PO Box 219, Honiara, Solomon Islands.
HC1A	PO Box 280, Quito, Ecuador.
JT1BG	PO Box 158, Ulan Bator 13, Mongolia.
JT1BQ	PO Box 27, Naraikh, Mongolia.
ST2SA	PO Box 1533, Khartoum, Sudan.
TU2AX	PO Box 3349, Abidjan 01, Ivory Coast.
V85HG	PO Box 222, BSB, Brunei.
WB0MZB	PO Box 386, Onieda, South Dakota, 57564, USA.
XT2BO	PO Box 182 Ougadougou, Rep of Burkina Faso.
XT2BR	PO Box 116, Ougadougou, Rep of Burkino Faso.
YC3FU	PO Box 274, Surabaya, Indonesia.

AR

CW SWLing with ERIC L30042

28 MHz
VK3PIW, Beacons VK4RTL, VK5WI.
21 MHz
JO1OGK, JP1FEE, JR3MTO, JR6UJO, VK2CTN, VK5XJ, ZL2AQU.
14 MHz
AH2G, EA3JJ, FE8AH, FK8CR, FK8FF, FE6GJM, FO8HO, FO8JR, G4FOC, HL2AKB, HL4XM, I4TSB/4, I8LPR, H44IA, LZ1KWF, OH2BVM, P29BR, SM2BJE, UA9OEL, UA0ABC, UJ8BO/R, VU2VIT, YB0ZDB, ZL0AIW, ZS6KC.
10 MHz
DJ2AAC, FE2IL, FE8VN, JJ2AEV, SM6QG/MM, VM4AAA, VK6AKG, VK7RY, W1NHJ, W2KTF, K3DOT, K1TPZ/4, W8AVB, W0EFR, YU2TW, ZL1BIQ, ZL3AAM, ZL4NH.
7 MHz
BY4AA, DJ5CY, FA7AQL, F2EM, G3FXB, G4VRX, G8NV/MM, W7TSM/HK1, I1LF, IT9GVF, KH6CF, K0AX/KH2, KL7U, LX1PD, LZ1KAU, OE3ZOC, P29PR, ZK7AX, SP2GE/MM, SP7ASZ, UA6HPG, UB5ZZ, UF6FFZ, UZ9CWA, YB3AS, YB7HB, YB0BRT, YC3FU, YC0EZF, YU3IR, YU4JOP.
3.5 MHz
BY4AA, ER3A, G8NV/MM, HA9KOB, JA6GIJ, P29PR, UA3AGW, K5UR, W0ZV.

QSLs RECEIVED BY ERIC L30042

CM2PE, C31HD, DU1UY, EA6NC, DJ6BN/EA6, EA8AFB, EA8BF, FK8EL, FO6FW, KL7Y, T30CT, UH8EAA, CY3KUC, 5Z4MX, and 10 MHz EA4BWR, FE2IL, G4OTU, JA2EPW, W4OWJ, 4X4WF.

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq.	Call Sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.045	OX3VHF	Greenland
50.050	GB3NHQ	England
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
50.945	ZS1SIX	South Africa
51.020	ZL1UHF	Mount Climie
52.020	FK8??	Noumea
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.150	VK0CK	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth (1)
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.480	VK8VF	Darwin
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.159	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton

(1) A report in January 1985 "WA VHF Group Bulletin" says VK6RPH will OSY to 52.460 MHz when it goes back on the air, so the 52.300 MHz frequency is probably wrong. No decision has been made yet regarding the two metre frequency of their beacon.

Also, at the time of writing, it appears VK5RSE in Mount Gambier is not on as I have not heard it and it is always normally available here. We await news.

FIRST PERTH/ADELAIDE CONTACTS ON 432

Wally VK6KZ has sent me details of those contacts which were mentioned somewhat briefly last month and I quote:

"On 10/1/85 Bob VK6KRC in Perth was in contact with Max VK6FN in Manjimup (250km south of Perth) on 144.100 MHz and Max asked 'who broke in?' Bob listened and heard a voice. Thinking it may have been Peter Grumball VK6ZPG (210km north of Perth), Bob swung his beam only to hear unfamiliar voices to the east. He proceeded to work Brian VK5KBU at 2247 UTC on 144 MHz exchanging 5x9 reports. Bob then rang a number of Perth amateurs alerting them to what was going on. Thanks Bob!

"At 2302 Bob made the first ever 432 MHz contact between Perth and Adelaide (2137km from Perth) with Brian VK5KBU with reports 5x9 sent and 5x3 received. Wally Howse VK6KZ was thrilled to work from his home in Perth at 2258 VK5KBU on 144 MHz and then VK5ZRO and VK5ZTS before working VK5ZRO at 2304 and then VK5ZTS on 432 MHz. Mick VK5ZDR and Wally VK6KZ heard each other on 432 MHz but did not make a two-way contact. Other 144 MHz contacts by VK6KZ included VK5ZDR, VK5NY and VK5ZPS. Bob VK6KRC had to go to work (twenty minutes late) at 2320.

"Don Graham VK6HK worked four stations on 432 between 2303 and 2312 viz VK5KBU, VK5ZTS, VK5ZRO and VK5ZDR. Bob Pine VK6ZFY worked Mick VK5ZDR on 144 MHz. I am not sure how successful Jack VK6KDX and Ron VK6FM were. Both were heard calling when VK6KZ left for work at 0015, signals were still there but weaker.

"There was no 6 metre DX in evidence throughout the opening. Peter VK6ZPG at Gunyidi (210km north of Perth) did not hear VK5s nor was he heard by them despite liaison with Bob VK6KRC. Max VK6FN in Manjimup made one contact on 144 MHz to VK5KBU. Max had gone back to bed (!) when Bob had turned his beam east at 0645 local time and hence missed most of the DX.

"Mick VK5ZDR reported no sign of the Busselton 144 MHz beacon VK6RBS (200km south of Perth). Tests on 1296 MHz between VK5ZRO and VK6KZ were unsuccessful.

"It is understood that during the opening to Perth, the path between Albany and Adelaide was also open on 144 and 432 MHz. Some Perth stations including Roy VK6BO and Art VK6ART accessed the Kambalda FM repeater VK6KRB on 146.35/85 and 550km east of Perth working Ray VK6ET in Kambalda and Graham VK6RO in Bunbury 150km south of Perth."

Thanks for writing Wally, but it doesn't make me feel any better to know what was going on but being unable to share in the contacts due to being far enough inland not to be getting any benefit from what was obviously fairly closely associated with the coast over most of its course. *"Them's the breaks so I was told!!"*

PERTH TO ADELAIDE OPENINGS ON 144 MHz

The January 1985 "The West Australian VHF Group Bulletin" also has the following which relates to the above and was also prepared by Wally VK6KZ and should be of interest to readers.

"Further to the WA Interstate VHF/UHF story published in the VHF Group Bulletin from September to December 1980, the following is a summary of the dates and times of openings on 144 MHz between Perth and Adelaide. Times in UTC."

30/12/1951: 0705 to 0712 (1) — two way contact VK6BO/VK5GL
09/02/1952: 0312 to 0323 (1) — two way contact VK6BO/VK5GL/VK5QP
01/01/1967: 0305 — VK6VF heard by VK5ZBR and VK5ZMU
0435 — VK6BO heard by VK5RO
14/02/1969: 2305 — VK5VF heard by VK6ZCB (2)
14/02/1970: 2225 to 0225 — VK5VF heard by VK6ZCB (2)
2315 — VK5VF heard by VK6BO
23/01/1980: 0003 to 0110 — two way contacts by four Perth stations
28/12/1980: 2237 to 2257 (1) — two way contacts by two Perth stations
02/01/1981: 2228 – VK5VF heard by VK6ZKO
03/01/1981: 2107 to 2218 — VK6VF heard by VK5ZPE
10/01/1985: 2247 to 0015 — two way contacts by at least six Perth stations

(1) During six metre openings — Sporadic E related?
(2) Now VK6AB

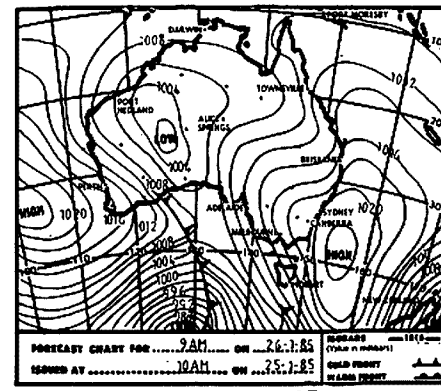
One can soon see from the above chart that contacts such as those which occurred on 10/1/85 are indeed rare, and really very few two-way contacts have actually been made, and even the number of times the beacons at both ends have been heard are equally as rare. In some 34 years there have been only five occasions noted when two-way contacts actually took place. No doubt there have been other times when no one was around but they do not count! All contacts have taken place in a six weeks period from around the end of December to mid February and would appear to coincide with a stable high pressure system across the Great Australian Bight, and would also seem to tie in with the declining Es of the summer season by some means but this is only a suggestion.

NEWS FROM AN OIL RIG!

A very interesting letter has come from Pete Robinson VK3DMX who gives an address as Sale, Victoria, and here are the relevant matters.

"I have been an avid VHF/UHF fan since 1963 holding a variety of call signs throughout the world from that time on, being in the oil business, and having spent the past three years in Bass Strait where there are many opportunities to observe the vagaries of propagation on the commercial VHF/UHF bands as well as the amateur bands. Although I usually bring one rig or other out each shift, I do not do a lot of transmitting, mainly due to TVI — those accursed broadband preamps on the ship's TV. antennas being the major problem!

"But I do a lot of listening and am especially alert to VHF/UHF openings. Being on a ship, one naturally keeps a good eye on the weather charts, and I often find a direct correlation between the charts and the VHF/UHF openings. Regions of high pressure seem to be the most notable indicators of openings. Such a 'high' swept across the Great Australian Bight, over Victoria and out into Bass Strait (see weather map). This was accomplished by VHF/UHF DX propagation, especially from Tasmania up into the Bass Strait oil rig area on all bands. It's just a pity there isn't more activity, especially on 70cm. I have had some fabulous contacts both on two metres and 70cm down to VK7 (simplex) with 70cm often holding in long after two metres has dropped out. 5x9 70cm contacts with 100mW to a 'rubber duck' are not uncommon. The CB boys on the Bairnsdale CB repeater have also had some fun working down to Tassie for protracted periods on 476.550 MHz.



WEATHER MAP

"As well as the weather charts I keep a lookout on a small portable TV I have on board. Any sign of Tassie TV and I'm out having a scan around the amateur bands, invariably triggering some repeaters even if there are no replies.

"Occasionally, especially around October and November, the 'ducting' becomes so intense as to be seen visually across the ocean. Similar to a mirage effect I guess, noticeable by a strong line visible just above the horizon. Oil rigs sometimes 80km away can be seen clearly, and seem to hover above the water. Turn around, and sometimes you can't see rigs only 15km away. It's really weird! One notable day last December I could see inverted freighters way off the coast, well over the horizon, seemingly hanging upside down in mid-air, about two to three degrees above the horizon to the east. Noticeable too was the strong line mentioned before.

"On these occasions the ships' radar is often showing funny things, as one would expect. 156.800 MHz (Maritime Marine Ch 16) often shows a lot of traffic, Melbourne being heard quite regularly.

"I am pretty sure most of the weather related DX is due to ducting, several times I have worked VK7 on simplex, the stations on the coast predominating, whereas the repeaters, being up on mountain tops could be heard only weakly or not at all.

"I would love to see a multiband beacon out here on one of the platforms, 2m, 70cm and 1296 MHz. I am not here often enough, and when I am, I'm often too preoccupied with work to provide a regular signal from this region. However, I am sure a beacon would provide many surprises, especially if monitored from various locations with computer-aided scanners with print-outs . . . oh! if I only had the time available!

"Rigs I use are an FT290R, FT790R and an AR2001 scanner covering 25 to 550 MHz. Antennas by necessity are usually just vertical whips, tacked on

when nobody's looking!" Thanks for writing Pete.

Readers at least now know there is someone often listening off our southern coast but the lack of transmitting power coupled with a limited antenna system will make it difficult even under relatively good conditions to make contact with stations any considerable distance away plus the fact that much of the more sustained DX is done on SSB and horizontal polarisation of the antennas. But now you are known to be there, Pete, a few more contacts could eventuate.

ISLAND HOPPING

Lionel VK3NM has just returned from a six weeks tour of New Zealand, Norfolk Island and Lord Howe Island. He took an IC505 and a 2 element quad made out of PVC conduit with PVC fittings as this was easier to handle on the six air flights he made. The following is a summary of contacts.

From New Zealand: 25/12/84 VK2XJ; 26/12: VK2BQY; 28/12: ZL7OY, VK2DDG, VK2XJ; 29/12: VK2BHO, VK2GS (52.525 FM), VK5DK, VK3AZY, VK3YDE, VK3ZYN, VK3YY. Heard VK3AKK, VK3ZBJ, VK6OX and VK8ZLX. All the above contacts were from Devonport, Auckland. 3/1/85: VK2XEA, VK2XJ; 9/1: FK8EM, VK4JXZ; 10/1: VK2DDG, VK2KAA; 12/1: FK8EM (52.525 FM); 13/1: VK2XJ; 18/1: VK2DDG.

From Norfolk Island: 20/1: ZL1ADP, ZL2TJX, VK2XJ, VK2BA, VK2KYL; 24/1: VK2BA, VK2AYF, VK2BNN, VK2LM, VK2XEA, VK2XJ, VK2ADV.

From Lord Howe Island: 30/1: ZL2CD, ZL3AFN, also heard a ZL1 plus ZL1UHF beacon plus ZL TV.

Lionel commented he heard VK TV on many days with very strong signals whilst in New Zealand and on Norfolk Island, but only short bursts from Lord Howe Island. He hopes to go back to ZL next year around Christmas with 6 and 2 metre SSB and better beams with the idea of trying to work trans-Tasman DX particularly on 2 metres. This year Lionel also carried some HF gear but due to his low aerial could not work much DX, in fact, finding 6 metre DX a lot easier than 20 metres! Thankyou for the letter Lionel, hope you enjoyed yourself.

1296 MHz . . . AT LONG LAST!

After eight months or more of talking about it, Dick VK5ARZ, President of the WIA (SA Division), finally got around to making his 1296 MHz two by 27 element loop Yagis rotatable and replaced the RG8 feedline with a piece of heliax with the result that for once he could be heard further than his letter box!

Contacts were managed with Bob VK5ZRO, Brian VK5KBU at 5x9, then to Don VK5ZRG at Whyalla for a 5x9+ report from 1 watt! Then to just round things off there developed what was probably the first three way 1296 MHz round-table between VK5ARZ, VK5ZRO and VK5KBU. Dick's location gives indications of being perhaps even better than that of Bob VK5ZRO as Don VK5ZRG seems to be hearing Dick a little better than Bob at times. Interesting, especially as Bob is running 10 watts to a 1.2 metres dish compared with Dick's 1 watt and two 27 element Yagis.

144 and 432 MHz STILL GOOD

One might have been excused for thinking that perhaps 144 and 432 MHz would go quiet after all the happenings of 10/1 and 11/1 but this was not so. The following is a brief summary of what Mick VK5ZDR worked this month.

12/1: VK3BHS 144 & 432; 14/1: VK3AOS both bands; 15/1: VK3KJB and VK3ZBJ on 144; 19/1: VK3BHS 144 & 432; 21/1: VK3BEH 5x9 on 144 with 2¼ watts, VK3AMH on 144; 22/1: VK3BRB (Mildura) and VK3ZBJ both 144; 23/1: VK3BRB 5x9 144; 24/1: VK3BRB 144; 27/1: VK3AMH, VK3XBB on 144; 28/1: VK3KVW, VK3KJV, VK3BEH, VK3BRB, VK3AUG, VK3AUU, VK3ZQB, VK2BY (Broken Hill), VK2YEZ (Griffith), VK2ZMP (Wagga), VK3ZHP, VK3ZHG and VK3KVW ail on 144. Then on 432 he worked VK3ZQB, VK5ATD, VK2YEZ, VK3ZHP, VK3ZBJ. Quite a day! VK5RO worked VK2ZTH in Gosford as well.

1/2: VK3ZBJ on 144; 6/2: VK3ZBJ 144 and 432; 16/2: VK3ZBJ on 144 and 432, VK3ZHP, VK3ZEM, VK3AZY and VK3ACL on 144; 17/2: VK3NM, VK3KEG, VK3AUU all on 144, VK3ZBJ 144 and 432. After that the bands went quiet!

On 28/1 (UTC) but actually 29/1 the band on 144 must have been in fairly good shape as even VK5LP was able to share in some contacts. At 2251 on 28/1 VK2BY in Broken Hill 5x6, 2305 VK3APF Wangaratta 5x5, 2311 VK2YEZ Griffith 5x5, 0031 (29/1) VK3AUU 5x3 and 0043 VK3ZBJ 5x5.

It was even noted that Bob VK5ZRO who bitterly complains about my hill (in reverse) blocking his signals to the east, shared in some contacts. On 24/1 he worked VK3BRB in Mildura at 2210 on 144. On 28/1 at 2233 he worked VK2BY on 144, then at 2258 VK2YEZ on 144 and 432!

SIX METRES QUIET

There have been the occasional Es openings during the month on 12/1 VK4ZAL 0121; 16/1: VK8ZLX at 0315; 18/1: VK2; 23/1: 0131 VK2XJ, VK4FNQ; 25/1: VK9ZR Willis Island worked by VK5ZRO and VK5ZDR at least around 0218, then at 1030 VK2KFB, VK2YHN; 26/1: VK4YJH at 0136; 8/2: 0402 VK8ZCU; 9/2: VK6KZ at 0240.

THE HIGHER BANDS

A bit of news picked up on 144 MHz from Les VK3ZBJ when I was fortunate enough to work him recently was that he and Garry VK3ZHP had had a contact on 2.3GHz on 12/1 at 1021 signals 5x2 and 5x9, FM both ways but SSB soon. Also worked was Lionel VK7HL who was running 1 watt to a 1.8 metres dish, VK3ZHP 12 to 14 watts to 3.6 metres dish, Les VK3ZBJ about 15 watts output. Congratulations!

TECHNICAL ITEMS

A couple of items from the November 1984 "The Short Wave Magazine" courtesy VK5AIM.

"John Hunter G3IMV, uses a 21 element Tonna Yagi and mentions the considerable detuning caused by rain. In dry periods, his antenna resonates at 431-432 MHz with a VSWR of 1.2:1. However, after heavy rain, the VSWR went up to 5.9:1 with minimum VSWR at 438 MHz. He took measurements over some hours after the rain had stopped and the VSWR and resonant frequency gradually dropped. Have other readers noted such dramatic changes with Yagis?"

One would tend to query whether in reality the VSWR is as good as suggested, and whether it is being read at the end of the cable run rather than at the antenna? If there are standing waves on the line then there could be drastic changes if the line was in contact with other materials for any appreciable length, especially when wet. I recall some years ago a customer who lost almost all their TV signal when it rained. The coaxial cable was relatively new and no rain was able to enter at the antenna, but the cable lay along the top of the roofing iron for about 10 metres. Lifting the wet cable off the roof immediately restored most of the signal. As in most TV installations the VSWR was relatively high as most such installations are a compromise anyway. Re-routing the cable under the roof cured the problem, and I think something similar would help G3IMV. More importantly though, it would tend to illustrate the proven statement that you check for best SWR at the antenna, then note the reading at the bottom and any variations should then be apparent with the passage of time, rain etc.

The other item from "The Shortwave Magazine" is that G4CQM suggests plumber's PTFE thread tape, wrapped around coaxial cable to the appropriate thickness, is a successful way to replace damaged rubber rings in "N" type plugs to restore their waterproof properties. And that sounds like a very good tip.

Incidentally, while on the subject of coaxial cables, did you know the original patent was taken out on 27/3/1884 by Werner Siemens. The first known use of coaxial cable was for the 1936 Olympic Games in Berlin when it was used for a link between Berlin and Leipzig to carry 200 telephone channels. This item from "Break In" December 1984. So 1984 was the "Coaxial Centenary".

CLOSURE

That's it for this time. As everyone knows, there is always a lot of individual VHF activity occurring throughout our continent which is unreported because I don't know about it. If you do something a bit special why not drop me a line and tell me about it so I can pass the news on to others. I have my more or less regular correspondents but my desk is always able to accept more and the wider coverage I can give the wider the interest.

Closing with the thought for the month: "How strange it is that you can't get 20 people to attend an early evening meeting to improve the community, while half the town will turn out at 3.30 in the morning *to watch a goodly portion of it burn to the ground!"* 73. The Voice in the Hills.

AR

OH DEAR!!!

In the March magazine the figures missing from the pi graphs were Convention 5%.

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

APRIL

6-7 GARTG SSTV Contest
20-21 ARCI QRP SSB Contest
20-21 VIGO World Fishing Contest

MAY

4-5 County Hunters SSB Contest
18-19 ARI International Contest
25-26 CO WW WPX CW Contest (Rules this issue)

The Contest Calendar certainly seems to be rather sparse as shown above. I have not received any confirmation of contests as forecast in last months issue therefore I have not included the Polish Contests or DX YL to North America Contests.

Provided the Federal Council vote to allow the Federal Contest Manager to continue the right to fix the dates of contests In a Postal Motion currently being circulated I would like to indicate the likelihood that I will try to improve the contest scene by placing the VK Novice Contest for this year on the weekend of 29th and 30th of June. This will allow a reasonable spacing between the Novice and Remembrance Day Contests and should also provide more suitable conditions for operation on the 80 metre band which Is obviously the prime band for novice operation.

I recently received a letter from 'Jock' White ZL2GX who is the Contest and Awards Manager for NZART. I would like to quote a few excerpts from his letter. Jock writes, *'Delighted to hear from you . . . and, I'm taking time out from log checking to write . . . just as well too as my "fuse" gets a little short when log checking . . . it's a soul destroying task as you know, for sure!! It's a strange thing . . . "some" fellows complain that rules are changed from time to time in the VK/ZL/O . . . BUT . . . it's obvious that MANY do not read the rules at all . . . or, if they do, this is done in a very perfunctory fashion. No real harm done I guess, but it becomes obvious when things are omitted or even ADDED.*

"Yes . . . I've been associated with contests for quite a long time . . . with the VK/ZL for some 40 years and I was involved with contests before the war . . . maybe too long!! BUT I try to be innovative and for this sometimes run into real "flak" . . . you can't win. Of course this is natural . . . we ALL know best . . . Hl. Like in teaching . . . I spent over 40 years in the education service . . . some 30 plus in senior positions and ALWAYS . . . everyone else knew more about everything than the principal himself . . . GREAT stuff.'

So, there for a start we hear from Jock words which may not seem to be unfamiliar the world over. It certainly appears that things are not much different just over the Tasman Sea to what they are here. And this applies, as Jock points out, not only to the hobby of amateur radio either. The callsign ZL2GX has been a most familiar one on the bands for a long time. Some of you may be interested in a few more details about 'Jock' White. He has been an Honorary Life Member of NZART for over 20 years, been a Vice-President, a Councillor etc, etc, . . . WAS (years ago) a keen contester . . . was world first DXCC 300 in 1960, in RAF during war with night fighters . . . an avid collector of NZ coins and stamps and Maori artefacts . . . has a large electronics museum with emphasis on amateur radio . . . has specialised in the famous "HRO" genus and has over 20, mostly from the USA but also versions from NZ, Australia, Japan, Germany and has been trying for years to get one from East Germany, made after the war.

Unfortunately I have never had the priviledge of meeting Jock in person or seeing what must be a remarkable collection of equipment owned by him. I have however spoken to him from many locations both from within VK and from overseas, and have also been the recipient of quite a number of very nice awards and certificates taken care of by him.

In another portion of his letter Jock also says *'I've had so much from amateur radio that it I lived to be 100, I'd never be able to repay all I owe.'* There is certainly no doubt in my mind that Jock is one of those small band of stalwarts who have tried to give back to the hobby some of what they have received from it. Perhaps you might like to consider the various aspects of this subject and recall such things to mind next time you are asked to stand for office within the organisation of the WIA, when your next Club elections come along or some volunteers are called for in connection with other aspects of our hobby. I too feel that I owe some kind of debt due to all the fun I have had in my 26 years on the air, otherwise I would probably not be doing the job of FCM. I would repeat a well known but very true phrase to the effect *'that you always get out of anything no more than you put into it.'*

I would like to thank Jock for his most interesting and friendly letter in which he answered quite a few questions for me, and I hope that the Information and comments from such a very experienced and well known Old Timer will have been of interest to you. By the way, he did indicate that the results for the 1984 VK/ZL Contest should probably be available some time in April.

Now that all the action concerning the 1984 Remembrance Day Contest is over I would like to include in my column some material which I wrote in June 1984. As a result of the time which has passed since the material was compiled some of it might seem to be dated, nevertheless I feel that the material contained therein should be aired, if only to provide the basis for further discussion of contest matters. You will note that some ideas expounded have already been acted upon.

Several years ago it used to be quite common during the Remembrance Day Contest to hear stations giving their call sign as VK5XYZ log VK5XYX. This meant that the operator was using the station of VK5XYZ but that he held the call sign VK5XYX and the latter call was the one which should be logged for the purposes of the contact and serial exchange. The reason for this procedure was twofold. It provided an answer to the problem of regulations governing operation from another station and it was a way of encouraging those who were not particularly active and did not have a station of their own, to join in the contest with co-operation from a friend. This approach also allowed operation from one station by several operators when carried out at a club station. During my time spent at Woomera working at the Space Tracking Station and at the Missile Range, individual operation of an amateur radio station was not permitted for security reasons. So for each Remembrance Day Contest there was almost a queue of operators wanting to air their call sign, if only to make the minimum of five qualifying contacts. At the same time there was usually some particularly keen operator who had the enthusiasm and could spare the time to try and make as big a score as possible for the Club Station and who also wished to make as respectable a score as he could using own call sign.

In our amateur community today there are quite a number of club stations and as well there are operators who, for one reason or another hold more than one call sign. It was with this knowledge, as well as my past experience in mind, that I very strongly queried the addition to the rules of the Remembrance Day Contest which stated that an operator could only operate using one call sign during any single period of the contest, and that operation using two call signs more or less simultaneously was considered to be against the spirit of the contest.

I now take the opportunity through this column of expressing my own personal view, both as the current FCM and as an experienced contest operator. I do this to stimulate discussion on contest matters of this kind. I wish to hear your views on such subjects, but I would not presume to alter what I consider to be important aspects of the contest rules without there at least being some opportunity offered for 'public' discussion of the matter. Let me quote from some previous correspondence on this subject, just to present some points of view.

". . . no one managed to explain just how, by operating with two call signs on a more or less simultaneous basis one is not operating within or accordance with the rules and spirit of the contest. Why is it a matter of 'wanting your cake and eating it too.'??? This Is just so much ballyhoo. Who also said that this applies only to club call signs?"

"If I have the authority and right to operate under two different call signs I maintain that as long as I am operating according to the regulations I should have the right to air both call signs in the contests in any manner and at any time I wish. Some people have two call signs. How does the use of both these call signs constitute a situation which is against the spirit of the contest?"

"Let us please face some facts. A contest is just that, A Contest, and where rules are printed they should be adhered to, however let us also realise that people in general will adhere to rules which are reasonable and of benefit to either, all or the majority. Let us look at this in practice. Say I use one call sign for four hours and another for four hours. If I am a good contest operator I will be working at a rate of one contact per minute. With the first call sign I have made 240 contacts and with the second also 240 contacts. This means that I have given out a total of 480 contacts to other people. Assume that I work at the same rate using both call signs for a period of eight hours. How many contacts will I have made for myself and how many will I have provided to others? If I am a really good operator it will not be quite like this as by using the two calls to the best advantage I will probably be able to increase the overall total somewhat, however to whose advantage? I will most likely have a higher score for one of the two call signs by using that particular call sign more often in a 'run' of contacts whilst the other call sign is used as a 'till in' where the going becomes a little slow or where another operator who is a wake up has requested that I provide him with an extra contact, to his advantage, where he knows that I can do so. So lor goodness sake, where is this against the spirit of the contest? This I can assure you is exactly just what does happen in practice and in fact I believe that it actually adds to the fun and the spirit of the contest. If I am an operator who has the ability to do just what I have described why should I be deprived of the opportunity to use my skill? What is more, let us also look at the fact that one of the often much vaunted reasons lor us having contests is that it allows our operators to practice and advance their skills with the end result in view that it will be to long term benefit for such occasions as emergency operations etc."

A note was added to the above that *"In many cases though the use of two logs may also slow up the contact rate."* This statement applies in the case of unskilled operators making their first attempt at such an operation and I do believe that they should also be allowed to make their attempts in this way.

My firm belief is that our contest rules should always be such as to encourage entrants to be as versatile as possible whilst still operating within the regulations applicable to the amateur service and in accordance with the contest rules laid down. In line with this belief it follows that contest rules should be kept as simple as possible and that where additions and deletions to rules occur they should not be instituted without very serious consideration as to their effects on those most concerned, namely the operators themselves.

Thus I have adopted this policy of opening up to you through my own thoughts the opportunity for

comment and discussion on any aspect of the running and organising of our contests here in Australia. Do not be afraid to make your opinions known, they are in fact really welcomed. Let me specify where, apart from the particular subject dealt In detail above, your comment and advice can assist in improving the contest scene here.

Are our contests held at the right time of the year? Should we, for example, make a major change with our Field Day date and have it in June so as to coincide with the ARRL Field Day Contest? That way the potential would exist for many more portable/portable overseas contacts than occur with the ZL Field Day co-inciding with ours. Would the cold weather be worse than the extreme heat of summer with the Field Day in February?

Shoud we consider changes to the scoring system used for the Remembrance Day Contest? Should we apply a scoring table for all Australian contests designed to take account of differences in propagation and population spread etc?

Should we include added incentives for use of natural power in field day contests and have a section for home stations on emergency power? Should VHF operation in each contest, including the Remembrance Day Contest, become a completely separate portion? Should check sheets have to be sent in by every station operating in each contests?

How about an entirely different approach? For some contests no log entries are required at all. Instead entrants merely send in a summary sheet showing their claimed scores etc, together with check sheets which allow the Contest Committee to compare them and observe any major anomalies which might have occurred. If necessary, logs from various stations may then be called for. What is your opinion on this? Should there be consideration to having a winner from each State for each contest so as to overcome problems of population density? Should we have any contests at all?

So keep those cards and letters coming along with your ideas. That way we might be able to come up with ideas which will please most of you. I will certainly see that your ideas are not ignored and will most definitely publicise those most worthwhile of comment. Meantime best of luck with all your operations be they contesting, DXing, ragchewing or whatever. I hold strongly to the opinion that there is a place within our hobby for all the many varied activities it allows.

SUBMISSION OF LOGS FOR CONTESTS

I have received letters from two entrants who sent off logs for the Remembrance Day Contest. These are Ken VK3AH who is well known for his DX Column in this magazine as well as for his work in other ways connected with the magazine and the other from Jo VK2KAA. In each case these people were most disappointed that their callsigns did not appear in the results for the contest. The reason for this is that neither of their logs were received at this QTH. Why this should be so I just do not know and as I have explained in a personal letter to each of them, there is little I can do about it.

Most logs seem to make it OK, however I suppose that the law of averages says that some will go astray. Maybe from this we can learn a lesson. In the past I have always sent my logs to the Contest Manager by Certified Mail. (Registered Mail would be better, however it is rather expensive.) In this way there is at least some check and evidence that the log was posted at a certain place and time. So I would suggest that if you are very concerned you might follow this approach.

It is interesting to note that I have received QSL cards from overseas which were 'Registered'. Another matter to keep in mind is that the package containing the log should be secure and firmly sealed. If there are more than a few log sheets enclosed make sure that the outer wrapping or envelope is strong enough to retain them even when somewhat knocked about, as can happen.

Another matter to watch is to ensure that sufficient postage is placed on the item. Try and use standard sized envelopes and if not sure as to what the mailing charge should be check it with your local Post Office.

I had to refuse delivery of some logs sent in for the Remembrance Day Contest and have them returned to the sender as I was not prepared to pay for the additional postage as well as the extra service charge required by the Postal Authorities.

Should mail go astray you can ask for a check to be made from your end to try and locate same by filling in a form at your Post Office.

It is not only disappointing to the person who has gone to the trouble to operate in a contest and make out a log to send in only to learn that it has gone astray. It is also disappointing to the Contest Manager and it does take some additional time for him to prepare and type out replies to queries as to where the log has gone. Jo VK2KAA sent me a copy of her log which I must commend as being indeed a very neat computer entry. I also know that Ken VK3AH was most upset with his having been lost as I know that he was doing his very best to support his Division in the contest.

Whilst on the subject of letters I would like to acknowledge the fact that I have received correspondence from quite a number of members who are interested in the contest scene and many who have provided me with interesting comments and constructive criticism. It is not practical for me to try and answer all letters personally, therefore I would like you to accept this acknowledgement in general of your contributions. I can assure you that I am not just relegating your letters to the waste paper basket, rather I keep them on file as a useful reference to opinion and comment. I really do welcome your opinions on matters to do with contests, so please keep them coming. At the moment the logs for the Ross Hull Contest are just trickling in slowly, however I have already received some very interesting comment on that contest.

I have received a very interesting letter from Ted VK6ED whom I always meet at least on an annual basis in the Remembrance Day Contest. Ted takes me to task to some degree regarding the practice which could be described as 'claim jumping', referred to in my column in the January issue of the magazine. Ted quite rightly criticises the type of operator who tries to jump in on a frequency which has been CONSTANTLY occupied by another station, perhaps under the guise of having first of all a contact with that station and then attempting to continue to use the frequency for contacts with other stations. I certainly agree whole heartedly with Ted that this constitutes a most impolite operating practice and cannot be condoned. I might however clarify my comments by explaining further just what I was referring to. Again for clarity I must repeat the scenario. *'I have just made a contact with an operator whom I tuned to and called, and then I in turn am called by yet another station on the same frequency'. So, what should I do then?* I can suggest that we QSY. This may be OK, however in the heat of a contest not really a good move. Courtesy should prompt me to ask the original station in a polite manner whether I might use the channel to make the one short contact and this approach may be OK. This latter does however take up as much time as would be used in going ahead and making the quick number exchange desired. Thus the situation becomes a matter of judgement. If good operating, and courtesy prevails it would be possible for me to make that quick contact without any problem, provided each operator recognises the other as being both capable of good operating practice and courtesy. If I have made just such a quick contact under these circumstances I should make it quite clear to all concerned that the frequency rightly is occupied by another station and I should QSY elsewhere. So in this Ted is quite correct and 'claim jumpers' should not be tolerated. There are just a couple of other points to consider. My main complaint is against the operator, namely the first occupant, who does not have the perception (or nouse) to note that I am both a good and courteous operator and who instead either refuses to allow me that additional contact, even though I asked about same, and goes ahead continually calling CQ, causing useless QRM and achieving nothing either for himself or others. I would repeat my previous assertion that *'MOST of the top operators will stand by and allow the other guy to make his quick contact . . .'* To observe this in practice you need only listen to a few of the world's top operators in action to see that this approach can work without any problems at all. However, I would stress again that I agree with Ted that courtesy is the major factor all round.

As to the 'ownership' of a particular frequency and the right to same Ted writes, *'Of course such a right exists — so long as the station first occupying it is continuing to use it. If it didn't operating would be virtually impossible. Breaking in on an obviously occupied frequency must therefore by accompanied by an acknowledgement that it is an occupied frequency, and the stations so using it must vacate it as quickly as possible, with an accompanying word of thanks to the intitial user of the frequency.'*

To all of this I say *'Hear, Hear.'* Nevertheless I have heard arguments from time to time in the middle of a contest to the effect that *'This is my frequency. Get off.'* from another station whom I know for a fact has not uttered a sound on the frequency for anything up to five minutes and indeed whom I have just heard making contacts on 2 metres or another HF band. My thoughts are that when such cases are met as described it is far better not to waste ones time arguing about it, nor by staying on the frequency and either causing or putting up with QRM. You are much better served by going to another channel and keeping the QSO rate up by searching for other stations you need.

CORRECTIONS *(or mistakes made by this Contest Manager.)*

I have on hand a letter from Allan VK4VAT who points out that he did not enter a log in the Remembrance Day Contest even though he was listed as the highest scorer for VK4 in the Phone Section. Allan's log was actually intended as an entry in the Novice Contest and with the score of 665 points places him third in the Phone Section of that contest. I might however point out some slight difficulty with Allan's log, which I have mentioned in a personal letter to him. The front sheet did not have shown on it just which contest the log was for and the only indication that it was intended for the Novice Contest was the date written in rather small figures at the top of the left hand column of the log sheets. This small fact was inadvertently missed. At the same time the log had been received together with the extremely large volume of incoming mail comprising the logs for the Remembrance Day Contest. Maybe this simply adds fuel to the argument that the contests at that time of the year are too close together. Please always indicate on your log the name of the contest.

Included with this months notes are the rules for the well known CQ World Wide WPX Contest. These rules were received here rather belatedly and by the time you read this the SSB Section will have been held. My understanding is that the rules have not been changed from last year, so I hope that you have not had too much difficulty with any SSB operation you wished to enjoy. I will try to enlist the co-operation of my overseas correspondents to ensure that the rules for contests are provided to me sooner so that I can give you plenty of advance warning of such contests.

THE 29TH ANNUAL CQ WORLD WIDE WPX CONTEST

CW: 25-26 May 1985
Starts: 0000 UTC Saturday
Ends: 2400 UTC Sunday

I Contest Period: Only 30 hours of the 48 hour contest period permitted for Single Operator stations. The 18 hours of non-operating time may be taken in up to 5 periods anytime during the contest, and must be clearly indicated on the log. Multi-operator stations may operate the full 48 hours.

II Objective: Object of the contest is for amateurs around the world to contact as many amateurs in other parts of the world as possible during the contest period.

III Bands: The 1.8, 3.5, 7, 14, 21 and 28 MHz bands may be used.

IV Type of Competition: 1 Single Operator (a) All band, (b) Single band 2 Multi-operator, All Band *only*.

(a) Single Transmitter (only one transmitter and one band permitted during the same time period, defined as 10 minutes, no exception), (b) Multi-Transmitter (one signal per band permitted). *NOTE:* All transmitters must be located within a 500 metre diameter or within the property limits of the station licensee's address, whichever is greater. The antennas must be physically connected by wires to the transmitter.

V Exchange: RS(T) report plus a progressive three-digit contact number starting with 001 for the first contact. (Continue to four digits if past 1000.) Multi-transmitter stations use separate numbers for each band.

VI Points: Contacts between stations:
Europe, Asia, Atrica, Oceania, S America

A) Contacts outside of own continent count 3 points on 28, 21, 14 MHz, and 6 points on 7, 3.5, 1.8 MHz.

B) Contacts with other countries on own continent count 1 point on 28, 21, 14 MHz, and 2 points on 7, 3.5, 1.8 MHz.

C) Contacts within own country count *0* points but are permitted for prefix multiplier credit.

VII Multiplier: The multiplier is determined by the number of different prefixes worked. A *"PREFIX"* is counted once during the entire contest regardless of how many times the same prefix is worked.

A *"PREFIX"* is considered to be the three letter/number combination which forms the first part of an amateur radio call (N1, W2, WB3, K4, AA6, WD8, 4X4, DL7, G3, IT9, KH2, AL7, NP2, WP4, 9M2, CT9, 4J9, PY7, VK4, JE3, VE3, Y32, Y33, Y45, AN8, AB8, H44, KT4, etc). *A station in a call area different than that indicated by its call sign is required to sign portable.* The portable prefix would be the multiplier. Example: W8IMZ/4 would count for prefix W4 only and W8IMZ/LX would count for prefix LX0 only.

Special event, commemorative, and other unique prefix stations are also encouraged to participate.

VIII Scoring: 1 Single Operator (a) All Band score, total QSO points from all bands multiplied by the number of different Prefixes worked. (b) Single Band score, QSO points on the band multiplied by the number of different Prefixs worked. See VII.

2 Multi-Operated stations. Scoring in both these categories is the same as the All Band scoring for Single Operator.

3 A station may be worked once on each band for QSO point credit. However, prefix credit can be taken only once regardless of the number of different bands on which the same station and/or prefix has been worked during the entire contest.

IX QRPp Section: (Single Operator Only). Power must not exceed 5 watts output to qualify for QRPp section competition. *You must denote QRPp on the summary sheet and state the actual maximum power output used for all claimed contacts.* Results will be listed in a separate QRPp section and certificates will be awarded to each top scoring QRPp station in the order indicated in Section X. These certificates will be marked QRPp and will show your power output. QRPp stations will be competing only with other QRPp stations for awards. All other information contained in these rules is applicable to this section.

X Awards: Certificates will be awarded to the highest scoring station in each category listed under Section IV.

1 In every participating country.

2 In each call area of the United States, Canada, Australia, and Asiatic USSR.

All scores will be published. However, to be eligible for an award, a Single Operator station must show a minimum of 12 hours of operation. Multi-operator stations must show a minimum of 24 hours.

A single band log is eligible for a single award *only*. If a log contains more than one band, it will be judged as an all band entry, unless specified otherwise. However, a 12 hour minimum is required on the single band.

In countries or sections where the returns justify, 2nd and 3rd place awards will be made.

XI Trophies, Plaques and Donors: Trophy and Plaque winners may win the same *award only once* within a *TWO* year period. This does not apply to any QRPp, Club, Expedition or *CQ* Special Awards. A station winning a World Trophy will not be considered for a sub-area award. That Trophy will be awarded to the runner-up for that area.

XII Club Competition: A trophy will be awarded each year to the club or group that has the highest aggregate score from logs submitted by members. The club must be a local group and not a national organization. Participation is limited to members operating within a local geographical area. *(Exception: DXpeditions especially organized lor operation in the contest and manned by members.)* Indicate your club affiliation. To be listed, a minimum of three logs must be received from a club.

XIII Log Instructions: 1 All times must be in UTC. The 18 hour non-operating periods must be clearly shown.

2 Prefix multipliers should be entered only the FIRST TIME they are contacted.

3 Logs must be checked for duplicate contacts and prefix multipliers. Recopied logs must be in their original form, with corrections clearly indicated. Computer logs must be checked for typing accuracy.

4 An alphabetical/numerical check list of claimed PREFIX multipliers must be sent along with your contest log. (A prefix is counted one time only.)

5 Each entry must be accompanied by a Summary Sheet listing all scoring information, the category of competition, and the contestant's name and mailing address in BLOCK LETTERS.

Also submit a signed declaration that all contest rules and regulations for amateur radio in the country of the contestant have been observed.

6 Official log and sample summary sheets are available from *CQ*. A large self-addressed envelope with sufficient postage or IRCs must accompany your request.

If official forms are not available, you can make your own with 40 contacts to the page.

XIV Disqualification: Violation of amateur radio regulations in the country of the contestant, or the rules of the contest, unsportsmanlike conduct, taking credit for excessive duplicate contacts, unverifiable QSO's or multipliers will be deemed sufficient cause for disqualification. Actions and decisions of the *CQ WPX Contest Committee* are official and final.

XV Deadline: All entries must be post-marked no later than *10 May 1985* for the SSB section and *10 July 1985* for the CW section. *Indicate SSB or CW on the envelope.* From isolated areas the deadlines can be made more flexible.

All logs go to: CQ Magazine, WPX Contest, 76 N Broadway, Hicksville, NY 11801 USA.

Questions pertaining to the WPX Contest can be sent to: WPX Contest Director, Steve Bolia, N8BJQ, via CQ Magazine, 76 N Broadway, Hicksville, NY 11801 USA. **AR**

WICEN NEWS

Derek McNiel
17 Manning Road, Malvern East, Vic. 3145

WICEN — VICTORIA LEARNS A LESSON OR TWO EARLY IN 1985

Last month you heard about the activity at Maryborough where WICEN operators from the Ballarat and Bendigo regions were called in to assist Department of Agriculture veterinary officers in their post-fire assessment and clean-up operations. High praise for the performance of those operators was still being handed out in Melbourne when the State Emergency Service requested WICEN support for the activity in the Bright/Porepunkah area. The response was immediate with operators from Shepparton and the north-east taking up the first shift. Lack of numbers in that region necessitated a call to other WICEN regions for reinforcements: Region 13 (East Metropolitan) came to the party. The activation lasted five to six days and consisted of a 'round-the-clock' communications link between the Operation Headquarters at Bright and the Relief Centre at Porepunkah. In all, sixteen operators took part including two from across the border in New South Wales.

Some valuable lessons were learned during this activation and are summarised below:

- *Always travel two to a car and two cars to a convoy, if at all possible.*
- *Maintain radio contact between vehicles on one frequency and stick to it. The WICEN simplex frequency, 146.500 MHz is recommended as this will enable other WICEN stations to contact you when you come into range.*
- *Always be prepared to be totally self-sufficient; you never know what facilities and comforts will or will not be provided.*
- *BEWARE the Low Voltage T-plug; not everyone conforms to the same polarity convention. It is recommended that you carry in your WICEN kit a T-plug with a LED and Resistor to indicate when the polarity of a 'foreign' T-socket is compatible with yours. WICEN convention is: vertical pin is POSITIVE, horizontal pin is NEGATIVE.*
- *Always take warm clothing even when going into supposedly hot areas; in the Victorian countryside very hot days may be followed by very COLD nights.*
- *An observation from the Great Victorian Bike Ride — there is no excuse for any Aussie to get a sunburnt nose or bald-patch! Remember, this is the land of the sunhat and zinc-cream. No sympathy from me if you don't go prepared.*
- *Have you got a space-blanket in your WICEN kit? Do you carry a WOOLLEN blanket in your car at all times?*
- *A message for the co-ordinators — eight-hour shifts are too long even when traffic is light. A maximum of four hours is recommended with a half-hour hand-over period prior to the official start time of the shift.*

Well, if you can remember that lot you should be able to keep yourself out of some trouble. Many of the tips may be 'old hat' to many experienced WICEN operators; they are recorded here for the benefit of those less experienced people who are keen to learn. *Is there any old hand out there who could manage to stir his/herself sufficiently (no not the cups of tea!!) to provide a regular column of WICEN tips?* I could anticipate zero response between now and 1986 but, on the other hand if no one else offers, I don't mind betting Harry (Region 13 Co-ord) will appoint someone to do it!

Space does not permit detailed reports on February activities but it has been a busy time on the training and community support scene. Bob Hose (Shepparton and NE Co-ord) covered the Moama Ski Race on 10th February, Col Pomroy (Regions 9 and 10) covered a car rally on 16th February, and Mark Stephenson displayed a multitude of WICEN operators at Tullamarine for the Open Day weekend of 23rd and 24th February. Down in the West Country (Hamilton), Regions 4, 5, 17 Co-ordinator, Ken Taylor organised a training session on 16th February which attracted 13 participants from as far away as Port Campbell, Warrnambool, Portland, Poolaijelo and Strathdownie. All in all a pretty busy month . . . at the time of writing it's not yet over!

One final note: if you sent in your questionnaire in November 1983 and haven't heard a word since, first of all blame the COMPUTER (everyone else does!) then contact your regional co-ordinator.

AR

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

It's nice to be able to open the column with congratulations once more for another call up-grade . . . this time to Bruce, formerly VK6KVV, the VK6 Divisional IW Co-ordinator, who now proudly signs VK6XZ. Well done, Bruce, and nice to see another amateur who has mastered the mysteries of CW. Bruce is always looking for reports of intruders on the bands from those in Western Australia.

Incidentally, Bruce is heading for 3D2 country shortly, so keep an eye out for intruders on the way, Bruce.

No news yet from VK1 as to whether they have found a replacement for Grahame VK1GP, who had to resign the IW post to move interstate. Any VK1 readers who are interested in helping out with the Intruder Watch, which entails a minimum of work, may like to indicate their desire to the VK1 Divisional Office. I can supply information on what is entailed if you care to write to the address at the top of the column.

Queensland, always innovative in their ideas, have come up with a good one for the Intruder Watch. They are assigning each member a segment of the amateur bands, and that member will report his findings to the Divisional IW Co-ordinator, Gordon VK4KAL. This idea certainly has merit, and we look forward with great interest at the results of the enterprise. Having finalised all reports and summaries for last year, a few statistics are presented for the information of interested parties:

STATISTICS FOR 1984

The figures in brackets are for 1983

No of Intruders reported:	*7468 (6908)*
No using RTTY:	*1348 (986)*
No using AM:	*5157 (5339)*
No using CW:	*963 (583)*
No of Identifications:	*727 (585)*
No of Observers Reporting:	*98 (94)*

621 pages of reports were received at this OTH, (605), and VK4 continues to supply most reports, with VK2 coming a close second. The number of reports has increased for 1984, but so has the number of intruders. Happily, the number of contributing observers has increased also. Let's hope we can report a further increase in Observer stations at the end of 1985.

Just had a phone call from the DOC in Melbourne, to the effect that they have been monitoring 21.032 MHz, and are satisfied that the USSR Intruder 'UMS' is in fact operating there. DOC has sent a telex to the USSR Administration, asking for their co-operation in causing the offending station to cease the interference on the 21 MHz Amateur Band. If no reply is received, they intend to go to the International Frequency Registration Board, for further action.

Chalk one up for the DOC, and our protests apparently do not fall on deaf ears. If the USSR fails to co-operate, there is very little else we can do about it. But at least we've done as much as we can.

That's all for this month, 73 till next time.

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

Freda VK2SU, Dave VK5RN, Brian VK5CA, Stan VK2DZP and Denise VK5YL.

Hello again, the months are getting shorter or else I am getting slower.

Well the contest certificates are all out except for the Mrs McKenzie Trophy Certificate which was still at the printers to be picked up on 22nd February so it will have been sent before you are reading this report.

The winner of the Mrs Mac segment Jill VK4VNK is one of the new ALARA members as a result of the article which appeared in New Idea Magazine in October 1983. Jill was advised to contact Wendy VK4BSQ for tuition in radio theory; so in less than a year Jill studied, sat for and passed her novice exams and was proficient enough in CW to win the inaugural certificate.

Congratulations on a very fine achievement Jill and I have heard a new call sign is soon to be heard from your QTH.

Congratulations also must go to Wendy VK4BSQ for her teaching ability as I am sure she was a great help to Jill. With her own busy programme Wendy has been doing a teaching diploma course in her "spare" time over the past couple of years, and has been knee deep in study at contest time.

In the last contest in 1983 Wendy was runner up overall and this year outright winner so a very good example to us all.

WELCOME TO NEW MEMBERS

Etsuko JA6KYP, Gail XL2TZG, Darleen WD5FQX, Junia YJ8NJW, Akiyo JH1GMZ, June KM8E.

Marilyn VK3DMS has had a request from Marie ON4AYL for slides of YLs for a convention they are having later this year; so if you have slides taken at local radio gatherings please contact Marilyn.

ALARA will be ten years old this year and to celebrate this each state is going to arrange, if possible, an afternoon where members can meet. The majority have indicated in favour of two or three yearly get-togethers for national gatherings.

AR

STOLEN EQUIPMENT REGISTER

In accordance with 1984 convention motion 84:17:01 the Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them may write or telephone to the Federal Office their enquiries.

MODEL	*SER NUMBER*	*FROM*
ICOM IC25A	*03831*	*VK2DPM*
ICOM IC45A	*01876*	*VK2DPM*
ICOM IC211	*6804309*	*VK3BRV*
KYOUTO FM144/10	*5027*	*VK2KUR*
DSEXPLORER		

70 cm TRANSCEIVER (HAS EXTENSIVE INTERNAL MODS)

ICOM IC215	*05156*	*VK2AMX*
YAESU FT 209RH	*4K050838*	*VK3CE*
ICOM IC-2A	*04484*	*VK1MX*

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.680 MHz Summer: 7.064 MHz

AMSAT PACIFIC	AMSAT SW PACIFIC
Control: JA1ANG	*Control: W6CG*
1100 UTC Sunday	*2200 UTC Saturday*
14.305 MHz	*21.280/26.876 MHz*

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB, Amateur Satellite Report and UOSAT Bulletin Number 113, February 1985.

RS SATELLITE STATUS

Tests of batteries of RS-5, 7 and 8 show various results — RS-5's battery is almost ruined. Anomalistic telemetry from RS-5 was reported during early January when the Russian spacecraft were experiencing eclipses. RS-5 was falsely identifying itself as RS-3 and sending garbled telemetry. RS-7's battery is in mediocre condition while RS-8's is in excellent condition. RS-5 and 8 will be in transponder mode while 7 will be in robot and bulletin mode for the next period. All satellites will be off on Wednesday Moscow time which is from 2100 Tuesday to 2100 Wednesday UTC. Telemetry has been reported from RS-t recently . . . Tnx UoS.

UoSAT-OSCAR-9 OPERATIONS

The UoS Ground Station has recovered and returned the operating schedule of UO-9 back to normal. The UoSAT-1 Experiment Schedule changed from 180185 to reflect majority interests of the user community derived from an analysis of the many reports and suggestions received during 1984. The Bulletin/Digitalker/Telemetry mode at weekends has been changed to transmit approx 3 mins of 1200 Bps telemetry alternating with approx 6.5 mins of Bulletin — to make it easier to receive complete copies of the Bulletin! The Bulletin 'right justification' has been removed experimentally to save space — any comments? The Digitalker experiment has been moved to Mondays where it will alternate with 1200 Bps Telemetry, as it is primarily intended for educational demonstrations. The schedule is as follows:

Friday — load Bulletin
Saturday — Bulletin/1200 Bps telemetry
Sunday — Bulletin/1200 Bps telemetry
Monday — DIGITALKER/1200 Bps telemetry
Tuesday — Radiation data — next week CCD data
Wednesday — Computer check-summed telemetry
Thursday — Whole orbit telemetry survey

UoSAT-OSCAR-11 OPERATIONS

The data 'bypass' was successfully loaded into the DCE last week and shortly afterwards the 1802 OBC operations software was reloaded. The OBC 'bypass' facility has been checked and handover from the DCE to the OBC will occur when the next phase of DCE evaluation tests are ready to go. The reloading operation of the DCE and OBC software has been refined and future requirements should be completed within only a few orbits. The DCE is intended to provide an experimental facility to evaluate the hardware, software and operational protocols that will be required for a fully operational satellite 'mailbox' system called PACSAT — **PA**cket **C**ommunications **SAT**ellite.

The next phase of DCE tests will comprise memory integrity checks and a current draw baseline experiment should be ready to try later in the following week. The latter part of this week has seen considerable activity on the CCD and DSR experiments. A number of images have been taken during the night and day to attempt to establish the dynamic range of the system. The images were dumped slowly at 1200 Bps on the 145 MHz downlink and are being analysed.

For those interested in following these Preliminary tests, the data format is as follows:

CCD Imager size . . . 384 horizontal x 256 vertical (Pixels)
DSR Data Format (note: the same for CCD and P/Wave data)

One horizontal line comprises three 128 Byte blocks, i.e. line 1 has blocks 0, 1, 2; line 2 has blocks 3, 4, 5 etc.

The DSR data is transmitted as 128 Byte data blocks with sync, CRC, Hamming and Fire error detection and correction codes. When the end of a DSR dump is reached (i.e. block 767) then the dump cycles round again from block 0.

The block format is:

Sync code (30, 7B, 91 hex); 16 bit address (including Hamming); 128 Bytes of data; CRC; Fire Code.

The data is normally sent at 1200 Bps with 1 start; 8 data; and 1 stop bit.

The 16 bit address comprises the following:

P h3 h2 h1 h0 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0 (Hamming bits) (MSB . . . address bits . . .)

The Hamming bits are formed by the exclusive OR of 7 bits each

h0 = EXOR(A0 A1 A3 A4 A6 A8 A10)
h1 = EXOR(A0 A2 A3 A5 A6 A9 A10)
h2 = EXOR(A1 A2 A3 A7 A8 A9 A10)
h3 = EXOR(A4 A5 A6 A7 A8 A9 A10)
P = EXOR(A0 A1 A2 A4 A5 A7 A10)

PACSAT

A meeting will be held in Washington DC (USA) between 9-11 March 1985 to formulate detailed proposals for the PACSAT mission and fund-raising operations. With the successful demonstration of the Digital Communications Experiment on-board UoSAT-OSCAR-11, it has now become imperative that the fundamental design philosophies, resource requirements, schedules and launch interfaces for PACSAT are defined. Perhaps the overriding problem at this stage is the identification of funding sources — without which the technical problems become somewhat academic. The March meeting will address this problem specifically . . . UoS.

MANNED MISSIONS

The launch of the next radio amateur-in-space is holding at 9 July 85 according to AMSAT's VP-Manned Space, Bill Tynan W3XO. W0ORE will carry a sophisticated equipment suite if the approval cycle goes as expected . . . UoS.

MODE L REPORT

The improvement in AO-10 Mode L performance over the last year has been astounding according to several veteran satellite users. Recent tests show surprisingly moderate power levels are adequate for enjoyable QSOs on the newest OSCAR mode.

When first launched in 1983, AO-10 Mode L showed disappointing performance. The required uplink power was about 10dB higher than anticipated according to Engineering Vice President Jan King W3GEY. Failure analysis first focused on an antenna relay used to select either the 1269 helix or omni antenna for the Mode L receiver. Subsequent analysis, however, now makes this possibility seem less likely according to W3GEY. On the other hand, diagnosis by specialists in AMSAT DL as well as by AMSAT now points towards the HELAPS (High Efficiency Linear Amplification by Parametric Synthesis) amplifier as the culprit. According to W3GEY, DJ4ZC and his team at AMSAT DL strongly suspect a bias regulator in the HELAPS, a JANTXV 2N2222, as the failure locus. The HELAPS is consequently running as a Class C amplifier rather than its linear mode as designed. This reduces the output which in turn forces a stronger uplink for a given downlink signal. Some estimates a year ago suggested upwards of 30 kW EIRP were required for usable QSOs. That value compared with the pre-launch estimates of 2 to 3 kW EIRP.

Now, however, due to a number of favorable circumstances, performance appears to have improved to not only pre-launch expectation but beyond. According to K0RZ, the improvements in Mode L performance derive from several sources. "Since Mode L comes on well before apogee now, as compared to previously, the satellite is closer. The path loss improvements add up to about 5dB improvement," Bill told ASR recently. "The major improvement is pointing angle," he added. "The Mode L receive helix has a fairly narrow beam width and the choice of Mode L operating times is absolutely critical if reasonable performance is to be attained. The other major improvement comes from the re-biasing of the faulty output stage with heavy loading. For example, as an experiment, Cor VE7BBG, would aim his big EME array at AO-10 and transmit. Instantly signals which were not heard before come up by many dB. The output stage is self-biasing to an extent with load so that it is running in a more linear regime. The same effect is noticed to a degree when the RTTY beacon comes on to replace the PSK beacon."

K9CIS says the improvement in downlink when the RTTY telemetry is on can amount to as much as 6 dB. AMSAT is looking into ways to keep the RTTY beacon on more of the time according to W3GEY.

Meanwhile, satellite controller VE1SAT says that we can look forward to continued favorable pointing angles for Mode L for the foreseeable future. K9CIS adds that he is aware of Japanese Mode L operators having successful CW QSOs with only 10 watts to a single loop Yagi! In other words, if you do it right, you can get along with 1 kW EIRP or less. The point is that it would appear that at present Mode L performance can be not only as good as but superior to pre-launch estimates.

. . . ASR

UPS AND DOWNS

Courtesy of Bob VK3ZBB we have the latest list of launches and re-entries.

de Colin VK5HI

"They're Checking Out Satellites on the Ground"

by B. Lebedev
(Translation from Russian by Dex Anderson W4KW of an article in the "Sovetskiy Patriot" of 16 Jan, 1985)

The successful operation over a period of three years of radio amateur satellites 'Radio-5' through 'Radio-8' has stimulated further work by radio electronics enthusiasts in creating new, improved on-board satellite equipment. In the volunteer space-technology laboratory of the Zhdanov Rayon Radio Club in Moscow city, tests have begun of one variation of on-board repeater and automatic operator-'robot'. The following members of the laboratory took part in creating them: A Leonov, B Lebedev, A Papkov, V Solovyev, B Omel'chenko, A Savchenko, Yu Kornilov, V Mironov, S Rodin, and many others.

In November of last year, in the 'satellite' segment of the radio amateur 10 metre band (frequency 29.402 MHz) the 'RS-9' beacon went on the air. It transmits telemetry information analogous to that sent into the airwaves from orbit by the 'Radio' series of satellites. At year's end the repeater too was switched on translating the band of frequencies 145.860-145.900 MHz to the segment 29.360-29.400 MHz. Many shortwavers and ultrashortwavers from Moscow and the Moscow area (UK3A, RS3A, RA3AHM, RA3AMM, and others) have already made initial contacts via this repeater. The principles for the use of the terrestrial repeater are the same as those for the use of those now operating from space orbits. The basic principle is choice by the operator of a transmitter power level such that the translated signal level does not exceed that of the beacon signal, in which event mutual interference will be minimised.

The repeater is switched on around the clock, but the 'robot' is on the air irregularly. It transmits its own CQ on the frequency 29.320 MHz, announcing at that time the frequency on which it should be called. Operation with the 'robot' is conducted in accordance with the same programme as with the 'robots' of the 'Radio' series of satellites. **AR**

SATELLITE ACTIVITY FOR PERIOD NOVEMBER 1 TO NOVEMBER 27, 1984

LAUNCHES

Initial Data

Number	Name	Nation	Date of Launch	Period mins	Apog km	Perig km	Incln deg	Remarks
1984 —								
113A	STS 51-A	USA	Nov 8	90.4	299	288	28.5	See below
113B	ANIK D2	Canada	Nov 9	1437.1	35824	35788	1.8	* Telesat
113C	SYNCOM IV-1	USA	Nov 10	1380.9	35927	33471	3.3	* Leasat
114A	SPACENET II	USA	Nov 10	1441.7	36274	35518	0.1	
114B	MARECS B2	ESA	Nov 10	1431.6	35793	35603	3.1	
115A	NATO 3D	USA	Nov 14	647.6	36425	411	22.9	
116A	Cosmos 1608	USSR	Nov 14	88.9	248	195	70.0	
117A	Cosmos 1609	USSR	Nov 14	89.9	344	193	72.9	
118A	Cosmos 1610	USSR	Nov 15	105	1027	987	83	
119A	Cosmos 1611	USSR	Nov 21	89.3	326	181	64.8	
120A	Cosmos 1612	USSR	Nov 27	98.1	1231	130	82.6	

On board Discovery STS 51-A were astronauts F Hauck, D Walker, J Allen, D Gardner and A Fisher. The payload included ANIK-D2 and SYNCOM IV-1. The mission recovered spacecraft PALAPA-B2 and WESTAR 6.

RETURNS

During the period thirty-three objects decayed including the following:—

1973 — 106A Molniya 2-8
1984 — 011B Westar 6
1984 — 045A Cosmos 1552
1984 — 113A STS 51-A
1981 — 085A OPS 3984
1984 — 011D Palapa-B2
1984 — 102A Cosmos 1599
1984 — 117A Cosmos 1609

SATELLITE ACTIVITY FOR PERIOD NOVEMBER 28 to DECEMBER 24, 1984

LAUNCHES

Initial Data

Number	Name	Nation	Data of Launch	Period mins	Apog km	Perig km	Incln deg	Remarks
1984 —								
121A	Cosmos 1613	USSR	Nov 29	—	—	—	—	
122A	USA-6	USA	Dec 4	—	—	—	—	
123A	NOAA-9	USA	Dec 12	102	862	841	98.9	Weather Sat.
124A	Molniya 1-63	USSR	Dec 14	737	40900	461	62.8	TV & Radio
125A	VEGA 1	USSR	Dec 15					See below
126A	Cosmos 1614	USSR	Dec 19	88.7	228	208	50.7	
127A	Cosmos 1615	USSR	Dec 20	93.9	501	437	65.9	
128A	VEGA 2	USSR	Dec 21					See below
129A	USA-7	USA	Dec 22					

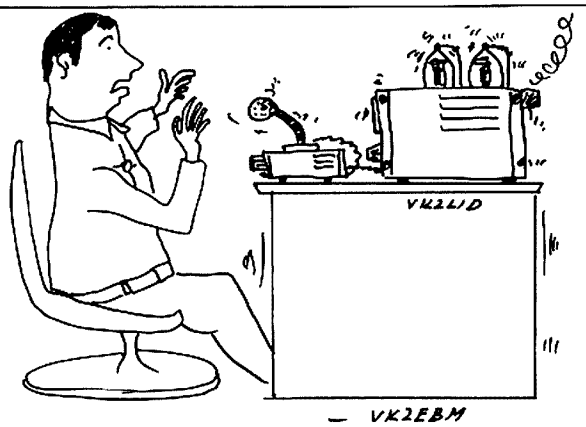
1984 — 125A VEGA 1 and 1984 — 128A VEGA-2 are Automatic Interplanetary Stations launched for an investigation of planet Venus and comet Halley. The satellites carry scientific instruments and service systems.

RETURNS

During the period 39 objects decayed including the following satellites:—

1970 — 025 MA Molniya 2-8 Dec 13
1984 — 121A Cosmos 1613 Dec 24
1984 — 126A Cosmos 1614 Dec 19

Please see page 48 for Apogees . . .



— VK2EBM

". . . No! I won't switch the linear in OM — I'm frightened of it!" . . . VK2COP.

SATELLITE **OSCAR-10 APOGEES APRIL 1985** ←BEAM HEADINGS→

DATE	DAY #	DNAST #	APOGEE CO-ORDINATES UTC HH:MM:SS	LAT DEG	LON DEG	SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
April											
1	91	1353	0043:26	-0	234	320	42	339	48	19	51
2	92	1355	0002:29	-0	224	333	47	355	50	34	47
2	92	1357	2321:32	-0	215	349	50	11	49	47	42
3	93	1359	2240:35	-1	206	6	51	27	47	57	35
4	94	1361	2159:38	-1	196	22	49	40	42	65	27
5	95	1363	2118:41	-1	187	36	45	51	36	72	20
6	96	1365	2037:44	-1	178	48	39	60	29	78	12
7	97	1367	1956:46	-1	168	58	32	68	22	83	4
8	98	1369	1915:50	-1	159	66	25	74	14		
9	99	1371	1834:52	-1	149	73	17	81	7		
10	100	1372	0614:24	-1	325					274	-0
10	100	1373	1753:55	-1	140	79	10	86	-1		
11	101	1374	0533:27	-1	315					279	8
11	101	1375	1712:58	-1	131	85	2				
12	102	1376	0452:29	-2	306					284	16
13	103	1378	0411:33	-2	297			277	4	291	24
14	104	1380	0330:35	-2	287	275	2	283	12	298	32
15	105	1382	0249:38	-2	278	280	10	289	20	307	39
16	106	1384	0208:41	-2	269	286	18	296	28	318	46
17	107	1386	0127:44	-2	259	293	25	304	35	332	51
18	108	1388	0046:47	-2	250	301	33	315	42	349	55
19	109	1390	0005:50	-2	241	310	40	327	47	7	55
19	109	1392	2324:53	-2	231	322	46	342	51	25	53
20	110	1394	2243:56	-3	222	336	51	359	53	40	48
21	111	1396	2202:58	-3	212	353	53	17	51	52	42
22	112	1398	2122:02	-3	203	11	53	32	48	62	34
23	113	1400	2041:04	-3	194	28	50	45	43	69	27
24	114	1402	2000:07	-3	184	42	45	56	36	76	19
25	115	1404	1919:10	-3	175	53	39	64	29	81	11
26	116	1406	1838:13	-3	166	62	32	72	21	87	3
27	117	1408	1757:16	-3	156	70	24	78	14		
28	118	1410	1716:18	-4	147	77	17	84	6		
29	119	1411	0455:50	-4	322					273	3
29	119	1412	1635:22	-4	137	82	9	90	-2		
30	120	1413	0414:53	-4	313					278	11
30	120	1414	1554:24	-4	128	88	1				
May											
1	121	1415	0333:56	-4	303			271	-0	284	20
2	122	1417	0252:59	-4	294	269	-3	277	8	290	28
3	123	1419	0212:02	-4	285	275	5	283	16	296	36
4	124	1421	0131:06	-4	275	280	13	289	24	307	43
5	125	1423	0050:08	-4	266	286	21	296	31	319	50
6	126	1425	0009:10	-4	257	293	29	305	39	335	55
6	126	1427	2328:14	-5	247	301	37	316	45	354	58
7	127	1429	2247:16	-5	238	311	44	330	51	14	57
8	128	1431	2206:19	-5	228	324	50	346	54	32	54
9	129	1433	2125:21	-5	219	340	54	5	55	46	48
10	130	1435	2044:24	-5	210	358	56	23	53	57	41
11	131	1437	2003:28	-5	200	17	55	38	49	66	34
12	132	1439	1922:30	-5	191	34	51	51	43	73	26
13	133	1441	1841:33	-5	182	48	46	61	36	80	18
14	134	1443	1800:36	-5	172	58	39	69	28	85	9

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

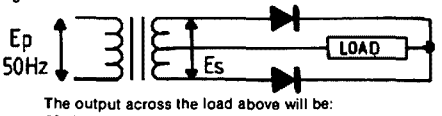
All readers are invited to "have-a-go" at this Novice Theory Trial Examination, then check the answers at the end of the Hamads.

TRIAL EXAMINATION NOVICE THEORY

Select the correct or most appropriate answer.

1 Of the substances aluminium, carbon, sllicon and distilled water, the best conductor of electricity is:
a aluminium
b carbon
c sillcon
d distilled water

2 The frequency at which a quartz crystal oscillates is affected by:
a the voltage applied to the circuit
b the mechanical stability of the surrounding components
c the way it is cut
d whether or not is has impurities incorporated into it

3


The output across the load above will be:
a 50 Hz at E_S
b 50 Hz at $\frac{E_S}{2}$
c 100 Hz at $E_S \times 2$
d 100 Hz at $\frac{E_S}{2}$

4 The type of transmission which requires the least bandwidth is:
a CW
b amplitude modulated carrier
c single sideband suppressed carrier
d double sideband suppressed carrier

5 A radio signal having a wave-length of 10 metres corresponds to a frequency of:
a 28 MHz
b 21 MHz
c 10 MHz
d 3.5 MHz

6 The inductance of a coil can be lowered by:
a lowering the voltage across it
b adding more turns
c making the turns closer together
d using an air core instead of an iron core

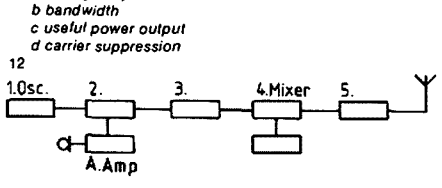
7 A receiver is tuned to a frequency of 28.145 MHz. If the first IF is 10.700 MHz, the local oscillator would be tuned to:
a 10.700 MHz
b 28.145 MHz or 10.700 MHz
c 38.845 MHz or 17.445 MHz
d 18.845 MHz

8 When transmitting, the feed point of a quarter wavelength mobile antenna will:
a be at earth potential for RF
b have an input impedance of about 150 ohms
c be at a voltage peak
d be at a current peak

9 A moving coil meter can measure alternating current by use of a :
a resistor in series
b diode in series
c shunt diode
d capacitor in parallel

10 The SWR of an antenna is a measure of the ratio between:
a maximum and minimum voltages on the leadline
b voltage at feedpoint and voltage at end
c voltage at feedpoint and current at feedpoint
d forward resistance and reflected resistance

11 If a Single Sideband transmission is over-modulated, the effect will be an increase in:
a intelligibility
b bandwidth
c useful power output
d carrier suppression

12


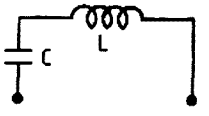
The output from stage 3 of this single sideband transmitter should consist of:
a full carrier plus one sideband
b one sideband and a low level of carrier
c two sidebands with a low level of carrier
d one sideband only

13 A Yagi antenna for use on the 10 metre band would have a:
a driven element approximately 10 metres long
b director slightly longer than the driven element
c reflector slightly longer than the driven element
d driven element approximately 2.5 metres long

14 High frequency communication over long distances is possible at night because of:
a ducting through the upper layers of the atmosphere
b reflection of signals by the D layer
c refraction of signals by the F layer
d intense ionisation of the troposphere by solar flares

15 To achieve maximum power transfer between a transmitter of 50 ohms output impedance and an antenna of 75 ohms feed impedance it is necessary to use:
a an antenna tuning unit in the transmission line
b a dummy load
c balanced transmission line
d a change over relay

16 A marker crystal oscillator may be used to:
a measure the intermediate frequency of a receiver
b produce harmonics for multi-band operation
c calibrate a transceiver frequency range
d resolve a CW signal on a SSB receiver

17


In this tuned circuit:
a impedance is maximum at resonance
b resonance occurs when the reactances of C and L are equal
c resonant frequency will decrease as the value of C rises
d total impedance is the sum of the reactances of C and L

18 In a triode vacuum tube:
a a space charge is developed when the anode is made sufficiently positive
b conduction occurs whenever the anode potential rises slightly above the cathode potential
c electron flow is controlled by the potential applied to the control grid
d the grid is always kept at earth potential.

19 A transformer primary winding draws 10 amps at 240 volts from the mains supply. If the load on the secondary draws 16 amps at 100 volts, the transformer is operating at an efficiecy of about:
a 16%
b 48%
c 67%
d 160%

20 An RF amplifier operating in Class C:
a should have an efficiency of about 30%
b will conduct for about 30% of each cycle
c could be used as a linear final amplifier
d will have the bias on the grid (or the base) set to cut-off

21 A P-N junction is forward biased when:
a electrons flow from P type to N type material
b a positive potential is applied to the P type layer
c the voltage across the junction exceeds the leakage current
d the depletion layer is saturated with current carriers

22 Parasitic oscillations may be:
a produced by overdriving linear amplifiers
b prevented by neutralising the audio amplifier stage
c prevented by use of a high pass filter at the transmitter output
d caused by unwanted resonances in the final amplifier

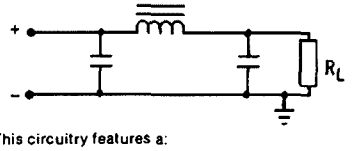
23 In a Field Effect Transistor (FET) the major electron flow is from:
a Source to Drain and controlled by Gate Voltage
b Source through Gate to Drain
c Source to Drain and controlled by Gate current
d Drain to Gate and controlled by the Source-Gate resistance

24 A simple 28 MHz transmitter using a 3.55 MHz crystal in the oscillator stage would also need to have:
a two tripler stages
b one doubler and one tripler stage
c one quadrupler stage
d three doubler stages

25 A resistor of known quality is colour coded red, violet, orange, silver. Its resistance should be between:
a 3500 and 3900 ohms
b 22,000 and 31,000 ohms
c 25,000 and 29,000 ohms
d 360,000 and 400,000 ohms

26 The final amplifier stage of a single sideband transmitter must be:
a linear
b operated in Class C for efficiency
c directly coupled to the modulator
d capacitively coupled to the preceding stage

27 A solid state device which can be used to provide a regulated DC voltage could be a:
a varicap diode
b zener diode
c lead-acid battery
d unijunction transistor

28


This circuitry features a:
a voltage doubler
b high pass filter
c parallel tuned circuit
d capacitor input filter

29 Unwanted harmonics in a transmission could be detected by using a:
a dip meter as a tunable absorption wave meter
b standing wave ratio meter
c broadcast band receiver
d beat frequency oscillator

30 A double conversion superheterodyne receiver must have two:
a radio frequency amplifier stages
b different intermediate frequencies
c detector stages
d audio amplifier stages

31 The type of microphone which functions by movement of a coil inside a magnetic field is the:
a dynamic
b carbon
c crystal
d condensor

32 Key clicks can be prevented by:
a keying the oscillator stage
b using a low pass filter at the transmitter output
c using a smoothing filter in the key circuit
d regulating the transmitter power supply output voltage

33 The Maximum Usable Frequency:
a is always below the upper limit of any HF amateur band
b is generally lower during periods of sunspot maxima
c depends on the SWR of the antenna
d varies according to time of day, season and latitude

34 Three pin mains plugs should be wired so that the:
a red conductor is connected to the earth pin
b brown conductor is connected to the active pin
c green conductor is connected to the neutral pin
d fuse, if any, is in the blue conductor

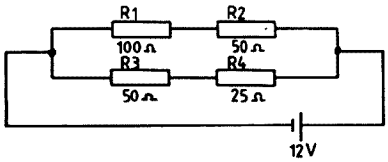
35 In a direct conversion receiver selectivity is provided by:
a the audio stages
b a high second IF stage
c a very sensitive Automatic Gain Control system
d the RF amplifier stage

36 Fading of HF signals during a long distance contact is often due to:
a changes in the sunspot pattern
b a decrease in the ionisation of the troposphere
c a change in the radiation pattern of the transmitting antenna
d multiple path signals arriving at the receiving antenna out of phase with each other

37 When soldering some types of transistor into a circuit it is good practice to hold the leads with pliers to:
a avoid damage due to overheating
b prevent solder resin from affecting the transistor case

c avoid handling the transistor which may contain harmful material
d prevent the leads from being tinned over their whole length

38



The voltage drop across R_2 will be:
a the same as across R_3
b twice that across R_4
c the same as across R_4
d 6 volts

39 A keying relay may be used in a CW transmitter:
a to prevent formation and radiation of key clicks
b to avoid having high voltages across the key contacts
c to switch the antenna from the receiver to the transmitter
d when the operator wishes to transmit a pre-recorded message

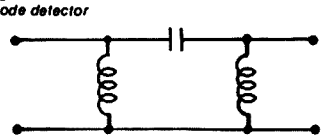
40 A television receiver suffers interference on all channels when a nearby Novice amateur transmits. The problem could be reduced by:
a using a high pass filter at the transmitter output
b using a high pass filter at the receiver input
c inserting a parallel tuned trap in the transmitter leadline
d improving the shielding of the transmitter

41 When testing a transmitter for prolonged periods an artificial antenna should be used because:
a it provides lower load impedance than a transmission line
b it efficiently radiates a steady signal
c most modern transmitters require regular checking of the output impedance
d this prevents interference to other stations

42 Cross modulation may occur in a broadcast receiver:
a if the receiver has inadequate sensitivity
b by mixing of a strong local signal with an amateur signal
c by rectification of an amateur signal in the audio stage
d when an amateur signal mixes with the receiver IF

43 Which circuit can efficiently detect both SSB and CW signals?
a BFO and diode
b crystal set
c regenerative detector
d diode detector

44



This circuit could be used as a:
a trap in a multiband dipole antenna
b low pass filter
c high pass filter
d safety device in a high voltage power supply

45 A simple method of matching a balanced dipole antenna to co-axial cable may use a:
a change-over relay
b balun
c series tuned output circuit at the transmitter
d pair of diodes back to back

46 The ability of a receiver to remain tuned to the desired frequency is known as:
a stability
b sensitivity
c selectivity
d suppression

47 A 47 k ohm resistor through which 10 milliamps flow should have a power dissipation rating of at least:
a 0.5 watts
b 1.0 watts
c 2.5 watts
d 5 watts

48 The 'Beta' of a junction transistor refers to its:
a current amplification
b biasing arrangement
c tendency to thermal runaway
d internal capacitance

49 Five capacitors, each of 22,000 pF are connected in parallel. The total capacitance will be:
a 0.01 µF
b 0.11 µF
c 4,400 pF
d 11,000 pF

50 'Sound bars' may appear on a television screen:
a as a result of receiver overload in the AGC section
b as dark vertical lines with cross-hatching between them
c when a strong interference signal is amplitude modulated
d when two or more harmonics of an interfering signal are received

AR

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Well, April is here and already a quarter of the year has gone. As expected, conditions have been unpredictable on HF. Signals on the EW path have been well down while propagation on the NS path have been quite exceptional. I have been copying Asian stations around midday local time on the 19 and 25 metre bands, which is somewhat unusual for this far south. It can be said that this could be rightfully attributed to the upgrade of my receiving equipment rather than propagation alone. Yet signals from Europe on the LP as well as North America have been frequently noted by their absence.

I believe that listeners in northern Australia often hear Asian signals in the daytime, yet miss out hearing LP signals in South America that we frequently observe in the late mornings-early afternoons here in south eastern Australia over the winter months. I myself have witnessed this while in Brisbane a few years ago, especially on 9 and 11 MHz. Asian signals dominated the bands with the usual Europeans I usually copy in Tasmania not heard at all. So I have been surprised to catch these Asians in the daytime here, due primarily to the low sunspot count.

And talking of propagation, I must say that I was very surprised to hear the upsurge of activity in the CW section of the ARRL Contest on the 16th and 17th of February. Stateside stations were copied at quite exceptional levels on both 7 and 14 MHz around 2100 UTC, where normally no propagation exists on the LP from North America. Even as late as 2200 UTC the LP signals were quite readable on 7 MHz. This makes me wonder if the amount of traffic keeps the bands open longer, or is it that amateurs no longer try to see if there is any propagation. I somehow suspect the latter, as the amount of traffic within the phone allocations was considerably well down in comparison with CW activity.

The 160 metre band was also an eye-opener to me with propagation to the US West Coast around 1330 UTC on the 17th. I didn't hear any VKs working them around 1.825 MHz, but the JAs were heard up on 1.910-1.915 MHz working them split. There were some VKs active on SSB around 1.815.5 nattering amongst themselves, seemingly unaware of the DX wealth just a few kilohertz away. I think that more attention could be paid to the DX windows on 1.8 and 3.5 MHz as propagation should be exceptional during this sunspot minima. You may be surprised. Unfortunately I don't have operational capability on top bands but that doesn't prevent me listening in.

The Radio Nederlands Lopik site ceased operating on the 31st of March, when the new Flevoland site became fully operational. Incidentally Dutch radio amateurs were allowed to use the antenna arrays to conduct experiments on the 16th and 17th of February. They were primarily operating on 7 and 14 MHz on SSB, but after numerous requests from European amateurs, they did transmit around 3.790 MHz at around 0900 UTC. They were successful in matching the 100 watt amateur rig to the antenna arrays. I heard them call on 14.220 MHz as PA6FLD working several Europeans. They were especially looking for VK3BLZ around 1300 UTC, so I called them up. Alas I had no success.

From time to time you have probably heard stations with a mode that resembles either a buzz saw or a jet engine. These are utilising the Frequency Division Multiplex (FDM) mode. It consists of 16 channels of RTTY spaced 170 Hz apart, employing a very narrow shift of 85 Hz. It is virtually impossible to decipher these using conventional demodulators, although specific equipment is obtainable in the US from military surplus but is not accessible easily to the radio amateur. Tuning across these buzz saw like sounds, you will hear the RTTY signals, but will find it difficult to separate them into individual channels using your conventional demodulator. Most FDM's are military based, although other users requiring security such as diplomatic missions also reportedly use it.

Another unusual signal that is rarely encountered these days is Piccolo. This consists of several high pitched tones that resembles the flute like instrument of that name playing a fast tune. This audio device was developed by the British in the early sixties and reportedly used primarily on diplomatic traffic.

Most of the RTTY traffic on HF today is either encrypted or encoded for greater privacy. Many utilise Bit Inversion, ie where the mark and space are swapped around in the middle of a word. The number of bits can be many, so unless you happen to known the order of the Bit Inversion, your demodulator will only print up rubbish.

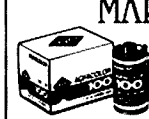
Another mode you will have heard being transmitted on HF is FAX. This is commonly used to transmit weather pictures to marine and other meteorological offices. FAX can easily be identified by their synchronous pulses or "ticking" in one second. You can hear a Japanese Meteorological FAX station on 80 metres on 3.623 MHz most evenings. Michiel Schaay, the Dutch RTTY enthusiast who has compiled a schedule of RTTY press broadcasts, recently announced that he has published a FAX Directory. It has operating times together with frequencies used. I imagine that interest in receiving facsimile pictures will increase now that printers have become more readily available to the amateur. The quoted price for the FAX Directory was around 50 Dutch Guilders plus postage.

Schaay has also announced the publication of a list of US military frequencies. He even has claimed that some of these even issue QSL cards, which I personally find a little preposterous. I would expect that the opposite would be the case, as their transmissions are certainly not designed for the average SWL, for their traffic would be fairly classified. The only military radio network that I do know that definitely welcomes reception reports from the SWL, is the US Armed Forces Radio and Television Service (AFRTS) which is based in Los Angeles.

While accidentally tuning across the bands, I happened to come across Radio Moscow's DX programme. It is aired on Sundays at 0625 repeated at 1225 UTC. The programme doesn't contain any startling tips, concentrating on schedules of other Eastern European broadcasts. Yet it is a little puzzling that gospel and other religious broadcasters are mentioned frequently. After all, I have heard Moscow a number of times state that the state actually encourages atheism!

AR

MARCH'S BEST PHOTOGRAPH



This time the judges voted the front cover as the best photo for March. Henry Lundell VK2ZHE is now eligible for the prize of $100 worth of film and video tapes from Agfa-Gevaert in June.

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

Meet your new Federal Awards Manager, Bill Hempel VK4LC.

He was first licensed in May 1957 with the callsign VK3AHO. During this period he was farming at Kyvalley, Victoria after retiring from service with the RAAF as a Commissioned Officer, GD Signals with service in Europe, Malaya and Japan.

Many will recall his signal on all bands emanating from his V beams with 226.64 metres on each leg suspended on towers 30.48 metres high, with DXCC on 80 metres and 320 countries on HF by 1970.

Beginning in 1962, Bill undertook the first DXpeditlon of the month as a member of the Certificate Hunters Club and was the first VK to operate single handed a DXpeditlon to Wallis Island with the call sign FW8BH, followed by YS1BH, VR1N Ocean Island, CR8BH Portuguese Timor, VK9BH Nauru Island.

Among the many prestigious world wide awards, totalling over 100, two have pride of place. His WAZ-No 8 and the A 1 Operators Award. This indicates his very keen interest in this facet of our hobby.

Between DXpeditions Bill obtained his Private Pilots licence which he still holds.

Following the death of Alf VK3KB, in 1967, Bill took over the position of Federal Awards Manager until a replacement from VK3 was found.

After his stint as a farmer he moved back into the RAAF as a civilian in the Department of Defence, Canberra, ACT where he was OIC of the Air Historical Section for over 5 years until he was promoted to the position of Parliamentary Liaison Officer in charge of VIP Aircraft Records.

He retired to Queensland where he is still up in the clouds at Eagle Heights on Mount Tamborine overlooking the Gold Coast. He maintains regular skeds to Sydney on VHF and UHF, operates Oscar 10 and of course is still chasing those elusive countries on HF.

We wish Bill good luck and success as our FAM.

TAMAR VALLEY AWARD

The Northern Branch of the Wireless Institute of Australia, Tasmanian Division has instituted a new award.

The purpose of this award is to encourage all amateurs to make contact with amateurs resident in the Tamar Valley Region of Northern Tasmania. Short wave listeners may also qualify for the award in the usual manner.

You may qualify for the award in any of the following sections and you may qualify for more than one award.

SECTION 1 — OPEN: By the use of any combination of bands and modes available to the applicant. (Split banding is permitted but cross banding is not except between NAOCP and ALOCP holders.)

SECTION 2 — HF ONLY: By the use of any combination of bands up to 30 MHz available to the applicant.

SECTION 3 — VHF/UHF/SHF: As for Section 2 but above 30 MHz.

SECTION 4 — SINGLE BAND: Any one band of those available.

SECTION 5 — SINGLE MODE: Any one of those available.

SECTION 6 — ALL NOVICE: Contact with Novices only (Including 'K' calls below 30 MHz.)

SECTION 7 — REPEATER: Via in-band repeaters.

SECTION 8 — SATELLITE: Via amateur satellites. Cross banding to HF allowed if permitted under licence terms.

SECTION 9 — SWL'ing: For Short Wave Listeners.

Section 4 and 5 may be combined with other sections.

Applicants must earn twenty points to qualify for the award. Stations can only be worked once for each award.

Points are earned as follows:

CALL AREA	ON HF	ON VHF/UHF/SHF
Tasmania	1 point (20 stations)	2 points (10 stations)
Australia	2 points (10 stations)	4 points (5 stations)
All others	4 points (5 stations)	10 points (2 stations)

Stations in the following municipalities (shires) are eligible as contacts for the award.

City of Launceston
Beaconsfield
Evandale
George Town
Lilydale
St. Leonards
Westbury

Applications in the form of log extracts should show the applicant's Name, Callsign, Section applied

for, Callsign of the station contacted, Date, Time, Band or frequency, Mode and Municipality.

Claims are to be signed by the applicant only. Spot checks may be made with stations in VK7 for confirmation. QSL CARDS ARE NOT REQUIRED.

Only contacts made after 1st September, 1984 are eligible as claims and applications for the award should be made to the Awards Manager, PO Box 168, Launceston, Tas 7250.

A fee of $2 or five IRCs should accompany the claim.

RL AWARD

The RL Award shall be issued by the "Japan Amateur Radio League — Club Zoo" for all amateurs and SWLs who have the proof of 2 way communications (or SWL Cards) with the following stations.

Class AA: 12 QSLs from JA1RL through JA0RL, 8J1RL, JR6RL plus 1 QSL each having RL in suffix from six continents. (Total 18 QSLs)

Class A: 10 QSLs from RL stations in JA (Example: JA1RL) and 8J1RL. (Total 11 QSLs)

Class B: 5 QSLs from RL stations in JA.

Class C: Spelling out "JAPAN AMATEUR RADIO LEAGUE CLUB ZOO" — 30 Characters — with tail-letter of any QSL cards.

Logs: Call sign, Date, Time, Band, Mode and Signal RST.

Fee: 10 IRCs or US $5.00.*

(A physically handicapped person is exempted from paying the Fee)

** 10 percent of the application fee shall be contributed to the UNISEF.*

Endorsement: Single Band, Single Mode

SWL: Same rule

Note: One of the undermentioned Club Zoo members QSL cards can be utilised in place of only one RL station's QSL except Class AA.

Application must be sent to:

Hiroshi Toyoshima
1-8-10, Fujisawa, Fujisawa-city,
Kanagawa-Pref, 251, Japan.

Club Zoo members:

JH1NXU, JH1XUP, JR1CYI, JF1IQC, JG1QZC, JG1XNF, JI1ODR, JI1RPC, JI1RRE, JI1RRM, JI1VLP, JI1XSI, JJ1NII, JK1FLR, JK1GCK, JM1GIQ, JM1GIR, JM1RIG, JQ1DJX, JO1NCX, JQ1IUD, JR3RMR, 4S7VL, 4S7EA

BELGIUM WABP AWARD

The award is available to licensed amateurs and SWLs.

There is no date limit.

Do not send QSLs. A list showing full details of the contacts should be verified by the Awards Manager of the National Society.

Any bands and modes may be used.

The fee for the award is 5 IRCs.

The address for applications is:

ON5TO
UBA Awards Manager
PO Box 634,
Brussels, Belgium.

Requirements

Confirmed contacts are required with each of the nine provinces on two bands.

Provinces for WABP Award

WW West Flanders	LX Luxembourg
QV East Flanders	NR Namur
AN Antwerp	HT Hainaut
LM Limburg	BT Brabant
LG Liege	

THE VIENNA AWARD

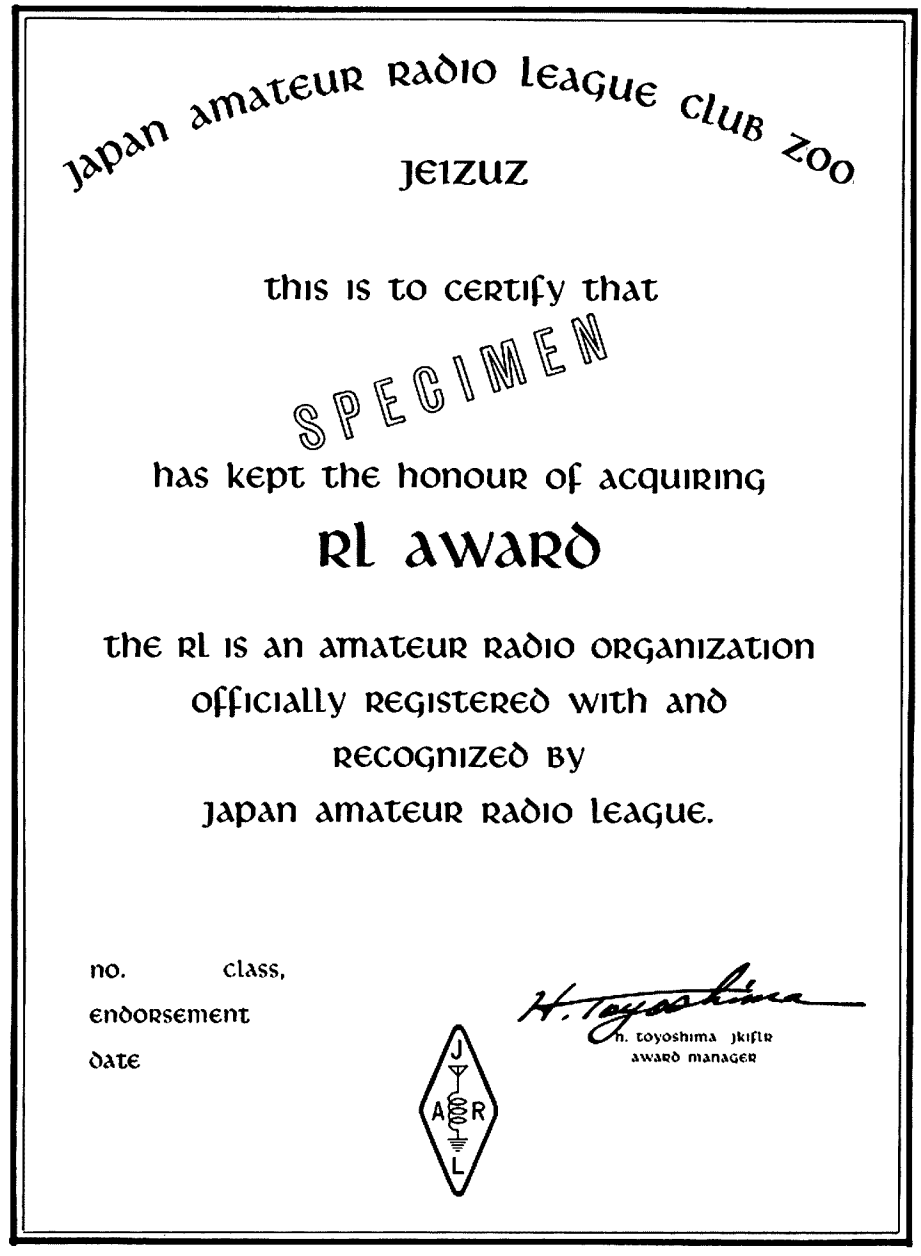
This award is sponsored to all amateurs and SWLs In two classes.

Class 1: 23 Vienna districts.

Class 2: 15 Vienna districts.

All bands, all modes and mixed. Cards since 1st of April 1954 are valid. The districts of Vienna you will find in the second and third number of the four-digit Zip Code.

Send 10 IRCs and GCR list to: *OVSV, 1060 Vienna, Eisvogelgasse 4, Austria.*



YO-DANUBE RIVER AWARD

This Award Is issued for working on two bands different stations located in countries along the Danube River. Federal Republic of Germany, Austria, Czechoslovakia, Hungary, Yugoslavia, Bulgaria, Romania and USSR as follows:

DX stations 3 QSOs with YO and 2 QSOs with other countries.

At least 3 QSOs out of the above mentioned contacts must be with stations located in cities just on the Danube River.

Valid contacts after 23rd of August, are needed together with 7 IRCs or the equivalent foreign currency should be mailed to:— Romanian Radioamateur Federation, PO Box 1395, R-76.100 Bucuresti 5, Romania.

THE REDCLIFFE CITY AWARD

The Redcliffe City Award was first applied for in 1972 by VK2APH, who is the proud possessor of Redcliffe City Award Number One. In February this year Number 490 was issued to VK4MUQ.

Those wishing to qualify and apply for this award need six points for a VK or ZL station and four points for any other international. To obtain these points stations you must contact stations that are members of the Redcliffe Radio Club which are worth one point. The Club stations are worth two points.

The Club stations are VK4RC, VK4VRC and VK4IZ. A list of member stations can be obtained by writing to the Awards Manager, enclosing return postage.

The Redcliffe Radio Club conducts two Awards nets to assist operators and SWLs to obtain the Award. Saturday from 0400 UTC on 21.190 MHz and Wednesday from 0930 UTC on 3.612 MHz.

Members also use these two frequencies on a regular basis for Club traffic at other times including the Sunday Club Net at 0930 UTC on 3.612 MHz.

To apply for the Redcliffe City Award send a log extract listing the stations contacted and enclosing $A2 to cover costs to: The Awards Manager, Redcliffe Radio Club, PO Box 20, Woody Point, Old, 4019. Short Wave Listeners are also actively sought after.

Contributed by Kevin Jones. VK4AKI Awards Manager, Redcliffe Radio Club.

"VICTORY-40" AWARD

The "Victory-40" award is sponsored by the Radio Sports Federation of the USSR, the E T Krenkel

Central Radio Club of the USSR and "Radio" magazine to commemorate the 40th Anniversary of the historic victory of the soviet people and the Soviet Army in the Great Patriotic war of 1941-1945.

The "Victory-40" award is for radio amateurs all over the world for QSOs (SWL reports) with veterans of the Great Patriotic war and special memorial radio stations from 1st January to 9th May 1985.

Within this period the following prefixes will be used by special memorial radio stations operating from:

— *capital of the USSR: ER*
— *hero-towns of the USSR: EW*
— *capitals of Union Republics: EU*
— *capitals of Autonomous Republics: EV*
— *former centres of partisan warfare: EM*
— *towns decorated with the orders of the USSR for their contribution to the victory in the war: EO*

OSOs with memorial radio stations operating in socialist countries will also count for "Victory-40" award.

Veterans of the war will use their regular call signs plus "R" (For example: UA3DA/R).

To receive the above award one must gain 40 points for QSOs with different memorial radio stations and veterans of the war. Each QSO is valued as follows:
— *5 points for radio amateurs operating in Australia and Oceania.*

The "Victory-40" award will be delivered free of charge on receiving the extract from the log verified by the national amateur radio society or 2 licenced radio amateurs.

Any band and any mode including that through amateur radio satellites will count.

Applications for the "Victory-40" award are to be sent to the E T Krenkel Central Radio Club of the USSR, PO Box 88, Moscow, USSR not later than 1st January 1986.

KARL AWARD PROGRAMME

The following Korean Amateur Radio League (KARL) awards are available to all amateurs and SWLs.

HLA (HL Award). Issued to all who received QSL cards from any HL stations (except HL9s), depending on the number of contacts made (heard) with (from) HL stations (except HL9s). Depending on the number of contacts made (heard) with (from) HL stations, one or more of the following classes may be claimed.

Class K: 5 QSLs Required
Class O: 10 QSLs Required
Class R: 20 QSLs Required
Class E: 30 QSLs Required
Class A: 50 QSLs Required

Stickers for affixing to certificates endorsing additional credits are available in multiples of 50 upon submission of QSL cards.

AKA (All Korea Award): Issued to amateurs/SWLs who received QSL cards from HL stations. At least one from each of seven different call areas, (ie) 1, 2, 3, 4, 5, 8 and 0.

KDN **(Korean District Number Award):** Issued to amateurs/SWLs who received at least one QSL card from HL stations located in each of the 50 different cities, Guns or Gus in Korea.

The awards will be issued in multiples of 50, (KDN 50, 100, 150) upon submission of cards with list prepared in order of KDN reference numbers.

APA (All Province Awards): Issued to amateurs/SWLs who received QSL cards from HL stations located in each of different special cities and provinces in Korea.

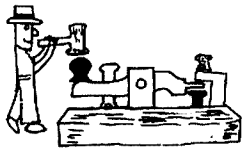
Area codes for each City and/or Province are as listed below:

Area Code	Province and/or City
1	City of Seoul
2	Inchon City, Kyonggi-do, Kangwon-do
3	Chungchongnam-do, Chungchongbuk-do
4	Chollanam-do, Chollabuk-do, Cheju-do
5	Pusan city, Taegu city, Kyongsangnam-do Kyongsangbuk-do

General rules and requirements

1 8 IRCs will be charged per award and 4 IRCs for each HLA sticker.
2 If QSL cards are submitted, they must contain enough IRCs for return postage.
3 Endorsements for such operating distinctions as bands, modes and QRP may be applied for.
4 Proof of contacts/receptions made with any HL stations (except HL9s) on/or after 3rd February 1959 will be acceptable.
5 Proof of contacts/receptions made with US Army stations in Korea (HL9 call area) will not be acceptable.
6 All contacts must be made within the same call area.
7 Mail your application to: Korean Amateur Radio League, CPO Box 162, Seoul 100, Korea.

AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

SPEED PRACTICE FOR THE NOVICE OPERATOR

Before any of you real brass-pounders decide not to read the column this month because of its title, please note: *by novice operator I mean one who is new to CW operation — not necessarily a novice in other areas of amateur radio endeavour* — and if you 30 WPM men want to have somebody to work with when all your old mates go QRT for the last time you had better realise you have a role to play in the development of new operators. So read on!

In the November issue of the column I offered to print a "schedule" of operators who would be prepared to commit themselves to operation at a certain time and frequency to provide the opportunity for slower operators to engage in QSOs with operators who would not leave them in the dust. Well, here is the list:
VK3PGY Op: Vic, Freq: 80m, Speed: 7 WPM
Times: Mon-Fri 1300 and 1400, Sun 1100-1200, local time.

That's it. One novice, prepared to help his fellow operators. *Where are all the brass-pounders?* A lot of you read this column, as I can tell from the volume of correspondence (for which thanks). Surely it's not impossible for some of you to set aside a single hour a week (or fortnight) to help the struggling beginner. We all know how easy it is to meet the examination requirement (at least in hindsight) but seem to forget how difficult it is to make the transition from exam-style textual material to competent CW operation on air.

One more chance, guys — send me the details of call, frequency, time and speed range and do your bit!

In point of fact, it should not be necessary for the novice operator to concern himself with finding slow CQs on 80 metres. I will refer once more to the Golden Rule of CW speed — *"Call at the speed you want to work; Answer at the speed of the other station or at your own speed if he is faster."* If everybody does this you will never ask or be asked to QRS.

There is no valid reason for a slow operator to avoid answering a fast CQ, so long as he can read the callsign. If you are looking for a contact, and hear a CQ far faster than your competent speed, by all means answer him — at your own speed. The faster operator is honour bound (by tradition, anyway) to answer any response to a CQ, and to answer at the speed of the responding station if it is slower. If the truth be told, I often call CQ at very slow speeds on 80 to give the newcomers a chance, because I know full well that they will not answer a fast CQ. On those occasions when I *do* get a slow answer to a fast CQ, I have no hesitation in slowing down to the other guy's speed. This results in some funny situations — following the rules means that if I call at 8 WPM an answer should be no faster. Not long ago an unfamiliar full call answered, and we carried on for half an hour before we finally got up to our "natural" speeds.

Of course the slower operator has some responsibilities too. Use of the Q code and *appropriate* abbreviations is good procedure at any time; they are almost mandatory if you are slower than the guy you are working. Words like "THE", "MY", "IS", and any others that are *not essential to the sense* of what you are sending should be left out.

If you have received a 5/9/9 report there is no need to repeat *anything* — not your name, your QTH, or the other guy's report. After all, he has said he can copy 100 percent, and if you mess something up he will undoubtedly ask for a repeat. As a general rule, repeat (once only) if readability is poor. A sign of a good operator is that he will slow down if conditions are less than perfect because a slower speed is still more efficient than repeating. Tom VK4NUN recently wrote to me about this as one of his pet aversions. He was working an American novice at about 4 WPM who sent "QTH IS ALBUQUERQUE, NEW MEXICO, USA". He sent it three times, and poor old Tom was just about asleep by the end of it.

Another of Tom's aversions ties in neatly with what I said above about avoiding unnecessary words. *Why spell out KENWOOD or YAESU when the whole world knows what a TS830S or a FT101E is?*

Just to summarise the main points so far — we need more ops who can make themselves available for QSOs with beginners; slow ops should not hesitate to call faster ones, who in turn should slow down; and slower ops should use efficient (brief) ways of saying things.

One last bit of food for thought. The only place the VK and USA novice allocations overlap is 28.100-28.200 MHz, which rules out a lot of potential slow-speed QSOs. *Why not allow them to operate CW only on 7.100-7.150 MHz? I know every suggestion for increased privileges for novices gets knocked on the head, but this one would cause little or no inconvenience for current users (ie full-calls) and would be a great help to potential brass-pounders. If this idea generates sufficient interest, I'll gladly put it through the proper channels. Expressions of interest (for or against) should be addressed to me at the above address.*

73 till next month.

AR

OPERATIONAL RALEIGH

Is a world-wide four year self training expedition for young people. They will be operating GB0SWR/MM as the Sir Walter Raleigh circumnavigates the world. A number of rare islands should become operational during the voyage.

from Radio Communication — February 1985

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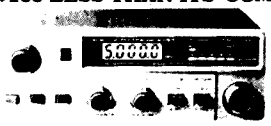

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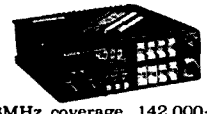

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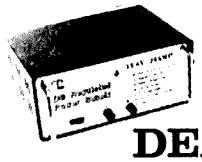

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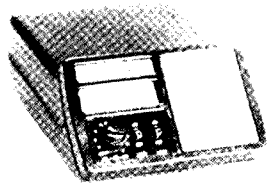

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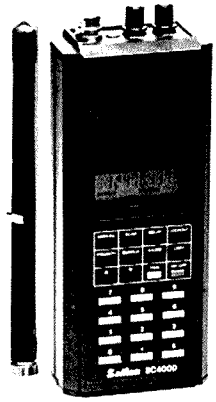

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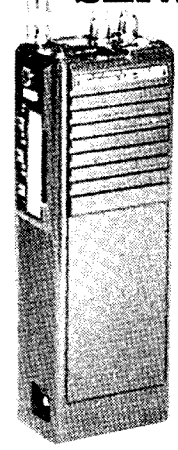

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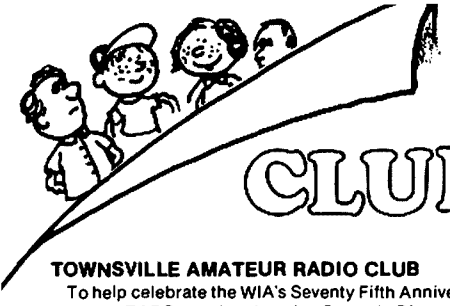


CLUB CORNER

TOWNSVILLE AMATEUR RADIO CLUB

To help celebrate the WIA's Seventy Fifth Anniversary the TARC are hosting the Seventh Bi-ennial North Queensland Convention from 30th August to 1st September 1985.

Further information may be obtained from the Convention Secretary, TARC, Box 964, Townsville, Qld. 4810.

HUMPYBONG SCOUT GROUP RADIO CLUB

The Humpybong Scout Group, which is part of the Redcliffe District Scouts, have started a radio club that has been issued with the call sign VK4SHB. The Club will be running a Novice Study Course for the benefit of the Scouts and Venturers that are members of the Club.

The Club station will be on air at 0930 UTC every Thursday, except the first Thursday of the month, and the frequency will be 3.612 MHz ± QRM.

The Club hopes to contact other scout groups and interested amateurs to further the aims of the scout movement in the hobby of amateur radio.

Contributed by Kevin Jones. VK4AKI JOTA Co-ordinator, Redcliffe Radio Club.

AR

UPDATES TO CLUBS

Port Adelaide RC — President Donald Hobbs VK5AS, Secretary/Treasurer Harry Hillard VK5PIH, Club Call Sign VK5APC. Meetings every second Wednesday, 7.30 pm at 155 Hart Street, Glanville. Net daily on 28.440MHz 0900 UTC.

Coffs Harbour & District ARC — President Bob Colsell VK2AWA, Secretary Rick Fletcher VK2BKV, Treasurer Peter McAdam VK2EVB, Club Call Sign VK2DVF, Repeater VK2RCH. Meetings 1st & 3rd Wednesday, 7 pm at Orara High, Bray Street, Coffs Harbour. Net on Mondays 1000 UTC. All welcome to nets and meetings.

Lower Eyre Peninsula ARC Inc — President Carol McKenzie VK5PWA, Secretary Jack Kleinrahm VK5AJK, Treasurer Ian Phillips VK5NIK. Meetings 1st Wednesday of month at 8pm, Workshops each Wednesday at 8 pm. Club station VK5ALE. Net each Friday on 3.560MHz at 0930 UTC. All welcome.

AR

MOORABBIN AND DISTRICT RADIO CLUB

The Club has given much thought to ways in which it could assist the Institute on the occasion of its 75th Anniversary.

It has been decided that the Clubs Annual Trade Day, usually a fairly low key event, will be considerably upgraded this year, firstly to bring in other than simply radio aligned activities and also to make it more attractive to the general public, so, hopefully, giving amateur radio and its Australian longevity a wider exposure.

There will be the usual large number of trade exhibitors so that amateurs can have a good look at what is currently on offer without having to traipse all over the place before making their buying decisions.

There will also be other attractions. For example the Southern Archery Club will be giving demonstrations of their Robin Hood skills, and perhaps a bit of 'hands on' experience as well.

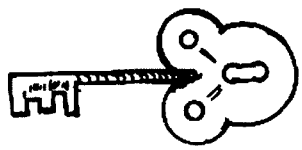
The Fly Fishers Club will be giving demonstrations of casting techniques and the Moorabbin City Band will be playing during the afternoon.

The 1985 Trade Day will be held on Saturday the 13th April at the Combined Clubs Complex on the Turner Reserve, Turner Road, Highett. Proceedings commence at 10 am and go on till approximately 5 pm. During the morning the Mayor of Moorabbin will officially open the event.

There is no charge for entry and all are welcome. There is plenty of off road parking space.

Contributed by Harold Hepburn VK3AFQ Assistant Secretary

AR



WESTLAKES ARC COMES OF AGE

One of Australia's best known radio groups, the Westlakes Amateur Radio Club, is celebrating its twenty-first birthday this year.

The first official meeting took place on the 22nd April 1964.

We hope to publish the "Westlakes Story" in the near future.

AR

COFFS HARBOUR AND DISTRICT AMATEUR RADIO CLUB

At the Annual Christmas Party of the Coffs Harbour and District Amateur Radio Club, the first presentation of the "PERCY SARA Memorial Trophy" was held. The trophy is awarded for outstanding service to the Club in the preceding year and is decided by nomination and ballot by club members.

The recipient for 1984 was the very popular net controller and "sergeant-at-arms" — Arnold VK2ADA. Pictured is Betty Sara, XYL of the late Percy Sara VK2QV, presenting the trophy to a surprised Arnold.

Betty kindly donated the perpetual trophy to the club and has kept in close contact with members by attending club outings. Arnold and club members operate the Club net on Monday nights . . . 1000 UTC . . . 3.610 MHz.

Contributed by Rick Fletcher, VK2BKV Secretary, Coffs Harbour & District ARC

AR

WANTED ARTICLES

Write up your pet project or technical idea so others may share your knowledge through the pages of AR.

BITS AND PIECES FROM VK4SS

In an earlier Thumbnail, Eddie White VK4EW and VK4OW was described as living alone. Eddie points out that this is not so and that he is happily shoring life with the YF. Long may it be so Eddie.

A Call For Help!! Can anyone please help with photos of the following amateurs, all active in VK4 in the 1930s: Frank Nolan VK4JU, Vince Jeffs VK4VJ, Eric Rielly VK4ER and Bob Campbell VK4RC.

Does anyone have an AOCP exam paper set in the 1930s? Any costs of photostating, postage etc will be gladly met. Contact VK4SS (07) 44 6526 (before 10am) or write.

Please be reminded: The deadline for material for book on History of AR in Queensland is 30th April 1985.

LISTENER NUMBERS

WIA Associate Members are allocated a WIA L-number which allow them to use the QSL bureau service provided through the divisions.

Shortwave listeners have QSL cards bearing their WIA L-number which they send via the bureau to amateur radio stations they hear, particularly those in DX countries.

An Associate unsure of his/her number will find it either in the WIA Call Book or on their AR address label.

Inquiries about using the QSL bureau or how SWLs go about QSLing can be made to your division.

AR

BOOM SALES

Sales of home entertainment equipment in the United States is going through a boom period.

Industry executives at a recent Las Vegas consumer electronics show said there was a growth in demand for new and improved equipment including colour TV sets, video cassette recorders and compact disc players.

The consumer electronics business sold more than $30 billion worth of gadgetry for the home to the American public last year and was expected to sell another $34 billion this year.

AR

EDUCATION WANTED

Brenda VK3KT, Federal Education Co-ordinator, is attempting to correlate a list of all classes teaching amateur radio throughout the length and breadth of Australia. At present she has a list of forty, but surely there must be more.

This list is needed so that when she gets enquiries she may direct the would be amateur to the nearest class or instructor as learning with an instructor is quite often much easier than trying to swat alone.

Brenda also runs an education net on 80 metres each Thursday night, with minimum success. This net is conducted for many reasons but it is particularly a forum for educators to exchange ideas re teaching methods, syllabus interpretation, examination procedures and discuss problems etc. (One instructor may have run into a particular problem which, by discussing it with other instructors, it may not be a problem.)

Do instructors feel a net is worthwhile? Has anyone any ideas at all about educating the would be amateurs? If so please let Brenda know. She is awaiting your letters and calls.

Contact Brenda on the Education Net 3.610-3.625 MHz at 1030 UTC or 3.685 MHz at 1130 UTC or write to Brenda Edmonds via the Federal Office or to 56 Baden Powell Drive, Frankston, Vic 3199.

AR

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

Major activities this month in VK2 include the Conference of Clubs to be held at Amateur Radio House, 109 Wigram Street, Parramatta over the weekend of the 13-14th April. On the Saturday evening there will be the annual fireworks evening at VK2WI Dural. Gates will open at 6 pm. The bonfire will be lit at 7.30 pm and fireworks starting at 8 pm. There will be a limited range of takeaway food available on the grounds. Should you wish to bring your own, please limit it to something which does not require the barbecue. For safety reasons no barbecue or personal fireworks permitted within the grounds. Ticket sales may be obtained in advance from the office at Parramatta or at the gate on the night. Adult $4, children $2 and family $10.

It is expected that the usual function will be held at Urunga over Easter but no details had been received by the time these notes were prepared. During May there is to be a Seminar, most likely the 24th. In June there will be the Oxley Region Field Day at Port Macquarie over the 8th and 9th. This is the Queens Birthday weekend. Headquarters will be the Youth Hall at Oxley Oval. There will be seven foxhunts, a CW receiving contest for both novice and full calls. Other events will be the Home Brew, QSL card, Old Gear, Handy Kink and best presented fox hunt vehicle contests. Don't forget to round up your collection for the disposal sales. There will be further details next month but should you require further information contact Lew VK2LS, Publicity Officer via PO Box 712, Port Macquarie, NSW, 2444. At the end of June, either the 22nd or 29th, the Division will be holding a 75th Dinner. Additional details will be given later and on the Sunday broadcasts.

On 8th February last was an early fireworks display at Dural, when the main tower received a lightning strike. The 70cm repeater suffered the main damage. Most other systems suffered various degrees of damage. Thanks must go to the members of the Dural team who spent Saturday carrying out repairs which enabled the station to transmit on some frequencies for the broadcast on the 10th. It then took Jeff VK2BYY and the other members a couple more weeks to return the station to normal operation. The repairs were covered under the Division's insurance, but it is annoying to have to redo much of the effort previously put into the installation. Still it is a fact of modern life, lightning and semi-conductors don't mix. As far as we know this is the first major lightning damage to the Dural installation since the property was developed.

The Central Coast Field Day at Gosford on 17th February attracted over 750 to the Showgrounds during the day. The day was overcast with a little light rain at times. The area has good cover so it did not worry anyone. There was a good range of trade displays and the disposals area kept all interested. Congratulations must again be extended to members of the CCARC for the hard work put into this annual event.

A range of 75th material — tee shirts, windcheaters, stickers etc. are available from the Divisional Office during the hours of 11 am to 2 pm on Monday to Friday and Wednesday evenings 7 to 9 pm. (Phone 02 689 2417.) There is the usual wide range of publications, including both USA and Foreign Callbooks. There are no Australian Callbooks left but it is now getting near the release time of the 1985/86 edition — expected in the spring. A reminder that now is the time to make any alterations to your entry. Should it be incorrect, write to the Department at PO Box 970, North Sydney, NSW, 2060 requesting the correction and also send a copy to the Callbook Editor, PO Box 300, Caulfield South, Vic. 3162. The same procedure should be followed when you change an address. When you change a call sign this should be notified to the Divisional Office so that the QSL Bureau, the Historian and the records can be amended.

Repeater groups and clubs are reminded that now is also the time to submit any changes to your details in the Callbook. Check the current edition and notify any changes to the Divisional Office. A reminder to repeater groups that should you intend to make any changes to your present system or wish to develop an additional system you should contact the Divisional Office for the necessary assessment forms. Should you send it direct to the Department delays can occur as all repeater matters are referred back to the Division for co-ordination. Applications have recently been received from Armidale and Coffs Harbour to develop UHF repeaters. Port Macquarie is currently relocating VK2RPM to a site which will provide extended coverage along the coast. Newcastle region have indicated interest in developing an ATV repeater and RTTY systems. There is also interest in a 6 metre repeater. Goulburn are in the licensing stages of a 2 metre repeater. Interest has been expressed from Broken Hill to develop a beacon. It is expected that it will be on 6 metres.

The fires in the Orange district early this year stretched the local WICEN group to the limit and additional support was obtained from the Sydney region. The WICEN postal address is being changed to PO Box 123, St Leonards, NSW, 2065. This was the previous Divisional postal address and like any address is taking a long time to be forgotten. There are still a couple of letters a week being received through it. WICEN have available a range of collared tee shirts. White with green trim on the collar and sleeve ends. $11.50 posted.

Does your group or club plan any field days this year? Early notification will help with publicity. The South West Zone will be holding theirs at Wagga over the October long weekend — the 5th-6th.

By the time these notes appear the Division will have conducted the Annual General Meeting. As the notes are being prepared it is a week from the closing date for Council nominations and there are still plenty of vacancies. Like all Divisions and groups it takes many people to carry out the general day to day running — we are always looking for help.

As outlined in last month's notes this year the VK2 Division is collecting material to form part of a year of history. No matter whether you are new or old to amateur radio there may be something that you can contribute. While it is nice if you can present it in a written form like an article for amateur radio, any form of recording will help retain your information. You may prefer to just write short notes, even speak the items onto a cassette tape, it will retain the information. Should you have a photo or slide collection on radio matters, don't forget to write a description on them. You may remember what the subject matter was but in years to come it can be forgotten. Without it, a good photo is just a pretty picture of unknown subject matter.

Jo Harris VK2KAA is carrying out historical research into VK2 call signs and the people who held them. A questionnaire is available both from her or the Divisional Office. To date she has over 8000 cross-referenced entries but naturally some holes still remain. The basic information required is the date you were first licensed and the call sign. Then the dates of any call sign changes that you may have made up to the present time. You might like to include other details about yourself, areas of interest over the years and a photo of yourself, preferably on your own. If it is a group photo indicate which is you and who the other people in the photo are. In turn Jo may be able to help you if you are the recent holder of a call sign. Drop her a note with a SAE quoting your new call — plus any old ones — and she will advise what information there is about your new call — who held it and when etc. Jo has indicated that she may finish the project this year. She intends to write a short article for AR later this year about her research. You can contact Jo at her Callbook address or via the Divisional Office.

While on the subject of collecting what will become historical material, many clubs and groups produce their own newsletters and bulletin but the Division is not on everybody's mailing list. The Divisional Librarian would like a copy of your publication for the Library records. Please add an extra label to your printout.

13th April — Fireworks night at Dural.

27th April — Westlakes ARC 21st Anniversary Dinner Dance

73 until next month. TIM VK2ZTM

AR

STOP PRESS

Uranga Convention will be held over the Easter weekend, beginning the 5th April. Plenty of accommodation is available.

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

This month I have been contacted by two entirely unrelated sources, regarding one of our best known VK5s. I am talking about Alf Traeger VK5AX/8XT who, if not known by name, is known world wide as the inventor of the pedal radio, which brought communication — medical, educational, and social — to the people of outback Australia. Alf Traeger was born in Glenlee in Victoria (NE of Nhill) on 2nd August 1895 and died on 31st July 1980. A plaque is about to be unveiled in his memory at Glenlee and I was asked if we could provide information regarding his radio activities. The other suggestion came from the Summerland ARC Lismore NSW, and had been sent to the VK2 Divisional Council who had forwarded it to us. The suggestion is that we should do something to commemorate this famous Australian Radio Pioneer, perhaps with a field-day, a contest, a dinner, or something else. So we would like to hear your thoughts on the subject.

This month will be a busy one for members of the Divisional Council and others. The Clubs Convention will be held over the weekend of 12th-14th and once again our grateful thanks to the ladies who give up their entire weekend to do the catering. Our AGM will be held on Tuesday 23rd at 7.45 pm, and I hope that this year we receive a few more nominations. It would be nice to see some new faces on Council (not that we don't like the old ones!), after all, the more people there are to do the work the less we all have to do!! And if you would like to help but have left it too late to nominate, never fear, there are still some "off Council" jobs to be filled (or we could co-opt you!). Two days later our delegates will be leaving to attend the Federal Convention. David Clegg VK5AMK, has found that being in charge of ESC is a full time job (despite the help he gets from John Crawshaw VK5AJE) and so he has decided to concentrate on that and make this his last time as Federal Councillor. Graham Ratcliff VK5AGR will be the Alternate FC but as Graham is already well "snowed-under" with his jobs as Treasurer and Federal Satellite Co-Ordinator, he is also in no position to take over from David. However, Rowland Bruce VK5OU has volunteered to take over the Federal Councillors job, so he will be going this year as 2nd Alternate, to "learn the ropes". Knowing Rowland I think he will be an excellent choice for the job.

AR

VK3 WIA NOTES

VICTORIA 150

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

MORE WANTED!!

A warm welcome to the following who have recently joined the WIA Victorian Division.

L Allen, J Barrett, Arnold Bennett VK3CVG, Ian Bradley VK5PXA, Elizabeth Campbell VK3PTR, Geoffrey Clancy VK3DNJ, I Coots, Stephen Cotterill VK3CSC, Alfred Coupe VK3CQE, Robert Curtis VK3NRC, Mario Dolfen VK3PIW, Douglas Fairbairn VK3DJY, Frank Feldman VK3DAF, J Ferguson, John Friend VK3ZAB, Victor Hearne VK3PXC, Edward Howell VK3ZKP, John Ingram.

Peter Jetson VK3ZMB, Leslie Jordan VK3PYD, R Joseph VK3VRJ, Ronald Knight, A Knox VK3KEK, John Kuhn VK3PJK, Paul McMahon, Stephen McMillan VK3VNI, M Matthews, John Mayor VK3PTC, Leslie Mighalls, Robert Parsons, Raymond Peverill VK3CVP, Tom Peyton VK3XTP, Phillip Portelli VK3AWG, Andrew Power, Robert Rand VK3PTO, Alexander Robertson VK3VTL.

Robert Seal VK3RS, Karl Siegel, Glen Sneddon VK3YY, Mario Surya YC4FS, J Thurman VK3VGX, W Thurman VK3VGY, Charles Warren VK3CSW, Noel Watkins VK3YNW, James White, Kevin White VK3ZI, Charles Whitling VK3AHP, Charles Williams VK3NCW, Maxwell Wroe VK3YMW, Joshua Silberman, Gil Ben-Galim, Joseph Bonavia VK3PHI, John Belenski W7NEJ.

TIME CAPSULE

As part of WIA 75 activities the Victorian Division is gathering material for a time capsule to be opened in 25 years time — the Institute's centenary year.

Any member who would like to contribute material or ideas should give a little thought to what could be interesting to those WIA member's who open the capsule in the year 2010.

SUNDAY BROADCAST

The WIA broadcast on Sunday at 1030 local time through VK3VWI has changed its 40m and 80m frequencies — they're now 7.130MHz and 3.615MHz both SSB.

These changes were necessary to avoid interference from a foreign broadcasting station on 7MHz and to clear 3.600 MHz which is used by WICEN.

Other frequencies in use by VK3BWI are 1.840MHz (AM), 52.525MHz (FM), 144.200MHz (SSB), 146.850MHz (VK3RMM) or 146.700MHz (VK3RML) when VK3RMM is required by WICEN.

CAMPAIGN 3000

The Division ended 1984 with a good level of membership and had a flying start to 1985 boosted by a membership recruiting drive.

Special thanks to those individuals, clubs and zones who have supported the WIA by encouraging others to join the Institute.

Your results are to be seen in the now regularly published new members list appearing in the VK3 notes. See last months AR for the first list.

As an extra incentive a year's free membership will be given by this Division to any member or club who recruits in any seven month period, five new members.

There are two main things to remember when asking non-members to join:

1) The services provided through the Victorian Division for members.

2) The WIA our national radio society supports you and your hobby — you should support it by being a member.

Adequate printed material suitable for recruiting both new members and attracting people to our hobby is available through the WIA Public Relations Officer, via the VK3 Wireless Institute Centre.

WIA 75 AWARD

This award to mark the Institute's 75th Anniversary began last month — see details in March AR magazine.

Listening around the HF bands and repeaters, WIA members in VK3 have been caught up in the spirit of the award and are freely giving their WIA membership number when asked, or are chasing numbers themselves.

To make the award a success, every member should have their membership number ready to exchange.

Even if you've never gone in for award chasing previously, during the remaining nine months of 1985 give it a try and log the required 75 WIA members to qualify for the WIA 75 Award.

RESULTS OF VK3 TWO METRE SCRAMBLES — 1984

The Scrambles are held each second Sunday evening at 8.30 pm on 144.250 MHz USB. Any licensed radio amateur is welcome to take part.

Throughout 1984 51 stations took part in 21 Scrambles. Call signs and total points follow.

Outright winner with a score of 63 points was Rob VK3XQ. He was presented with the Eastern Communications Trophy by Jim VK3PC, VK3 Divisional President. The connector in Jim's hand is a perpetual trophy donated by Lionel VK3NM.

Call Sign	*Total Points*		
		VK3KMA	2
VK3XQ	63	VK3XSA	2
VK3BOD	60	VK3XLH	2
VK3CGH	49	VK3ZLO	2
VK3BBU	36	VK3AEK	1
VK3DSI	24	VK3AKQ	1
VK3YDE	22	VK3CNX	1
VK3ZEO	21	VK3CKD	1
VK3AVA	20	VK3DCA	1
VK3YGO	17	VK3DWM	1
VK3YRP	16	VK3COD	1
VK3BQR	15	VK3DXI	1
VK3BMV	14	VK3GI	1
VK3NM	13	VK3KAQ	1
VK3XBA	10	VK3CGC	1
VK3XDP	9	VK3KTC	1
VK3ZXY	8	VK3KXW	1
VK3XYX	7	VK3VF	1
VK3BH	6	VK3NZ	1
VK3KIR	6	VK3YGU	1
VK3AZY	5	VK3ZY	1
VK3YLN	4	VK3ZFA	1
VK3YYR	4	VK3YWZ	1
VK3BDL	3	VK3ZHP	1
VK3CPC	3	VK3ZYS	1
VK3AQR	2	VK3ZZN	1

Contributed by Peter O'Donnell VK3BOD

AR

VK4 WIA NOTES

Guy Minter VK4ZXZ
FEDERAL COUNCILLOR
Box 638, GPO, Brisbane, Qld 4001

ONE AMATEUR'S 1984

Rob Green VK4KUG, can look back on 1984 with some satisfaction. He started the year as VK4NBJ, studied hard and entered a competition. The prize for the devotion to study was a new callsign and for the competition, a trip for two to Bali in Indonesia. Not only did Rob pass that examination, AOCP theory, he also won the competition, but the story does not end there. He was notified of both his successes on the same day! By chance, all this excitement coincided with a visit by Kanji JA1TBX, to Rob's place of work. Kanji is an electronics engineer and is head of research and development at the Hochiki Corporation, makers of heat and smoke detectors for fire alarm systems, in Japan.

Rob Green VK4KUG tells Kanji JA1TBX about his good fortune.
Photograph courtesy of Bud Pounsett VK4QY.

While Kanji was in Brisbane, Rob took him home to meet his family and sample Australian cooking and our lifestyle. At Rob's home, Kanji was able to talk to his boss, Shoji JN1PEO, and two other friends, a YL, Adachi JN1QNG and Shishida JH1HPH on 15 metres SSB.

So 1984 was quite a year for one Queensland amateur, a licence upgrade and an enjoyable free trip to Bali.

TOWNSVILLE AMATEURS BIG ON PUBLIC SERVICE

With the more common usage of VHF transceivers for the boating fraternity, the Coast Guard found themselves needing to expand their services, and so it was that Barry VK4BH as co-ordinator for this purpose approached the TARC for help. It was ultimately decided to allow the Coast Guard access into our repeater site, and that a yearly rental would be charged.

John VK4AFS and Barry VK4BH did the actual installation of the equipment. Unfortunately there were a few bugs to straighten out, but all went well for the grand opening. In preliminary tests, things were working out very well with one contact with a boat at Cape Bowling Green, and then at midnight the same day from the Whitsunday Passage. It certainly augers well for the future.

At the official opening ceremony, Bob VK4WJ and Jeanette represented the TARC. Bob said later that it was a very pleasant afternoon, with the Mayor, Alderman M Reynolds and Mr Doug Taylor of Philips (Brisbane) performing the necessary ceremony.

Guests were invited to view the ATV being broadcast from Mt Stuart where Ian VK4ZT was transmitting pictures of the actual site, and the equipment and aerials, etc . . .

The actual equipment consists of a UHF link from the Coast Guard to Mt Stuart and the messages are retransmitted on VHF to the shipping. Four channels are available.

From TARC "Backscatter"

PRESIDENT'S REPORT 1984

In presenting this Annual Report I would like to thank first my fellow Council Members for the tremendous work they have put into the running of the affairs of the Queensland Division of the WIA.

Secondly, my thanks to all Members for their continuing support.

In effect, one can say that 1984 was more or less a year of consolidation and learning, since quite a few new Council Members took up their positions for the first time. As Guy Minter VK4ZXZ, the Immediate Past President, stated in his 1983 Report, Council continued to maintain an even-handed approach to its decisions, many of which were guided by the results from the highly successful 1984 Radio Club Conference.

COUNCIL

Your Council Members for 1984 were:
Harold Bremerman VK4HB, Ken Avers VK4KD, Alan West VK4KWK, John Aarsse VK4QA, Bud Pounsett VK4QY, Theo Marks VK4MU, Bill Dalgleish VK4UB, Val Rickaby VK4VR, Ross Mutzelburg VK4IY, Ross Marren VK4AMJ, Hugh Shaw VK4BHS and David Jerome VK4YAN.

Barry Ker VK4BIK, continued as ex-Officio Council member for Publicity and as Convener for the General Meetings.

Others associated with Council were:
Dave Richards VK4UG, Membership Secretary, Gordon Loveday VK4KAL, VK4 Intruder Watch Co-ordinator.

MEMBERSHIP

Membership remained constant compared to the 1983 figures probably because of the fairly bad examination results we've had during 1984.

It appears that very few "students" enrol while studying for their examinations, waiting until they have received their much awaited call before joining the Institute.

A reason for the small growth in membership can also be attributed to present economic climate, with so many of us out of work. A survey, conducted earlier this year, disclosed that many of those interviewed had been members of the WIAQ, but because of unemployment, found it hard to continue.

EDUCATION

There is not much progress to be reported in this field. Ron has been in regular contact with the Federal Education Officer, questioning various aspects of the examination standards. In this, he was ably supported by our Federal Councillor, Guy VK4ZXZ and Ross VK4IY, who took every opportunity to discuss examination matters with Brenda, while at the Federal Convention.

It is hoped that in 1985 we may resume our programme of "Training the Trainer", which was a very successful venture way back in 1983.

OUTWARDS QSL BUREAU

Bill Dalgleish VK4UB took on the job from Mick and Chris Bentley VK4AMB, VK4ABM. He is still at it, so must like it to be able to assist the Institute and its members in this vital part of Member Services.

The new system of including the address label from "AR" with your cards as proof of membership works fine and is a great help to Bill. Saves him going through reams and reams of computer print-outs to check on membership status. After all, you pay for the service indirectly and it would be a shame if someone else bludged on you.

INWARDS QSL BUREAU

Dr Murray Kelly VK4AOK, and his band of helpers have a very difficult task to perform. Although many complaints have been received, one must not forget the following:

(a) The number of licensees changing their call sign in a very short period of time is very high indeed. Considering the fact that many overseas QSL cards take up to two years to arrive in Brisbane, imagine the traumatic experience to go through one, two or even three year old callbooks to find out who belongs to what card.
(b) Despite numerous requests for updating of new calls, with the inclusion of the previous call, very little response was forthcoming.
(c) As a suggestion, if you are a member of a radio club, or if you live near an area with a radio club, why not ensure that your QSL card from overseas also includes your QTH. This will make life of sorting the cards by QTH much easier and speedier. Certain overseas QSL bureaux actually make this a mandatory requirement.

NEWS AND INFORMATION SERVICE

This very important service is very well maintained by Bud and Bonnie Pounsett VK4QY and his (x)YL, and Jack Gayton VK4AGY, with his faithful band of helping rebroadcasters. The call back lists are steadily growing, an indication that more and more take the trouble to notify net control that they have listened to the "News". Our News Service reaches beyond the boundaries of VK4-land, as many of the HF call backs show.

Besides correlating the News, Bud also prepares the VK4 notes for *Amateur Radio* and *QTC.*

PUBLICATIONS

Anne Minter VK4KZX continued to manage the WIAQ Bookshop. Although there appears to be a drop in the number of students, the sale of books continued to maintain a steady flow. There are a few problems in receiving books from overseas, mainly in the area of Custom clearance and collection from the wharves.

Even the "bookshop" is hit by the present economic situation. Many prices will have to be increased in 1985, due to the unfortunate fluctuations of the Aussie dollar. Sales through the clubs have increased to the extent that the bulk of sales is now done via the clubs.

INTRUDER WATCH

This is a typical "Churchillian" department.

The sweat and blood of so few in defence against so many intruders.

It is often said that we are fighting a losing battle. This is correct, because there is just not a battle going on. Just a few little "Davids" against all those "Goliaths" and a lot of non-participating spectators. What can you expect? All the same, the Intruder Watch Service does get results. It is only with certain stations that problems exist.

VHF/UHF ADVISORY COMMITTEE

1984 saw a small change in this Committee. Ross VK4AMJ was the Council liaison officer, with Paul VK4ZBV and Brian VK4RX the principal committee members. Some minor problems were encountered but, generally, all questions and requests were more than adequately dealt with.

HISTORIAN

Due to family commitments, Peter Brown VK4PJ tendered his resignation as Official Historian of this Division. Council accepted this with deep regret as it leaves a gap which can be filled with great difficulty, specially since Peter "specialised" in the field of amateur radio prior to 1930.

The material that Peter collected through the years has now been stored in a special store room, accessible only by two Council members, so if anyone has material of historical importance, please contact Council. This material will eventually be taken over by the proposed Technology Museum. Certain negotiations have already commenced and are continuing.

The period after 1930 is the "baby" of Alan Shawsmith VK4SS. He is continuing the good work of Peter by providing AR with regular Thumbnail Sketches of pioneer amateurs from 'yesteryear'.

During the latter part of 1984 Alan undertook to compile a history of amateur radio in Queensland as part of the 75th Anniversary contribution of the VK4 Division.

AWARDS

John Moulder VK4YX continues to be the VK4-Award custodian and reports that there was a slight increase in applications. Many interstaters are becoming interested, so are quite a few overseas amateurs. It's a very difficult award to gain.

CONTEST MANAGER

Joe Ackerman VK4AIX still looks after the VK4 contest side. The 1984 Jack Files Memorial Contest drew this year many more log entries than ever before. This is a good sign and bodes well for 1985.

WICEN

Ken Ayers VK4KD continued as State WICEN Co-ordinator for the fifth year running and reports that the North Queensland Regions were called out by SES on a number of occasions to assist with extra communications.

In the Southern Region, Ipswich took part in an exercise with their local SES and performed so well that they have now become an integral part of SES Ipswich CD plan. The Gold Coast area and the Southern part of Region 4 also participated with SES on a number of occasions. Various events during the year kept up tne operational expertise of WICEN members to a high degree of efficiency.

Final preparations have been made to a WICEN Handbook for VK4 WICEN operators and the publication should be ready in 1985.

We thank the VK2 WICEN organisation for their assistance in using their handbook as a guide.

TREASURER'S REPORT

This Report will be issued separately. The figures are all well within budget and Ross Mutzelburg VK4IY is to be congratulated for a job well done.

It is with regret that Council accepted Ross' resignation with effect as from the 1st of January 1985.

Thanks for a sterling job, Ross.

RADIO CLUB CONFERENCE

Under the firm hand of Dave Jones VK4NLV the 1984 Conference proceeded smoothly and, as usual, provided your Federal Delegates with much needed support.

It is gratifying to learn that the VK5 Division has had a "trial" Club Conference in 1984 along the lines of our own Conference.

Being one of the original instigators of the original concept of the Radio Club Workshops, way back in the middle '70s, I am very proud with the way this concept has developed. Perhaps, in the not too distant future, this Annual Conference may achieve the same "power" as the Federal Convention, albeit on State level, along modified lines of the famous "Arnold Report".

This year's Conference was honoured to have as its special guest the new Secretary-Manager of the WIA, Reg Macey.

I understand that his impressions of the Conference were very favourable.

FEDERAL REPRESENTATION

On behalf of Council and Members I would like to express my thanks to Guy VK4ZXZ and Ross VK4IY for the tremendous amount of work they have done to present this Division's viewpoint to Federal Executive and the other Divisions.

The 'easy' days of yesteryear have gone and the present requires a business-like approach to the many problems confronting the amateur fraternity in this day and age.

Our relations with Federal Executive are very cordial and our approaches are always attended to in a most effective manner.

THE FUTURE

The immediate future, 1985, will be devoted to the celebration of the WIA's 75th Anniversary. Some plans are in the process of being executed, others will be announced as the year continues.

On an international level, it appears that WARC 1999 may not be WARC 1999, but instead, could well become WARC 1990. Thus the time is NOW to get ready for this all-important conference. The future of amateur radio depends on the co-operation of all amateurs to achieve what we would like to have. WARC 1979 proved that, in no uncertain terms.

CONCLUSION

Due to circumstances beyond my control I was not able to visit many clubs, as much as I would have liked it. So, clubs, specially those in the regional centres, please accept my apologies.

Finally, I would like to thank you all again for your support — the Members, the Clubs, Department of Communications and my fellow Council Members.

May 1985 be even more successful than 1984.

Signed: John Aarsse, VK4QA
President, VK4 Division
AR

THUMBNAIL SKETCHES

Alan Shawsmith, VK4SS
35 Whynot Street, West End, Qld 4101

ARTHUR R BURTON VK4FE (SK)

The life of this amateur typifies the Australian way more than most. He was certainly prepared to give anything a go — and go anywhere to do it! Arthur VK4FE obtained his AOCP in Brisbane in the year 1936; he operated firstly from the Valley and then from the suburb of Dutton Park. His main interest in AR was DX which he worked aplenty.

During WWII he enlisted in the AIF (15th Div) and saw action in the Middle East, Greece and Crete. When Warrant Officer Burton was being evacuated from Crete his ship the HMS York was bombed and sank. Seeing the white ensign still flying at her masthead, he swam back and retrieved it — an act typical of the dare-devil Aussie soldier. The battle-scarred flag, 16ft x 18ft, was subsequently donated to the Navy and hung in the Petty Officers Mess, Alice Street, Brisbane.

After his discharge from the Service he joined the PMG Department, then in 1949 he successfully applied to be a member of The National Antarctic Research expedition to Heard Island. His official tasks were those of W/O and maintenance of all diesel and other machinery. This work load was considerable. The gourmet may be interested to know that the tinned food diet on Heard Island was supplemented by the delicacies of liver and steak of sea elephant, the breast of petrel and skua bird and penguin eggs. The latter are about the size of a turkey egg and, to the palate of VK4FE, tasted similar to a hen's egg. The bondwood huts were twelve sided double-walled in construction, in order to offer maximum resistance to the wind. During the height of a blizzard it took a quarter of an hour to crawl between huts.

Arthur was the first Australian amateur to venture into the Antarctic and anyone holding his QSL for this sojourn to Heard Island now possesses a collector's piece. On his return to VK he took up the position of PMG Broadcast Technician on Thursday Island and shortly after was transferred to Normanton on the Gulf of Carpentaria, where he remained until 1964.

VK4FE retired to the Gold Coast where he played an active part in organising the Coastguard. He was a member of the Gold Coast AR Club and remained active on the bands right up to the time of his death on 30/11/82. He had an endless variety of tales to tell; the fraternity is the poorer for his passing.

AR

JACK FILES VK4JF (SK)

Who was Jack Files? It is only natural that those fairly new to amateur radio would want to ask this question about one whose name is perpetuated by a yearly contest.

Jack VK4JF obtained hia AOCP in 1933 and from that time until his death on 20th July 1968 (WWII excepted) he was engaged in honorary duties of one kind or another for the WIA (Old Div). Pre-1939 he held more than one council position; one of his early tasks was to write the WIA notes for the very popular weekly "TELERADIO" magazine and there is also reference to his position as code instructor in the AOCP classes.

When the Institute was re-formed post-war, he was again elected to council and in the year 1949 became Inwards OSL Officer for the VK4 Division. Eventually he was responsible for both VK4 QSL Bureaus (Inwards and Outwards) and he discharged these tasks with considerable efficiency and reliability for well over a decade and a half. The job of librarian was another of his many services to the fraternity.

VK4JF's personal amateur activities centred largely around DXing — mostly on CW. However, he always found time to compete in field days and contests of the day.

By nature Jack was an amiable, unassuming type of person, one who lived up to the 'amateur code' in every way. It is only just and right that the VK4 Division saw fit to organise a yearly contest to honour the memory of one who gave thirty-five years of unselfish service to the Institute — and with no thought for his own gain.

May the Sunshine State Jack Files Memorial Contest (VK4) grow annually in strength. I urge all to pay their respects by participating. There's a section in it for everyone. Good Hunting!

AR

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

NO NOVICE

May I point out that one of your articles in Amateur Radio stated that there was no novice classification in America?

I received a letter stating that they have five classes — Novice, Technician, General, Advanced and Extra.

Novice and Technician allows only code CW on 180 — 10 metres frequencies; these two classes can use 80, 40, 15 and 10 metres MCW. Technicians can use 2 metres.

Yours faithfully,
Alf Gover, VK4NAD
42 Salisbury Street,
Buranda, Qld 4102
AR

UNWARRANTED AND SHAMEFUL

Recently I made a purchase through "HAMADS", having been assured (interstate telephone call) that the item was complete and in working order. On receipt of my purchase, a dipmeter, I found one coil was missing.

I contacted the seller only to be told that the value of the missing part was about 10¢ — not worth the 'phone call. On reminding him of his earlier assurance that the instrument was complete, he became somewhat flustered and ruffled, suggesting I could easily make such a coil.

When I pointed out that I was a newly-licensed novice with no expertise in instrument construction, he bellowed "p... off" and replaced the receiver.

I can only conclude this unwarranted and shameful outburst was triggered by a guilt complex, based on a planned disreputable and unprincipled transaction.

Sincerely yours,
Frank Walsh
74 Hawthorndene Drive,
Hawthorndene, SA 5051
AR

DO YOU REALLY WANT MORE AMATEUR RADIO OPERATORS?

Last year, with encouragement from my wife, I studied for and obtained my limited call.

After the ignorance shown to me on the Adelaide 2m repeater both of us wonder why I bothered.

I thought I only had to pass the DOC examination to join the "friendly" amateur fraternity, but there appears to be some other requirements needed to join the "drive time radio group" who monopolise this repeater.

After studying the operating conventions of repeater use, I called every day for a week, including seven times in one day. Not one of the many VK5 operators deemed it worth their while to welcome a new operator.

I point out to this group that 2m is possibly the first contact a 'Z' call will have with other amateurs. If you do not want any more amateurs — so be it. But by your attitude you have wasted my time, and undermined the efforts of the WIA Education Department.

To those people reading this and saying to themselves, "It is different on HF", I point out that most of the group of which I refer, are full calls and I cannot see that changing their frequency is going to change their attitude. Please correct me if I am wrong.

Perhaps I should have given up and sold my equipment, but I suspect others before me have done just that, and that is why the situation now exists.

To those inactive operators who still have their trusty handys, I say dust them off and show me and possibly a few other disillusioned operators how amateur radio is indeed a friendly hobby.

Before I am admonished for daring to question the status quo note that I care enough for my hobby to write this letter.

Finally, to those few gentlemen still with the spirit of amateur radio at heart, who answered my calls and in so doing, made me feel that this letter is not a waste of time, I thank you.

Yours faithfully,
B R Scholz VK5ZSB
39 Longview Avenue,
Belair, SA. 5052.
AR

RECOGNISE THE RIGHTS

Referring to the letters from Dave VK2BBT (Sept 84) and Sam VK2BVS (Feb 85) and EMC in general.

The survival of the international agreement which allocates spectrum space for amateur "research, investigation and instruction in the art of radio communication" and the supporting national laws and regulations to ensure proper useage of the allocated space is proof that communities continue to recognise the "rights" of radio amateurs.

We are often reminded that ignorance of the law is no excuse and those citizens who are ignorant of the laws applicable to the operation of amateur operations should not be excused. Amateurs who take the trouble to explain to a complainant the proper procedure for them to obtain redress of their complaint are behaving generously and commendably but they well do their fellow amateurs a disservice by extending their generosity to a suspension of operations beyond the time required to prove that their transmissions are within lawful limits (a fortnight should be enough).

Amateurs have contributed significantly to the development of techniques to immunise electronic equipment from unwanted radio reception, and application of these techniques now ensures a high degree of probability for a successful remedy for any EMC problem. It is now up to the non-amateur citizens to exercise their "rights" as consumers and demand that adequate immunity to unwanted radio reception be a legally enforceable performance characteristic of radio and TV receivers and other electronic products.

The use of higher power amateur transmitters does not pose insoluble spectrum management or technical problems and we should not evade the challenge (new challenges are a bit "light on" these days).

Yours faithfully,
Lindsay Lawless VK3ANJ,
Box 112,
Lakes Entrance, Vic 3909.
AR

FAKE!!!

I would like to draw all amateurs' attention to the fake antenna matcher "Maxcom" which is made in the USA.

This unit performs as a good dummy load. Refer QST, November 1984, pp 53 & 54.

BEWARE.

Yours faithfully,
Geoff Campbell VK2ZQC,
279A Victoria Place,
Drummoyne, NSW. 2047.

EDITOR'S NOTE:

The product review by QST describes in detail the sealed and potted construction of the four Maxcom models rated for 200, 500, 1000 and 2000W PEP. External electrical measurements, supported by Xray photographs, show the units to be toroidal balun transformers shunted by high power load resistors. SWR was measured as better than 1.4 on all bands to 30 MHz, with no antenna connected! At prices from US$600-1000 these are expensive dummy loads.

AR

BE HEARD!!!

I heartily support Sam Voron VK2BVS in his letters in AR regarding higher power for amateur novices even though page 50 of the February issue indicates the Federal WIA does not support the matter.

If we are looking for more members for our WIA institution then this attitude by the Federal body needs to be remedied so that they represent all amateurs —novice and full call alike.

It is up to all amateur novices to write to their delegates for this concession to be presented at the next convention on the 26th-28th April as well as access to 2m operation on a similar limited basis we as novices enjoy on restricted bands.

After all, our USA counterparts, with many more amateurs, have had their power limit extended, then why not Australia?

Considering our remoteness in the world today, more power in DX competitions must encourage more people to enter amateur radio as well as assist the amateur novices.

73,
R A Davey VK6NND,
12 Lillian Street,
Cottesloe, WA. 6012
AR

SOUTH AFRICAN 6 METRE AURORA PROPAGATION TESTS

Tests stopped at the end of November 1984 but will be continued from the beginning of March 1985 until May. They will again be conducted from 1700 to 1900 UTC every night of the week and special skeds on Friday and Saturday nights from 2200 to 2400 UTC. We will concentrate mostly on the six metre channel of 50.600 MHz but will try two metres if the conditions are suitable. There are four coastal regions which will participate and each area will transmit, for a period of 15 minutes, a beacon signal with their identification. For example, Durban region will transmit during the first 15 minute period of the hour, followed by the East London region, and at half past the hour, region Port Elizabeth will take over until quarter to when the Cape Town region will complete the final 15 minute slot. This process is repeated during the next hour. We are of course all beaming towards the magnetic South Pole. So far we have heard the other regions on (1) Meteor Scatter and (2) on Backscatter after midnight. We have already heard signals from ZS2CO of East London, on (3) what we believe to be traces of Aurora signals with very deep ripple. These signals we have only heard after midnight on a few occasions when Aurora activity was present at the South Pole.

Any interested amateur may contact me directly. We are also interested in conducting direct skeds on other forms of propagation on say 50.100 MHz CW or SSB, over weekends, ie Saturday and Sunday mornings between 0400 to 0700 UTC. Times will be arranged with interested parties.

Mike Bosch ZS2FM
PO Box 1614,
Port Elizabeth, 6000
South Africa

PS The group consists of ZS1ABD, ZR2EC, ZS2BE, ZS2CO, ZS2FM, ZS2NR, ZS2OD, ZS5AV, ZS5CU, ZS5QM etc.

AR

ATTENTION OLD, OLD TIMERS

I am a radio astronomer and historian of science currently writing a book for Cambridge University Press, based on a decade of research, on the early development of radio astronomy. Some draft pages give the story of the important role in the discovery of the radio sun which amateur radio operators, particularly in England, played during the late 1930s. During the solar maximum of 1935-7, many of them,

in particular Denis Heightman G6DH, studied the strange hiss often associated with the newly recognised phenomenon of sudden shortwave fade-outs. Although these studies convinced them that the sun was somehow responsible for the hiss, their antennas lacked the directivity required to demonstrate that the shortwave radiation was being emitted directly by the sun, and that it was not a secondary effect, say, of particles from the sun. It was not until World War II that James Hey, in embattled England, finally did (accidentally) make the definite discovery of radio waves emitted by a great solar outburst in February 1942.

I am writing to ask whether readers of Amateur Radio could send me any further information on detection and study of this hiss before World War II, in particular for the previous solar maximum in the late 1920s, when I have heard that the hiss was indeed picked up by amateurs, but I have no specific citations or other testimony. (By the way, R A Ham [this is his real name!] has written an interesting article on the work of Heightman and other amateurs: "The hissing phenomenon", J Brit, Astronomical Assn 85, 317-23, 1975.) I would appreciate it very much if readers send any information, in particular from the late 1920s, to me. Thank you very much for all assistance.

Sincerely yours,

Woodruff T Sullivan, III
Associate Professor of Astronomy
University of Washington,
Seattle, Washington, 98195, USA

AR

CONSIDERATION

I am anxious to see what feedback you get from readers of AR to this letter.

Because of the microscopic print you are now using in Amateur Radio, I am unable to read the magazine without the most extreme eye discomfort.

This debars me from valuable technical information, interesting articles and information from advertising.

I quote as typical examples from the December issue (1) The Annual Index pages 42-43 (2) the ICOM advertisement page 23.

Your earnest consideration of this problem would be greatly appreciated.

Yours truly

N A Loflman VK2APL,
27 Low Street,
Mount Kuring-gai, NSW, 2080

AR

PUTTING THE AWA MTR-25A ON 52.525

The article in November AR, page 17, I feel can be simplified. Following is my article from "QRM".

Firstly if you mix on the high side the oscillator chain remains unchanged.

By placing additional capacitors across the originals it saves the problem of removing the existing ones.

Apart from that the article was very good.

In no way do I wish to criticise the original by VK3ANP. There are approximately 20 sets operating along the NW coast of VK7 on 52.525 MHz.

73,

Joe Gelston VK7JG,
Box 1311,
Launceston, Tas, 7250

These radios are available for around $15.00. With about one hour's work you can get them going on six metres. If you are not familiar with the set, you will need a handbook. The receiver will go as soon as it is modified. However, the transmitter is a little off tune and will require a test meter to tune it correctly. The receiver oscillator remains unchanged, ie mix on the high side. If possible, check the radio before modifying it as a lot of them are U/S. Fit an additional 18pF capacitor across C2, C8, C11, C16, C18. Increase coupling capacitors C10 and C17 to 3.3pF. Replace the RF head and the radio should work.

The transmitter takes a little longer but is just as simple.

$f_{xtal} = \frac{f_e}{24} = \frac{52.525}{24} = 2.18854$ *spec D63.*

Receive xtal $= \frac{f_e + 10.7}{2} = 31.6125$ *spec D66.*

Fit a 220pF capacitor across C6, C21, C22.
Fit a 33pF capacitor across C13.
Fit 100pF across C26.
22pF across 12BY7 grid coil.
10pF across 12BY7 plate coil.
18pF across 12AQ5 plate and grid coils.
10pF across 6883B grid coil.
Rewind plate coil to 10 turns.
Align radio as per handbook. The receiver should receive .5 μV for 20dB quieting. The transmitter power is 20 watts at 13 volts for 150mA plate current. Adjust deviation to ±5 kHz.

AR

QSP

YOU ARE A RADIOAMATEUR

You are having a trip or planning a stay in New-Caledonia.

You would like to get a temporary amateur station licence.

For any information please contact the Telecommunications Exploitation crew, Post and Telecommunications Office of New-Caledonia, 14 Edouard Glasser Street, Motor-Pool — NOUMEA.

AR

NEWS FROM AUSTRIA

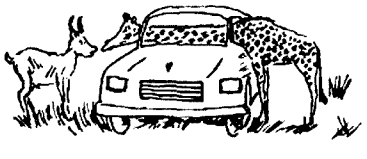
The OVSV reports changes to the amateur radio regulations for Austria.

1. **Operation on the 160m band:**
   Additional allocation from **1.850-1.950 MHz** on sec basic, max output power 100 watts, restricted for A1A (CW) only. This new allocation is presently terminated by end of 1985.
2. **Additional allocation** between **2305-2320 MHz** on sec basis, terminated by end of 1988.
3. **Additional allocation** between **10.368-10.370 MHz** on sec basis, power limitation 40 dBW. Operation terminated by end of 1988.
4. Operation-permission for licensed radio amateurs without CW examination on the 2m band between 144.025-144.100 MHz for training purposes only. This regulation is terminated as a test-phase by the end of 1985.
5. According to the recommendations of IARU region 1 conference — Cefalu CW identification on the beginning and the end of RTTY, FAX and SSTV transmission is no longer obliging.
6. For **mobile operations** on frequencies higher than **30 MHz** a **simplified** form of the **log-book** is permitted. The simplified form **has** to contain:
   (a) Used frequency band
   (b) Route or operation area
   (c) Begin and end of the mobile operation.
   All other information may be omitted. This rule does not apply for portable operation or operation from a fixed location.
7. The use of radio amateur equipment with a nominal frequency range from 143.400-148 MHz is now permitted. Any operation (transmit and receive) outside 144-146 MHz is **strictly** prohibited.

Dr Ronald Eisenwagner, OE3REB
President of OVSV

AR

NOTICE



ALL copy for inclusion in June 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 22nd April.

Silent Keys

It is with deep regret we record the passing of —

PETER B DODD		VK3CIF
	04.03.85	
GEOFF FREW		VK3PM
	8.12.84	
JACK GRUBB		VK4IZ
	26.12.84	
SHIGETAKE MORIMOTO		JA1NET
ALEX MURRAY		VK2FM
	23.01.85	
GEORGE NAFTZINGER		W4PPC
DON TAYLOR		VK5DX
	21.01.85	
K E WILSON		VK5YZ

Obituaries

GEOFF SAMUEL VERNON FREW VK3PM

Geoff passed away on 8th December 1984 after a long illness. He will be sadly missed by all in the amateur fraternity and his many friends in the electronic industry.

He was first licensed as VK3PM on 24th April 1928. Geoff was a dedicated experimenter and in 1928 won a contest run by the Victorian Radio Transmitters League for experimental work and communication on 10 metres. In 1928 10 metres was virtually unknown and to work over long distances was quite an achievement on this band.

During WWII Geoff was a design engineer in the Special Products Laboratories of Radio Corporation developing equipment for the Army and Air Force.

manufacturing specialised equipment for industry and Government Departments. During the early 1960s the CSIRO licensed him to develop and market their world-wide patents for Atomic Absorption Spectroscopy.

Geoff retired from an active business life in the early 70s and in co-operation with the Australian Academy of Science founded the Geoffrey Frew Fellowship to provide for a noted fellow to visit Australia every 18 months to present scientific papers on physics and chemistry.

Geoff did not renew his amateur licence after the war, until 1969, with the callsign VK3JK, but on 4th August 1971 he regained his original call of VK3PM.

His great interest was experimenting — concentrating on antennas and feed systems. He gained much satisfaction in practical tests on air, particularly on the ANZA net on 21MHz.

Geoff was a gentleman and a brilliant and practical engineer who always found a solution to any problem. He was a wonderful person to work with, ever helpful and patient in giving help and information to the team.

Sincere sympathy is extended to his wife Thel and family.

John Heine VK3JF
AR

FREDERICK ALEXANDER MURRAY VK2FM

It is with deep regret to advise the passing of Alec VK2FM on 23rd January 1985. Alec was born in Scotland on 26th September 1907. At the age of nine, he journeyed to Australia with his family and settled in Melbourne, where his father took up a senior position with Metropolitan Vickers. Like many young boys of that era, Alex experimented with wireless.

Alec then settled in Sydney in the Mosman area and took out the call sign VK2FM. For many years, he was CW only. After a jibe from the late VK2BG Bruce, Alec then built a modulator. From that time on, he was almost exclusively phone. His voice was well known overseas, particularly in the USA.

Alec built a home and settled in Carramar. Soon afterwards, it was followed by the erection of a tower and a 2 element beam and the DX hunt was on.

After retiring from work, Alec finally moved to Blayney. A tower and beam were built and back to DX again.

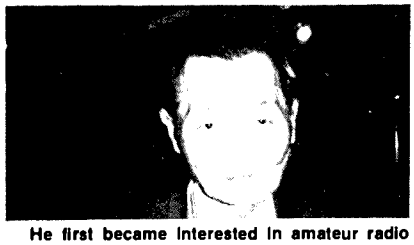
To Emily, Ronald and his family, brother Doug and sister, Olive, all of Alec's friends extend their deepest sympathy.

K J Ledsam, VK2ST.
AR

SHIGETAKE MORIMOTO JA1NET

It is sad to report the passing of Shigetake Morimoto at the age of 77.

He was one of the IARU observer team at WARC 79, helping the IARU team achieve success at the Conference. He also participated in the second Regional Conference in Tokyo 1971 and the fourth in Bangkok in 1978.



He first became interested in amateur radio during his high school days in the early 1920s. He took part in the foundation of the JARL in 1926.

During the past decade he made considerable contributions to the promotion of amateur satellite communications in Japan, acting as president of JAMSAT and chairman of the JARL satellite committee which has been playing a very important role in launching the JAS1 satellite planned for early 1986.

He was an internationally minded person. He participated in several CCIR meetings in the 1960s and 1970s and was Japanese delegate at WARC 59 and WARC in 1971.

His contribution to CCIR was such that he was one of the recipients of a special award that was presented as part of the celebration of the Fiftieth Anniversary of CCIR.

The amateurs of Region III have lost a great contributor to amateur radio.

David Wardlaw, VK3ADW
AR

GEORGE NAFTZINGER W4PPC

George's on air enthusiasm and daily example contributed to the development of the Australian Traffic Network and received a commendation from President Reagan for initiating and maintaining the International Assistance and Traffic Network. George W4PPC became a silent key on 5th February 1985.

George through his activities has had a big impact on Australian amateur radio because his daily example 1981-85 had shown many how one can enjoy one's hobby and help others at the same time. He would telephone the US State Department and the Office of Disaster Assistance whenever a problem struck some part of the world and offer the facilities of amateur radio. When hurricanes hit the Caribbean, during the Grenada crisis and when communications were cut to El Salvador, George and the net were there.

Many Australians will remember George because his net was the gateway for daily US, Canadian and Australian third party traffic over all those years.

George initiated the first Simulated Australian Emergency Test which has become an annual event for evaluating emergency message handling capability within Australia and with the US and Canada. George also arranged for Australia to be involved in the US National Communications System exercise which resulted in the ARRL and NCS including amateur radio in the national US emergency communications plan.

He will be remembered by all of his friends on the ATN.

Sam Voron, VK2BVS
AR

DON TAYLOR VK5DX

It is with deep regret that we announce the passing of Don Taylor VK5DX on 21st January 1985 after a long period of failing health which culminated in a stroke. Don had not been on air for approximately 10 years due to a loss of hearing.

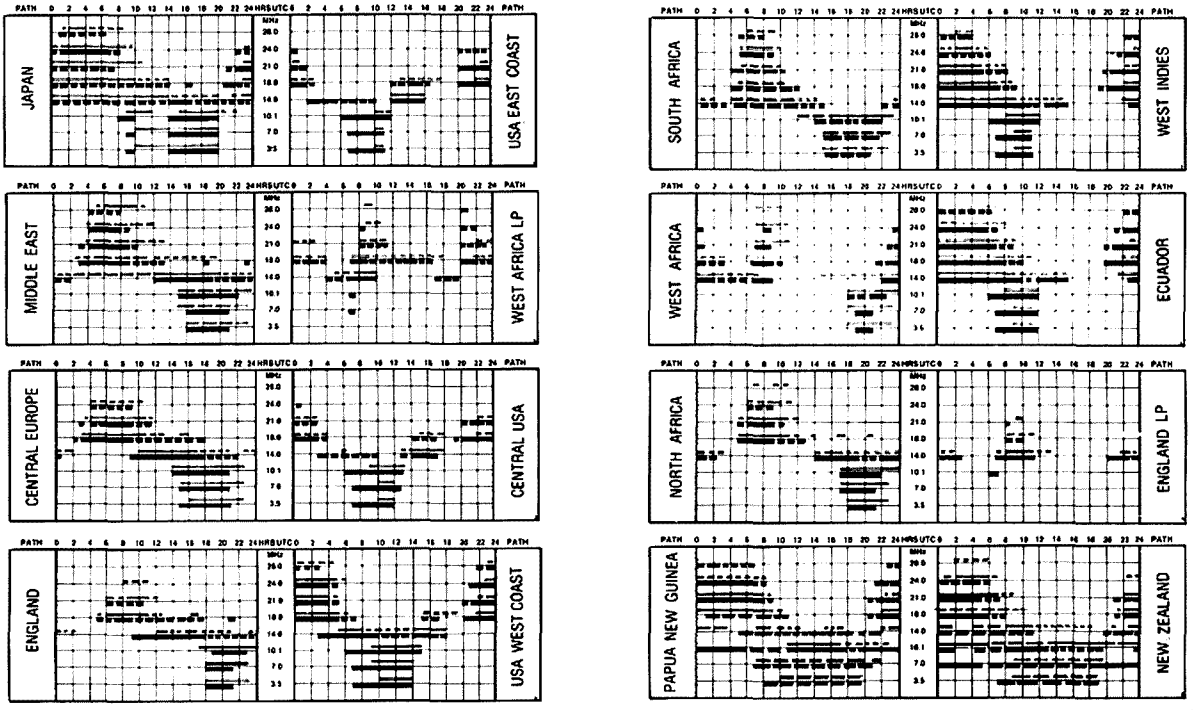
He was licensed sometime prior to 1932 as VK5DX, and was one of a group of amateurs who broadcast programmes, including playing records, on the broadcast bands. Even in those days he was known as "the voice in the Black Forest" (Black Forest being the suburb of Adelaide where he lived and not the "rare DX" that many hoped they had found when they heard him!) and the title stayed with him for the rest of his life.

In April 1932 he was nominated to the VK5 Divisional Council and in May that same year was appointed 'Official 200 Metre Publicity Officer'. He held the title of Technical Director in February 1933 but resigned in July '33. Don is survived by his wife and five children.

Jenny Warrington VK5ANW
AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



Bill Plans His Project

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

All things considered, Bill Blitheringtwit now felt he had accumulated sufficient bits and pieces to enable him to get busy and build himself a brand new super duper power supply to replace the old one which, owing to the injudicious application of a glass of beer, was now defunct. He knew where to find the case: it was still lying underneath his workbench and still contained the shrivelled remains of some beetroots he had pulled up several years before and then forgot where he had put them. The rest of the items were scattered here and there amongst the general junk, but shouldn't be too hard to lay his hands on.

The only thing was that he was not too happy about these transistor devices. They looked so small and helpless, compared with the good old bottle, as he referred to valves. With a bottle you could do all sorts of horrible things to it and it wouldn't complain. And Bill could truthfully say that he had certainly put his bottles to a severe test over the years. But a transistor . . . He had heard that they were rather fragile, like Dresden china, and didn't like thinks like a bad SWR, or too much heat. Bill wasn't sure he could quite cope with this.

For Bill was "a full power at all times man". You hear them on the bands occasionally, particularly on the lower frequencies. To reach a station only a few miles away they use 400 watts and turn up their speech processors so as to make their voices almost impossible to distinguish from speaking into a milk bottle. On each side of their frequency for some considerable number of kHz it is impossible to insert a humble call sign because of the frightful splatter. They talk constantly of the number of years they have held their licence and mumble (if you can understand them) of current licence holders, who took the multi-choice exam, getting their licences with the aid of the appropriate number of Weetie packet tops.

So Bill, who was also a "tuner upper" on full power, was not sure how he would go with a power supply functioning with these new fangled transistor things. He knew that if you gave them plenty of heat sinking you were usually OK, but he had not forgotten the incident with the 120S some little while earlier. This unit he had borrowed for a couple of nights, after giving an assurance that no harm would come to it. In the brief time he had the device, Bill had managed to turn the finals into smouldering wrecks, merely by dint of prolonged and persistent tuning into his apology for an antenna. Such tuning, it should be mentioned, was bang over the top of a weekly net, which did not appreciate this at all and must have been relieved when the poor little 120S eventually expired.

Anyhow, Bill, if nothing else, was a trier and even he realised that valves were really things of the past, dearly as he loved them for their sweet and forgiving nature.

Then there was the regulation system. The puny device handed to him at the Richard Smith emporium didn't look capable of regulating anything! His old power supply had one that used to turn a lovely shade of blue when things were going well! This miserable object with its three spindly legs didn't look able to stand up by itself, let alone anything else!

All the same, Bill was determined to have a shot at putting all these ineffectual components together and to build himself a modern and up to date power supply so that he could once more get on the air and call up his cronies. That is, when they were available, for the air had a habit of mysteriously going very quiet whenever Bill hit his microphone button. He made a mental note to find out some time why this was so, although, at present, the reason quite eluded him.

Climbing into his oldest overalls, Bill set about gathering the bits to begin his newest project.

HELP US TO HELP YOU OR THE TWENTY QUESTIONS GAME!!!

Information is now being sought for alterations and updates to the 1985-86 WIA Call Book.

Is your call sign, name and address correct in the current issue?

Do you know an amateur who is not a member of the WIA whose information is incorrect?

Is your radio club or group information correct — not only in the call sign listing but also in the Club Directory?

Has your club or group any planned activities which could be entered into the Calendar of Events or are the awards managers/addresses of you club correct in the Awards pages?

If you are a member who requires your information suppressed from the call sign listings it is beneficial and preferable to re-submit your request, stating your call sign and the information to be suppressed. Please use a large sheet of paper — A4 or similar — as small shopping notes have a habit of becoming mis-placed or lost in the large volume of paper work concerning the Call Book.

Don't leave it to SOMEBODY ELSE — act now. All information is required by the last day of April at the Federal Office.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

□ WANTED — ACT □

SEMI AUTO BUG — OK 100 or similar. Reasonable price please. Tel: (047) 36 1969. 8am-8pm.

□ WANTED — VIC □

OLD WIRELESS SETS. Parts and books before 1939 for historical restoration purposes. Genuine collection for Geelong Radio & Electronics Society Museum. Contact Bill Bond VK3BWS, QTHR. Tel: (052) 93 337.

DRAKE SPR-4 or R-4C COMMUNICATIONS RECEIVER. Reasonable price or will swap for Icom IC-R70 new in box. Tel: (052) 48 1410 AH.

FT-221 VHF TRANSCEIVER. Details, price & condx to Craig VK3CMC ex VK3KCC, QTHR. Prefer Melb area for inspection & pick up.

RADAR COMPONENTS. ASV, Rebecca, Eureka, Oboe, ASB, APN-2, Tailend Charleys, H2S, Orange Putter & assoc radar components & handbooks. Tel: (03) 337 4902.

TRANSVERTER. Dick Smith K-3134 80-11m. Cheap for aspiring novice. Condx & price to Jeff L30409, QTHR. Tel: (03) 546 3940 AH.

□ WANTED — QLD □

ARTICLE which appeared in QST December 1982 on MUF predictions. Contact Charles VK4AKE, 43 Sussex Street, Hyde Park, Townsville, Qld 4812. Tel: (077) 71 2254.

CONVERTER FOR KENWOOD TS-520S. DS-1A, DC-DC. Colin VK4NWP, QTHR. Tel: (07) 356 9816.

PENDAGRAPH HANG-DOWN MOVEMENT SEMI-AUTO (BUG) MORSE KEY. Will pay good price. Also a Buzza product bug key. VK4SS, 35 Whynot Street, West End, Qld 4101. Tel: (07) 44 6526 before 10am.

TEKTRONICS 543A OSCILLOSCOPE MODULE INSERTS. Details to John VK4SZ, 10 Tulip Street, Innisfail. Tel: (070) 61 3286.

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CONVERTERS for SSTV to fast scan & vice versa. Commercial or home brew. Working or not. Roly VK6OZ, 51 Westwood Street, Bunbury, WA 6230. Tel: (097) 25 8066.

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FT-107 TRANSCEIVER, ext VFO, CW narrow filter & YM-38 desk mic. Very good condx. $900 ONO. Richard VK1UE, QTHR. Tel: (062) 58 1228.

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GELOSO G4/225 TRANSMITTER. CW, SSB, DSB, AM, 80-10m. Large illuminated dial, with spare valve. $120. Geloso 94/216 rx. 4 xtals, preselect, phasing, S meter. An excellent comms rx with spare valves. $150. Monitorscope Yaesu YO-100 with leads etc for aligning. Full information. $150. Freight extra. See pics p41, Jan AR 1982. Bargain for novice operators. VK2ATE, QTHR. Tel: (02) 61 2725.

HEATHKIT HW-8 QRP CW TRANSCEIVER. As new. Has 4 bands & built-in additions incl SWR meter, audio amp, S meter & 21MHz preamp. Full documentation. $170. VK2BTI, QTHR. Tel: (02) 871 8394.

ICOM IC-701, PS-701, ICRM-3 CONTROLLER. All in excellent condx. $700. Macrotronics RTTY interface, software (cassette & disk) for Apple, MDK-17 modem. All cost over $500, sell for $200. Roger VK2DNX, QTHR. Tel: (02) 546 1927.

MAGAZINES. Lack of space causes the disposal of old QST & AR mags. Readers may like to fill the gaps in their collection for the cost of postage. AR: Jan 1981-Dec 1983. QST: Jan 1981-July 1981, Feb 1982-April 1982, Jun 1982-Dec 1982. VK2BBW. Tel: (02) 871 5087.

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AMATEUR RADIO MAGAZINES 1980-84. 60 copies VGC $30. Unidyne 1A replica rx (1920), headphones VGC. $90. Yaesu FRG-7700 rx. FRA-7700 preamp, 12 ch, mem unit, AC-DC, manuals, etc. VGC. $500. Jeff L30409, QTHR. Tel: (03) 546 3940 AH.

ASTATIC. Model 977 dynamic mic by the makers of the D-104. Designed specifically for SSB with sharp cut off each side of voice frequencies. 2 slide switches for low or high impedance & normal or VOX operation plus push to talk switch. Used only few hours. $95. Roth Jones VK3BG. Tel: (03) 870 3333.

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KENWOOD TS-930 with auto tuner & WARC bands. $1600. John VK3WZ. Tel: (03) 523 8191 BH or (03) 557 1771 AH.

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TS-520S. Good condx includes 2 spare valves — 6146B. $450 ONO. VK3DQS. Tel: (03) 791 2947.

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2	c	12	b	22	d	32	c	42	b
3	d	13	c	23	a	33	d	43	a
4	a	14	c	24	d	34	b	44	c
5	a	15	a	25	c	35	a	45	b
6	d	16	c	26	a	36	d	46	a
7	c	17	b	27	d	37	a	47	d
8	d	18	c	28	d	38	c	48	a
9	b	19	c	29	a	39	b	49	b
10	a	20	b	30	b	40	b	50	c

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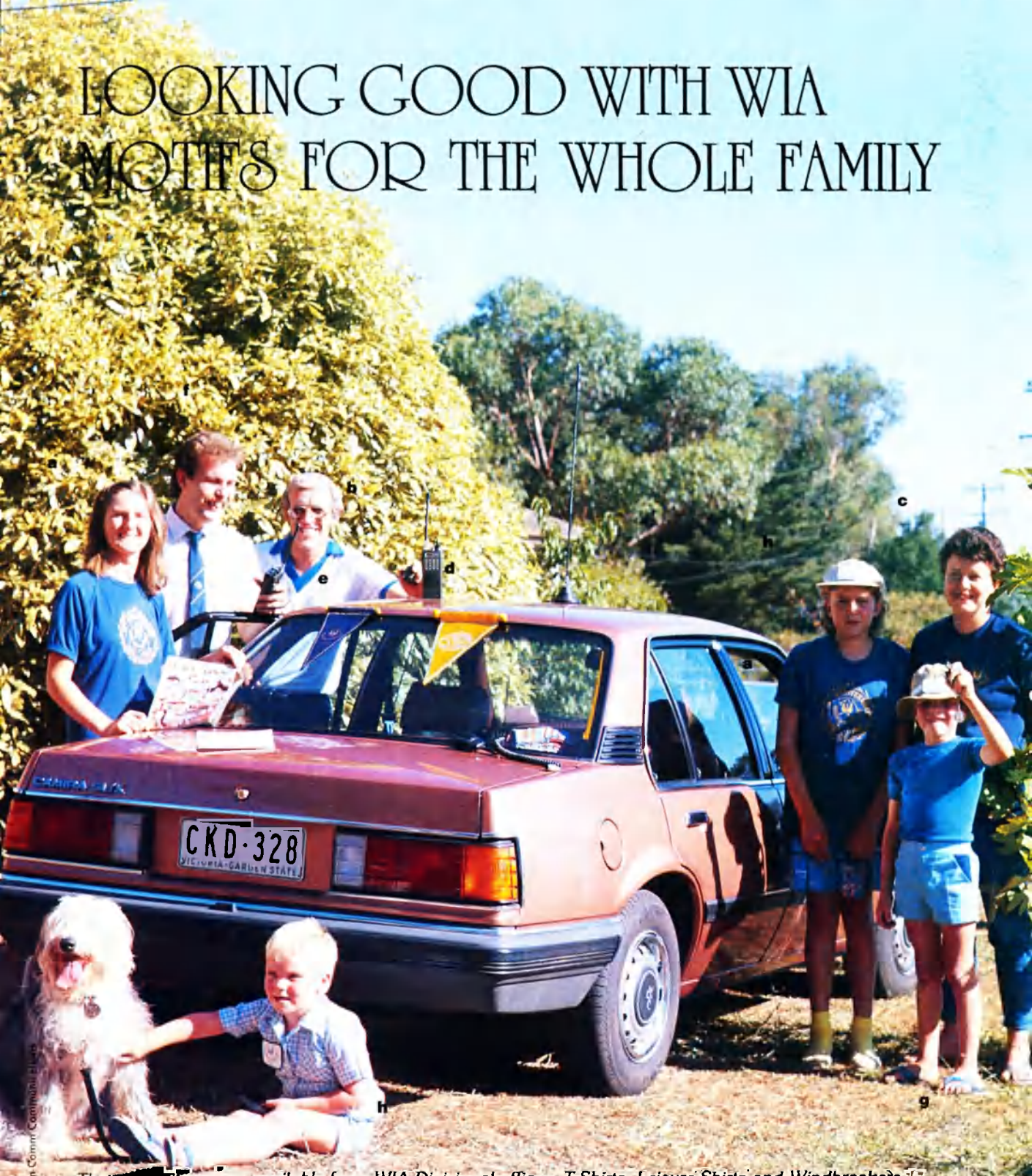

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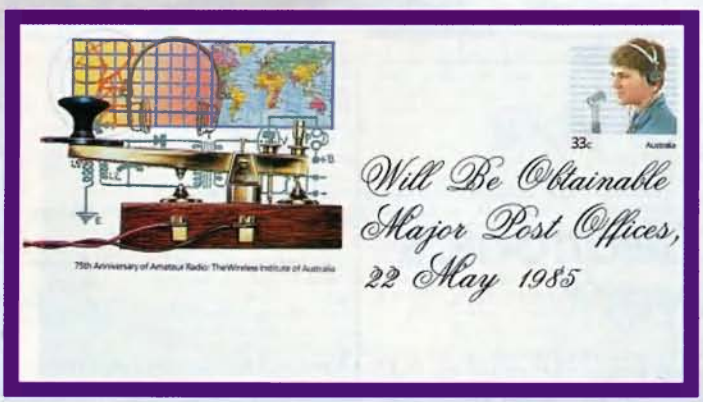
AMATEUR RADIO

VOL. 53, No. 5, MAY 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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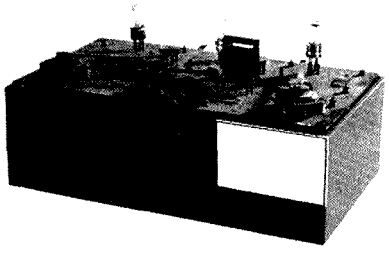

Photograph by Ken McLachlan VK3AH

Max Howden's Receiver. The inscription reads — This receiver, handmade except for the valves, was used to win the Trans-Pacific Tests in May 1923 by logging twenty-two stations in the 150-250 metre band. The following year Howden (amateur call sign A3BQ) established two-way contact with the USA. Inset: Australia Post's Stamped Envelope, commemorating the WIA's 75th Anniversary, which will be available from major Post Offices on 22nd May 1985.

Grateful thanks for help and co-operation is extended to Chris Long and Frank Coffa of Melbourne Scientific Museum.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

This month the magazine features a reminiscent article by Ian VK2KU, p.13. Ian recalls how he became interested in amateur radio in the late 1910s. Ian and his science master attempted to make wireless telegraphy contact between Tingha and Inverell and by the time they concluded their tests Ian was well and truly hooked on the hobby.

Also of historical interest are two photographs, one is of a class of radio students in 1928-29, p.12 and the other is a Short Wave Tuner which was made in 1918, p.7.

Graham VK5AGR has written an informative article about his trip seeking first-hand information about amateur satellites p.24. Graham visited the US, England and Germany and has gathered a wealth of information of what is happening with current satellites and what can be expected in the future.

For the home-brewer there is a delightful article explaining the construction of an "Afterburner" for 14MHz RTTY p.9. John VK3PL, writing his first technical article, takes the constructor through all the stages to the final product of this inexpensive unit.

Having trouble with the electronic flashers on the car when you are transmitting? Rodney VK3UG may have the answer then, p.17, as he explains how he overcame this problem with a couple of ceramic capacitors.

On the contest scene Ian VK5QX gives a full description of contesting for the newcomer. Ian explains how simple most contests are and emphasizes the hardest part of any contest is to read the rules and follow them to the letter.

On page 5 there is a brief, interim report of the Readership Questionnaires. (B-P)

DEADLINE

All copy for July 1985 AR (including Hamads, columns) must arrive at PO Box 300, Caulfield South, Vic. 3162 at the latest by midday, 23rd May 1985.

Enquiries and material to:
The Editor
PO Box 300, Caulfield South, Vic. 3162

Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962.**

Hamads should be sent direct to same address.

Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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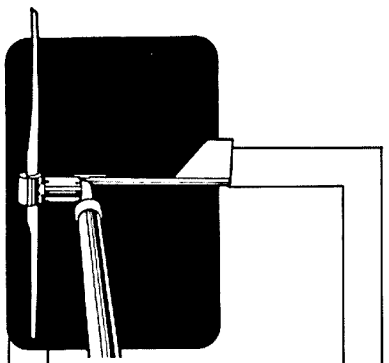

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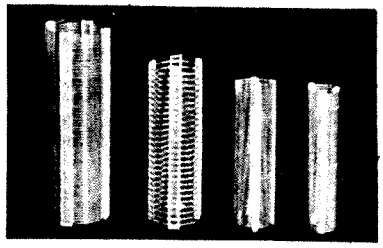

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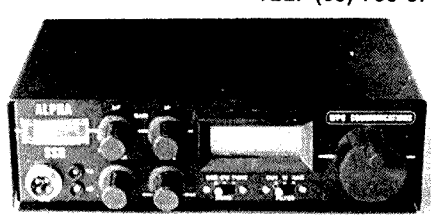

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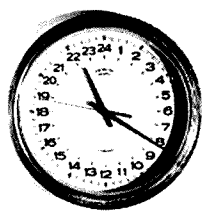

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■ SPECIFICATIONS

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Characters	Alphabet, Figures, Symbols, Special Characters
Speed	Morse Receiving: 5-100 Words/Minute (AUTOTRACK) Transmitting: 5-100 Words/Minute RTTY (Baudot, ASCII & JIS) 12-300 bauds TTL (Baudot, ASCII & JIS) 12-600 bauds ARQ/FEC 100 bauds
Input	AF Input Impedance: CW and RYYT 75 ohms TTL Level Input: common to CW, RTTY ASCII & JIS
AF Input Frequency	CW: 630 Hz RTTY (Baudot, ASCII, JIS): Mark 1275Hz (Low Tone), 2125Hz (High Tone) Shift 170Hz, 425Hz, 850Hz + fine tuning
	AMTOR (ARQ/FEC): B 1785Hz, Y 1615Hz [CCIR 476-2] + same frequencies as RTTY
Output	Keying Output: CW . . . 80mA, 200V (Optoisolator) FSK . . . 80mA, 200V (Optoisolator) AFSK Output Impedance: 600 ohms (Common to CW, RTTY)
AFSK Output Frequency	CW: 830Hz RTTY (Baudot, ASCII, JIS): Mark 1275Hz (Low Tone), 2125Hz (High Tone) Shift 170Hz, 425Hz, 850Hz AMTOR (ARQ/FEC): B1785Hz, Y 1615Hz [CCIR 476-2] + same frequencies as RTTY
Time Clock	Displays month, date, hour and minute on the screen.
Display Output	5-inch High-resolution green monitor built-in Composite Video Signal Output Impedance: 75 ohms
Interface for Printer	Centronics Parallel Compatible Interface
PTT Control Keyer	Capability: 300mA, 50V (Positive Voltage only)
Remote Control Keyer	Capability: 300mA, 50V (Optoisolator)
Number of Characters Displayed	Screen Format/Page: 40 characters x 16 lines = 640 characters x 2 pages
Battery Back-Up Memory Buffer	72 Characters x 7 channels, 24 characters x 6 channels
Memory	160 Characters
Output Impedance for oscilloscope	200K ohms
AF Output	300mW, Output Impedance . . . 8 ohms
Power Supply	AC100 —120V/220-240V 50/60Hz DC + 13.6V, 2A
Dimensions	Terminal Unit 363 mm(W) x 351 mm (D) x 121 mm(H)
Accessories	Keyboard (1), Instruction Manual (1), Pin Plug (9), Coaxial Cable (4 m), Stand (1), Dry Battery (2) AC Cord (1)

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a word from your EDITOR

COMING TOGETHER

As I write this, in the middle of March, the main item on the Institute's horizon is the Federal Convention at the end of April. So as a change from the editorial history and prophecy of the last few months it seemed that a little Convention history might be worthwhile.

The Convention is an annual event at which the Executive, responsible for managing the WIA from day to day, meets its Board of Directors, the Federal Councillors from all the Divisions.

Although this is the Institute's 75th Anniversary Year, for much of its life it was a small enough organisation to manage with a minimum of Federal-State liaison. The first Federal Convention was in 1924, and was held thereafter in a different capital city each year. In some years no Convention was held, and of course like amateur radio itself the WIA was effectively in suspension during the 1939-1945 war. This will be the 49th Convention in 62 years.

As the Institute grew, the Executive of necessity became larger. In 1972 the Federal body took over the responsibility from the Victorian Division for the publication of AR, which had become too much for one division to handle. This coincided with the appointment of our first salaried full-time business manager, the late Peter Dodd VK3CIF. Since 1975 the Federal Convention has been held in Melbourne, as it is easier and cheaper to bring about fifteen people to Melbourne than it would be to move the same number plus all Executive officers elsewhere. Irrespective of the Convention locale, only the host Division's councillors would not need to travel.

Hopefully, these paragraphs may help to explain, particularly to younger members, how the WIA is organised. The intention is to give all members, irrespective of their location, an equal voice in the Institute's representation of amateur radio to community and Government.

From time to time we hear of amateurs who refrain from joining the WIA, or even resign from it, claiming that their opinions or wishes would be or have been ignored. Perhaps this can happen sometimes. No system is perfect, and amateurs tend to be rather individualistic. Some, believe it or not, might even be a little eccentric! But one thing is certain, the non-member's voice will be ignored almost always; the member's very rarely, and then either by mistake or for good reason. If you are a non-member, reading a borrowed copy of AR, why not join us and let your voice be heard?

Bill Rice VK3ABP
Editor

SOME ANSWERS FROM THE READERSHIP QUESTIONNAIRE

Earl Russell VK3BER.

AR
☐ **Yes** ☐ **No**
☐ **100%** ☐ **80%** ☐ **50%** ☐ **5%**
Call ☐ **Book** ☐

Remember the questionnaire you received with your WIA subs renewal notice? Some preliminary results are now available from the computer analysis. Your opinions of AR magazine will be of greatest interest to the editor and the publications committee so I will give those first.

Generally the magazine is well received but you cannot please all of the people all of the time and still stay within budget; 56 percent say AR is good, 26 percent say it is excellent, 14 percent satisfactory, 3 percent poor and about 1 percent have no opinion to offer. The presentation of the magazine received similar percentages. 88 percent of readers consider the length of articles "about right". The most frequently read regular articles were the Editorial and WIA News, both about 80 percent, whilst the least read were Contests and Awards, both at 25 percent (that still represents a regular readership of over 2000). From these figures it would appear that members are interested in Institute matters but they do not have a great competitive spirit.

The readership of the other regular columns varies between 40 and 60 percent except for Equipment Reviews and Historical Articles which interest 65 percent. 17 percent of members magazines are also read by non-members. Encourage these people to join the WIA so they can receive their own copy of AR and save wear and tear on yours, but more importantly, a significant increase in membership will result in an overall decrease in fees as fixed costs will be spread across a greater number of members.

The Call Book also came under scrutiny; 43 percent have not seen the latest issue yet, but of those who have, 30 percent regard it as excellent, 54 percent good, 14 percent average and the remaining 2 percent consider it poor. Almost half buy each issue of the Call Book.

Hamads have been used by 15 percent to dispose of pre-loved equipment and 21 percent have bought items from Hamads. The commercial advertisements are normally read by 82 percent while 59 percent have purchased equipment as a result of having seen it advertised in AR and 36 percent have made their purchases after reading the Equipment Reviews.

Antenna articles are the most popular (a whopping 90 percent) followed by construction articles (81 percent). It looks as if home brewing is definitely not a thing of the past; well we at least like to read about it. 60 percent claim to build a quarter of their equipment, 21 percent do not build anything and about 1 percent build all their equipment. The remainder build between half to three quarters.

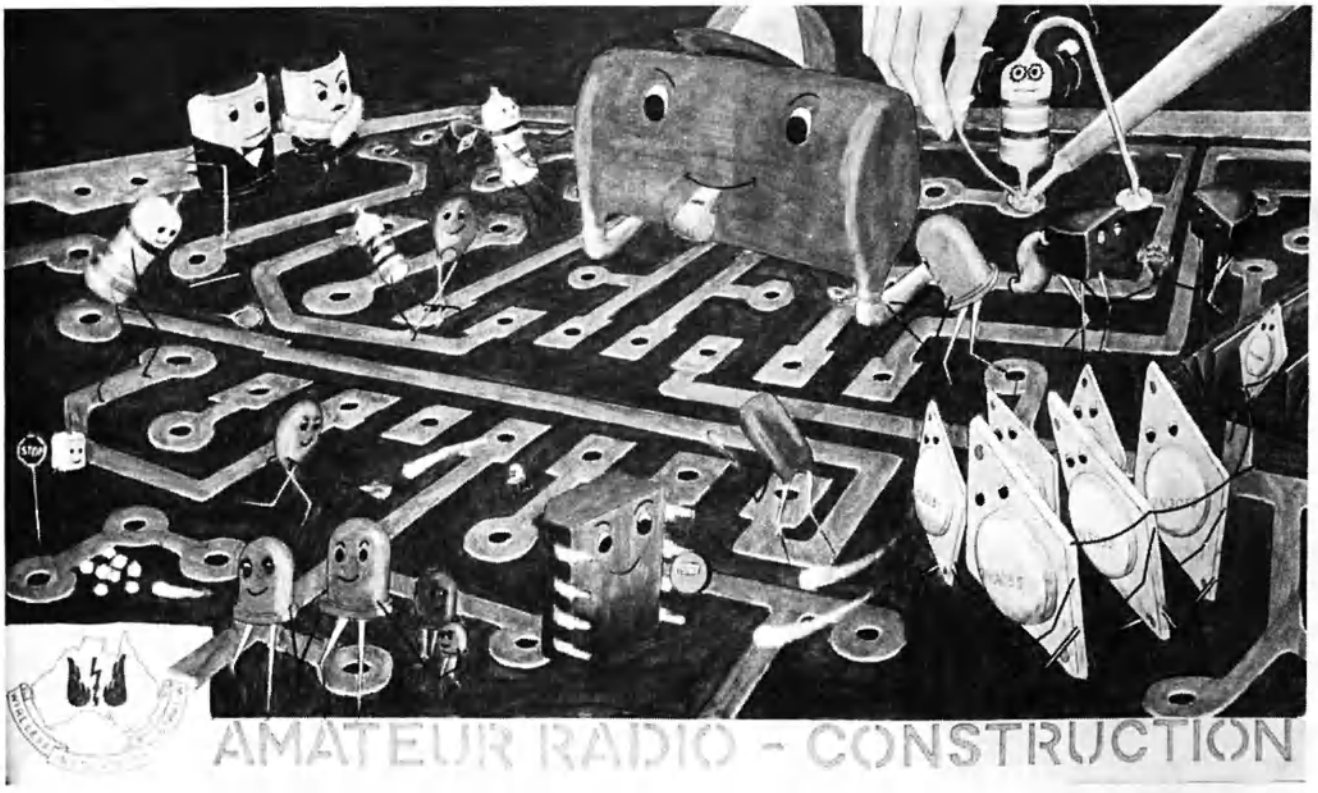
The time and inclination to get on air naturally varies. 45 percent spend 1 to 5 hours a week operating, 20 percent for less than 1 hour and also for 6 to 10 hours. There is a lucky 15 percent who are able to spend more than 10 hours each week communicating with other amateurs. Future analyses will enable us to see which age groups are able to spend the greatest and least times on air.

From the statistics so far only 1 percent of the membership of the WIA is below the age of 20. This the International Year of Youth, let us aim to introduce more young people to the hobby to ensure its perpetuation. The WIA bookpacks are aimed at interesting secondary school children in amateur radio. Another 1 percent declined to indicate to which age group they belonged (our female members?). Only 8 percent of members are in the 21-30 age group, 20 percent are 31-40, 18 percent 41-50, 23 percent 51-60 and 29 percent are over 60 years old.

The on-air operating preferences ranged from 45 percent ragchewing to 3 percent whose main interest was participating in contests while in between were the 31 percent whose main pleasure is chasing DX. Operating modes used are SSB (80%), FM (44%), CW (27%), RTTY (19%), SATELLITES (10%), QRP (9%), AM (6%), ATV (4%), SSTV (3%), PACKET (2%) and EME a small fraction of a per cent. The bands on which these modes are used are HF (55%), VHF (49%), UHF (18%) and MICROWAVE (2%). The mathematicians will already have calculated that the above sets of figures total more than 100 percent, but before dashing off letters to the editor, may I point out that many replies listed more than one band or mode used.

Thank you to all members who returned their questionnaires, the response was far greater than one staff member predicted — he lost his bet — but is vet to provide lunch. When all the replies have been processed we will know the exact percentage return, but it appears to be around 80 percent. The work of inputting the data is still continuing as it is being done on a part time basis between other office duties. The tedium of entering the information is often relieved by the humorous comments written on the questionnaires. These will be the subject of a future short article or fillers in AR. **AR**

WIA Seventy Fifth Anniversary News



Posters on this page were contributed by Vicki Marsden VK2EVM.

POSTER COMPETITION

The entries have now closed for this competition. The Federal office has received some very promising artwork from members. The judging will take place during the next meeting of the Anniversary sub-committee and the results published in a later edition.

PRE-STAMPED ENVELOPE

Members are reminded that Australia Post will be issuing this envelope on 22nd May. If you require envelopes for your friends overseas, you are advised to obtain your supply early.

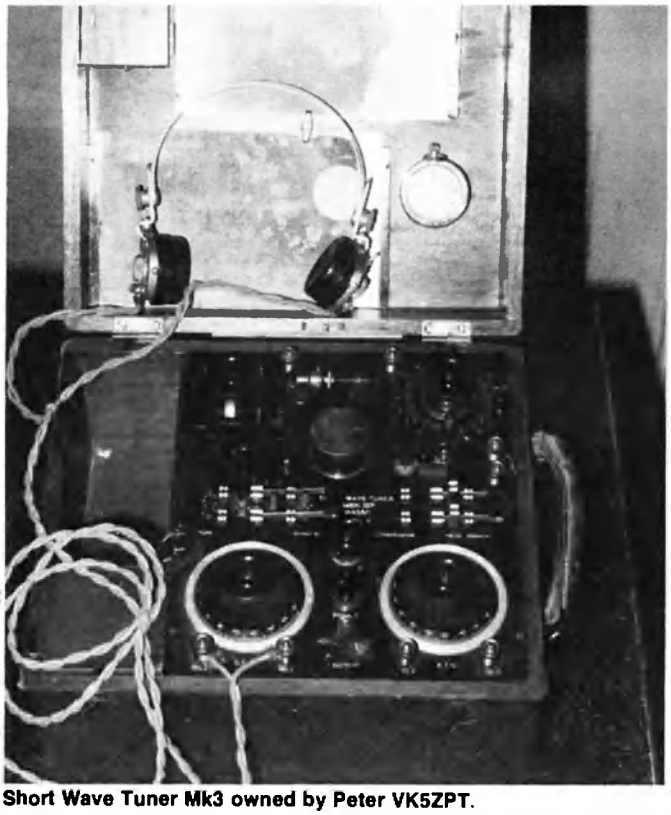
NATIONAL FOXHUNTING CHAMPIONSHIP

The rules for this event will be published shortly, at this time discussions are taking place between the VK1 and VK2 Divisions as to the best venue. This is likely to be the Wagga convention held October. Firm details will be published as soon as possible.

The prizes for this event have been finalised. There will be a large annual trophy with replicas for the winning team. Icom (Aust) have donated a handsome piece of equipment for this 75th Anniversary Year, which will be presented to the winners. This has been followed by a further gift from GFS Electronic Imports of an interesting piece of VHF/UHF equipment, which will help make this event a high note of this special year.

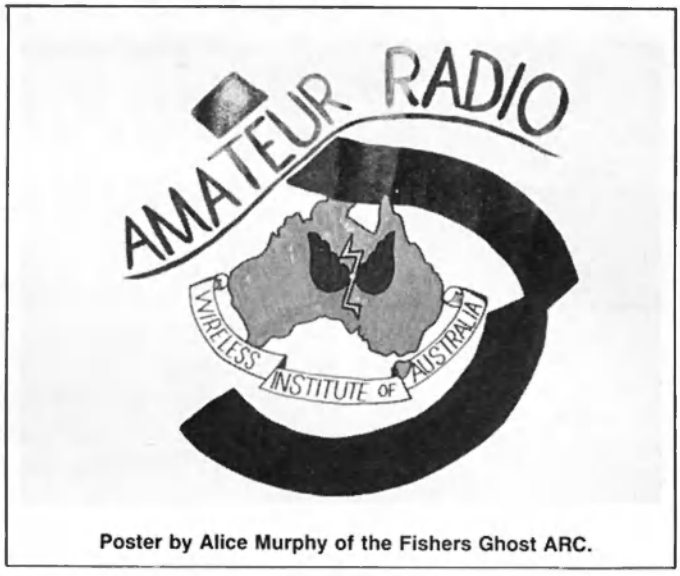
DO YOU OWN A PIECE OF HISTORY?

In reply to this question in January's 75th Anniversary column we have received information about a "Short Wave Tuner Mk 3" owned by Peter Thomas VK5ZPT.



Photograph by David Clegg VK5AMK.

Short Wave Tuner Mk3 owned by Peter VK5ZPT.



Poster by Alice Murphy of the Fishers Ghost ARC.

The unit was made in 1918 by "ATM Co Ltd", England and is in perfect working order. It is essentially a self-contained crystal receiver housed in a mahogany case covered with canvas and measures 12x14x8 inches.

In 1918 the term "short wave" applied to any frequency of more than 500 kHz and the coverage of this unit is approximately 400-2000 kHz.

These units were sold for five guineas in England after WWI and were used by amateurs in the early 1920s when amateurs operated in what is now the broadcast band.

Has any other member any equipment older than this unit?

AR

A Photocopy of the cover of popular magazine, "Popular Wireless Weekly", 2 December 1922 featuring the Short Wave Tuner at 'pride of place' on the dining table.

WIA Seventy Fifth Anniversary

MAY 1985

SUN	MON	TUE	WED	THU	FRI	SAT
			1 3.540 1030UTC IW Net HL30HQ ceases (see P17 Apr) May Day	**2**	**3** Polish Nat Day School Breakup—VK1 School Breakup—VK2	**4** County Hunters SSB Test Florida QSO Party G QRP SSB Activity
5 Coral Sea Sunday County Hunters SSB Test Florida QSO Party G QRP SSB Activity	**6** Labour Day—VK4 May Day—VK8	**7**	**8** 3.540 1030UTC IW Net Radio Hunt (see contests) VK3 AGM	**9**	**10** School Breakup—VK3 School Breakup—VK6	**11** Peace to World Test
12 Mother's Day Peace to World Test Rogation Sunday	**13** VK75A begins VK5	**14**	**15** 3.540 1030UTC IW Net	**16** Ascension Day	**17** ITU Day Norwegian Nat Day School Breakup—VK5	**18** ARI Internat Test Armed Forces Day—USA
19 ARI Internat Test	**20** Adelaide Cup—VK5 School Resumes—VK1 School Resumes—VK2	**21** DOC Exams	**22** 3.540 1030UTC IW Net Pre Stamp Envelope Release	**23** AR Deadline for July VK5 Display at GPO	**24** Queen Victoria's Birthday VK5 Display at GPO	**25** CQ WW WPX CW Test
26 CQ WW WPX CW Test Pentecost VK75A ceases VK5 Whit Sunday	**27** School Resumes—VK3 School Resumes—VK6	**28** CLARA AC/DC Mystery VK5 Div Meeting	**29** 3.540 1030UTC IW Net CLARA AC/DC Mystery	**30**	**31** School Breakup—VK7	

DELIGHTS OF HOME-BREWING . . . "THE AFTERBURNER"

John Isaac, VK3PL
540 Mount Dandenong Road, Kilsyth, Vic 3137

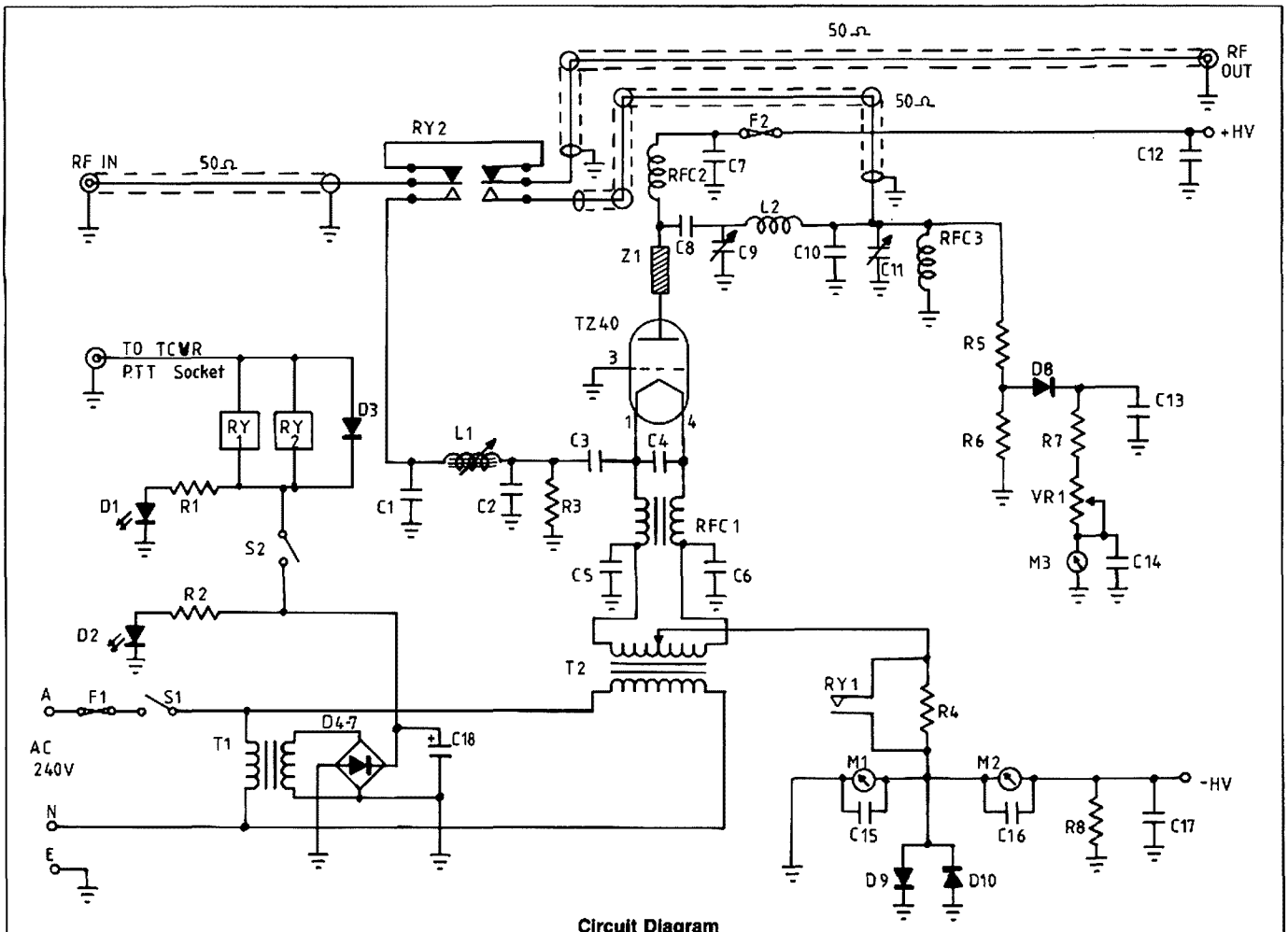
It was after a sixteen year lay-off from radio occasioned by the demands of the salt mine that semi-retirement allowed the writer's re-entry into this "king of hobbies and hobby of kings". A desire to return to the old favourite 14 MHz CW DX scene prompted the purchase of an FT101E transceiver and things looked good. The rehabilitation was proceeding smoothly, discovering what had been happening in the last decade or two . . . even understanding some of it. Then the RTTY bug bit.

The modern transceiver is a fine piece of equipment and the FT101E is no exception. However, their final amplifiers are designed for SSB/CW service and do not take too kindly to the 100 percent duty cycle imposed by RTTY, unless suitably derated. And the main point of interest was now 14 MHz RTTY DX (conditions permitting). The voices were calling *"What you need is a linear, mate"*.

It did not seem a good proposition to buy one, for one mode, one band. *"Better to build one. Let's have a look at the junk box"*.

Most of the parts needed were there . . . or else there was something which could be cannibalised, modified or otherwise fiddled with to suit the job.

It seems unlikely that anyone will duplicate this project exactly, but as a lot of researching was involved it was thought that to present the findings might be helpful to anyone contemplating a similar project. A lot of useful information (with lucid explanations) is available in Bill Orr's "Radio Handbook" (1). The ARRL "Handbook" also has some useful information and examples (2). "Solid State Design" gets thanks for showing how to calculate values for a pi-network (3). VK3XU's "Home Brew



Circuit Diagram

Linear" is an excellent article; this would be a good project tor duplication (4). Also well worth perusing is the article by G3ISD: "A low budget HF linear amplifier" (5), which uses a pair of 813s, triode-connected.

THE CIRCUIT

It was decided to use an old TZ40 zero-bias Class B triode, which happened to be available, in the now popular grounded-grid circuit. Another good tube is the 813, triode-connected. If using a triode the high-mu ones are preferred; for other suitable tubes see (1) 7.23, 21.14, 21.18. There are a few advantages, and some disadvantage, in grounded-grid operation. Simplicity and reliability, self-neutralisation and the absence of bias and screen supplies in many cases make the circuit an attractive proposition.

The main disadvantage is that more drive is needed than for the same tube in a grounded-cathode circuit . . . This is not all lost, however; most of it "*comes out the other end*". (1) 7.16-17, (2) 6.26.

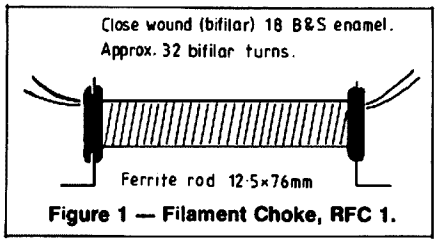


Figure 1 — Filament Choke, RFC 1.

The tube filament is at RF potential and must be isolated from the AC circuit for RF. A neat solution is an RF choke bifilar-wound on a ferrite rod (Figure 1). The plate choke is also home constructed, and has an inductance of about 95 uH, with a series-resonant frequency of around 25 MHz. (4) p 28, (2) 6.47. The tuned input circuit to the filament (cathode) allows the input impedance of the amplifier to be matched to the transceiver output.

RFC3 is a safety measure. In the event of C8 failing short-circuit the fuse in the HV supply line will blow.

Plate meter M2 is held near ground potential by R8, thus avoiding front-panel shock hazards. M1 and M2 are protected by D9 and D10 against gross overload in case of a flash-over or accidental short. The relative-power meter M3 is best adjusted to read about two-thirds scale at rated output. This circuit may be omitted entirely if an external power meter is used, but having the meter on the panel will be found convenient.

Relay RY2 switches around the amplifier during receive periods or when it is desired to use the transceiver "barefoot". RY1 removes the bias developed by R4 on switching to "amplifier in" (S2 closed). With S2 open, the amplifier is in "standby" condition. R4 may require experimentation for different tubes. Use sufficient to cut off plate current on standby.

POWER SUPPLY

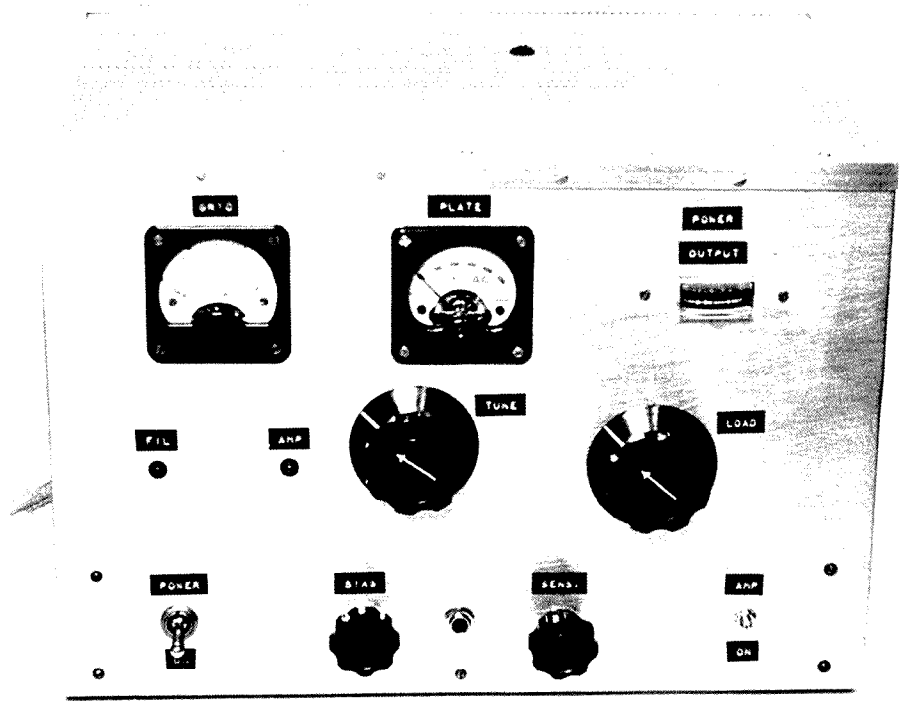
The high voltage power supply is an old home-brew unit using a pair of 866/866A mercury vapour rectifiers. It performs faultlessly and will probably outlast its owner. A modern solid-state unit (1) 23.1 to 23.42, (2) 5.2 to 5.21, 6.45, (4) 31 could be made smaller and lighter. The unit in use delivers 1 kV at 100 to 200 mA and at 100 watts is loafing along.

A 30-second time delay is fitted in the HV primary circuit to allow the rectifier filaments to heat before high voltage can be applied. With the metering circuit employed in the amplifier (meters "cold"), the negative terminal of the HV supply is NOT GROUNDED to chassis in the supply unit and only through safety resister R8 in the amplifier itself.

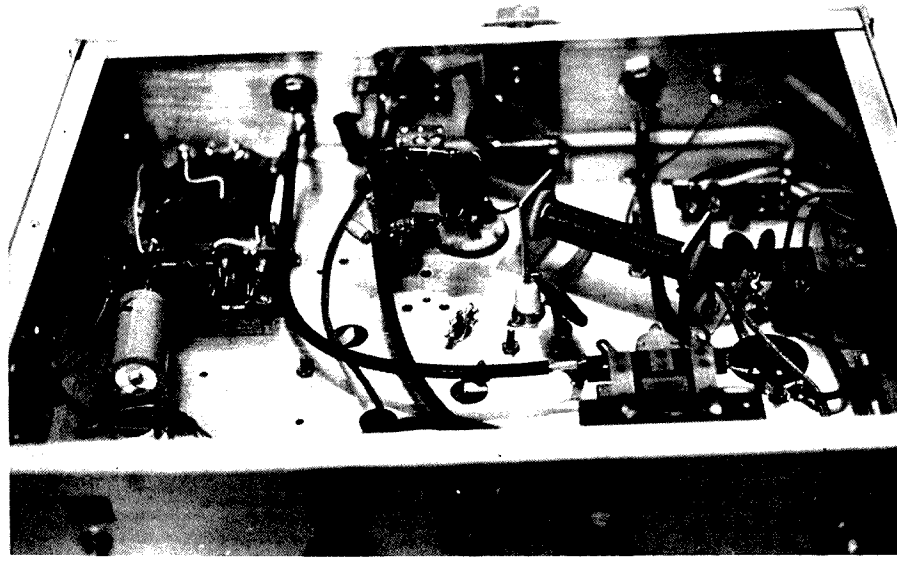
CONSTRUCTION

The amplifier was built on a chassis measuring 250 mm x 330 mm x 63 mm with a panel to suit tube height. Back, sides and top are enclosed by a shield made from perforated aluminium and aluminium angle.

Forced-air cooling has not been found necessary with the tube running at 100 to 120 watts input, but higher input or larger tubes would probably necessitate a fan or blower.



The Completed Unit.



Underside — an Internal View.

It is essential to shield the input circuit from the output. The tube socket is at chassis level, with the input circuit below chassis. The under-chassis section is completely enclosed by a sheet aluminium base.

The relays were junk-box items; provided contact size and spacing are sufficient their ratings are not critical as they are not called on to do any strenuous RF or DC switching.

RFC1, the filament choke, presented a slight problem. If the winding is done on the ferrite it will spring open when released giving a slack fit. Wind the turns on a tube or dowel a little smaller (say 11 mm for 12.5 mm ferrite rod). The coil is easily removed from the dowel and may be eased on to the ferrite by twisting against the direction of the winding so that the coil is opened slightly. Mechanical and electrical insulation between core and coil was provided by a layer of plumbers' PTFE thread sealing tape. A few coats of varnish or coil dope were applied to hold all in place. If loose the windings will hum when AC is applied. One way of supporting the finished article using two large grommets and a pair of brackets is shown in Figure 1.

RFC2, the plate choke, may be finished with a couple of coats of clear Dulux or similar. Winding details are given in Figure 2.

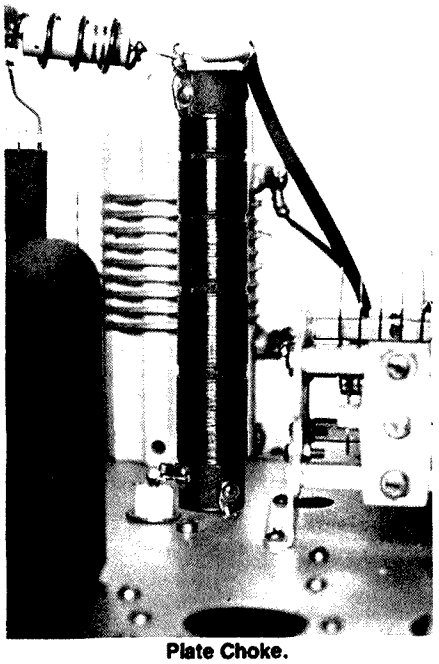


Plate Choke.

The plate cap connector was made from a piece of copper strip 1 cm wide, and is secured by a very small bolt and nut. Brass strip could make the bolt unnecessary. Copper strip was also used for the plate/output tank connections (7 mm wide in this case).

The cathode circuit is best mounted on the rear skirt of the chassis if layout will allow, for ease of access to the slug adjusting screw. If mounted on the chassis surface, a grommet-lined opening in the top of the cover will allow safe adjustment with the cover in place. A suitable tool is easily made (see the XYL for a plastic knitting needle).

ADJUSTMENT AND TUNING

This subject is well documented (1) 21.17, 22.17, 22.23, 22.44 and (2). However, an outline is presented here for guidance.

After a thorough wiring, check the amplifier is connected to the exciter (transceiver) and a suitable dummy load. An SWR meter in the output line is recommended. Input and output circuits may be resonated at the centre of frequency of interest with a dip meter.

With all interconnections in place and the high voltage supply OFF, filament and relay supplies are turned on (S1). High voltage may now be applied after any required warm-up period.

Plate tuning is set for approximate resonance and C11 near full mesh. With the amplifier "in line" (S2) and the transceiver carrier control at minimum, excitation is turned on and the excitation control advanced until a small flow of grid current is indicated.

The plate tuning capacitor (C9) is now rotated for the plate current "dip" indicating resonance. At this point output coupling can be increased by reducing the capacitance of C11 a little, tank resonance then being restored by adjusting C9. Advancing drive in small increments, gradually increasing output coupling (decrease C11) and re-tuning C9 in step, the amplifier is brought up to the desired level of power output, grid current and plate current. On tuning C9 through resonance, maximum grid current, minimum plate current and maximum output should now all occur at the same setting of the capacitor. (1) 21.19.

The input circuit may now be adjusted via the slug of L1, using an SWR meter in the input line to the amplifier, for minimum SWR. It should be possible to achieve 1.5 to 1 or lower.

A check for parasitic oscillations can now be made: with zero excitation and the amplifier fully activated (transceiver in CW mode, key up), C9 is swung steadily from maximum capacity to minimum, watching the plate current. This should show no variation over the full range of C9. Random variations in plate current or any show of grid current indicate parasitics. Changing the inductance of the suppressor Z1 . . . POWER OFF! . . . by springing open or compressing the turns is often all that is needed. If more or less turns are needed, the previous effort will probably show the way to go.

If all is well the SWR meter between exciter and amplifier can be removed after a final tweak at the desired frequency.

The signal may now be monitored in a nearby receiver (well shielded and with the antenna terminals shorted or grounded) with the RF gain backed right off. Keying the exciter with a rapid string of dots while tuning a few MHz either side of the signal should produce no clicks, pops or burps. Any of these may be a sign of residual parasitics; the carrier should be clean with solid make and break but no clicks.

NOTE It is imperative that the input signal to the receiver be adequately attenuated for this test, otherwise misleading results are almost certain. The amplifier is now ready for on-air trials. "Barefoot" operation is simply a matter of throwing S2.

This unit is a delight to use; it has been gratifying to note that stations contacted have been unable to distinguish between signals from the amplifier and from the transceiver when running at the same power level.

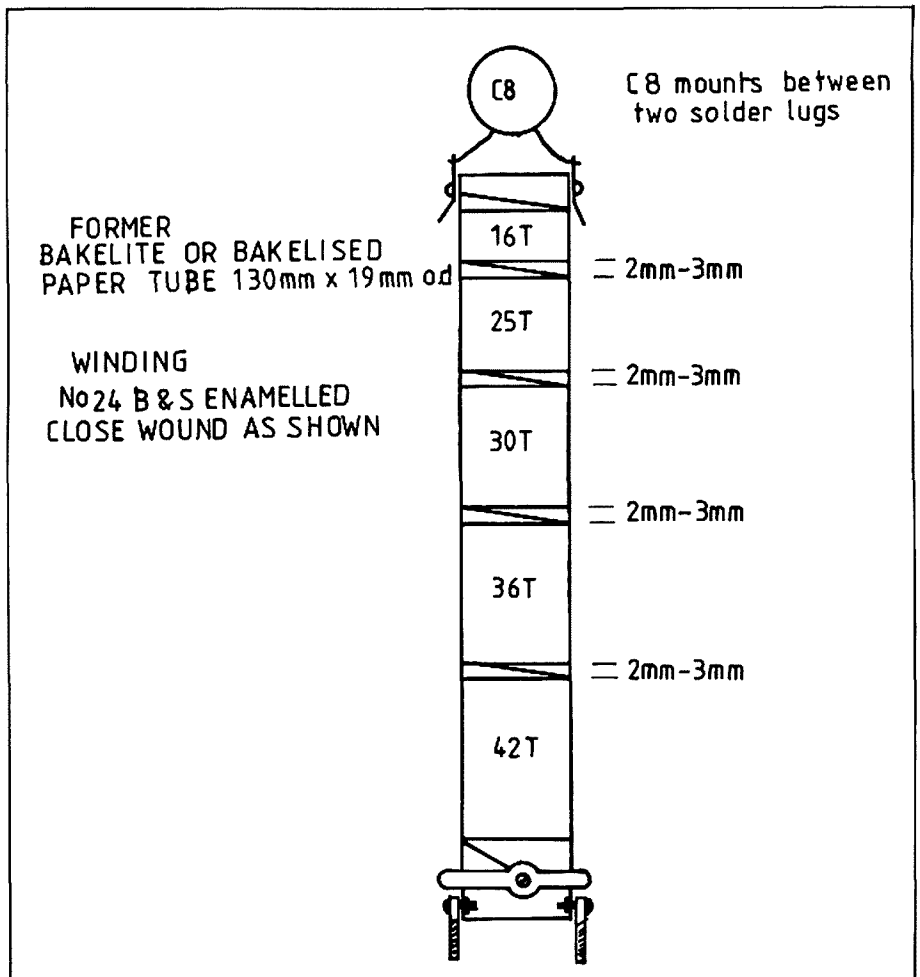


Figure 2 — Plate Choke, RFC 2.

THE FACTS OF LIFE

CONTACT WITH HIGH VOLTAGE CAN CAUSE SUDDEN DEATH, SEVERE BURNS OR SERIOUS INJURY.

AN AMATEUR INEXPERIENCED IN THIS TYPE OF WORK IS SERIOUSLY URGED TO ENLIST THE AID OF A FRIEND WITH THE NECESSARY EXPERTISE IN HIGH-VOLTAGE WORK BEFORE UNDERTAKING A PROJECT OF THIS NATURE.

The writer would like to express thanks to Drew VK3XU for the loan of reference material and the donation of some components, also to Ken VK3AH for the necessary encouragement and helpful suggestions on writing this article. Last, but not least, to a patient XYL.

REFERENCES

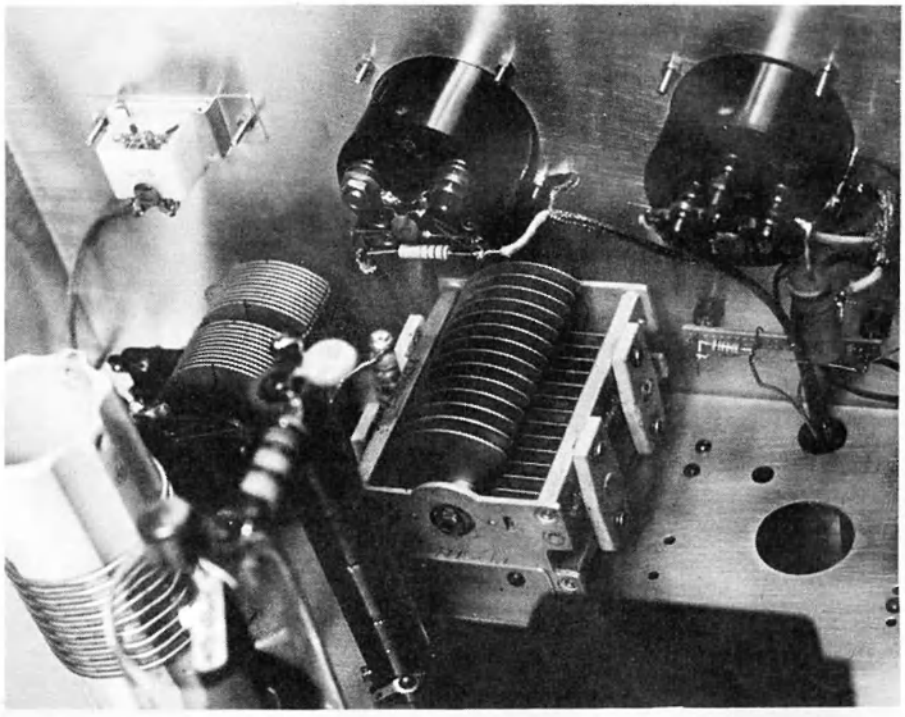
1 *William I Orr W6SAI. Radio Handbook, 20th ed.*
2 *ARRL. The Radio Amateur's Handbook, 1980.*
3 *Wes Hayward W7ZOI and Doug DeMaw W1FB. Solid State Design for the Radio Amateur.*
4 *Drew Diamond VK3XU. A Home-Brewer's Linear Amplifier. Amateur Radio, July 1981.*
5 *E J Hatch G3ISD. "A low-budget HF linear amplifier". Radio Communication, May 1982.*

PARTS LIST

R1, R2	560 ohm ½W
R3	3k 3W
R4	27k 2W
R5	10k 1W
R6	1k 1W
R7	10k ¼W
R8	175 ohm 4W (2 x 350R 2W w/w)
VR1	10k linear pot.
C1	680pF polystyrene 630V
C2	250pF mica (100 + 100 + 50)
C3, C5, C6, C17	0.01uF 630V disc ceramic
C13, C14, C15, C16	0.01uF 100V disc

C7, C12	0.01uF 1.4kV disc
C8	0.0022 6kV disc
C9	19/116pF transmitting type (ex TU10B tuning unit)
C10	400pF 5kV test (ex TU10B)*
C11	2-gang BC capacitor, 400pF per gang *NOTE: C10 may be omitted if a 1200pF gang is available.
C18	2500uF 50V
D1	Red LED ("Amp. in")
D2	Yellow LED ("Power on")
D3	1N4002 etc
D4-D7	4 x 1N4002 or 50V 1A bridge
D8	1N914/4148
D9, D10	1N4007
F1	3AG fuse 1A
F2	3AG fuse 500mA
L1	0.67 uH approx 6½ turns 18 B&S spaced over 10mm. Inside dia 12.5 mm. Aegis "2000" assembly suggested.
L2	9 turns 10 B&S, 50 mm dia, 50 mm long on ceramic former (ex TU10B)
M1	0-40 mA (grid current)
M2	0-500 mA (plate current)
M3	0-500 uA (relative power). Inexpensive VU type suitable here.
RFC1, RFC2	see text
RFC3	2.5 mH pie-wound valve type
RY1	12V SPDT
RY2	12V DPDT antenna change-over (or use 2 SPDT . . . if mounted apart, use 50 ohm co-ax interconnection)
S1	SPDT ("Power on")
S2	SPDT ("Amp in/out")
T1	Pri 240V, sec 5V + 6.3V (old valve receiver type)
T2	Pri 240V, sec 7.5V 5A (home-rewound)
Z1	3½ turns 14 B&S enamelled on 100 ohm 2W resistor. Winding dia 12.5 mm; length 32 mm.

AR



WIA NEWS

INTERNATIONAL TRAVEL HOST EXCHANGE

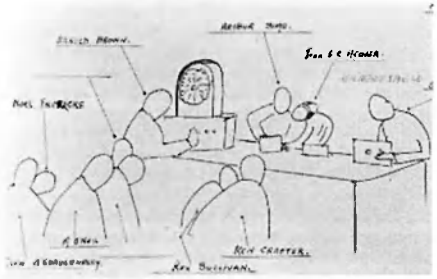
Further to the article that appeared in the October 1984 issue of AR page 27.

The Federal office has received from the ARRL a list of participants to the above scheme. The list contains some 76 names and addresses of amateurs in 15 countries who have indicated their willingness to assist or in some instances accommodate visitors in those countries.

Any member who wishes to avail themselves of this service or who wishes to have their names included can obtain further information by writing to: The Secretary, WIA, PO Box 300, South Caulfield, Vic. 3162. **AR**

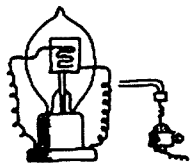
Photograph courtesy John Heaver VK3VNQ/3XEH

Class of 1928-29



Glen O'Shaughnessy
M. O'Neil
Rex Sullivan
Ken Cratter
Noel Fredricks
Harold Brown
Arthur Simms
John E. C. Heaver
Gilbert Savill

This photograph is a reproduction of a class of radio students at Mount Gambier High School in 1928-29. The class used the call sign OA5GH on 200 metres. Would this be the first school to conduct such teachings? An enlargement of this photo has been given to the Mount Gambier Radio Club (SERG) by John Heaver VK3VNQ/VK3XEH, one of the students in the class.



From Wireless Telegraphy To Amateur Radio

Ian Archibald VK2KU
15 Elizabeth Drive, Noraville, NSW. 2263

This is a personal history of my long association with the most intriguing of all hobbies. From the first letter of permission and a call sign of OA2EA to my current VK2KU call sign it has given me pleasure, some feeling of achievement, and friendship with other enthusiasts all over the world.

As not a great deal is known of those early days some sixty years ago when experiments were made with spark coils and loose-couplers, I will try to go into some detail as I remember it.

With the wealth of information on electronics available today it is hard to realise the difficulties the pioneer faced in his early experiments with "wireless". Apart from an elementary knowledge of the simpler laws of direct current, alternating current was a closed book. This was a world of horse drawn vehicles and bullock teams. As I rode to school the 26 km from my home near Tingha to High School in Inverell on my "one-lunger" — the type you pushed to start and then leapt on — I would pass waggons loaded with tin oxide, drawn by a team of perhaps thirty draught horses on their way from Tingha to the rail head in Inverell.

As there was no local supplier of the various bits and pieces the experimenter today finds so readily available our inductances had to be tuned by altering the number of turns in a coil. The rotary air spaced variable condenser was probably available to research laboratories but were practically unknown to the experimenter. This led to the design of the loose-coupler, a rather clumsy device but quite effective in a receiver. For tuning the transmitter where very high voltages were generated by a spark coil however it would require much modification. My attempts to make a tuning condenser for this purpose were not very successful!

INTERESTING TO COMMUNICATE BY WIRELESS

In 1919 I was 17 years old and my family lived in the country near Tingha. At that time Tingha was a big producer of tin oxide (cassiterite). Dredges and sluicing plants mined the aluvial flats and creek beds and the deep lead mines had extensive underground workings. My father was a Mining Engineer and managed a number of dredges and open-cut mines. I spent a good deal of my weekends and holidays in the engineering maintenance workshop.

At this time I was a 4th Year student at Inverell High School and rode a motor bike from home to school each day. Our science master, Mr H A Warden was an excellent teacher with many interests. My close association with him during the five year course for the Leaving Certificate gave me a good grounding in inorganic chemistry and it was early in my 4th year he suggested to me that it might be quite interesting if we could communicate by wireless telegraphy between his home in Inverell and mine near Tingha.

Before World War I Warden was teaching at the western town of Narrabri where he had built and operated an experimental wireless station. Now that conditions following the war were gradually returning to normal he was keen to resume experiments in wireless telegraphy. He explained to me that I would have to get permission from the authorities and that it might be difficult to find a source of supply of the various components I would need. He would give me sketches and diagrams and as much of the little known available information that he had. I am sure he could not have guessed that he was starting me on a lifetime enterprise for which I have always felt grateful.

PERMISSION RECEIVED

I sent a letter to the PMG's Department seeking permission to carry out experiments in wireless telegraphy. I was surprised to receive a reply from the Royal Navy stationed on Garden Island giving me authority to carry out these experiments. A short time after this I was notified by the PMG that I had been issued with the call sign of OA2EA.

WE SUPPLY ANYTHING

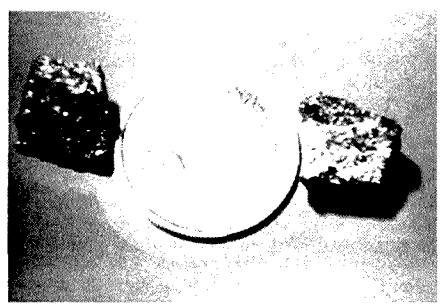
To get started on construction now called for the purchase of equipment and where to buy it at that time presented rather a problem. A study of Anthony Hordern's country catalogue, a large book about 51 mm thick conveyed the message that they could supply anything! An order posted to them for equipment confirmed their claim. When the parcels arrived by post they contained all the items I had ordered.

I now had a Western Electric headset with high resistance phones, a telegraph key, a buzzer with a couple of dry cell batteries, several reels of copper wire of different gauges with green silk insulation to enhance the appearance of the final job, several pounds weight of 34 gauge enamel cotton covered wire for the spark coil secondary and enough 22 gauge soft iron wire to make the core. In addition there were sheets of tin foil and waxed paper, paraffin wax, orange shellac and a good assortment of brass terminals.

SOUND, ATTRACTIVE PIECE OF EQUIPMENT

The loose-coupler was now the first unit to be made. Warden had suggested that I should take the time to make a sound and attractive piece of equipment as it would probably receive critical inspection from interested visitors. With this in mind I prepared a piece of red cedar by sanding and polishing it for the base and coil supports. Cardboard formers were used, the primary about 114 mm diameter by 127 mm long and the shorter secondary former a bit smaller in diameter so that it could slide easily in the primary coil. The primary core was then close wound with 22 DSC wire over about 102 mm and the ends secured and brought out for terminals. Before mounting a narrow track was made by removing the insulation to take a brass slider for tuning.

The secondary core was fitted with wooden end pieces bored to fit over two thin brass rods on which it would slide into the primary. In addition the outer wooden end piece was fitted with a switch arm and three studs so that the winding could be tapped for tuning. This former was now close wound with the DSC 28 gauge wire and connections made to the switch studs. Flying leads were added to make connections to terminals on the base board.



Galena Crystals

To complete the receiver a holder was made for a small crystal of galena to be fitted with a "cat's whisker" and terminals for the phones were screwed to the baseboard. At a later date as a little "know-how" was acquired the galena-cat's whisker was replaced by a detector made by mounting crystals of zincite and bornite, the sulphides of zinc and copper, in small brass cups with Wood's metal. This made a very sensitive and stable detector.

NOW FOR AN ANTENNA

An antenna had now to be put up before the receiver could be tried out. A stringy bark pole about 9 metres long was put up in a corner of the backyard. A small pulley with a light rope was attached to hoist the end of the aerial. A copper wire was then run from the top of the mast to an insulator tied to a verandah post, thence to a butter box (a 304 mm cube) where several turns of the same wire were wound and thence to the loose-coupler primary. We had no information as to the wave lengths the commercial stations would be using but thought it would probably be in the 600 metre range. The idea behind the "butter box" coil was to increase the effective length of the antenna.

MORSE FOUND

An earth wire was run through a hole bored through the floor of the small verandah room. This wire was attached to the buried water pipe running from the tanks to the kitchen. With the aerial and earth wires attached to the receiver I was now ready to search for an incoming signal! After a good deal of time was spent in trying different settings of the loose-coupler and much fiddling with the cat's whisker a faint Morse signal was heard. With further alterations to the tuning of the loose-coupler, the reduction of the number of turns of wire on the "butter box", and some good fortune in finding and holding a sensitive spot on the galena crystal a strong Morse signal was received. My Morse at the time was not very good but I managed to read VIS and later a station with a different note, GBQ the Royal Navy station on Garden Island. This was very gratifying — the receiver was really working.

Before going on to the next project of transmitter and power supply I spent a good deal of time trying to improve my Morse. VIS seemed to transmit chiefly in plain English, GBQ in a five letter code, but both stations proved a wonderful source of good Morse for the beginner.

ON TO BETTER THINGS

The construction of the spark coil was fairly straight forward. Two pieces of board about 152 mm square and 13 mm thick with a 25 mm diameter hole in their centres were used to assemble the core and to give temporary support to the coil during construction. The soft iron wire was stretched to straighten it and cut into pieces about 254 mm long. After assembly with the wooden jig pieces kept flush with the ends the core was insulated with waxed paper and close wound with two layers of the 18 gauge insulated wire. The winding was secured, the wooden end pieces removed temporarily and the unit immersed in the paraffin impregnation pol.

After impregnation and cooling the wooden jig pieces were again fitted and the insulating tube between primary and secondary built up to a wall thickness of over 6 mm. In the first experimental coil made the insulation broke down between primary and secondary,

hence in this second attempt more care was taken to improve the insulation. Strips of brown paper were cut to fit neatly up to the end pieces. The paper was secured with cotton thread, the end jig pieces again removed and the unit immersed in the melted wax bath until no further air bubbles were seen. This method proved eventually to be quite successful.

The secondary of 34 gauge cotton enamel insulated copper wire was pie wound. The inner diameter allowed a smooth fit on the insulating tube, the pies were approximately 13 mm thick with an outside diameter of about 114 mm. The end pieces of the winding jig were slotted so that the pie winding could be secured with thread before removing from the jig for impregnation.

MAKE AND BREAK

The impregnated pies were assembled then on the insulated core with waxed paper interleavers so that the start of each winding could be brought out for ease in soldering. A polished cedar box had been made with the end pieces bored to support the core and to allow one end of the core which had been filed flat to slightly protrude. Before assembling in the box a condenser made from tin foil and cleaned photographic plates was fitted into the bottom of the box and leads brought out to shunt the make and break contacts of the primary winding. The make and break device or trembler used a clock spring armature with a soft iron disc rivetted to one end. The armature was also fitted with a heavy silver contact, and the adjusting screw also had a heavy silver contact.

Terminals were fitted to the top of the box for aerial and earth leads and to hold and allow easy adjustment of the spark gap. Terminals were also fitted to the end close to the vibrator for connecting the key and the battery leads. The spark coil was now ready for test.

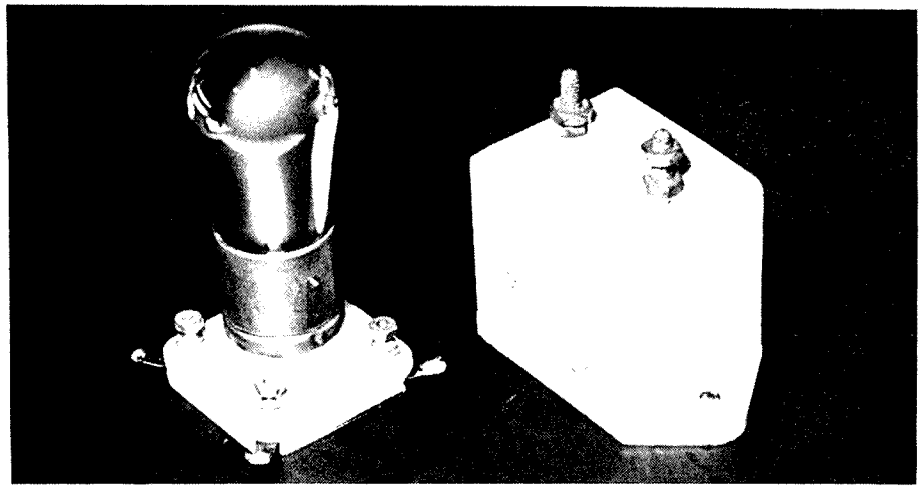
NO ELECTRICITY

Tingha at that time had no electric power service. Our home was lit by kerosene lamps. We used wood fires for cooking and heating. Tingha at nearly 914 metres above sea level could be very cold with occasional snowfalls. Firewood was in plentiful supply in the bush and the big log fires in the winter were very welcome.

Kerosene Lamps.

The primary battery power supply was made up from four wide mouth fruit preserving jars. These were fitted with wooden lids to support the electrodes and the lids were each bored with three holes to take the carbon arc rods and a centre hole for the zinc electrode. The zinc rods were cleaned and amalgamated and a simple lever system fitted to lift the zinc rods out of the electrolyte when not in use. The electrolyte was a saturated solution of sodium dichromate in dilute sulphuric acid. The battery was housed in a stout box with a carrying handle. It was rather messy and had to be handled with care.

The spark coil was now connected to the battery through the key and gave a hefty spark across the gap. Without a suitable meter I could only guess at the power input, as probably about two or three amps at about eight volts. By moving the receiver some distance away and listening to the coil output the burry note could be improved by reducing the spark gap and adjusting the vibrator. The resulting note was not unpleasant.



An early valve and ceramic block capacitor.

SPARK GAP PROBLEM

Tests were now carried out at arranged times to try to contact my friend in Inverell but our joint tests were unsuccessful. Warden believed we would not do much good until we could devise a method of tuning the output circuit of the spark coil transmitter. He had wound coils to separate the spark circuit from the antenna with inductive coupling, but attempts to make tuning condenser failed. The very high voltages generated by the spark coil perhaps of the order of some tens of thousands of volts, depending on the setting of the spark gap presented quite a problem.

I thought it would be interesting if I could determine the range of the transmitter. Mounting the receiver on the luggage carrier of the new motorbike which had replaced the old "one-lunger", and equipped with a coil of wire and an earthing spike, I was ready to try the idea. My brother, recently returned from the war, was not very interested in wireless experiments but offered to key the transmitter for five minutes every half hour until I returned. The results of this expedition were quite informative, though rather disappointing as regards distance covered by the transmitter. It appeared that the trees with their bushy tops absorbed or destroyed the signal. On top of a small hill across an open paddock the results were a little better, but it was found here that tuning the loose-coupler made no noticable difference to the strength of the received signal. This supported Mr Warden's theory about tuning the output circuit of the transmitter.

NEW TUBES

When I returned to school on Monday, Mr Warden was quite excited about possible new developments. He had received through the post from his friend in Sydney two of the new Expanse A vacuum tubes. He gave one of them to me and told me that he had also received a large amount of technical information on the uses of the new device. Already his vocabulary was changing, and as he spoke of continuous wave generators, of regenerative detectors, of A batteries and B batteries, I began to realise that the wireless experimenters' boundless enthusiasm was hurrying us along at a great rate. I think that at that time my youth and inexperience, like that of many others, could not forsee the enormous commercial possibilities of these new developments.

Warden was now mapping out a new programme for experiment but apart from simple tests of the new Expanse tube my time was limited. Final examinations were now approaching and as I was anxious to matriculate to Sydney University, and as my family would be moving to Sydney in a few months time, further experiments would have to wait for a while.

Although it was now obvious that the day of the loose-coupler, and the spark coil transmitter was finished I did not regret the time spent over the last eighteen months. I had acquired a grounding in wireless and could now transmit and receive Morse at about 15 words a minute. I looked forward to continuing experiments in the new home.

SPECIALIST SUPPLY SHOPS

In January 1922 my family moved to a new home in Sydney. The next three or four years were of tremendous interest to me. The meeting with new friends at University and with the rapidly growing fraternity of enthusiastic amateurs in the suburban area rekindled my own enthusiasm. The first Expanse A triode was soon replaced by a growing range of tubes. Specialist supply shops began to appear with the introduction of broadcasting and components became more readily available. Of particular help to the amateur experimenter was the publication of technical articles directed specifically to him in local and overseas journals. He was now learning something of the activity and rapid development of our hobby in Britain and the USA.

JAM JARS RECTIFY

By 1925 my station after many changes in its construction would have been fairly representative of the average amateur rig for working DX. A Reinartz type receiver and a TPTG transmitter. The transmitter used a single UX210 tube. It was powered from a home-brew transformer with about 400 volts each side of the centre tap, rectified by a string of jam jars with aluminium electrodes in a borax solution, and smoothed by two or three oil immersed 2mF condenser . This was adequate for CW.

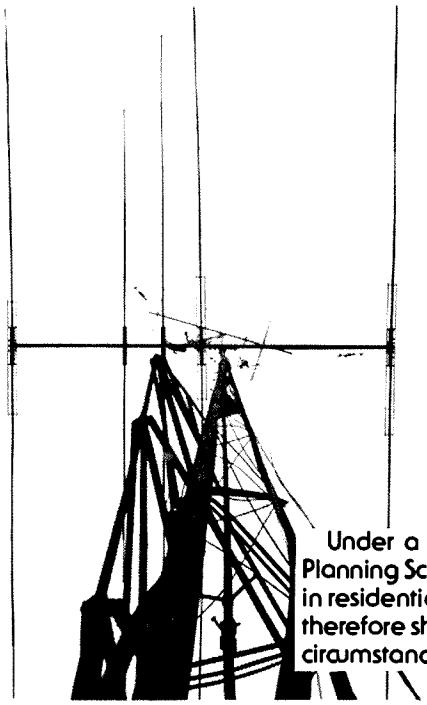
In 1928 I was notified by the Postmaster General's Department that I would have to sit for the AOPC examination. This brought me a very handsome document that I still treasure, numbered 457 and signed by J Malone, Chief Inspector, W T S Crawford, Radio Inspector, dated 8th November 1928 with my name inscribed in copperplate. On the back of the certificate is a photo of myself signed in the presence of W T S Crawford. The secrecy of those communications we might hear had to be observed.

Until the outbreak of WW2 amateur activity expanded with growing worldwide DX aided by the development of directional antennae. During the war the amateur gear had to be sealed in a box and aerials dismantled. After the war the great range of radio equipment offered to the public by the Disposals Departments helped many amateurs to get going again. From then to the present day the wonderful new technical developments in electronics have maintained or accelerated this technical revolution we now experience.

Today I enjoy a rag chew nearly every morning with some old (and some not so old) timers. Starting at 0030 on UHF we switch to the 7 MHz band at 0100 UTC and enjoy the company for an hour! The stalwarts of this session for many years have been my good friends Horrie VK2FA and Gordon VK2AVT. Many other amateurs and myself are always made welcome when we call in.

I am beginning to think that amateur radio must be a long life therapy — I turned 82 at my last birthday.

AR



Radio Masts — a minority of municipal councils, unhappy with losing appeals, wage war on Amateur Radio.

Alan Noble VK3BBM
VK3 FEDERAL COUNCILLOR

Under a recent amendment No 115, Part 3 (Radio Masts) to the Melbourne Metropolitan Planning Scheme (MMPS) a planning permit is now required for the erection of some radio masts in residential areas of the Melbourne Metropolitan Area. This article is about Town Planning and therefore should not be confused with the requirement to obtain a building permit in appropriate circumstances.

Building permits, required under the Victorian Building Regulations, use as their criteria engineering and safety factors.

In 1979 a move was made on behalf of a small number of municipal councils to reserve a situation in which their decisions to refuse building permits for radio masts were being over-ruled by Town Planning Appeals Tribunals.

The Melbourne Metropolitan Board of Works (MMBW) advertised a proposed amendment No 115, Part 3, to the MMPS.

This was designed to bring in the requirement of a planning permit for radio masts in residential areas.

A definition of a radio mast for entry into the MMPS was:

"Radio Mast used in connection with radio transmission or reception within a dwelling, means a mast which together with antenna;

a) Exceeds a height of 14 metres above the ground, or

b) When attached to a building, exceeds a height of 5 metres above the highest part of such building."

Some eleven objections, including eight out of Melbourne's fifty three municipalities, to the proposed definition were lodged, the main thrust being that the dimensions were too generous.

The MMBW accepted the substance of the objections and early in 1981 changed its amendment to read:

a) Exceeds a height of 8 metres above the ground,

b) When attached to a building, exceeds a height of 3 metres above the roof line, or

c) Has any horizontal dimensions in excess of 3 metres.

WIA LEARNS OF PROPOSED AMENDMENTS

The WIA Victorian Division became aware of the situation even though it had not been advised or consulted as an interested party by the MMBW.

The proposal was before the then Planning Minister, Lou Lieberman, for approval.

An immediate protest was made to the Minister by the WIA on behalf of the Amateur Radio Service (ARS).

Following considerable research a thirteen page document, 11 May 1981, was sent to the Minister.

This advised on the purpose, role, and organisation of the ARS, and the technical considerations regarding physical size and height of antennae.

It also summarised cases heard where individuals or businesses had appealed to the Town Planning Appeals Tribunal in the matter of radio masts.

Of the ten cases heard in the period 1971-78 only three concerned ARS installations.

Determination made by the Tribunal in the three cases are summarised:

1) Hobby, Amateur Radio Station. Forms part of normal use of house.

2) Hobby, Amateur Radio Station. Allowed on merits.

3) Allowed on grounds that no permit was required.

The Minister was advised that the MMBW proposals could effectively prevent any future radio amateur installations from using the international frequency allocations in the way envisaged by the International Telecommunications Union and the Department of Communications.

On 16 June 1981, the Institute again wrote to the Minister with two positive alternatives to the MMBW's advanced view.

The first was that the Minister should not refer to "Radio Mast" or "Antenna" in the MMPS as it relates to the residential zoning, and a hobby or domestic use. This was supported by:

a) Town Planning Appeals Tribunals Decisions.

b) The community needs to avail itself of modern technology.

c) The right to receive radio signals broadcast for public consumption including shortwave international broadcasts and television signals in a residence.

d) The right of a citizen to engage in normal activity (hobby or interest) in his own home to the fullest extent.

e) Where a technical subject is involved, Local Government officials or councillors do not have (or rarely have) the expertise to decide what is fair or equitable, necessary or unnecessary, in regard to antennae.

f) Cost to the community would be minimised in an area (ie; radio reception and transmission) which is already governed by federal acts and regulations of a national and international character, and the natural laws of physical science.

g) An Amateur Radio Station is an asset to the local community.

It also put to the Minister the dimension(s) should be such as to exempt the majority of masts used in the ARS and that a height of 20 metres above the ground or 6 metres above the roof line with no horizontal limitation be adopted.

In this context the Institute had in mind these dimensions would include the rotatable antenna mounting pipe above the mast proper.

It was difficult to obtain from any source what exactly the MMBW considered to be mast, and what was not.

As a result of the Institute's submissions to the Minister, WIA representatives attended a meeting on 17 June, chaired by the Chief Planner, Department of Planning, to discuss the proposed amendment.

Others present were representatives of the Department of Communications, CB operators, TV Electronic Technicians Institute, TV Electronics Servicemen's Association, Antenna Manufacturing Industry, and Local Government.

At this meeting it was proposed that *"A self-regulatory approach"* to the siting of radio masts *"may be an acceptable means of ensuring that the sometimes adverse impact of radio masts is reduced."*

On 24 August the Minister wrote to the Institute:

"... to determine whether you would be prepared to take a lead role in developing guidelines which would be available to all those persons seeking to erect antennas on their properties. In view of the large amount of public interest in this issue at Local Government level I have written to the Municipal Association of Victoria (MAV) to determine if that association would be prepared to nominate representatives to work with your organisation in developing non-statutory guidelines. Should the organisation agree to participate it would be my intention to not proceed with the amendment on the assurance that acceptable guidelines are prepared, published and made available to all those wishing to participate in radio operations."

The Minister's invitation was immediately accepted.

In the following weeks the Institute sought talks with the MAV to no avail.

Having no success on a number of occasions to get the MAV to the conference table, the Institute contacted Mr D Daines, Chief Planner of the Department of Planning.

He arranged and chaired a meeting on 5 November 1981 with MAV representatives, the MAV Policy Planning Committee, City of Heidelberg, and the WIA.

The MAV took the view that the WIA should prepare the guidelines and submit them together with substantial argument to enable them to be sold to municipal councils.

It appears that the MAV was not prepared to do any of the development work toward the guidelines and had thrown the ball to the WIA.

Indeed it was to be seen later that the enthusiasm for non-statutory guidelines was hardly brimming over in the halls of the MAV.

The Institute agreed to do what it could but was in a difficult position in regard to resources to do the job. Another problem was that we had no idea of how much was understood of amateur radio by people in the MAV or municipal councils generally. Had they seen the submission to the minister or not?

It was decided that any document to the MAV had to assume no knowledge of amateur radio and it should again start from scratch. Accordingly a document *"A contribution to the development of non-statutory guidelines for the erection of masts in metropolitan residential areas"* was despatched to the MAV in March 1982. Discussion was sought to further develop the concepts presented.

The paper proposed that

— *A height of 20 metres subject to certain conditions of mast design and space availability.*

— *Masts of triangular, square or rectangular cross section having a dimension on any side in excess of 50 centimetres measured at a height of 3 metres above the ground and being of self-supporting or guyed construction could be subject to consideration by the planning authority as to its effects on 'the amenity of the area',*

— *Masts of smaller dimensions than those above should be exempt from planning control.*

The MAV arranged to meet the Institute on 6 May 1982 to discuss the WIA paper. At the meeting the Institute representatives were asked a number of questions relating to its ability to enforce a self-regulating scheme. It was apparent that the MAV was not or did not want to be impressed by the record of self-regulation in the amateur service. Questions on the number of licences issued in Victoria and the number of Institute members were asked. There was no in-depth exchange of views on the proposals put forward by the Institute and no contributions were put by the MAV.

It was the view of the WIA representatives at the time that we had wasted a lot of labour and breath. This seemed to be confirmed when a letter dated 17 June 1982 was received from the MAV in the following terms —

"The planning policy committee finalised its position on the matter and decided to make the following recommendations . . .

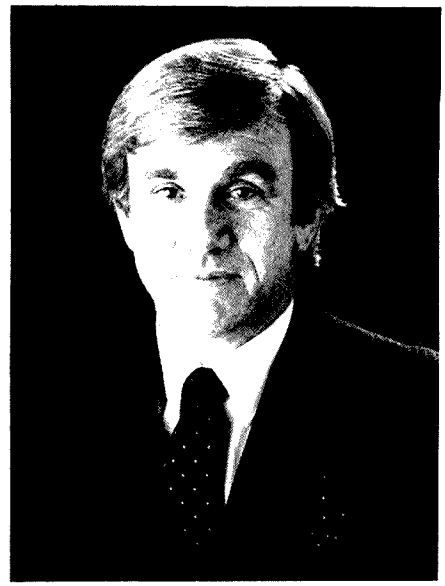
1. That the Association not support the introduction of self-regulation by the WIA, because such an approach would not provide a sufficient and enforceable system for the amenity protection of the community as a whole, particularly as the level of membership of the WIA is not sufficiently high to enable the Institute to effectively enforce the compliance of all residence-based amateur (hobby) radio operators, with self-regulations, it being noted that WIA membership in Victoria constitutes only 48-55 percent of the total number of amateur operators . . .".

It continued with a number of other recommendations which effectively threw the ball to the Department of Planning.

Even though the MAV had used incorrect statistics in coming to its conclusion on the percentage membership of the WIA (the MAV had used members against licences instead of taking members against licencees with allowance for multiple licensed operators). It did raise a significant point in that from an outsiders view even 67 percent membership (about the correct figure at the time) is not over-impressive and most certainly would not have changed their opinion. It is however something to contemplate as to what might have been the attitude had the institute been able to claim 95-100 percent membership.

The Victorian Government changed in April 1982 and a new minister for planning, Mr Evan Walker. The planning department reported to Mr Walker in August 1982 and recommended that the amendment as previously proposed by the MMBW be adopted.

The minister's response was that the issue be referred to the Natural Resources and Environment



Mr Evan Walker

Committee of the State Parliament, for investigation and report.

On the 7 December 1982, the committee was directed by His Excellency the Governor in council:

"To inquire into, consider and report to Parliament by 30 June 1983, whether the environmental impact of larger radio masts throughout the metropolitan area is of a degree of significance sufficient to justify municipal control over the appearance of such masts in residential areas."

The first problem was the answer to the question *'what is a larger radio mast'*? secondly what constitutes *'environmental impact'*? There was no definitive answer available from the inquiry committee, the Department of Planning or the MMBW. *Had we spent the last two years working, talking, and writing submissions to people who could not now say precisely what they were on about?*

So again the Institute was faced with the task of informing a new group of people about amateur radio and some of the simpler aspects of radio propagation and antenna technology.

There were 612 submissions to the inquiry, the majority being pro-forma letters from radio amateurs. a number of detailed submissions were also received from interested amateurs. The Institute's submission ran to 15 pages plus 19 pages of appendices. (That submission is reprinted in full in the report of the committee of inquiry, dated September 1983, and available from the Victorian Division).

The Committee held a public hearing on 20 May 1983 at Parliament House. The Institute was represented by Alan Noble VK3BBM, Jim Linton VK3PC and Jack O'Shannassy VK3SP.

In September 1983 the inquiry presented its report to parliament and recommended that the MMPS be amended to define "radio mast" as *"radio mast used in conjunction with the transmission or receipt of wireless, telegraphy or television means a mast which together with antennae —*

a) has any horizontal distance in excess of 3 metres, or

b) when attached to a building, exceeds a height of 5 metres above the roof line, or

c) when not attached to a building exceeds a height of 14 metres above the ground."

"Antennae are to be defined as rigid elements attached to the radio mast or rotating boom supported by the radio mast. This definition does not include flexible wires or cables."

The committee also suggested each municipality in the Melbourne metropolitan area be requested to establish guidelines for the approval of permits for larger radio masts.

The Institute viewed these proposals with deep concern. It was apparent little of what we had submitted received much attention, although it was evident the committee had recognised that 14 metres and 5 metres were more reasonable than the 8 and 3 metre height dimensions recommended by the MMBW.

The WIA requested a meeting with the minister, Mr Walker to discuss its concerns. A meeting took place in April. Mr Walker who had been due to tell Parliament what he intended to do, sought leave of Parliament to extend his deliberation.

At the end of July 1984, having heard nothing further, the Institute contacted the Department of Planning to find out any developments. The Departments view had not been firmed up at this time.

The Institute was aware of the concern in other places that it had not responded to the report of the Committee of Inquiry now before the Parliament. It was borne in mind that similar submissions had now been made three times to different areas of authority. It appeared as if none of them had been taken very seriously.

At the beginning of October 1984, the Institute received a telephone call indicating that the Department of Planning had reached a position on its advice for the minister and an invitation was received to have discussion.

At a meeting some two days later it was plain that we were not to be informed of the content of that advice, but it was put to us that our main concern was in the area of the horizontal dimension limitation proposed. The Institute's reply indicated concern at a number of proposals out of the inquiry including that mentioned. There was a request made that the Institute state its concerns in writing within a few days.

A letter from the Divisional council was sent on the 11th October. It said that:

The Institute viewed the Report as being ill-conceived, serving neither the cause of intelligent planning in the community nor the interests of those who would be the major target of the proposed controls — the members of the Amateur Radio Service.

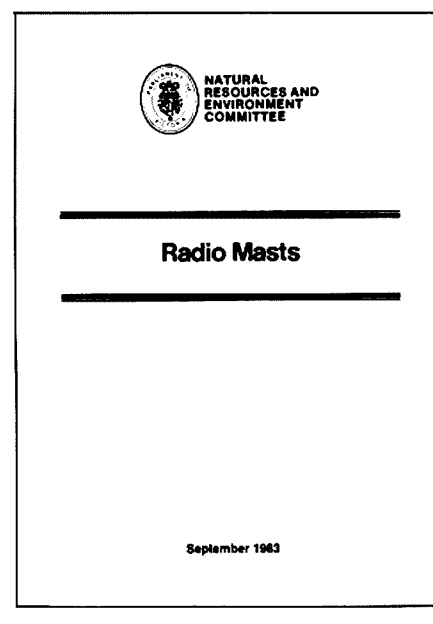
This view was formed from the following observations of the Reports as printed:

There was no conclusive evidence on which to reach a conclusion that planning control over radio masts is justified;

The Report showed clearly those in favour of planning control are in the minority;

The Report also showed the minority of individuals and municipalities in favour of controls has failed to make out a substantial case;

There appeared to have been assumption, that because there had been a public inquiry, planning control was the logical outcome. This Institute disagreed. The alternative of no planning control had



not been seriously considered;
Statistics quoted in this Report had been used with gay abandon. Figures had been used out of context, "imagined" and abused.
The Minister for Planning and Environment submitted his report to the Legislative Assembly on the 24th October 1984.

In regard to his proposed action the Minister said:
PROPOSED ACTION
I have given consideration to the Committee's recommendations and to the various arguments put forward in the statutory processing of the amendment and I now proposed to recommend Governor in Council approval of Amendment No 115, Part 3 to the following general effect:
A Radio mast is a mast which, together with antenna:
(i) exceeds a height of 14m above the ground;
(ii) when attached to a building, exceeds a height of 5m above the roof line;
(iii) has any horizontal distance in excess of 6m; or
(iv) has a structure, not including antennae, exceeding 50cm in width at any point in excess of 3m above ground level.

In coming to my recommendation I have of course noted the reference in the Committee's recommendation to television reception. The concept of planning control over masts for domestic television reception is one that has not been canvassed in the statutory processing of Amendment No 115 and as such should not be considered in the absence of public debate on its planning merits. I propose therefore to raise this aspect of the Committee's recommendation with the Board of Works and to exclude domestic television reception from the operation of the amendment.

The other point to be noted is that I am of the view that a horizontal dimension of up to 6m would be reasonable, in amenity terms, rather than the 3m recommended by the Committee.

By way of technical consideration I am advised that the radio masts of Citizen Band operators do not normally exceed 6m in width.
Radio Mast is to be subject to planning permit, generally in accordance with the Committee's Recommendation, *subject to consequential amendments to zones* not referred to by the Committee.

In addition, I support the general thrust of Committee Recommendation, (3) and will be pursuing this Recommendation with the Board of Works and municipal Councils.

WHAT NOW?

Although we did not win exemption from planning control for the most commonly used mast and antenna configuration, at least some satisfaction can be taken from the fact we are not limited to the much more stringent dimensions as proposed by the MMBW in 1981.

Those municipalities who consider a height of 14 metres to be too generous in 1979 may take action in the future to whittle away the dimensions now decided. If the Minister proceeds with the proposal that each municipality should draw up its own guidelines for radio masts we could have some fifty three different sets of rules in the Melbourne Metropolitan area.

It will be interesting to note the attitudes of municipal councils toward applications for masts, particularly with a view to the involvement of radio amateurs described by the Victorian Bushfire Review Committee as a 'Valuable Community Resource', in Municipal Disaster Plans and Regional Disaster plans now being drawn up to protect the people of Victoria in times of danger to life and property.

ACKNOWLEDGEMENTS

The author of this article wishes to acknowledge the contributions, advice and active assistance so willingly and freely given over the last four years in the protection of the interests of amateur radio. VK3KKA, VK3YIP, VK3DBB, VK3AFQ, VK3GG, VK3BCY, VK3SP, VK3DES, VK3PC, VK3BYA, VK3KI, VK3KP, VK3XV, WIA Federal Councillors in other states who have kindly kept me aware of mast related developments in their states and all amateurs who submitted letters to the inquiry.

The issue of radio masts has the WIA's continued attention.

AR

TURN INDICATORS ON HOLDEN CAMIRA AFFECTED BY RF FROM 2 METRE TRANSMISSIONS

Rodney Champness VK3UG
31 Helms Court, Benalla, Vic. 3672

A friend and I both have Holden Camiras and both of us have trouble with the turn indicators malfunctioning if transmissions are made whilst the indicators are on. To overcome the trouble place 2-0.001uF ceramic capacitors, one on the 12 volt DC line to the Bosch flasher unit and the other on the indicator out line, in both cases the other terminal goes to earth. The indicator flasher unit is dismantled by prising the plastic cover off and the capacitors are soldered directly to the three spade terminals just inside the plastic case. They are a tight fit but, with care, fit quite comfortably.

The flasher unit is located on the fire wall directly behind the instrument binnacle. To get at it, it is necessary to remove the escutcheon around the instrument panel, taking care not to break the rear window demister on/off switch.

It is also necessary to disconnect the other two cables that terminate in dummy sockets on the left side of the instrument panel.

You may need to remove the plastic cover over the steering column, which will involve taking out several screws accessable from below the steering column. Next remove the shroud over the instruments, note that there is one screw at the back of the shroud accessable above the instruments.

Having removed this the instruments themselves have to be removed, and the screws to do this are readily accessable. The instruments may now be pulled forward and reaching behind remove the vacuum line to the economy gauge if fitted and remove the speedometer cable by squeezing the retaining clip to disengage it. Now the instruments can be withdrawn a bit further and the two multi pin sockets and cables can be unplugged and the instruments can be taken out of the way allowing access to the flasher unit.

Removing the instruments is by far the hardest part of the work. It is not difficult to ascertain which of the terminals are which on the flasher. When un-plugged a multimeter will show which terminal is which on the socket, and hence the flasher. As quite a few new cars have the electronic flashers fitted to them, the information above should be of use in suppressing flashers on other vehicles. I know that the Datsun Bluebird flashers are affected by RF and should be amenable to the same suppression techniques. The electronic flashers consist usually of an integrated circuit, a few resistors and capacitors, and a relay.

AR

"DX BEFORE DISHES!"

DX before dishes?
That's OK I suppose.
The dishes are always with us,
The DX comes and goes.

And though the dust is inches thick
That is a matter minor
When you hear, above the QRM
A YL voice from China!
Crumbs upon the carpet?
You can't vacuum the floor!
You might miss, above the cleaner's noise
A chat with Labrador.

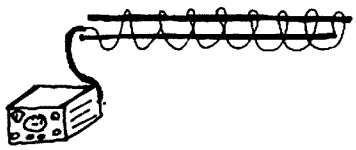
What if you haven't made the beds,
Or if the kids are bawling?
These things are unimportant
If you hear San Felix calling!
What if the lawn needs mowing,
All the windows ceased to shine?
Who cares about those boring chores
When Svalbard's five by nine?
The OM's bent the tin-opener?
Well! Who can think of cooking,
When Africa is coming in
And round the bands you're looking.
BUT — If you do the dishes
(with one ear to the set)
Here's a bit of good advice
'Twould pay not to forget!
If you should hear some rare DX
Which everything surpasses;
Don't "drop what you are doing"
If you're washing crystal glasses!

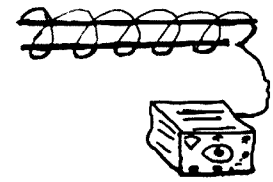
Written by Joy Collis VK2EBX
Contributed by Marlene Austin VK5QO
AR

from QRM, March 1985

Sorry OM. I think I'm wanted!!! 73 and cheers (HELP)

THE EFFECT OF GROUND REFLECTIONS ON CIRCULAR POLARISATION





David Robertson, VK5RN
10 Milan Street, Stirling, S.A. 5152

The effect of a flat earth upon vertically and horizontally polarised waves is dealt with in most antenna handbooks. An excellent treatment is given in the RSGB Radio Communication Handbook (12.15). Here the vertical polar diagrams for vertical and horizontal antennas over a perfectly conducting plane earth are given and the method of images is explained. This article deals with circular polarisation.

To calculate the vertical polar diagram of an antenna a distance H above a plane perfectly conducting earth, one replaces the earth with an image antenna a distance H below the ground. For a vertically polarised antenna, the image is in phase with the real antenna and for a horizontally polarised antenna, the phase of the image is reversed.

With circularly polarised waves the problem is not quite as simple. Electromagnetic waves consist of an Electric (E) field and a Magnetic (H) field, both normal to the direction of propagation and to one another. A vertically polarised wave has its E field vertical and its H field horizontal. A horizontally polarised wave has its E field horizontal and its H field vertical. A circularly polarised wave has its E and H fields perpendicular to one another, as before, but they both rotate once every RF period, the sense of the rotation being either right or left handed.

A circularly polarised wave can be considered as a horizontally polarised wave combined with a vertically polarised wave, the two waves being in phase quadrature. The question is, *what does a perfectly conducting flat earth do to these waves?*

is to refer to circularly polarised waves as circular.

Referring to figure 1 again, it can be seen that the direction of the resultant depends on which way the two counter rotating components were pointing at t = 0. In other words, the direction of the resulting plane polarisation, horizontal, vertical or slant depends upon the phase difference between the two circular components.

After all this, let's return to the problem of a circularly polarised antenna above a perfectly conducting flat earth. *What sort of image antenna should one use?* Well, we know that the phase of a horizontally polarised wave is reversed on reflection and that the phase of a vertically polarised one is not reversed. If one considers a circularly polarised wave as a combination of vertically and horizontally polarised waves, then phase reversal of one component relative to the other will cause the sense of the polarisation to reverse. That is to say, a right hand circularly polarised wave will become a left hand circularly polarised wave and vice versa.

In order to calculate the vertical polar diagram, one must therefore combine the fields of two counter

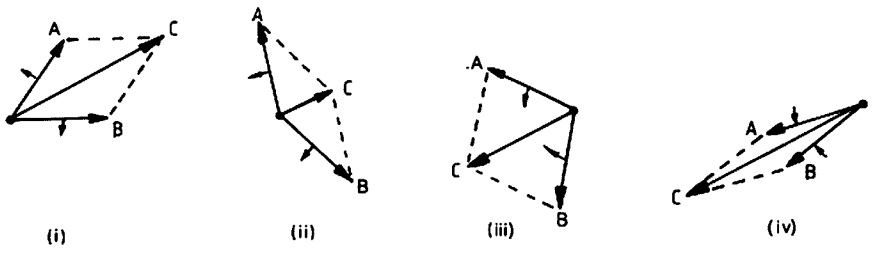


Figure 1 — Two counter rotating vectors, A and B, and their resultant C. Time increases from left to right.

Just as a circularly polarised wave can be regarded as a combination of plane waves, a plane wave can be regarded as a combination of two circularly polarised waves rotating in opposite directions. This is shown in figure 1, where the two E fields are represented as vectors rotating in opposite directions. To get the resultant of these two counter-rotating vectors one simply adds them. As can be seen in figure 1, the resultant vector oscillates back and forth without rotating. It is plane polarised. It should be said that the term plane polarised refers to the plane containing the E vector and the direction of propagation. To be consistent, one should call them linealy polarised if one

rotating circularly polarised antennas, a real one above ground and its Image an equal distance below ground. We have already seen that this combination gives rise to plane polarisation, the direction of polarisation being a function of the phase difference between the two circular components.

The vertical polar diagram of a circularly polarised antenna above earth is therefore uniform. The amplitude of the radiation field is independent of the angle of elevation. The resultant radiation is plane polarised and only the orientation of the plane of polarisation varies with the angle of elevation. *Unlike horizontally or vertically polarised antennas, there are no nulls.*

For angles of elevation that are larger than the vertical half beamwidth of the antenna, it is necessary to tilt the antenna and then the major lobe does not strike the earth. Under these circumstances there is no ground reflection and the antenna will deliver circularly polarised radiation.

All is not lost. At least there are no nulls in the vertical polar diagram. In this respect, a circularly polarised antenna is highly desirable. In fact, this property is probably more useful than the provision of circularly polarised radiation at a satellite. It would be nice to have no nulls and circular polarisation, but you can't have both without using very narrow band widths.

At wavelengths of 2 metres or 70 centimetres, extremely narrow beams are beyond the reach of most of us.

Slant polarisation turns out to be no better than vertical or horizontal polarisation. A mathematical analysis of circularly and slant polarised antennas above a perfectly conducting horizontal earth follows. *(It assumes a zero antenna elevation but the general conclusions apply for elevations of less than the vertical half beamwidth, a common situation. Oscar 10 often requires using elevation angles of 10° or less . . . Ed)*

MATHEMATICAL ANALYSIS

The electric field of a circularly polarised wave can be expressed as $E = Eo \exp(i\omega t)$
where Eo is the amplitude of the field, $\omega = 2\pi \times$ frequency, $i = \sqrt{-1}$, and t = time.

From here on, E_o will be set to the value of 1 and the field will be expressed as $E = \exp(iwt)$. This is a vector rotating anticlockwise once every RF period. (once every 1/f seconds).

Figure 2 shows an antenna with its image below ground. The wavefront from the image has to travel a distance EC more than the wavefront from the real antenna in order to reach a distant point P.

$BC = 2.H. \sin \theta$

Remembering that the image antenna is also circularly polarised, but in the opposite sense to the real one, and that its phase is also reversed, we can write the field at P as:-

$E = - \exp(-i\omega t) \exp(-ik\ (2\ H \sin \theta))$

The first negative sign gives the phase reversal of the horizontal component and the -iwt instead of iwt makes the sense of rotation clockwise instead of anticlockwise. The second exponential gives the extra phase shift of the wave from the image antenna due to the extra distance of travel BC.

$k = 2\pi/\lambda$ where λ = wavelength

The resultant field at P is the sum of the two fields

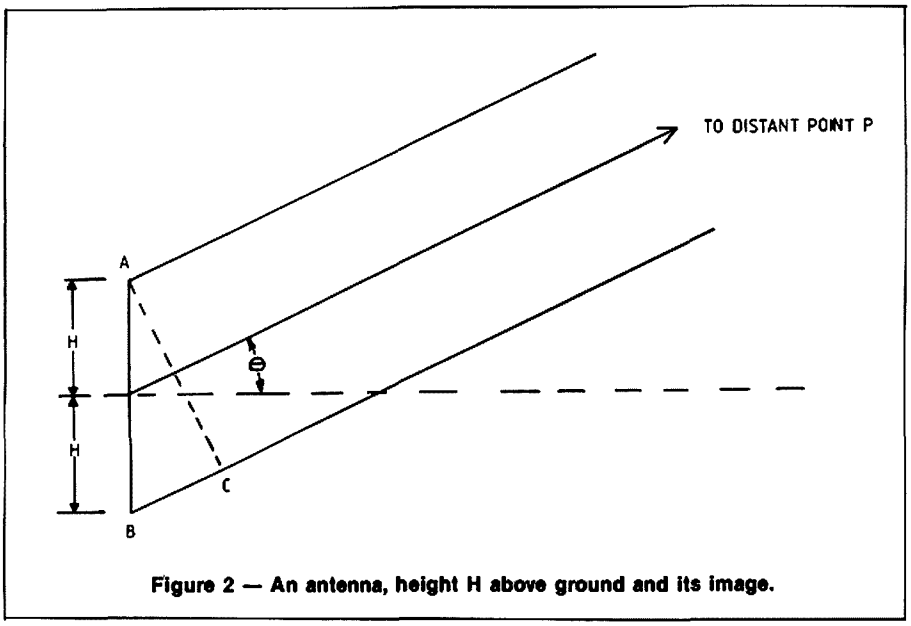


Figure 2 — An antenna, height H above ground and its image.

$E = \exp(i\omega t) - (\exp(-i\omega t))(\exp(-i\alpha))$
where $\alpha = 2.K.H.\sin\Theta$

It is now time to resolve the field at P into its real (horizontal) and imaginary (vertical) parts.

Using the identities

$\exp(i\omega t) = \cos\omega t + i\sin\omega t$
$\exp(-i\omega t) = \cos\omega t - i\sin\omega t$
$\exp(-i\alpha) = \cos\alpha - i\sin\alpha$

and making these substitutions,

$E = \cos\omega t(1 - \cos\alpha) + \sin\omega t.\sin\alpha + i\sin\omega t(1 + \cos\alpha) + i\cos\omega t.\sin\alpha$

Using standard trigonometrical formulae which can be found in trigonometry books and also on page 277 of the Radiotron Designers Handbook fourth edition, this can be reduced to

$E = 2[\sin(\alpha/2) + i\cos(\alpha/2)].\sin(\omega t + (\alpha/2))$

The component of E along the horizontal axis is:-

$2\sin(\alpha/2).\sin(\omega t + (\alpha/2))$

Its component along the vertical axis is:-

$2\cos(\alpha/2).\sin(\omega t + (\alpha/2))$

These two components are in phase with one another because both RF phase angles are the same and equal to $(\omega t + (\alpha/2))$.

The polarisation is therefore plane.

The amplitude is given by:-

$A = 2\sqrt{\sin^2(\alpha/2) + \cos^2(\alpha/2)} = 2$

We therefore have a plane polarised wave arriving at P with a constant amplitude that is independent of antenna height and the elevation angle.

The angle that this plane makes with the horizontal is given by:-

$\phi = \text{Arc Tan (imaginary/real)}$

$\phi = \text{Arc Tan}((\cos(\alpha/2))/(\sin(\alpha/2)) = \pi/2 - (\alpha/2)$ radians

At zero elevation, $\Theta = 0$, and $\alpha = 0$, $\phi = 90°$ and the polarisation is vertical.

When $\alpha/2 = \pi/2$, $\phi = 0$ and the polarisation is horizontal.

SLANT POLARISATION

For simplicity, let the antenna be slanted at an angle of 45°. This gives horizontal and vertical components of the same amplitude. Neglecting the $1/\sqrt{2}$ factor, the field can be written:-

$E = \cos\omega t + i\cos\omega t - \cos(\omega t - \alpha) + i\cos(\omega t - \alpha)$

The first two terms give the field the real antenna and the other two terms give the field from the image antenna.

With slant polarisation, the vertical and horizontal components are in phase with one another so that I have expressed the wt parts as cosine functions. Sine functions could have been used equally well. However, unlike the circular case, there is not a mixture of Sinwt and Coswt terms.

This equation can be expanded to:-

$E = [\cos\omega t(1 - \cos\alpha) - \sin\omega t.\sin\alpha] + i[\cos\omega t(1 + \cos\alpha) + \sin\omega t.\sin\alpha]$

The terms inside the first square bracket give the horizontal component of E and the terms in the second square bracket give the vertical component.

In general, the polarisation is elliptical. For a given value of α . the ellipse can be drawn by varying wt and plotting the real part of E along the horizontal axis and its imaginery part along the vertical axis.

When $\alpha = 0, 360, \ldots$ the polarisation is plane and vertical and when $\alpha = 180, 540, \ldots$ the polarisation is plane and horizontal. When $\alpha = 90, 450, \ldots$ the polarisation is left hand circular and when $\alpha = 270, 630, \ldots$ the polarisation is right hand circular. With other values of α the polarisation is elliptical. With increasing elevation angle, starting from O, the polarisation will vary as follows. Vertical, LH elliptical, LH circular, LH elliptical, horizontal, RH elliptical, RH circular, RH elliptical.

Vertical . . . For a slant angle of -45° change LH into RH and RH into LH.

The amplitude of the horizontal component of E is given by:-

$Ah = \sqrt{(1 - \cos\alpha)^2 + \sin^2\alpha}$

The amplitude of the vertical component is:-

$Av = \sqrt{(1 + \cos\alpha)^2 + \sin^2\alpha}$

The peak power is $Ah^2 + Av^2 = 4$

Power is therefore independent of the angle of elevation. The slant antenna shares this property with the circularly polarised antenna. If, however, the satellite borne antenna is circularly polarised, the slant antenna is a bad choice. This is because there are ranges of elevation angle for which the polarisation from the ground based antenna will be in the wrong sense. The sense alternates between left and right hand and crossed polarisation is equivalent to a null.

CONCLUSION

For satellite communications at low angles of elevation, circularly polarised ground based antennas are better than slant, vertical or horizontally polarised antennas when the satellite uses circular polarisation.

The reason for circularly polarised antennas being best is NOT for the commonly accepted reason that such antennas deliver matching circularly polarised waves to the satellite, but because they deliver constant amplitude plane polarisation at low elevation angles. There are no nulls in the vertical polar diagram.

At high elevation angles, circularly polarised antennas win again because, in the absence of ground reflections, they do deliver circular polarisation to the satellite antennas.

AR

SEARCH FOR ILLEGAL CHIPS

The Mitsubishi Electric Corporation is keen to trace a series of reject M5K4164ANP15 64k dynamic RAM chips illegally released onto the world market by a Japanese toy manufacturer.

The chips, which number around 500,000, failed to meet Mitsubishi Electric's stringent quality control requirements and were sold unbranded to the toy manufacturer, purportedly for a decorative application.

Sensing there was a quick dollar to be made, the company then had them overprinted with the Mitsubishi logo, and part number and resold them to several trading houses.

From that point, the chips have found their way around the world.

However, the problem for the ultimate end-users of the rejects is that they don't carry the usual guarantee because the chips weren't bought direct from Mitsubishi Electric.

According to Mr Jon Spence a spokesman for the Australian arm of the company, none of the rejects have yet been discovered in this country, and a large proportion have since been recovered in the United States and elsewhere.

He said that the chips could appear a little dirty from lengthy storage and carry 841809 and 842105 batch marks.

Anyone finding the chips should contact Jon Spence at Mitsubishi Electric Australia Pty Ltd, 73-75 Epping Road, North Ryde, NSW 2113, telephone (02) 888 5777.

from Electronics News — January 1985

AR

THOUGHT FOR THE MONTH

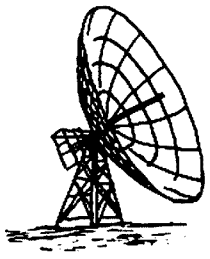
Are you an active member, the kind who would be missed,
Or are you just content to have your name upon the list?
Do you attend the meetings and mingle with the flock,
Or do you stay at home most times, to criticize and mock?
Do you take an active part to help the work along,
Or are you satisfied to be the kind that just belong?
Do you ever volunteer to help to guide the stick,
Or leave the work to just a few, and talk about the clique?
Come to the meetings often and help with hand and heart,
Don't just be a member, but take an active part.
Think this over member, you know right from wrong,
Are you an active member, or do you just belong.

From the "Off Roadrunner"
Contributed by Jim Linton VK3PC

AR

LOCATION OF GEOSTATIONARY SATELLITES

Harold Hepburn VK3AFQ
4 Elizabeth Street, Brighton East, Vic.



Some few years ago the writer had a passing professional interest in determining the "aiming" of antennae for use with geostationary satellites such as the proposed Aussat TV series. At that time computations were done using a pocket calculator — a rather time consuming process.

Recently a Commodore C-64 was acquired, primarily for its word processing capabilities since retirement had meant separation from "free" secretarial services. Somewhere along the line it was realised that a simple C-64 programme for determining the Azimuth, Elevation and Range of geostationary satellites might prove useful, especially if the proposals by AMSAT to put up a series of amateur "geostats" becomes a reality.

A printout of the programme finally developed is given at the end of this article and some comment on it may assist those who wish to alter or expand it.

Line 10 is the usual "name of file" line.
Line 11 clears the screen while Lines 12, 13, and 14 set the background, border and character colours. This particular colour combination happens to suit the writers monochrome monitor but it can easily be altered to suit the individual preferences of users with full colour facilities.
Lines 20-90 provide a heading which is suitably framed and centered for a 40 column display.
When the programme is RUN lines 110 and 115 ask users to enter their latitude with a reminder that southern latitudes must be negative (eg: Melbourne would require an entry of -38).
Lines 135 and 150 ask for the observers longitude with the prompt that the entry should be expressed in degs west.
Line 160 asks entry of the satellite position (also in degs west) while Line 180 asks for entry of the satellite name.
Line 190 establishes a value for Pi, which, together with Lines 200 and 210, convert the entered angles in degrees into angles expressed in radians. This transformation is necessary because the C-64 can only process radians, not degrees.
Lines 300, 310, 320 and 335 do the calculations to determine satellite azimuth and elevation (in radians — they will be transformed back to degrees later in the programme.)
Line 340 calculates the distance (Range) of the satellite in kilometres.
Lines 350 and 370 transform the angles in radians back into degrees.
Lines 400, 410 and 430 put the answers (rounded off to the nearest whole number) on to the screen.
If the answer to the elevation calculation is zero, or a negative quantity, the satellite is either right on the horizon or below it. Under these conditions the satellite is not accessible. Line 375 checks for that situation and, if the calculated elevation is less than a nominal 1 deg, the programme bypasses the normal printout and instead Line 580 puts the message "SATELLITE BELOW HORIZON" on to the screen. The CHR$(18) reverses out this message for further emphasis.

```
10 REM"LOCATORS"
20 POKE 53290,4
30 POKE 53281,0
40 PRINT CHR$(5)
100 PRINT CHR$(147)
110 PRINTSPC(6)"*****************************"
120 PRINTSPC(6)"*                           *"
130 PRINTSPC(6)"*    LOCATOR PROGRAMME      *"
140 PRINTSPC(6)"*         FOR C-64          *"
150 PRINTSPC(6)"*                           *"
160 PRINTSPC(6)"*  BY H.L.HEPBURN VK3AFQ    *"
170 PRINTSPC(6)"*                           *"
180 PRINTSPC(6)"*****************************"
190 PRINT
220 PRINTSPC(10)"THIS PROGRAMME WILL -"
230 PRINT
240 PRINTSPC(1)" (1) DETERMINE IARU 'LOCATORS'"
250 PRINTSPC(1)"       FROM MAP REFERENCES"
260 PRINT
270 PRINTSPC(1)" (2) WORK OUT MAP REFERENCES"
280 PRINTSPC(1)"         FROM 'LOCATOR'"
290 PRINT
300 PRINTSPC(1)" (3) CALCULATE BEAM HEADINGS AND"
310 PRINTSPC(1)"     DISTANCES FROM MAP REFERENCES"
320 PRINT
330 PRINT
340 PRINTSPC(1)"PRESS 1,2 OR 3 AND 'RETURN' TO SELECT"
350 PRINTSPC(1)"DESIRED FACILITY.PRESS 4 AND 'RETURN'"
352 PRINT SPC(1)"TO END"
355 INPUT"                  ";W%
370 IF W%=2THEN GOTO 3000
380 IF W%=3 THEN GOTO 3930
385 IF W%=4 THEN END
990 PRINT CHR$(147)
1000 PRINT" ENTER DEGREES PART"
1010 INPUT" OF YOUR LONGITUDE       ";LO
1020 PRINT" ENTER MINUTES PART"
1030 INPUT" OF YOUR LONGITUOE       ";LV
1040 PRINT" ARE YOU EAST OR WEST"
1050 INPUT" OF GREENWICH            ";LQ$
1060 LV=LV/60:REM-CALCULATES DECIMAL MINUTES
1070 LO=LO+LV:REM-EXPRESSES TOTAL DECIMAL DEGREES
1080 IF LQ$="E" THEN LO=180+LO
1090 IF LQ$="W" THEN LO=180-LO
1120 LR=INT(LO/2):REM-GIVES INTEGRAL PART OF LO/2
1125 LR=LR-10
1130 IF LR>9.99999 THEN GOTO 1125: REM - LR NOW=THIRD CHARACTER OF LOCATOR
1140 LS=INT(LO/20)
1170 IF LS=0 THEN LET C1$="A"
1180 IF LS=1 THEN LET C1$="B"
1190 IF LS=2 THEN LET C1$="C"
1200 IF LS=3 THEN LET C1$="D"
1210 IF LS=4 THEN LET C1$="E"
1220 IF LS=5 THEN LET C1$="F"
1230 IF LS=6 THEN LET C1$="G"
```

```
1240 IF LS=7 THEN LET C1$="H"
1250 IF LS=8 THEN LET C1$="I"
1260 IF LS=9 THEN LET C1$="J"
1270 IF LS=10 THEN LET C1$="K"
1280 IF LS=11 THEN LET C1$="L"
1290 IF LS=12 THEN LET C1$="M"
1300 IF LS=13 THEN LET C1$="N"
1310 IF LS=14 THEN LET C1$="O"
1320 IF LS=15 THEN LET C1$="P"
1330 IF LS=16 THEN LET C1$="Q"
1340 IF LS=17 THEN LET C1$="R"
1345 LX=LO/2
1350 LP=LX-(INT(LX))
1355 LP=INT(LP*24)
1370 IF LP=0 THEN LET C5$="A"
1380 IF LP=1 THEN LET C5$="B"
1390 IF LP=2 THEN LET C5$="C"
1400 IF LP=3 THEN LET C5$="D"
1410 IF LP=4 THEN LET C5$="E"
1420 IF LP=5 THEN LET C5$="F"
1430 IF LP=6 THEN LET C5$="G"
1440 IF LP=7 THEN LET C5$="H"
1450 IF LP=8 THEN LET C5$="I"
1460 IF LP=9 THEN LET C5$="J"
1470 IF LP=10 THEN LET C5$="K"
1480 IF LP=11 THEN LET C5$="L"
1490 IF LP=12 THEN LET C5$="M"
1500 IF LP=13 THEN LET C5$="N"
1510 IF LP=14 THEN LET C5$="O"
1520 IF LP=15 THEN LET C5$="P"
1530 IF LP=16 THEN LET C5$="Q"
1540 IF LP=17 THEN LET C5$="R"
1550 IF LP=18 THEN LET C5$="S"
1560 IF LP=19 THEN LET C5$="T"
1570 IF LP=20 THEN LET C5$="U"
1580 IF LP=21 THEN LET C5$="V"
1590 IF LP=22 THEN LET C5$="W"
1600 IF LP=23 THEN LET C5$="X"
1610 REM-LINES 1350-1600 GENERATE THE FIFTH CHARACTER OF LOCATOR
2000 PRINT" ENTER DEGREES PART"
2010 INPUT" OF YOUR LATITUDE        ";LA
2020 PRINT" ENTER MINUTES PART"
2030 INPUT" OF YOUR LATITUDE        ";LB
2040 PRINT" ARE YOU NORTH OR"
2060 INPUT" SOUTH OF THE EQUATOR    ";LC$
2070 LA=LA+(LB/60)
2080 IF LC$="N" THEN LA=90+LA
2090 IF LC$="S" THEN LA=90-LA
2100 LD=INT(LA)
2110 LD=LO-10
2120 IF LD)=10 THEN GOTO 2110:REM LD NOW=THE 4TH. CHARACTER OF LOCATOR
2130 LE=INT(LA/10)
2150 IF LE=0 THEN LET C2$="A"
2160 IF LE=1 THEN LET C2$="B"
2170 IF LE=2 THEN LET C2$="C"
2180 IF LE=3 THEN LET C2$="D"
2190 IF LE=4 THEN LET C2$="E"
2200 IF LE=5 THEN LET C2$="F"
2210 IF LE=6 THEN LET C2$="G"
2220 IF LE=7 THEN LET C2$="H"
2230 IF LE=8 THEN LET C2$="I"
2240 IF LE=9 THEN LET C2$="J"
2250 IF LE=10 THEN LET C2$="K"
2260 IF LE=11 THEN LET C2$="L"
2270 IF LE=12 THEN LET C2$="M"
2280 IF LE=13 THEN LET C2$="N"
2290 IF LE=14 THEN LET C2$="O"
2300 IF LE=15 THEN LET C2$="P"
2310 IF LE=16 THEN LET C2$="Q"
2320 IF LE=17 THEN LET C2$="R"
2330 REM LINES 2140 TO 2320 GENERATE THE SECOND CHARACTER OF LOCATOR
2340 LF=LA-INT(LA)
2345 LF=INT(LF*24)
2350 IF LF=0 THEN LET CG$="A"
2360 IF LF=1 THEN LET C6$="B"
2370 IF LF=2 THEN LET C6$="C"
2380 IF LF=3 THEN LET C6$="D"
```

As already indicated, changes to colour combinations can be made to suit individual preferences. More importantly, the minimum elevation angle of 1 deg used in Line 375 needs a bit more consideration. Unless the observer is blessed with a hilltop, or otherwise totally unobstructed, site then anything below an elevation angle of between 5 and 10 degs may represent a more practical minimum. It is left to the user to decide what minimum angle is finally entered into Line 375.

Currently there are two geostationary satellites which can be seen from anywhere in Australia.

ATS1 is situate at 191.78 W and puts out programmes (mostly in English) on 136.46 and 137.35 MHz FM. Hearing this particular satellite should present no difficulty to anyone prepared to "tweak" a 2 metre converter down a bit. The second is a new Japanese weather satellite situate at 220 W. It operates about 2280 MHz. If you have the gear this one will be well within range.

There is a third, named SIRO which is situate at 295.65 W. It transmits weather information on 136.1376 and 136.1381 MHz, but its locations makes it inaccessible from the eastern seaboard. In Adelaide it is only 4 degs above the horizon but in Perth it's a very usable 25 degs up.

Current planning by AMSAT envisages three geostationary amateur satellites. If they are equally spaced at 120 degs round the equator, then at least one will be visible from anywhere in Australia and will always be at least 10 degs above the horizon.

It is hoped that this programme, even if its application is not immediately obvious, will in the future, solve the odd "where do I point my antenna?" problem.

Editor's Note:

For those who would like test data to check the operation of their programme, the following will be useful.

Satellite	*Aussat-3*	*ATS1*
Position	*160 E*	*191.78 W*
Azimuth	*335*	*324*
Elevation	*44*	*40*
Range	*37472*	*37740*

Both readings were made from 37S latitude and 145E longitude.

AR

COMPUTER HELP FOR DEAF CHILDREN

A computer programme that helps deaf children to read from an early age has been devised at Bristol University's School of Education in south-west England.

Known as Catch Up, the system consists of a concept keyboard pad, a BBC computer and VDU, and a print-out unit. Symbols similar to the Egyptian hieroglyphs representing nouns, verbs, etc, are stored in the computer memory. The child places an illustrated sheet on top of the concept keyboard and places a finger on the drawing of the object in which it is interested — for example a car. The symbol for a car then appears on the VDU screen. Later the word "car" is added and by association of symbols with words, the child learns to read.

Progressing from simple symbols, which can be animated to indicate motion — eg a man running to indicate the present tense of the verb to run — the child uses a question and answer sheet to form short sentences. Eventually it can compose short stories, based on symbols chosen from an illustrated sheet, and obtain a print-out. Corrections can also be made by the child.

From New Technology in Britain

AR

```
2390 IF LF=4 THEN LET C6$="E"
2400 IF LF=5 THEN LET C6$="F"
2410 IF LF=6 THEN LET C6$="G"
2420 IF LF=7 THEN LET C6$="H"
2430 IF LF=8 THEN LET C6$="I"
2440 IF LF=9 THEN LET C6$="J"
2450 IF LF=10 THEN LET C6$="K"
2460 IF LF=11 THEN LET C6$="L"
2470 IF LF=12 THEN LET C6$="M"
2480 IF LF=13 THEN LET C6$="N"
2490 IF LF=14 THEN LET C6$="0"
2500 IF LF=15 THEN LET C6$="P"
2510 IF LF=16 THEN LET C6$="Q"
2520 IF LF=17 THEN LET C6$="R"
2530 IF LF=18 THEN LET C6$="S"
2540 IF LF=19 THEN LET C6$="T"
2550 IF LF=20 THEN LET C6$="U"
2560 IF LF=21 THEN LET C6$="V"
2570 IF LF=22 THEN LET C6$="W"
2580 IF LF=23 THEN LET C6$="X"
2590 REM- LINES 2340 TO 2580 GENERATE THE SIXTH CHARACTER OF LOCATOR
2600 PRINT CHR$(147)
2603 PRINT
2604 PRINT
2605 PRINT
2606 PRINT
2607 PRINTSPC(12)"THE LOCATOR IS"
2608 PRINT
2609 PRINT
2610 PRINT SPC(11);C1$;SPC(2)C2$;SPC(1)LR;LD;SPC(1)C5$;SPC(2)C6$
2700 PRINT
2701 PRINT
2702 PRINT
2703 PRINT
2704 PRINT
2705 PRINT
2710 PRINT"PRESS '1' AND 'RETURN' TO WORK OUT"
2720 PRINT"       ANOTHER LOCATOR"
2730 PRINT
2740 PRINT"PRESS '2' AND 'RETURN' TO GET BACK TO"
2750 PRINT"       THE MAIN MENU"
2751 PRINT
2752 PRINT
2753 PRINT
2755 INPUT"                    ";Y%
2756 PRINT
2757 PRINT
2758 PRINT
2760 IF Y%=1 THEN GO TO 990
2770 IF Y%=2 THEN GOTO 100
3000 PRINT CHR$(147)
3001 PRINT
3002 PRINT
3003 PRINT
3010 DIM T(6)
3020 INPUT "  WHAT LOCATOR NEEDS CONVERTING";L$
3030 PRINT
3040 FOR J=1 TO 6: T=ASC(MID$(L$,J,1))
3050 L=ASC(MID$("AA00AA",J,1)):H=ASC(MID$("RR99XX",J,1))
3070 T(J)=T-L:NEXT
3080 E=(T(1)*20)+(T(3)*2)+(T(5)/12)-160+1/24
3090 N=(T(2)*10)+T(4)+(T(6)/24)-90+1/46
3100 N=N*10↑4
3110 N=INT(N)
3120 N=N/10↑4
3130 E=E*10↑4
3140 E=INT(E)
3150 E=E/10↑4
3200 PRINT SPC(6)"THE POSITION OF THE LOCATOR"
3210 PRINT SPC(11)"YOU ENTEREO IS-"
3240 PRINT
3250 IF N>0 THEN PRINT SPC(5) N "DEGREES NORTH LATITUDE"
3260 IF N<0 THEN N=N*(-1):PRINT SPC(5) N "OEGREES SOUTH LATITUOE"
3270 PRINT
3290 IF E>0 THEN PRINT SPC(5) E "OEGREES EAST LONGITUDE"
3300 IF E<0 THEN E=E*(-1): PRINT SPC(5) E "DEGREES WEST LONGITUDE"
3310 PRINT
```

COMPUTER TRAINING FOR SPINAL INJURIES PATIENTS

When you have lost the use of all your limbs through paralysis, life can seem bleak and hopeless.

But in Britain, a pioneering Government-backed training scheme is bringing optimism, and a sense of purpose, to victims of severe spinal injuries by equipping them for new home-based careers using computers.

In 1982, as part of a long term national 'Information Technology awareness' programme, Britain's Department of Trade and Industry launched its 'Concerned Technology' scheme.

This imaginative initiative — also backed by the UK Government's Manpower Services Commission — provides occupational therapy, and where possible "remote working" (home-centred paid employment), for disabled people.

Coincidentally, earlier the same year, the National Spinal Injuries Centre of the world-renowned Stoke Mandeville Hospital at Aylesbury, south-east England, had bought an Apple Two computer to enable a teenage patient to continue his examination studies. Before long, nine other spinal injury patients were taking part in computer instruction.

"At this point we were approached by the Department of Trade and Industry (DTI), to run a project as part of their 'Concerned Technology' initiative," explains Mr Michael Fountain, training officer at Stoke Mandeville. As a result, with 70,000 pounds funding from DTI, the National Spinal Injuries Centre expanded its workshop. Within two years, it was equipped with 11 personal computers — seven BBC machines (Acorn models used for a television instruction series), two 'Apples', and one each from IBM and 'Apricot'. This finance also enabled special computer-based training software to be developed.

Of the first 100 patients trained at the workshop, 52 were working on computers within one month of discharge from the unit. This included 38 tetraplegics — those paralysed in all four limbs. People with no movement below the neck were taught to operate computers by means of a mouthstick, while paraplegic patients — paralysed from the waist down — who had movements in their arms but not in their fingers, had two short sticks fastened to each arm to enable them to use a computer keyboard.

Among patients released from the Stoke Mandeville unit, 10 now work for pay in their own homes. One man does computer programming for British Petroleum, the company who employed him before his car accident. A former building apprentice runs an estimating service for builders and plumbers in his home locality. Another former patient helps her husband manage a public house, while also working 20 hours a week doing computerised accounting and word processing for neighbouring farmers.

from "Feature" 8 March 1985 **AR**

HIGH SPEED PRODUCTION PROGRAMMERS ARE EASY TO OPERATE

A range of high speed production programmers designed to load programmes into EPROM chips with minimal operator skills are now available.

The P-9000 range consists of three models, each with similar programme capabilities but differing features and facilities, and can programme all single rail EPROMs up to 27512 size (64k x 8 Byte). High-speed programming algorithms have been included in the range to reduce the programming time of large EPROM devices by up to over 90 percent over the standard 50 ms pulse method.

The range has many features usually found in more expensive programmers, including menu driven function and device selection, label printing facilities, RS 232 serial interface providing up to 16 formats as standard with user selecting speeds up to 19.2k Baud, powerful editing commands, and fail-safe systems and device tests. From "New Technology in Britain". **AR**

```
3320 PRINT
3330 CLR
3500 PRINT"PRESS '1' AND 'RETURN' TO DO ANOTHER"
3510 PRINT"          CONVERSION"
3520 PRINT
3530 PRINT"PRESS '2' AND 'RETURN' TO GET BACK TO"
3540 PRINT"         THE MAIN MENU"
3541 PRINT
3542 PRINT
3545 INPUT"                ";X%
3550 IF X%=1 THEN GOTO 3000
3560 IF X%=2 THEN GOTO 100
3930 PRINT CHR$(147)
3940 PRINT
3950 PRINT
3960 PRINTSPC(1)"NOTE-'A' IS SOURCE STATION"
3970 PRINTSPC(1)"    -'B' IS DESTINATION STATION"
3980 PRINT
3990 PRINT
4050 INPUT"STATION A-LATIDUDE IN DEGREES    ";AA
4060 INPUT"                   MINUTES    ";AB
4080 INPUT"NORTH OR SOUTH LATITUDE         ";AA$
4085 PRINT
4090 INPUT"STATION A-LONGITUDE IN DEGREES   ";AD
4100 INPUT"                   MINUTES    ";AE
4120 INPUT"EAST OR WEST LONGITUDE          ";AD$
4130 PRINT
4140 PRINT
4150 INPUT"STATION B-LATITUDE IN DEGREES    ";OA
4160 INPUT"                   MINUTES    ";OB
4180 INPUT"NORTH OR SOUTH LATITUDE         ";OA$
4190 PRINT
4200 INPUT"STATION B-LONGITUDE IN DEGREES   ";OD
4210 INPUT"                   MINUTES    ";OE
4230 INPUT"EAST OR WEST LONGITUDE          ";OD$
4300 AA=AA+(AB/60)
4310 AD=AD+(AE/60)
4320 OA=OA+(OB/60)
4330 OD=OD+(OE/60)
4390 PI=3.141592654
4400 AA=PI*AA/180:AD=PI*AD/180
4410 OA=PI*OA/180:OD=PI*OD/160
4510 IF AA$="S" THEN AA=-AA
4520 IF OA$="S" THEN OA=-OA
4540 IF AD$="E" THEN AD=-AD
4550 IF OD$="E" THEN OD=-OD
4600 DEF FNA(X)=-ATN(X/SQR(-X*X+1))+(PI/2)
4610 X=(SIN(AA)*SIN(OA))+(COS(AA)*COS(OA)*COS(OD-AD)):I=FNA(X)
4620 J=I*180/PI:REM-TAKES I IN RADS TO I IN DEGREES
4630 DS=INT(J*111.17):REM-GIVES SP DISTANCE
4640 OL=INT((2*PI*6367.45)-DS):REM-GIVES LP DISTANCE
4650 X=(SIN(OA)-(SIN(AA)*COS(I)))/(SIN(I)*COS(AA)):H=FNA(X)
4660 IFSIN(OD-AD)<0 THEN GO TO 4680
4670 IF SIN (OD-AD))=0 THEN H=(2*PI)-H
4680 K=INT(H*180/PI):REM K=SP BEARING IN DEGREES
4690 IF H<PI THEN L=K+180
4700 IF H=>PI THEN L=K-180
4800 PRINT CHR$(147)
4810 PRINT
4820 PRINT
4830 PRINT"DISTANCE IN KM - SHORT PATH";DS
4840 PRINT"                - LONG PATH ";OL
4850 PRINT
4860 PRINT
4870 PRINT"BEARING IN DEGREES-SHORT PATH";K
4880 PRINT"                   -LONG PATH ";L
4900 PRINT
4910 PRINT
4920 PRINT"PRESS '1' AND 'RETURN' TO DO ANOTHER"
4930 PRINT"          CONVERSION"
4940 PRINT
4950 PRINT"PRESS '2' AND 'RETURN' TO GET BACK TO"
4960 PRINT"      THE MAIN MENU"
4965 INPUT" ";V%
4970 IF V%=1 THEN GOTO 3930
4980              GOTO 100
```

UNINTERRUPTIBLE POWER SUPPLIES PROTECT ELECTRONIC EQUIPMENT

A continuous power supply and power protection unit from Britain provides electronic office systems, including computers and word processors, with uninterrupted power during a power cut and also protects sensitive equipment from mains interference or surges.

Installed between the mains and an electronic system, Powermaster solves the power cut problems by providing an uninterrupted supply for up to one and a half hours after power loss. This provides the operator with time to complete the work in progress and transfer the information from the machine's working memory to a disk.

In addition, Powermaster also eliminates supply line disturbances such as voltage spikes, power surges or frequency changes and provides a clean AC supply with regulated and stable voltage and frequency. It therefore provides protection against variations in mains voltage and unpredictable power loss which can cause memory wipe-outs in microcomputers, word processors and telex machines.

A feature of the Powermaster is that it provides a 'no-break' supply, as the current is drawn continuously from the internal batteries and there is no switching over from mains to standby capacity. With other devices there is a switchover and it is this switching action which can cause problems for computers.

Under normal conditions the Powermaster batteries are constantly recharged from the mains. This means, in effect, the connected equipment is totally isolated from the mains.

From "New Technology in Britain"
AR

HAND-HELD MICROCOMPUTER FOR HAZARDOUS AREAS

The world's first truly hand-held microcomputer specially designed and fully certified to be safe for use in hazardous conditions in mines, paint stores, petrochemical installations and on oil-rigs, has been developed by the Scottish mining engineers Anderson Strathclyde of Glasgow.

The hand-held CS21 was designed over the past year to act as an electronic notepad, portable data capture unit, work study terminal, calculator, calendar, stopwatch and electronic tape recorder.

Although designed for the routine monitoring of the condition of underground machinery the number of possible applications is limited only by the imagination of the user. For instance a geological survey company in Australia is using a CS21 in the hot and dusty conditions of the outback.

As versatile as a desk-top computer, the CS21 measures about 200 x 100 mm, weighs less than 1 kg, and is capable of withstanding the rigorous environment of coalface conditions and meeting the safety standards for working in explosion-hazardous areas.

A membrane keyboard with "click effect" keys and two liquid crystal displays are housed in an ABS plastic case which is sealed completely from moisture and dirt. The keyboard has 31 keys providing 61 functions via a full set of alphanumeric keys and additional symbol/function keys.

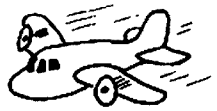
There are two liquid crystal displays, one with two lines of 24 characters, the other with two lines of 16 characters. The latter normally defines the four "soft-key" functions but can be used for general display. For example, the top panel can display instructions for the operator while the lower panel shows information as it is entered.

The unit can be equipped with a maximum of 128 kilobytes of memory and can be programmed in computer assembly language to suit particular application: it can also be supplied with basic language to allow programmes to be written by the user.

A small auxiliary battery maintains the contents of the memory when the CS21 is switched off or if the main battery pack runs down or is removed.

from Information Technology from Britain
AR

Around-the-World in Thirty Days



Graham Ratcliff VK5AGR
9 Homer Road, Clarence Park, SA 5034

The chain of events that led to on Around-the-World trip by Peter Frith VK7PF and myself began with a meeting in Cheltenham, England on the 15th of July 1984 when a paper, prepared by Jan King W3GEY, entitled 'AMSAT Phase 4 Concept' was first released. Ian Ashley ZL1AOX attended that meeting prior to travelling to Marburg, Germany to be endorsed by Karl Meizner DJ4ZC as a ground control station for AMSAT-Oscar10. On his return to New Zealand Ian passed on a copy of this paper to Irving Spackman ZL1MO the AMSAT Region 3 Scientific and Educational Co-ordinator.

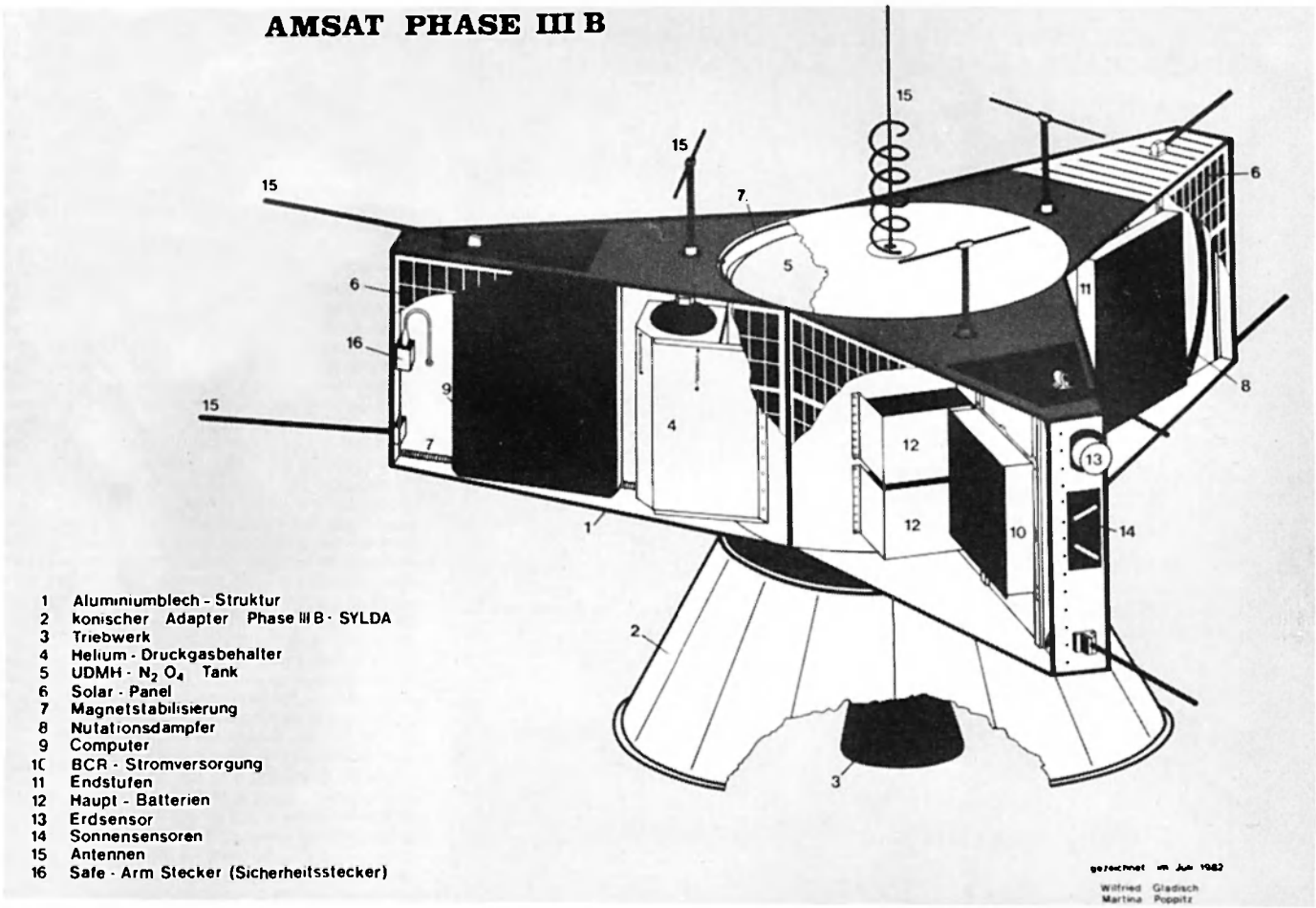
Irving was planning to visit Australia on his holidays in August so with the help of Alan Henessey VK2RX I arranged a meeting of AMSAT-Australia in Sydney and asked Irving if he would agree to be the guest speaker. Irving agreed and the meeting took place on the 15th of August at the Mandarin Club in the Haymarket area of Sydney. Twenty six interested individuals attended, 2 from VK1, 1 from VK5, 1 from VK7 and of course the remainder were from VK2. At the meeting Irving presented a general overview of amateur satellite activities in ZL and then gave an excellent presentation based on Jan King's paper. (A detailed description of the paper was published in the AMSAT-Australia column of the January 1985 issue of 'Amateur Radio'). Basically this proposed 'Phase 4' mission would effectively use the European Space Agencies (ESA) Ariane-4 launch vehicle (or a later launch) volume to place a constellation of a 6 satellites in geostationary orbit. If you take the trouble to read the above-mentioned article you will find that one of the suggested approaches to this project is that spacecraft #4 be co-ordinated by a group consisting of JAMSAT (Japan), AMSAT-NZ (NZART) and AMSAT-Australia (WIA). Another approach involved SA-AMSAT (South Africa), AMSAT-NZ and the WIA in the co-ordination of spacecraft #6. Although everyone at the AMSAT-Australia meeting was extremely excited about the concept, most wondered at what level of involvement Australian amateurs could have in such an ambitious project.

I approached the WIA Federal Executive to join the WIA as a member society of AMSAT, the Amateur Satellite Corporation with its headquarters in Washington in the United States. By the constitution of AMSAT any member society must be invited to nominate up to 2 nominees for the Board of Directors for which members vote just prior to the AGM which is held each year in November. As a result I was nominated for the 1984 elections. As in previous years a Technical Symposium was planned for the 1984 AGM, so I thought what better opportunity to find out what involvement Australia could have in the 'Phase 4' project than to attend the AGM and meet and discuss the project with the experts at the Technical Symposium/AGM.

The venue was the AMFAC Hotel in Los Angeles and on investigation of airfares I discovered that for $280 more than the return airfare to LA I could purchase an Around-the-World ticket. So after contacting Dr Martin Sweeting G3YJO (the leader of the group responsible for building and maintaining Oscars 9 and 11) at the University of Surrey in England and Dr Karl Meizner (the mastermind behind AMSAT-Oscar 10) in Germany I decided to take advantage of the Around-the-World ticket and visit both Martin and Karl. Unfortunately due to work commitments and financial restraints the trip would have to be completed within a 30 day period. The final step in arranging the trip was to see if any other amateur in Australia would be interested and willing to make such a personal financial commitment. Well Peter VK7PF agreed almost immediately to be travelling companion come technical adviser. One unexpected bonus but none-the-less most appreciated was a sponsorship of $750 from the WIA.

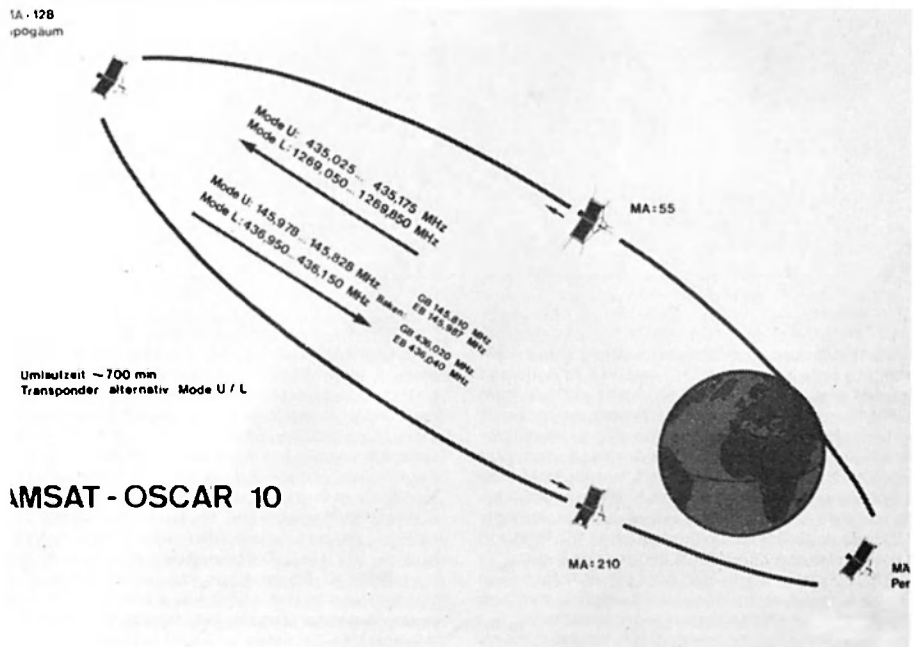
The first question most people will ask is whether or not the trip was worthwhile and the answer is an unqualified YES. Peter and I learnt an incredible amount of background information about amateur satellite activities in the past, present and well into the future. Our first stop was Los Angeles for the AMSAT Technical Symposium and the AGM.

The Technical Symposium commenced at 0900 and finished at 1700 with a break of one hour for lunch from 1200 to 1300. The first session was presented by Al Dayton KA4JFO, who described 'Advanced Gateway Concepts' whereby a group of amateur radio clubs and organisations would purchase a geosynchronous satellite, complete with several 'C' band transponders, and give access to the average amateur through numerous gateway stations. The gateways or teleports would serve large communities of amateurs using just a simple 2m FM handheld. Next, AMSAT Director Harry Yoneda JA1ANG presented a fascinating preview of the exciting JAS-1 satellite being built entirely in Japan by JARL and JAMSAT and scheduled for launch by NASDA, Japan's national space agency. The paper, written by JK1VXJ with technical assistance from JR1SWB, was translated and reported by JA1ANG. JAS-1 is due to be launched in February 1986 and will have two transponders, Mode JA anolog 2m up and 70cm down (same as Oscar 8's Mode J) and Mode JD that is a digital store and forward transponder utilising packet radio technology. Launched by the Japanese H-1 launcher (Japan's first experimental launcher), JAS-1 is expected to have a 1500km orbit with an inclination of 50 degrees. ARRL Technical Department Manager Paul Rinaldo W4ARI described progress in Amplitude Compandered SideBand (ACSB) techniques. Paul described initial experiments performed recently at ARRL HQ. He then explained Project Companion, a joint ARRL-AMSAT-Project OSCAR effort designed to encourage the use of the spectrum efficient ACSB technique on the amateur bands. Paul explained that by using special compression techniques, along with some other 'tricks', very substantial improvements in signal-to-noise ratio and intelligibility have been noted by land-mobile users of advanced ACSB radios. Tests performed by the Federal Communications Commission (FCC) both in the laboratory and the field, showed excellent results. Jim Eagleson WB6JNN and Paul Shuch N6TX showed several interesting graphs indicating quantitative improvements realisable with ACSB. Paul then played several taped QSOs dramatically showing the improvements of ACSB over conventional SSB. Jim pointed out that ACSB like FM had a pleasing quieting effect. He also showed some circuits he had developed for effective audio compression. Bob Diersing N5AHD followed with an excellent presentation on 'Computers and the Satellites'. Bob focused on the systems he has developed to track and decode the telemetry from the UoSAT satellites. After lunch a group from the World Space Foundation spoke on the Solar Sail Project. Introduced by AMSAT's John Champa K8OCL, were foundation president Robert Staehle, as well as Mark Bergham and Chauncey Uphoff. Each explained a different aspect of the Solar Sail Project including its history, purpose, initial tests, programme outline and some of the options that would rely on amateur radio for telemetry and communications. One would have the Solar Sail in a nearly geosynchronous orbit or alternatively in a lunar orbit. K8OCL explained the agreement between AMSAT and the World Space Foundation to explore means of co-operation in future projects. The next group presented a review of the latest happenings and progress on the PACSAT project. Speakers included Harold Price NK6K, Wally Lindstruth WA6PJR, Rick Fleeter WA8VGK, and Phil Karn KA9Q. Harold, PACSAT Project Manager, narrated a slide presentation that was (as is customary for NK6K) both entertaining and informative. WA6JPR described some of the experiments that he and others are performing in California. Fleeter discussed some of the propulsion motors being considered for PACSAT. This is an especially important aspect of PACSAT engineering since the anticipated Shuttle launch will be too low for PACSAT, it will need to be boosted up by several hundred kilometres. Phil Karn KA9Q, described progress on advanced modems and solicited help in designing PSK modems that will resist the anticipated radar interference the satellite is expected to encounter when in orbit. Martin Sweeting G3YJO, UoSAT Programme Manager, next summarised the status of both UoSAT-Oscars 9 and 11. He said that both spacecraft were behaving well and that UO-11 had been well stabilised, resulting in better link performance. A brief slide presentation showed the preparations that led to the launch of UO-11 last March. Tom Clark W3IWI, explained some of the economic factors that determine what projects can be built and what expenses AMSAT absorbs in order to keep the organisation running. Tom pointed out especially the cost of publications in terms of its proportion to the overall budget. Tom said that in round numbers AMSAT spends $250,000 annually, for all purposes. Bill Tynan W3XO, gave a progress report on future 'Ham-In-Space' activities. Bill noted that approval of the joint ARRL-AMSAT proposal for W0ORE to fly a suite of amateur radio equipment was thought to be imminent. Among equipment expected to be approved, according to W3XO, was a 2m scanning receiver, 2m to 10m scanning repeater, slow-scan television (SSTV) with a 10m downlink and other features. Bill said it appeared everything was in order for a 1985 flight of W0ORE but the exact date of Shuttle flight was not fixed at that time. Closing the technical programme, Vern "Rip" Riportella WA2LQQ spoke of future advanced satellite projects. Rip claimed that an appraisal of amateur radio indicates that the time maybe right to begin serious consideration of a system of geosynchronous amateur satellites for continuous global coverage. He cited some of the basic Phase 4 conceptual work recently completed by W3GEY (who was unable to attend) as well as the so-called gateway concept, examined earlier by KA4JFO and others. I have only summarised the topics discussed during the Technical Symposium

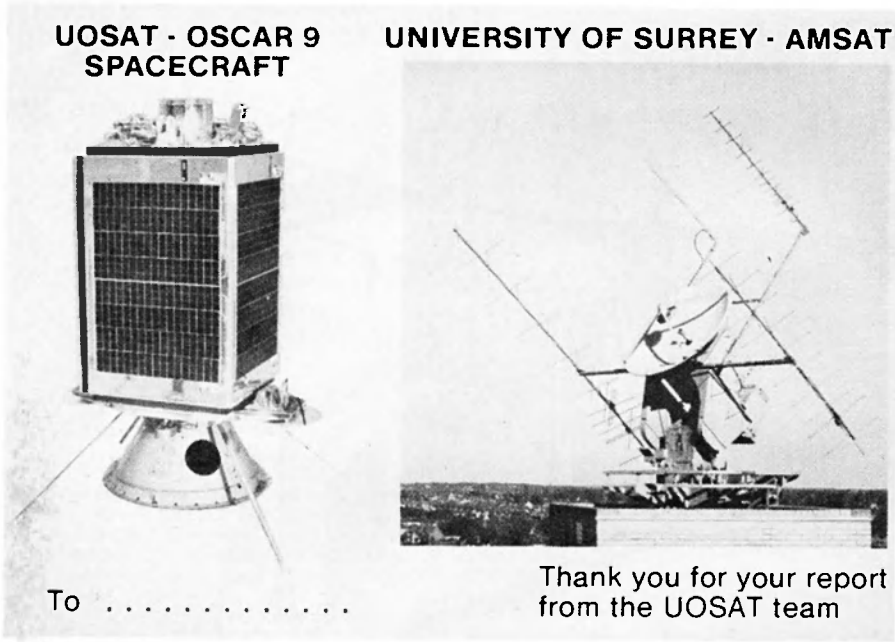


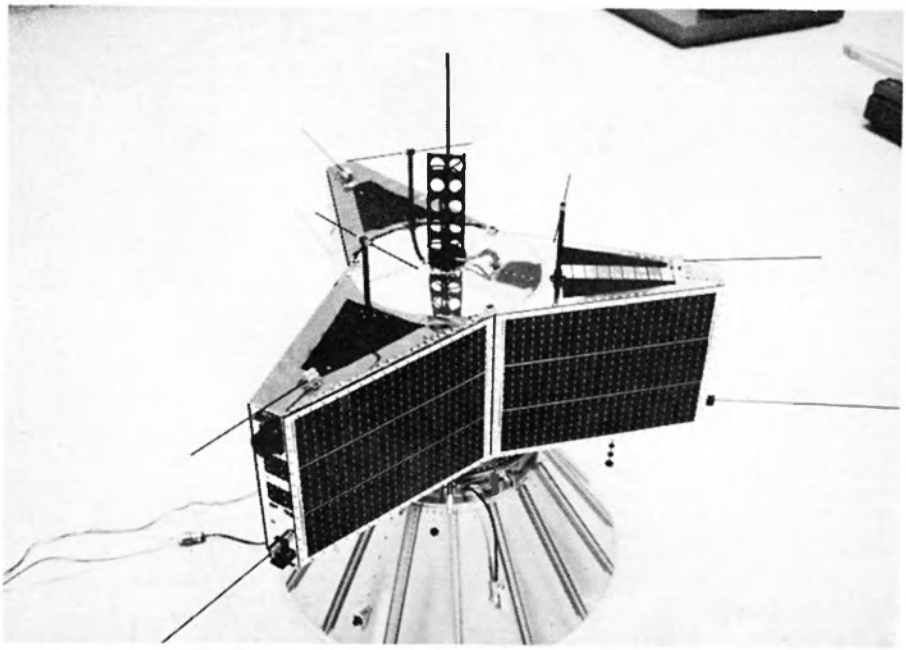
however, if readers would be interested in more information on any of the topics I recorded all seasons using a small handheld cassette recorder, despite its size it gave excellent copy, so if you would like to hear any particular session then send me a blank C90 cassette and sufficient to cover return postage. The whole symposium took six C90 cassettes. At the meeting a number of different handouts were supplied for the following presentations; Advanced Gateway Concepts, JAS-1, circuit diagrams for a Tx/Rx attachment to standard SSB equipment to evaluate the ACSB technique, and a brochure on the Solar Sail project. On one of the trade displays I found information concerning a satellite tracking programme for the Commodore 64 and the VIC-20, the cost of the programme and associated hardware is US$150. The hardware is a small interface card which plugs into the back of the computer and is connected directly to the controls of your Azimuth and Elevation Rotators for completely automatic antenna tracking.

The AGM was held immediately after dinner and went on until late in the evening. Tom Clark, the then President, acted as Chairman and conducted the meeting on a relatively informal basis starting with a description of the major achievements of AMSAT over the last four years. Then Bill Lazzaro N2CF (who was at that time the Manager of the AMSAT HQ office but is now employed at ARRL HQ) gave a status report on AMSAT finances which, to say the least, were a bit gloomy for the current year. With about a US$10,000 deficit for the past year and there had been no major expenditure on amateur satellite projects, only the cost of running the office itself. After a lengthy discussion period amongst those at the meeting it became very obvious that a number of alterations needed to be made in the future to ensure the future of the AMSAT organisation. One such alteration was the suggestion to do away with the glossy AMSAT publication 'ORBIT' and to replace it



with a more regular and informative newsletter at a hopefully much lower cost. Bill reported that there are now 5,500 members, an increase of 36 percent (I believe due to the success of AMSAT-Oscar10) on last year. In my opinion the main problem with the distribution of funds is that in an organisation with only 5,500 members one can not afford to have an office run by salaried staff, it needs to be run by volunteers. Until this procedure is adopted I cannot see how any worthwhile part of members subscription can be channeled into the building of amateur satellites. On the subject of funding future satellites it was





blatantly obvious from discussions held at the AGM that the large sums of money required to build and launch satellites could not be raised entirely from within the amateur ranks. In fact the majority of funds would almost certainly have to come from non-amateur sources such as big industrial concerns or possibly from foundation support. Unfortunately, the days of the 'free' launch and the building of satellites in garages are over. The figure most commonly bandied about for a satellite launch of the Phase III type is in the order of US$300,000 and this is regarded as being rather optimistic in light of information recently received from various launch authorities. Therefore a whole new approach is needed to funding satellites for amateur use and will almost certainly involve the prostitution of amateur radio to large industrial concerns to obtain the necessary funding. In the USA AMSAT is currently trying to raise money for the PACSAT project from foundations willing to support a project for the benefit of thirdworld countries. VITA, Volunteers in Technical Assistance, have already donated a large sum of money to AMSAT for the specific use of developing a system that will allow cheap reliable transfer of messages to and from third world countries using the minimum in equipment, complexity and cost. Similarly without the support of the German government I do not believe we would see the launch of Phase IIIC and in England without the support of British Industry the University of Surrey would have been unable to build and launch Oscars 9 and 11. Therefore without the ability to attract funding of the order of millions from outside the AMSAT organisation a project of the magnitude of Phase 4 has very little chance of a future, however, it was generally agreed by most that it would not be feasible this decade, but maybe a possibility in the 1990s.

After LA Peter and I flew to London and based ourselves at Stevenage about 20 minutes by train north of London at the temporary residence of Charles Mowle VK5ACM who is currently working for British Aerospace. From there we travelled by train to Dover and crossed the Channel by Hovercraft to Calais and then by bus to Brussels. On the next day we travelled by train to Marburg in Germany via Frankfurt. We stayed in Marburg for two days while awaiting the opportunity to meet with Dr Karl Meizner DJ4ZC. Karl spent most of the time with Peter and I discussing the future of the amateur satellite service as he sees it. For instance he has successfully negotiated with the German government to ensure that Phase IIIC is launched on board the Ariane-4 vehicle in 1986. Karl then went on to give us his personal assessment of the future of other proposed satellite projects throughout the world, in particular, PACSAT, Solar Sail Project and the future possibilities at the University of Surrey. We finally discussed the feasibility of the Phase 4 project, and as much as Karl would like this project to happen now but as I mentioned before he believes as do most that because of the level of funding required it will have to wait until the 1990s at least. So, at present, the group at Marburg will devote their energies to building Phase IIIC with its proposed high power (500W) Mode L transponder. The other news from Germany is that another group led by Hanspeter Kuhlen DK1YQ (also an Oscar10 command station) is planning to fly a packet radio experiment on Phase IIIC based on the Tuscon Amateur Radio Terminal Node Controller (TAPR TNC) with its AX.25 protocol. Peter and I had hoped to be able to see Phase IIIC in its early stages of construction but unfortunately it was still neatly packaged in silica gel storage until it is required for the integration of the various modules it will carry aloft in 1986. However, Karl did give me a copy of a booklet on Oscar10 with some excellent photographs as seen in this article. We also received some copies of the original drawings for AFDEM PSK demodulator and Bit Regenerator for decoding the PSK telemetry on Oscar10's beacons. Another gift from Karl was the listing and associated instructions for a satellite tracking programme Karl wrote for the Sharp PC1245 pocket calculator (computer). The programme is extremely concise and Peter VK7PF is currently modifying it to run on the Tandy MC10 colour computer with only 4k of RAM. If you are interested in this or any other information I obtained while overseas please write to: AMSAT-Australia, C/-Box 1234, GPO, Adelaide SA 5001. (Please include sufficient to cover return postage.) The calculator/computer and the programme make a rather unique approach to tracking Oscar10 in that all you have to do is key in the date and time you want to look for the satellite and it will tell you if it is in view and at what azimuth and elevation, at the same time it can tell you whether the satellite is in view at another location providing you know the longitude and latitude.

After leaving Marburg Peter and I did a few days of sightseeing as we wound our way back to London. Once again we travelled by train to Munich via Frankfurt and spent 2 days there. One whole day was spent at the Deutsches Museum which, for the scientific at heart, would have to be an experience of a lifetime. To view all the exhibits you would have to walk a total of 16 kilometres so you can imagine we only saw about half of the exhibits and then it was only a cursory glance. You could literally spend days and still not absorb everything. We did however cover the sections concerning space, aviation, marine, engineering and the telecommunications. Probably the most amazing find was a full scale model of AMSAT-Oscar10 in glorious colour amongst the display of the many famous commercial satellites in the space section. The main aim of the Museum was to familiarise the general public with the exact sciences and with the technology which is based on them. This has been successfully achieved by the design of many of the exhibits so that the general public can actually get hands-on-experience with the current equipment used in today's technology. My final comment is that no one should visit Munich without seeing at least some of the exhibits at the Deutsches Museum. Also while in Munich I attempted to meet up with Hanspeter DK1YQ who, as I mentioned earlier, is a command station for Oscar 10 and the leader of the group building a Packet Radio module which will hopefully fly in Phase IIIC. Unfortunately our contact was restricted to a rather lengthy phone call. However it was most interesting to find that in the Munich area alone there was in excess of 30 amateurs using the TAPR TNC for local Packet Radio. We concluded our

conversation with a promise from Hanspeter to keep me informed on their progress with the Packet Radio module for Phase IIIC.

From Munich it was on to rainy and flooded (hightide) Venice via the famous Brenner Pass through the Austrian Alps which were covered in picturesque snow. Because of the rain in Venice, other than a quick trip around the canals, we headed off for Geneva. We decided to stay in Geneva for a couple of days before the longest day of our trip back to London. One of those days was spent visiting the sights in Charmonix in France, in particular the cable car ride up 3960 metres to view the adjacent peak of Mt Blanc. After lunch we took a ride on a rack and pinion train to view the local glacier in all its glory.

The following day was by the far the longest and most eventful of our entire overseas trip. It began with us getting up at some ungodly hour of the morning to catch the 0700 TGV (famous high speed train) from Geneva to Paris. After arriving in Paris at 1000 we caught the underground to the station from which our train to Calais was due to leave at 2230 that evening to deposit our luggage prior to seeing the sights of Paris. The next 10 hours were spent either walking around Paris or commuting on the unbelievably overcrowded underground. Of course no trip to Paris would be complete without a visit to the top of the Eiffel Tower (274.3 metres). If you would like to use the Eiffel Tower as an antenna sight you would be about 100 antennas too late. As very tired travellers we boarded our train to Calais only to have Peter's suitcase stolen from under our noses (it was no further than 3 metres away from where we were sitting) about 30 minutes prior to the train departing. After a futile attempt to locate a Gendarme to report the theft we left for Calais. No-one in authority on the train was interested in our tale of woe nor on the ferry across the Channel and it was not until 0530 on the next morning when we arrived at the Dover Docks that we found an ever reliable English 'Bobby' who was only too happy to take a report of the theft and document it for insurance purposes. At 0630 the train left Dover arriving in London at 0845 and after a brief stop in London to check with the owners of the Paris train service we headed by train to Stevenage, our base in England, for the next week. We arrived in Stevenage at around 1030 and promptly slept for the next 12 hours. What a day (and a half)??

On Sunday, after a relaxing couple of days of English village life, we decided it was time to start 'work' again namely back to meeting people involved in amateur satellites, so we set off by car to Cambridge to visit James Miller G3RUH who has made himself famous by writing two articles for the magazine 'Wireless World'. The first was a circuit for decoding the UoSAT telemetry and was published in May 1983. The second article published in October 1984 was a PSK Demodulator for the telemetry on Oscar-10. The unique feature of both these designs was their simplicity and excellent performance characteristics. The visit to meet James was primarily to have a look at the performance of the AO10 PSK demodulator and the associated BBC software for displaying the telemetry, the results were outstanding compared to those obtained using the original AFDEM design by AMSAT-DL which had been built here in VK from some rather questionable quality photocopies. Not only was the hardware good but the software was equally impressive. If anyone would be interested in a copy of the article then send an SASE to AMSAT-Australia. James also had a novel design for a helical antenna which was not only functional but rather robust to say the least. An article on this should appear in 'Wireless World' in the not too distant future. Another interesting piece of information that we obtained from James was a copy of his Oscar 10 satellite tracking programme which prints out an extra item of useful data which he calls the 'Squint Angle' which is basically the amount that Oscar 10's antennas are offpointed from the centre of the earth during the orbit. James, from experience, has learnt that for optimum communications ie best signals and minimum 'spin modulation' the 'Squint Angle' should be less than 30 degree. Copies of this BASIC programme are also available from AMSAT-Australia for an SASE. James also had many other interesting tid-

bits of information to offer and if you have the opportunity to visit England he would be well worthwhile adding to your itinerary.

Monday was our only free day left to see the sights of London so back to playing the tourist for a day including voting at Australia House. Once again we took advantage of the Underground to transport us from one tourist spot to the next. The itinerary was, I am sure, all too familiar to anyone who has been to London, namely the Tower of London, London Bridge, Parliament House and Buckingham Palace.

The next 3 days were spent entirely at the University of Surrey with Dr Martin Sweeting and the members of the UoSAT team. Even though the group was not currently building a satellite and therefore not madly rushing about trying to put a satellite together in a record time of 6 months as they did with UoSAT-2 (Oscar 11) they were certainly not idle. Neville Bean G8NOB is almost fully occupied running the UoSAT Control Station for the maintenance Oscar 9 and 11 and of course the operation of the onboard experiments. What little time that Neville has free from the above duties is devoted to programming either the satellite on-board computer or the University's mainframe for handling the management of satellite tracking or data reduction. The UoSAT Control Station has developed over the last few years into quite a sophisticated automatic system for tracking and commanding satellites as well as the collection, storage and handling of masses of satellite telemetry. This automation has been forced on the UoSAT team to enable them to spend the maximum amount of time investigating the success of their satellite production techniques by careful evaluation of the received telemetry. I must admit that I was somewhat disappointed by the level of automation because I had some romantic notion that someone had to be actively involved in the data acquisition procedures, however I can certainly appreciate the need for such a system in their environment. Unfortunately it has set me thinking about setting up such a system in my own shack so that, like the UoSAT Team, I can spend more time finding out the significance of the data rather than collecting it. If anyone would like to experiment with automated tracking and data acquisition I have collected quite a lot of useful information on techniques from UoS (and Bob Diersing N5AHD in Texas) and this is available for the asking. Other activities that were currently in progress at the UoS were the development of an improved automatic satellite tracking system using a BBC microcomputer, development of a 9600 Baud PSK (Phase Shift Keying) modem for

high speed data transfer to and from UoSAT-2 in conjunction with the onboard Digital Communication Experiment (DCE) and the Charged Coupled Device (CCD) camera. Another interesting project that had already been completed before the launch of UoSAT-2 was a 2m repeater consisting of a Kenwood handheld and a Yaseu FT480R located in the Electronics Workshops at UoS to enable most of the members of the team to be in contact wherever they were 24 hours a day. The main purpose of the 2 rigs was that there was a constant need to change the repeater input/output frequencies to avoid outside interested but time-consuming listeners.

For those who have the ability to decode the 1200 Baud ASCII telemetry from UoSAT-1 and receive the weekly news bulletin you may be interested to know the rather lengthy procedure involved in getting that excellent service on Oscar 9 each week. The procedure starts early on Friday morning with either Martin or Neville sitting down at a terminal hooked to the UoS mainframe and putting together about 32K characters of text for uploading later that afternoon. The information is sourced from Telemail (the international electronic mailbox used by the worldwide co-ordinators of AMSAT), letters/news items from users of the Bulletin, news of the week's happenings at the UoS, and many other sundry places such a 'Amateur Satellite Report', AMSAT-DL, AMSAT-UK, etc. Using a word processing package the information is strung together and edited to approximately the required size (there is only a finite size of memory available on UoSAT-1 for the Bulletin). The resulting file is then passed to a programme on the mainframe that formats it so that it is suitable for anyone receiving the Bulletin using a 64 character/line terminal, then the file is passed to another programme which imbeds the text with the appropriate machine code to upload the text and execute it once it has been successfully uploaded to the spacecraft. Unfortunately if the text is only one Byte too long the text has to be culled and the whole process repeated and Martin says it is amazing how many weeks the text is within 1 or 2 Bytes of the available space. The procedure to this stage with the usual inevitable interruptions takes at least a couple of hours. The next step of the procedure is uploading to the spacecraft. Step 1 involves sending up the appropriate command to ready the spacecraft to receive the Bulletin file that is on the UoS mainframe computer. Step 2, assuming that the uplinking command has succeeded, is to ready the UoS mainframe (not always easy on Friday afternoon when staff and students are flat out typing up the wekly reports/assignments before the weekend). Step 3 is to uplink the bulletin file to the spacecraft which is very interesting to watch as it is a full duplex operation in that the ground computer receives a memory map from the onboard spacecraft computer showing those blocks of memory that have received error free data. Having made one pass the procedure is repeated to fill in only those areas not successful during the previous pass. This procedure is repeated until all the file has been successfully received. Bearing in mind that it takes a little longer to uplink this file than it does for you to receive it, so as you can imagine during a single pass this would not be a bad achievement. Another problem is that you must leave sufficient time for Step 4, that is to send a further command to start the beacon transmitting again. Often the 4 steps cannot be achieved in one pass so that it can sometimes happen that the satellite appears with no beacon at all until after the next orbit over UoS.

The remainder of the Friday at the UoS Peter and I spent with Martin discussing the future of the Amateur Satellite Service as seen in his opinion. His views were very similar to those expressed by Karl and reflect the everpresent problem of obtaining funding and launch opportunities. At that time Martin was investigating a number of options which included involvement in building PACSAT, Phase IIIC and a number of purely British Industry type projects. Martin was confident that the UoS would be shortly back in the process of building another satellite with at least some amateur involvement. Finally, Martin agreed to listen to any proposal for Australian involvement in any future projects at the UoS provided that they fitted in with the design criteria. He also promised to keep us in mind for any project that may need outside sources for the appropriate expertise, time and/or funding.

After a restful weekend in Stevenage with a further trip to Cambridge to visit James Miller and a sightseeing trip to the home of William Shakespeare at Stratford-upon-Avon we left London on Monday for home via Bahrain and a one day stopover in Singapore for the inevitable shopping spree before arriving back in Australia on Thursday the 6th of December just 30 days after leaving.

AR

TRANSFORMERLESS POWER SUPPLIES

Bruce Hannaford VK5XI

One of the attractions of voltage multiplying power supplies is that they CAN be used straight off the power supply mains without any transformer. I emphasise the word CAN and I am NOT saying I recommend this practice. Using such supplies will often greatly reduce the weight, size and cost of equipment using valves. The most popular circuits are those having one AC input and one DC output terminal common as this can then be earthed. it is possible of course to design equipment with both DC output terminals above earth but this will complicate construction and is rarely used.

I refer to such supplies as Death Trap Supplies (DTS) and think the name is most appropriate. Those who insist on using such supplies should consider at least the following points. A normal 240V AC supply to a home will consist of a two wire feed, one wire at earth potential and the other 240V above earth, the earthed wire is called the neutral and the above earth wire the active. In some districts, States etc, depending on the supply authority the neutral will be connected to earth at each installation but in other cases it will only be earthed at a few points here and there with no direct connection between earth and neutral wires at each installation.

The first obvious danger of having one side of the mains connected to the metal chassis of your equipment is that you might at some time get the neutral and active feed reversed thus making the whole equipment and anything connected to it 240V above earth! Of course you check first to see it is right-way-round but strange things sometimes happen. You may for example use an extension lead that has active and neutral connections reversed, or some double adapters have one outlet side reversed (for convenience in manufacture). Far less likely you might for a short time get 240V above earth active fed into your normally neutral supply wire! I have been around long enough to know of and experience several cases where this has happened by accident. Let's be kind to Supply Authorities and their staff and just say this can happen if a truck hits a pole and an active wire falls on a broken neutral wire supplying your house.

Some DTS users get cunning and don't connect the neutral to the chassis of their equipment at all but instead rely on the earthing pin of the power supply lead. A two way switch is used as a mains on/off switch for the DTS the common of this switch is connected to the above earth side of DTS and the power lead to the equipment active and neutral are connected to the other contacts of the two way switch. Regardless of which way the active and neutral arrive at the switch one way will be above earth and the other will be earthed. A reversed extension lead etc will just mean the on/off positions will be exchanged. Provided the equipment is properly earthed the supply will switch on and off and operate with no problems.

No more problems with reversed actives and neutrals, yes indeed but even worse problems have been created. The AC power supply to the equipment is now dependent on the earth wire of the three wire power cord and/or any other leads earthing the equipment. Let's say the house installation earth wire is defective, your RF earthing system will take over and carry the AC needed to run your DTS and if you removed or accidentally knocked off this wire with the supply switched on then there will be 240V between the equipment case, and all connected to it, to earth. The whole system is just waiting for someone to touch something connected to it and complete the circuit to earth! With no RF or equipment direct earthing the defective house installation earth wire will also be 240V above earth (in some older installations it is a bare wire) so someone touching a tap or something in contact with the defective earth wire may get a 240V shock. Many installations made years ago depended on the metal water pipe system to act as an earth, however in this plastic age some of the metal pipes may have been replaced by plastic pipes and the earthing may no longer be effective in fact it might well be a hazard.

Quite apart from the lack of safety using an earth return circuit to draw power from the mains this will no doubt incur the wrath of the supply authorities if they find out you are doing it. Additionally if you were unfortunate enough to have a house fire involving your equipment and the insurance people found out your equipment was wired in a dangerous and/or illegal way quite likely they would blame your equipment and not pay up. Yet another factor with DTS is that when in use they sometimes cause hum problems in other equipment being used at the same time, this is especially so with the earth return system.

Those who insist on using such supplies should in my opinion observe at least the following:

Don't use the earth return system. Have two 240V neon lamp indicators wired between both incoming power leads and earth, say a green one for the active and a red one for the neutral, with this if the power is right way round the green will light and if reversed the red will light. A double pole switch should be used breaking both leads alter the neons mentioned earlier, the equipment side of this switch going to two fuses one for the active and one for the neutral. It is normally bad practice to put a fuse in a neutral but in this case it is needed for protection with reversed active and neutral. The neutral fuse should be at least twice the rating of the active so it will not blow first unless active and neutral are reversed. Of course the metal case of the equipment MUST always be connected to an effective earth and this NEVER disconnected while power is being supplied to the equipment.

I hope I have convinced all that very careful consideration is needed before using any such DTS and I repeat I do NOT recommend them.

AR

LIZARD ISLAND BASE FOR CAIRNS AMATEUR RADIO CLUB

Anne Benson VK4FAB
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The Cairns Amateur Radio Club took part in the John Moyle Field Day Contest on 23/24 February 1985 from remote Lizard Island. It all began whilst chatting over an NQ Stubby (locally brewed beer) after a normal monthly meeting . . . Roger Kimeklis VK4JB said "Anne, you and I ought to see if we can go to Lizard to operate during the John Moyle Field Day Contest". "Oh yeah," I said, thinking it was a bit of a joke. However, he was serious about it and we thought why not charter an aircraft so a few of the members could set up camp and for the first time, compete as a club in the contest; and so the seed was sown! Roger and I, both working for the air company who operate the service to the island, made the arrangements for an aircraft etc, which was a little easier to undertake, being on the spot.

With all arrangements eventually made, we were ready for our exercise, but alas, firstly cyclone Pierre then Rebecca hard on its heels made it a "stop — go" affair and it was not until the last minute, 7.40 am, at the Cairns airport on Saturday 23 February did we know it was a "goer". The Captain, Alan Hutchinson and First Officer (and Club member) Roger were ready — the Traffic Officers had the Twin Otter loaded, and it was all aboard for Lizard Island.

Lizard Island is situated 250 kms north of Cairns (94 kms north-east of Cooktown) or for those nautical people, 135 nautical miles from Cairns (50 from Cooktown). The flight was along the coastline with wonderful views of the tropical rainforest from Cape Tribulation to Bloomfield, with the Captain pointing out all points of interest during the entire journey. There were great views of the huge silica sand deposits at Cape Flattery north of Cooktown, then on to Lizard Island, surrounded by the most beautifully coloured water imaginable. On landing we were told of the latest weather bulletin which, because of cyclone Rebecca, meant we may have to return to Cairns without making camp, but we were to await the next report. Finally at 12.40 pm came the all clear, so then the trek to the campsite began. During this waiting period we had temporarily erected a radio station beside the airstrip, not wanting to waste time and the first contact was made at 12.16 pm local time. We then dismantled the station, with troops carrying marquee, poles, esky, generators, battery, heavy barbecue plate, personal gear, table, stools, coax, aerial, HF rigs, etc, etc. All this in very strong winds made erecting a camp quite difficult.

Arrival at Lizard Island. The "Twin Otter" is in the foreground with "Cook's Look" towering above.

Awaiting the weather report on LI.

Temporary transmitting site whilst awaiting the all clear with the Wx. From left — Phyl VK4JFA (partly hidden) Roger VK4JB, Colin VK4EX and Anne VK4FAB.

Living conditions were a far cry from those at the luxurious lodge on the island, but members of the Cairns Amateur Radio Club are quite used to roughing it during their operations in conjunction with the State Emergency Service and all is taken in their stride. There were eight licensed operators on a roster system during the contest hours and all were pleased with the number of contacts, taking into consideration the rather poor band conditions.

Operators were Colin Swinburn VK4EX (Club President), Phyl Le Grand VK4JFA, Allen Jacobs VK4BAJ, Ted Gabriel VK4YQ, Ron Petrich VK4ACZ and his XYL Gwen VK4AZC, Roger Kimeklis VK4JB and Anne Benson VK4FAB. There were fifteen in the group including aircrew, one of which, of course, was Club member Roger VK4JB.

Lizard Island had another couple of overnighters some 214 years ago, namely James Cook and Joseph Banks — and here we were on this historic Island sending signals instantly reaching their destination hundreds and thousands of miles away — we wondered how long it took Captain Cook to get a message back to England in those days! The island also became known through the tragedy of Mrs Mary Watson and her baby son Ferrier. The family lived on the Island where Mr Watson was a beche-de-mer fisherman and whilst away fishing in September 1881, hostile aboriginals attacked those left behind and Mrs Watson, baby Ferrier and a Chinese servant fled in a tank they used for a boat. Sadly they died of thirst and exposure and were not found until January 1882 on an island in the Howick group. The remains of their cottage stills stands in what is now known as Mrs Watson's Bay.

The remains of the Watson cottage.

Lizard Island is now known more pleasantly as a stepping off place for the big marlin fishing which lures fishermen from all parts of the world, swimming, snorkelling, coral viewing or just relaxing completely away from it all.

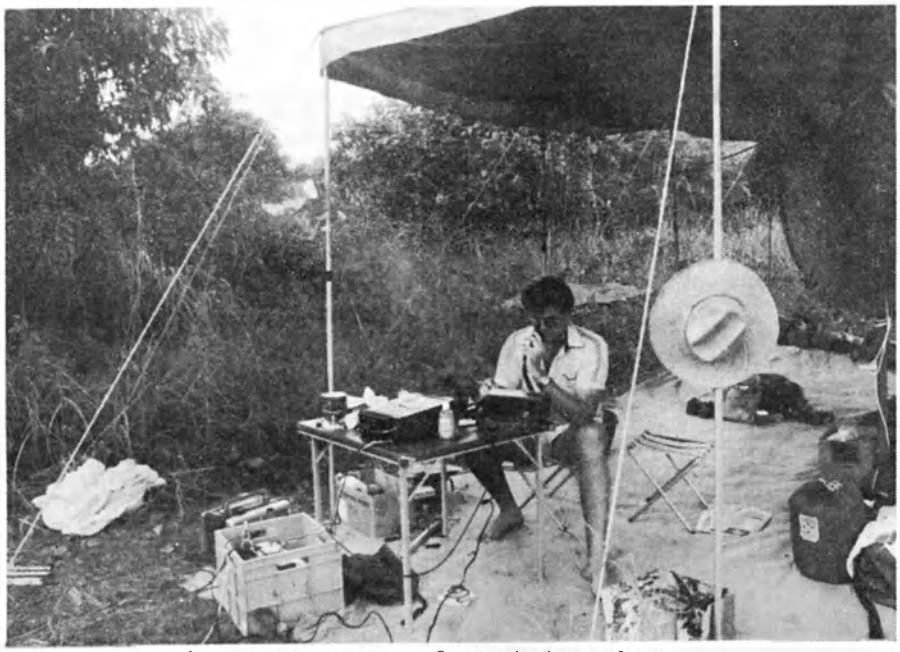
The station, VK4HM operated till about midnight then one by one the ops dropped into bed and had a few hours sleep in spite of the very gusty conditions prevailing but awoke at first light to find the wind had died down, then it was back to work again. When we completed our 24 hours stint it was time for playing and we found the sea very inviting and extremely difficult to remove ourselves from it once we were in. However,

A windmill on the island was handy for an aerial support.

there comes a time for all things to end and time was fast approaching to pack up and head back to Cairns. This time we didn't have our T/Os to load the aircraft but Murphy wasn't around and all was put back in place and we were ready for take-off at 4.45 pm Sunday. The flight back to Cairns was absolutely magnificent (can't find enough superlative adjectives to explain it) and to those, and that was most of us, who had never flown over the Great Barrier Reef or Outer Reef. It was the experience of a lifetime and will live for a long time in our memories.

Ted VK4YG "pounding the brass" whilst others relax before their operating stint.

Going camping in the Far North of Queensland during the wet season is always a bit risky, but we were told that to think of going camping at Lizard Island at this time was madness — well, the layman might say madness, but we are Amateur Radio Operators and we call it dedication and were proud to partake for the first time as a club, in the John Moyle Field Day Contest and it has whetted our appetite to continue to take part in the future and who knows at what exciting destination we will be next year?? It certainly will be hard to beat this one — it was not all hard work, we did find time for swimming, walking, etc and came home tired, a bit grubby, very sunburnt but oh so happy to have enjoyed such an experience.



Colin VK4EX notches up a few contest numbers.

Though we were quite remote (perhaps the most remote location in the Contest?) we were well catered for in the food line, thanks to Sharon, XYL of Colin VK4EX. Sharon took her Novice study material with her, but was too busy catering thus having no time for study, so it's head down and tail up for Sharon for a while. A wonderful exercise, great weekend never to be forgotten, thanks to members, friends and especially the Air Queensland crew.

Technical data: *Transceivers: Kenwood TS130S, Yaesu FT757GX*
Power: 12V battery
Generators: 2 Honda 350W (1 used for battery charging, 1 for lights)
Contacts: 70 (24 hour period) CW and Phone

Aerial: Black CTW — up 25 feet.

Footnote: *I advise anyone contemplating a "radio safari" by aircraft to make arrangements well ahead in order to have enough people to fill the seats. We had several necessarily drop out for various reasons, but we were determined to do this trip, and by golly we did it. Also, charged batteries are not allowed in aircraft, so we had to take an acidless one and were told we could get acid from the Lodge on the Island — however, we found they had none, but we let out a sigh of relief when they said they had a spare we could borrow for the time we were operating — whew — all would have been in vain except for the kindness of the gentleman who tried to find us acid. Also generators must be completely devoid of petrol before being carried on aircraft. No pressure packs — liquid insect repellent or cream is a must.*

AR

BILL AND THE HAMAD

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

Bill sat at his dust-strewn desk, licking the end of his pencil thoughtfully. It had a peculiar taste and he suspiciously inspected the tip. It was the indelible type and purple. So was the end of his tongue. He threw it away and grabbed another pencil. Bill was in the throes of composition.

"For Sale. Set of bowling balls, complete with bag. In very good condition, apart from one ball requiring attention" etc.

He had decided to give the bowling away. The incident at the club a few days earlier had been the last straw. How was he to know that size nine boots were not supposed to be worn on the green during competitions? Anyway, it had been pretty mean of the club to exclude him from the competition, considering the progress he had been making to date. He had learned not to hit the jack more often than he could avoid and it wasn't really his fault the whole thing had to be called off because of the condition of the green. Sometimes things were very unfair.

Now he was selling up his bowling paraphenalia and had decided to get some radio equipment with the proceeds. His old gear was in a terrible state. His tattered wire dipole had fallen into shreds and his 2 metre apology for a Slim Jim was bent at an angle of about 45 degrees. He had quite a bit of work to do in order to get back on the air. Meantime, he was determined to get his shack into some kind of order.

A few days earlier he had responded to a Hamad and had arranged to see the vendor in a few moments time. He was going to buy another rig. The person concerned was calling round with the rig and Bill was getting quite excited about it. There was a ring on the front doorbell.

Bill opened the front door and was confronted by a man carrying an FT 101E. The man stared oddly at Bill's purple stained mouth, but said nothing. Bill ushered him into his shack and again the man said nothing. It was as though he had been struck dumb. He laid the FT 101E on Bill's desk top, after sweeping a few things aside.

Bill looked at the rig, suppressing any excitement he felt. Not a good idea to let on that he was at all interested. He asked the chap to plug the unit in, which he did. This was accomplished with some difficulty, since the power point was festooned with an assortment of two way plugs. Bill screwed a PL 259 plug into the back of the rig. Finally came the moment the rig lit up.

Unthinkingly, Bill pressed the microphone push-to-talk switch. Suddenly, all the lights in the rig died with a quiet sort of spluttering noise. Bill was mystified. Then it dawned on him. He had forgotten about the condition of his dipole and had keyed full power into it!

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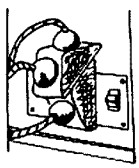

ELECTRICAL SAFETY IN THE AMATEUR SHACK

Fred McConnell VK3BOU

Safety is of paramount importance and every precaution should be taken to ensure equipment used is perfectly safe, not only for the operator, but other members of the household, or visitors. It should be possible to turn off the power to the entire station by one master isolating switch, located in a very prominent position. All members of the household should know that this switch must be turned off before touching anything.

Ultimate in shack safety would include:-

1 *Power to the shack via a separate connection on the premises main switchboard, via what is known as sub-mains.*

2 *Core balanced earth leakage protection either in the main switchboard or the sub-mains to the shack.*

3 *The shack would have its own sub-switchboard with the following:-*
   (a) Location — prominent and readily accessible.
   (b) Control isolating switch (double pole).
   (c) Core balanced earth leakage protection (if this is not already provided on the main switchboard).
   See Item 2 above.
   (d) Final sub-circuits power (at least 2) to control 240 volt power outlets.
   (e) Final sub-circuit light (one) to control shack lighting.
   (f) All final sub-circuits protected by either fixed setting circuit breakers or high rupturing capacity fuses.
   (g) In addition to a sub-main earthing conductor from the main earthing system of the premises, it is recommended suitable earthing electrode(s) be driven into the ground adjacent to shack and bonded to the earthing system at the sub-switchboard.

4 *Fixed wiring, that is all sub-mains, final sub-circuits, switchboards, outlets and luminaires should only be installed by a registered electrical contractor, who is a licensed electrician.*
If the shack is a detached outbuilding, then the sub-mains would be installed underground with the correct cable, conduit and depth (minimum depth for metered sub-mains being 300 mm cover).

5 *Station layout is a matter of personal choice, but care is required to ensure all 240 volt mains operated equipment is connected via approved plugs and sockets and flexible cords are double insulated type.*
Equipment known as being extra low voltage (ELV) operation (the common 13.8 volt range of gear) should only be connected with approved connectors suitable for extra low voltage. This is to ensure ELV plugs cannot be inadvertently inserted into 240 volt outlets.
Layout should also consider the requirements of separation and segregation of outlets. Keep 240 volt and other high voltage outlets clear of any ELV and antenna coaxial outlets.

6 *Equipment including home brew gear if mains operated should include the following:-*
   (a) Control, via double pole switch.
   (b) Fusing, in both active and neutral of supply lines.
   (c) Transformers should be double wound isolating type, one that gives complete isolation between primary and secondary windings. The screening plate between primary and secondary windings must be effectively earthed.
   The use of auto transformers, one with a common winding but different voltage tappings and no isolation, should be avoided.
   (d) There is always the great danger of making inadvertent contact with live metal parts and connections of equipment. Only training and a constant awareness of the hazard involved in working on live equipment reduces the possibility of electric shock.
   (e) High voltage filter capacitors require care when handling. Even when out of circuit they can still retain the capability of producing lethal discharge currents at their terminals. Capacitors with a voltage rating of 2,000 volts and a storage capacity of less than 10 microfarad can develop lethal capabilities when left in storage without first placing a short circuit across the terminals.
   An important design and construction feature of high voltage power supplies is the use of suitable bleed resistors placed across filter capacitor terminals.
   (f) The Standards Association of Australia wiring rules require that, for 3 core flexible cables, the following colours be used to identify conductors:-
   Active — Brown
   Neutral — Blue
   Earth — Green/yellow stripe

WHAT IS CORE BALANCE EARTH LEAKAGE PROTECTION?

It is a device used with an automatic circuit breaker, that will open a circuit automatically on the detection of a predetermined level of fault current flowing to earth.

They are known as core balance earth leakage circuit breakers and used to safeguard against fatal electric shocks.

The author is uncertain of their origin, but believes they have been in use in this country for 20 years and before in the UK and the mining industry of South Africa. They have gained the popularity they so justly deserve and are manufactured here by an increasing number of companies under different trade names.

Principle of Operation:

When a current greater than 30 milliamps flows through the human body for longer than 1/10 second, the heart is affected and ceases beating. The earth leakage, core balanced circuit breaker is interposed between the supply and the operator, acting as a monitor of minute current variations in the load. If a current flows to earth it bypasses the core and upsets the balance of flux. This out of balance is detected and amplified, then used to trip the supply circuit breaker.

Total time of operation is less than half the normal fatal time, therefore giving the greatest measure of protection. The sensitivity of 20 milliamps is low enough for protection but high enough to eliminate nuisance tripping that may occur from "normal" leakage from a variety of causes.

Current operated earth leakage devices are only able to protect against electric shock caused by a current passing through a person's body to earth.

While this is by far the most common cause of fatal electric shock, it's of course still possible to receive a shock by coming into contact with both active and neutral conductor, or two active conductors on different phases.

These conditions will not trip any earth leakage protection device because the circuit formed is still balanced.

WARNING ABOUT EARTH LEAKAGE DEVICES

Even though a high degree of reliability can be expected, 100 percent effective operation may not always be achieved.

The State Electricity Commission of Victoria (SECV) in its leaflet "Earth Leakage Devices (current operated, core balance relays)" said there had been a small number of cases where these devices had failed to operate.

It advises the devices be periodically tested according to manufacturer's instructions using a simple in-built test facility. The SECV warned that use of the device should never encourage complacency. The usual safety precautions must always be observed.

EARTH LEAKAGE PROTECTED 240 VOLT OUTLET

Available through the electrical trade is a 240 volt double combination flush power outlet that incorporates earth leakage protection. This outlet gives all the required protection and has the added advantage of protecting against earth leakage from other outlets on the same final sub-circuit. This outlet could replace an existing one in the amateur shack and give low cost protection.

ELECTRIC SHOCK

The severity of electric shock depends on:-

1 *The current*

Various researchers throughout the world have established the following figures for 240 volts:
1-3 milliamps — can be felt.
10-15 milliamps — hard to let go.
Above 50 milliamps — heart affected, flutters and does not pump (fibrillation).
About 5 amps — current paralyses nerve centres in the heart.
Heart is clamped and resumes pumping when current removed.

The SECV in its leaflet "First Aid for Electric Shock Victims" says electrical currents may:-
* *Stop the heart.*
* *Cause the ventricles to fibrillate.*
* *Cause contraction of the muscles of the body.*
* *Paralyse breathing due to paralysis of the centre of respiration in the brain.*
* *Cause burns.*

2 *The Time*

Time of contact for fibrillation to occur is related to the heart's cardiac cycle and a ratio of time and current. Listed are figures from graph characteristic curves:-

Current I (Milliamps)	Time T (secs)
25	5.75
30	4
50	1.45
100	0.36
190	0.1

A time of 0.1 seconds is considered the minimum time required.

3 *The Path*

The above figures are for contact from hand to hand, hand to foot or head to foot, where the current path passes the heart and respiratory centres. Contact from foot to foot is less severe.

CURRENT RESISTANCE AND VOLTAGE

It has been found from studies that, for 50 cycles, the resistance figures are constant under the skin, through fat and tissue, at about 600 ohms. The resistance of the skin varies from person to person, and depends on the moisture and condition. It can be as high as 2,000 ohms, and the accepted minimum figure is 500 ohms from hand to hand, or for a body in a conducting fluid about 200 ohms. For a 240 volt to earth system, the current would be 0.48 amp for the minimum condition. The body resistance at low voltages varies to that at high voltages, and the accepted maximum "safe" voltage is about 25 volts.

SUGGESTED FURTHER READING

The SECV leaflets mentioned in the above article — similar material is available from other electric supply authorities. Heart and lung resuscitation technique for electric shock victims can be found on the inside back cover of the Australian Radio Amateur Call Book.

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EQUIPMENT REVIEW

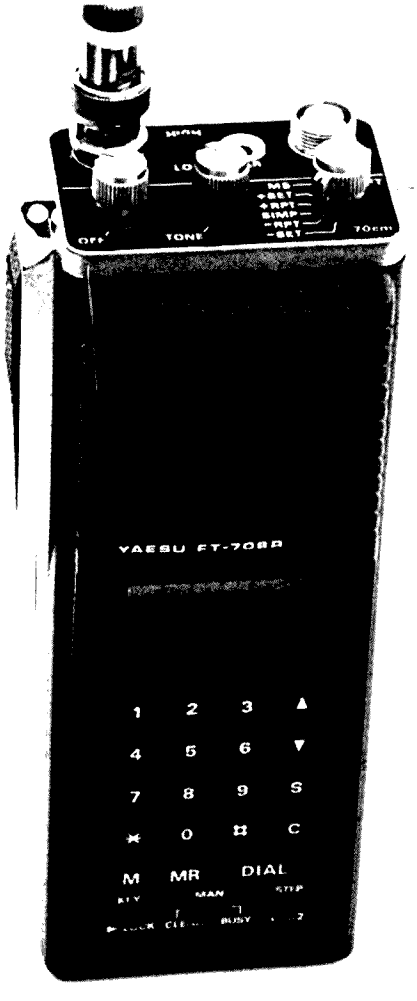
Kevin Phillips VK3AUQ
52 Hereford Road, Mount Evelyn, Vic. 3796

YAESU FT-708R

This is a new 70 cm hand-held transceiver from Yaesu. It features microprocessor control of most functions. This unit is designed as an FM only unit for simplex or repeater use. Power output is 1 watt on high, or about 200 mW on low power. When used with the quarter wave whip antenna supplied, it was more than adequate to operate four repeaters from the Box Hill and Mount Evelyn areas of Melbourne. Other antennas can be used easily.

Frequency coverage is in 25 kHz increments from 430.000 to 439.975 MHz. It has the standard 5 MHz repeater offset available as standard, but if for any reason another shift such as 1.6 MHz is desired, then it can be programmed into it. Up to ten memory channels can be programmed into it, and it has a Lithium cell to keep the memory going for at least five years. All frequencies are entered from the keyboard on the front.

Other features include a variety of scanning modes, such as full band scanning with automatic hold on either busy or clear channels, limited band scanning, memory scan, and it can also exclude a segment on its scan. It can also have a priority channel which it will periodically check.



Top view.

Digital display is provided by an LCD unit displaying the last four digits. This is a practice that irks me personally, as I like to know the full frequency. If I see for instance 7025, or 7.025 as it would be on this unit, I tend to think of 40 metres and 7.025 MHz. The same comment applies to all transceivers that give only a partial display of frequency — many manufacturers do the same thing.

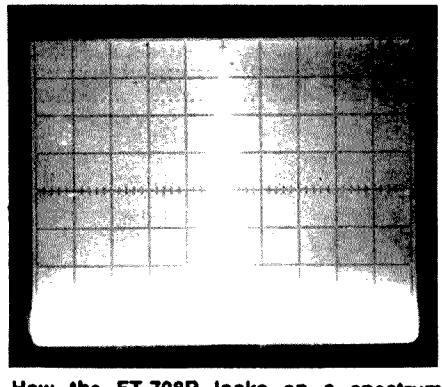
Controls provided are volume, squelch, Tx split switch, High/Low power switch, keyboard for frequencies etc, and a PTT switch. It also has a lamp switch to illuminate the LCD at night and a keyboard lock to prevent accidental change of channel.

Semiconductor line up includes 7 ICs, 5 FETs, 33 transistors and 33 diodes. They are all crammed into a package 166 by 61 by 49 mm, and a fair percentage of that space is taken up by the Nicad battery pack. Weight is approximately 720g.

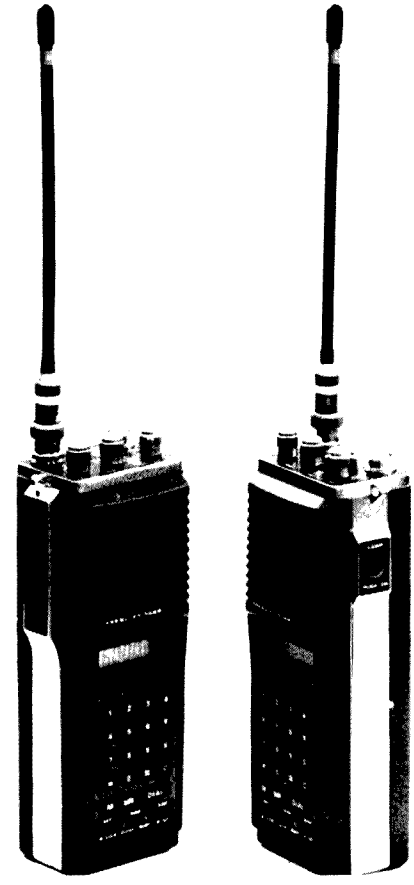
Receiver is a double conversion superheterodyne type with a first IF fairly high at 46.255 MHz, and second IF at 455 kHz. Sensitivity is quoted as being 0.4 μV for 12 dB SINAD. I measured 14 dB at .4 μV, so it was better than the specifications.

Selectivity is claimed as $\pm$ 15 kHz at -60 dB. Audio output is 500 mW maximum, which is more than adequate for most needs.

Transmitter output is switch selectable at 1 watt or 200 mW. I did a check with a radiation hazard checker at distances from the antenna that an operator's head would be, and found it to be at a safe level when on high power. Deviation is set to 5 kHz. Spurious outputs are claimed to be better than -50 dB, and was measured at -60 dB as the worst one. Output is generally quite clean.



How the FT-708R looks on a spectrum analyser.



Side views showing the PTT and lamp switches.

This unit uses Phase Lock Loop technology. It generates a VCO signal at 127.915 — 131.240 MHz, and mixes it with a crystal oscillator at 126.240 MHz. The difference of 1.675 — 5.00 MHz is then fed to a programmable divider with division ratios of 201-600, which produces basic 8.333 kHz steps for the synthesizer. There is also a 5.333 MHz oscillator which is divided down to 8.333 kHz, and the two 8.333 kHz signals are fed to a phase comparitor, and any difference produces an error voltage which is then fed back to the VCO at 127.915 — 131.240 MHz. When the VCO is multiplied by three it comes back to 25 kHz steps.

The VCO output is split two ways. For the receiver it is simply multiplied by three and fed to the first mixer, producing an IF of 46.255 MHz. Signal for the transmitter is first mixed with a 15.4183 MHz frequency modulated crystal oscillator, and then filtered and multiplied by three to the final frequency.

Power requirements are met with a nominal 10.8 volt battery pack. Maximum voltage is 13 volts, so it would be unwise to operate this unit directly from a car battery as most cars can produce voltages above 14 volts. Current consumption is about 20 mA when muted, 150 mA at full audio out and 500 mA on high power transmit.

Plug-Pack Charger.

The review unit was supplied with a plug pack charger, but it was not the Yaesu one. It was one of the Dick Smith units that have polarity reversal and a multi-way plug on it. If it were mine, I would cut off that plug and fit a standard charger plug. Fortunately the transceiver does have polarity protection on the charge input, but not on the external power socket.

The unit can be operated while charging, but as the charge plug enters from underneath, it becomes inconvenient to put it down base first. Side entry would have been better for such use, but as Yaesu also have accessories in the form of table top chargers and power supplies, I guess it doesn't matter.

The handbook supplied was of good standard, providing details of how it works, maintenance data, parts list and circuit diagram. Accessories provided are a rubber whip antenna, Ni-Cd battery pack, carrying case, shoulder strap, and earphone. The review unit also came with the optional external speaker/microphone (YM-24A) which allows the operator to hold the transceiver high under weak signal conditions, and also allows easy base station operation.

Overall impression of this unit is that it is well built, works well, and has a definite use now that 70 cm repeaters are getting to be numerous. It is worth looking at if you are in the market for a UHF handheld.

This test unit was kindly supplied by Dick Smith Electronics, to whom further enquiries should be directed.

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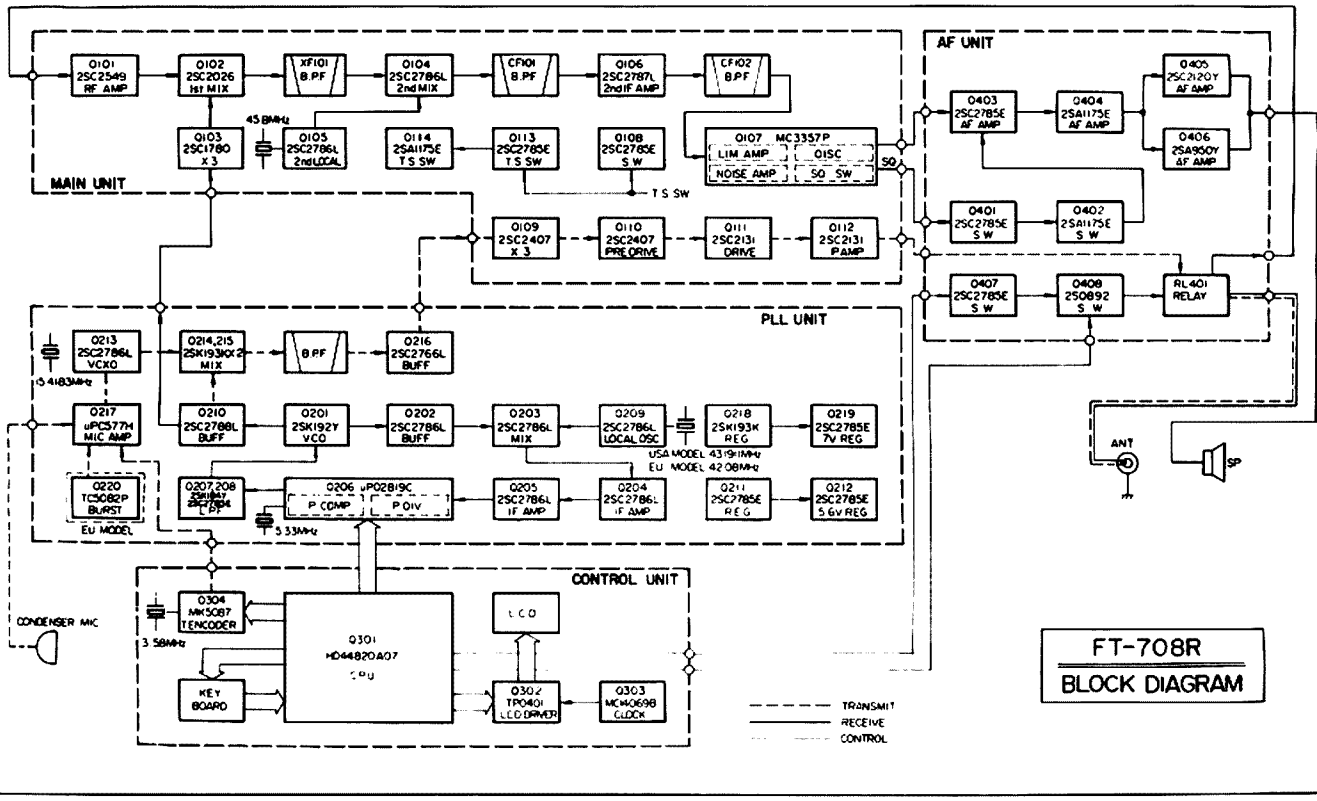
Keyboard Panel.

BLOCK DIAGRAM



NEW ERGONOMIC KEYBOARD SAYS GOODBYE TO "QWERTY"

Complaints by telex operators at the Australian Post Office have led to a British-produced computer keyboard which completely changes this one part of the equipment based on a layout more than 100 years old.

The operators said that using the keyboards all day caused pains in the neck and shoulders, and the resulting investigation by Sydney experts has been used to design the PCD-Maltron ergonomic keyboard.

The keys are divided into two well separated groups, with each key at a different height to allow for the varying lengths of the fingers. This means that the hands can be held straight, instead of close together with the wrists turned outwards, the usual position which leads to tension, and so to pain.

And the inevitable QWERTY arrangement of the keys, inherited from the typewriter, has also been changed. This layout was designed to stop the most used letters jamming together, but as this cannot happen with computers, the letters have been set out so that the most used are all adjacent. The left "home row" now reads ANISF and the right DTHOR, with E, the most used letter in English, being pressed by the normally underworked left thumb.

Ninety percent of the 100 most used words in English are on the home rows — with the addition of E — and the result, say the makers, is an increase in operating speed of between 20 and 40 percent.

The space between the two main sets of keys means that more use can be made of the thumbs. In addition to pressing the E key, the left thumb controls the "left" and "up" arrows, while the right governs the "right" and "down" movements and the return key, which normally has to be reached by stretching the little finger.

Operators are said to have no trouble adapting to the new keyboard, which can be attached to many computers. But for those who cannot learn where the letters are the QWERTY layout can be provided.

from Information Technology from Britain.

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IN THE SHACK.

A New Standard Of Comparison
Based on ICOM's proven high-tech designs, the IC-751 is a competitive class HF transceiver. Continuous tuning receiver (100 KHz to 30 MHz) and a full featured multi-mode Amateur Band transmitter ensures a top of the shelf spot in your shack.

ICOM IC-751
With the optional internal AC power supply model IC-PS35, the IC-751 becomes one compact package. Ask for a brochure and compare the features now.

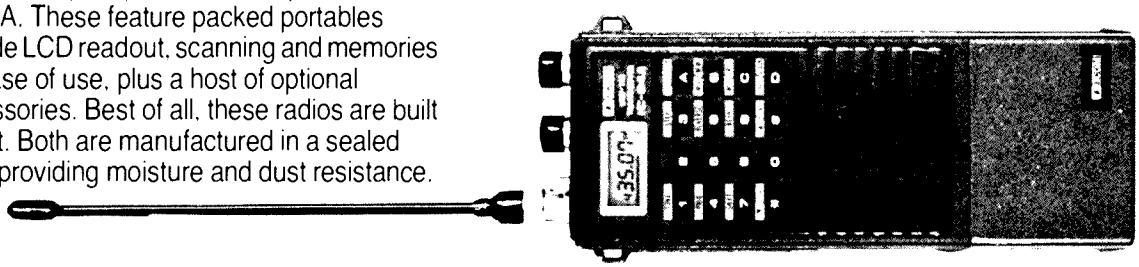
75 Watt 430 MHz – 450 MHz Base
This multi-mode UHF transceiver is packed with all the outstanding features you expect from ICOM. 75 watts RF output and wide dynamic range low noise receiver put the IC-471H in a class of its own.

ICOM IC-471H
As with the IC-751, the IC-471H can also be fitted with an optional IC-PS35 internal power supply. Ask your local ICOM dealer to demonstrate the IC-471H today.

OR IN THE FIELD.

The Legendary Pair:
ICOM's legendary reliability works for you in the IC-02A (VHF) and the UHF portable IC-04A. These feature packed portables include LCD readout, scanning and memories for ease of use, plus a host of optional accessories. Best of all, these radios are built to last. Both are manufactured in a sealed case providing moisture and dust resistance.

IC-02A and IC-04A



Check out these and other ICOM radios at your local authorised ICOM dealer. Write for product catalogue today.

ICOM The World System

7 DUKE STREET,
WINDSOR, VICTORIA. 3181
PHONE (03) 51 2284

ALL SPECIFICATIONS ARE TYPICAL ONLY

AR85

REPEATERS — Friend or Foe!

PART 3

Tim Mills VK2ZTM
PO Box 204, Willoughby, NSW. 2068.

Permission for 2 metre repeaters came just over 20 years after the Australian amateur was allowed access to the band. The first permitted use of the band appears to have been 1st May 1948. It replaced an allocation at 166 MHz, which in turn had replaced an allocation at 112 MHz.

In the period after World War I the amateurs were pushed out of the 'useful wavelengths' (round the present AM broadcast bands) down to the "useless 200 metres" (1500 kHz.) and below. Once the benefit of the 'short wave' frequencies were recognised, international planning began. This resulted in bands for the 'experimenters' in harmonically related steps, in larger portions than today's HF allocations, the amateurs received segments at 160, 80, 40, 20 and 10 on HF (15 came after WWII) and on VHF there was 5 (56 MHz) and 2½ (112 MHz). Whether we had 1¼ metres in Australia I do not know, but I expect that the American (Region 2 allocation) 220-225 MHz band may have originated from these harmonic steps. I have seen a reference in old publications to a small portion near 400 MHz. 56 MHz has been lost to Ch 1 TV, 112 is now in the international allocation for Aeronautical Radio Navigation, and 166 is in the high band commercial allocation.

The granting of 2 metres (144-148 MHz) continued the second harmonic related band allocation concept. This thinking appeared to have been that amateurs had harmonics, so give them harmonically related bands and anything they generate will fall in their bands, causing trouble only to themselves. Besides 2 metres, the Australians received 1 metre, 288-296 MHz and ½ metre 576-585 MHz. 1 metre has since been lost (military sub band region) but 50 cm is hanging on in the UHF TV band (Ch 34) under Australian footnote AUS 30 in the ITU Table of Frequency Allocations. (quote) "The band 576-585 MHz is also allocated to the amateur service until such time as the band is required for use by the broadcasting service" — 50 cm is very useful for ATV and is frequently the output frequency for ATV repeaters. (Currently the Institute has a dialogue with the Department of Communications for similar alternative allocations when this frequency is required.)

1 metre was a band that I had little to do with so I invite those who did to write a history about it. There is one story I do remember which goes back many years in VK5 land. It appears that in the late 50s there were about 70 limited licenses issued in VK5. 288 was a very active band — superreg receivers and mod osc transmitters — with over 200 (limited) call signs logged. Word was spread that the authorities were to undertake a 'shack inspection' of all users on 288 and activity suddenly dropped away.

2 metres is an international band but in Region 1 (Europe and Africa) it is 144 to 146 MHz. Region 2 (America's — north and south) and Region 3 Asia, (includes Australia) it is 144 to 148 MHz. Since WARC 79 however, some Asian countries have taken portions away for commercial use. Many countries make use of amateur intended equipment for commercial and military purposes. Next time you see TV news footage of — for example — Middle East events, usually where they show officials in groups, study the handhelds. Amateurs involved in military service in these areas are no doubt able to acquire an adequate range of captured or found amateur transceivers and handhelds. Amateur equipment is reliable and cheap, so a large portion of production may never see the inside of a shack.

We are a lucky country in that there is little crowding of amateur allocations compared to other parts of the world. Region 1 for example, has 2 MHz at 2 metres. There are 10 — 2 metre repeater channels, starting at 145.000, 25 kHz spacing with 600 offset up. The repeater band stops on the lower edge of the international satellite sub band — 145.800 to 146.000 MHz. (In 1972 the old channel "B" 146.000 was dropped from the Australian band plan because of possible interference to this segment.) Region 1 simplex channels are centred round 145.500 MHz. Europe is only a small place. Some years ago West Germany, for example, had 112 x 2 metre repeaters alone sharing those 10 channels, with all their neighbours on the same channels.

Now to return to the Australian scene. After Wodonga in 68, it was not until 1970 that permission began to appear for submissions made in 1968. Based on the two channel concept 1 and 4, VK2 had made to the following allocations. Channel 1, Orange, Gosford and Wollongong. Channel 4, Sydney and Newcastle. It soon became apparent that there was going to be massive interference problems on the shared channels but it was not until late 1974 that VK2 made the change.

Across the Tasman, New Zealand had developed repeaters. Their commercial two way system was AM and used the allocation round 100 MHz. (The FM band). As this equipment became surplus it found its way to 2 metres. They developed AM repeaters. Input was round 144.700 with outputs 1.125 MHz higher at 145.825 MHz. There were 3 channels. When they started into FM repeaters they chose a 700 kHz offset, some apparently preferred a MHz. Their system developed when Australia was in heavy debate on 500 and 600 kHz offset. New Zealand has now chosen the international 600 offset using the same channel positions as Australia, below 7000 in minus offset and plus above. Their channels are those ending in either 00 or 50 for repeater and those ending in 25 or 75 for simplex, centred round 146.5 and 147.5 MHz — there were 15 repeater and 7 simplex channels developed in the early 80s. On 70 cm they have also followed the Australian allocations. They have set aside 6 channels for repeaters and 4 for simplex. The repeater allocations start at 438.500 MHz output with a 5 MHz minus offset to an input at 433.500 MHz. The 6 channels are each 50 kHz to 438.750. The simplex however are at 433.300, 433.350, 433.400 and 433.450 MHz. (Australia has 439.000 ± .250 MHz for its simplex.) The New Zealand channels are 3 figures for repeaters. The Australian 7000 becomes 700 in New Zealand or 438.500 becomes 850. On two metre simplex they use 4 figures, eg 146.475 — their prime calling channel is 6475. On 70 cm however they appear to use 3 figures — 433.300 is 330.

The Australian policy for 70 cm repeaters is to use channels ending in either 25 or 75. VK2 has the extra policy not to allocate any 00 or 50 channels east of the Great Divide so that the ZL channels remain in the clear. The reason for 25 or 75 will be told in a later episode for it was not until 1975 that 70 cm repeaters were introduced. The 2 metre turmoil in the early 70s was yet to be overcome.

Can anyone help with background material or articles on the old bands of 56, 112, 166 and 288 MHz? Please send anything that you might have to the address above. Thanks.

AR

RADIO CHESS

CARI (Chess and Amateur Radio International) is a group of radio amateurs who regularly meet on air to play chess. Interested amateurs are invited to call in on any of the VK/ZL nets which are as follows:

Monday 1000 UTC	*145.575 MHz*
Tuesday 0930 UTC	*3.620 MHz*
Thursday 0930 UTC	*3.620 MHz*
Saturday 0330 UTC	*14.267 MHz*
Sunday 0330 UTC	*14.267 MHz*
Sunday 0930 UTC	*3.620 MHz*

Contributed by Craig McMillan, VK3CRA Secretary, CARI (Australia).

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from Collector & Emitter, January 1985.

RECEIVING!!

A Dutch engineer has developed a device costing about $50 which apparently can locate, receive and reproduce text typed on a computer terminal within one kilometre.

The device could result in terminals handling confidential information being screened which might include use of a sophisticated faraday cage.

Wim Van Eck, from the Dutch Neher Telecommunications Laboratory, demonstrated his device at the third world congress for the protection and security of information technology and communications in Cannes, France recently.

It was based on the fact each cathode ray tube emits unique rays that are similar in principle to an individual finger (or screen) print.

The device receives these rays and reproduces them on an ordinary television screen or could be recorded using a VCR.

Although the technique was already known to military specialists this was its first public demonstration.

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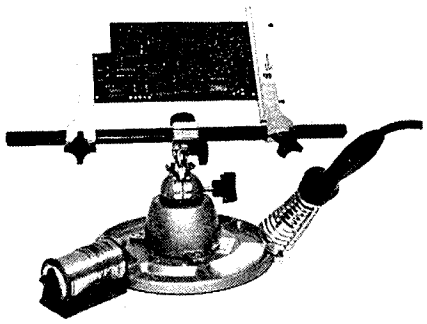
AR SHOWCASE



PORTABLE PCB REPAIR STATION

A new PC board repair station has been released under the Scope-Panavise label.

Features include —

- *an adjustable spring loaded board holder with a 300 mm capacity (larger capacity bars and multiple set of arms available)*
- *180° rotatable swivel and lock base*
- *stable tray base with wiping sponge, non skid feet and parts recesses.*
- *solder reel dispenser*
- *safety stand to accept any iron less than 15 mm barrel diameter.*

Anticipated trade price is $115.00 excluding solder and the Scope Model TC60 temperature controlled iron. This iron has been designed as a portable soldering station to operate direct from 240 V mains with 2 percent accuracy from 20°C-400°C.

For further information ring — (03) 338 1566 and speak to Kay Quinn.

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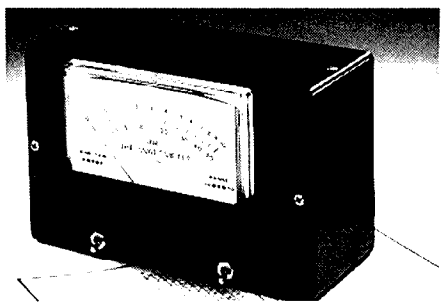

K 6312 UHF WATTMETER KIT

Dick Smith Electronics proudly introduce the K 6312 UHF Wattmeter Kit into the Australian market.

The UHF Wattmeter Kit provides the economical solution for radio enthusiasts wishing to make accurate RF power measurements. The unit relies primarily on its strip line layout for reproducable accuracy.

Retail price for the K 6312 UHF Wattmeter Kit is $49.95. The kits are now available in all Dick Smith Electronics Stores throughout Australia.

For further information contact: Wendy Giles Public Relations Manager, Dick Smith Electronics Pty Ltd. Phone: (02) 888 3200.

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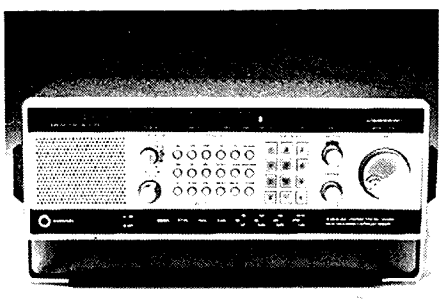


DX 1000 COMMUNICATIONS RECEIVER

There has never been an easier way to hear what the world has to say. The new "Bearcat" DX 1000 allows you direct access to the world.

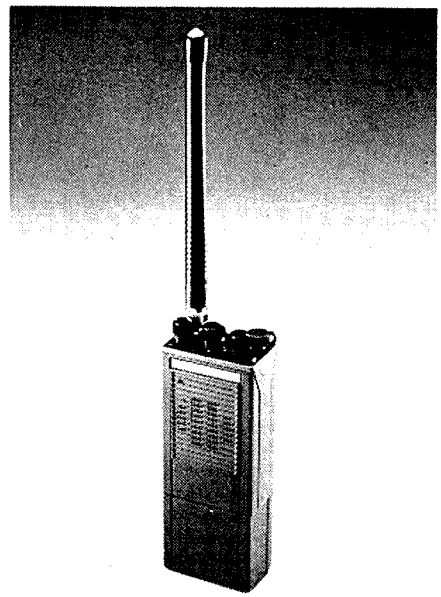
Featuring microprocessor controlled digital technology, DX 1000 covers 10 kHz to 30 MHz continuously, with PLL synthesised accuracy. Yes, that's right! Reception down to 10 kHz. The DX 1000 has ten memory channels to allow for instant recall-or for faster "band-scanning" during key openings. The digital display measures frequencies to 1kHz, or at the touch of a button, doubles as a two time zone, 24 hour digital quartz clock.

The DX 1000 can be programmed to activate peripheral equipment, also, record up to five different broadcasts — any frequency, any mode.

The DX 1000 also includes IF bandwidth selection to help you to separate high powered stations on adjacent frequencies.

The DX 1000 is NOW available at Dick Smith Electronics stores throughout Australia.

AR



D 1404 HAND-HELD VHF MARINE TRANSCEIVER

Just released through all Dick Smith Electronics stores throughout Australia is the D 1404 Hand-held VHF Marine Transceiver.

These units are very compact and provide the diode programming for frequency selection without a need of additional crystals. The D 1404 is high quality for marine craft using from 156 MHz to 162 MHz.

The battery pack slips into the bottom of the radio easily, and various battery packs are available to suit needs for optimum size and longer use.

Features:- 0.5/2.5 W transmitter output power (switchable), High Sensitivity: better than 0.25 uV (12dB SINAD), Capable of all VHF marine channels.

Units come fitted with Channels: 6. 16. 8. 12. 67. 70. 71. 72. 73. 74.

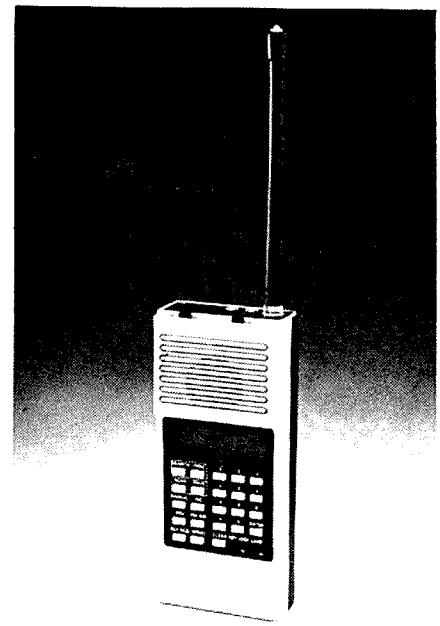
Complete with Nicad battery, No crystals to buy.

For further information contact: Wendy Giles, Public Relations Manager, Dick Smith Electronics Pty Ltd. (02) 888 3200.

AR

HX 2000 HAND HELD SCANNER.

Dick Smith Electronics has available in all stores throughout Australia the new HX 2000 AM/FM Programmable hand held scanning monitor receiver.



Performance is as good or better than from most "fixed" scanners but with the added bonus of being a hand held unit.

Features include:-

20 Channel memories — for full coverage and easy selection

No Crystals Required — Your choice of over 15,000 frequencies just by pushing a button.

7 Bands

Search and Scan — Scan frequencies you have entered or search for exciting new frequencies.

Crystal Liquid Display — Sidelight for night use.

SPECIFICATION:

60	90 MHz (VHF Mid)
118	136 MHz (Air band)
138	174 MHz (VHF Hi)
466	490 MHz (UHF)
490	525 MHz (UHF "T")

Search Frequency increments:

VHF	5kHz, 10 kHz, 12.5 kHz
UHF	12.5 kHz

Sensitivity (12dB Sinad, at tune-up):

Mid VHF	0.5uV
Hi VHF	0.5uV
UHF	0.7uV
Air band	1.0uV (10dB S/D)

For further information contact: Wendy Giles, Public Relations Manager, Dick Smith Electronics Pty Ltd. (02) 888 3200.

AR

NEW COAXIAL SWITCH

Now available from Dick Smith Electronics is the CH 20A Coaxial Switch.

The CH20A is a single pole two output position type coaxial switch.

This unit has been carefully engineered and manufactured under severe quality standards, and will give you satisfactory and dependable operation for many years.

Features: Professionally engineered double cavity layout. Professional RF characteristics.

a negligible insertion loss.
b negligible cross talk.
c super wide frequency range.
d low standing wave ratio.

Mechanically stable switching mechanism and contacts.

For further information contact: Wendy Giles, Public Relations Manager, Dick Smith Electronics Pty Ltd. (02) 888 3200.

NEW MOBILE ANTENNA MOUNT

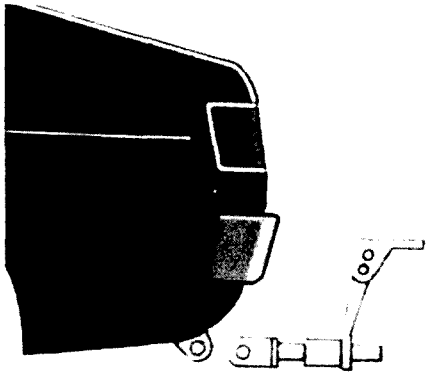
GFS Electronic Imports recently released a new "no holes" mobile antenna mount designed to take the heavy helical and centre loaded whips commonly used in HF operation.

Known as the HS-FB the new mount is designed to take advantage of the towing hook that most modern cars are fitted with today. It bolts directly onto this hook to provide a solid heavy duty mount. Where a towing hook is not available the HS-FB will bolt onto the vehicle's tow bar.

Stainless steel and hot dip galvanising is used throughout the HS-FB's construction guaranteeing a long and useful life. The actual mounting bracket is designed to adjust over an angle of 12 degrees and is drilled to take a ball type antenna base. The ball base is not supplied with the HS-FB.

Cost of the HS-FB is $49 plus $14 p and p. For further details contact the importers: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132, or Phone (03) 873 3777.

AR



NEW BOOT LIP MOBILE ANTENNA BASE REQUIRES NO HOLES

The new Hoxin HS-25 mobile antenna is designed so that it secures under the boot lip of a vehicle without the need to drill any holes.

Available through the importers, GFS Electronic Imports, this unique mount offers people who wish to install a two way radio in the car, an attractive alternative to the hole-in-the-roof arrangement that is usually used.

The HS-25 can be fitted in a matter of seconds so that it can easily be transferred from car to car. Its design allows it to take any of the Scalar type antenna bases that are commonly used in commercial two-way, CB and amateur radio circles these days.

Price of the HS-25 is $11 plus $6 p and p. Further information may be attained from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

AR

MICROCOMM SX-155 POCKET SCANNER

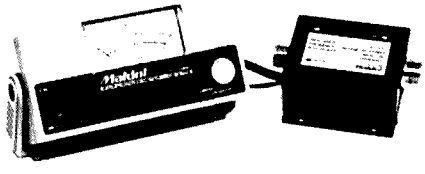
Microcomm recently released their new SX-155 programmable pocket scanning receiver. Manufactured to the same high technical standards as its predecessor, the SX-150, this new scanner offers its potential users a number of advantages.

Enclosed in a sturdy aluminium housing the SX-155 is supplied complete with rechargeable Nicad batteries, battery charger, carrying case and rubber duck antenna. It features an extended battery life of over 4 hours, a better rubber duck for UHF operation as well as lower spurious responses and higher performance. Almost unique amongst scanners, including the larger desk types, is the SX-155's 160 memory channels which are accessed as 4 banks of 40 channels each. Another useful feature is its search and store mode which performs an automatic search and store of active frequencies found while searching between frequency limits. Both its scan and search speeds are set at the rapid rate of 16 channels/second making searches of large portions of a band easy. A priority channel is included as well as user selectable scan and search delays. The antenna uses a low loss BNC Connector.

Other features include an automatic low battery indicator and cut off, a 24 hour digital clock as well as a receive sensitivity of 0.5 uV over its operating range.

Priced at $449 plus $14 P & P, the SX-155 or further information on it may be obtained from GFS Electronic Imports, 17 McKeon Road, (PO Box 97) Mitcham, Vic 3132. Phone (03) 873 3777.

AR



VHF/UHF SWR POWER METER

A new VHF-UHF SWR/ Power meter has recently become available. Known as the HS-370S and manufactured in Japan by Maldol it covers a frequency range of 130 to 450 MHz with extended operation outside this band at reduced accuracy. For convenience of mounting and ease of operation it is designed using two sections, the directional coupler is separated from the main indicator unit.

Power measurement ranges are 0 to 20 watts and 0 to 200 watts while its SWR range indicates 1:1 through to 3:1. Insertion loss of the directional coupler is less than 0.5 dB. For night time operation the meter scale may be illuminated by the connection of a 12 volt power source. The HS-370's directional coupler/indicator cable is 1.6 metres long to allow for wide separation and easy mounting of the two sections. Additionally both are equipped with their own mounting brackets. Size of the indicator is 130 x 62 x 38 mm while the coupler is 70 x 60 x 35 mm.

The HS-370S is priced at $90 plus $6 freight. For further information contact GFS Electronic Imports, 17 McKeon Road, (PO Box 97) Mitcham, Vic 3132. Phone: (03) 873 3777.

AR

HIGH GAIN OMNI DIRECTIONAL ANTENNA FOR 1.2 GHz

GFS Electronic Imports of Mitcham, Vic are marketing a new 1.2 GHz high gain omnidirectional vertical antenna. It is designed for base station operation on the 1296 MHz amateur band where there is now quite a lot of FM activity due to the advent of repeaters.

Known as the GP-1217 it is a 17 section colinear type antenna with an overall height of 1.8 metres. The radiating structure is protected from the weather by an attractive blue fibreglass radome which tapers from 20 mm at its base to 14 mm at the top. The GP-1217's mounting hardware is all stainless steel and chrome plated brass. It is designed to mount on any mast size from 25 mm to 50 mm.

A full operating range of 1260 to 1300 MHz is provided by the GP-1217's flat VSWR and a feed impedance of 50 ohms is presented to its N type connector at the base. Gain is 10.8 dBi.

The current selling price of the GP-1217 is $119 plus $14 freight. For further information contact GFS Electronic Imports, 17 McKeon Road, (PO Box 97) Mitcham, Vic 3132. Phone: (03) 873 3777.

AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

Well my recent remarks about SWLing didn't bring the storm of protests that I thought it might. The only disagreement with my thinking came from Jim VK2BQS, which he describes as a "Zephyr" not a "storm".

Jim does not agree with the requirements I laid down but we are in agreement with one point, that is, the responsibilities of the amateur to reply to SWL reports and Jim on occasions sends the card direct, if there has been an undue delay enroute through the bureau.

Jim is perturbed and thinks that I am a little hard in expecting the details that were laid down in the February issue of AR, particularly with requiring some of the "dialogue" of the QSO. In my possession there are innumerable cards with "dialogue" excerpts noted, also noting the OTH that is given on air which is different to my postal QTH due to the phonetics involved.

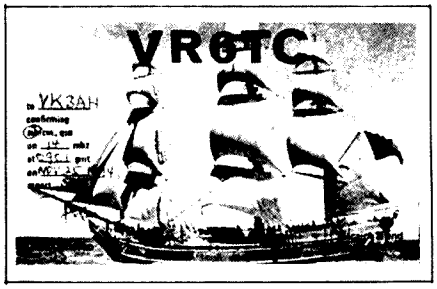
Jim raises a just point but it is felt as do some other amateurs that it has been mentioned to, that the stereo type of SWL is becoming too common. In a contest working at the rate of one or two stations a minute, I have had many cards back listing four or five contacts in order and time. On the other hand I have had many cards noted "Hrd u calling CO" and I have not been on the band at that time or even that day.

Unfortunately it is a problem that is not easy to resolve but I am afraid my line is to expect accurate date time groups and it is felt that some of the dialogue from the station can be copied and noted on the card. Some will term my requirements harsh but I expect more information probably than the average amateur to prove a genuine listening report before a card of my own or on someone's behalf is sent from this QTH and a must is that the log is in my possession before any cards are released.

SWLers take heart, Jim's letter has provoked a lot of thought and has mellowed my initial stand somewhat. Thanks for your constructive remarks Jim.

PITCAIRN ISLAND

New call signs appearing from the smallest British colony are VR6YL and VR6AB. The former belongs to Betty, the XYL of well known amateur and island identity Tom Christian VR6TC. Alastair, a radio technician, is the owner of VR6AB and it has been heard frequently on 40 metres.



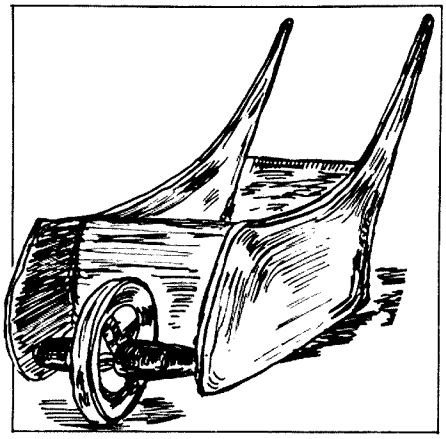
Tom VR6TC's card

Pitcairn is a small rugged volcanic island of about 3.2 km long and 1.6 km wide, with a highest peak of 330 metres named Ship Landing Point, which commands a view of the bay. Pitcairn is located mid-way between Panama and New Zealand and 2500 km ESE of Tahiti. The population has dwindled due to emigration to New Zealand to be around 50 inhabitants that live in the area called Adamstown that is slightly lower than the only small flat area called Flatland.

Public revenue is virtually obtained from the sale of postage stamps that were introduced in 1940 and interest on investments. The small population has approximately 20 children and there are a handful of really elderly people. Every male between the age of 16 and sixty is expected to participate in public work.

Another form of revenue is carving and basket weaving and the arduous journey of 160 km in long boats is necessary to get raw material from Henderson Island for these projects.

Recently the Governor of Pitcairn, Sir Richard Stratton made a visit to the island and presented the inhabitants with a new flag. The new flag approved by Her Majesty Queen Elizabeth II, is blue, with the Union Jack in the top left corner and the Pitcairn Coat of Arms which features a shield with the "Bounty" anchor and the "Bounty" Bible surmounted by the Pitcairn wheelbarrow and bordered by miro leaves and flowers in the colours of yellow, green, pale blue, grey, brown and red, is located in the middle.



An artist's impression of the Pitcairn wheelbarrow

It is believed that this is the only flag in the world to have a Bible portrayed on it and it was raised to the masthead during the singing of the National Anthem at a simple ceremony during Sir Richard's visit. Incidentally Sir Richard is also British High Commissioner to New Zealand and Western Samoa and this was his second visit to the island in four years.

SAUDI ARABIA

HZ1AB is temporarily QRT for the next couple of months due to shifting QTH by all reports and Bob Walsh WA8MOE has resigned from all HZ1AB activities that he undertook!

VE DAY ANNIVERSARY

The special call of GV2HQ has been assigned to RSGB Headquarters to commemorate the 40th Anniversary of VE Day on the 8th May. Other stations will be heard in the week 5th to 12th May with the GV prefix.

RTTY FROM VATICAN CITY

I5FLN and I8AA hope to have RTTY operational on all bands from HV2VO at the end of June or early July. This will probably be a new country to many that use this mode.

SAINT BRANDON

Another one to look for is Taher 3B8DB, who hopes to actuate 3B7 around late June or early July. This is dependent on his obtaining a linear and suitable antennas and of course the necessary documentation.

USSR 160 METRE ALLOCATIONS

The new 160 metre allocations for the USSR appear to be 1.830 to 1.930 MHz on a secondary basis. CW 1.830 to 1.860, CW and SSB 1.860 to 1.900 and all mode 1.900 to 1.930 MHz.

MARION ISLAND

A prediction of the reactivation of ZS2MI turned out to be a "non event" due to the amateur, that was appointed to join the crew for the 14 month stint of isolation, not passing his medical. No operator until next year at least by the looks of things at the moment.

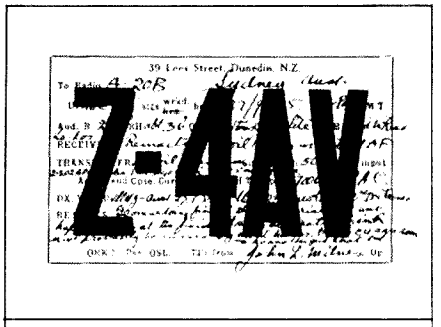
A letter from Wolf Gruellic who was in the 1975/76 32nd Relief Expedition, acting as a Radio/Telex operator, describes it "as a glorious and memorable experience". Any volunteers for next year's team?

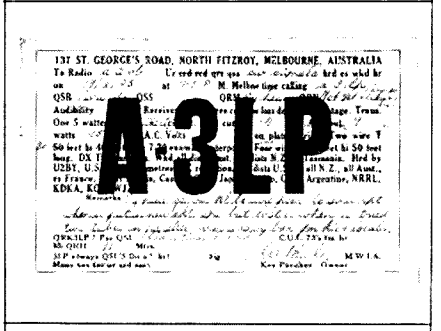
FRANZ JOSEF LAND

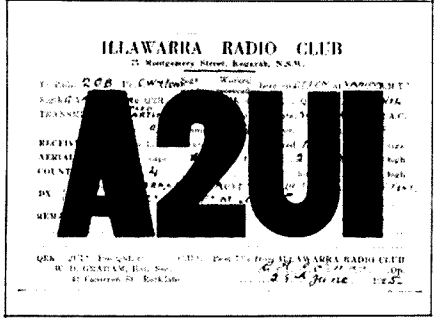
One station QRV from this area is EO1AOK who says he is located on Heiss Island. QSL to UZ1OWA via the Bureau.

CARDS FROM YESTERYEAR

Again are reproduced some cards of yesteryear provided by the courtesy of VK2JM.







THIRD PARTY AGREEMENT

An agreement is being considered by the US Department of State and the Federal Communications Committee for a commital of "Third Party traffic" between the Vienna Centre which houses 4U1VIC and US amateurs. If this occurs it would have to be one of the top priority agenda items, of the new DX Advisory Committee chairman Bob K6SSJ, to have it reconsidered for DXCC status. The DXer always lives in hope!!

Of course there are other areas that could be considered after 4U1VIC such as the Pribilof Islands which has died a natural death.

BOUVET ISLAND

LA4CG was on the island for about one hour on the 28th February. As expected no amateur operation took place. Better luck next year.

LIBYA

Those that may have worked 5A1TK many moons ago and never received a card. There is hope, David is now G3KXI and recently QSLed a 1962 contact. So if you need 5A and have worked David, delve into the old log books and QSL to David Keeler, 14 Honey Close, Hook End, Brentwood, Essex.

SPECIAL CALL YI0AY

The special call YI0AY was allocated to the Arab Scientific Welfare Festival which was held in Baghdad between the middle and end of March with guest operators from A4, HZ, OD and 7X. They had their problems with hostilities prior and during the period.

If you were lucky and really want the card QSL to PO Box 5864, Baghdad and their request is IRCs only. No bureau cards!!

HEARD ISLAND

Heard Island was in the news in March. Lava had been seen flowing from Big Ben by a passing French Fisheries Research vessel heading to the Antarctica from Kerguelen.

Another news item that circulated on most media releases was that the Anaconda II went aground in her home territory, VK5, but was successfully refloated. It can be imagined that the skipper, Captain Grubic, said a few words that couldn't be repeated.

BITS AND PIECES

Andaman and Laccadive Islands activity. Will it be accepted by the ARRL Desk??? ** The PS7ABT/S9 operation will count for ARRL DXCC. A group hope to be QRV on this mode in late June or early July operated by I5FLN and I8AA. ** VK0YL is still work orientated and logs are expected in the mail this month. ** Kimsan XU1SS, has been worked /Mobile. ** Do not waste cards on Mansur EP2KKM who it is believed is a "pirate". ** J4ATC was a special call for a World Air Traffic Controllers Seminar in Athens between the 16th and 22nd of March. ** WA5TKC has the logs for 9F3USA, 9F3USA/P1 and ET3USF. ** ZV9ZZ is located in Brazil. QSL to PY5IW. ** G3EMY ex ZC4RM says that all his operations were within the Sovereign Base Area of Akrotiri. ** VE3KFE/4U is active from the Golan Heights and should be QRV until late August. Another station is OE8AJK/YK who is at the same QTH. ** Number of overseas DX sheets note the activity of VK0GC on 160 metres and other bands. ** A22ME and TE are now QRT. ** By the time you are reading this there is a possibility that Kingman Reef may be a deleted country by the rumours floating around. ** A tip is that Italian stations may be able to increase power later this year! ** Reports to hand indicate that the Indian Government is really making efforts to foster the hobby in that country.

WORKED ON THE EAST COAST

14 MHz Band

4X6LL, 5X5BD, 7O7LW, 9M2FK*, 9M2FZ, A4XKG, A4XKR, AP2IZ, AP2MQ, CP8HD, DJ0EK, DL6RBI, DL7AH/3X, EI2CI*, EO1AOK, EU3A, EW3AP, G3BJB, G3HWO, G3YSV, G4BXO, G4SDF, G4ZVM, GJ2LU, GD4XWF, GM4OEZ, I5ICY, IN3AXI, OE8AVK/YK, OH5OJ, OH8OS*, ON4KU*, ON7WW, PA6FLD, PZ1CP, RF0FWW, SK7HW, SP7DRV, VK0GC, Y24HL, YI0AY, YO3RD*.

INTERESTING QSL CARDS RECEIVED

9Y4AT, CE1CQZ, CT2ON, CY3WCY, EA8BF, GM3AWW, GW3NNF, GW4ZEV, OH0AC, T30CT, YI1BGD.

OSL MANAGERS

5T5RY:F6FNU, 6Y5MR:VE3KGK, 7P8BE:VE3FXT, 8O7CK:12CRG, 9X5NH:DL8OA, 9Y4F:VE7DRW, AX3PB:VK6NE, CE0DPD:CE3DPD, CE0EEO:CE3EEO, EL7H:OE2UE, EO3AWK:UZ3WWN, EO4AES:UZ4AWE, EU3A:UZ3AZW, EW3AP:RW3PW, F5II/FY:F5II, FM5BH:W3HNK, FM7WD:W3HNK, HI0B:HI8IH, J87GL:K9QVB, J87J:K4UEE, J87VV:KB9AW, JA8IEV/JD1:Bureau, JY1:WA3HUP, JY5CI:G4WFZ, JY9WR:G4ATS, KC6KK:OE6BVG, KC6MR/KX6:JJ1TCK, OE8AJK/YK:OE8AJK, P42J:W1KDD, PY0FJ:PY2AJK, S8HZR:WA2HZR, SU3KY:SU1IM, T30ZK:JJ1TZK, T70A:T70C, T70A/WTD:T70C, TL8DC:FE6EWM, TZ6FE:DL4BC, VK0CK:VK5LP, VK75A:VK3 Bureau, VP2EAG:KJ0D, VP5GEX:K0GVB, VR6AB:ZL4DW, YK1AA:DJ9ZB, Z21CA/N:Z22JS, ZS3E:K8EFS.

ADDRESSES

6V1A	PO Box 971, Dakar, Senegal.
8R1J	PO Box 10767, Georgetown, Guyana.
9J2LG	PO Box 30441, Lusaka, Zambia.
BY4AA	PO Box 205, Shanghai, People's Republic of China.
BY5RA	PO Box 730, Fuzhou, People's Republic of China.
C21DB	PO Box 225, Republic of Nauru, Central Pacific.
C21FS	PO Box 83, Republic of Nauru, Central Pacific.
CE0DPD	PO Box 9, STGO10, Santiago 12, Chile.
CE0EEO	PO Box 101, Santiago, 12, Chile.
CE0ZIJ	PO Box 1, Easter Island, Chile.
CO2GB	Gloria, C/- PO Box 9, Havana 1, Cuba.
D68AZ	PO Box 410, Moroni, Comoros.
EA9IB	PO Box 213, Melilla.
EL2BB	PO Box 463, Monrovia, Liberia.
EP2MA	PO Box 34/214, Teheran, Iran.
J6LLO	PO Box 800, Castries, St Lucia, Windward Islands.
SV5TS	PO Box 251, 85100 Rhodes.
SW2XR	PO Box 33, Kilkis, Greece.
T77C	Tony Ceccoli, via Della Carrara, 67, 47031, Republic of San Marino, via Italy.
V3ZZ	PO Box 128, Napoleonville, LA 70390, USA.
VK9XJ	PO Box 138, Christmas Island, 6798 Australia.
YN8RR	PO Box 122, Jinotepe, Nicaragua

CW SWLing with ERIC L30042.

28 MHz

JA2IUG, JE2TOY, JA5WIO

21 MHz

JA, VU2ALI

14 MHz

AH2G, FK8EY, FO8ET, HL1CG, P29JS, P29PL, VK75A, YC0EBS, ZL0AIX, ZS6ME, 9V1VD.

10 MHz

PA0RE/CT1, DL7AD, FD6HRV, FE6BVF, FE8VN, W2GDV, W3ARK, N4SU, N0CG, YU2ZZ, ZC4HA.

7 MHz

CT2EC, CT3ET, DF9ZP, EA1MV, EA6NB, EM9BWL, EO4AES, FD1JOA, FK6DK, G6CJ, HA8BE, HB9RX, HL2XP, HZ1AB, H44IA, I5FPJ, IS0MH, IT9OGE, KG6GF, KP2J, KV4AM, KC6MR/KX6, LX1PD, LZ1KSD, NP4MO, OE5BCM, ON7FK, P29PR, RA6LRT, T30ZK, UA3GGF, UB5EMX, UC2SLO, UP2NK, UZ0LWX, VK75A, YC0BRX, YO4BEW, YU2EZA, YV4AU, Y48ML, ZC4HMS, ZB2EO, ZL7PO, 5Z4MX, 6O7CK, 8P6AU, 9V1TL, ZK1XU.

3.5 MHz

C21NI, KX6DS, P29PR, K5KG/VS6, 8O7CK

1.8 MHz

VK3BDJ, VK3BML, VK3DOW, VK5PH.

QSL CARDS RECEIVED BY ERIC L30042

AL4CAE, HL0SF, 8J3XPO, JD1ABZ, YJ8JH, ZL0AEU, ZS6BZ. 10 MHz F9HR, JA5ANP, JA6PJJ, JA7AXP, JA8XR, OK1AJN.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, ORZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, WESTLAKES ARC MONTHLY NEWSLETTER, JAN and JAY O'BRIEN'S OSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, OST, RADCOM, JARL NEWS, KARL NEWS, OZ, 73, BREAK IN and VERON.

Members who have contributed include VKs, 2JM, PS, BOS, EBX, 3YL, G3NBC and L30042. Overseas amateurs include G1EOD, I8SAT and ZL1AMM. Sincere thanks to one and all.

AR

Radio Amateur Old Timers Club

Kevin Duff,
Publicity Officer, RAOTC
10 Stanley Grove, Canterbury, Vic. 3126

The yearly dinner and Annual General Meeting of the Radio Amateurs Old Timers' Club in Victoria was held at the City and Overseas Club on the evening of the 7th of March 1985. There was a good attendance of 56 members including many country amateurs and a number from interstate.

Mac McConnell VK3RV gave a very interesting talk on the first use of electricity for lighting and power in Melbourne including the application of both DC and AC equipment and the advent of the rotary converter, from about 1880 onwards. This was very well received by members.

Max Hull VK3ZS spoke about the production of the OTN Journal and listed some of the events to take place to commemorate the 75th Anniversary of the Wireless Institute of Australia.

Office bearers and Committee for the following year. Murray Clyne VK3HZ, President for the last three years, has tendered his resignation. Nominations for this position were called for and as Max Hull VK3ZS was the only nomination he was duly elected. All other committee members indicated their willingness to serve for the next term and were elected. A vote of thanks was given to Murray for his three years of hard work on behalf of the members. Our long time Secretary-Treasurer, Harry Cliff VK3HC spoke about financial aspects of our Club as did Clem Day VK3GY, the keeper of the membership lists who told us about some of the problems associated with this vital job. John Tutton VK3ZC, in charge of the QSO parties, addressed members about this aspect of our activities. Lay Cranch VK3CF filled us in about successes and problems associated with the monthly first Monday net and also intimated that there is a possibility that people who have held an amateur licence for 50 years or more can take a new call sign. The call could be VM-AAA to VM-AAZ. This has not yet been finalised so listen to the monthly RAOTC broadcast for more news about this. A vote of thanks was given to Lay for all his efforts on behalf of the RAOTC.

Interstate and country members were invited to comment on amateur radio in their areas. These included Bruce Mann VK3BM, from Swan Hill, Frank O'Donnell VK2QC from Ulla Dulla and George Turner VK3GN from Ararat.

David Wardlaw VK3ADW, Federal President of the WIA addressed the meeting about the activities for the 75th Anniversary of the Wireless Institute. This was very well received and a vote of thanks to David was recorded.

The AGM concluded about 10.15 p.m.

AR

RAOTC members will be saddened to hear of the untimely death of long time member and supporter, Dennis Ayre VK3KP. This occurred during the Annual General Meeting and we offer sincere sympathy to his wife and family.

VHF UHF — an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	*Call sign*	*Location*
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.045	OX3VHF	Greenland
50.050	GB3NHQ	England
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
50.945	ZS1SIX	South Africa
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.480	VK8VF	Darwin
144.565	VK6RPB	Port Hedland
144.600	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands

A few comments about the beacons are in order this month: The first listing is shown for the Nedlands (WA) beacon on 1296.480 MHz, and the Kalgoorlie beacon VK6RTU on 52.350 is being overhauled according to the "WA VHF Group Bulletin". The same bulletin also advises that "VK6RPB is currently under test from VK6WV in Port Hedland. Output is about 5 watts into a vertical. It has an unusual ident sequence: VK6RPB in F1 (ie FSK), then VK6RPB — Port Hedland — PO Box No, then VK6RPB Port Hedland in MCW for FM receivers!

The VK0CK beacon has been removed from the list as David the operator will be returning to Australia soon after these notes are being written. At the moment I am not certain of the future of six metres from Macquarie Island, there has been some talk that Denise VK0YL, the first YL operator from the island, will keep six metres activated, but until something definite comes from David I am reluctant to say what is happening. Next month's notes from me should have something definite on the subject.

David VK0CK certainly did what he could to give amateurs within range a VK0 contact. There were more than 200 six metre contacts made during the two summer Es periods that David was on Macquarie Island, and due partly to the huge dog-piles many operators did miss out on a contact. However, it seems somewhat strange that only about a third of those contacting David have bothered to claim a QSL card from me (his QSL Manager and a stamped addressed envelope with your card is all that is required).

It has been quite an experience for me, a die-hard VHF operator, to go on to 20 metres on Sunday afternoons for the past eighteen months to maintain a sked with David VK0CK. Whilst only sporting an FT101B and a long wire antenna (600 feet long and 40 feet high), contact has been made on almost every occasion, twice we failed due to the "radio blackouts" which are common in the cold southern areas, and one other occasion when there was just too much QRM on the band due to an exceptionally good set of conditions and a contest as well!

Now that David is returning before deciding whether to go south again at a later date, we still have Mark VK0AO (VK5AVQ) at Mawson Base on the Antarctic Continent who is hoping to activate six metres from there. This will certainly provide a test of endurance for the VHF clan, but will more than likely favour VK6 this time, being closer than the eastern seaboard. I am maintaining 20 metre contact with Mark as often as possible, but he has some very difficult problems with interference from the amateur equipment into other equipment on the base, plus return interference to him from the base equipment. Knowing Mark's resourcefulness I am sure he will get everything sorted out before too long and I will be able to advise you of likely operating schedules for the end of the year and six metres.

EME SEQUENCING AND REPORTING

In the world of EME (moonbounce) for many years there have been two main methods of calling and reporting on EME, depending on what band you are operating. At the present it is accepted world wide that on 144 MHz the timing is two minutes receive — two minutes transmit whilst on the higher frequencies of 432, 1296 and 2300 MHz a 2½ minute sequence is used.

Currently there are moves to standardise the sequencing. This is not the first time such a move has been made, but so far universal success has been elusive, with each frequency user thinking the other should change! There is even a suggestion that one minute sequences be used on all bands.

One could argue that with the improvements in technology and better receiving systems that a one minute sequence is all that is needed. This is fine if the signals are well readable, contacts could easily be concluded with one minute sequences. If signals are weak then there are going to be a lot of stations missing out on contacts, the extra time with 2 or 2½ minutes may be all that is required for the identification of a full call sign and/or exchange of signal report. As any DX VHF operator will know, it is not uncommon for signals to change from unreadable to fully readable over a period of one or two minutes during a contact.

A couple of other factors need to be considered as well. The 2½ second propagation delay with the signals travelling to the moon and returning becomes a significant percentage of a one minute sequence. Also, not every antenna system exactly tracks the moon all the time, and there is a need for re-aiming at times! The longer sequence does give some time for this to be done, especially if you are operating on 1296 and above where narrow beamwidths are the order of the day. Some operators on 70 cm rotate their polarisation and it would seem more than one minute would be needed to accomplish this as well as other tasks.

Whilst both sets of bands employ the "TMO5" signal reporting system, some confusion can be caused, particularly to new operators, mainly in the interpretation of the "M" report. "T" is used by both bands to indicate the detection of some signals but with the uncertainty of the exact call sign of the other station. On the other hand, "O" means complete calls are being heard and it is possible to complete a contact, but the level of signals are not sufficient to move up to the next stage which is the usual RST report.

The "M" report on two metres signifies that only one or two letters have been detected and hence it is unlikely a contact can be established both ways. However, on 432 MHz an "M" indicates that enough can be copied to identify a complete call, with difficulty, but still being possible to complete a QSO. Without getting too far out of my depth, one suspects that the "M" system for 432 MHz and above would be nearer the mark than that used on 144 MHz, as surely the "M" on 144 is very close in fact to the interpretation of a "T" report. Those operating EME and using the various systems are the ones who should make up their minds and it is hoped that soon there will be agreement on a suitable system for all bands if only to assist the newcomer. Whatever the reason, I do hope EME operators will give some time and thought to the question, and advise those making the moves of their decision after giving all relevant matters careful consideration.

EME REPORT FROM VK2ALU

From "The Propagator" Lyle VK2ALU reports that EME tests at VK2AMW were carried out on 21/2, 22/2 and 23/2, and consisted of 'fine tuning' the hour angle computer sensing system over the range which was to be used during the programmed 3 hour test period and various other adjustments.

The tests went very well despite the moon not being visible due to heavy cloud cover, echoes were received on the first transmission indicating all systems were working.

Contacts were completed with K2YUH at M/O copy, K4QIF at M/M copy, WB5LUA at M/O copy and VE7BBG at O/O copy. Signal strength at VK2AMW dropped over the last 15 minutes of the 3 hour period and a quick look at the computer readout indicated the dish was 1¼ degrees ahead of the correct position, after resetting the 'tracking' normal echoes returned.

EME REPORT FROM MELBOURNE

Doug VK3UM advises continued success with his 432 MHz EME experiments. On 4/2 at 1030 a sked with VK5MC produced O reports. On 8/2 a random contact with DF3RU was an O report; 24/2: 0935 F1FHI 439/529 random contact; 2/3: 1150 OH2DG random O; 1300 SM5CPD sked O; 1340 DL9KR 539/559 random; 1350 DL9KR SSB 4x4 and 4x4 and exchanged names; 1400 G3SEK sked 439 439; 1416 F1FHN random 439 439.

3/3: 0712 JA9BOH random O; 0735 ZL3AAD random O; 1325 G3LQR random 439 429; 1450 DJ8QL 439 439 but actually peaking 549; 1507 F1FHI random 439 439.

Also on 3/3 2330 to 0000 on 432.1 worked VK1ZIF, VK1BG, VK1BUC, VK1GL, VK1AU and VK2ZAB, with signals varying from 5x3 to 5x6. In addition, Eddie VK1VP can hear VK3UM anytime Doug is on.

SIX METRE STANDINGS

Operators are given advance notice that the next listing is due in the August 1985 issue of "AR". Any changes to your present listing or new listings will need to be on my desk by 15th June for inclusion. Only those people who submit their list in the prescribed manner will be considered! The prescribed manner requires the following information in writing: Your own call sign, date of contact, UTC time of contact, call sign of station worked, country, mode, signal reports sent and received, QSL received yes/no. If contacts were made split frequency 50 to 52 MHz this will help. Please add your signature.

LEARNING TO USE SIX METRES

Although this column is not an advertising medium, there are times when I feel it needs to mention something likely to be of interest to most operators, particularly the newcomers.

The Spring/Summer edition of "6-UP" has two articles which should be required reading for those interested in six metre DX. The first is called "A Tropospheric DX Primer" and the second "Improving Your Chances With Sporadic-E DX" both by Roger Harrison VK2ZTB. Together they give a good insight as

lo what you might expect from the six metre band, in particular, and two metres to a lesser extent.

In addition there is an interesting article on a five over five antenna for six metres by Geoff Moss VK2AHK. The improvement over a single antenna due to the lower radiation angle of the stacked pair can be quite dramatic for long distance signals. I recall around 1976 when signals from Japan on six metres were being received fairly constantly I had a wide spaced 6 element on a 7.6 metre boom on six metres which was capable of outstanding performance particularly on Es signals as they started to fade out. However, I could never ever capture the Japanese stations like David VK5KK could, he was always giving 2 to 3 S points better than I with uncanny consistency. Although David and I were 50 km apart I did not think this was always to David's benefit. In the end I built a similar antenna array to David, being an eight over eight with three quarter wavelength spacing at the same height as the original six element beam.

The improvement was instantaneous! For the first time I could now hear Japanese stations at the same strength as VK5KK, and as we used to spend quite a lot of time talking to one another we were able to compare notes. It was found the stacked pair made little difference on Es signals which was as expected although the signals did seem to hang in for a long time at marginal copy as the Es disappeared. As the peak of the sunspot cycle approached in 1979/80 the system was invaluable for those long distance contacts across the Pacific including no less than four contacts to XE1GE in Mexico. It was not so much the slight increase in gain that I was after as the lowered radiation angle and this has proved invaluable even here in the hills where there are no clear take-offs in any direction. The array is very useful for ZL contacts and I think it would be fairly safe to say I can work ZLs longer than most others in the vicinity. Try a stacked pair!

Should you decide to try a stacked pair on six metres may I suggest you pay very careful attention to the mechanical problems of the installation. Do not underestimate the strength of the wind as it is capable of bending most masts at some time or other. I do not use water pipe because it bends so easily, I use the steel tubing from Hills Industries and at least 50 mm (2 inches) in diameter, and inside this I have another smaller piece of the same material which is a snug fit to add to the structural strength and the two are pop riveted together at frequent intervals. The mast extends below the top of the three legged tower for at least 1.5 metres where it fits into the rotator. At the top of the tower is a piece of good quality jarrah 152.4 mm wide and 304.8 mm long and 63 mm thick mounted on a steel plate the same size but 9.5 mm thick which is welded to the tower. The jarrah is bolted to the steel plate and two bands of galvanised sheet metal about 25.4 mm wide are fixed around the steel plate and the jarrah, two either side of the centre and this acts as a safeguard should the jarrah decide to split through being in the weather. An appropriate size hole in the centre of the jarrah and the steel allows the mast to pass through and provides a fairly wide bearing surface and takes the strain off the rotator when the wind puts side strain on the mast. This method of construction should give a long period of service if you do it properly.

RANDOM JOTTINGS

Conferring with Bob VK5ZRO, that watchdog of the bands, it is confirmed that activity on both six and two metres has been rather quiet this month. There has been the occasional opening to VK2 and VK4 but little else.

Bob VK5ZRO reports the almost nightly contacts with VK5ZRG in Whyalla (220 km) on 1296 MHz are still at very good signal strength. By way of a change however, on the 14th March Bob transmitted 70 cm ATV to VK5ZRG for about 3 hours with similar good results.

On OSCAR 10 on 6/3 Bob VK5ZRO was pleased to have a contact with PJ2MI in the Netherlands Antilles off the coast of Venezuela with the usual 5x5 signals. Bob has now lost count of the number of countries and contacts he has had via OSCAR 10.

A brief contact on 20 metres with Mark VK0AQ at Mawson Base Indicates Mark has had the Mawson beacon on six metres running but some more work is needed to stabilise the frequency and improve the antenna system. He will advise me when the work has been completed. In the meantime Mark is concentrating on getting his equipment in order so as to be able to work through OSCAR 10 which should give him a better chance to gel on the air without the recurring problems of causing QRM to other equipment on the base when he uses 20 metres. During the contact on 17/3 Mark mentioned the temperature was – 10ºC and they were enjoying about 12 hours of daylight from about 0830 to 2030 local time.

As there are no letters this month there seems no point just rambling on, so wishing you good contacts as the winter Es period approaches, and closing with the thought for the month: *"If you have tried to do something and failed, you are vastly better off than if you had tried to do nothing and succeeded!"*

73

The Voice in the Hills.

AR

INTRUDER WATCH

Bill Martin, VK2COP

FEDERAL INTRUDER WATCH CO-ORDINATOR

33 Somerville Road, Hornsby Heights, NSW 2077

Good news this month from the DOC. A letter received at this QTH from the DOC in Melbourne goes as follows: *"I refer to your letter concerning intrusion into exclusive amateur band allocations by Russian station 'UMS' . . . Action has been taken to bring this matter to the attention of the Russian Administration and to express our concern at operation of 'UMS' within internationally recognised amateur bands. I am pleased to be able to advise that in this regard, the USSR have recently responded indicating that they have initiated steps to eliminate interference on 14.141 and 21.032 MHz from 'UMS'. The Department is therefore hopeful that the situation will be shortly resolved."*

Good news, indeed! However, we still have to see if in fact the USSR has taken steps, and, as the old joke goes, "I hope they are big ones." Full marks to the DOC on this one.

As I write the column in March 'UMS' is still operating, but I suppose we have to give them time to make the arrangements to QSY. We will be looking at the frequencies in question very hard for the next few weeks.

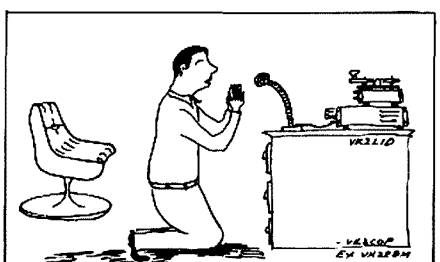
Some of the more dedicated IW observers will be aware of the rubbish to be found on the 40 metre band in the wee small hours. Recently, I had occasion to be in the shack at about 1730 UTC, and found the following on the band: One AM station; four RTTY stations; three jamming stations, and two amateurs (JA and LZ) trying to fit in somewhere, and not doing too well.

Here is a list of intruders which have been heard between 7.010 and 7.020 MHz, which would have probably interfered with the keen CW operators on the band. This is a short list, and there are many more intruders present on the band: HY8J; LNV; YUX3; XB22' RV3; OBSV; HTCY; VCDB; UMS; as well as Radio Beijing (China). The foregoing, with the exception of Radio Beijing, are all on CW, and are probably trying to masquerade as amateurs, hoping to be lost among the legitimate CW signals. They'll have to do better than that!

A big summary for February last, and many thanks to all who contributed. Let me remind once again, of the IW net. This net is held on or about 3.540 MHz on Wednesday evenings, at 1030 UTC (8.30 p.m. AEST) and 1000 UTC (8 p.m. daylight-saving time). In other words, in summer at 8 p.m. and winter at 8.30 p.m. Everybody is welcome to come in with any enquiries.

Well, I need six more countries for the DXCC, so I suppose I had better go and work them, and get the claim away (HI). See you next month, and good DX.

AR



CQ DX — Looking for my 100th Country

..... VK2COP

QSP

HAZARDS OF RF RADIATION

The Standards Association of Australia has recently issued AS2772 — Maximum Exposure Levels for Protection Against Radio Frequency Radiation, which reverses and expands previous guidance material for protection against the biological hazards of non-ionising (RF) radiation, issued in 1972.

Medical research during the intervening years, in many countries, indicates that maximum permissible levels of power density much lower than originally recommended are warranted and this attitude has been reflected in the new standard. For the first time, a maximum exposure level has been introduced for the general public, set at one fifth of the occupational level.

Seminars were conducted by the SAA in late March in Sydney and Melbourne covering a wide range of topics including the medical and technical background to the subject, measurement techniques and equipment, reasons for the preparation of the standard and possible further changes envisaged in future editions on the standard. The proposed implementation of the standard in regulations was also discussed. The WIA Federal Standards Co-ordinator, Allan Foxcroft, attended the Melbourne session.

The possible impact of this new standard on amateur operations from both the safety and regulatory viewpoint will be featured in a subsequent issue of Amateur Radio.

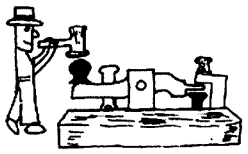
Allan Foxcroft VK3AE

FEDERAL STANDARDS CO-ORDINATOR

"An optimist is one who takes the cold water thrown on his ideas, heats it with enthusiasm, generates steam and then forges ahead."

Non-starters are just that . . . NON-STARTERS.

from DX Post — March 1985



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

BITS AND PIECES

This month I'd like to catch up on some of the correspondence. I guess I don't have to tell you about holiday confusion (I'm writing this in early January) so you will perhaps forgive me for the delays in answering letters. In fact, I may have neglected to answer a letter or two, and if you haven't received an answer please accept my apologies. I read and take note of all the mail, using a fair bit of it in the column, and I often worry that a particularly interesting letter will get filed in the wrong place, perhaps even used in the column without ever having been answered.

First cab off the rank this time is Quentin Foster, who describes himself as an "ex brass-pounder, VK6QF". Quentin has written periodically over the last few months as he has helped a friend to learn the code for the exams and get established as a brass-pounder. By the sound of things Quentin is one of the best teachers a novice could have, as a sample of his last letter will illustrate:

"After he got his ticket he was very disappointed that he could not get people to talk to him in Morse. He was despondent, but I encouraged him to keep trying. He found that a lot of novices were much faster and he couldn't think what to send. I gave him a format something along the lines that most amateurs are interested initially in RST, name and QTH and then when you have established good contact both ways the field is wide open for casual chat such as rig, antenna, etc.

"He was always concerned that he couldn't copy letter for letter what the operator sent. I explained to him that this was not always possible due to bad sending, QRM/N, etc and after all you weren't in the commercial business of copying telegrams for customers. You could always send WA or AA for repeats, but why waste time asking for repeats on something that was not important and you probably had a good idea anyway of what it was meant to be.

"My reaction to all his qualms and woes was to throw him in the deep end and tell him to start paddling. This he has done and has now emerged as a fairly competent operator . . ."

Quentin's friend is retired, 75 years old, and has had his novice licence for about six months. Quentin's assistance should be an example to all CW operators and his friend should be an example to all prospective ones.

Another old friend, Norman VK4BHJ wrote with several comments on CW operating procedures. One of his criticisms, which I fully endorse, was about the use of R (meaning received and understood) followed by requests for repeats, or used before the callsigns at the beginning of an over. Another concerned the ridiculous "commencing signal", which is insisted on by the DOC examiners but has no significance in amateur CW operations.

Another comment by Norman was:

"If the 60 day rule still is law how is it we continue to call stations in our bands intruders? An intruder is one who enters without permission. The Intruder Watch has stated that UMS is a USSR naval station and therefore has permission to work in our bands, in fact ANY frequency. I am making efforts to try to start a campaign to get this legislation altered. Our service deserves better treatment."

I'm not familiar with all the legislation, and was personally disappointed to find that there is nothing to prevent Japanese or Taiwanese fishing boats from waffling all over the 80m CW allocation — comments from other readers would be appreciated.

By the way, Norman celebrates his Silver Jubilee on 13th June. His original licence was taken out by his father as he was under age at the time. He has some of the original letters from the PMG, inquiring why he asked for 40 metres and why he wanted to work countries outside the UK and what experiments he intended to conduct! Congratulations, Norman, and keep up the good work.

John VK3CVF has had plenty of experience (RAAF, DCA, Bureau of Meteorology) but feels a bit rusty at times and wishes there were some sort of register of experienced operators competent to give procedure checks. I guess we can all recognize a good op when we hear one, and there is nothing to stop us asking for some constructive criticism. One often hears code that sounds like the operator is a hen pecking at the key, but it's difficult to be critical unless asked, so if you have any doubts about your own sending, ASK (or send me a tape). I have just found out how tough it must have been in "olden times", as my kids refer to anything that happened more than about two years ago. I have been fiddling with a homebrew QRP transmitter, and have built a T/R switch box so I can mute the FT102 receiver while sending. Well, for the first time ever I find myself transmitting with no sidetone, nothing to listen to but the clacking of the key. For all I know it sounded like a hen . . .

Ron VK4BRZ filled me in on the number codes used prior to WWII — 1/A 2/U 3/V 4/4 5/E 6/6 7/B 8/D 9/N 10/T — write them out and you'll see how it works. He also suggested that the expression QTHR is a combination QTH and QTR (What is the correct time?).

Tom VK5TL writes that in the early days of his telegraphy career (1918 et seq) PMG message handling required the use of AR to commence a message. Tom says *"the examiners were very much awake and you would find that some of the messages originated from such points as Ardrossan, Arno Bay, and Arncliffe, to name a few"*.

Last comment is on the use of 73s, which came in for some criticism in another part of the magazine a few months ago. Like so many other aspects of CW operation, it's another case of plaguarisation by phone operators. It used to be standard procedure in many telegraphy operations (and still makes sense in a lot of amateur work) to send numbers twice, especially if they occur in the middle of text. Thus you have 73 73 in most CW QSOs, which became "seventy-threes" on phone.

Thanks again to all my correspondents and keep the letters coming!

73 till next month.

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

As previously mentioned in this column ALARA is 10 years old in July this year. The State Representatives are presently organising a suitable function in their state to celebrate our Birthday.

Bron VK3NTD is arranging a luncheon in Melbourne for the VK3 members, so if you are able to attend please let one of the VK3 members know. Further details as they come to hand.

I wonder if Norma VK3AYL now VK2DJO knew how ALARA would grow in 10 short years, certainly we must thank Norma and her friends for their initiative in setting us on the road we now follow as ALARA members.

NEW MEMBERS

Welcome to new members Valerie VK3CVW; Alma VK3PIP and also welcome back to Josie VK4VAN. We hope you enjoy the friendship that is so much a part of ALARA.

APOLOGY

I must extend an apology to Ian VK2DVJ who won the OM section of our contest last year; unfortunately I put the call sign as VK2DJV or should I blame Murphy. However Ian did get the certificate so all is well.

AGM

This year will be on Monday 26th August. Nominations will be gratefully accepted by Jenny VK5ANW. If you feel you have the time and the ability to offer your services please volunteer. New ideas and new faces are most welcome.

After 5½ years as Publicity Officer and 4 years as Contest Manager I feel it is time to step down. The last few months this column has been harder for me to come up with new topics and I am sure out there is a YL who can give a few hours a month, a new approach will be of benefit to ALARA.

I have gone "back to school" and after many years of thinking about it I am going to try and get a couple of TOP subjects, so will still be pecking away at a typewriter but on assignments instead of articles and secretarial duties. As school work permits I will be joining in on the nets when possible, so will still be keeping in touch.

Until next month 33/73/88 to all.

Margaret VK3DML

AR

STOLEN EQUIPMENT REGISTER

In accordance with 1984 convention motion 84:17:01 the Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them may write or telephone to the Federal Office their queries.

To update the list published in the April issue:

MODEL	SER NUMBER	FROM
ICOM IC25A	*03831*	*VK2DPM*
ICOM IC45A	*01876*	*VK2DPM*
ICOM IC211	*6804309*	*VK3BRV*
KYOUTO FM144/10	*5027*	*VK2KUR*
DS EXPLORER 70 cm TRANSCEIVER (HAS EXTENSIVE INTERNAL MODS.)		
ICOM IC215	*05156*	*VK2AMX*
YEASU FT 209RH	*4KO50838*	*VK3CE*
		(BLUE VYNL CASE)
ICOM IC-2A	*04484*	*VK1MX*
YEASU FT207R	*10132725*	*VK2EMC*

AR

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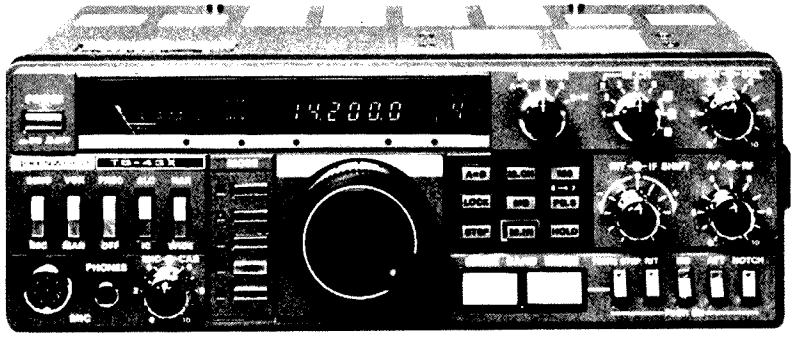

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OX ENGINEERING — 5 JASMINE STREET, PORT MACQUARIE (065) 82 0175
LANO LINK — MULLALEY ROAD, GUNNEDAH (067) 42 2838
LAND LINK — 61 BARNES STREET, TAMWORTH (067) 65 4622
LAND LINK — 108 BEARDY STREET, ARMADALE (067) 72 1665
FRANK BOUNDY — LISMORE (066) 86 2145

INTERSTATE

VIC: EASTERN COMMUNICATIONS — 168 ELGAR ROAD, BOX HILL (03) 288 3107
PARAMETERS PTY. LTD. — 53 GOVERNOR ROAD, MORDIALLOC (03) 580 7444
AM-COMM ELECTRONICS — 69 CANTERBURY ROAD, EAST CAMBERWELL (03) 836 7634
BRIAN STARES — 11 MALMSBURY STREET, BALLARAT (053) 39 2808
SUMNER ELECTRONICS — 78 KING STREET, BENDIGO (054) 43 1977
TAS: HOBBY ELECTRONICS — 477 NELSON ROAD, MT. NELSON (002) 23 6751
WATSONS WIRELESS — 72 BRISBANE STREET, HOBART (002) 34 4303
ADVANCED ELECTRONICS — 5A THE QUADRANT, LAUNCESTON (003) 31 7075
MARINE & COMMUNICATION — 19 CHARLES STREET, LAUNCESTON (003) 31 2711
V.K. ELECTRONICS — 214 MOUNT STREET, BURNIE (004) 31 7733
QLD: MITCHELL RADIO CO — 59 ALBION ROAD, ALBION (07) 57 6830
S.A. &
N.T.: INTERNATIONAL COMMUNICATIONS SYSTEMS PTY. LTD. — 8 NILE ST., PORT ADELAIDE (08) 47 3688
W.A.: ARENA COMMUNICATIONS SERVICES — 642 ALBANY HWY., EAST VICTORIA PARK (09) 361 5422
TRI-SALES — CNR NEWCASTLE & CHARLES STREETS, PERTH (09) 328 4160
WILLIS ELECTRONICS — 445 MURRAY STREET, PERTH (09) 321 2207
BAY RADIO — 18 BANKSIA STREET, BUNBURY (097) 21 2236
FORD ELECTRONICS — 209 HANCOCK STREET, DOUBLE VIEW (09) 446 4745

AR85

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

Bill Hempel VK4LC,
FEDERAL AWARDS MANAGER
Southport Avenue, Eagle Heights Qld 4271.

I have finally caught up on all the backlog of work even though I have had to ask some amateurs to kindly help me by providing a list of their countries on a photocopy of the latest DXCC listing from the 1984 Call Book, listing the countries worked in full and in black biro. You may need a photocopy of your records one day if yours is lost. All the DXCC records are kept in lever back folders by states, so you can appreciate whilst computer type listing, while neat, do not fit into the format of the DXCC records. If you are unable to obtain a photocopy please write me with $1 to cover expenses and the pages will be forwarded to you.

My assistant Joe Ackermann VK4AIX is handling all overseas awards and is supplying AR with the relevant details as it is received from overseas.

The WAVKCA award is still the most popular award, 48 have been mailed out in the last two months. I have received many complimentary replies from overseas amateurs who have received their certificate — it is excellent publicity for the WIA.

A proposition has been submitted to Federal Executive that all DXCC credits by certified by two members of DXCC status, or alternatively send the QSLs to the Federal Awards Manager. In the meantime checkers of DXCC QSLs are asked to read the rules of the DXCC and in particular note rule 1.3 "the QSL must show the location or address of the station at the time of the contact".

A second proposition submitted is that FAM be able to call for any QSL. These propositions have been carried over from comments from previous Federal Awards Managers and after my second term as FAM I endorse this submission, we must uphold the status of our most prestigious award.

I have carried over, from the previous awards manager, a new listing for DXCC for RTTY, this award is not endorsable by addition of phone or CW contacts. Three have already been issued. Are there any more?

If anyone has any queries regarding any of the above please contact me direct not over the air, thank you.

AR

Chasing awards is an interesting, lime consuming and at times a very frustrating part of our hobby.

There are awards which commemorate a special event or occasion and which may only require one contact to gain the award. Others need the amateur or SWL to work/hear a Club station and a number of Club members, while some require you to work a number of geographical areas within their country.

A club or an association after a lengthy debate decide that they will sponsor an award. This is the easy part. Now an agreement has to be reached as to what form their award will take. A pictorial one or a design which may be simple or one involving considerable art work.

The rules and requirements also require consideration. Will the applicant need to have QSLs, or will GRC suffice and/or only log extracts be sufficient.

The requirements must provide some degree of difficulty which will result in an achievement in gaining the award.

How much shall the award cost to cover the printing, handling and postage, of course we must have an awards manager.

It is disappointing to receive an award you have strived for and for it to be spoiled by the relevant details to be written in by "a thumb nail dipped in tar". A little effort in filling in the details enhances the award.

From time immemorial man has sought alter trophies and the amateur and SWL are no different in this regard.

Most awards require the applicant to have confirmation of the contacts with QSLs and we all know how hard it is at times to obtain those hard to get QSLs, remember a QSL is the final courtesy of a contact, so "pse QSL".

THE KAUAI AMATEUR RADIO CLUB AWARDS

This Club has made available five awards which are available to amateurs world wide. They are:-

A The Worked Kauai Award (WK)
B The Worked Hawaii Award (WH)
C The Worked Hawaiian Islands Award (WHI)
D The Worked All Hawaiian Islands Award (WAHI)
E The Worked All Hawaiian Counties Award (WAHC)

1 All contacts must be dated 1 January 1980 or later and any band and/or mode may be used. Contacts through repeaters are not allowed.
2 GRC rules apply. Submission of QSL cards is not required. The cards must be checked, and the list certified by an officer of any recognised amateur radio society or club.
3 The calls on the certified lists should be in alphabetical order with the times in UTC.
4 Specific award requirements are as follows:-

WK — DX stations need only three contacts with KARC members.
WH — DX stations need only 15 contacts with Hawaiian stations, including one KARC member.
WHI — Contacts with five Hawaiian stations on each of the following islands: Hawaii, Kauai, Maui and Oahu.
WAHI — Contacts with at least one Hawaiian station on each of the following islands: Hawaii, Kahoolawe, Kauai, Lanai, Molokai, Maui, Niihau and Oahu.
WAHC — Contacts with at least one Hawaiian station in each of the following counties: Hawaii, Honolulu, Kalawao, Kauai and Maui.

Applications should state which award is being applied for and if specific band or mode endorsements are desired.

The KARC will furnish a current membership list upon request — include SASE or IRCs.

All correspondence should be addressed to Awards Manager, KARC, PO Box 548, Kalaheo, Hawaii 96741 USA.

J2 AWARD — DJIBOUTI

First Class: 8 QSOs with J2 stations on two or more bands Second Class: 15 QSOs with J2 stations on two or more bands, any mode but must include 5 OSOs on CW.

Requirements: Any contacts since 27 July 1977 are valid. List of QSOs certified or copy of log extracts with copy of QSLs.

Applications to be forwarded to: Awards Manager, ARAD, BP 1076, Djibouti.

Special note, QSL cards if sent will NOT be returned. Information re this Award supplied by J28DN. Cost 12 IRCs or $US6.00.

BOOKLETS

The following information relates to Awards Information Booklets which are available to award hunters;

The Canadian Amateur Radio Federation issues two attractive awards but there are about 65 awards listed for Canada in a booklet issued by Eric S Walden, RR1, Gowanstown, Ontario, Canada N0G 1Y0, cost $5.00.

The International Directory of Awards — cost $8.00 from Vance LePierre, W5IJU, 2618 McGregor, Fernandina Beach, Florida 32034, USA.

The Amateur Awards Directory of the World from Garry V Hammond, VE3GCO, 5 McLaren Avenue, Listowel, Ontario, Canada N4W 3KI, cost $7.00.

Amateur Radio Awards by The Radio Society of Great Britain available from RSGB, 35 Doughty Street, London WC1N 2AE, UK.

DX Awards Guide by Charles J Ellis, PO Box 1136, Welch Station, Ames, Iowa 50010. He has three different volumes available. Write to him for information and cost.

Worldwide Awards Directory Vol. 1 costs $9.95 and Vol. 2 costs $5.95 or both for $12.75. Write to Larry Kebel KB0ZP, 736-39th Street, West Des Moines, Iowa 50265, USA.

The Directory of Certificates and Awards by The International Amateur Radio Society inc. Available from Scott R Douglas Jr KB7SB, PO Box 9990, Glendale, Cal. 91206,.USA. Cost is $12.95 plus $4.50 for postage and packing.

The WIA 1984/1985 call book lists awards issued by clubs as follows:

VK1 Area — 1	VK2 Area — 9
VK3 Area — 20	VK4 Area — 21
VK5 Area — 5	VK6 Area — 3
VK7 Area — 1	VK8 Area — 5

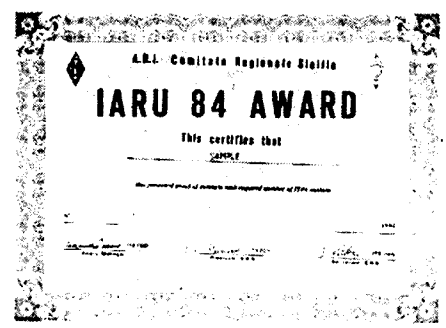
It would be appreciated if awards managers would forward rules and a sample copy of their award for publication in this column.

IARU 84 AWARD RESULTS

The IARU 84 Award was issued by the Regional Committee of Sicily, in order to celebrate the IARU Conference which was held in Cefalu during April 1984.

Over 120,000 QSOs were made by Sicilian amateurs during the month using the special prefix IT84. More than 900 Awards have been sent to 70 countries for amateurs who participated.

Awards were achieved by Australian amateurs, VK4AZA and VK4VC.



WIA 75 AWARD NUMBER 1 CERTIFICATE

A neck injury suffered by Graeme Harris VK3BGH while diving meant he was confined to his home on doctor's orders.

Tuning around the bands he heard WIA members giving out their membership numbers for the WIA 75 Award and decided to give it a go himself.

Graeme said: "This is the first award I have claimed and greatly enjoyed the three days it took during my recent sick leave.

"The WIA is to be congratulated on a well conceived award that must surely promote membership and awareness of our Institute."

He was often heard engaged in friendly but earnest on air rivalry with Kim Wilson VK3CYL, who qualified for the number 2 certificate 24 hours after Graeme, and in a trifecta Gwen Tilson VK3DYL came third.

Graeme VK3BGH is not the only radio amateur or SWL making the award their first "paper chase" because they're getting into the spirit of the WIA 75th Anniversary.

Wireless Institute
of
Australia
THE WORLD'S OLDEST RADIO SOCIETY
75th Anniversary Award

This is to certify ____ has submitted satisfactory evidence of having communicated with the required number of Wireless Institute of Australia members in the 75th year.

On March 11, 1910, wireless experimenters came together at the Hotel Australia, Sydney, in a bond of fraternal friendship and common purpose. They desired to unite for the protection and furtherance of their pursuit. The world's oldest radio society the Wireless Institute of Australia was thus founded.

DATE ____ CERTIFICATE No. ____ PRESIDENT ____

AWARD RULE CHANGE

It has now been made easier for overseas radio amateurs (and shortwave listeners) including those in VK9 and VK0 to qualify for the WIA 75 Awards.

DX stations and overseas listeners can do this in any one of the following ways:

1) Contact the commemorative station VK75A — that QSO automatically qualifies them for the award.

2) Contact (log) any radio amateur who has obtained the award, and log their WIA 75 Award certificate number.

3) Contact 75 WIA members; no more than 30 in any one call sign area, and log their WIA membership number.

SUMMARY OF THE RULES PUBLISHED IN MARCH AR MAGAZINE:

Radio amateurs and SWLs in Australia need to contact 75 WIA members, a maximum limit of 30 in any one call sign area, and obtain their WIA membership number either off their membership certificate or AR address label.

VICTORIA 150 AWARD

The period for this special award to mark the 150th Anniversary of European settlement in Victoria has been extended until 31 December, 1985.

Originally it was only available for contacts up to the 30th of April, but due to demand it will now run an extra 8 months.

To qualify, radio amateurs (and shortwave listeners) need to work (log) a specified number of VK3 stations between 1 November 1984 until the end of the year.

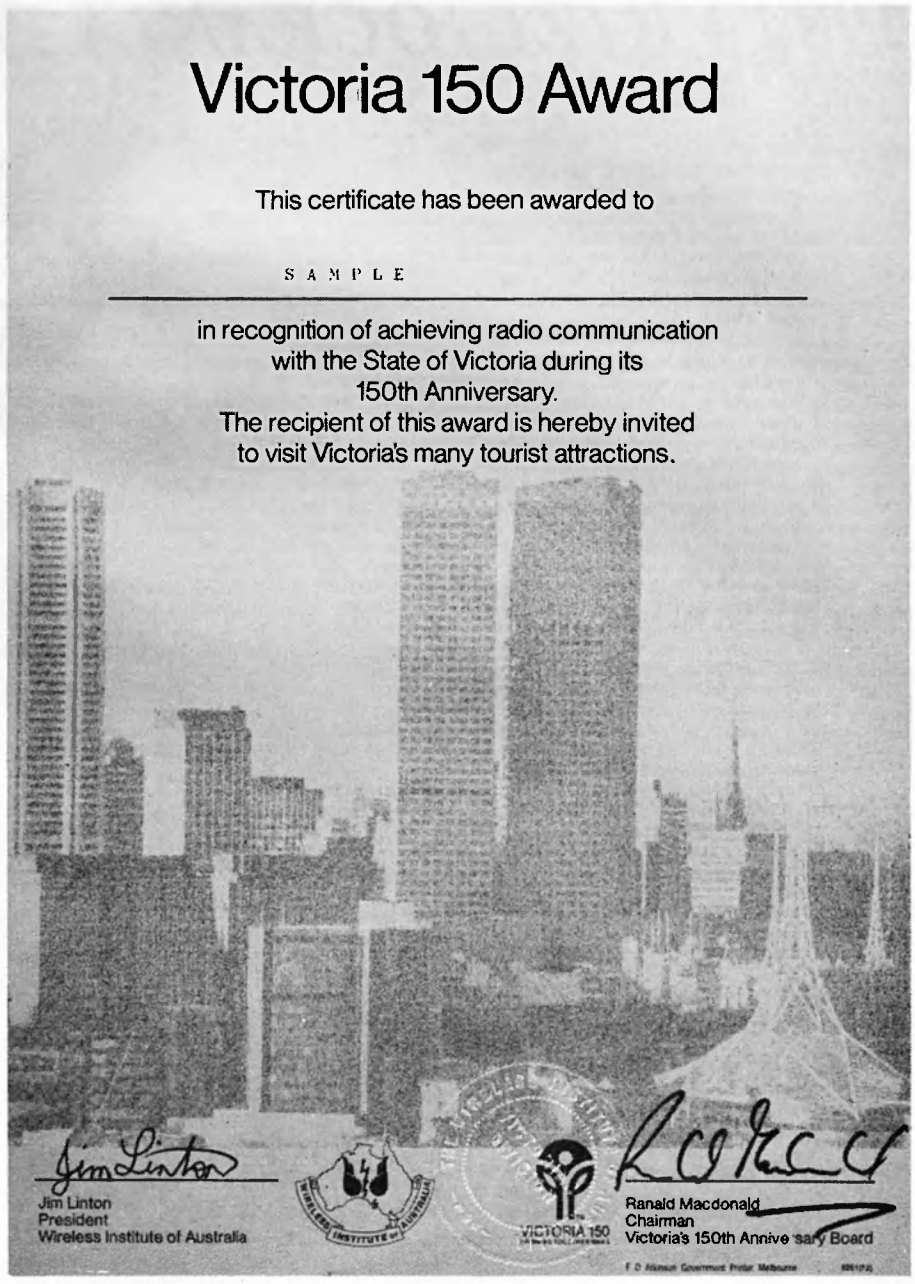
VK3 stations have to work 150 VK3s, other VKs need 15 VK3 contacts, while DX stations including VK9 and VK0 only have to work one VK3.

For this award repeater contacts are permitted, and claims by SWLs are welcome.

A log extract of qualifying contacts must be submitted with each claim for the award.

A QSL card for a single qualifying contact, endorsed with a congratulatory message on Victoria's 150th Anniversary, plus $2 or equivalent, should be sent to:- *Victoria 150 Award, Wireless Institute of Australia, 412 Brunswick Street, Fitzroy 3065.*

AR



HELLO. OLE TIMER

By

D R Sheehan VE2DG

When you lose the thrill of a QSO
With a W-one or two,
When the fact that you're heard in some far distant land
Just don't mean a thing to you.
When sending a card is a burdensome task
And a listeners card is taboo,
It's time you pulled switches and closed up your shack
For there's nothing in this game for you.
When you snub a beginner, when a "chirp" is a crime
And a "QRS" plea you abhor,
You better get out of amateur radio, friend
For there's no fun for you anymore.
I just love to be told, "You're my first, VE2,"
If he only lives over the line;
The pleasure of working a chirpy DC
Is a thrill, boy, to me anytime.
I like to "pipe down", send slow to a kid;
Sure — and tell him his keying is fine,
And when he comes out with that "Pse QSL"
Believe me, the pleasure's all mine.
If you would enjoy this old radio game
Just pause and hark back o'er the years
When if you hooked a "seven", you thought you'd done fine
And to lose him just almost brought tears.
You've got to think back to your lid days again
and remember that this is quite true,
You must do unto others in this Amateur World
As you'd have them do unto you.

— Compliments of W8RHZ
— Spark Gap Times, Jan-Feb 1985

Contributed by Sam Kaufman VK2SK an active radio amateur old timer at the age of 82 years

AR

1984 VK/ZL/OCEANIA DX CONTEST

Jock White ZL2GX
NZART CONTEST AND AWARDS MANAGER

FROM THE CONTEST MANAGER

Many thanks to all who submitted logs — especially to those with comparatively few contacts and to whom the prospect of an "award" was very remote.

Once again I stress that logs need not be rewritten and carbon copies are quite acceptable. Only too well do I know the boredom of rewriting a log. Such a task is second only to that of log checking by a contest manager!

Initial planning for the 1984 contest started in 1982 and stopped following a misunderstanding re administration of the '84 contest — and then got under way again in early 1984.

A number of "VK/ZL/O" contest buffs were circularised re the rules to get some consensus of opinion. To get unanimity one would need the wisdom of a Solomon but the effort is always worthwhile.

Scoring is a problem. I cannot accept a system which permits points made on one band to be multiplied by a multiplier made on other bands. Such a system is illogical and mathematically suspect as the score derived bears little true relationship to the value of the contacts made.

Possibly the fairest scoring method was that used in the "old" BERU.

The problem in 1984 was to achieve a fair distribution of points for contacts on different bands — and, I doubt whether those allocated (even after much discussion with experienced contesters) was as fair as it should have been. Further — the value of contacts on different bands must alter as band conditions change from year to year.

I was castigated by one VK who wanted the simple "all in" multiplier system. There are arguments in its favour . . .

i makes checking the scores easier for the contest manager and for the contestant!

ii permits large scores to be developed by utilising multipliers from one band to boost an "all band" score. BUT — the system used in 1984 gives a fairer comparison of multiband operation — IF the points for contacts on different bands are right.

The matter of an "all band" entry is still one for discussion and debate. Just what IS "all band" — or "open" — or, call it what you may! Is it merely "the highest submitted score" — or "a score made up of operation on more than one band?" — on two? — on three? — on four? — on five? The fat is now well and truly in the fire. A perusal of the tabulated results makes the point. On CW, there were only three "all band" scores (the five accepted HF bands) and three on phone. What sort of "bonus" is warranted? Certainly NOT any form of multiplier! I believe this to be the major point to be resolved. I intend giving special certificates to those who submitted "five band" logs.

It is disappointing that some found difficulty with 80 metre contacts. Rule 9c clearly states "contacts between VK and ZL stations" — NOT VK to VK or ZL to ZL which is clearly indicated in 9d when dealing with 160 metre contacts.

This was done specifically to encourage VK to ZL contacts on 80 metres and attention is drawn to some background information . . .

*** *at one time we had a VK/ZL contest for 80 metres only.*

*** *many ZLs are not licensed for HF but can operate on 80.*

Results are tabulated for ease of comparison and set out in "scoring areas" as defined in the rules. I feel that this is not merely a desirable way of presentation but an essential way.

Once again every effort has been made to expedite the promulgation of results. As an old "contester" I'm fully aware of the frustration of waiting —waiting!! It was not pleasant to receive a great deal of "flack" (and some letters with more than mere flack) concerning the late 1983 results for which NZART was not responsible.

I repeat — a growing problem is that of stations operating in an area which is different to that normally considered consistent with the prefix used. It may not be generally known for example that in ZL there could be stations with prefixes of 1, 2, 3, and 4 all operating legally within a "stone's throw" of each other.

Copies of the VK/ZL results and these comments are being posted to all VK and ZL certificate winners.

Copies of overseas results will be sent to all overseas award winners and to major societies.

My thanks to many old contest friends who sent personal greetings with logs. Such fellowship is GREAT!

GOOD LUCK to the WIA with the 1985 contest which is part of the 75th Anniversary Celebrations. You will, as always, receive every co-operation from NZART.

RESULTS

VK PHONE

Call	160	80	40	20	15	10	Total
VK1RJ	—	10	75	17195	21190	3960	42430
VK1ZL	—	60	400	1554	4026	329	6060
VK1LF	—	—	—	1440	—	—	1440
VK2WU	—	1620	160380	276375	124188	4715	567279
VK2APK	—	—	208620	—	—	—	208620
VK2BQS	4200	—	—	8736	29120	1760	43816
VK2PS	6000	40	100	24832	10098	720	41790
VK2PXM	—	—	—	—	6640	—	6640
VK2ABC	—	—	—	5580	—	—	5580
VK2AIC							check
VK2KGX							check
VK3DJE	—	—	—	230265	—	—	230265
VK3DNC	2520	40	3600	1880	608	—	59220
VK3CJW	—	—	60	7638	24700	1955	34353
VK3BEE	17820	—	—	—	—	—	17820
VK3AUO	360	—	315	728	128	—	1531
VK3XE	—	—	5	1376	—	—	1381
VK3DVT	—	—	—	1110	—	—	1110
VK4LT	—	—	—	93312	7040	21840	119192
VK4SF	—	—	—	20	18	12920	12958
VK5MS	—	78650	100980	311250	106020	—	596900
VK5BW	—	120690	—	—	—	—	120890
VK5QX	—	—	5535	51900	—	—	57435
VK5ARO	—	—	—	37530	—	—	37530
VK5ARC	—	—	—	15168	—	—	15168
VK5NOD	—	—	—	—	11466	—	11466
VK5FF	300	—	—	2268	3248	—	5816
VK5AGX	—	—	—	120	—	—	120
VK6IR	—	—	342930	—	—	—	342930
VK6DU	—	—	129430	3108	37128	—	169666
VK6MD	—	—	—	—	34860	—	34860

SWL Section

L40054	450	17500	18865	1044	4182	2415	44456
L30371	1050	250	3000	550	48	—	4898

VK CW

Call	160	80	40	20	15	10	Total
VK2APK	—	—	604435	28899	17892	—	651156
VK2BQQ	—	4250	118800	24416	25438	—	222758
VK2AQF	—	770	118085	2408	8316	—	129579
VK2DID	—	240	77830	1728	6164	—	85962
VK2GW	—	—	—	—	32592	—	32592
VK2PS	3780	5130	—	11297	4928	—	25135
VK2BAT	120	210	13725	2669	240	—	16964
VK3MR	—	—	322140	—	—	—	322140
VK3AMZ	—	—	276040	—	—	—	276040
VK3AUG	270	2470	30160	16500	13356	270	63026
VK3AKK	—	—	55195	—	—	—	55195
VK3DNC	1080	240	245	1785	160	—	20760
VK3MJ	—	—	4410	10434	1012	—	15856
VK4XA	750	4420	171600	24528	27208	4800	233306
VK4SF	—	90	51590	3565	—	—	55245
VK4TT	—	—	—	28203	—	—	28203
VK5AGX	—	—	—	49377	—	—	49377
VK5GZ	—	8400	9620	6386	9292	150	33848
VK5ARC	—	—	—	29140	—	—	29140
VK5QX	—	—	—	1767	—	—	1767
VK6IR	—	—	245000	—	—	—	245000
VK6IT	—	40	89300	1568	720	—	91628
VK6SM	—	—	—	630	7740	660	8030
VK7RY	1800	250	—	825	—	—	2875

ZL CW

Call	160	80	40	20	15	10	Total
ZL1AIH	—	215340	—	—	—	—	215340
ZL1BXW	450	2240	21120	23532	40896	—	88238
ZL1HV	—	910	43200	19482	15410	100	79102
ZL1AMM	—	560	28080	20592	7752	—	56984
ZL1AFU	—	—	60	35894	14238	1650	51842
ZL1BSG	—	450	17680	90	5494	—	23714

ZL1AIZ	2880	43660	114835	6144	7548	2090	177357
ZL2BR	—	120	55250	43216	31140	210	129936
ZL20M	—	4320	88605	—	—	—	92925
ZL2RY	600	770	6200	528	11564	—	75462
ZL2AGY	—	—	—	65946	—	—	65946
ZL2AH	—	—	49400	—	—	—	49400
ZL3AGI	—	—	—	17670	—	—	17670
ZL40P	—	—	—	1950	—	—	1950
ZL PHONE							
ZL1AXB	—	—	—	419342	—	—	419342
ZL1ANJ	—	6820	173800	16	193980	1275	375891
ZL1ANH	—	—	286080	30672	35250	20	352022
ZL1AAS	5760	6960	44460	35280	62566	30250	185186
ZL1BXW	5670	160	935	2698	65124	—	74587
ZL1AFU	—	—	60	18684	38844	450	58038
ZL1IM	—	200	5410	2058	84	1040	8792
ZL2AH	1650	2800	33480	14873	28512	2346	83651
ZL1AIZ	—	—	41745	—	—	—	41745
ZL2AQU	—	—	—	21922	—	—	21922
ZL3HT	5460	200	1980	400	3220	—	11260
ZL2AKI	450	—	600	4047	2080	—	7177
ZL2BDC							check
ZL3TX	5250	400	—	—	—	—	5650
ZL4PX	3570	—	—	—	—	—	3570
ZL4IJ							check
ZL40S							check
SWL							
ZL1-261	4140	90	210	736	606	—	5784

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

For many years now I have been hearing stations transmitting on Frequency Shift-Keying (FSK) and the only identification being a single letter sent in Morse. They can be heard in the evenings with the single letter being repeated every three seconds. For example, there is a station on 9.043 MHz with the letter "K" with a 1 kHz shift.

I have been wondering about the purposes behind this signal. It certainly was some kind of direction finding and/or propagational indicator. Recently, I came across an article in an American magazine, written by William I Orr, a respected writer on radio-engineering, on these Single-Letter Beacons (1). This has answered some questions but in turn has raised others.

These beacons use FSK with a 1 kHz shift, which is commonly employed by Soviet and East European nations. There are two beacons operational in different locations, although both are within the Arctic Circle. They also broadcast on a number of frequencies simultaneously. The "K" family of beacons have been pinpointed to the Kamchatka Peninsula near Petropavlotsk and is easily heard here in Australia. Some of the frequencies are 4.005, 7.905, 9.043, 10.570, 11.155 and 18.348 MHz.

The "U" family of beacons are heard here but not as frequently. This perhaps is because of the location near Murmansk. Common frequencies are 7.395, 7.568, 9.056, 10.215 and 12.328 MHz.

Monitors have been giving some time to observe closely the operational patterns for these beacons. To the casual listener, they seem innocous enough, yet a very slight frequency shift of 50 Hz was noted. Orr says that he noted a second beacon, identical to the first, come up 50 Hz higher or lower and the two operated in tandem for about 10 seconds before the first one went off the air. He surmises that these beacons can shift frequency in 50 Hz increments over a band 1 kHz wide to provide 20 possible "channels".

This technique of frequency shift hopping could be indicative of a subcarrier with digital information being superimposed on a normal AM signal. This has been employed over some broadcasting stations in America, where subaudible digital signals (around 80 Hz) are superimposed on the carrier wave, using small-angle synchronous modulation. These subaudible digital signals would not be noticed or interfere with the normal output. Whether this technique is being employed over these beacon signals, one would require a very specialised, sophisticated receiving system to identify the operational sequence.

Occasionally these beacons will burst out into FSK Morse. These are mainly five figure cypher groups, similar to Meteo. However, you may wait several days before you will hear these cypher groups.

Naturally speculation has increased over the purpose behind these beacons. The obvious one, that it is some form of radio direction-finding, can be discounted as such techniques of reliability and accuracy at present do exist such as Loran and OMEGA. Orr says it could be the transmission of tracking and acquisition data on satellites to ships at sea. Probably it is for the transmission of encrypted traffic of a sophisticated scientific military nature and is maritime oriented.

As for stations engaged in clandestine and espionage activities, you can hear stations broadcasting a stream of numbers that does not make sense. This has been going for decades now, and has its origins back in the Cold War. It is usually a female announcer reading five figure cypher groups and is in either German, Spanish or Esperanto. Suspected locations are in East Germany and/or Cuba. The stations do not stick to any one operational frequency or fixed schedule. Some commence with a Martial tune or other music bridge. They often pop up within exclusive allocations and you will hear them rattle off their numbers.

These stations can usually be found near 11.3 MHz around 0530 UTC. They are on DSB or reduced carrier SSB (J3E). They use a five figure pad and it is very difficult, if not impossible to decode. However, in the December issue of "PopComm" (2), Alice Brannigan has written an interesting article on these 5-digit codes. She claims that you could break these codes and decipher the traffic. I personally have not attempted the system, but I would suspect that the traffic would be computer-generated and fairly well advanced that the casual listener would have extreme difficulty in breaking the codes.

And talking of codes, I note in the latest ARRL Handbook (3), the inclusion of the other language Morse codes being used these days. You will hear the Japanese and Russians frequently within the maritime allocations and rarely hear the Arabic alphabet except within the Middle Eastern region. It is good that we don't have to assimilate these other alphabet codes when many of us had difficulty adjusting to the Continental Code for our AOCP examinations!

As from mid-April, the BBC World Service programme "Waveguide" has been re-timed from Mondays at 0915 UTC to Tuesdays at 1115 UTC. This 10 minute feature is primarily designed to help those having difficulty receiving BBC programmes. They also occasionally have mini-reviews of receivers currently available. As well, the listener is kept up to date with any frequency alterations to the BBC External Service schedule. Incidentally, the last BBC relay station to be linked up by satellite-feed, was connected up in mid-March. This was the Ascension Island Relay in the South Atlantic. This ended the direct off-air relay of BBC transmissions from UK sites.

The 39th Edition of the World Radio TV Handbook has now been published. I recently received my copy through one of the DX Clubs. The directory lists all the radio and television broadcasters at present, operating and details of various technical and administrative bodies connected with broadcasting. It is quite light-weight and has all the usual data including a review by Larry Magne on the Icom R71A, the Grundig Satellite 600 and the Uniden DX 100 receivers. Unfortunately, because of the ever-changing nature of the broadcasting and propagation scenes, it is difficult, if not impossible to keep abreast of all developments. The publication of supplementary newsletters will assist this, but I do find the various DX programmes plus the monthly bulletins of the DX clubs, keeps me in touch with what is happening.

The price of the WRTH 1985 should be around $30.00 and should be available from most technical bookshops by now.

Well, that is all for this month. The best of good listening to you and 73. — Robin VK7RH.

(1) High Frequency Single-Letter Beacons (SLBs) — William I Orr W6SAI "Popular Communications" December 1984 pp 28-31
(2) "5-Digit Codes? Maybe Not So Difficult" Alice Brannigan — "Popular Communications" December 1984 pp 32-34
(3) ARRL Handbook 1985 "Morse Code" pp 19-3.

AR

QSP

NEW BATTERY

Inventor of the digital watch George Thiess has developed a battery which he says can give an electric powered car a range of about 400kms.

The magnesium and sulphuric acid battery created by Mr Thiess and his partner Jack Hooker is a third lighter than traditional batteries but yields five times as much power.

They estimated the cost of operating an electric car an average of 16,000kms a year would be slightly less than the average for petrol-powered cars at current fuel prices.

Mr Thiess said his electric car: a converted Mercedes 190E, would have a top speed of about 130 kilometres per hour and could accelerate to 97 kilometres an hour in about 15.5 seconds — comparable to typical diesel powered performance.

AR

EVERYBODY — SOMEBODY — ANYBODY — NOBODY

Once upon a time, there were four people named Everybody, Somebody, Anybody and Nobody.

There was an important job to be done and Everybody was sure that Somebody would do it.

Anybody could have done it but Nobody did it.

Somebody got angry about that, because it was Everybody's job.

Everybody thought Anybody could do it, but Nobody realised that Everybody didn't do it.

It ended by Everybody blaming Somebody when actually Nobody could accuse Anybody.

(Telecom News, March 1985)

AR

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB, Graham VK5AGR, Ross WB6GFJ/VK4BZZ and UoSAT Bulletin Number 117, 15th March 1985.

PACSAT MEETING

A meeting was held at the VITA Headquarters in Washington DC during the 9-10 March involving AMSAT, VITA and UoS. The meeting was followed by a visit to the Goddard Space Flight Centre to view and discuss Get Away Special (GAS) interfaces on the Shuttle.

Presentations were made to the meeting covering most aspects of the proposed PACSAT mission, particularly concentrating on:

- *spacecraft launch opportunities*
- *spacecraft structural design*
- *spacecraft system design*
- *modulation schemes*
- *GAS interfaces and orbit control and propulsion*
- *attitude control and stabilisation*
- *resources and funding*
- *exploitation of the UO-11 DCE as a PACSAT test-bed*

A launch on the Shuttle using the GAS was assumed, although other launch options will be investigated. It was agreed that work with the UO-11 DCE would be accelerated as this experiment, already in orbit, was capable of demonstrating much of the PACSAT concept and could be most effective in raising support for the new mission and in proving technologies and software prior to PACSAT system delinition. It was proposed that, should the appropriate resources/funds be successfully raised, the PACSAT spacecraft would be designed and built as UoS and the Digital Communications Payload by AMSAT/VITA with launch scheduled for 1987. The only restraint on further progress with the PACSAT mission is now the lack of resources and lunds.

SPECIAL EVENT

Congratulations to the Wireless Institute of Australia who are celebrating their 75th Anniversary this year — they were 75 years old on 11th March! Thanks to all members for their support of the UoSAT Programme.

MARCE

The Marshall Amateur Radio Club Experiment (MARCE) is scheduled to fly again on STS 51G slated for May 1986. A procedural error by a Shuttle crew member resulted in the original experiment simply not being turned on. The MARCE Package Is in a Getaway Special but nothing will be deployed from the can. Instead, several active experiments will be performed and telemetry will be sent via the amateur bands from a battery-powered transmitter during specific windows of the flight.

RS SPACECRAFT NEWS

Two RS satellites may be launched from the Soviet Union this year. According to G3IOR who quotes UA3CR, both RS-9 and RS-10 are in Kaluga 200 km SW of Moscow undergoing tests. The frequencies for RS-10 were provided by G3IOR as follows:

Mode A	*145.96 — 146.00 up*
	29.46 — 29.50 down
Beacon	*29.457 or 29.503, 250mW or 1 watt*
Mode K	*21.26 — 21.30 up*
	29.46 — 29.50 down
Robot	*21.140 up 29.457 or 29.503 down*

A third (unnamed mode) transponder may also be included. Its frequencies were specified as follows:

	21.26 — 21.30 up
	145.96 — 146.00 down
Beacon	*145.957*

At present both RS-9 and RS-10 are to be orbited by a single launcher. However, the builders and organisers are thought to be seeking separate launches for each. The desired orbits would be around 2000 km polar circular orbits. UA3CR has built a Mode J transponder for which he is seeking a launch. The current operating schedule for the operational RS's is, according to G3IOR, as follows:

RS-5	Monday and Friday
RS-7	Tuesday and Saturday (Xponder or robot)
RS-8	Thursday and Sunday

DETAILS OF PHASE-3C

The first transponder to be carried aboard Phase 3C will be a Mode B transponder quite similar to AO-10's. With uplink on 70 cm and downlink on 2 metres, It will have about 180 kHz of bandwidth. The frequencies used will be dissimilar to AO-10's to avoid mutual interference. The transponder used could be the actual flight spare which was back-up for the flight unit flown on Phase 3B (AO-10).

The second transponder, if built as planned, is tentatively dubbed Mode JL and would combine uplinks from 2 metres and 24 cm into a downlink on 70 cm. Approximately 50 kHz of the 2 metres band would either overlap or be placed adjacent to the downlink resulting from the 24 cm uplink. Mode J is especially popular in Japan where 2 metre QRM is intense. Mode B, with its 2 metre downlink is not popular in Japan for this reason. Regarding the Mode L portion of the proposed Mode JL transponder, this would have up to 800 kHz of bandwidth and an improved efficiency HELAPS amplifier according to W3GEY.

The third transponder is one proposed by a new group in West Germany and will be a Mode L packet transponder. Details are sketchy but it appears that the packet transponder may use Mode L, require 2400 BPS FSK on the uplink and generate 400 BPS FSK on the downlink.

The fourth transponder proposal is also sketchy but will use 70 cm for an uplink and generate a 13 cm downlink in the vicinity of 2.4 GHz — suitable for a single FM signal approximately 20 kHz wide. The downlink will be at approximately the 2 watt level.

The kick motor to be employed will be identical to that used on Phase 3B. Revisions to the plumbing associated with the MBB 400 Newton motor, however, will be designed to reduce the risk that unexpected low temperatures as experienced with the Phase 3B launch could preclude kick motor retiring. Loss of helium probably due to very cold temperatures is thought to have contributed to the inability to reignite the Perigee kick motor on AO-10.

The Phase 3C bi-propellant system will be similar to the Phase 3B fuel and oxidiser but will improve the specific impulse by 10 somewhat for the anticipated increased total mass of Phase 3C. The Ariane launcher will place P3-C in a geo-synchronous transfer eclipse with zero degrees Inclination. AMSAT then has to raise the Perigee from its perilously low point of a few hundred kilometres to a stable orbit and then accomplish a sizeable plane change from zero to approximately 60 degrees.

The antennas will be reworked but the other key sub-systems will be identical to that flown of AO-10 or quite similar — many sub-systems such as the IHU, BCR and SEU are already built (as flight spares for Phase 3C) and need only be verified and integrated.

AO-10 SPRING SCHEDULE

AMSAT has announced a new operating schedule for AO-10 which will go into effect at 0000 UTC on 1 April '85. The new schedule responds to the changes in sun angle now being experienced and also includes provisions for thermal consideration which will become Increasingly important. The new schedule mean anomaly points for switchover are:

032 — 119 Mode B
120 — 137 Mode L
138 — 200 Mode B
201 — 031 Off

Tnx to UoSAT for all the above items.

OSCAR 10 SCHEDULES

Information to hand indicates that due to the eclipse that will be experienced over the next six months by Oscar 10 there may be revisions to the operating schedule, on a month by month basis. Therefore it is highly recommended that readers listen in to the AMSAT Australia net on Sunday evenings for the most up-to-date schedule.

REQUEST FOR ASSISTANCE

The following request has been received from Ross WB6GFJ/VK4BZZ.

WB6GFJ is requesting help from all those on any of the OSCAR or RS satellites. A collection of 35 mm color slides is being collected to make a programme of those stations on the satellites. This programme will be also reproduced onto VHS and BETA video if enough interest is shown, and the video would be made available through the AMSAT video library.

Here is what stations need to do. Send two or three GOOD, CLEAR, 35 mm color slides. One slide should clearly show most of the person's stations, and if possible include the person operating their equipment. If necessary, send one slide of equipment, and one of the operator at the rig. The last slide should show the OSCAR antennas. If a person has something unique about their station, or may have slides of an OSCAR DXpedition, please include one or two of those also. In other words, please send more than the minimum number of slides requested, if you wish.

Send your slides to: Ross Forbes WB6GFJ, AMSAT Co-ordinator for North Central California, Post Office Box 1, Los Altos, CA 94023.

We would like slides from stations all over the world, and will make video tapes available in PAL and SECAM format if there is interest overseas.

UPS AND DOWNS

From Bob VK3ZBB we have the latest satellite activity. Thanks Bob.

AR

Satellite Returns

During the period twenty-four Objects decayed including the following Satellites:-

1983-049A	Cosmos 1465	Jan 23.
1984-119A	Cosmos 1611	Jan 11.
1964-120A	Cosmos 1613	Jan 31.
1985-005A	Cosmos 1623	Jan 30.
1985-008A	Cosmos 1625	Jan 25.
1985-010A	STS 51-C	Jan 27.

OSCAR-10 APOGEES MAY/JUNE 1985

SATELLITE — BEAM HEADINGS

DATE	DAY #	ORBIT #	APOGEE CO-ORDINATES UTC HHMM:SS	LAT DEG	LON DEG	SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
MAY											
1	121	1415	0334:49	-4	304			271	-1	284	19
2	122	1417	0253:52	-4	296			277	7	290	27
3	123	1419	0212:54	-4	285	274	5	282	15	297	35
4	124	1421	0131:57	-4	276	280	13	288	23	307	43
5	125	1423	0050:59	-4	267	286	21	296	31	318	49
6	126	1425	0010:01	-4	257	292	28	304	38	333	55
	126	1427	2329:04	-4	248	300	36	315	45	352	57
7	127	1429	2248:06	-4	239	310	43	329	50	12	57
8	128	1431	2207:09	-5	229	323	49	345	54	30	54
9	129	1433	2126:11	-5	220	338	54	3	55	45	49
10	130	1435	2045:14	-5	210	357	56	21	53	56	42
11	131	1437	2004:17	-5	201	16	55	37	49	65	34
12	132	1439	1923:19	-5	192	33	52	50	43	73	26
13	133	1441	1842:22	-5	182	46	46	60	36	79	18
14	134	1443	1801:24	-5	173	57	39	68	29	84	10
15	135	1445	1720:27	-5	164	66	32	75	21	90	2
16	136	1447	1639:28	-5	154	73	24	81	13		
17	137	1448	0419:00	-5	330					268	-2
	137	1449	1556:31	-6	145	80	16	87	6		
18	138	1450	0338:02	-6	320					273	6
	138	1451	1517:33	-6	136	85	8	92	-2		
19	139	1452	0257:05	-6	311					278	14
	139	1453	1436:36	-6	126	91	1				
20	140	1454	0216:07	-6	302			271	3	283	22
21	141	1456	0135:10	-6	292	269	0	276	11	290	31
22	142	1458	0066:39	-6	283	274	8	282	18	297	39
23	143	1480	0014:42	-6	274	279	16	288	26	307	46
	143	1462	2333:45	-6	264	285	24	296	34	320	53
24	144	1464	2252:47	-6	255	292	32	305	42	336	58
25	145	1466	2211:48	-7	246	300	40	316	48	357	60
26	146	1468	2130:51	-7	236	311	47	331	54	18	59
27	147	1470	2049:54	-7	227	324	53	349	57	36	55
28	148	1472	2008:56	-7	217	342	57	8	57	50	49
29	149	1474	1927:59	-7	208	2	59	27	55	61	42
30	150	1476	1847:01	-7	199	21	57	42	50	70	34
31	151	1478	1806:04	-7	189	38	53	54	43	76	26
JUNE											
1	152	1480	1725:06	-7	180	52	46	64	36	82	17
2	153	1482	1644:09	-7	171	62	39	72	28	88	9
3	154	1484	1603:12	-8	161	70	32	79	21	93	1
4	155	1486	1522:14	-8	152	77	24	85	13		
5	156	1487	0301:44	-8	327					267	1
	156	1488	1441:15	-8	143	83	16	90	5		
6	157	1489	0220:47	-8	318					272	9
	157	1490	1400:18	-8	133	89	8	95	-3		
7	158	1491	0139:49	-8	309			265	-2	277	17
	158	1492	1319:21	-8	124	94	-0				
8	159	1493	0058:52	-8	299			270	6	283	26
9	160	1495	0017:54	-8	290	268	3	276	14	289	34
	160	1497	2336:57	-8	280	273	11	281	22	297	42
10	161	1499	2256:00	-8	271	279	19	288	30	307	50
11	162	1501	2215:02	-8	262	285	27	296	38	321	57
12	163	1503	2134:05	-9	252	292	35	305	45	340	61
13	164	1505	2053:07	-9	243	301	43	318	52	3	63
14	165	1507	2012:09	-9	234	312	50	334	57	25	60

SATELLITE ACTIVITY FOR PERIOD DECEMBER 31 1984 TO JANUARY 31 1985

LAUNCHES

Unfortunately there has been a significant curtailment in the release of orbital elements and mission details for satellites launches since the commencement of 1985.

The only information available is given below:-

1985-001A	Sakigake		Launched by Japan on 8 Jan. An interplanetary probe *with heliocentric orbit and the following parameters:* Inclination 1.448°, perhelion 121.706 million km, aphelion 151.415 million km, period 318.6 days.
1985-002A	Cosmos 1616	USSR	Launched Jan 15.
1985-003A	Cosmos 1617	USSR	Launched Jan 15.
1985-003B	Cosmos 1618	USSR	Launched Jan 15.
1985-003C	Cosmos 1619	USSR	Launched Jan 15.
1985-003D	Cosmos 1620	USSR	Launched Jan 15.
1985-003E	Cosmos 1621	USSR	Launched Jan 15.
1985-003F	Cosmos 1622	USSR	Launched Jan 15.
1985-004A	*Molniya 3-23*	USSR	Launched Jan 16.
1985-005A	Cosmos 1623	USSR	Launched Jan 16.
1985-006A	Cosmos 1624	USSR	Launched Jan 17.
1985-007A	Horizont XI	USSR	Launched Jan 18.
1985-008A	Cosmos 1625	USSR	Launched Jan 23.
1985-009A	Cosmos 1626	USSR	Launched Jan 24.
1985-010A	STS 51-C	USA	Launched Jan 24. On board Discovery were astronauts E Payton, E Onizuka, T Mattingly, L Shriver and J Buchli.

WANTED ARTICLES

Write up your pet project or technical idea so others may share your knowledge through the pages of AR.

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

MAY	
4- 5	*County Hunters SSB Contest*
4- 5	*G-QRP Club SSB Activity*
4- 5	*Florida QSO Party*
18-19	*ARI International Contest*
25-26	*CQ WW WPX CW Contest (rules April)*
28-29	*CLARA AC/DC "Mystery"*
JUNE	
8-10	*VK/ZL RTTY DX Contest*
15-16	*All Asian Phone (Unconfirmed)*
22	*ARRL Field Day Contest (Unconfirmed)*

Amongst the correspondence received are several letters from operators recently licenced, who state that whilst operation in contests sounds as though it could be an interesting activity they are not too sure how to go about participating in a contest. I will attempt in this column to provide some fairly basic information for both experienced and new contesters.

Contests are run for various reasons, some serious and others not so serious depending on your points of view. An example of a contest run for a specific purpose is the Field Day Contest. Many national societies run such in an endeavour to encourage their members to become skilled in setting up portable stations such as would be needed in an emergency situation. Another type of contest which can be regarded very much as a fun contest is the type of international DX contest where the aim is to try and contact stations in as many different countries as possible or work as many different prefixes as you can. Then again there are the 'specialist' contests such as VHF/UHF only, RTTY, SSTV etc. Many contests are also run specifically to cater for sectional interests such as CW only or Phone only.

The most popular contests are generally those run by the major international societies such as the American Radio Relay League (ARRL) or well known international magazines such as 'CQ' magazine, although many smaller special interest groups and local clubs in many countries organise contests to suit their varied interests. There is hardly a weekend which goes by when there is not some contest being held somewhere in the world.

Here in Australia the major contests run by the WIA are the John Moyle Memorial Field Day, the Remembrance Day, the VK Novice and the VK/ZL Oceania contests. Each of these include HF operation with also VHF operation in the Field Day and Remembrance Day Contests.

The Ross Hull Memorial Contest is another exclusively Australian contest and is of a specialist nature involving only VHF/UHF bands. Information as to when these contests are held appears regularly in this column as well as the various rules which apply.

Most contests include various sections such as Phone, CW and Open. The Open section usually means a mixture of two or more modes being operated by any station. There are sometimes different categories such as single band or multi-band operation as well as single transmitter or simultaneous multi-transmitter operation. For this latter category comes the term 'Multi-multi' which you will hear being used by some of the more knowledgable contesters.

To enter into a contest is in practice a very simple matter. First of all, and MOST IMPORTANTLY, it is necessary to read the rules for the contest in which you intend to operate and ensure that you understand them properly. Generally speaking most rules for contests are fairly straightforward and require the application of just a small amount of commonsense. However, if in doubt it would pay to ask some experienced contest operator for clarification of any item you don't quite understand. The rules will explain just what is required of entrants for the contest from when it is to be held, what bands may be used, the modes allowed, how the log sheet must be laid out and just what the operators must do to be able to claim a contact in the contest. Other items might include details of multipliers to be used for scoring, points to be claimed for particular types of contacts as well as details on where to send your completed log.

So as to prove that a contact has taken place it is usual that stations operating in a contest make an exchange of serial numbers, words or some other cypher and this exchange is recorded in the log of each operator. In this way the contest authorities are enabled to check an individual log against other logs sent in thus authenticating the fact that the claimed contact took place. One quite common form of exchange is known as the RST Serial Number system. With this method the station must send and receive the usual RS(T) report followed by a serial number, usually of three figures, normally commencing with 001 and increasing by 'one' for each successive contact. For example, if the report for the first station worked was Readability 'Five', Strength 'Seven', and Tone 'Nine', you would send the Serial Number 579001. If you were the 'ninth' contact made by the other station and you were RST559 his number to you would be 559009. In some contests this system is not used and instead the exchange might include a number representing your age, ITU Zone or CQ Zone Number or even the input power to your transmitter. The variety of exchanges seems to be limited only by the imaginations of the contest organisers. Again, if in doubt, ask someone else who can explain it all.

One fairly obvious way to gain a further understanding of how operation for a particular contest is carried out is to simply listen for a while to some of the other stations taking part in the contest in question. If there happens to be more than one contest running during a particular weekend, which can happen, this approach might be confusing, however if you enter into a contest and begin sending the wrong type of serial numbers to another station he will probably let you know that you are making a mistake.

The aim in most amateur radio contests is usually to make as many contacts as possible in a given time. One VERY important matter in operation is you should be not only fast but ACCURATE in all your logging. This includes such details as time of contact, station call signs, number exchanges etc. It is also most important that log entries be completely legible.

It is almost inevitable that during the course of a contest the operator or log-keeper will make some mistakes which cause the need for an alteration to the log sheet. Such alterations can mean that a log can become somewhat of a mess in-so-far as its tidiness is concerned. An excellent way to overcome this problem is to spend a little time after the contest tidying the log up. To do this all you need is to make a copy of the original, obtain some of the correcting fluid currently freely available for use by such people as typists and use this to 'while-out' the offending sections of the log. Having done this you can use the information from your copy and re-write the corrections neatly. You can then provide a very neat finish to all of this by making yet another copy of the now corrected version as the 'white-out' material on the page will not show up on the sheet which comes out of the copying machine. It is certainly worthwhile going to this kind of trouble as under most contest rules untidy or illegible logs can be disqualified and should this happen all your effort of operating in the contest will have been in vain.

Most good contest operators are those who have spent some time observing other good operators at work. Make your own assessment of what you consider to be good operating. You may consider it to be making contacts as fast as possible. If this is the case your approach may well be wrong. Listen again. *Is that really fast operator going so fast that he slurs his words and phonetics? Does he use correct phonetics? Can you pick out obvious mistakes that he makes as he goes along, particularly when you hear him read back the numbers given to him by another station which you can also hear and you observe that he has those numbers wrong?* If this happens he is obviously not a good example to follow. The good operator works at a steady pace with clear enunciation, not becoming excited, using correct phonetics and being patient when he is asked to 'say again' his call sign or other information needed. So try and pick an operator who is setting a good example, listen to him for a while and then do your best to emulate his method. Remain calm and alert to what is going on about the frequency and don't be too afraid of making mistakes. If you are methodical you will find it fairly easy to correct any mistakes you make as you go along. If you know that you have made an error and yet have completed that contact containing the error don't panic. Simply place some kind of identifying mark against that contact. The chances are that you will soon hear the station again who should be given the corrected information and in most cases the operator at the other end will be only too glad to receive the correction as without the correction his log also carries an invalid contact which may be disqualified. Should you make the common mistake of duplicating serial numbers simply indicate clearly on your log that such duplication exists. This allows the contest manager checking the logs to sort out any problems which may arise, helps the other operator who otherwise may have contacts deleted from his log by the manager and in most cases the contest manager will appreciate such an indication and will be unlikely to disqualify those contacts with duplicated numbers.

Most contest operation simply needs just a modicum of commonsense. So don't be afraid to give it a try. Start off simply and don't expect to win the very first contest that you enter. Might I humbly suggest that you look back over the columns which I have written for this magazine since last September in which I have tried to provide you with hints on contesting, making up of logs and check sheets and generally training yourself to become a good contest operator. No one else can do this for you, it simply needs you to have a proper approach to the problem and the patience to put ideas into practice over a period of time. It is not the purpose of this article to spell out in great detail all the information which could be written about contest operating but simply to encourage you to try your hand at an aspect of our hobby which can become one of great fun and certainly one of real challenge. You can in fact enjoy the fun of virtually competing against yourself as you improve your own capabilities as an operator.

Once again might I suggest a few important points which should be kept in mind. Firstly, read the rules thoroughly and ensure that you do understand all that is written, then follow all instructions in the rules **to the letter.** This includes layout of logs, type of contacts, exchanges, timekeeping, making out of summary and declaration sheets, marking of entries with the contest names, endorsements on the outside of the mailing envelope as called for, etc. Also, ensure that your log is mailed with the correct address and postage in plenty of time to reach its destination by the due date for entries.

Give contesting a try. I am sure that you will learn from the experience and you may well enjoy it so much that you *will become one of those regular contesters* whose call sign eventually becomes one of those immediately recognised worldwide.

ROSS HULL MEMORIAL VHF CONTEST 1984

This year the participation in the Ross Hull Contest was most disappointing with a total of only seven competition logs and one check log received. The rules had been especially framed to encourage interest and operation, however this contest certainly seems to be a dying event. I have suggested in my report to the 1985 Federal Convention that some thought might be given to the disbanding of this contest. It would seem rather

a pity should this happen, however there may be a better way to pay honour to one of the pioneers of radio acknowledged world wide and one who was also an Australian. Despite the poor level of entries the competition was really keen as can be seen by the scores. The winner for 1984 is that very well known experimenter and VHFer Les Jenkins VK3ZBJ. The result however could not have been closer as Les won the contest by only one point ahead of "The Kid From Coolaroo", VK3ZHP. With such a result it seems almost a pity that both could not have won, and that is not intended as taking away any kudos from the winner. It is interesting to note that VK3ZBJ and VK3ZHP both worked all VK call areas with the exception of VK9 whilst VK3ZHP worked ZL1, 2, 3, 4 and 7 and VK3ZBJ ZL1 and 2. Both logs submitted were very neat with the log from Les actually outstanding in this respect. In fact all the logs submitted were of good standard. The win for Les as outright winner is for his operation in the seven day phone section. You will note that there is a tie for first place in the two day phone section with both VK3ZHP and VK3ZYN featuring in the dead heat. In this contest it is obvious that VK3ZHP had put in a magnificent effort and both he and Peter VK3ZYN are to be well congratulated.

VK2QF entered the two day section for 6 and 2 metres only and came out the winner of that section.

Complete details are as follows:-

Call	7 Day Pts	2 Day Pts	Section
VK2QF	-	620	3
VK3YRP	718	320	3
VK3ZBJ	3780	1128	1
VK3ZHP	3779	1314	1
VK3ZYN	3380	1314	1
VK7DC	496	148	1
VK7ZAP	273	99	1

Check Log VK3ZEM

Together with the logs I received some well reasoned letters from VK3YRP, VK3ZYN and VK3ZBJ providing comment on the contest. If you have any comment on the Ross Hull Contest, particularly if you would like to see it continue, please let me know.

DATES OF CONTESTS

By the time you read this the Annual Federal Convention will have come and gone. Behind the scenes there has been a lot going on particularly with regard to contest dates. I had hoped that by now we would have been able to see our Field Day and VK Novice Contests changed to more suitable times in the year. Discussion at the Federal Convention will see this matter sorted out although it is most unfortunate that it now cannot be before 1986 for such to be resolved even though suggestions to make changes were made over a year ago. The VK Novice Contest will thus still have to be held in September right after the Remembrance Day Contest which will undoubtedly mean very few logs entered in the Novice Contest again this year. *Maybe you could prove me wrong on that point eh???*

CERTIFICATES

By now all outstanding certificates should have been received. Catching up on this has meant a great deal of work, in the order of 138 certificates. This is made up as follows:-

Novice '82 — 8. '83 — 7. '84 — 6.
Remembrance Day '83 — 32. '84 — 63.
Field Day '84 — 18.
Ross Hull '84 — 4.

I must admit to being somewhat concerned about the matter of issuing certificates in such cases where there is only perhaps one entry, and a small scoring one at that, in a section of a contest. I have also mentioned this matter in my annual report and thus hope soon that a firm policy will be decided. Incidentally if you believe that you have been entitled to a certificate and have not received one please let me know.

The months of May and June usually seem to be times of lull as far as major contests are concerned. The CQ WW WPX Contest is on for keen CW operators and in this issue are the rules for one of those specialist contests referred to above, namely the VK/ZL 1985 RTTY DX Contest. I would encourage all RTTY operators who can to support this contest which is run by Australian RTTY enthusiasts for your benefit.

I have not received any details of the rules for the All Asian Phone Contest which I anticipate may be held on the weekend of 15 and 16th June. I do note however that according to the WIA 75th Anniversary Calendar the All Asian CW Contest will probably fall on the same weekend as the Remembrance Day Contest in August.

One final comment. As we are now getting well into our late autumn it may be a wise thing to make those last minute maintenance checks on antenna systems which we may have been putting off, as the winter cold and wet can certainly cause problems if joints etc are not solid and waterproof. One well known saying amongst amateur operators from some years back was *'If the antenna system stayed up all winter it wasn't big enough'.*

Rules for the All Asian Contests arrived too late for inclusion in this issue, however they will appear next month. Dates are . . .
PHONE: 15-16 June 1985.
CW: 24-25 August 1985

VK/ZL 1985 RTTY DX CONTEST

TEST PERIOD: Saturday 8th June 1985 0000 UTC to Monday 10th June 1985 0000 UTC.

- Not more than 30 hours of operating is permitted for single operator stations. Non-operating periods can be taken at any time during the contest.
- Multi-operator stations may operate the entire 48 hour contest period.
- Summary of operating times must be submitted with each score.

BANDS: Use all amateur bands 3.5: 7: 14: 21 and 28 MHz.

CLASSIFICATION: (a) Single Operator (one transmitter), (b) Multi-Operator (one transmitter); (c) SWL Printer.

MESSAGES: To consist of RST, Time, UTC and Zone.

SCORING: As per CARTG Zone Chart, multiplied by the number of countries worked, multiplied by the number of continents worked (maximum six).
After the above calculations, world stations add 100 points for each VK/ZL station worked on 14 MHz, 200 points for each VK/ZL worked on 21 MHz and 300 points for each VK/ZL station worked on 28 MHz. *(Example: 720 points from zone chart x 29 countries worked x 5 continents worked = 104,400 points plus 6VK/ZL stations worked on 14 MHz (that is 600 points) giving a grand total of 105,000 points. A station may be worked only once on each band, but may be worked on another band for further multipliers.*

COUNTRIES: Country count as per ARRL list of countries, except that each

EXCHANGE POINTS TABLE

CORRESPONDENT ZONE	YOUR ZONE	
	29	30
1	39	35
2	50	50
3	43	35
4	52	44
5	54	46
6	47	38
7	49	40
8	54	44
9	52	45
10	44	37
11	42	41
12	37	33
13	37	34
14	42	49
15	39	47
16	36	42
17	32	38
18	30	45
19	30	32
20	34	43
21	28	37
22	21	29
23	24	30
24	20	24
25	23	30
26	16	22
27	15	18
28	10	17
29	2	9
30	9	2
31	15	24
32	32	7
33	42	51
34	33	42
35	39	47
36	31	10
37	24	33
38	24	32
39	20	29
40	44	48

Below . . .
The 1984 WIA Contest Champion, Robert Harris VK3XQ proudly receives from Victorian Divisional Secretary, Des Clarke VK3DES, his trophy. He won the championship by scoring the highest aggregate points based on performance in the WIA's four major contests — JMMFD, RD, VK ZL, and Novice.

	VK, ZL, JA, VE, VO, W/K districts count as separate countries. Contacts with one's own country count as zero points for multipliers.
LOGS:	Logs must show in this order: Date, Time (UTC), Callsign of station worked, Serial number sent, Serial number received, Points claimed.
CLOSING DATE:	Logs must be received by the Contest Committee by 1st September 1985. The address for logs is: W J Storer VK2EG, 55 Prince Charles Road, Frenchs Forest, NSW, 2086.
SUMMARY SHEET:	Summary sheet must show, call sign of station, name of Operator/s, and address of same, bands used (a separate log is required for each band), the points claimed for each band, number of VK//ZL stations worked, total points claimed and signature/s. Multi-operator station logs must contain the signature and call sign of each operator.
AWARDS:	Awards will be issued for 1st, 2nd, and 3rd on a world basis and also on a country basis.

The judges decision regarding the placings in the contest will be final and no correspondence will be entered into regarding same. The logs become the property of the Contest Committee on completion of checking.

This contest is now being organised and conducted by the Australian National Amateur Radio Teleprinter Society, PO Box 860, Crows Nest, NSW.

AR

See previous page for Exchange Table.

RADIO HUNT TO CELEBRATE LIBERATION DAY, 8 MAY, 1985

By the way of international radio waves, this Radio Hunt aims at establishing contact between amateur radio operators and also licensed Scout groups throughout the world in order to commemorate Liberation Day, 8th May, 1945.

Directing and co-ordinating this effort is the **Norwegian Sailors War Veterans International** [Norges Krigsseilerforbund]. This association has appointed a committee to oversee the logs, issue diplomas and to make a final report to the Board of The Norwegian Sailors War International [Norges Krigsseilerforbund].

The Radio Hunt starts on Wednesday, 8th May 1985 at 1200 UTC and continues for 24 hours to 9th May 1200 UTC.

The Radio Hunt is open to all radio amateurs throughout the world as well as Scout groups who can obtain eligibility by using a licence-holding radio amateur.

Two categories are eligible:

a Individual Station.

b Scout groups holding licences [or groups that have obtained user permission].

Bands/Modes: 20 and 80 m SSB and CW.

The call for the hunt for SSB: **"CQ — Sailing for Peace — Radio hunting Norwegian Sailors War Veterans International"** followed by the amateurs call sign. For CW users the call is: **"CQ Sailing for Peace."** [CO SPT]

In the QSO give a control number in the normal contest way. The starting number should be 001.

Scores as follows:

a 1 point for a new station on each band and type of emission. Each new country [ARRL list] counts as one multiplier. To get the test diploma you must have at least 15 multipliers.

b QSO with the stations LA9PA, LA3R and LA2C counts as 3 points on every band/mode and the very first contact counts as 3 multipliers.

Separate log sheets must be used for SSB and CW contacts, but the numbering should be continuous.

Illegal operation or bad amateur behaviour will not be tolerated.

Logs must be sent to:
Norges Krigsseilerforbund, PO Box 144, 0102 Sentrum, OSLO 1, NORWAY, by post before 15 June, 1985.

Norges Krigsseilerforbund will award participants with 15 multipliers or more with an exceptional diploma.

There will also be special prizes for the stations with the highest score on SSB/CW on each band and the same to the Scout stations.

AR

THE INTERNATIONAL SW RADIOCOMMUNICATION CONTEST "PEACE TO THE WORLD"

Object: To strengthen friendly relations among radio amateurs of the world, increase their sportsmanship and provide the corresponding conditions to fulfil the requirements for the diploma offered by the Radio Sport Federation of the USSR and the E T Krenkel Central Radio Club of the USSR.

Promoter: The Radio Sport Federation of the USSR.

Contestants: The contest is open to radio amateurs and listeners from all over the world.

Groups of contestants: A Single operator, single band. B Single operator, all bands. C Multi-operator, all bands, single transmitter. D Listeners.

Contest period: The contest "Peace to the World" is held from 21.00 UTC, Saturday 11 May to 21.00 UTC, Sunday 12 May 1985.

Bands and modes: QSOs may be carried out by CW and Phone with a single sideband modulation on bands 3, 5-7-14-21 and 28 MHz, as well as through radio amateur satellites with retransmission from 144 MHz to that of 28 MHz. QSOs through satellites are judged as those made on separate additional bands with multipliers attributed for them.

No cross mode (phone-CW) is allowed.

Contest call — CQ-M (Peace to all).

During the contest QSOs may be carried out only within the following amateur band allocations:
CW: 3.505-3.600, 7.005-7.040, 14.010-14.100, 21.010-21.150 and 28.010-28.200 MHz.
phone: 3.600-3.650, 7.040-7.100, 14.150-14.350, 21.200-21.450 and 28.400-29.100 MHz.

Check numbers: During QSOs contestants exchange their check numbers composed of RST(or RS) plus QSO numbers (Ex.: 579001 or 57001).

Scoring: a/ Each QSO made within a continent scores 1 point, QSOs between continents scores 3 points. b/ Listeners are judged as follows: one-way QSO receiving scores 1 point; 2-way QSO receiving scores 3 points. c/ Repeated/receiving/contacts with the same radio stations are judged only as those made on different bands irrespective of the mode of operation. d/ A QSO mode within one's home country is judged only to obtain a multiplier with no scores to be awarded.

Multipliers: a/ The number of countries and territories of the world required for a multiplier is determined by the diploma list "R-150-S". b/ For one country/territory/ worked is given one point for a multiplier on each band. c/ Total multiplier is the sum of multipliers obtained on all bands.

Total score: Is the sum of points gained by a contestant on all bands multiplied by a total multiplier.

Winners and awards: a/ Winners are determined separately in each group of contestants: among the contestants of each continent; among all the contestants; among the contestants of each country.

Reporting procedure: The promoter of the contest "Peace to the World" kindly asks you to submit log sheets, irrespective of the number of points obtained, by 1st July 1985 to the following address:
CQ-M Contest Committee, PO Box 88, Moscow, USSR.

AR

HAMADS

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PROGRAMMABLE POCKET SCANNER

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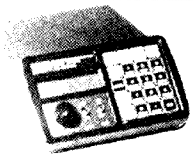
SPECIAL $399

AR-2001 CONTINUOUS COVERAGE 25-550 MHz SCANNER



If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2001 from GFS, authorised distributors.

$559 +$14 P&P

LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

LOSS IN DB/30 METRES

TYPE	100 MHz	200 MHz	400 MHz	900 MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8/U	1.95	N/A	N/A	7.44
RG-213	1.74	N/A	N/A	7.20

FB SERIES CABLE & N CONNECTORS

CABLE		N-CONNECTORS	
5D-FB	$2.60 m	NP-5DFB	$10.90
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10D-FB	$5.80 m	NP-10DFB	$11.60
12D-FB	$7.90 m	NP-12DFB	$12.50

BUMPER HOOK MOBILE MOUNT

$49 + $8 P&P

HS-FB is a heavy duty antenna mount designed to fit on your car's tow hook or tow bar.

NO HOLE MOUNT

$11 + $6 P&P

The HS-25 is a "No Hole" boot lip mobile antenna mount designed for Scalar type bases.

Our fully equipped service department services a range of communications equipment. Hourly rate $37.

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ANTENNA MATCHER WITH ALL MFJ-949B

Apart from being a versatile antenna matcher it has a co-ax switch, accurate SWR/POWER meter as well as a dummy load.

$408 + $14 P&P

MATCHER FOR THOSE WHO HAVE A DUMMY LOAD

MFJ-941D uses the same versatile circuitry as the MFJ-949B including co-ax switch.

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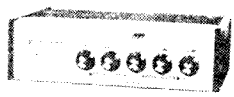
PROFESSOR MORSE CODE GENERATOR ELECTRONIC KEYER

MFJ-410 generates unlimited random morse code groups for practice. Includes speed meter, 5-50 wpm and variable spacing between characters. Also doubles as an Electronic Keyer.

$359 + $14 P&P



ELECTRONIC KEY WITH SPEED READOUT

The MFJ-408 uses the proven Curtis 8044 IC, it has a speed readout (5 to 50 wpm) and sends iambic, automatic, semi auto & Manual with built in monitor.

$321 + $14 P&P.

MFJ-BY1 top of the range iambic paddle

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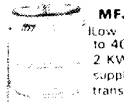
BENCHER IAMBIC PADDLE

2 KW DUMMY LOAD



MFJ-250 1Low SWR to 400 MHz 2 KW PEP, supplied with transformer oil.

$89 + $14 P&P.

2 metre RINGO

The antenna for 2 mix FM work. 9dBi gain, omnidirectional.

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GIVE YOUR RINGO ANOTHER 1.5dB

with our RK-1 decoupling radial kit.

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ACTIVE OUTDOOR ANTENNA FOR SWL's

MFJ-1024 gives longwire performance from its 54" whip. 50 KHz to 30 MHz

$359 + $14 P&P.

TVI FILTERS

LP-50 Lowpass filter **$65** plus $5 P&P

HP-30/U High pass 75 OHm **$36** + $5 **P&P**

HP-30/UB High pass, 300 OHm, **$34** + $5

SCANNER CONVERTERS

CVR-2 SHORT WAVE COVERAGE

Now cover 0.5 - 26 MHz on your VHF/UHF scanner. Listen to overseas Broadcast stations etc. Output frequency range 114.5 to 140 MHz $290

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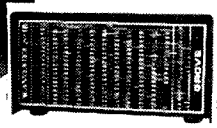
CVR-1B NOW HEAR MILITARY AIRCRAFT



The CVR-1B is designed to allow any scanner which covers the 108-128MHz range to receive the band 225 to 380 MHz. It just plugs into your scanners antenna socket. Now hear the RAAF. **$306**

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CLUB CORNER

THE WIA 75TH ANNIVERSARY HAMFEST

Will be held at the Montrose Yacht Club, Hobart on 8th and 9th June 1985. Amateur radio — yesterday, today and tomorrow will be the theme.

There will be a RTTY display, satellite communications, home brew section, QSL card display and more.

AR

DALBY AND DISTRICT ARC

Last October members of the Dalby and District Amateur Radio Club were invited to provide radio communications for the "Chronicle" sponsored Road Runners Marathon held in Toowoomba. We maintained direct contact with all check points and the roving station kept the organisers and public informed on the runners' progress.

As a result of our proficiency at this marathon Radio 4AK requested our assistance in the King of the Mountain race on 23rd March. This race commenced at Withcott which is at the foot of the Toowoomba Range and proceeded up the range into Toowoomba.

5th May will see us portable again. This time in the Kogan district at a Motor Bike Enduro.

Margaret Schwerin VKLAOE
Publicity Officer
AR

GOSFORD SUCCESSES

The Gosford Field Day was another outstanding success this year. As well as the usual line up of regular trade stalls there were the added attractions of a packet radio demonstration and a satellite link for domestic TV. The latter, designed by Vic Barker VK2BTV of Gosford, is being marketed by Dick Smith Electronics. And for those who wanted to get amongst the second hand gear there was a large "disposals" array. Unrealistic prices expected by some of the vendors made the purchase of new gear at slightly higher figures a viable alternative and one stallholder smiled as he claimed that $22 000 had passed across his table during the day.

Most visitors seemed to go away with an armful of something or other, many getting in on the now popular 70cm equipment for amateur satellite work. Despite the claim by some that "there was less people this year", Dick VK2BBK logged out over 900 cups of tea and said that he had run out of milk, biscuits and cups by the day's end. One wag remarked that there was no possibility that the food stall would run out of steak sandwiches. It had something to do with the meal quality they say.

The OSL Bureau did a roaring trade but it was surprising that so many people, including quite well known names in WIA circles still have no idea how the system works.

On the prizes front, Ross VK2ZRQs son took a big share of the pedestrian events but it was good to see another contender put in a good showing. This was Ian Rodenhuis son of Paul VK2AHB who took away some very good looking prizes as well. He managed it all on his own as his dad was busy trying to interest would be travellers in the excellent range of amateur radio tours to Japan.

Tee shirt sellers got right amongst it and cleared almost all the stocks while Beryl VK2DVL did a magnificent job twisting arms to sell a big bundle of raffle tickets. The reptile park was a good refuge for many.

Nev VK2HT had a broad grin at landing the much sought after mobile scramble.

from "Westlakes ARC Monthly Newsletter
AR

Photographs courtesy Greg Jopson VK2VPP

Families were welcomed at the Gosford Field Day in February. From left Dianne VK2DZM, Helen XYL VK2CZZ, Kay XYL VK2VPP, Bob VK2DSM and Mary XYL VK2XI. In the foreground are children of the families.

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

WORLDRADIO. February 1985. General world amateur news, satellites, contests, historical information, emergency services etc. (G)

CQ. November 1984. Special RTTY issue. (G)

CQ. January 1985. WW WPX Contest. (G) Basic dialects. (C) Handicapped Amateur Overcomes. (G)

CQ. December 1984. Modern RTTY codes and modes. (G) Concluded from November issue.

73 Magazine. February 1985. CB to 6 metre Conversion. (P) Home Brew Cabinets. (PN) Transistor Checker. (N)

73 Magazine. March 1985. Satellite TV Reception. (G)

Over the last two months (possibly due to holidays) inquiries about articles have dropped off. Remember I am always ready to help — particularly country people — with information about articles and also photocopies. If you have any special subject I will be glad to try to find some data on it. A couple of stamps would be appreciated for reply. Don't bother to send an envelope. I can provide suitable size ones for the material.

AR

ATTENTION NEW WIA MEMBERS

During the Wireless Institute's 75th Anniversary Year 1985 a number of special events are happening.

If you have recently joined Australia's and the world's oldest radio society your attention is drawn to the WIA 75 Award.

This is running until 31 December and all WIA members are asked to participate.

The WIA 75 Award rules appear in AR magazine for March or details can be obtained through your division.

AR

EMPLOYMENT!

The Antarctic division of the Department of Science was having difficulty attracting applicants for highly paid trades and technical jobs in Antarctica.

It has had to readvertise 90 job vacancies with salaries ranging from about $35,000 to $45,000 a year.

The division needs cooks and communications officers to spend between 12 and 15 months in Antarctica, beginning in summer.

Building and allied tradespeople are needed for the same period and for summer only.

AR

Bronwyn Jopson, aged 4, loves to imitate Dad, Greg VK2VPP. Greg is hoping the interest will remain and Bronwyn will eventually sit for her amateur licence.

KDK

EMTRONICS PRESENTS THE "NEW KYOKUTO"

2M FM MICRO PROCESSOR CONTROLLED TRANSCEIVER

$100 LESS THAN ITS COMPETITORS

FM-2033

Features: • Unique 6 in 1 control knob
• Electronic C-Moss memories with back-up battery
• 11 memories
• Memory and programmable band scanning
• User programmable parameters
• Speed, rit and write buttons
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ONLY **$349**

AZDEN the FM KING PCS-4000

ONLY **$459**

• 8MHz coverage, 142,000-149,995 MHz in selectable steps of 5 or 10 kHz • Tiny size: Only 2" H x 5.5" W x 6.6" D. Compare! • Microcomputer Control • Up to 8 Non-Standard Splits • 16-Channel Memory in Two 8-Channel Banks • Dual Memory Scan: Scan memory banks either separately or together • Two Ranges of Programmable Band Scanning • Free and Vacant Scan Modes • Discriminator Scan Centring (Azden Exclusive Patent) • Two Priority Memories: Either may be instantly recalled at any time.

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SBR-2 Auto Woodpecker Blanker	$199
ANF Auto Notch Filter	$189
FL-3 Multi Mode Audio Filter	$299
D-70 Morse Tutor	$169
VLF Very Low Frequency Converter	$89
RFA Broad Band Preamp	$89
AD-370 Active Antenna	$199

TELEREADER

CWR-670E, multi-mode RTTY, CW, ASCII decoder
Now $459 + delivery. (New Stock)

CWR-685E transmit/receive RTTY, CW, ASCII, BAUDOT — New Stock . . . $1150.

"REGAL 25"
240 volt, 50Hz input — 13.8 volts DC, 20 amps cont — 25 amp surge.

ONLY $179

"REGAL 15"
10 amp cont
15 amp surge.

ONLY $99

TRANSCEIVER POWER SUPPLIES

THE MAGNIFICENT MEN WITH NEW TONO MACHINES

YES!! WE NOW STOCK TONO!!

THETA 5000E: Commercial and amateur stand alone communications terminal for CW/RTTY/ASCII/AMTOR, ARQ, FEC, etc. Mode: This new machine is a "DREAM COME TRUE" to any sophisticated amateur.
Write for colour brochure.

PRICE $1200

THETA 9100E: New model with up-to-date microprocessor technology, stand alone terminal, automatic send/receive of MORSE, RTTY, ASCII, ARQ/FEC (AMTOR). Using a light pen graphic patterns can be drawn on the screen and easily sent.

PRICE $999

THETA 777: The most advanced high performance code converter yet. Supports completely automatic send/receive of MORSE, RTTY, ASCII, BIT INVERSION (RTTY) and now ARQ/FEC/SEL-FEC (AMTOR) mode. Build in RS232 and TTL level interface enables operation with most computers or terminals.

PRICE $499

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CS-401 4pos Coax Switch	$99
CS-4016 4pos Coax Switch 1.3GHz	$109
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CN-540 SWR/ Power Meter	$89
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HB-443DX, 4 band Yagi	$499
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HB-33SP, 3el Triband 14,21,28MHz	$339
HB-23M, 2el Triband 14,21,28MHz	$269
AX-201NW, 10el, 2 cross Yagi, 144MHz	$299
LP-Q-4 Loop, 7,14,21,28MHz	$129
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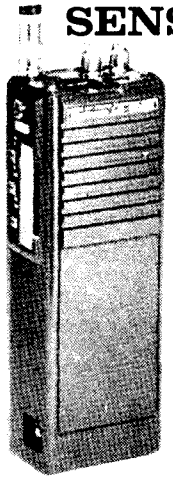

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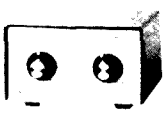

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EAT-300 TUNER $179

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VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

CHANGE OF DATES

Would readers note some changes to those shown in the VK2 notes in March AR. The proposed May Seminar has moved to July (tentatively 20th, Sat.) to make way for the launch by Australia Post of the amateur radio envelope. (See item elsewhere.) Wagga ARC advised that since their city is always heavily booked out on long weekends, they will again be following their established practice and host the South West Zone Field Day on the last weekend of 26-27th October.

OXLEY REGION FIELD DAY

A further reminder that this event is being held on the Saturday and Sunday of the Queen's Birthday weekend at Port Macquarie — the 8th and 9th of June. A full range of field events and contests, including one for your CW skills. Bar-be-que lunch etc. Further programme details via the broadcasts or write to the Oxley Region ARC, PO Box 712, Port Macquarie, NSW, 2444.

ORANGE STATE FOXHUNTING CHAMPIONSHIPS

It was set down for 16th March but on the day only one team showed up. A disappointment for the organisers who went to some trouble to set it up. Maybe a sign of the times but there must be some people still interested in mobile events. Both the council and Orange ARC would like to hear from amateurs re this type of event and whether to try again at a more suitable time.

SEPTEMBER AMATEUR RADIO

VK2 will have a further special in this month. Do you have anything to contribute? If so, please submit it before the 25th June. On the same subject, short technical articles would be most welcome to the editor. Make a few notes and sketches and send them off to the AR editor.

1985/86 CALL BOOK

A reminder to repealer groups and clubs to check and correct any of their current entries. Send corrections to the Divisional office, before the end of this month. Amateurs who have any corrections or alterations should also send the request to the Department of Communications with a copy to the Call Book Editor, C/- PO Box 300, Caulfield South, Vic. 3162. The Call Book is compiled from Department records and is only cross checked against membership addresses, so errors to current listings are only known if the amateur advises. The Department input closes about the end of this month. For non-members there is no means of address cross check.

ANNIVERSARY DINNER

Set down for late June. It will be on a Saturday evening. It will include the presentation of awards held over from the Annual General Meeting in March. Venue details in June AR.

AUSTRALIA POST ENVELOPE

Details still coming to hand as these notes were prepared. On 22nd May Australia Post is to release a prestamped 33 cent envelope which will feature amateur radio and the WIA 75th Anniversary. It will remain on sale for about 6 months. It is hoped to mount displays at many Post Offices and both amateurs and clubs are asked to assist. By now approaches will have been made to you for this assistance through your local club and via the broadcasts. If you can assist please do so and follow the requests as made on the broadcasts. It will be an important promotion for the hobby but to be successful needs everyone's support.

TIME CAPSULE

This started with a launching at VK2WI Dural on the afternoon of Sunday the 10th March 1985. Material will continue to be collected during this year and up to March 1986. Read again the details in March AR. Contribute your QSL card, a photo or letter with details about yourself, interests etc. Post it to 'Time Capsule', C/- PO Box 1066, Parramatta, NSW, 2150. Collection will also be made at the Port Macquarie Field Day and at the Dinner in June, the Seminar in July and Wagga at the end of October. Black and white photos will last better than some color prints. This could also be a good club project. Why not arrange a night and send a bulk posting down. By the way, don't forget to include details about the club or group.

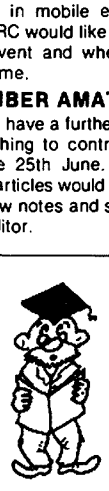
REPEATER NEWS

Notification has been received by the State Repeater Committee for 70 cm systems from Wagga ARC who intend to establish a system within the city area for a local service. Armidale ARC wish to establish a regional service to the north of Armidale to serve them and Glen Innes. Coffs Harbour have indicated their intentions to develop a system for their district. Summerland ARC are investigating the establishment of a two metre system for Byron Bay.

NEW DIVISIONAL YEAR

These notes were prepared in mid March. The June notes will contain a report on the AGM, ballot results and office bearers for the forthcoming year. The annual report and other papers were mailed on the 6th March based on the mailing list for March AR. If you missed out on a copy it is perhaps still in the system awaiting delivery. Copies may be obtained from the Divisional office. Since the report was compiled the annual accounts for the Education service and WICEN groups were completed and a summary will be included in a future AR. It was a disappointment on the folding night for the annual report that only a few members showed up to help. Our thanks to those who did attend, but if the interest is not there on future occasions then maybe it will have to be done commercially which will help increase costs and no doubt the subscription rate.

AR



EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

I am always pleased to receive information about help that is available to the aspiring amateur. Many readers will be unaware of the vast amount of time and patience that go towards helping students get a licence or upgrade to a higher level. Much of this help is unobtrusive, and usually unrewarded except for the satisfaction of knowing that the help is appreciated.

We tend to think that most of the 'Education' is carried out in classes or club discussion sessions, but nearly every week I receive confirmation that there are many amateurs actively participating in the education of a new amateur.

This may be a 'one-off' arrangement for a particular friend — but sometimes it leads the helper into a more structured arrangement for a group next year — and so it goes on.

I have recently been notified about a group who are devoting their energies to improving the CW skills of a group of novices. Operating as the 'Early Bird' net, they are on air every morning except Sundays at 2115 UTC at about 3.545 MHz, to send CW to a group of novices, and give them an opportunity to send in return. Other similar nets are at 0900 UTC for those who want a speed up to 15 WPM — about the same frequency and on 3.595 MHz at 2230 UTC for 11-12 WPM.

There are also some theory discussion groups. One of these runs on about 3.595 MHz at 0500 UTC on Monday, Wednesday and Friday as a self help group to discuss one aspect of the AOCP syllabus at a time.

I have mentioned these nets because in each case the organisers have told me that they would be happy to extend the group a little further. I am sure there are other nets of which I am unaware.

However I still get letters from students who are trying to get through on their own, either because they cannot fit into an existing class programme, or because they are unaware of any assistance that may be available.

So I would be very pleased to collect information about any such systems in existence, so that I can pass it on when necessary. I would also like to have a list of amateurs in various areas who would be prepared to be approached by a student occasionally for discussion or even coaching.

On the other side of helping — I have recently had several more instances of the help that can be given by DOC when the need arises. For the physically handicapped students, special exams have been arranged at a time and place mutually agreed. In other cases, exams have been arranged on request or, for a group in a remote area, by arrangement with the local DI. So, if you are helping someone who has a case for special consideration, make sure that the Department is informed of the situation.

To all those who will be sitting for the May exam, or who are coaching students for it — my good wishes to you all and the usual reminder to candidates to *Read the Questions.*

73
Brenda VK3KT
AR

PRINT HANDICAPPED

The Queensland Tape Service for the Handicapped (Inc) firstly recorded Amateur Radio on tape after a request by a Bundaberg listener.

This organisation is solely concerned with the reading of printed material on to tape, subject to copyright clearances, with distribution through the State Library of Queensland.

Members who know of print handicapped persons who may be interested in this service are advised they should apply to The State Library of Queensland, 132 Grey Street, South Brisbane, Qld. 4101.

Information supplied by Mavis Scott
Honorary Secretary,
Qld Tape Service for the Handicapped
AR

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

1985 COMMITTEE

At the AGM of the Division on the 25th of February, the following people were elected to the various positions on the Division's committee:

President	*Alan Hawes VK1KAL*
Treasurer	*Kevin Olds VK10K*
Secretary	*Richard Jenkins VK1UE*
Vice-Presidents	*Ken Ray VK1KEN*
	George Brzostowski VK1GB
Committeemen	*Reg Towers VK1MP*
	Phil Rayner VK1PJ
	Ray Roche VK1ZJR
Federal Councillor	*Fred Robertson-Mudie VK1MM*
Alternate	*George Brzostowski VK1GB*

The following were appointed to manage the various duties of the Division:

Broadcasts	*Alan Hawes, George Brzostowski*
Meetings	*Ray Roche*
Awards Manager	*Phil Rayner*
Forward Bias	
Editor	*Ken Ray*
Education	*Reg Towers, Ken Ray*
Property Officer	*Alan Hawes*
Book Sales	*Eric Piraner VK1EP*
Intruder Watch	*Vacant*
OSL Bureau	*John Clare VK1CJ (Inwards)*
	Ted Pearce VK1AOP (Outwards)
	Fred Robertson-Mudie (Liaison)
Historian	*Ron Henderson VK1RH*
ATV Liaison	*Kevin Olds*
DOC Liaison	*Fred Robertson-Mudie*
Repeaters	*Alan Hawes*
Wicen Liaison	*Ray Roche*
Field Day Organiser	*Phil Rayner*

JOHN MOYLE FIELD DAY

Again, VK1WI was set up on the shores of Lake Burley Griffen. However, there were fewer contacts and visitors than in previous years. Two visitors of note were members of the local constabulary who wanted to know what we were doing camping here — at 2 or 3 a.m.! Still, for all of those who participated, it was a good weekend.

ITU DAY

Don't forget the ITU Day station at Belconnen Mall on Friday 18th May. Listen out for VK1ITU.

AR

VK3 WIA NOTES

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

WELCOME TO NEW MEMBERS

Gerardus Burgers, Charles Cassar VK3VZE, George Goodley, Gilbert Griffith VK3CGG, Frank Hanham VK3BJ, David Haysom, Steven Jenkinson VK3YH, Paul Kehoe VK3KPK, Trevor Kelly VK3ZNX, Raymond Kerwin VK3KRK, Edward McMillan, E C Mitson VK3DXJ.

A E Morse, Elizabeth Pennington, Arthur Piner VK3YFZ, Russell Robbins, B A Rossi VK3XCO, Alexander Schmidt, Colin Schultz VK3COL, Art Usher W9KHN, C W Wilson VK3AWW, Paul Dellas VK3PSD, Rajiv Gandhi VU2RG, Peninsula School Radio Group.

Another year comes to an end this month with the Vic Div annual general meeting on Wednesday 8 May starting at 8 p.m.

This meeting is a requirement of Corporate Affairs so an audited financial statement of profit and loss can be presented to members and to confirm election of councillors.

All members were sent an 8 page annual report as an insert in last month's AR magazine.

The AGM is also a major social event with many members making a special effort to attend.

It's an opportunity to find out in detail what your division is doing, and to ask, in person, questions of the office bearers or offer suggestions.

If you're able to make the AGM, I and the other councillors look forward to seeing you.

QSL EUTHANASIA

At least 50,000 unclaimed OSL cards are being held at the Wireless Institute Centre.

These are for QSOs made up to five years ago and keeping them creates a storage problem.

It is unfortunate, but necessary, that the unclaimed cards be destroyed later this month.

Do you have QSLs waiting to be claimed — many limited calls would particularly be surprised to learn they have cards, even DX cards for six metre contacts.

CAMPAIGN 3000

Vic Div was congratulated by representatives from other divisions recently on its high and growing level of membership.

Statistics produced at last month's WIA Federal Convention showed your division once again had the largest number of members.

In the 12 months to December 1984, the Victorian Division lead all other divisions both in the number of full members, and associates.

Most of the overall growth in WIA membership Australia wide occurred in VK3.

This result followed hard work done by several individual members who have taken up the call to recruit others into WIA membership.

It also reflects the appreciation and satisfaction by radio amateurs and shortwave listeners of the wide range of services available through the division, and the work done to protect and further the cause of hobby radio.

More members are always needed and welcomed so if you know any amateurs who are not a member, what about coaxing them to join.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

My apologies to those of you who are still listening to the Sunday Morning Broadcasts in an effort to discover when in MARCH the Jubilee 150 launch will take place. When I wrote the column for the March issue, we were still going to have our Jubilee 150 launch in March, however due to a hold-up with the sponsors, QSL cards etc, it was decided to postpone the launch until May, to coincide with the school holidays. At the time of going to press definite dates are not known although it will probably be around the middle of the month. However, there has been one problem, in that we had already agreed to "man" a display station in the GPO from 22nd to 24th May to coincide with the launch of the pre-stamped envelope to commemorate the 75th Anniversary of the WIA — and as if that wasn't enough problems, we have heard rumours that the GPO may be being re-decorated at that time, so all I can say is keep your ears to the ground and we'll try to keep you informed!

One thing that will be certain is that we will have the call sign VK75A for use by South Australian stations from the 13th to the 26th May which will include the proposed days at the GPO.

Many of you will know that when we first took over the Burley Griffin Building it was on a ten year lease, but unfortunately, when the lease expired Thebarton Corporation seemed to be unwilling to give us a long term lease, perhaps because they feared some loss of revenue. However, a further request for a long term lease, this year bore fruit (we have asked every time it was due for renewal) and we once again have a ten year lease on the building. So now we can start thinking about painting and other improvements which we were unwilling to even discuss on a short term lease.

DIARY DATES

28th May	*(unconfirmed at time of going to press, but hoped to have Ted Dobrinsky who was unable to give us his talk on Map Reading and Navigation, due to illness, in February.)*
25th June	*(also unconfirmed, may be substituted for or with the above) "Forum on Computers" a panel of experts will answer your questions (we would like the questions submitted before-hand — a week or more — so that the experts can do their "homework"!)*

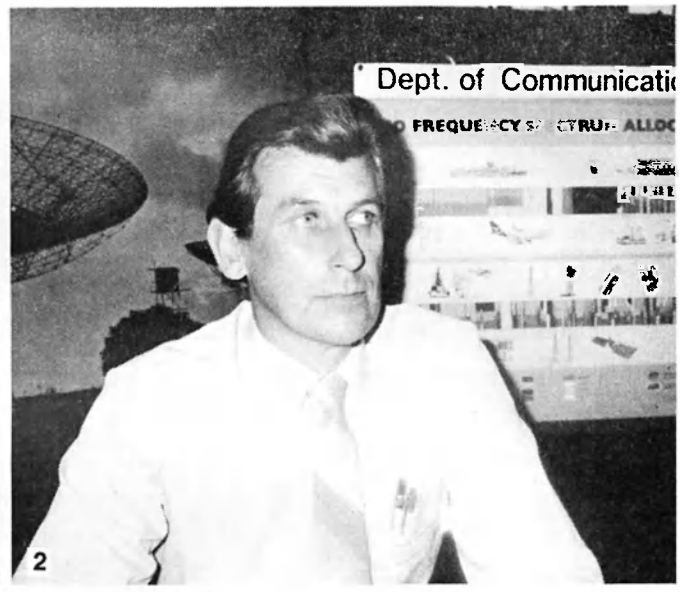
AR

APRIL'S BEST PHOTOGRAPH

The judges at Agfa-Gevaert selected the collection of photographs taken by Sam Voron VK2BV8 on page 13 of April's magazine. Sam will now be eligible for the prize in June.

VK4 WIA NOTES

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld. 4001.



1 At the 1984 Gold Coast Hamfest, Bill VK4YN, proudly displays the award of the Queen Elizabeth Silver Jubilee Trust for Young Australians. The Award included a substantial cash donation to the Gold Coast Amateur Radio Society for educational purposes. 2 Dave Dawson from the Brisbane office of the Department of Communications was ready to answer questions and was kept very busy. 3 Manning one of the many trade stands were Yoshi VK3BZX (Icom Australia), Lance and Brian VK4AHD. 4 The ladies turned out in full force. All full calls — Sandra VK4ACJ, Lesley VK4ZN, Daphne VK4NE, Lynnette VK4CBH and baby Timothy. 5 Greg Rankin VK4AXT was there to guide those visitors not familiar with the Gold Coast, to the venue.

Photographs by Bud Pounsett VK4QY

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

TRACKING WITH A BEE!

I have a computer programme for the Microbee which tracks Oscar 10 and a few other satellites. As the programme is very long I think it would take up magazine space, so I will gladly make tape copies for anyone (amateur) who will send me a blank tape and return postage.

The programme was developed from programmes written by John Branagan and published by AMSAT UK.

I'll include instructions on how to tailor the programme for any OTH knowing the Latitude, Longtitude and Height.

The following is a sample print out.

Thank you,

DATE 14./ 3./ 85.

UTC	AZ	EL	RANGE Km.
0	343	49	35099.
15	340	49	35598.
30	337	50	35993.
45	334	50	36293.
100	330	51	36470.
115	327	51	36554.
130	323	51	36534.
145	320	51	[illegible]
200	317	51	[illegible]
215	313	51	35043.

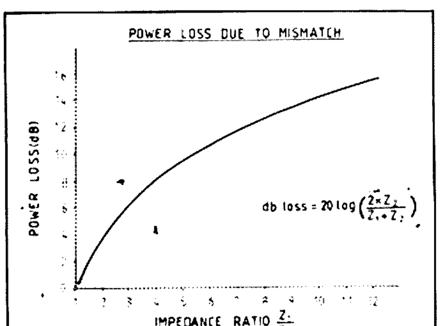
Stop at 02330
>net save"satellit"

Bevan Hay,
MS 346,
Nanango, Qld. 4315.
AR

TECHNICAL CORRESPONDENCE

I recently needed to find the loss figure, in dB, due to a mismatch at a joint between a50 and a75 ohm coaxial cable.

After some searching I eventually ferreted out a formula which enabled me to calculate that loss. It then occurred to me that other amateurs could perhaps be interested in the problem. I calculated the mismatch losses over a wide range of impedance ratios and then drew up a simple graph, as shown below.



GRAPH 1

It can be seen that, for example, a 75/50 impedance ratio causes a 1.94dB loss, whereas a 300/50 ohm mismatch causes a loss of 10.8dB.

The calculation may not necessarily be of interest, but is shown for information.

Terms used:
- V1 Input Voltage
- V2 Output Voltage. This is that part of the signal that passes through the join, ie: usable power.
- Vr Reflected Voltage.
- Z1 Higher Impedance.
- Z2 Lower Impedance

From above and knowing that what doesn't pass through is reflected:-

$V2 = V1 - Vr$ and dividing by V1 gives

$$\frac{V2}{V1} = 1 - \frac{Vr}{V1}$$

The formula for equating reflected voltage with impedance is:-

$$\frac{Vr}{V1} = \frac{Z1-Z2}{Z1+Z2}$$

substituting this into the previous equation, along with some rearrangement gives:-

$$\frac{V2}{V1} = \frac{2\,Z2}{Z1+Z2}$$

and as deciBell loss is twenty times the log of the voltage ratio, this gives:-

$$\text{dB (loss)} = 20 \log \frac{2\,Z2}{Z1+Z2}$$ which is the formula

used with the graphs. As Z2 was specified as the lower of the two impedances, the result will be negative; indicating a loss.

Calculated values:

Impedance ratio 1.5/1 2.5/1 4/1 6/1 8/1 12/1

dB loss 1.94 4.87 7.96 10.88 13.06 16.26

Yours sincerely,

George Cranby VK3GI
Box 22,
Woodend, Vic. 3442
AR

CLANDESTINE NAVIGATION

After submitting this article to AR, see page 19 Feb, I realised that in the final transcript, one paragraph from the original rough transcript (and how rough!!) had been omitted inadvertently.

By the time I realised, the magazine was already in the pipeline so I decided to take no action and await the results, if any.

Sure enough, among the various responses to the article, were one each from VK7, VK2 and a VK3 SWL all with the query "Why didn't you magnetise the compass needles across the headphone magnets?"

Hence, here is an abridged reproduction of the missing para.

Some months prior to "operation compass" an unanticipated night entry by German guards into our prison barracks had nearly resulted in them discovering the radio, refer February AR 1984. I therefore had resolved not to simultaneously expose the 'phones and compass components for risk of discovery, which would result in confiscation of both, including the radio. The latter would have been a loss of massive proportions. Also the 'phone magnets were quite weak.

Thanks to those who responded and queried and apologies for my omission.

73

Reg Glanville VK2ELG,
63 Buffalo Crescent,
Thurgoona, NSW, 2640
AR

FURTHER TO WICEN PLUGS

I read with interest the WICEN News article Jan '85 and the letter from VK6RD March '85, regarding clipsal type polarised plugs and sockets. The WICEN group in VK3 HAVE been using these plugs for more than 10 years, to my knowledge.

The problem about which pin is positive and which is negative was raised long ago. Upon investigation it appeared that no standards had been set except by one two-way radio manufacturer who used these plugs extensively. The standard was that the horizontal bar of the 'T' was CHASSIS. Remember the old symbol for chassis.

(Please note that at the time there was both positive and negative earth cars).

Many other mobile radio suppliers adopted the plugs and this standard.

VK3 WICEN adopted the standard of a negative chassis as this was the most common.

The standard is:-
Horizontal Bar — Negative
Vertical Bar — Positive

To remember this remember the negative and positive sign.

If an Australian standard is developed and promulgated I am sure we would comply, in the meantime we will continue to use the above.

Colin Pomroy VK3BLE
Region 9 and 10
WICEN Co-Ordinator
PO Box 218
Churchill, Vic. 3842
AR

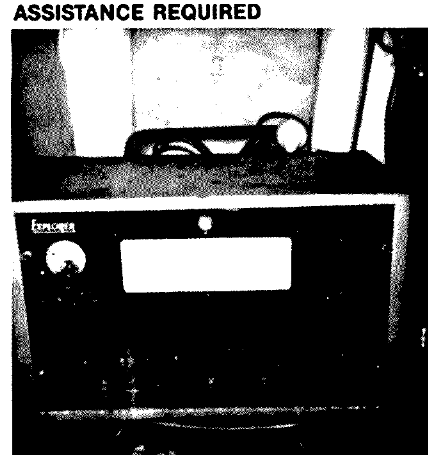
GOOD WISHES

Our thoughts are with you. On behalf of the officers and directors of the Canadian Radio Relay League, our sincere good wishes to the WIA and members as you celebrate seventy-five years of service to Australian amateurs.

Personal 73.

Sincerely,
Harry MacLean VE3GRO
Secretary
The Canadian Relay League, Inc.
AR

ASSISTANCE REQUIRED



The above photograph is of a transceiver I have been given. My intention is to refurbish the rig and on first inspection it appears to be complete.

At present I am acquiring replacement valves but I have not been able to obtain a circuit diagram.

The only information on the unit is the name "Explorer" with a sticker at the top of the front panel saying "Panda Equipment". The bands covered are 80, 40, 20, 15 and 10 metres with modes of CW, FM and AM.

Hoping another member may have a circuit or some further information.

73 and yours faithfully,

Ray Barnes VK4BK,
3 Park Street,
Bayview Heights, Qld. 4870

AR

ANNIVERSARY WISHES TO THE WIA PRESIDENT

Please accept my hearty congratulations on the 75th anniversary of the Wireless Institute of Australia.

After reading "Amateur Radio" for January 1985, the first issue in the WIA's anniversary year, I became further deepened in the impression that your progress and achievements have been remarkable since the foundation in 1910. You may well be proud of being the oldest society in the world. And also it is a gratification for the IARU Region III Association to see such an old member as the WIA among us.

In particular, I, as the secretary of the Association, highly appreciate the contribution made by your society to the founding of our organization in 1968. I fully understand that, by the initiative of the WIA, the inauguration congress was convened in Sydney in 1968 and the interim Constitution was adopted. Since then, I believe your society has been one of the key promoters and has been playing a very important role in international activities in our Region and worldwide.

Meanwhile, I was pleased to receive from the WIA Secretary information on various events of the anniversary and an article on "the history of amateur radio and the WIA".

Congratulations again and I wish you and all of your members further prosperity in the future.

Yours sincerely,

Masayoshi Fujioka, JM1UXU
Secretary
IARU, Region III Association,
Box 73,
Toshima, Tokyo, 170-91, Japan.

AR

Silent Keys

It is with deep regret we record the passing of —

DENYS AYRE	VK3KP
07.03.85	
R L C CREAM	VK2AFP
P GARRISON	VK4NHT
JACK GERARD	VK2ADN
04.03.85	
GLYN (MORRIE) MORRIS	VK3BZ
06.02.85	

Obituaries

PETER BERNARD DODD VK3CIF
14.10.1917 — 03.03.1985

It is my sad duty to report the untimely death of Peter Dodd VK3CIF, after a short illness.

Peter had a long history in amateur radio, travelled extensively in younger days, and was well known by DX operators throughout the world.

Peter's best known activities, as far as Australian amateurs are concerned, was his appointment to the WIA Federal Office in 1971, in the capacity of Secretary/Manager.

Peter was born in England, and moved to East Africa where he was employed by the British Colonial Civil Service. He was the Controller of Customs, and worked mainly in East African countries, Nairobi and Uganda for approximately 40 years.

He arrived in Australia with his family in late 1970 having retired from The Civil Service. He was immediately recognised for his administrative and extensive amateur radio background, and was an excellent candidate for the then newly created position within the Federal Executive.

The WIA Divisions had recognised that a central control and information flow between Divisions and members, together with centralised production of the magazine Amateur Radio, was a necessity, and Peter filled that position with excellence.

For nearly thirteen years, and with the assistance of a part-time typist, he established the solid footing which the Executive office operates under today.

On taking up the position, and in premises and circumstances which could only be described as something out of the Dickensian era, Peter moulded our system within the Institute's economic constraints to an effective force.

My first involvement with Peter was in 1971, when I became involved with the Publications Committee, then later as Editor of Amateur Radio, and finally as Federal President for a short term.

In those exhaustive years, Peter was a pillar of strength to our committee. In almost every issue with the production of Amateur Radio since 1971, Peter played an extensive role.

Little is otherwise publicly known outside of the Publications Committee and Federal Executive, of the important parts he actually did play, and in most cases voluntarily in his spare time.

I would therefore like to place on official record, albeit too late perhaps for any benefit to accrue, of my deepest gratitude to Peter for his direct assistance to me, because without it, the production of Amateur Radio magazine in those times would certainly have crumbled.

Peter was devoted to the WIA, and his mark will always be seen in the WIA portals.

In Peter's colourful amateur career, he held the following call signs, and he was an avid 10 metre DX operator:-

VK3CIF, GD3PBD, VQ4, 5 and 1PBD, G3PBD, 5H3PBD, ZD6PBD, 9J2PBD, OE1ZBW, YA1PBD and ZL1BDC.

Peter retired from the employment of the WIA on his 65th birthday in 1982. The Federal Executive, Publications Committee, Federal Technical Advisory Committee and Divisional Councillors will certainly remember him for his outstanding efforts.

If we can maintain the traditions that he established in his time with us, we will certainly progress.

Peter Dodd was also a member of three Masonic Lodges, Nairobi (Scottish Constitution), Amateur Radio Lodge (London), and England.

He served the Craft well, having being raised to a Master Mason. He held the position of Tyler when he migrated to Australia.

I extend my own personal regret, together with that of the Wireless Institute of Australia, to Peter's wife Barbara and family, in their sad loss.

Vale Peter Bernard Dodd VK3CIF
"SO MOTE IT BE"

Bruce Bathols VK3UV
AR

JACK GERARD VK2ADN

It is sad to report the passing of Jack Gerard VK2ADN on the 4th March 1985.

Last month Amateur Radio published a Book Review of Jack's recently published book, "From Pastures Green to the Silver Screen", an autobiography of Jack's life with radio and also with the early days of "moving pictures" in Australia.

Jack's local TV station, NRTV channel 11-8, screened a tribute to Jack in their nightly news segment.

Deepest sympathy is extended to Jack's family.

Bruce Fleck VK2FS

DENYS AYRE VK3KP

Soon after 10 pm on Thursday March 7 I threw all switches to off at the station of VK3KP. The station was silent after almost half a century.

Thirty minutes earlier at the Radio Amateurs Old Timers Club (RAOTC) Denys Ayre VK3KP, aged 63, had died suddenly during the dinner.

The 57 old timers were shocked when one of their colleagues, a member of the club since its inception, had become a silent key in front of them.

Denys was typical of VKs in the 30s, resourceful, thorough, eager to talk to the world, hopefully on AM phone, and builders of their own gear. He was one of the first VKs to own the then great National HRO.

His army war service . . . he rose to the rank of Major . . . was ever in his thoughts. He recalled incidents with accuracy more than 40 years after they happened as if they had occurred the previous week. He wore the RSL badge with pride every day.

Fresh from active service, including considerable undercover work against the Japanese, Denys graduated in architecture at the University of Melbourne. He was a fellow of the Institute of Architects until his death.

This pedantic, perhaps even eccentric man of many skills was soon back on the air after graduation and went through the hectic days of the early 50s, when all bands were open, with man made noise minimal and the world could be worked around the clock on many bands.

Professional demands on his time kept him off the air for about ten years, but he returned with the sideband era, full of enthusiasm which was so typical of his make up. SSB and again the DX bug caught up with him . . . then followed VHF and UHF. He was again firing on all bands.

Only a few years ago he decided to erect a tower for a tri-band beam. That's where he hit trouble as the neighbours protested to Malvern Council. He lost. "I lost the battle, but won the war" he told many friends.

He always regretted not having a beam and had to resort to single wire antennas for the DX bands.

His shack was a credit to him, spotlessly clean, professionally laid out with easy access to everything.

Toward the end of his illustrious 48 years in amateur radio he became interested in RTTY, built most of his equipment himself and only a few days before his death made his first DX RTTY contact to JA.

He loved music and his sophisticated hi fi gear had sets of speakers in three rooms, including the shack. His favourite tune typified the man, Sinatra's smash hit . . . 'I did it my way'.

Amateur radio has lost a remarkable man in the passing of Denys Ayre, the man who spoke with authority on most subjects, the almost perfect 'expert', be it the life of Monash the engineer, the latest ARRL handbook or the bachelor on 80 metres he would speak to at 2 am when neither could sleep.

Vale, VK3KP . . . you've left your mark and set a fine example to so many. Sympathy goes to his wife of 43 years, Fay and children John and Judith.

Roth Jones, VK3BG.
AR

VHF COMMUNICATIONS MAGAZINE

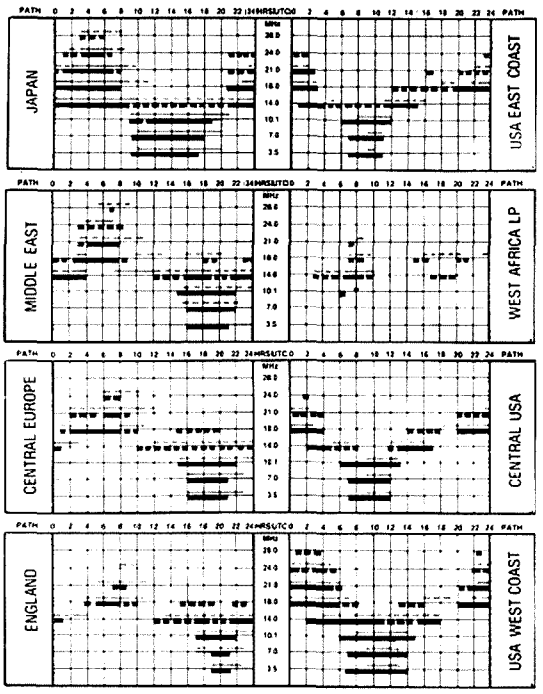
It is sad to note the tragic death of Terry D Brittan, editor and publisher of VHF Comms magazine. Terry and two of his colleagues, Franz Xaver Roichl and Klaus Wilk, passed away in tragic circumstances on 17th March 1985.

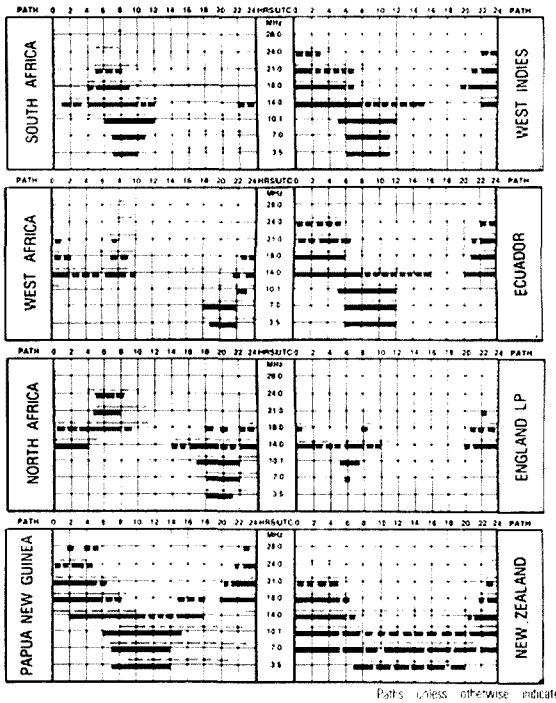
Members are advised that the staff of the magazine are continuing to produce VHF Comms, but delays may occur.

Deepest sympathy to relatives, friends and workmates.

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060





LEGEND

From Western Australia (Perth)

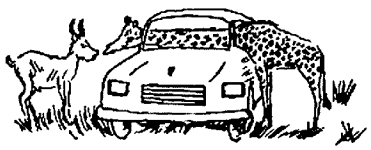
From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)
Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated lie LP = long path/ all paths are short path
Predictions reproduced courtesy of the Department of Science and Technology Ionospheric Prediction Service, Sydney.
All times in UTC

NOTICE



All copy for inclusion in July 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 23rd May.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

☐ TRADE ☐

HOLIDAY SRI LANKA. Get your 4S7 and enjoy a holiday with free call facilities. Ideal also for stopovers. Small friendly family guest house. Write to Mrs Antoinette Perera, 84 Templer Road, Mount Lavinia.

☐ WANTED — NSW ☐

AMATEURS INTERESTED IN & EQUIPPED FOR ASTRONOMY. To observe & exchange info & data with overseas amateurs on Halleys Comet. Ray VK2BAN, QTHR. Tel. (046) 84 1295.

BOOK — "Radio Transmitters" by V O Stokes. John VK2AUI, QTHR. Tel: (02) 90 2793.

RCA CR-88 RECEIVER. Also Radio Amateurs Handbooks, early 50s, late 40s. Claude VK2DLC. Tel: (02) 451 2577.

☐ WANTED — VIC ☐

BUTTERNUT MODEL HF-6V. Vertical Antenna. Price to John. Tel: (03) 583 5417.

HANDBOOK OR CIRCUIT for Heathkit SSB adapter, SB-10. Would copy & return or purchase. VK3BAV. Tel: (03) 277 1845.

SWITCHES. 8 bank, 4 or 5 position Yaxley type switch, ceramic insulation & with earthing discs, for home brew rx being built round HRO tuning unit. Willing to pay good price for right unit. W Russell VK3ZUP, RMB 7680, Wangaratta, Vic. 3677. Tel: (057) 21 8109.

☐ WANTED — QLD ☐

HANDBOOK OR CIRCUIT for HP 608E signal generator. Len VK4JZ, 33 Hill Crescent, Carina Heights, Qld, 4152. Tel: (07) 398 2002 after 6pm.

ICOM IC-22S 2m tx/rx in good condx. Barry VK4BCC, QTHR.

VERTICAL ANTENNA either Hustler or Hygain, 10-80m preferred but will settle for 10-40m. John VK4VK. 6 Tosti Street, Sorrento, Qld. 4217. Tel: (075) 38 7152 after 6pm.

☐ FOR SALE — ACT ☐

YAESU FT-107 tcrv + ext VFO & 500Hz filter. Unit in good condx. & includes desk scan mic. Offers around $700. Richard VK1UE, QTHR. Tel: (062) 56 1228.

☐ FOR SALE — NSW ☐

ANTENNA — RAK Trap dipole for 80-40m. $30. Icom IC-720A. Ex condx. with SM-5 desk mic. $800. VK2JN. Tel: (02) 449 4324.

HOME BREW HF LINEAR AMP. 2*813 with spare tubes & P/S. P/S needs repair, $300. VK2AWR. Tel: (02) 865 1062 evenings & weekends.

KENWOOD TL-922 AMPLIFIER. 2/3-500Zs, manuals. New condx. $1550. Icom 290H all mode tcvr. Manual. $450. Keyer Katsumi EK-150, new, $135. Manual, Millen-Craywood dual section capacitors. 16250-255pF, 3kV, new. $100 pair. Rotary inductor, new, ceramic, 28μH. $60 for transmatch ATU. 4/25A — PL 5D-22 tube. New interchange with 3,500Z in GG amplifier. $65. Tel: (02) 918 3835.

KENWOOD TR-2400 with base stand & mic. Prefer part exchange HF tx with cash adjustment or best offer. Bill VK2BDW, QTHR. Tel: (02) 674 1184.

KENWOOD TR-2500 h/held FM tcvr, complete with leather case, hel ant, 240V charger, h'book, $295 ONO. Access also avail. Kenwood TM-201A compact 2m FM 25W mobile tcvr complete with hand mic., MC-55 boom mic. SP-50 mobile spkr, h'book. $315 ONO. Laurie VK2AQW, QTHR. Tel: (02) 969 2160.

KENWOOD TS-520 tcvr fitted with additional 500Hz CW filter type YG-3395C, + Kenwood remote VFO-520. Both one owner & in VGC. Complete with h'books for both units & orig. packing. $550. VK2BFJ, QTHR. Tel: (043) 32 5758 (Central Coast).

KENWOOD TS-520S with VFO-520 remote VFO & mic. Good condx, operating & service manuals. $500 ONO. VK2ATK, QTHR. Tel: (02) 80 4000.

KENWOOD TS-530S. WARC bands. Immaculate condx. $800 ONO. Swan linear amp 1200-Z, 1kW PEP, 600W CW. Ex condx, 2 spare tubes. $450 ONO. Antenna tuning unit, homebrew. Used with 1200-Z, rotary inductor. $75 ONO. Hi Mound hand key $20. Yaesu mic. Imp 50kohms. $10. Vicki VK2EVM, QTHR. Tel: (063) 68 2137.

KENWOOD TR-7600 2m FM tcvr. Complete with mic, mobile bracket & 2x1/4 wave mobile antenna. $175. Icom SM-2 desk mic, unused, $30. Stromberg-Carlson type 5V75 rx. Collectors item. Free. Peter VK2DEH, QTHR. Tel: (02) 452 4302.

TOKYO HY-POWER 45W, 70cm amp. Includes preamp, $190. Icom IC-AG1 70cm masthead, GaAsFET preamp, $60. John VK2DFC, QTHR. Tel: (069) 62 5547.

YAESU FT-101 tcvr with mic & h'book, $395. Stan VK2BKS. Tel: (042) 28 5041.

YAESU FT-107DM tcvr. All WARC bands, mic, phones, service manual. Good condx. $800. George VK2YT. Tel: (02) 724 5276.

YAESU FT-480R 2m all mode tcvr. 25W out in ex condx with instr manual & 5/8 mobile whip & base to suit & mobile bracket. $495 ONO. Tel: (02) 636 9205.

☐ FOR SALE — VIC ☐

ANTENNA TUNING UNIT. MFJ-941C as new. 10-160m rated 300W o/put. $80. VK3AMC, QTHR. Tel: (03) 592 9036.

COIL BOXES. 3 for AMR-100 rx. Made by AWA. $5 each. VK3BAV. Tel: (03) 277 1845.

ICOM IC-02A. 2m h'held synthesised tcvr with AC & DC chargers. Ext spkr, mic. leather case & 12V cig lighter lead. Yaesu FT-7 in good condx. Yaesu FL-110, 100W HF amp. Ex condx. Andy VK3DTO. Tel: (03) 417 5897 BH or (053) 48 3003 AH.

ICOM IC-502 6m SSB/CW tcvr. Good condx with h'book but no mic. $100. David VK3ANP, QTHR. Tel: (057) 27 6218.

ICF-2001 SONY HF digi scan rx. 0-30MHz. As new, comp. with h'book, power supply & straps. $220 ONO. Jonathon VK3PRN. Tel: (03) 20 7520 AH.

KATSUMI EK-26 ELECTRONIC KEYER. $50 with instr book. Omega model TE-701 ant noise bridge $10. Trio VT-108 FET volt/ohm meter cable & instr book. $45. Kyoritsu SWR bridge K-109. $25. Tel: (052) 52 1608.

KENWOOD LINEAR AMP, type TL-120, input 10W, output 100W, match unit for TS-120V. As new condx with operating manual & leads. $175. Ken product RF speech processor, type KP-12, uses xtal filter provides 10dB signal increase. 240V AC operation. Ex condx, complete with leads & instr manual. $40. VK3CCE. Tel: (03) 509 1720.

OSCILLOSCOPE. BWD 5" Model 504. Good condx, complete with leads & h'book, $110 ONO. Alan VK3DRN. Tel: (03) 20 5454 AH.

RTTY EQUIPMENT. Model 15 teletype with cover & all keys intact. 240/115V AC tfrmr, EA mod/demod, circuit & op. instr. Not used for over 12 mths. Good condx, may need a clean & retune. Can demonstrate. Ideal newcomer to learn this mode. $120. HF beam, 10m, 3el, new. Unused, still in box. $50. B Bathols VK3UV, QTHR. Tel: (03) 580 6424.

SHACK CLEAN-OUT. Ham-M rotator with Ham II controller. $75. Ham II rotator with controller, $95. Heathkit model SB-610 monitorscope $60. Rapar model MV-21 VTVM $30. John VK3JF. Tel: (03) 583 5417.

REGENCY M-400 SCANNER. $350. FT-207 h'held tcvr. $300. FT-7 HF tcvr $300. Realistic Patrolman VHF radio, $50. Alinco 2m, 3W in, 30W out. Power amp, SSB & FM, $60. Stan VK3BNJ. Tel: (03) 743 6708.

☐ FOR SALE — QLD ☐

KENWOOD TS-120V In VGC. Fully legal novice power from 10-80m. Includes MC-35S mic. $450 ONO. Tel: (070) 53 2380 AH.

KENWOOD TS-430S with FM module/mike/manual. $1050. TS-520S with mic/manual ctn. $395. Collins KWM-2 with match 30LI. 1kW linear amp $995. Offers considered. VK4VNN. Tel: (071) 98 2282.

KENWOOD TS-520S tcvr, MC-50 mic, DC-DC conv, manual. $475. Yaesu FT-277RB. 10W, 2m tcvr. Scan, 4 mems, manual. $250. 6m, 5el H/B yagi $20. Charlie VK4BMB. Tel: (074) 22 2337.

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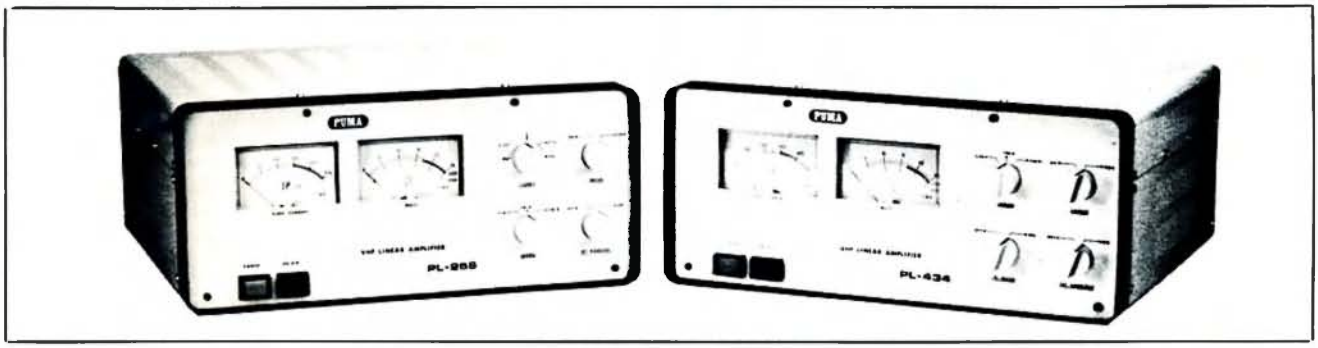
PL-25SG, PL-434G — VHF-UHF Linear Amplifier



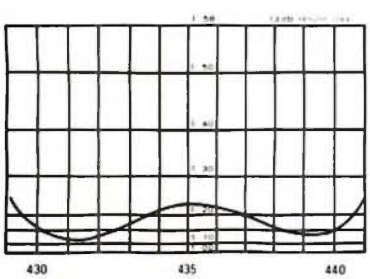
	PL-25SG	PL-434G
Circuit	Class AB, GK	
Frequency	144 ~ 148 MHz	430 ~ 440 MHz
Input Power	600 W	500 W
Plate Voltage	2000V	
Output Power	300W	250W
Mode	SSB, FM	
Drive Power	Under 10W	
Input Impedance	50Ω	
Output Impedance	50 ~ 75Ω	
Cooling System	Sirocco Fan	
Power Requirements	240V 3A	240V 3A
Dimensions	(D)310 x (W)340 x (H)155 mm	
Weight	17.5 kg	
Tube Complement	EIMAC 4X150A (7034)	EIMAC 4CX250B(7203)

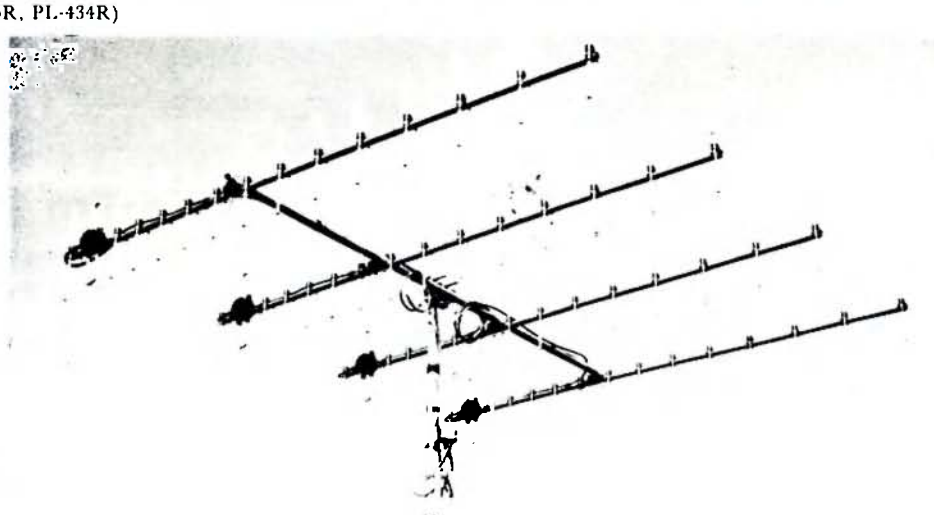
Accessories: RF Amplifier included (PL-25R, PL-434R)

GY-715Q

GY-715Q
20.0 dBi

GY-715Q





AUSTRALIAN
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AR85

NEW 2m FM HANDHELDS from YAESU

bail

FT203R

2.5 watt
144-148 MHz

VOX operation with optional YH-2 Headset.

Thumbwheel Channel Selection.

PA-3 DC/DC Car Adapter/Trickle Charger (option)

FT209R

3.5 watt/350 mW

FT209RH

5 watt/500 mW

Microprocessor controlled

10 Memories

Reverse Repeater

Power Saver to extend battery life

VOX operation with optional YH-2 Headset

PA-3 DC/DC Car Adapter/Trickle Charger (option)

The HF Allmode Transceiver you have been waiting for — from **YAESU**

FT-757GX

100 watts Output PEP/DC — 25 watts AM Carrier — 13.4 volts DC (19 amps for 100 watts output) — Weight 4.5 kg

FEATURES:

- *Dual VFOs and eight memories*
- *Programmable Memory Scanning*
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- *Squelch on all Modes*
- *Full Break-in CW*
- *Accessories installed include 600Hz CW Filter, iambic keyer with dot-dash memory, marker, IF shift and width. N.B. (only option is CAT interface to extended computer control)*
- *High performance General Coverage Receiver*

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AMATEUR RADIO

VOL. 53, No. 6. JUNE 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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YAESU

bail

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bail

YAESU

FRG-8800

FT-2700RH

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AMATEUR RADIO

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Photographs by Ken McLachlan VK3AH

Design by Batken Productions

It was a momentous occasion in April when thirty years of Federal Presidency got together at the Annual Convention Dinner. The feature photograph is Bill Gronow VK3WG. Bill was President in 1939 and from 1947-50 and again in 1954. Lower left — Max Hull VK3ZS, from 1958-61 and 1965-67. Max was also Vice-President from 1955-57 and 1962-1964. Michael Owen VK3KI from 1969-1972 and Vice-President in 1968. David Wardlaw VK3ADW from 1973-79 and 1984 to the present. Peter Wolfenden VK3KAU 1980 to 31st December 1982 and Vice-President 1976-79. Bruce Bathols VK3UV 1st January 1983 to April 1984 and Vice-President 1981-82.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

This month's magazine features a great deal of history in many forms. Firstly, on the cover are six gentlemen who have occupied the President's chair for a total of approximately thirty years, with the main photograph being Bill, who served his first Presidential term in 1939 to our present President, David, who is serving his ninth term.

On P28 there is a brief look at the life of Ross Hull, one of the early pioneers of amateur radio, a former Vice-President of the WIA and the man who is remembered yearly with the Ross Hull Contest.

Herbert VK3DHI/K2LVU tells how he met with Nicola Tesla, P20 and on P7 Tim VK2ZTM concludes his journey through the years of repeaters.

Alan VK4SS received an honour for his achievements over the years in amateur radio, P29, Ted VK4YG recalls the devastating effects of Cyclone Tracy, P18, whilst Max VK3ZS searches for more history on P31.

The Technical Side of Early Amateur Radio, P14, gives an interesting side of the early days and gives a circuit of a receiver designed by the abovementioned Ross Hull.

DEADLINE

All copy for August 1985 AR (including regular copy of Hamads and columns) must arrive at PO Box 300, Caulfield South, Vic 3162 at the latest by midday 21st June 1985.

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PETER GAMBLE* VK3YRP
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*Member of Publications Committee

Enquiries and material to:
The Editor
PO Box 300, Caulfield South, Vic. 3162

Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962.**

Hamads should be sent direct to same address.

Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Trade Practices Act: It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

Victorian Consumer Affairs Act: All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business or residential address of the box-holder or seller of the goods.

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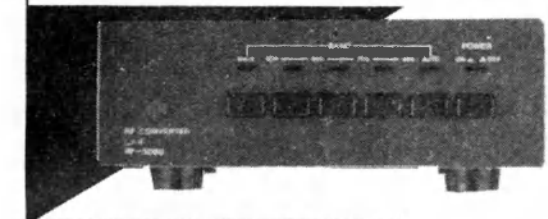
SCANNING MONITOR RECEIVER

FIRE · EMERGENCY · MARINE · AIR · SPACE INFORMATION · BUG DETECTER

RF-8014 DOWN CONVERTER

800MHz ~ 1.4GHz RF converter for SX-400

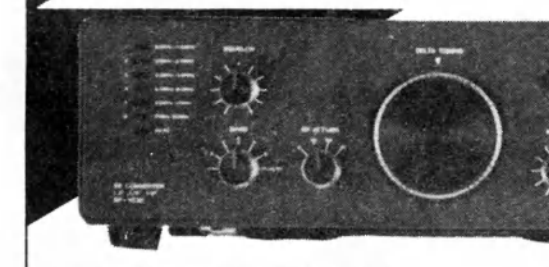
● Bands • MAIN (to cover 26 ~ 520MHz with SX-400) • 800MHz ~ 1.0GHz • 1.0GHz ~ 1.2GHz • 1.2GHz ~ 1.4GHz • AUTO (Automatic control of RF-8014 with an external computer, etc.) ● Frequencies shown in SX-400 display: 500MHz lower between 800MHz ~ 1.0GHz, 700MHz lower between 1 ~ 1.2GHz, 900MHz lower between 1.2 ~ 1.4GHz ● Individual Band Switches and LED Indicaters ● Current Drain: 250mA (approx.) ● Accessories: 1 BNC-M-adapter, 1 Cable with BNC terminals ● Dimensions: W.148 • H.51 • D.225(mm)



RF-5080 DOWN CONVERTER

500 ~ 800MHz RF converter for SX-400

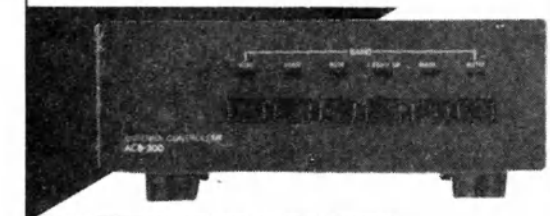
● Bands • MAIN (to cover 26-520MHz with SX-400) • 500 ~ 600MHz • 600 ~ 700MHz • 700 ~ 800MHz • AUTO (Automatic control of RF-5080 with an external computer, etc.) ● Frequencies shown in SX-400 display: 300MHz lower between 500 ~ 600MHz, 400MHz lower between 600 ~ 700MHz, 500MHz lower between 700 ~ 800MHz ● Individual Band Switches and LED Indicaters ● Current Drain: 250mA (approx.) ● Accessories: 1 BNC-M-adapter, 1 Cable with BNC terminals ● Dimensions: W.148 • H.51 • D.225(mm)



RF-1030 UP CONVERTER

100KHz ~ 30MHz RF converter for SX-400

● Bands: (1) 100KHz ~ 1MHz, (2) 1 ~ 2MHz, (3) 2 ~ 4MHz, (4) 4 ~ 8MHz, (5) 8 ~ 17MHz, (6) 17 ~ 30MHz • AUTO (Automatic conrol of 6 bands of RF-1030 with an external computer, etc.) ● Frequencies shown in SX-400 display: 50MHz higher on all bands than the frequencies received ● Individual Mode Switches and LED Indicaters: AM, USB, LSB, CW, AUTO • CW filter (optional) required for CW reception • AUTO — Automatic Control of modes of RF-1030 with an external computer, etc. ● Band Switch and LED Band Indicaters. Sdueln Control, RF Att., AF Gain Control, Delta Tuning, IF ON-OFF Switch, NB (Noise Blanker) Switch ● Current Drain: 1A (approx.) * Power Supply Unit P-1A (optional) required for RF-1030 ● Accessories: 1 BNC-M-adapter, 2 Cable with BNC terminals ● Dimensions: W.300 • H.90 • D.233(mm)



ACB-300 ANTENNA CONTROL BOX

Manual and Automatic antenna control system for SX-400 series RF converters

● Individual Band Switches and LED Indicaters: 1030, 5080, 8014, 1.4GHz UP (for reception of 1.4GHz above), AUTO (Automatic control of antennas for RF-1030, RF-5080, RF-8014 and for MAIN scanner) ● Current Drain: 50mA (approx.) ● Accessories: 1 Cable with BNC terminals ● Dimensions: W.148 x H.51 x D.225(mm)

SX-400

26 ~ 520MHz General Coverage Scanner

● Wider Coverage (100KHz ~ 1.4GHz or above) with RF converters (optional) ● Computer controlled memory channel expansion (unlimited). High-Speed reprogramming. Record of Frequencies and Time, and all functions remote controllable with RC-4000 Interface (optional) ● 20 memory channels. Momentary recall of any memory channel ● Continuous normal and limit search without interruptions by birdies ● Stop Mode Switch for scan or search of modulated signals ● Quick search of the most important frequency with Priority ● Selective FM Narrow/Wide Switch for FM/TV listening ● Variable Delay Control (0 ~ 4 Sec.) ● Current Drain: 1A (approx.) ● Dimensions: W.300 x H.90 x D.233(mm)

RC-4000 DATA INTERFACE **Control of SX-400 series Scanner and RF Converters through Computer.**

● Direct system for NEC 8801A computer ● High-Speed Reprogramming of 20 channels ● Scan of unlimited channels stored in computer ● Record of Frequencies and Time of signals received ● Automatic Control of Bands and Modes of RF converters and ACB-300.

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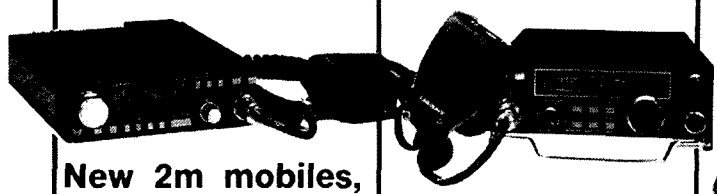
The Latest from Yaesu!

Economy 70cm

Value & reliability - with the latest in features! That's the new FT-703 hand held. Tiny size: but what a performer: even has VOX with optional headset! Cat D-3508

$479



FT-270

New 2m mobiles, Too!

Want economy? Try the new FT207R. Want power? Try the new FT207RH. You get the choice - up to an amazing 45W output (Yasesu's new duct-flow cooling makes it all possible!) Both have 10 memories, dual VFO's plus all the new goodies that make 2 metres fun again!

FT270R (25/3W) Cat D-3515 **$699**

FT270RH (45/5W) Cat D-3517 **$649**

Mobile 70cm

Full 10 watts output on 70: two 4-bit microprocessors make everything so easy!
And it's small enough to go anywhere. Features a brilliant display for extra road safety - and with fast/slow band scanning, it's great, mate!
Cat D-3505

$449

FT-709

Push-Button 70cm

Real performance in a hand-held. Push-button keypad gives you real control; add the battery pack you want for the output you want!
Cat D-3509

10.8V Battery Pack Cat D-3506 **$79**

12V Battery Pack Cat D-3507 **$89**

$499 Battery Not Inc.

FRG-8800: All band all mode

And all singing, all dancing. Amazing performance in Yaesu's new masterpiece, the FRG-8800 receiver. Choice of two models, both featuring the very latest in receiver technology.

- 150kHz-30MHz coverage (FRG-8800)
- Fully CAT compatible (computer aided transceiver)
- Provision for VHF converter inside the receiver!
- 10 memory channels inbuilt (nothing more to buy!)

And much, much more. Ask for a free FRG-8800 brochure at your nearest Dick Smith Electronics store.

FRG-8800 (150kHz-30MHz) Cat D- 2820 **$799**

FRG-8800SW (2MHz-30MHz) Cat D -2821 **$749**

VHF converter to suit (118-174MHz) Cat D-2823 **$149**

FRV-8800 VHF Frequency Conv

Fits right inside case - complete with its own telescopic antenna. Frequency range 118-174MHz
Cat D-2823 **$149**

FRA-7700 Active Antenna

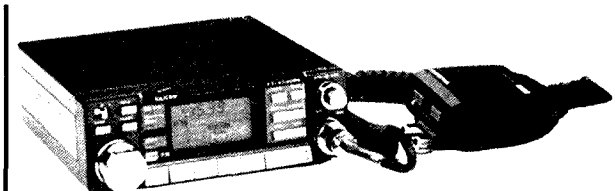
Great for flat dwellers! No need for an outside antenna and preamp will pull in stations you didn't think possible!
Cat D-2845 **$89.50**

FRT-770 Antenna Coupler

Ensures best performance from all types of antennas. A must if your antenna is not low impedance.
Cat D-2843 **$95**

FRG-8800 DC Kit

Allows operation of your FRG-8800 on 12V DC. Great for field operation, monitoring, etc.
Cat D-2822 **$2.50**



2M/70cm FT2700RH

Versatility: both hands in a set so small you wouldn't believe it! Full duplexing, twin VFO's, ten memories ...whatever you want, the 2700 has got!

It features dual independent front ends, dual local synthesisers, dual IF's and transmitter rf stages to make sure you really do get the best of both worlds.

And it even speaks to you: add the optional voice synthesiser and it actually tells you which frequency you're on. Hows that!!!

- 25 watts continous on both bands
- two 4 bit CPU's for complete control
- Amazingly tiny size: just 150 × 168 × 50!!!

Cat D-3515 **$945**

YAESU

A963/6.85

The best from

DICK SMITH ELECTRONICS PTY LTD

All these items available from your nearest Dick Smith Store.

AR85

EDITOR'S COMMENT

TWO-WAY COMMUNICATION

It has been said many times that although radio amateurs are specialists in communication we don't communicate well. It is not our ability to produce readable signals which is thus criticised, but rather our failure to make our opinions heard by those who can "change the system" to suit us.

Your Editor heard this complaint again recently, during an enjoyable weekend at the VK5 Clubs' Convention to which he was generously invited. Originating in VK4, but now an annual function in VK2 and 5 also, these Conventions are an excellent means by which the Institute's members can brief their Federal Councillor *on how* he or she should represent their views to the Federal Convention a few weeks later. They are perhaps the best method so far evolved to overcome our communication problem.

There are several avenues for communication between Council or Executive and you, the members, but they are all rather one-way. This magazine, the Divisional journals or newsletters, Club newsletters, the Divisional broadcasts; all are basically "to" the members, not "from" them, even though many individual members may contribute their own special news or opinions. At Club and Federal Conventions the flow of information tends to be the other way, "from" the members "to" their representatives, and the more this happens the more democratic we become.

But once a year is not enough! In the fast-moving worlds of technology and politics the steady-state hardly exists. Today's technology is obsolete almost before it reaches production, and today's political "cock of the roost" is tomorrow's feather-duster!

So, if you have a particular view on how something should be done, don't just complain that "they" never do anything about it. Tell "them", or better still offer to do it yourself. Write a letter to the Editor, or to your Division, or your Federal Councillor. Write an article. If you are not a member the answer is obvious. JOIN! Make your opinions known, so that Councillors have more than their own intuition or guesswork to guide them. Let's communicate more usefully, and make it all two-way.

Bill Rice VK3ABP
Editor

AR

WIA Seventy Fifth Anniversary

JUNE 1985

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30 SMIRK QSO Party						1 J150 Launch Celebrations closes – VK5
2 Italian National Day	3 Foundation Day – VK6 School Resumes – VK5	4 Midway Island Battle	5	6 D-Day	7	Bounty Day – Norfolk Island DX-position – Monash Uni/VK3 SERG Convention VK/ZL RTTY DX Test VK7 Hamfest
DX-position – Monash Uni/VK3 SERG Convention VK/ZL RTTY DX Test VK7 Hamfest	Prince Phillip's Birthday Queen's Birthday Holiday SERG Convention VK/ZL RTTY DX Test	11	12	13	14 USA Flag Day	15 All Asian Phone Test Magna Carta Signed
16 All Asian Phone Test USA Father's Day	17 School Resumes – VK7	18	19	20	Amateur Radio Deadline School Break-up – VK4 School Break-up – VK8 Winter Solstice	22 ARRL Field Day Test
23 ARRL Field Day Test	24 VK1 Div Meeting	25 VK5 Div Meeting	26	27	28 SMIRK QSO Party	29 SMIRK QSO Party

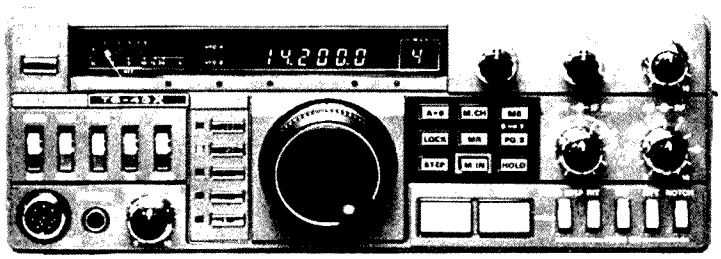
KENWOOD

TOMORROW'S SOPHISTICATION FOR TODAY'S ENTHUSIAST

TS-940S HF TRANSCEIVER

The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 meter Amateur bands, including the new WARC bands. It incorporates an outstanding 150 kHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 meters, 50 kHz spacing, 500 Hz CW bandwidth).

Engineered with the serious DX'er/contest operator in mind, the TS-940S features a wide range of innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT. The use of a new microprocessor with advanced digital technology controlled operating features, plus two VFO's, 40 memory channels, programmable memory and band scans, a large fluorescent tube digital display with analog-type sub-scale for frequency indication, and a new dot-matrix LCD sub-display for showing graphic characteristics and messages, all serve to provide maximum flexibility and ease of operation. In addition, a CW full break-in circuit, switchable to semi break-in, a built-in automatic antenna tuner, a solid-state final amplifier that is powered from a higher voltage source, a speech processor, all-mode squelch, and a host of other convenience features all add up to even greater versatility of use in fast-paced DX operations. With its power supply and antenna tuner built-in, and with its new whisper-quiet cooling system, the TS-940S is a complete, all-in-one type transceiver that brings tomorrow's sophistication to today's serious enthusiast.



TS-43X HF TRANSCEIVER

The most versatile transceiver of the 80's.

TRIO-KENWOOD (AUSTRALIA) PTY. LTD.

(INCORPORATED IN N.S.W.)

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Further, beware of dealers not listed in this advertisement who are selling Trio-Kenwood communications equipment. All Kenwood products offered by them are not supplied by Trio-Kenwood (Aust.) Pty. Ltd. and have no guarantee applicable

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WILLIS ELECTRONICS — 445 MURRAY STREET, PERTH (09) 321 2207
BAY RADIO — 18 BANKSIA STREET, BUNBURY (097) 21 2236
FORD ELECTRONICS — 209 HANCOCK STREET, DOUBLE VIEW (09) 446 4745

AR85

REPEATERS — Friend or Foe!

Tim Mills VK2ZTM
PO Box 204, Willoughby, NSW, 2068.

CONCLUSION

I ended last month by saying that the turmoil of the 70s was yet to be overcome. To many, the introduction of FM and in turn repeaters, was the turning point of amateur radio, hence the heading for this column. During April in Sydney, a person was fined in a Federal Court – the maximum of $100 each on two charges – for offences committed on the two metre band, in particular on Sydneys' repeater 7000. No doubt there will be others yet to face the courts. As one monitors the various repeater allocations, it is disturbing to observe the behaviour of a minority of users like the self appointed 'policeman' who seems to lie in wait for Illegal transmissions so he can bait and abuse them. Sometimes this has to be done to help in the direction finding of the offenders but it becomes apparent that there are those who just do it to be objectionable and get some form of kicks from their action. Two way radios are very public systems and many amateurs like to involve their family in the hobby. It does nothing for the image however when other family members observe the behaviour. If anybody is in doubt on the expected behaviour you can read it up in the recently reprinted DOC Handbook. If you observe someone who's behaviour is not the best, have a quiet word with them if you wish, off air if possible.

There is one group of amateurs who consider the only true 'experimenter' is the person who operates in the 'tuneable' mode on a VHF/UHF band. In the old days the first 100 kHz was deemed to be the DX portion for either CW or those (country) stations outside a metropolitan region. The rest of the band – for a couple of hundred kHz anyway – was the tuneable portion. Today the bands are filling up with a range of new modes. Almost gone as AM and CW. In its place is to be found SSB, FM, RTTY, SSTV, FAX, Packet and other forms of Data. These various modes find suitable 'channels' either by local or national band planning. The determination is a far cry from the planning for a few repeaters at Wodonga in 1968 and Albury in 1972.

Thank you for the comments and letters re the first part of the series. In the near future I will be seeking a few details about various repeater systems for inclusion later in the series.

To hand is a note from John VK2BHO (PO Box 1511, Wollongong, 2500) who is researching the history of the old Illawarra region AM nets in the late 60s on 53.982 MHz. Can you help? Drop him a SAE for one of his questionnaires.

In closing for this month, a reminder to repeater groups. Did you update your details with your State committee for inclusion in the next Call Book? There are now over 150 repeater systems in Australia. **AR**

WIA Seventy Fifth Anniversary News

VK75A

For members information, the QSL manager Des Clark VK3DES, reports that to date some 5000 plus contacts have been logged.

BOOK PACKS, THE 75TH ANNIVERSARY AND THE YEAR OF YOUTH

The book pack scheme to celebrate the 75th Anniversary and International Year of Youth is under way.

Book packs are available on application to the Federal Secretary with a cheque payable to the Wireless Institute of Australia. There are three values available: $15, $30 and $50 post and packing paid.

For members wishing to participate in this scheme it is necessary to notify the Federal Secretary of the school or college etc that you intend your donation to be sent to.

FIRST BOOK PACK PRESENTATION TO REGENCY PARK CENTRE

Jenny VK5ANW explains the finer points of amateur radio to Julie Emmerson, Librarian at Regency Park Centre for the Young Disabled.

On Thursday 18th April 1985, Jenny Warrington VK5ANW and Marlene Austin VK5QO visited Regency Park Centre for the Young Disabled to present a WIA Book-Pack on behalf of ALARA.

The presentation was made in the Centre's Library by Jenny, as Secretary of ALARA, to Julie Emerson the Head Librarian under the watchful eyes of Christine Rowell the Centre's Promotions Manager and Marlene who is the Editor of ALARA's Newsletter.

The centre caters for disabled youngsters from 3 years to 18 years, so it was felt that the books on amateur radio would be eminently suitable for the teenagers there and hopefully give them a lifelong interest in Electronics and Radio.

The Centre is divided into two areas, the residential and the day centre. After the presentation of the Book-Pack and a brief explanation of the running of the Library (which consists of a toy-library and the normal book part — much like a normal school library, for the children; and a medical library for the staff) we were taken on a tour of the day centre, by Christine Rowell. The tour included a brief look at Class-rooms, the Pre-School centre; boot, caliper, etc, workshop; wheelchair maintenance shop; swimming and hydrotherapy pools (with one way glass so that our watching did not distract the lessons) and a prolonged stay in the electronics room, where assessment programmes are worked out with the aid of computers and all sorts of electronic aids. A couple of times the demonstrations (which were still in the development stages) didn't work and Marlene and I hoped against hope, that they wouldn't believe the "build up" that Christine had given us at the start, and ask us to fix it!!

The Centre was delighted to received the books and at the end of the tour we felt that they couldn't have gone to a more deserving place.

FORMAL DINNER

Planning is well in hand for this historic occasion which will take place on 9th November 1985 at the Southern Cross Hotel in Melbourne.

Acceptances to the invitations sent to overseas guests are arriving daily. To date dignitaries such as Mr Dick Butler, Secretary General of the ITU, Mr John Allway of the IARU have accepted, as previously mentioned in earlier editions of the 75th News.

A percentage of seats have been reserved for Institute members so any member who wishes to attend, should notify the Federal Secretary of their intentions. Seats are being allocated on a first come, first serve basis.

AR

Never let is be said that amateurs are satisfied with the ordinary. Here's proof that they are not.

Please QSL — Send Spoon!

MAYER D ZIMMERMAN W3GXK

Being an avid DXer, I not only enjoy working that "new one" in a pile-up, but I also appreciate a good ragchew with a friendly foreign amateur. I really enjoy getting cards directly from diverse and faraway places such as New Zealand, Japan, South Africa, and eastern Europe. No doubt the XYL's uncle enjoys receiving from me the envelopes and stamps which greatly enhance his collection. I always ask for stamps when QSL'ing direct.

And that's where the problem arises. Since I'm basically a very friendly and good person, I like to accommodate all of the unusual requests I receive along with the QSL cards and stamps. You would not believe some of the items foreign amateurs have asked me to send them! (Of course, they always offer to pay for the items and even the postage, which I always refuse, despite the fact that I am not independently wealthy.

Some of the requests are not unusual. A friend in Bulgaria asked for a map of the world with amateur prefixes on it. That was an easy request to honor. The thank-you letter arrived several weeks later and was recompense enough.

One QSO with a new friend in VK-land left me with a request for a used licence plate. He collects them. No problem. Off to my collection of items never discarded (every good amateur has such a collection, no doubt). We found the XYL's expired tags from last year, and off I went to the post office again. The reward? An unsolicited, x-rated QSL card of a special beach in VK-land.

The latest and perhaps most unusual request was the inspiration for this article. A recent enjoyable QSO with a South African YL ended with my frequent suggestion to QSL direct, along with stamps from ZS-land. A couple of weeks later a fat envelope with red and blue stripes arrived stuffed with stamps, some dating back to World War II. Beautiful stamps, gorgeous QSL card, friendly letter with the inevitable request and offer to pay for the requested item and the postage. The request? A request for a spoon with the word "Maryland" on it. Yes, the young lady collects spoons with the names of states on them, and she needed one from Maryland. And you thought WAS stood for Worked All States. No! It's really Worked All Spoons! Perhaps she will eventually hold a QSO with my friend from Australia and send him a licence plate or two in exchange for some miscellaneous silverware. Maybe they'll even get together at a DX convention sometime, somewhere, and compare spoons and licence plates!

So, if you have any spoons with the name of your state on them, or if you have not yet discarded last year's licence plates, please let me know. I can tell you who wants them. Meanwhile, please QSL direct, and send stamps!

Abridged from CQ — October '84.

AR

LOCATION OF GEOSTATIONARY SATELLITES

Harold Hepburn VK3AFQ
4 Elizabeth Street, Brighton East, Vic.

Please refer to pages 20 and 21 of May Amateur Radio for the text which is relevant to this computer programme. Unfortunately Murphy had a hand in last month's magazine with the result being a swapped programme. For the text to last month's programme please turn the page.

```
10 REM " GEOSTAT ASPECTS"
11 PRINT CHR$(147)
12 POKE 53281,0
13 POKE 53280,4
14 PRINT CHR$(5)
20 PRINTSPC(7)"**************************"
30 PRINTSPC(7)"*  COMPUTES THE AZIMUTH  *"
40 PRINTSPC(7)"* ELEVATION AND RANGE OF *"
50 PRINTSPC(7)"*      GEOSTATIONARY     *"
80 PRINTSPC(7)"*       SATELLITES       *"
70 PRINTSPC(7)"* BY H.L.HEPBURN  VK3AFQ *"
80 PRINTSPC(7)"*    FOR C-B4  31/1/85   *"
90 PRINTSPC(7)"**************************"
100 PRINT
110 PRINT"1.ENTER YOUR LATITUDE      "
115 INPUT"  (NEGATIVE FOR S LATS)    ";LA
130 PRINT"2.ENTER YOUR LONGITUDE     "
135 INPUT"   IN DEGS WEST            ";LO
150 PRINT"3.ENTER SATELLITE          "
160 INPUT"   LONGITUDE IN DEGS WEST ";S
180 INPUT"4.SATELLITE NAME           ";S$
190 PI=3.14159
200 LA=PI*LA/180:LO=PI*LO/180
210 S=PI*S/180
300 DEF FNA(X)=-ATN(X/SQR(-X*X+1))+1.5708
310 X=(COS(LA)*COS(S-LO)):TH=FNA(X)
320 X=(-TAN(LA)*COS(TH)/SIN(TH)):AZ=FNA(X)
330 IF SIN(S-LO)>0THEN AZ=6.28-AZ
335 EL=ATN((COS(TH)-.151046)/SIN(TH))
340 RA=SQR((1.81854E9-(5.37111E8*COS(TH))))
350 AZ=AZ*180/PI
370 EL=EL*180/PI
375 IF EL<1 THEN GO TO 570
380 PRINT
390 PRINT
400 PRINT"AZIMUTH          ";INT(AZ)
410 PRINT"ELEVATION        ";INT(EL)
430 PRINT"RANGE-KMS        ";INT(RA)
440 END
570 PRINT
580 PRINTSPC(7):PRINT CHR$(18)"SATELLITE BELOW HORIZON"
600 END
READY.
```

AMATEUR STATISTICS IN THE USA

The USA FCC operates on a fiscal year, 1st October to 30th September and consequently keeps licensing statistics by fiscal year.

FCC records show that in the 1983 year 20,940 people entered amateur radio in the USA for the first time. In the same period, 16,601 licences were allowed to expire. In the 1984 year there were 18,800 newcomers and 19,644 losses.

From QST, January 1984.

AR

LOCATORS

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For many years European amateurs, more specifically those interested in VHF communication, have been using a five character code as a convenient shorthand way of stating their location.

**Refer to pages 20-23 last month for the computer programme for this article.

Originally called the "QRA" system, it later became known as a "QTH locator", and a "Locator" statement has long been required by many European VHF contest organisers in logs submitted by contestants.

So long as it was confined to Europe the system served its purpose but any attempt to expand it to the rest of the world led to some funny anomolies — such as a single "Locator" being shared by Iceland and Turkey!

However the system was most useful and, if it could be corrected and expanded into a simple system which could place an amateur station to within a couple of kilometres *anywhere in* the world, it had obvious advantages, not only for VHF enthusiasts, but for the HF buff too.

After several years work, and the evaluation of different propositions put forward by a lot of people, a new system was adopted by all three regions of the International Amateur Radio Union. This new system came into force on the 1st January 1985.

The strong possibility exists that there will be a fairly rapid swing to the use of Locators to replace such contest reports as '59 Timbuctoo' or '59+zone number' familiar to most contest enthusiasts. *(Just why contest reports are always 59 is NOT explored in this article!).*

In brief the new "Locator" system enables a six character combination to define the position of an amateur station anywhere in the world to within a couple of kilometres. To do this using conventional statements of latitude and longitude would take around twenty characters. As an example the writers QTH is, if the survey maps are to be believed, situate at 37 degrees 54 minutes and 34 seconds, latitude and 145 degrees 0 minutes 58 seconds east longitude. Even when the normal abbreviations are used (', ', E, S etc) the full statement requires 20 characters. The corresponding Locator is QF22MC — just six characters. The degree of accuracy is the same!

As shown in the above example, the Locator consists of two letters, two figures and two more letters. They are related to latitude and longitude as follows.

The system first divides the world into 324 "fields" each "field" covering 20 degs of longitude (from west to east) and 10 degs of latitude (from south to north). The first two letters of the Locator define a specific "field".

Each "field" is then divided into 100 "squares", each "square" representing 2 degs of longitude by 1 deg of latitude. The two figures of the Locator define a specific "square".

Each "square" is then divided into 576 "sub-squares", each "sub-square" being 5 minutes of longitude by 2.5 minutes of latitude. the last two letters of the Locator define a specific "sub-square".

A very definitive article by one of the main proponents of the new Locator system — John Morris GW4ANB — appeared in the October 1984 issue of "Radcom" (the journal of the RSGB) and those interested *in* a more detailed explanation of the system, together with a manual method of working out Locators are referred thereto.

The Commodore C-64 programme now presented is based on GW4ANB's manual method and requires a knowledge of one's own station in degrees, minutes and seconds of both latitude and longitude. The actual input to the programme is in degrees and the nearest half minute. This information can be obtained from many sources but the first try might well be your local city or shire engineer or your local library. If this doesn't work then you will have to look for a survey map of your area.

Having written the "lat/long to Locator" programme a second "reverse" programme was written which outputs latitude and longitude when a Locator is put in. It then seemed an obvious step to tack on a third section which accepts latitudes and longitudes of both your own and a distant station (or the lat/long of the nearest identifiable town or city if your contact doesn't know where he is!) and outputs both long and short path bearings and distances — just the thing for VHF log entries in this years NFD where bonus points are awarded for distance.

OPERATION OF THE PROGRAMME

Having 'Loaded' and 'Run' the programme the screen clears and then gives the user four options.

1. To determine a Locator if latitude and longitude are known.
2. To determine latitude and longitude if the Locator is known.
3. To determine long and short path bearings and distances if latitude and longitude (or Locators) is known.
4. To 'End' the running of the programme if access is required to the programme itself.

If the first option is taken (ie to work out a locator) the screen clears and the user is asked to enter, In order:

1 Degrees part of longitude.
2 Minutes part of longitude.
3 Whether longitude is E or W.
4 Degrees part of latitude.
5 Minutes part of latitude.
6 *Whether latitude is N or S.*

The programme does all the necessary conversions, adjustments and calculations and outputs the six character Locator.

The screen then asks whether another Locator is to be determined or whether a return to the menu is required.

The second option asks the user to input the six character Locator and the programme comes up with the corresponding latitude and longitude. It should be noted that this part of the programme calculates the centre point of the Locator square. The effect of this is to show a small difference in the latitude and longitude figures if, say, a Locator is first calculated from a set of 'lats' and 'longs' in option 1 and then this Locator set re-entered into option 2. Unless the original point was exactly in the centre of the square in the first place the two sets of 'lats' and 'longs' will differ slightly. This difference should never exceed 3 minutes of longitude or half that in latitude.

The third option asks the user to enter the co-ordinates for his own station (called the source station) and the distant station (called the destination station). The screen then shows —

1 The long and short path distances in kilometres and
2 The long and short path bearings in degrees.

Fairly obviously, by transposing the source and destination data the reverse bearings (ie him to you) can be calculated. Unless something cataclysmic has happened the distances should be the same!

If anyone wants a disk copy of the programme they can contact me on (03)5962414. Can't currently help with tape copies since I don't possess a *recorder*.

Finally I must thank Alf Chandler VK3LC for getting me thinking about the subject, John GM4ANB for providing most of the information and Ken Seddon VK3ACS for helping sort out the complexities of the spherical geometry involved.

AR

THUMBNAIL SKETCHES

Alan Shawsmith, VK4SS
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JOE ELLIS VK4AGL

Joe Ellis was born at Ventnor, Isle of Wight but went to school at Lismore, NSW. With the help of the Richmond River Listeners League he obtained his amateur licence at the age of sixteen and was active on ten and twenty metres using rotatable monoband Yagi antennas.

He trained at the Marconi School of Wireless to commercial standard and was a ships radio operator during World War II.

Post-war he was an aircraft radio technician at various airports in Australia and subsequently joined Qantas Empire Airways as a flight radio operator. During the change-over to pilot-operated radiotelephone he was based overseas to monitor radio standards and train aircraft engineers in basic radio servicing. During this period he obtained a commercial pilots licence. He spent the last sixteen years prior to retirement as a flight navigator.

Joe is a member of the Sunshine Coast Amateur Radio Club and is a liaison officer for the Radio Amateurs Old Timers Club of Australia. Antennas in use include a rhombic directed at the United States and rotatable Yagis for HF, VHF and UHF. He operates 160 metres through to 70 cm on CW, SSB and FM. The station motto is "Tune for Maximum Smoke".

AR

THE GREATEST SHOW ON EARTH

Colin MacKinnon VK2DYM
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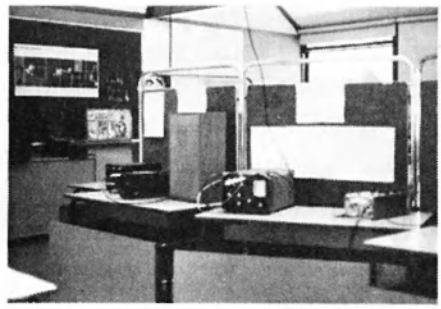
As part of World Communications Year activities, the Castle Hill RSL Amateur Radio Club mounted an exhibition of amateur and military radio equipment at the Glenorie Public School. Glenorie is a bushy, outer Northern Sydney suburb and the exhibition was timed to coincide with the school's gala day.

The school pupils held competitions and made up posters with a WCY theme. A wide variety of communications gear was set up in a classroom and was open to the public for an entrance fee of $0.20, with the money going to the school funds. As over $100 was raised this means more than 500 people viewed the exhibit.

Special WCY "Show Bags" containing items donated by various communications organisations, electronics companies and Government Departments sold well. Assistance from the Tandy organisation and the Army and RAAF public relations offices was most appreciated.

From left — No 19 set and AMR101.

The radio gear on display included:- *No 19 transceiver, No 22 transceiver, AMR 101 communications receiver, ARB receiver, BC433G compass receiver, PRC 10 VHF Backpack transceiver, ER-68-A transceiver (from a RAAF Mirage fighter), B-47 VHF transceiver, C-11 HF transmitter, C-42 VHF transceiver to 60 MHz, C-45 VHF transceiver to 35 MHz (the last four items — army circa 1950s), R210 communications receiver, AR-88 communications receiver, B-40 Navy communications receiver, a very wide band RF amplifier and several versions of the BC-454 (command sets).*



From left — BC454, R210 and wide band RF amplifier.

The equipment is owned by individual club members with an interest in collecting and restoring this type of gear.

An interesting aspect was that all the sets were functional and could be demonstrated in action. It probably is true to claim it was the biggest show of operational equipment of its type in Australia. (With genemotors whining, relays clacking, and loud speakers blaring, the noise was equally impressive!)

In an adjacent room the Radio Club's station, VK2DXS, demonstrated state-of-the-art HF and VHF operation. Publications on amateur radio and the WIA were distributed to interested parties. The children made up special QSL cards for the occasion, helped with money collection and explanations to the public, and generally had a good time.

The exhibition was so popular that the Headmaster of the Castle Hill Public School, who is also the Shire President, asked if the Club could repeat it at his school a couple of weeks later. Again it was a roaring (and noisy) success.

The driving force for the exhibitions was Ian VK2ZIO, who, apart from owning some of the vintage equipment, happens to be the Deputy Headmaster at Glenorie school.

Plans are in hand to improve the exhibition and to bring it to other schools and shows in the district. It is hoped to expand the range of equipment and show it in chronological order, a sort of "Amateur and Military Communications Through the Ages" exhibit.

In order to do this, members of the club are seeking donations of any amateur and military communications gear that would fit in with this theme. If readers have any gear that they would like to donate or perhaps sell for a reasonable sum, please contact the writer at the above address.

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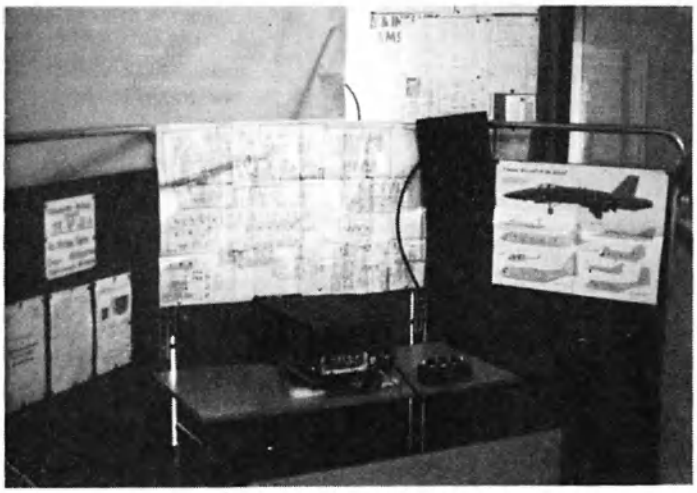
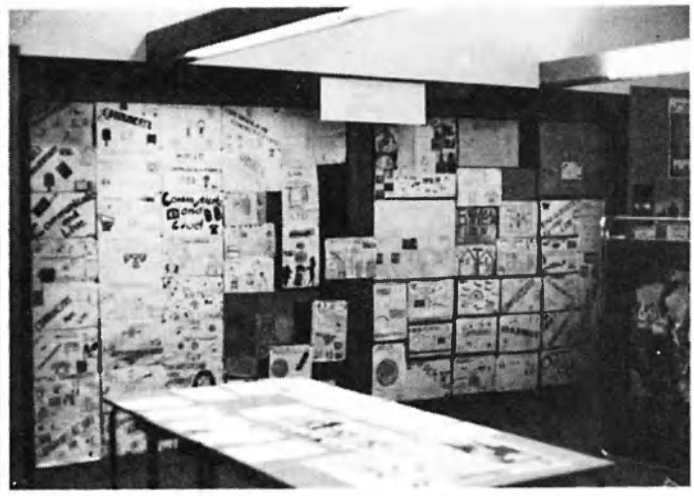
Left to right — C45 with power supply and B47 on top, C11 transmitter with power supply, AR88 and B40.



ER68A Transceiver from a Mirage Plane.



Competition Posters.

RTTY Picture courtesy Steve Leatheam VK2BGL.

ANOTHER CRYSTAL CONTROLLED AFSK GENERATOR FOR RTTY

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There was an excellent response by amateurs to the RTTY generator described in the August 1984 issue of AR. This article describes an improved design, incorporating all of the advantages of the previous one (eg frequency accuracy and stability, and lack of switching spurii when changing from one frequency to the other) and reducing the number of ICs used from seven to five — reducing the cost and complexity.

The divider circuit is "user programmable", and virtually any available crystal in the range 1 to 10 MHz may be used, giving a frequency error of a few hertz at worst for the normal RTTY frequencies (2125 and 2295 Hz for mark and space). With slight modification the circuit could be used for any application requiring an accurate and stable clock (eg a UART) or, with suitable filtering, a sine wave frequency reference.

The constructor has the choice of using 74192 divide-by-10 or 74193 divide-by-16 presettable up/down counters. The circuit described uses the 74193 chip, but an example is given using the 74192 since the two IC types are pin-compatible. The counters are used in the pre-loaded down-counting mode ie they are loaded with a predetermined number (the divisor) and then count down to zero, as described in the following paragraphs.

CIRCUIT DESCRIPTION (See Figure 1)

IC1A and 1B together with the crystal, resistors and capacitor are configured as a square wave oscillator or "clock", the output being fed to a sequential binary divider chain comprising three 74193 presettable down counters (IC2, 3, 4). When the count reaches zero a "borrow" pulse is output from pin 13 of IC4, which when input to pin 11 of IC2, 3, and 4 causes them to be loaded with the data present at their "data input" pins 15, 1, 10, 9 (A, B, C and D inputs respectively). The down count then recommences. IC5 is a dual edge-triggered D flip-flop (of which only one flip-flop is used) wired as a toggle or divide-by-2 device. The borrow pulse from IC4 is used to clock the D flip-flop, producing a 50 percent duty cycle square wave output of half the frequency of the divider chain output. IC1C uses the "TTL input" to select the divisor for either mark (2125 Hz) or space (2295 Hz) as required. In Figure 1 a 0 V (logic 0) TTL input selects the "mark" frequency.

The circuit as shown uses a 3.579545 MHz TV "colour burst" crystal, readily available and quite inexpensive. This crystal produces calculated output frequencies of 2125.6 Hz (mark) and 2294.6 Hz (space) ie within 1 Hz of the nominal values.

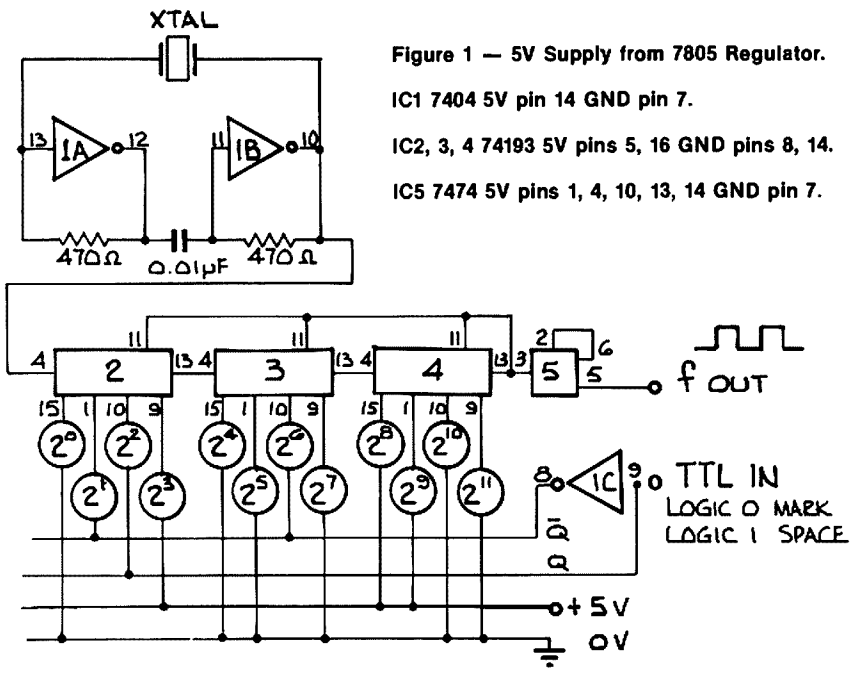


Figure 1 — 5V Supply from 7805 Regulator.

IC1 7404 5V pin 14 GND pin 7.

IC2, 3, 4 74193 5V pins 5, 16 GND pins 8, 14.

IC5 7474 5V pins 1, 4, 10, 13, 14 GND pin 7.

For those who wish to use a "junk box" crystal, a relatively straightforward method is described to determine the wiring necessary to decode the divider chain to produce the correct output frequencies.

DECODING THE DIVIDER NETWORK

Since IC5 divides the output of the dividers by two, the divider chain (IC2, 3, 4) must produce outputs, at pin 13 of IC4, of twice the mark and space frequencies ie 4250 Hz (mark) and 4590 Hz (space).

Let F be the crystal frequency in hertz, and Dm and Ds the divisors required for mark and space respectively. Calculate Dm = F/4250 and Ds = F/4590 and round to the nearest whole number. As an illustration, the circuit of Figure 1 (F = 3579545 Hz nominal) is calculated, giving Dm = 842.2 and Ds = 779.9 which, when rounded, gives the divisors Dm = 842 and Ds = 780. (The frequencies corresponding to the rounded divisors may be checked using f = F/(2xD).

The next step is to convert these two divisors to their binary equivalents, which is simply that combination of powers of two that when added together give the corresponding decimal number. The easiest method is to successively subtract the largest possible power of two from the divisor until the remainder is zero. This procedure is illustrated in Table 1.

TABLE 1 Example of conversion to binary

Power of 2	Decimal	Mark	Space
		842	780
2v10	1024	−512 (2v9)	−512 (2v9)
2v9	512		
2v8	256	330	268
2v7	128	−256 (2v8)	−256 (2v8)
2v6	64		
2v5	32	74	12
2v4	16	−64 (2 6)	−8 (2v3)
2v3	8		
2v2	4	10	4
2v1	2	− 8 (2v3)	− 4 (2v2)
2v0	1		
		2	0
		− 2 (2v1)	
		0	

giving 2v1+2v3+2v6+2v8+2v9 (for Mark)

giving 2v2+2v3+2v8+2v9 (for Space).

Note: 2v5 represents 2 to the power 5 = 2x2x2x2x2, etc.

Reverting back to Figure 1, the "TTL in" signal is inverted by IC1C so for an input of logic 0 (0 V), rail Q is logic 0 and Qbar is logic 1. Similarly, for an input of logic 1 (5 V), rail Q is logic 1 and Qbar is logic 0. To load the required divisor into the divider ICs, the powers of 2 obtained in Table 1 must be applied to their data

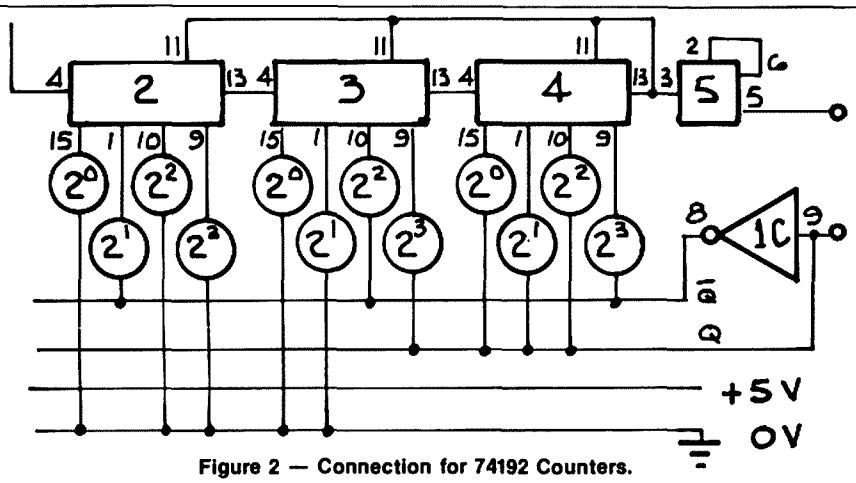


Figure 2 — Connection for 74192 Counters.

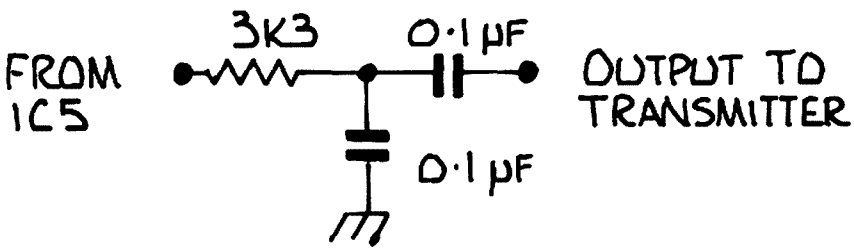


Figure 3 — Output Filter.

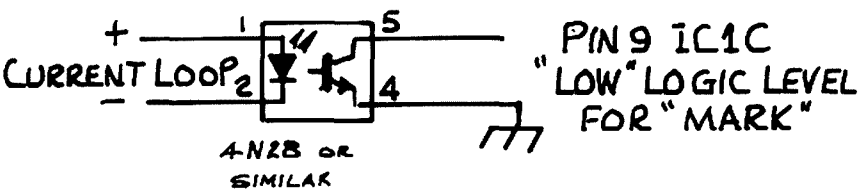


Figure 4 — Current Loop Interface.

inputs at a logic 1 level (5 V), with unused powers of 2 held at logic 0 level (0 V). It is important that the powers of 2 common to both divisors (both used and unused!) be permanently connected to the appropriate logic level, hence the use ot +5 V and 0 V (GND) rails. In the above case (Table 1) 2v3, 2v8 and 2v9 are common and are connected directly to the +5 V rail. Similarly 2v0, 2v4, 2v5, 2v7, 2v10 and 2v11 are not used in either divisor and are therefore all connected to the 0 V rail. The remaining powers of 2 are connected to Qbar for "mark" (2v1 and 2v6) and Q for "space" (2v2).

USE OF THE 74192 COUNTER

If the constructor wishes to use the 74192 divide-by-10 counter a slightly different approach is required. Each IC in this case is coded with a binary number corresponding to one of the decimal digits of the divisors, with IC2 the lowest significant digit and IC4 the highest. For the crystal used in Figure 1, the appropriate calculations are given in Table 2 and the method of connection shown in Figure 2.

TABLE 2 Calculations for 74192 counters

From table 1: 2 = 2v1, 4 = 2v2, 7 = 2v0 + 2v1 + 2v2 and 8 = 2v3
The appropriate wiring codes are therefore.

	IC4		IC3		IC2
"mark" = 842 =	(2v3)	+	(2v2)	+	(2v1)
"space" = 780 =	(2v0+2v1+2v2)	+	(2v3)	+	(−)

FILTERING

The output is a square wave and some filtering is desirable to reduce the harmonic content. An active low-pass filter could be used, many circuits of which are readily available. However, for most situations a simple RC filter (Figure 3) will suffice.

CURRENT LOOP INTERFACE

For those who still rely on a 20 or 60 mA current loop, a simple interface is given in Figure 4.

CONSTRUCTION

The circuit wiring layout is not critical, and the use of veroboard or similar makes a neat job. It is good practice to use sockets for the ICs.

Depending on the wiring layout, it may be necessary to add decoupling capacitors to reduce noise pick-up on the supply rails to the ICs. A few 0.02 uF ceramics at strategic places will do the trick.

AR

THE ULTIMATE AMATEUR BAND ANTENNA

Unfortunately this isn't an article that will tell you how to construct or even where to buy such an antenna. It's the story of a group of Dutch amateurs who, for a short period, were able to go on the air with perhaps the biggest antenna array ever used to produce strictly amateur signals.

The occasion was the opening of Radio Nederlands new transmitter site at Flavoland in northern Holland. For thirty six hours over the weekend of the 16/17 of February two amateur stations were set up in the transmitter hall and connected to the antennas of the new complex. They then proceeded to work the world on 80, 40 and 20 metres using the special call of PA6FLD.

The highlight of the operation however was when the proceedings were broadcast live over the Media Network programme of Radio Nederlands. This is compered by Jonathon Marks and devoted to short wave listening and related subjects.

In Melbourne, Radio Australia's Talkback programme propagation expert Mike Bird and myself were waiting for the band to open to contact them. At 0830 UTC with half the world calling we got through on 7.068 MHz with S9 signals both ways.

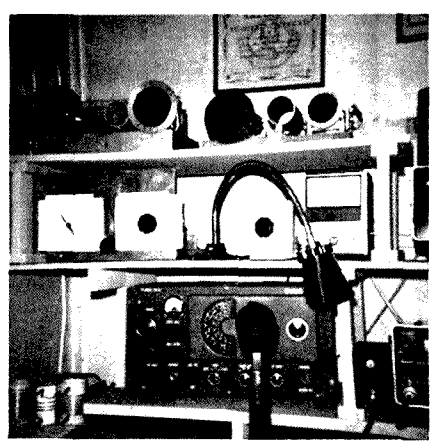
While in contact we had a receiver running on the 9 MHz transmission of Radio Nederlands and so were able to hear ourselves coming back. Quite an experience. The entire proceedings were recorded and excerpts later used in the Talkback programme on Radio Australia.

Gear in use at Flavo was two FT-102, FL2100Z combinations feeding the big broadcast arrays with something like 20 dB gain plus optimum radiation angle.

Special QSL cards are available to those who worked PA6FLD and also to short wave listeners who heard their transmissions.

Ron Fisher VK3OM

AR



Some historic memorabilia courtesy of John Gazard VK5JG. Please turn the page for an interesting article of the early techniques of amateur radio.

THE TECHNICAL SIDE OF EARLY AMATEUR RADIO

John Gazard VK5JG.
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To generate a radio signal it is necessary to make a high frequency alternating current flow in an aerial wire. The early wireless experimenters had no knowledge of electronics, but found three ways to do this. They were:

1 *The high frequency alternator which was a large, complicated and expensive machine suitable only for the lowest frequencies but capable of high power output.*
2 *The Poulsen arc which depended on high frequency variations in an electric arc current between copper and carbon electrodes. This was a cheaper machine than the alternator but was still complicated, and it was necessary to water cool the copper electrode.*
3 *The spark system in which a spark discharge shocked an aerial circuit into oscillation. This was a very simple and cheap method and could be easily constructed by an amateur, and consequently it was the method used by the first radio amateurs.*

In its simplest form, the spark transmitter consisted of a spark coil with its spark gap in series with the aerial and earth, and the receiver had a crystal detector and headphones in series with the aerial and earth. This simple form depended on the length of the aerial to fix its frequency, but its signals covered a very wide band and had a range measured in yards rather than miles.

The Model T Ford car used four trembler type spark coils in its ignition system, and many amateurs started out with one of these which were generally available at a low price.

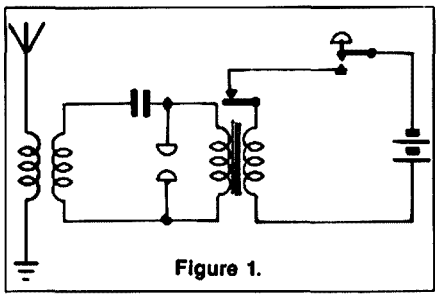

Figure 1.

An improved form of transmitter, the circuit of which is shown in Figure 1 was used by most amateurs. It operated as follows. When the primary of the spark coil was interrupted a current flowed in the secondary and the capacitor C was charged up until the voltage was sufficient to cause a discharge across the spark gap. This spark discharge caused a spurt of current which set oscillating currents flowing at the resonant frequency of the circuit. These currents died away (were damped) until the next spark arrived when they recommenced. The resulting wave form was as shown in Figure 2 and was known as a damped wave.

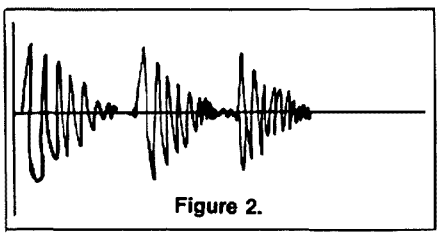

Figure 2.

The receiving circuit used was as shown in Figure 3. This also was simple and easy to construct.

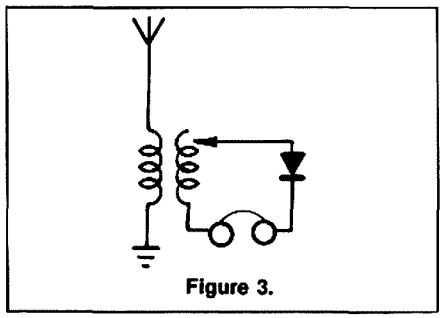

Figure 3.

The spark transmitter was not efficient as regards output compared with input and its signals spread over a wide band. The crystal receiver was not sensitive and its selectivity was poor. For example, in the early twenties the ship to shore spark stations on 500 kHz could be heard all over the broadcast band on the crystal receivers used at that time.

There were minor improvements in spark transmission as time went on. Larger spark coils and then high voltage AC transformers were used for power input. A quenched spark was one improvement. With this the spark was cut off sharply by cooling the gap with a mass of copper. The same result was achieved by using rotary machines to open and close the gap.

Although the presence of the Heaviside layer had been known for some years, it was not until the twenties that its effect on radio signals was recognised, and consequently before then it was thought that the ground wave was the only useful signal emitted. As with the ground wave, higher frequencies are more rapidly attenuated by ground absorption frequencies above 1500 kHz were considered less than useful for commercial longer distance working, and amateurs were relegated to these frequencies.

About 1920 valves became available to amateurs. They were used in receivers. A typical receiver consisted of a regenerative detector transformer coupled to a triode amplifier as shown in Figure 4. This receiver had much greater sensitivity and selectivity than a crystal set. In transmitters valves were used as oscillators, either of the Hartley, Colpitts or tuned plate, tuned grid type, and produced a continuous wave (CW) as compared with the damped wave of spark. A single keyed oscillator was loaded directly into the aerial. A commonly used circuit is shown in Figure 5.

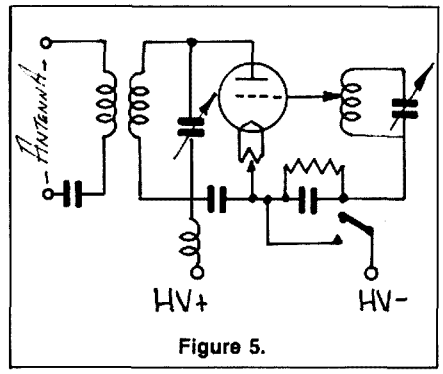

Figure 5.

A transmitter of this type would obviously be not very stable and would suffer from chirps, frequently drift and a poor note. However it was preferable to spark which it gradually replaced in amateur use.

Frequency measurement was made with a wave meter which was a calibrated tuned circuit which, when brought near the transmitter tank coil, indicated resonance by a dip in the plate current or the lighting of a torch globe in the tuned circuit. However when the wave meter was brought near the tank coil it changed the oscillator frequency so that this was a doubtful method of measuring frequency.

Valve operation permitted amateurs to use higher frequencies, and it was soon discovered by them that these higher frequencies were suitable for long distance communication, and it was not long before the effect of the Heaviside layer in reflecting or refracting

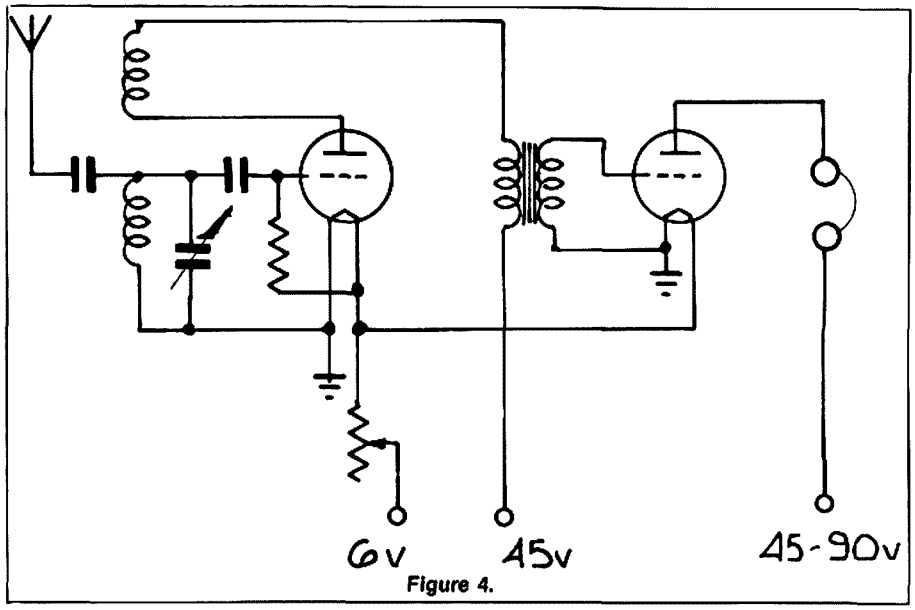

Figure 4.

radio signals was understood and the once despised high frequencies became much in demand by government and commercial interests for long distance work.

With the advent of these new users of the high frequency bands, amateurs were restricted to allocated bands by some countries, and in 1924 in the USA which had the largest number of radio amateurs, these bands were 1.75-2.0, 3.5-4.0, 7.0-8.0, 14-16 and 55-60 MHz.

Valve operation (CW) continued in the 1920s with very little change in techniques. The science of electronics was only just developing, and most newcomers to amateur radio had no knowledge of electronics and it was "learning as you go" for most of them, and most of them built their own transmitters and receivers. Probably more effort was put into making long distance records as with the advent of high frequency working there were exciting new opportunities to make contact with all the countries of the world where amateurs operated.

In 1927 an International Radio Telegraph Conference was held in Washington. This was the first International Conference since the value of the higher frequencies had been discovered, and the increasing demand for the use of these frequencies put great pressure on amateurs to retain their frequencies. In the end the amateur frequencies were fixed at 1.715-2.0, 3.5-4.0, 7.0-7.3, 14-14.4, 28.0-30.0, 55-60 MHz, but some countries reserved the right to reduce these allocations in their own country. These new bands and some new regulations were to come into force in 1929.

The amateur bands were thus considerably narrowed, and there would be penalties for out of band operation and poor signal quality. The directors of the American Radio Relay League realised that the amateur operation would have to be improved to meet the new conditions and inaugurated a Technical Development Programme to cope with the situation. This programme was placed under the control of Ross Hull, a prominent Australian amateur who was visiting USA. He was assisted by a small staff, and his findings and recommendations appeared in QST from August to November 1928, and provide a clear picture of the technical side of amateur radio at that time. Hull was very critical of the quality of amateur transmitted signals. He said in August 1928 QST *"if the world's crystal controlled and oscillator-amplifier transmitters could be taken off the air tomorrow there would be about five truly constant frequency and unmodulated signals left"*. His tendency was to scrap self excited transmitters and break into new methods, probably crystal control, but as this would mean scrapping 90 percent of amateur transmitters he decided to investigate methods of improving existing equipment.

In his investigations and experiments Hull found that the frequency of self excited oscillators changed considerably with variation of the plate voltage, and as plate supplies were often unfiltered in those days, the frequency varied with ripple voltage creating a wide band mushy signal. Obviously improvements in power supply were necessary, but Hull found that frequency change from voltage variation was much reduced if the coupling to the aerial circuit was loosened, and also if the ratio of capacity to inductance in the tank circuit of the oscillator was increased (high C), and he recommended a 500 pF tuning capacitor in the tank circuit. The high C increased RF current in the tank coil and therefore ¼ inch diameter copper tubing was required for the coils which were to be directly bolted to the capacitor frame terminals. With loose coupling, high C solid construction and careful adjustment of the feedback, Hull showed that a self excited oscillator coupled to an aerial circuit could produce a DC note. Hull did not propose any change in transmitter circuits which were Hartley, Colpitts or TPTG type. The TPTG type circuit remained as shown in Figure 5.

As for the frequency measurement, Hull found that the wave meter was not an accurate instrument, and apart from shifting the frequency of the oscillator when brought near it, its peak reading was not precise. He therefore proposed the use of a separate calibrated oscillator, the frequency of which would be compared with the frequency of the transmitter. This developed into the heterodyne frequency meter-monitor which was in use until digital meters evolved.

Amateur operation in 1928 was almost wholly CW and the simple oscillating detector with one or two audio amplifiers was the popular receiver. Screen grid valves had just been introduced, but amateurs were using the triodes in all stages. Hull described three improved receivers. The first used a screen grid untuned RF stage ahead of a triode regenerative detector which was followed by a screen grid first audio amplifier with a tuned plate circuit resonant at 1000 cycles. The SG valve was used because its high impedance matched the impedance of the resonant plate circuit which used the secondary of a Ford spark coil with the core and primary removed, and was tuned by a selected fixed capacitor. The second audio stage was a triode. The circuit is shown in Figure 6.

The RF stage was untuned because an extra control and shielding would have been necessary if tuned, but it gave some gain and its main purpose was to isolate the oscillating detector from the aerial and thus prevent radiation and make regeneration control smoother. The tuned audio stage provided audio selectivity and enabled CW signals 200 Hz apart to be separated. This receiver was suitable for CW only.

The second receiver was similar to the first except that the RF stage was omitted and the third was a simple two valve receiver with a detector and one audio stage. These receivers had plug in coils for band changing, and were specially designed to have full dial band spread on each band. Like all receivers and transmitters at that time, they were built on wooden bases (bread boards).

In the late 1920s broadcast receiving valves designed for working from AC power were introduced and high power audio output valves became available. These valves were also suitable as RF output valves in amateur transmitters, and as they were produced in large quantities they were considerably cheaper than valves previously available. The power transformers, rectifiers and filters also used in these new AC operated broadcast receivers could be used for making amateur transmitters, and were likewise cheaply available for building amateur gear.

About 1926 quartz crystals for oscillators were first introduced in USA. They were expensive, being priced at the equivalent to 200-300 dollars at today's values, and were originally only cut for the lowest frequency amateur band. At first they were not much used by amateurs because they were too expensive and were considered too complicated as they required double stages. However in course of time they became cheaper and better electronic knowledge reduced the supposed complication, and amateurs began to use them. By 1935 they had mainly replaced self excited oscillators. The 1935 ARRL Handbook gave construction details for crystal controlled transmitters only.

With crystal controlled oscillators good quality phone transmission was possible. In the early thirties class B audio amplification was introduced, and shortly after receiving valve beam power amplifiers became available. Before then, with only class A amplification and triode valves even low power modulators were expensive, but with class B and AB beam power amplifiers a relatively cheap modulator with up to 100 watts output was available and increasing numbers of amateurs built and operated phone transmitters in the thirties.

The regenerative 2 or 3 valve receiver continued to be used for many years. It was simple, cheap and easy to construct, and when used on CW it was possible to achieve remarkable results. One was described in the 1958 ARRL Handbook. It was usual for the newcomer intending to enter amateur radio to first build his simple regenerative receiver and use it to learn the code, and has his first receiver after being licensed. About 1930 receivers were built with a screen grid tuned radio frequency stage in front of the regenerative detector. These were known as TRF receivers. The RF stage added to the sensitivity for phone reception and isolated the detector from the aerial, but provided little improved selectivity.

Elementary super heterodyne receivers had been described in QST in 1928 and were further developed into the thirties but their construction, generally involving metalwork, and their adjustment were beyond the capability of most amateurs and very few were home-built at first. Later several manufacturers began making bandswitching superhet receivers of high performance and these became popular with amateurs who could afford them but others continued to use regenerative 2 valve and TRF receivers. The 1935 Handbook described 2 two valve receivers, 2 TRF and 3 superhet receivers. One superhet receiver had plug in coils and the other two used bandswitcher coil assemblies supplied as manufacturer's kits.

The thirties was a period of great development in amateur radio. In those years the amateur ranks were filled with young men learning the new science of electronics. In most countries radio component parts were readily available and amateurs developed and built their own equipment and were generally technically up with the state of the art. The thirties are often considered to have been the Golden Age of amateur radio.

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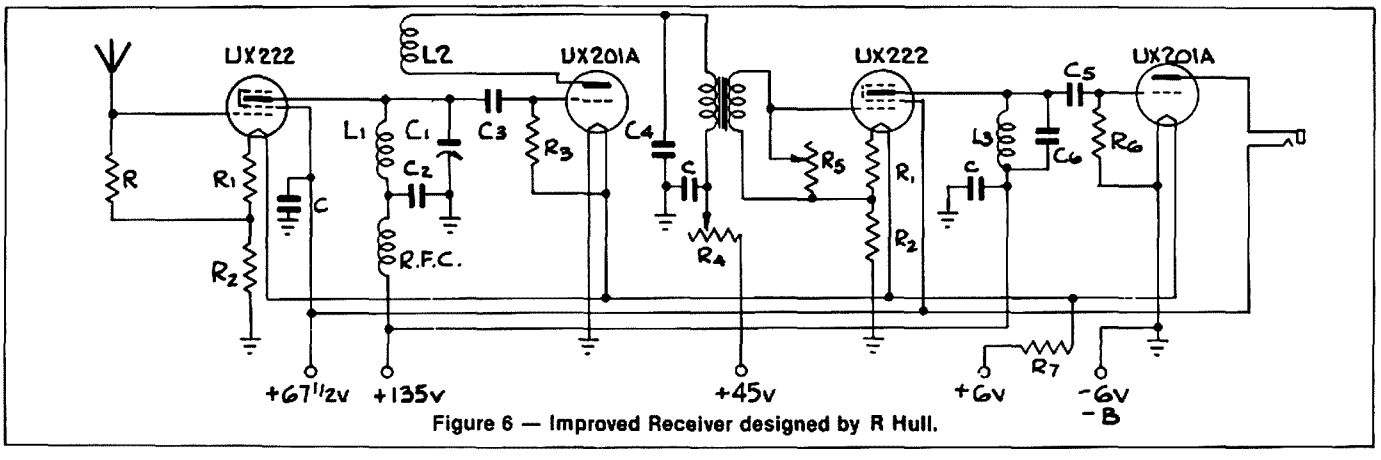


Figure 6 — Improved Receiver designed by R Hull.

A FORTY METRE ROTATABLE DIPOLE — ALMOST AS GOOD AS A BEAM

Bob Slutzkin VK3SK,
8 Lynedoch Avenue, East St Kilda, Vic. 3182

In his book, "HF Antennas for all Locations", Les Moxon G6XN writes quite a bit about compact antennas. On page 171, he points out that a 20 metre dipole may be shortened to 24 feet and end loaded by T pieces 6 to 7 feet in length "without any significant effect on any aspect of performance". He claims that a 17 feet dipole properly end loaded might have a reduced bandwidth but only about 1 dB less gain than a full dipole. He does not recommend anything shorter than that, but if shortening to 17 feet (which is a quarter wavelength) has such a small detrimental effect, I think a little more shortening might be acceptable if the circumstances demanded it.

Now, the boom of a 204BA (20 metre beam) is 26 feet long, which is about 1/5 wavelength at forty metres; and at each end of the boom there is a 20 metre element which would act as quite a large T piece to end load the boom. I figured out that if I could feed the boom of my 204BA on 40 metres it might work reasonably well. It is up 60 feet in the air, and I would be able to rotate it to obtain the advantage of any directional properties that it might have.

Stan VK3TE also liked that idea, so he helped me in some experiments in trying to shunt feed the boom on 40 metres. We made up a number of bits and pieces for a gamma and omega match, a T match and a Y match, and spent quite a lot of time in unsuccessful attempts to feed 40 metres into that frustrating boom trying all four methods. I do not know exactly where we went wrong; but later on I shall tell how W8BEB finished up. He must have been doing his thing at about the same time as we were planning our exercise; and he wrote it up in August 83-QST.

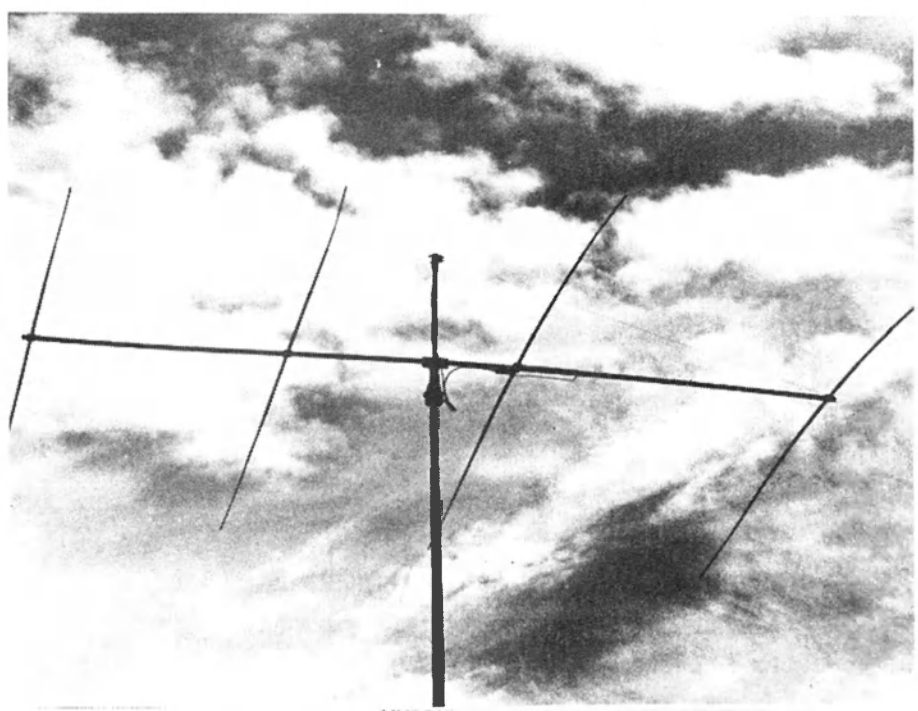
If shunt feeding would not work (so we thought at the time) perhaps we might have more success with series feeding. Now it would be almost impossible to insulate the boom in its centre, so I decided to run a wire dipole from the top of the mounting pole which holds and rotates the beam. This pole protrudes about 4 feet above the centre of the beam; so I attached a BN86 balun at the top of this pole and ran wires down from the balun to the two ends of the boom. I used short lengths of strong fibreglass pipe to insulate the end elements from the boom; and the wires were connected to their centres and so I had a wire dipole which was end-loaded by huge T pieces. I had hoped that the proximity of the boom and the other two elements of the beam would not have any detrimental effect on the 40 metre antenna. I connected the 50 ohm coax from the balun to the rig via an antenna tuner and tried it out. Instant success! It worked well on 40, had an unexpectedly good front-to-side response (as was demonstrated when I rotated it).

It could work Ws and Gs, and even locals. There was only one problem. The SWR was a bit too high, and I would have preferred not to have to use an antenna tuner. Leaving out all the trial and error experiments, I established that the antenna resonated somewhere around 6 MHz; but best of all, a single condenser of the correct value placed in series with one of the dipole wires at the balun would not only resonate it in the centre of the 40 metre band but also keep the SWR below 2:1 over all the band except below 7.030 MHz (a part of the band I am a little ashamed to admit that I never use). Of course it could be tuned to cover the CW end to the detriment of the other end — the bandwidth was just a little too small.

Does anyone want a 40 Metre ATU cheap?

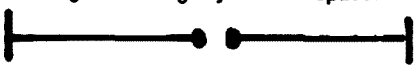
That series condenser that I mentioned had to be the correct value. I determined the right value using a variable one, then substituted a huge encapsulated mica condenser of WW2 vintage. Then everything was tightened up and waterproofed, and the job was finished. (Stan used a variable condenser mounted inside a refrigerator box).

Well, what about W8BEB? He used an 11'6" long gamma rod of 3/4" diameter, spaced 4" centre to centre from the boom. It was attached 6" from the director end and fed 12" from the boom centre through a 400pF variable condenser. The secret might be the off-centre feeding, or perhaps Stan and I were not going about it the right way. Anyhow, when I read the QST article I had to try it out. I removed my wire dipole, and short circuited across the insulators at the end of the boom. Then I reproduced his gamma system in a rather temporary fashion. By this time I had acquired a pair of selsyn motors[1] which enabled me to tune the gamma capacitor from the shack. It took me all of thirty seconds to adjust for a perfect match at 7.150MHz; and I found that the W8BEB shunt-fed boom worked similarly to my wire dipole. I reverted to the original arrangement for two reasons: *1) It was my own idea, and I am a little vain, and 2) all the bits and pieces were there to restore it to a mechanically sound and*

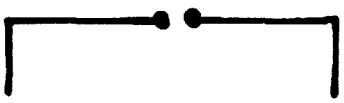


VK3SK's antenna.

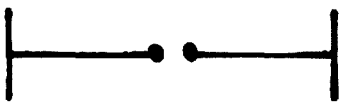
a) Bending the ends slightly to fit a half wavelength in a slightly smaller space.



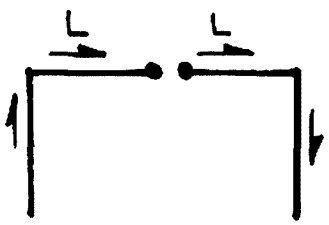
b) An alternative to a. The piece at the end is a T or T piece of about the same length as the L piece in a.



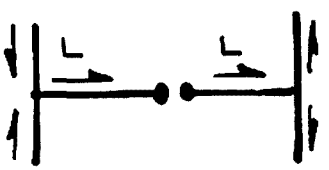
c) An extension to a.



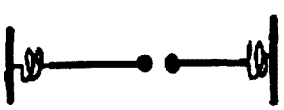
d) An extension to b.



e) a further extension to a. The current in the L pieces which are now of more significant length are likely to cause some vertically polarised radiation off the ends of the dipole.



f) a further extension to b. The two currents in the tee piece halves would be half that in the L, and would tend to cancel radiation from the ends.



g) G6XN's method of using a loading coil before the tee pieces. This allows a shorter tee to be used and would further reduce end radiation.

Figure 1 — End loaded Dipoles.

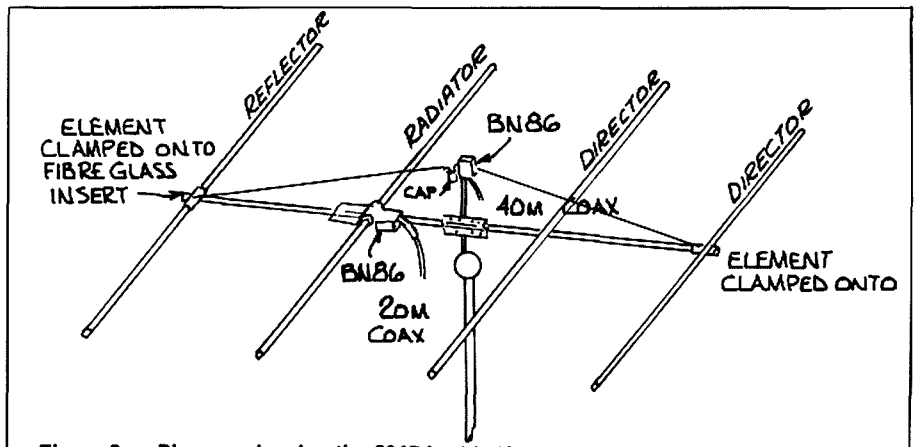


Figure 2 — Diagram showing the 204BA with 40 metre dipole attached VK3SK style.

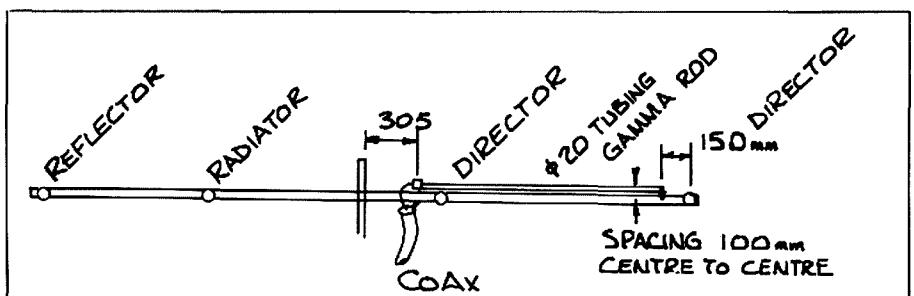


Figure 3 — W8BEB's method of shunt feeding the boom.

weatherproof job, and I did not see the need to make up more hardware for a permanent gamma match.

If you want to adapt your large 20 metre beam, I would recommend W8BEB's method.

I have now been using the wire dipole for a few years, but mainly for local contacts. I don't enjoy the DX round tables on 40, but if ever I happen to join in during the openings to G or W, I find my antenna is nearly as good as a beam.

FOOTNOTE 1

For those who are not familiar with selsyns, they are a type of electric motor, with 5 terminals — 1, 2, 3, A and B. You need a pair of them and you connect all the corresponding terminals together (ie 1 to 1, 2 to 2 etc.) and the correct AC voltage across A and B. (My selsyns required 110 volts AC). The motors can be separated by as long a 5-core cable as you like. Then, when you turn the shaft of one of them, the shaft of the other follows. If you couple a variable condenser to the shaft of one, and a knob to the other, you can tune the condenser remotely. This is precisely what I did to tune the gamma condenser. The selsyns are now tucked away somewhere in my junk room complete with a motley cable and 110V tranny. They are available for loan to Moorabbin Radio Club members (or others) for a nominal fee to the club.

APPENDIX

End Loading a Dipole

The simplest method of end loading a dipole is simply to bend the ends over, which is quite a common practice where there is not quite enough space for a half wave dipole. When you do this you will usually find that you have shifted the resonant frequency a little. The bent pieces radiate a little off the end, but very little if the bent or "L" piece is small. But you could shorten the dipole by quite a lot and use a large L piece at each end, (eg a quarter wave flat top with two L pieces about 1/8 wave long, like half a quad element). There would be quite a bit of radiation off the ends from such an arrangement, and if the L pieces are vertical, the end radiation would be vertically polarised. If instead of L pieces they were T pieces, approximately the same length of wire would be needed, but the behaviour of the device would be a little different. There is a current entering the T piece and it divides into two equal currents which would flow away from each other and so be out of phase with each other. The radiation from each half of the T would be reduced by 6 dB (because

of the reduction of current), but the radiations would tend to be self cancelling.

Therefore we should expect a T loaded shortened dipole to be better than the L loaded device. Les Moxom likes a loading coil in between the dipole end and the T, and of course the T would then be shorter. I believe that long T pieces are OK when the circumstances permit. Figure 1 shows the development of end loaded dipoles.

AR

URGENT!!!!!!!

Please let us know of clubs and schools etc starting theory classes. Where, when, how much and whom to contact.

Contact Brenda Edmonds VK3KT.

The following is an historical article concerning WICEN participation in Cyclone Tracy, Darwin 1974. The article has been written from information, tape recordings and reports supplied by many of the amateur radio operators who participated. A considerable amount of research has gone into the article and most of the facts stated have been, where possible, checked for accuracy. In the general description of events in Darwin, times are expressed as local am, whilst times relating to WICEN are date time group with the UTC suffix Z.

THE CHRISTMAS OF '74

WICEN AND THE CITY OF DARWIN AFTER CYCLONE 'TRACY'

Ted Gabriel VK4YG
Box 245, Ravenshoe, Qld 4872

In Northern Australia tropical cyclones form in the summer months over the Coral and Arafura Seas and these revolving wind storms can affect the coastline from Brisbane around the 'top end' and down to Geraldton.

Cyclone 'Tracy' began as a weak tropical low some 700 km north-east of Darwin on the 20th December, the Bureau of Meteorology received satellite photographs and issued the first cyclone alert on the 21st December.

Three weeks previously cyclone 'Selma' had also approached out of the Arafura Sea but after passing over Bathurst Island veered away to the north.

In the city of Darwin on Christmas Eve 1974, the residents, with an air of complacency, were preparing for the season's festivities and parties were in full swing in spite of the oppressive humidity which is usual at this time of the year.

During the evening cyclone warnings were being issued on radio and TV. As the cyclone approached Point Charles, 24 kms to the west, it hovered momentarily and then headed for the city, the wind speed increased and around midnight the destruction of the city began.

At 3 am on Christmas Day the anemometer at the airport registered a wind gust of 217 km/Hr and was then damaged, some gusts were estimated to have reached 250 km/Hr.

The eye of the cyclone passed over at 4 am, there was a short lull, then the fury recommenced from the opposite direction further completing the destruction.

Torrential rain added to the hardships of the survivors as they huddled in the wreckage of their homes or in motor vehicles waiting for the shrieking wind to abate.

At dawn the 45,000 residents looked out at a ruined city, a city without power, communications, water or sanitation, a city in which in just a few furious hours some 50 people died and hundreds were injured.

This was Darwin's Christmas of '74.

WICEN in North Queensland has always been aware of the severity of tropical cyclones and had formed its operational plans accordingly, the most important part of which is to follow cyclone track plotting and prepare emergency networks before the event.

So, that while shocked by the news early the next morning, Cairns WICEN operators commenced a listening watch on 14MHz for any signals from the stricken city.

At 242300Z — the writer started monitoring the WICEN calling frequency of 14.100 MHz while John Roberts VK4TL, agreed to search the band. Meanwhile other Cairns WICEN operators were alerted on the VHF networks.

Eventually at about 250005Z, John's attention was drawn to a 'dogpile' which had developed on 14.175 MHz, the cause of this being the first amateur signals from the ruins of Darwin.

Bob Hooper VK8RR, Manager of the Overseas Telecommunications Commission's transmitter site, which included VID, Darwin Shipping Radio, was confronted at first light with a tangled mess of bent masts and antennae and with ships at sea in the cyclone area.

Photograph by Owen Marshall VK8OM

Darwin Community College after Tracy. Slim VK8JT operated from the building on the left.

Bob extracted his car from under the wreckage of his house, screwed in an aerial whip, and went on air in order to get the information to OTC headquarters in Sydney. However, the moment he was heard, he was besieged, quite understandably, by amateurs who were anxious for news of relatives and friends in Darwin.

Bob patiently explained that there were no telephones working, he could not drive around enquiring because of blocked roads and his main request was for urgent contact with OTC.

Some amateurs phoned local OTC stations but no definite instructions were forthcoming until Cairns WICEN managed to penetrate the QRM and make contact with him.

John VK4TL, phoned the Cairns OTC Manager, Keith Parker VK4VI and asked him to come up on the frequency, however, when he did the interference was building up with persistent breakers interjecting and blocking the contact.

At 250115Z, the writer, as WICEN co-ordinator for North Queensland, activated a WICEN emergency channel on 14.175 MHz for the purpose of urgent traffic between Darwin, Cairns and Sydney for the OTC.

This was the start of the WICEN National Net for Darwin which was to last for seven days and would involve hundreds of amateurs in cities and towns throughout the country, hundreds of messages were handled from urgent relief traffic to whereabouts and welfare messages concerning evacuees, 25,000 of whom were airlifted south in the largest operation ever undertaken in Australia.

Once the net control was established and order restored the contact between VK8RR and VK4VI continued and shortly instructions were received from Sydney for Bob to take over the radio installation in the MV 'NYANDA' in Darwin harbour and set it up as VID2.

Bob then closed down to carry out his duties and the WICEN group continued a listening watch until 250201Z when Owen Marshall VK8OM, mine manager at Koongarra came on to report weather and site status and also that his single engined aircraft was serviceable.

Photograph by the Sydney Morning Herald.

An injured mother and child await evacuation.

At 250430Z 'Slim' Jones VK8JT was heard with a weak signal from Darwin.

'Slim' and his wife had been sheltering under their high set house and escaped injury, however when he found his radio gear among the wreckage it was useless because of water damage.

'Slim' then went to the Community College at Casaurina to seek shelter and there met Garry VK2BNN/8 and XYL Wendy VK2BYL/8. Their Hallicrafters transceiver was dried out with the aid of a hair dryer and after putting up an aerial they managed to put out a signal. The college had 240V AC from a gen-set.

'Slim' checked into the net and then sent a message to the Darwin Police Station, that communications via WICEN were available and shortly the National Net commenced handling primary traffic.

Later in the afternoon as more official messages were being directed to Canberra and Melbourne WICEN COMCEN was set up at Police Headquarters, D24 in Melbourne and net control was handed over to Ken VK3AH by Ted VK4YG.

Conditions on 14MHz were variable and Cairns WICEN had to relay traffic between Darwin and Melbourne as well as assuming local area control for outlying settlements in the Northern Territory and North Western Australia.

As the network expanded, information and relay stations were set up in various centres, Basil VK6NA at remote Kolumburu Mission, Craig VK8CW and VK8IG in Alice Springs, Terry VK2BTS/4 (now VK4AAT) and Owen VK4OV at Mt Isa plus scores of others, all did excellent work in traffic handling in a fine example of amateur radio teamwork.

Late in the evening official traffic ceased and 'Slim' closed down for a well earned rest and WICEN went to listening watch.

Day two commenced early with official message handling and relay between Darwin, Cairns and Melbourne.

Contact was made with Keith VK8KG at Gove which had no communications since its radio base at East Point had been destroyed. Owen VK8OM at Koongarra also checked in and traffic for these centres was handled by Cairns WICEN.

During the day Cairns WICEN controller, VK4YG was authorised to accept official traffic from NDOC Canberra via VK2ADA for onward transmission to VK8JT and NDOC Darwin headquarters.

Major General Alan Stretton, the newly appointed head of the National Disasters Organisation, who had been flown to Darwin by the RAAF to assume supreme command of relief operations, stated in his book, 'FURIOUS DAYS' that the first major problem encountered was the almost total lack of communications, not only within the disaster area but to centres outside.

This was the situation for several days and explains why WICEN had to handle so much official traffic since other available channels were overloaded or unreliable.

Some 60 percent of houses were destroyed or severely damaged and for this reason there was very little amateur equipment in a serviceable condition, furthermore as Ray Williams VK2ARW, Inspector In charge of the NSW Police contingent reported later, most residents were in a state of shock after their terrifying ordeal.

On the 26th December, Owen VK8OM at Koongarra, 120 nautical miles east of Darwin, was becoming anxious about the welfare of his company staff in that city.

He drove to the airstrip and tried to obtain flight clearance from Darwin Air Traffic Control by HF radio from his aircraft. Darwin did not reply but Katherine ATC eventually informed him that clearance was not available.

The next day (27th) through the net Owen heard that Slim VK8JT, was having trouble with his transceiver, so he offered to fly in an FT75 rig.

Flight clearance was arranged by NDO and after packing the rig plus spares aboard his single engined Comanche 250, Owen took off for Darwin at 0147Z. When he arrived he had to orbit the city while a huge US Starlifter freighter landed so while he was flying over the northern suburbs he was able to see the tremendous damage from the air. After landing he delivered the FT75 to the Darwin Community College where he found Slim to be operating under difficult conditions as heavy rain was still falling and due to roof damage everything was wet in the building.

Owen then saw to the welfare of his staff and flew back to Koongarra where he reported the conditions in Darwin to WICEN COMCEN in Melbourne.

On the 28th, Owen heard that Slim was having trouble with the portable generator at the college. A 1.5 kVA unit was offered from Koongarra, and accepted, however flight clearance was not available due to heavy traffic in and out of Darwin so this unit was delivered by a 4WD vehicle driven by Chris Pedersen, the senior geologist at the mine, who got through safely in spite of flooded creeks and boggy roads.

Photograph by the Sydney Morning Herald.

Darwin — a city in ruins.

Little known incidents like these and the other qualifications of many amateurs all contributed to keeping the vital Darwin WICEN network operating successfully.

Another rig was received by Slim VK8JT from Arie Bles VK2AVA. When he learnt that Slim was having trouble with the transceiver he was using, Arie rushed a new rig to RAAF Richmond whence it was flown to Darwin in order to keep the vital link open; two amateurs in Adelaide were standing by with a complete portable station including a gen set but permission was not granted for them to go to Darwin.

On day three an officer of the Victorian Radio Branch ordered the closure of the WICEN net, apparently unaware of the communication situation and of directives issued by NDOC. Amateurs operating the net sent a telegram to the Prime Minister and the Postmaster General and the close down order was then revoked.

Permission was given for WICEN to handle public telegram traffic concerning the whereabouts and welfare of evacuees, this added to the constant flow of official traffic so that more amateurs in all states were called in to assist. Propagation conditions were variable due to a sunspot minima period and a considerable amount of message relaying was necessary.

The message logs for Days three, four and five listed the following traffic:

NDOC traffic and replies.

Police messages.

Aircraft movements, RAAF and Civil-Flight planning, route weather forecasts, load details.

Salvation Army — re food airlifts.

Department of Social Security.

Whereabouts and welfare of evacuees — Telegrams and queries.

Weather reports and synoptics.

During this period enquiries were received from Pom YB0NQ/9 and Gene YB9ABT at Tembagapura in West Irian concerning the Fokker F27 aircraft (medical evacuation) belonging to Freeport Indonesia which was on the ground at Darwin airport during the cyclone. Since their radio base at Darwin had also been destroyed traffic was taken over on an official basis by Ray VK4HE, the Radio Inspector at Townsville.

The efficient manner in which this type of traffic was handled clearly demonstrated the ability of WICEN to integrate with other emergency services having a similar communications system.

During Day five, 29/12/74, the WICEN COMCEN in Melbourne was closed down on instructions from the Victorian Radio Branch.

The WIA received a congratulatory message from the National Disasters Organisation, praising in particular the devotion to duty of 'Slim' Jones VK8JT, and all net controllers and operators.

North Queensland WICEN, on instructions from NDOC Canberra continued in a combined WICEN/NDOSES operation for Darwin, Gove and Koongarra until all communication circuits were finally restored on the 31st December 1974.

The WICEN National net for Darwin closed down at 310825Z, the North Queensland group had been operating for a period of seven days with an on air time exceeding 85 hours.

So ended the largest emergency communications operation ever undertaken by the Wireless Institute of Australia in a major disaster situation, however there was another important facet to this operation:

Major General Stretton stated in reply to a controversial instruction from Canberra:

"The only commodity we deal in here is human beings . . ."

People — that was what the National Net for Darwin was all about. People in distress — people in need of communication with their loved ones.

The Wireless Institute's Civil Emergency Network was able to provide that communication.

REFERENCES AND ACKNOWLEDGMENTS:

"FURIOUS DAYS" ISBN0002114488 Collins
"SOLDIER IN A STORM" ISBN000216406 Collins
Author: ALAN STRETTON
"CYCLONE!" Christmas in Darwin 1974. (John Sands P/L)
A "Sydney Morning Herald" publication.

LIST OF EVENTS: Darwin Disaster, WICEN Network
A report to Federal Executive WIA 4/1/75
by Ted Gabriel VK4YG — WICEN Co-ordinator Nth Qld.

GENERAL REPORT: To WIA: Darwin WICEN Net. VK4YG 15/1/75
WICEN OPERATIONAL PLAN: NORTH QUEEKSLAKD ZONE
INFORMATION SUPPLIED BY: Slim Jones VK8JT (VK8ATJ)
Owen Marshall VK8OM (ZL1BKF)

TAPE RECORDINGS: Peter Renton VK4PV (and transcripts)
Roger & Anne Davis VK4KAR & VK4AYL
Ted Gabriel VK4YG

TYPING — by Anne Benson VK4FAB

MORE ABOUT TESLA

Herbert Schwartz VK3DHI/K2LVU
505 West Broadway, New York, NY, 10012.

Mr Mowat's article, "Forgotten Genius" in Amateur Radio for March 1985 reminded the author of his own personal experience with Nicola Tesla, recounted here with nostalgic delight.

It took place during the Stateside 1932-1933 academic year when I was in my final year at high school. I had won a prize (of $10, which I squandered on an official school sweater and a pair of "saddle" shoes) in the last previous American Institute School Science Fair, and I was intent upon a project that I hoped would earn me even greater distinction in the next one.

I was building a "million-volt" electrical oscillation transformer, a Tesla Coil, in the school's Physics Department workshop, using begged, borrowed and scrounged materials; and sturdily constructed device into which I poured much effort, time and the resources of my long-suffering friends. When, at last it was finished to the point at which I could put it to the test I did so, and although my rotary spark-gap snarled merrily as it arced and produced lots of ozone, nothing else resulted; no lightning bolts, no corona, not even a glow on the copper toilet-tank ball-float that was serving as a business-end terminal of my secondary. *Utter failure.*

I went over the system bit by bit for days and couldn't pin down the fault. I checked and rechecked every component and rebuilt what I could, to no avail. In desperation, I finally decided to consult Mr Tesla himself. Important people were much more readily accessible then, and this very popular and highly respected New Yorker was no exception; it was well known that he fed the pigeons every morning on the steps in front of the main Public Library. Since it was also generally known that he did not suffer fools gladly, especially when they interrupted his pigeon-feeding, I decided to seek him out "at home" and went about doing so the very next available Saturday morning. It was quite an adventure.

Nicola Tesla was living in the Hotel Governor Clinton (after having been put out of the St Regis for keeping pigeons in his rooms) at that time, and when I got there I had no difficulty at the front desk because Mr Tesla preferred to send and receive things by messenger, and boys with burdens were always turning up asking for him. I was quickly given the location of his room and the fact that he was in it, and made my way to it. I knocked on his door persistently until it was snatched open by a very much irritated, elongated (he was at least six feet tall (1.8 metres)) scarecrow-like man who gave me to understand (in a surprisingly high-pitched voice) exactly how he felt about being torn away from an important task by a rude creature who was "barely out of knee-pants" (boys in New York wore pants that buckled just below the knee until they were wage-earners or high school seniors, in those days). When he had to pause to catch his breath I blurted out my reason for having done so, pointed out that since it was his invention it was also his responsibility to do something about my failure with it. I shall never know whether it was because of the audacity of my stand, or my naivete in pursuing it, or because he was at heart a very generously sympathetic person, but he invited me in.

He very carefully, examined the portfolio-full of notes, drawings and snapshots that I'd brought with me, questioned me closely about what I had done in constructing and testing the device, concluded that my troubles lay in the condenser (as even he called it then), and sent me away with precise instructions as to how to go about correcting the fault and as to how I was to report the results to him ("By telephone . . . not in person!"). I did as he asked, and my Tesla Coil came to life. And when I told him so, his reply was simply "Of course!!"

However, I never won a prize with that Tesla Coil. In fact, I never got to enter it in that year's School Science Fair. Fine-tuning had produced such splendid results that I was able to work up a spectacular show (with an enormous and fiery "Jacob's Ladder"; illuminating light-globes held in the hand; a "hair-raising experience;" lightning bolts punching holes through bottles; and the like) presented in several successive school-assembly programmes to great (and heady) acclaim.


DAILY NEWS
PRESENTS
47TH SCHOOL SCIENCE FAIR
YOU ARE INVITED TO SEE 46 OF THE BEST HIGH SCHOOL SCIENCE PROJECTS ON DISPLAY
MARCH 19-22
AT IBM GALLERY
OF SCIENCE AND ART

A newspaper clipping from the New York Daily News — 20th March 1985 — referring to the 1985 School Science Fair. This is the same Fair, different year, that Herbert had hoped to enter his Tesla Coil.

But, I was unwittingly also interfering with radio reception for miles around, as I found out to my very great dismay from the field-agents of the then newly instituted Federal Communications Commission when they came to the school to find and dismember my wonderful machine. And I firmly believe to this day that I can claim the dubious distinction of having been among the very first persons who were ever singled out in this way by the FCC;-- thanks to Nicola Tesla!

Footnote: By coincidence, my K2LVU address is situated 75 metres (250 feet) south of the place where the Tesla Electrical Company's first laboratories were located until just ninety years ago (the six-storeyed labs burned to the ground one night in March of 1895).

Editor's Note: We thank Allan Doble VK3AMD for bringing the Previous article to the notice of K2LVU, and suggesting he write the above account as a sequel.

AR

HOME BANKING MOVES TO AUSTRALIA

Homelink, the electronic banking service developed in the United Kingdom and operated by British Telecom Prestel, the Bank of Scotland and the Nottingham Building Society, and now widely used throughout the country has been sold to the Commonwealth Bank of Australia and is now in use in several European countries.

The Commonwealth Bank, which has 1200 branches throughout the country and over eight million account customers, plans to establish home banking in Australia early in 1985.

In the UK transactions are carried out by customers in their homes using adaptors. Using these adaptors banking transactions can be carried out 24 hours a day throughout the year from home or office or anywhere there is a suitable terminal. They include checking current account, paying certain bills, transferring funds between accounts at any bank, and sending and receiving messages to and from the bank and the building society.

The system is accessed through Prestel, the viewdata system developed by British Telecom which allows subscribers using a domestic television set and an ordinary telephone line to access many thousands of pages of information including stock exchange quotations, commodity prices and company information as well as a wide range of other information such as travel and traffic news, news and sports results, weather reports and shopping guides. A mailbox system allows subscribers to communicate with each other instantly.

From "Information Technology" from Britain.

AR

PROPAGATION STUDIES

John Mahagan WB4JHS would like to get in touch with DX stations who are willing to participate in a propagation study during the low portion of the sunspot cycle by listening for a CW beacon on 10, 21 and 28 MHz.

Amateurs interested in this project or requiring further information should write to John at PO Box 3282, Thomasville, GA. 31799.

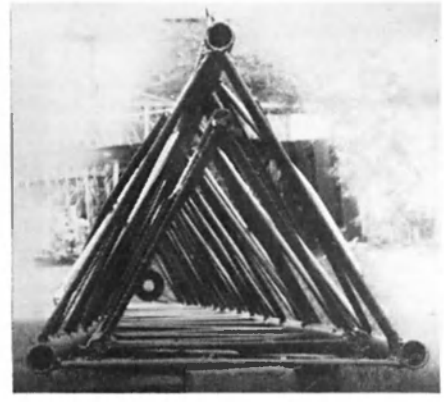
from World Radio, March 1985.

AR

MURPHY AND THE TOWER

Mal Le Maistre VK3KSA
2 Thornton Court, Mooroolbark, Vic. 3138

Everyone that has a radio mast or tower, commercial or otherwise, thinks it will never happen to them, so they overlook certain precautions. Things like guying the top section when one is employed. It is the same old story . . . "If the winds are around and blowing, I don't wind up my tower" . . . If this sounds familiar, fellow amateur, read on . . .



Looking down the centre of the tower in a horizontal position.

NIGHTMARE OF REALITY

One fine summers day last year
Around Christmas and all that cheer
A tower in Lilydale was in the clear,
Til a gust of wind at full flight
Took the tower at full height.
Now in dismay, an assorted heap of metal in view
For to insurance claim pursue.

Fortunately the insurance did come to the rescue and aid the expenses a little. After sorting out what could be salvaged, apart from all the antennae that were either flattened, bent or twisted out of shape, it soon became apparent there were three choices:

Break the bank and in the process annoy the XYL by using the money for THAT DREADED amateur radio hobby!

Build a new tower.

Go without . . . NO WAY . . . this could not be classed an option?

I then proceeded to price a new wind-up, tilt-over tower. The three towers priced were over $1000 installed, too dear, another alternative would have to be found!

Well! What about constructing one myself? Popular towers were studied, criticised and good and bad points noted. I then located a set of computations and altered the design to rectify and comply with the said notes. With such alterations it was felt prudent to ask an engineer to re-write the specifications. This was done at a very moderate cost.

Material was then priced and amazingly everything would be well under $500, so it was full steam ahead!!!

Three lengths of 33.7 mm OD black pipe, four lengths of 25.4 and one length of 19.1 mm along with nine plates 75 x 5 x 285 mm and another nine of 75 x 5 x 372 mm, all precision cut and delivered and I had the basic frame of both sections and change from $100.

Then Murphy almost stepped in. For the lattice work, a quote was received for 58 cents per metre, pre-bent and delivered. Length, span and width were immediately worked out and a cheque and order despatched.

After a couple of days . . . a phone call was received . . . the office department had made a mistake. Thoughts flashed of Murphy standing complete with pitch fork in hand and a cheese-like grin. However as they had received a certified bank cheque for the goods they decided to stand by their quote. It was possible to breathe again. (The correct price should have been $2.20 per metre).

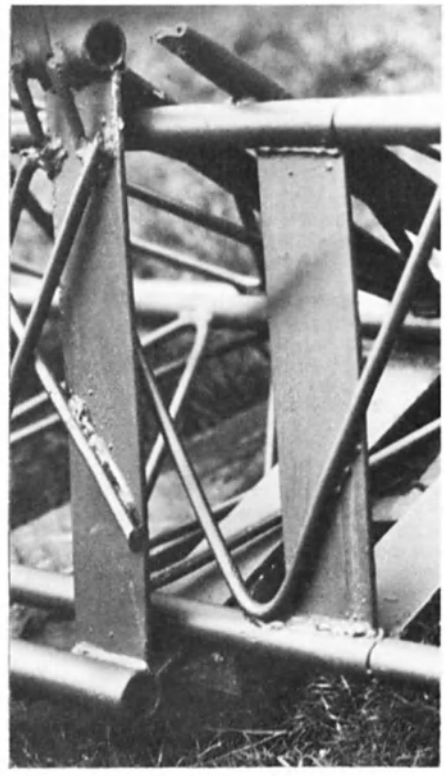
Now the real work of welding the tower began in earnest using various homemade jigs and braces to maintain straightness. The end result . . . two sections, one slightly longer than the other, but they looked great complete with their two coats of kill rust-red oxide.

The end result, when time permits, will be a 14 metres (45 feet) wind-up, tilt-over tower, housing a rotator inside the top section with a thrust bearing at the top. The tilt-over will be at 3.5 metres (12 feet) and the basic or down position height will be 8 metres (26 feet).

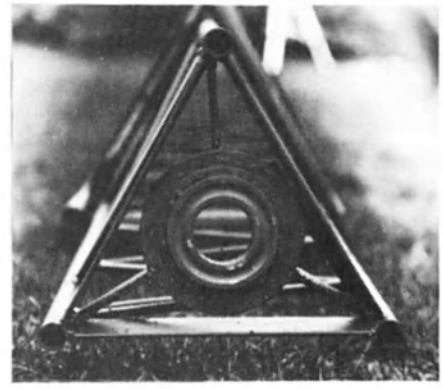
The clearance between both sections is about 6 mm (.25 inch). The ultimate of course would be one set of nylon bushes for runners to guide the tower down. The thrust bearing, which is actually a tractor differential bearing mounts on a 140 mm (5.5 inch) pipe flange mounted inside the top section at the end, carefully centred to the mast.

It is hoped to employ two 10:1 winches and various other anchors and pulleys.

AR



The Sliding Joint.



The Bearing Mounting.

DIGITAL TELEVISION

Digital TV sets are expected to be readily available this year in the United States, Europe and Japan.

It was created by the ITT group's West German semiconductor maker Intermetall which developed a group of seven semiconductor chips to replace up to 500 components in a traditional analogue TV set.

ITT started marketing the world's first digital set in West Germany in 1983 and it was recently introduced in Britain.

The ITT is also selling its chip set to most of the world's TV makers including General Electric and Sony.

Some manufacturers promise enhancements by adding their own specialised chips to ITT's original set.

Viewers can expect various models giving the ability to freeze frames, zoom in for close-ups and watch two channels at the same time by splitting the screen. The most visible difference between analogue and digital sets is picture quality.

Digital sets convert (digitise) the received signal, each signal fragment is analysed and interference components removed giving an on-screen picture more closely resembling the original image.

AR

CAN YOU HELP WITH JOTA?

The following guidelines have been produced by Tom DeLandre VK2PDT, and while written with VK2 in mind, the information applies anywhere in Australia. If YOU can help with JOTA, please do so . . . .

Ideally the initial preparations for JOTA should be commenced as early as May by the participating amateurs and scout/guide groups. Listed below are some thoughts on the necessary preparations on the part of the scout/guide groups, and the amateurs concerned.

BY JUNE — The scout/guide group should

— Have a poster on the notice board publicising the activation of JOTA in their area.

— Have advised the Group Council of the intended activity.

— Have advised the Group Committee *(can they help?).*

— Have programmed the Unit Council *(what help do they need?).*

BY JULY — The participating amateur should have been invited to attend a meeting to explain to the youngsters the following —

— Basic radio communication.

— The amateur service — it's history in the technical development of modern communication systems — it's roll in the time of emergency — activation of the necessary authorities by individual amateurs in reply to distress call — WICEN — as an aid to Civil Authorities in times of emergency.

— Propagation — youngsters are interested *in* how and why, so give them a simple but factual explanation.

— Use of the microphone — make use of a tape recorder (preferably with a hand held mike) to have a mock transmission. On the replay the participants can assess their efforts and improve their technique, and at the same time overcome any "mike shyness".

— The "Q" code — it's use primarily as a form of abbreviation for use with CW, and the "Phonetic Alphabet" the sensible use of this as a means of clarification when and as needed — not something to make an unnecessary adjunct which slows down communication.

— Station Log (yes, it is necessary that you keep a log when operating as a "JOTA" station) — the Group Log (the group are required to return a log and report to their JOTA Co-ordinator) so your advice in this regard would be appreciated, however this is the responsibility of the group. "QSL" cards — they may wish to design their own. Obtain some from their Scout shop or if need be obtain some from VK2 Division of WIA — these cards would best be handled through the Scouting Organisation so it is essential that they indicate clearly the various units concerned — ie "1st Beecroft Scout Group".

For 1985, during the 75th Anniversary of the WIA, special QSL cards have been provided to the Scouting Organisation, by the WIA, for this years "Jamboree on the Air".

— Amateur "Slanguage" — explain but do not overdo this as you no doubt have seen the ridiculous results of this when overdone.

— Call signs — How the prefix indicates the various areas and countries.

— Frequencies — How the various frequencies allow contact to be made at various times. The changes with time of day and the seasons — the effect of the solar flares, etc.

— "UTC" time has replaced "GMT" — how it works. Why it is used, particularly in International communication.

NOTE To help with the above why not have another look through the latest Call Book. There you will find an ideal source of information to pass on to the enquiring minds of these "amateurs" of the future. You don't need to be a lecturer — simply read to them some of the relevant details.

BY AUGUST — The site of the activation should be settled — group hall, camp-site — amateur "shack". Remember, if portable the pre-planning of portable antennas, power supply, equipment protection from the weather, and the security of the equipment.

Remind the participants to *research* the subjects which they intend to cover with their contact.

BY SEPTEMBER — A roster should have been organised as to the times of operation and the number of participants — insist on only a small group being in the station area at any one time, and that those not actually "on air" maintain a quiet harmonious atmosphere.

If a portable location is planned, detail to the group what assistance you will need in the way of erection of antennas.

Can you handle all the participants on your own? If not seek assistance NOW — IMMEDIATELY. Don't expect your fellow amateur to drop everything at the last moment. Ask for help NOW.

Plan now to ensure that your equipment is not operated without your supervision. As well as the risk of damage to your equipment, the illegal operation of your equipment could bring discredit to you personally and to the "amateur" fraternity as a whole.

OCTOBER — JOTA commences 0001 hrs local time on 19th October, 1985, and continues until 2359 hrs local time on 20th October 1985.

Double check all your preparations just prior to the event and we feel sure you will be rewarded with a most enjoyable weekend.

Should you wish to participate with your group on a regular basis through the year joining in the Scout nets, let us know and we will pass on the relevant information. These nets operate throughout the year and there are also the activation of scout stations at the various jamborees and camps both here and overseas.

PLEASE NOTE: The 14th Australian Jamboree will be held at Cataract Scout Park near Appin from 30th December 1985, until 9th January 1986. Please assist in activating your local scout stations.

AR

CW COMMUNICATIONS ANNOUNCES hotCider

CW Communications has announced the forthcoming publication of hotCider, a collection of the best programmes ever submitted to **inCider,** the firm's monthly magazine for users of the Apple family of microcomputer systems. The programmes, which will be available on disk, will include applications for business, home management, education, graphics, and games.

The first volume of hotCider, available in May 1985, will consist of nine selected programmes that have never been published. An easy-to-read documentation booklet will accompany the software.

A second volume of hotCider will be available in October 1985. Retail prices for both Volume I and Volume II of hotCider have been set at US$21.47, which includes postage and handling.

AR

73 MAGAZINE CELEBRATES 25th ANNIVERSARY

CW Communications/Peterborough, Inc, has announced three changes in its amateur-radio journal, **73,** as part of the publication's 25th anniversary celebration. Previously known as **73: Amateur Radio's Technical Journal,** the magazine's new title will be **73 For Radio Amateurs.**

In addition to its new title, which began with the March 1985, issue **73** will sport a new cover format which will feature full cover photography.

According to Jack Burnett, publisher of **73,** a third alteration will be a slight refocusing of the magazine's content. *"As this change commences," said Burnett, "**73's** editorial content will be geared more toward the average amateur radio operator than the highly technical, engineering type of reader."*

AR

POWER CHECKS

Many amateur stations in the USA have recently been inspected by FCC personnel and concern is that the FCC might be preparing to change its amateur radio power limits.

The Field Operations Bureau had taken measurements at 172 amateur stations by 25th February. Objectives were to discover whether amateurs can reduce power, what levels most amateurs use, what effects a 50 percent reduction in power has on a QSO in progress and whether there was a general awareness and compliance with a US amateur rule which mandates use of the minimum power necessary for the communication in progress.

It is not known what the data will be used for but they may use it to persuade individual amateurs to temporarily use less power where there is a reported case of amateur interference to neighbours.

Many are anxiously awaiting the results.

Adapted from The ARRL Letter, Vol 4, No 6.

AR

SUPPORT THE ADVERTISERS WHO SUPPORT YOUR MAGAZINE

and let them know where you saw their advertisement.

SCRAMBLING WITH TWO METRES

Lionel Curling VK3NM
18 Lexington Street, Vermont, Vic. 3133

Every fourteen days, madness bursts forth on 2 metres around Melbourne for about half-an-hour. This madness is known as the fortnightly 2 metre SSB Scramble. (Nothing to do with eggs).

A number of 2 m SSB stations meet every second Sunday night on 144.250 MHz to engage in a fierce competition which makes any HF contest really tame in comparison. The scramble band is 144.200-144.300 MHz with stations divided into country and city.

A city station is located within a 100 km radius from the Melbourne GPO.

HOW THE SCRAMBLE WORKS

Like any other contest the aim is to work as many stations as possible in a very limited time, usually only a few minutes each Scramble.

There are four Scrambles each time. Before the start of the first, all participants check in to the controller on 144.250 MHz. He then starts the first session and all stations participating work each other, exchanging 59001, 59002, etc. After the four Scrambles are finished the controller then asks for total points from each station.

Point scores are as follows . . . city to city is worth one point, city to country is worth two and country to city three points. The latter is to encourage country stations to take part.

Each station is allocated points towards a prize/trophy at the end of the year. The winner receives four points, second receives three, third two points and all other stations receive one point. The winner also controls the next Scramble and then receives three points towards the trophy.

Similar to the VK3 Fox Hunts, prizes are donated by a trade house. In the past, sponsors have been AR advertisers, Bail Electronic Services and Vicom, with the present sponsor being Eastern Electronic Services. Presentation of the trophy is at the December meeting of the WIA, Victorian Division.

The Two Metre Scramble is not a new activity, it has been around for many years, although the rules have been altered. The old 2 m AM Scrambles used to be of half an hours duration for one Scramble only. As most stations were crystal controlled it was necessary to call "CO Scramble . . . tuning band edge to point 5". (144.0-144.5). It was hard work to win.

During the 70s, SSB stations started to appear on the scene and Scrambles faded from the picture for a short time but they eventually began again in their present form.

Two metre Scrambles are good practice for HF contests, conventions, etc. They also mean that the tunable part of 2 metres is activated at least once every fourteen days.

After the Scrambles conclusion many stations QSY for a chat.

Why not pop up on 144.250 MHz and see for yourself how much fun Scrambling is? Call in on 144.250 around 08.15 p.m. every second Sunday. Starting time is usually between 08.15 and 08.30 p.m.

Regulars taking part in the Scrambles are Rob VK3XQ, Laurie VK3YDE, Max VK3AUA and Lionel VK3NM.

HAPPY SCRAMBLING.

AR

ETCHING CIRCUIT BOARDS

Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic 3078

Amateurs are supposed to be innovative and practical people but no reasonable person would expect them to home brew the equivalent of the fancy commercial equipment available today. On the other hand it is most disheartening to see the same old complicated, primitive, expensive and inefficient so called practical ideas being trotted out year after year in various magazines. One can sympathise with an isolated enthusiastic beginner who thinks he has invented the wheel, but for the technical staff of leading magazines to publish this kind of thing is another matter.

One example is the etching at home of printed circuit boards. How many beginners have been frightened off by heat lamps, motor driven eccentric cams, thermometers (see the hardy perennial in the ARRL handbooks from way back), converted goldfish tank equipment, oscillating solenoids and, as late as November 1984, a fancy "bubble etcher" in QST. It is rather ironic that the same issue contains some devastating comments on a "state of the art" automatic antenna matcher. What was that remark about motes and beams?

Anyway how does one etch circuit boards efficiently at home?

The illustration shows the complete equipment required. It costs all of three or four dollars at the local supermarket and in between times the basin can be used for washing socks and bathing the baby.

Dilute a concentrated solution of ferric chloride with about 50 percent water. Pour enough into the bucket TO BARELY COVER THE BOTTOM 1/16 to 1/8 inch is quite enough. Add about 5 ml (a tablespoonful) of hydrochloric acid if you wish. It seems to make the etchant a little more efficient but is not essential. Then half fill the basin with near boiling water. Put the circuit board, copper side up, in the bucket and float the bucket on the hot water at the same time giving the etchant a swirling motion, like one does with a gold panning dish, so that it washes

The illustration shows the highly sophisticated technical equipment needed to etch any circuit board in 3 to 5 minutes. The task of half filling the basin with hot water should be within the abilities of any technically minded amateur. If in doubt consult the XYL.

continuously over the board. In about three minutes the board will be completely etched without any sign of undercutting. If it takes more than about five minutes it is time to replace the etchant. If you get any splashes from the etchant when you swirl it round you have put too much in the bucket. Tip some out and continue. When the board is etched wash it under an outside tap and drop it into the hot water for a couple of minutes. Dry it and rub it lightly with steel wool and coat it with a resin flux. It will solder perfectly and last indefinitely. Boards I etched ten years ago are still in perfect condition.

So if you have been deterred by all the complicated gadgetry which is supposed to be needed, buy a plastic basin and bucket and have a go. If you have very large boards, then fill a trough with the hot water and use the basin for the etchant. This requires a little more care but is equally effective. Double sided boards etch equally well provided they are not drowned in too much etchant. When you have finished put the lid on the bucket or cover it with a board and put it in a safe place and it will be immediately ready whenever needed.

AR

ONLY YOU CAN TAKE HIS PLACE

We were saddened to learn of the death this week of one of our most valued members — Someone Else.

Someone's passing creates a vacancy that will be difficult to fill. Else has been with the WIA since its beginning, (1910). He did far more than a normal person's share of the work. Whenever there was a job to do, a function to attend, orders to be filled or a meeting to cover, one name was on everyone's lips, "Let Someone Else do it". It was common knowledge that Someone Else was among the largest contributors of his time to the WIA whenever there was a need for volunteers, everyone just assumed Someone Else would volunteer. Someone Else was a wonderful person — sometimes appearing superhuman but a person can only do so much. Were the truth known, everybody expected too much of Someone Else.

Now Someone Else is gone! We wonder what we are going to do. Someone Else left a wonderful example to follow, but who is going to do the things Someone Else did? When you are asked to help, remember — **WE CAN'T DEPEND ON SOMEONE ELSE ANYMORE.**

Original Source Unknown.
Contributed by Tim Mills VK2ZTM

INDIAN AMATEURS IN EMERGENCY

Grace Dasan VU2AIG,
5B Versova Cross Road,
Off 4 Bungalow Road,
Andheri, Bombay, 400058.

BHOPAL, the world now knows this city which until 3rd December 1984, was known to **very few people outside** India. But thousands died to bring this city to world attention by **the accidental leak of** MIC gas from the multinational Union Carbide's fertiliser plant. The **company began operation** in India 50 years ago in a small way at first with battery **cells and later diversified** to become a major chemical company. The accident took place **on the night of 2nd-3rd** December 1984 and within a few hours the world came to know **of this ghastly accident, in** which over 3000 people died, many thousands were blinded, **and many more, some say** over 200,000, will continue to suffer the after effects of exposure to **this deadly gas. To be** sure, the early reports on the radio and television did not convey the **magnitude of the disaster**. It was only after a few days had elapsed, that the world **realised the enormousness** of the situation.

This was because Bhopal became a virtual ghost city in the first few hours of the tragedy as almost half of its population of 800,000 fled into the countryside to escape the lethal effects of the gas. As vital services and communication links were stretched to breaking point due to acute manpower shortage, amateurs stepped in to fill the breach.

On the 5th December, the third day of the tragedy, VU2RX, VU2AID and the writer conceived the idea and were responsible for the formation of the team that departed for Bhopal in the early hours of the 6th. It was finalised that the group should leave by car after ruling out transport by train due to the large consignment of equipment that they had with them.

Having very short notice VU2AID formed a small team of VU2EMJ and VU2NAX. This group was not aware of the conditions or situation they would face in Bhopal. With lack of rest or sleep but with true amateur spirit and determination to assist wherever they could help they drove all day and night to arrive in Bhopal on the morning of the 7th December, covering a distance of approximately 950 km over rough and dusty roads. Being unfamiliar with the town, they traced the QTH of VU2NB with great difficulty. At 12.30 pm on the 7th the team was welcomed by VU2NB and VU2SKN his XYL who were by then expecting their arrival due to prior information by VU2NYR when VU2NB had, the previous day reported on the air for the first time. VU2NB then invited them to stay in his house.

After a brief rest, the team learnt the magnitude of the tragedy and arranged for a meeting with the chief executive of Bhopal, to work out a plan to meet the civil administration's communication requirements. The commissioner of Bhopal welcomed the group and detailed his needs. The communication link needed were of the following nature, inter hospital, central control police Hq, factory site, supply centre, missing persons' Bureau and the Commissioner's Office. To meet these requirements both HF and VHF equipment was deployed. The group from Bombay was assisted by five other amateurs of Bhopal, VU2PRO, VU2RUZ, VU2HEL, VU2ARK, VU2SKN and VU2NB. The demand for more stations was met by the provision of Mohan Dy Spt of Police and also by the arrival of four more amateurs with additional equipment from Bombay by train on the 10th December. The amateurs were VU2JAC, VU2HPR, VU2VSK and VU2MRX, all young college students. All had to work long hours but they completed the assignment to the satisfaction and admiration of the Civil Authorities.

After the gas leak the production at the factory was stopped and the factory shut down, leaving 40 tons of the lethal gas in the storage tanks. In order to make the city safe, the authorities thought it best to use up the stored gas by manufacturing pesticide. This operation was codenamed "OPERATION FAITH". When news got out of this operation, the residents started another exodus, despite the assurance of the Government that there was no danger involved. People left the city by every mode of transport, including by foot, for safer places. They travelled on the rooftops of trains and goods wagons, scooters, cars, bullockcarts, cycles in a never ending caravan, carrying with them their prized possessions, leaving the city once again reeling under the shortage of manpower. However the amateurs remained to maintain the much needed communication links.

After five days, Operation Faith was a success, and the amateurs got ready to wind up operations to return home, but the civil authorities requested they stay to assist in the distribution of food and civil supplies in the disorganised city. Later, the commissioner himself requested the amateurs stay and assist in monitoring the communications for the distribution programme, a request which the overworked and tired crew readily accepted.

The requirements of this communication was between the godowns, control centre, commissioner's office, ration shops, fairpriced shops and also mobile communication units to direct the transport to such points where supplies were needed. The work the Civil Authorities had planned for ten days was completed in four days due the assistance provided by the everwilling amateurs. Bhopal Operation came to an end on the evening of the 23rd December. Finally VU2AID and VU2JAC were on the road driving night and day to be with their families for Christmas. The members of the Bombay team had made their way home by train a few days earlier to catch-up with their studies, tests and examinations.

While the amateurs in Bhopal were busy handling the communications required by the Civil Authorities and also extending communication requirements to the other relief organisations, they were also helping to trace persons whose welfare was a cause of anxiety in other parts of India and in other countries. Airnet India maintained a continuous watch day and night. When propogation conditions were poor, stations relayed and handled the various traffic regarding the welfare of various persons, the residents of Bhopal. These enquiries were coming from all over India and overseas. This work was done by VU2RX, VU2XYL, VU2NYR, VU2CK, VU2TP, VU2PDN, a few AP stations, 8Q7AV and also by a few A4X stations with the writer controlling Airnet India for this purpose. Another golden chapter has been written by amateurs and it is now well established that amateurs will always come where and when they are needed.

Article by Grace Dasan VU2AIG who conceived the operation and assisted the Bhopal team by continuous watch on the AIRNET INDIA from BOMBAY. 1984. **AR**

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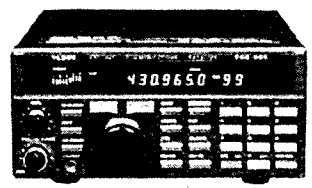

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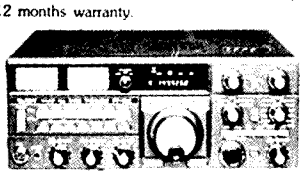

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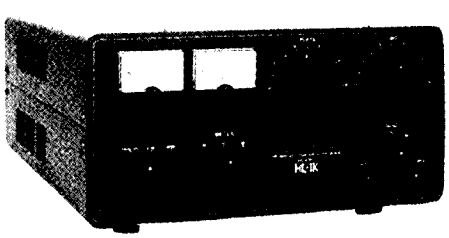

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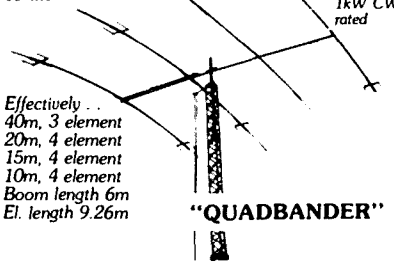

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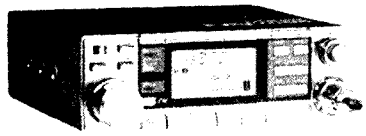

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A NOSTALGIC LOOK AT THE LIFE OF ROSS A HULL ex OA3JU 1902-1938

Ross Hull was one of Australia's most notable amateurs. Born in 1902 in Melbourne, Ross studied to become an architect. By 1922 Ross was deeply immersed into the amateur radio fraternity and was the first VK station to hear American signals. Each year the WIA holds a VHF contest in remembrance of his achievements. The following is a resume, taken from an editorial in QST, November 1938, of the life of Ross Hull.

Ross Hull.

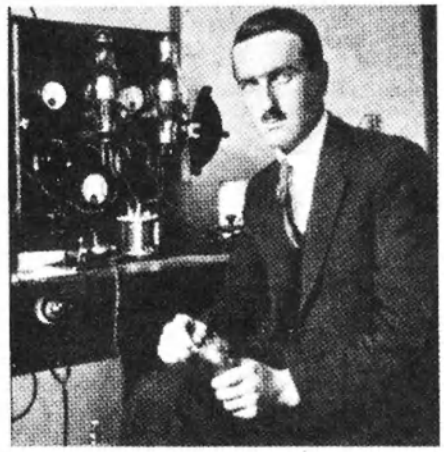
The brilliant career of Ross A Hull, editor of QST and The Radio Amateur's Handbook, came to an untimely end on the evening of 13th September 1938, when he was accidently electrocuted in his home in Vernon, Connecticut, whilst engaged in experiments on a television receiver.

Ross was a brilliant, ingenious and indefatigable amateur, possessed of a restless, inquiring mind, with a determination to outdo all others in everything he attempted. He was never satisfied with his accomplishments and always strived to better anything he had already achieved.

He was interested in many technical fields and although amateur radio was his greatest love, he was proficient in a variety of other interests. He was a brilliant pianist, with a great love of music, and played for many hours everyday. He was an artist of considerable ability in oils, water colours and crayon. He was an expert amateur photographer and his photographs graced many a QST cover. He was interested in astronomy and had built several reflecting telescopes. And model aircraft was a passion he carried on from early childhood.

During his latter years, together with another amateur, he built model planes large enough to carry radio apparatus for control in flight.

Ross, with so many interests, still found time for much reading and also to ski in winter and play golf in the summer. He was unmarried.



OA3JU at his station in Melbourne about 1924.

In 1926, as OA3JU and secretary of the WIA, Ross set off to visit ARRL headquarters on a study of American radio activity, particularly amateur radio. Upon arrival he encountered a vacancy in the junior position in QST's editorial department, technical information service. This was an admirable vantage point from which to see American amateur radio so he asked for and got the position.

He extended his stay and soon was promoted to an assistant technical editor's position.

In 1928, when a special technical development programme to devise new apparatus at headquarters required a director, Ross was the logical man to head the programme. Much new gear of his devising was introduced and his studies over the period revolutionised amateur radio techniques. He popularised "band spread" for amateur receivers and was responsible for the first serious use of the superheterodyne in amateur circles as the logical receiver for phone stations.

He produced the first practical apparatus employing the high-C circuit for self-excited oscillators, made the first presentations in amateur radio of 100 percent modulation and the use of linear RF amplifiers and first introduced the signal monitor.

Ross popularised the practice of putting valves upside down or at unusual angles to shorten leads and was largely responsible for the abandonment of bread-board construction in favour of a bent metal chassis. The apparatus he built was always beautifully constructed, mechanically rigid, with losses minimised to work at the greatest efficiency, whatever its purpose.

Ross and Galbraith Hull.

He returned to Australia in 1929 and became the technical editor of Wireless Weekly but he had been bitten by the radio bug in the USA and within eighteen months was back on the QST staff as associate editor. (He was succeeded as technical editor for Wireless Weekly by his brother Galbraith Hull).

Ross possessed an immense interest in UHF and pioneered simple apparatus for this field. He also encouraged the use of 56 MHz. By means of high-gain antennas he regularly communicated over distances in excess of 160 km on 5 metres. Over a period of several years he made recordings of distant UHF signals and correlated and analysed the vast quantities of data he acquired.

He became editor of The Radio Amateurs Handbook and jointly re-wrote the fourth issue.

Ross Hull and his model plane.

Ross was also greatly interested in television, particularly in the ultimate opportunities for its use in amateur radio and had an elaborate experimental set-up at his home. With his remarkable ability to scoop-up UHF signals, he was succeeding to receive NBC experimental transmissions from New York (a distance of approx 160 km) shortly before his death. He had also built an experimental TV transmitter.

It was the power supply for his TV receiver which caused his death. The receiver required a 6,000V plate supply for its large Kinescope. While only a few mA were required, small transformers had caused trouble through surface leakage and he had replaced them by a large 1.5kW, 4,400V pole transformer. The power supply was on a shelf under a table and the mains outlet was on a wall behind and immediately above the equipment. While wearing headphones connected to the converter and receiver and grounded on one side, he reached over the power supply to plug into the 120. As he withdrew his hand he came in contact with the HT lead to the rectifier plate, pulled it off, and fell so that the 4,400 V lead was contacting his body, with the phones providing the ground.

As it happened he had a dinner guest that evening, a doctor who was familiar with high voltages. Sensing trouble from the next room within thirty seconds after Ross had plugged in the power supply, the doctor ran to his aid, dragged him clear and administered artificial respiration. Two other doctors arrived in a short time and every effort was made by experts to revive him but to no avail — death was instantaneous.

There is an awful lesson in this for ALL radio amateurs everywhere. If a small transformer had been in use instead of the large one with the powerhouse behind it . . . if the power supply had been covered . . . if the plug had been somewhere else . . . if the line had been lightly fused . . . if he had not been wearing headphones . . . he was, himself the author of the warning against high voltages which appeared in the ARRL Handbook.

An enthusiastic skier.

In his passing, amateur radio lost one of its most valuable minds.

Compiled from information contained in QST, November 1938, by Bett McLachlan.

AR

HONOUR FOR OLD TIMER

On his recent visit to Queensland, the Federal President, David Wardlaw VK3ADW, together with Queensland Divisional President, John Aarsse VK4QA, had great pleasure in presenting the Annual VK4 Merit Badge to Alan Shawsmith VK4SS. David read the following citation to Alan honouring his achievements for the good of amateur radio over the years.

Alan's first interest in WIRELESS began in 1925 when Queensland's Broadcasting Station 4QG was built and put on air and he began building crystal sets. A neighbour Len Greenhill VK4LE encouraged his interest in the hobby, allowing him to use his equipment. Alan sat for and passed the AOCP in August 1935 at the age of 17. He was allotted the callsign VK4SA and became an avid DXer, largely using A1 mode, until the outbreak of WW2 in 1939 when all licenses were cancelled and rigs had to be dismantled. Post-war he was granted the call VK4SS. Some 50,000 QSOs later, with 320+ countries tally, countless awards and many contest placings to his credit, he is still pounding brass.

Despite these personal achievements Alan feels his greatest contribution to the hobby has been through his journalism. He has written and had published many feature articles of merit on a wide range of subjects and quite a few humorous stories and sketches, both locally and in overseas countries ('73', 'QST', 'CQ' magazines to name a few). For a twelve year continuous period (late 1960 through 1970) he wrote the monthly DX Column for AR magazine and for a shorter period contributed to 'QTC'. His greatest interest has always been in the historical side of AR — he has built up a considerable collection of early Morse keys and pre-war rigs (mostly self-constructed). Some of these have been loaned for Divisional and Club displays.

At present Alan VK4SS, on behalf of the Queensland Division of the Institute, is gathering material on VK4 OOTers of the thirties, many of whom are now SK. This information is being recorded in AR magazine. It is hoped that a booklet on the early history of the WIA in Queensland, with reference to these OOTers and the state of the art generally, will soon be published, and that it will be as well received by the amateur fraternity as his other articles on the early days of wireless.

Alan's greatest asset, apart from his many children, is his wife Lovice. Lovice has always been a tower of strength to him, by being his willing secretary and researcher. At present both Alan and Lovice are not always enjoying the best of health, but their keenness and energy is undiminished.

AR

From left — Alan, David and John.

EQUIPMENT REVIEW

Evan Jarman VK3ANI
TECHNICAL EDITOR

DOCTOR DX

How do you play radio when you are not really playing radio? With Doctor DX.

Doctor DX is a memory cartridge module which, with a Commodore-C64, simulates the CQ Worldwide DX Contest. The cartridge plugs into the memory expansion port at the back of the microcomputer. The only other equipment required, as Doctor DX is a Morse code only simulator, is a Morse key. The key plugs into the RCA connector on the cartridge. That is all the hardware required.

The heart of the system is stored in the two 2764 EPROMs; the software. Doctor DX's programme simulates the rest of world during the CQ Worldwide DX Contest. It pretends to be the other station in an exchange which requires confirmation of RST and zone numbers. The other variables such as QSB, QRN and QRM are all combined in varying amounts to make the Doctor DX simulator so incredibly believable.

I tried a CQ TEST. Back came a ZS6 with 569.1 gave him a 599, and, as soon as I confirmed, up came a score on the screen. The programme had also found my call sign and this too had been displayed. Calling CQ again netted a W6 and XE3, then a HM3 called me, something that had not happened for a long time. I was beginning to like this machine.

After clearing with two more stations that called me, I decided to tune around and pick out the DX. The frequency (call sign used) is based on the populations of amateur stations with a guarantee that there are 304 countries represented. Just tuning around I was able to work SM, ZL, G, SP, LZ, PR, LA, VU and the occasional American. It was totally absorbing: the adrenalin was going just as in a real contest.

To give an idea of the level of sophistication in the programme a contact with a OY3 is a good example. I was continually beaten by Europeans and decided to QSY. Moving down the band and then returning, all the stations were on the same frequency that I had previously heard them. The OY3 was eventually worked but only by increasing the output power and using a technique I call tail ending; dropping one's call in on the change over. I like the way one station seemed to be working another, especially when you knew that it was only the computer talking to itself.

The other bands were tried and both 15 and 10 metres worked well. Just listening to Doctor DX on 10 metres is enough to restore faith in the band. However on 160, 80 and 40 metres nothing was heard. Calling had the same effect. Further reading of the instruction manual was needed to find the answer. Doctor DX also takes diurnal variations of the ionosphere into account. Using the latitude and time it works out if the band should normally be open at that time of day.

By changing the time to local night time the lower bands opened and the top bands closed. Just another variable that the programme uses to make Doctor DX very realistic.

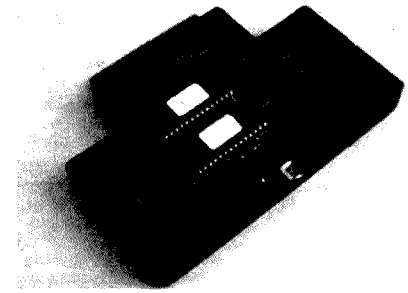
SETTING UP

After plugging the system together with the monitor screen shows a picture of a transceiver with the controls in use as well as the score broken up by band, country and zone.

Before starting, the programme needs to know your latitude, longitude, time (UTC) and the duration time; for those who really want to make a contest. Other variables such as output power, band, volume, filter, bandwidth and frequency can all be varied during a contest run. They are changed by pressing the keyboard button displayed on the screen. The exception being frequency which uses the function keys to the right of the keyboard. This allows for fast or slow change in frequency.

ON AIR

For me the best place to start in any DX work is 20 metres. Doctor DX conforms to the usual practice of the faster stations operating lower down the band so I moved up the band and started at 14.12MHz and heard nothing. Using the F3 and F5 keys to move around this spot showed that the band was active so



CONCLUSION

I was able to use Doctor DX twice and after each attempt I was able to work out how to improve my score. By deleting, all but the essential, high scores are possible, with high QSO rates. Doctor DX is certainly aimed at the keen contester and this breed of amateur will enjoy this simulator. I have read of some American amateurs being fooled completely by this simulator when it was in a prototype form: it looked like a transceiver then and certainly sounded like one.

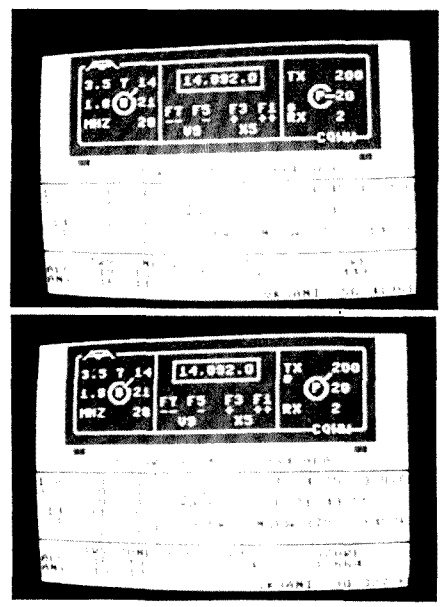
For me, it is a great device. I found that my code speed and proficiency made marked improvement. I just wanted to go faster and faster. No doubt this would happen for others. By turning the monitor and lights off there is no obvious way of knowing whether you are working the simulator or a transceiver. The only way I found to pick the difference was the sound of computer generated noise. There was a difference if you concentrated on it.

Doctor DX could be called "Claytons" radio, but with current band conditions, for contestors, it is more fun.

The Doctor DX simulator was supplied by Hy-Tech Distributors of Archerfield Airport, Queensland.

AR

Below: The TV Screen. The dot beside TX and RX indicates that tone is being transmitted or received.



The Club Conference — How It All Started

1985 'celebrates' the tenth anniversary of the Wireless Institute of Australia, Queensland Division Annual Radio Club Conference, originally known as the "Radio Club Workshop". This Conference is now an accepted way of life in this Division, so it may be of some interest to learn something of the development and history.

Way back in the 70s, 1973 in fact, the idea was mooted by John VK4QA as a Council member that Council should meet with representatives of all affiliated radio clubs in Queensland to:

a: *find out what the clubs and their members really wanted*
b: *combat the age-old differentiation between CITY and COUNTRY, between US and the QUEEN STREET COWBOYS*
c: *create a continuing above the board relationship between Council, the affiliated clubs and WIAQ members.*

It took quite some time of deliberations at Council level to finally suggest that such a meeting would have some benefits. The major supporters of this idea were John VK4QA, Roger Davis VK4AAR and David Laurie VK4DT.

Finally, towards the end of 1975, Roger VK4AAR, could not stand it any longer and, before anybody knew it, he called a mini workshop for South East Queensland, held in Ipswich. Only a few SEQld clubs participated, but the outcome of it all was that Council suddenly woke up and a plan was formulated whereby a workshop was to be held at times to be determined and not be limited to Brisbane.

Council determined that the first workshop was going to be held at BUNDABERG in March 1976. Only one delegate from Brisbane made it to Maryborough, only to be stopped in his tracks by 4 metres of water over the road just north of Maryborough. No workshop in Bundaberg.

Council then reviewed the policy and decided that such workshops could better be held in Brisbane every so often and delegates from northern clubs reimbursed their airfares. Further, by being held in Brisbane, money would be saved as otherwise the whole Council or at least a majority, would have to be transported by air or road, the costs to be borne by the WIAQ members. This was just not on and the suggested venue of Brisbane was more acceptable.

The first workshop along these lines was finally held in September 1976. Roger VK4AAR, was able to secure the YMCA Hall in Windsor and there the delegates from most of the affiliated clubs met for the first time. It would be optimistic to say that right from the beginning a cordial relationship existed between the delegates and council.

However, the delegates became more talkative AND critical on the second day of the workshop, once they discovered that Council was genuine in their attempts to create better communication between "them" and "us".

When, towards the final hours of the workshop, Council announced that the following workshop was scheduled to be held in 1978, the meeting quickly moved that the workshop should be an annual affair, even if it meant extra expenses to both the WIAQ and the clubs.

Before the second workshop was called, Council decided that it would be an excellent idea to hear from the clubs what they thought about certain Federal Conference Motions, so that the VK4 delegates would be better informed. Thus, the conferences (or workshops) were destined to be held one or two weeks before the date of the Federal Conference.

The workshops in 1976 and 1977 were held in Windsor, the Brisbane North Amateur Radio Club hosted the workshop in 1978, 1979 and 1980, followed by the Redcliffe Radio Club in 1981.

At this point in time, the then Council realised that a lot of time was wasted in the transportation of delegates from private billets to wherever the workshop was held. Guy and Anne Minter VK4ZXZ and VK4KZX, had heard of the possibility to use certain sections of the Griffith University when the Uni was in recess. Fortunately this usually happened just when the workshop should be held, so it became possible to meet at the University in the 'live-in-format". 1982 saw this idea implemented for the first time and it has now become a standard feature.

1982 also saw a new idea being applied to the workshop, thanks to the then VK4 Councillor, Dave Laurie VK4DT, the formulation of specific WIA policies. Although the task was rather unexpectedly thrown upon the shoulders of the delegates, all 'committees' acquitted themselves very well and their results became, after some dressing up, the OFFICIAL WIA POLICIES. This idea has continued until this day and the 1985 delegates are prepared for another round of policy making sessions.

In 1983 a great debate took place on the 'name' of the workshop. Finally, with the barest of majority, the Radio Club Workshop was no more and became the Queensland Radio Club CONFERENCE. Another innovation was the "appointment" of a permanent chairman and since 1982 David Jones VK4NLV, has done a tremendous job.

So, with having read all this, what is there in it for the "ordinary" club and WIAQ member?

There is ONE and only ONE answer, you as a member has now the destiny of your own future in your very own little hands.

Clubs who take the conference seriously will discuss the presented motions and instruct their delegates accordingly. That is part of the input of the club to the conference. In turn, the delegate will have endless yarns with other delegates and will come back with someone else's ideas which could be of benefit to his own club. Thus, much more is achieved than only discussing motions, clubs get to know each others problems and possible solutions.

The original originators of the workshop idea should be more than pleased with the way their brainchild has developed. Lets hope it will continue to grow and improve. A hard road is ahead of future conferences, because they will now have the "competition" of other Divisions who finally have discovered that the Queensland Radio Club Conference is not such a bad idea after all.

AR

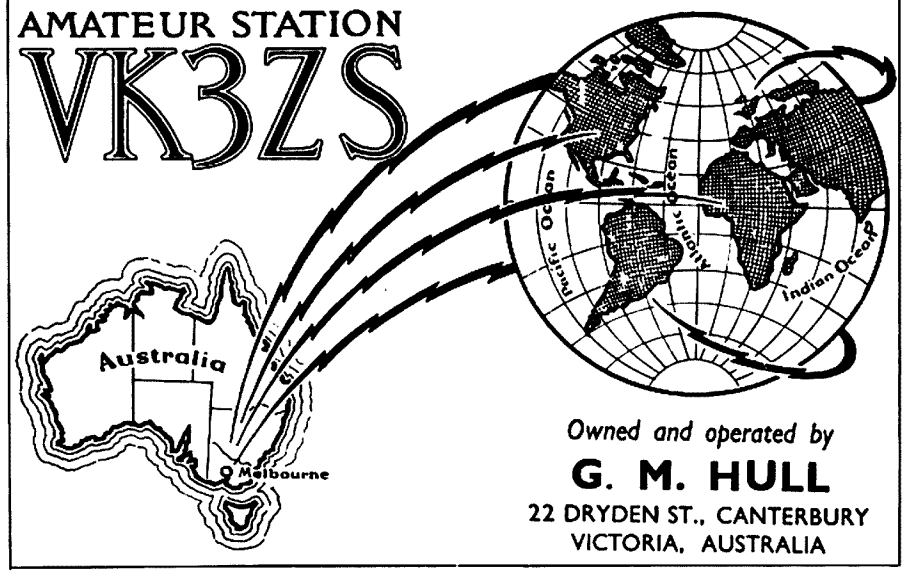
Historically Speaking

Below is an early QSL card designed and used by the WIA Federal Historian, Max Hull VK3ZS.

Max designed the card to depict his signal from Melbourne reaching the four corners of the world. Max was first licensed in 1937.

Max would now like some help from YOU. As Federal Historian he would like to learn YOUR story so that our past will not be lost. Max is seeking stories of firsts, historical or human interest, etc. You may think the story insignificant, amateurs of tomorrow may be fascinated.

Now is the time to write it down and post it to Max at Box 33, Canterbury, Vic. 3136.



From QRM, Vol 3, No 5, April 1985

AROUND THE CONVE

The 49th Annual WIA Convention was held
was attended by Federal Executive, Cou
cillors, Observers and Special Guests.

Proceedings were ably chaired by the Fe
important matters pertaining to the ful
considerable length. Also reports of special

Many new faces were welcomed, some o
Councillor VK7, Graham Ratcliffe VK5AG
Councillor, Rowland Bruce VK5OU, Obs
Chairman.

Gordon Bracewell was elected to Execut
resigned last year.

A detailed report of the Convention will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Photography by Betken Productions


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ENTION TABLE — 1985

eld in Melbourne between 26th-28th April and ncillors from all Divisions, Alternate Coun-

deral President, David VK3ADW with many ure of amateur radio being debated at l Federal Officers were presented. f those being Joe Gelston VK7JG, Alternate R, AMSAT Co-Ordinator and VK5 Alternate server and Peter Gamble VK3YRP, FTAC

tive to replace Tony Tregale VK3QQ, who

e presented in next month's magazine.

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Main photograph: David VK3ADW, Federal President, presents the RD Trophy to Steve VK2PS, VK2 Councillor. VK2 were the RD winners for 1984. 1: GeorgeVK1GB and Fred VK1MM. 2: Steve VK2PS and Tim VK2ZTM. 3: Des VK3DES and Alan VK3BBM. 4: Allan VK3AE. 5. Peter VK3ZPP, FTAC Repeater Co-Ordinator. 6: David VK3ADW and Peter VK3KAU. 7: Reg, Secretary/Manager. 8: Steve VK2PS was elated to accept the RD Trophy on behalf of the VK2 Division. 9: Wally VK2DEW. 10: Peter VK3YRP, Chairman of FTAC, Guy VK4ZAZ and Peter VK3AVE, member of FTAC discuss band plans. 11: Joe VK7JG and Peter VK7BQ. 12: RD Trophy. 13: Neil VK6NE and Bruce VK6OO. 14: Ross VK4IY. 15: Graham VK5AGR and David VK5AMK wept as Steve received the RD Trophy. 16: Bill VK3ABP and Earl VK3BER. 17: Rowland VK5QU.

NOVICE NOTES

Diode Switches and TVI

Ron Cook, VK3AFW
Technical Editor

It has been brought to my notice by Bill VK3ARZ and Ken VK3ACS, that most current model video recorders use diode switches to switch the TV signals through to the recorder or to the TV receiver. Unfortunately they considerably increase the likelihood of TVI.

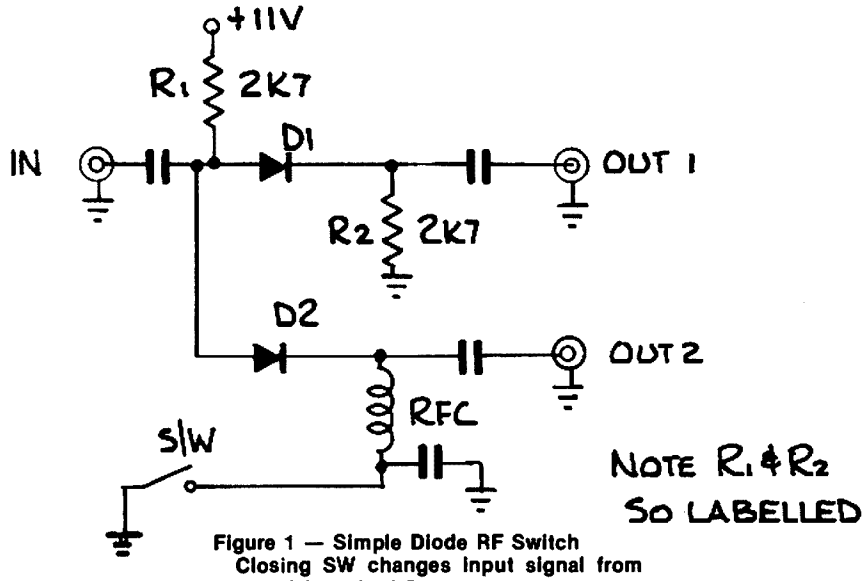


Figure 1 — Simple Diode RF Switch
Closing SW changes input signal from output 1 to output 2.

Figure 1 shows a possible configuration for a change-over switch which can be operated by a single on-off switch. The latter need not be designed for RF nor need it be near the RF circuit where the switching takes place. For best results D1 and D2 should be PIN diodes which are specifically designed to switch RF. Unfortunately it seems that the manufacturers have opted for cheap 1N914 type diodes. These will rectify strong RF signals quite readily.

When the switch SW is open a current flows through R1, D1 and R2. D1 is forward biassed and will allow small signals of a few millivolts maximum to pass without distortion or rectification. If SW is now closed D2 will conduct and D1 will stop conducting. The current will prefer to take the path, D2, RFC, as it has a lower resistance than the D1, R2 path. Thus the input signal may be directed to either output 1 or output 2. The signal will flow through D1 or D2 when they are forward biassed or conducting because the resistance of the diode is only a few ohms under this condition. When no current is flowing through the diode it has a high resistance. Provided the applied voltage is less than about 0.6 volts (for a silicon diode) there will be negligible current flow, but above this voltage the diode conducts. Hence a strong amateur signal might cause D1 to turn on (on each positive going RF cycle of the amateur signal). Even when the diode is on due to the applied DC the amateur signal may still be rectified.

Unfortunately one of the effects of rectification, apart from switching the TV signal on and off at a frequency determined by the amateur transmitter, is to produce harmonics. Thus there exists a rich source of TVI. One of the interesting effects is that the interference is worse on the TV set than on a recording made at the same time of the same channel. If you have a report of TVI concerning a VCR ask the owner to help you do a test with the antenna connected directly to the TV set rather than through the VCR. If this clears the TVI then you have a case of diode induced TVI.

Usually a simple cure can be effected. A low-pass filter can be inserted in the coax at the input to the VCR. If you are making up a unit stick to proven designs. Calculation of the inductances from first principles will result in too low a cut-off frequency because the standard inductance formula does not take into account self capacitance effects. Ken VK3ACS, has found errors of 20 percent or more at 30 MHz for small inductors.

A simple solution is the use of a "Braid Breaker". Figure 2 shows a simple design supplied by Ken. The reactances were measured using a Wayne Kerr RF Admittance Bridge. Two short lengths of 28 B&S enamelled copper wire are twisted together at one turn per cm to form a transmission line of about 72 ohms impedance. This line is wound on a standard 100 mm long ferrite antenna rod. Ken used 42 turns spread over 92 mm.

Ken also had a toroidal core of about 40 mm diameter on which he wound 20 turns of RG179B/U coax as in Figure 3. This coax is thin and teflon insulated. Dick Smith stores are one source of this. It has a similar impedance compared to the other design and gives a better result on 14 MHz. (This is of no consequence to the novice.)

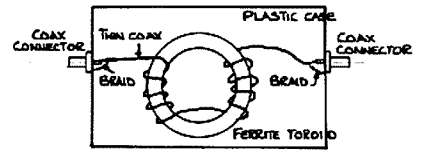


Figure 3 — Braid Breaker No 2
See text for further details. Note that the braid of the coax connects to the outer of the connectors.

Measured Impedance is:—

FREQUENCY MHz	IMPEDANCE Ohms
3.5	4,500
7	33,000
14	37,000
21	3,000
28	2,300

The properties of the ferrite are not of great importance in practice so almost any ferrite rod or toroid is worth a try.

The braid breaker works by placing a high impedance in series with the TV coax braid thus choking off any RF which is present on the outside of the braid. In most cases of interference to VCRs the amateur signal will appear on the outside of the coax (which acts as an excellent HF aerial) and then finds its way to critical parts of the set from there. A braid breaker will cure this problem but usually a low pass filter cannot; sometimes both are needed together. Braid breakers are easy to make and can be an inexpensive and practical answer to that TVI problem. Thanks Ken for the information.

73 de Ron.

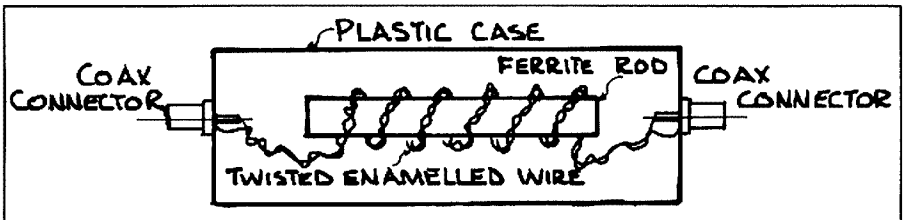
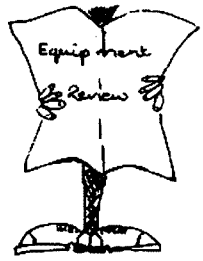


Figure 2 — Braid Breaker No 1
See text for details. Note that same wire connects to centre pins of connectors for DC continuity.

Measured Impedance is:—

FREQUENCY MHz	IMPEDANCE Ohms
3.5	1,700
14	11,000
28	5,700



EQUIPMENT REVIEW

THE ICOM IC-3200

Ron Cook VK3AFW
TECHNICAL EDITOR

INTRODUCTION

Anyone who has a car less than 5 years old will know the difficulties of fitting one, let alone two rigs into the car in a convenient position. For the multi-band VHF/UHF operator this poses something of a problem. Well worry no more, Icom have produced the answer — the IC-3200.

The IC-3200 is a small dual band FM transceiver that packs a punch. It measures only 140 mm wide, 50 mm high and 207 mm long and weighs just 1.9 kg. Power output is a minimum of 25 watts on 146 and 440 MHz. It comes fully equipped with all the features you would expect of a modern microprocessor-controlled rig.

In fact the set is so small that antenna and power sockets could not be fitted on the back panel. Instead a short length of coaxial cable exits through a grommet and is terminated in a cable-mounting female SO239 connector. The DC power cable similarly exits through the back and is terminated in a click on connector.

SOME GENERAL DETAILS

The unit supplied was serial number 11 This must be a first for Australia. Because this was a pre-release unit only a Japanese manual was available. (Perhaps there is sometimes merit in reading the handbook only when all else fails but this was not one of those occasions). When this model is released in June it will come with an English handbook, a mobile mount, microphone and power cable.

The case has a very ordinary plastic appearance. The front panel has a neat functional appearance and features a large LCD display which is backlit with a green light. The display incorporates a signal level bar indicator, and displays the operating frequency. It also indicates which of the two VFOs are in use, the selection of memory channel, duplex or simplex operation, priority channel, tone burst, and indicates transmitter RF output level. When programming the set other functions, such as the duplex offset frequency, are displayed. Any offset may be programmed although the transmitter will not transmit out of band.

There are 8 function buttons, 5 of which have a second function selected by a control button. Two other buttons control large frequency steps, up or down. Smaller frequency steps can be achieved by turning the main tuning control or by buttons on the microphone. The volume control and squelch are conventional potentiometers with the latter also being used to switch from 5 to 25 watts output. Call tone facilities are available although they are not of use in this country yet.

In spite of the number of controls, which is modest by some standards due to using dual functions, there is no need to worry about hitting two buttons at once because of the size of your fingers. I found the control size quite acceptable and adequately spaced.

The operating frequency may be locked to prevent accidental QSY, a priority channel may be scanned every 5 seconds for 1 second, memory channels may be scanned (or skipped without being erased).

The size of the frequency steps may be selected to be 5, 10, or 25 kHz.

ON TEST

According to the manual the power level is normally set to 26 watts on both bands. The receiver sensitivity seemed very good on both bands.

The set was given a "test drive" and found to give a very good account of itself. The extra power improved the signal received at the other end in some of the notorious "holes". Using a quarterwave antenna on both 146 and 440 MHz gave very good mobile reports at ranges of 120 km from several repeaters. It was generally not possible to pick any signal strength difference between the 2 m or 70 cm signals when co-sited repeaters were used. The audio reports received were very good. The receiver audio level was sufficient to overcome all noises induced by travelling at the speed limit and was of good quality especially considering the size of the speaker.

A dual-band antenna was constructed and although it was not as effective on 440 MHz as it should have been, several hours of mobile operation were achieved using both bands. The ability to change channels and bands by pressing a button on the microphone was a new experience for me, and one which I enjoyed as it is a much safer means of changing frequency when mobile.

FOR THE TECHNICALLY INCLINED

Now for some comments about the circuitry. When the case is opened a neat but not overcrowded pair of printed circuit boards is exposed. Servicing would not be as much of a problem as for some of the handheld sets.

The 2 m and 70 cm RF sections are separate. Both receiver front ends use 3SK121 FETs with bandpass filters. The 70 cm section has a 2SK125 as a second RF amplifier. The IF section is common and has a 30.875 MHz first IF feeding an IC amplifier, detector and noise amplifier operating on 455 kHz. An active filter is used in the AF chain to improve the received audio readability.

Separate VCOs are used for the transmitter and receiver oscillators. The output power sections are modular units rated at 25 watts out. Diodes are used to provide antenna switching between transmitter and receiver. A lowpass filter connects to the antenna socket for 2 m and a highpass filter followed by a lowpass filter connects the common antenna line to the 70 cm change-over switch. An additional lowpass filter is used on the output of the UHF module.

All of the functions are controlled by a microprocessor chip which monitors the rotary dial and switches for operation. A digital to analogue converter is used with a comparator to measure the signal and RF levels. Digital data lines from the microprocessor drive the LCD display, VOO dividers, key scan lines, and diode switches. A memory back-up battery is used to retain all those channels you stored even when the rig is removed from its power source. Incidentally, the block diagram has an interesting spelling of "battery", namely "buttely".

FINAL COMMENTS

In conclusion I found this rig to be a most useful innovation even if it is not the first dual band VHF/UHF FM transceiver to reach these shores. It is up to the usual high standard of Icom for VHF equipment. The price is likely to be around $700 which is less than the cost of two rigs. Perhaps if you can afford a car large enough for two rigs the extra cost would not be significant. More details can be obtained from the Icom advertisers in this issue.

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* *poor* ** *satisfactory*
*** *good* **** *excellent*

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Control size	***
Identification	***
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TRANSMITTER	
Output	****
Audio	****

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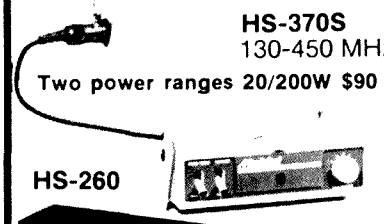

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130-450 MHz
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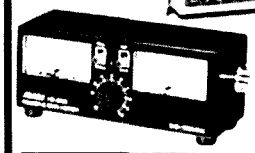

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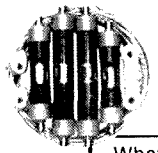

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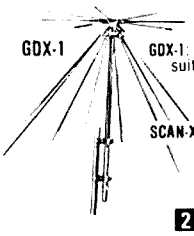

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OCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR.
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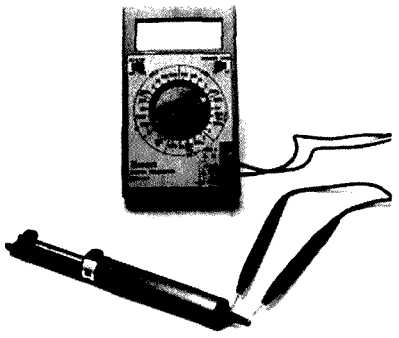

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For further information contact:— Scope Laboratories, PO Box 63, Niddrie, Vic. 3042. Telephone: (03) 338 1566.

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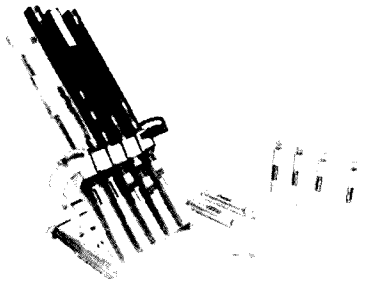


NEW IC TOOLS

Tools that accomplish more than one basic task will always justify their existence in workshop or production facility.

These new IC dispensers and IC inserters show clear signs of thoughtful design. They are distributed nationally by Scope Laboratories.

The DS1440 series of IC dispensers embody these features.

(1) Built-in pin alignment fitted to every channel.
(2) Accept diverse shipping tube shapes by using a spring loaded clamp.
(3) Control IC feed velocity by varying tube slope.
(4) DIP length adjustment uses spring loaded stops.
(5) Anti Static metal plated surface for adequate earthing.

Standard configurations and 2, 5 and 10 channel in combinations of 0.3 and 0.6 pitch DIPs.

The SIT Series Inserters and Straighteners covers 8 pin to 64 pin DIPs in 9 tools. Their design features include.

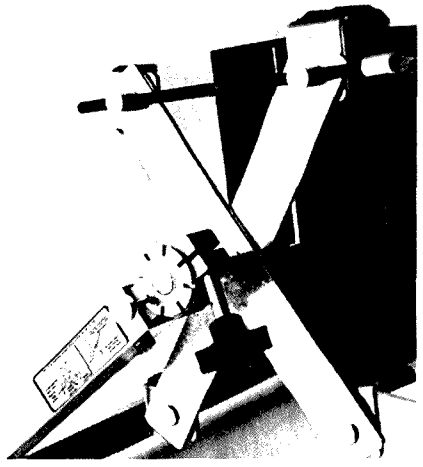
(1) Built-in pin straightening facility — which also provides an effective non slip hand grip.
(2) Slim Wall Stainless Steel clips to cope with high density boards.
(3) Anti Static metal plated surface.

The DS series dispensers are designed for use with the SIT Series inserters and singly or in combination they appear to perform a useful combination of functions.

Distribution is through electronic supply houses in all states.

For further information: Ian Pittman, Scope Laboratories, (03) 338 1566.

AR

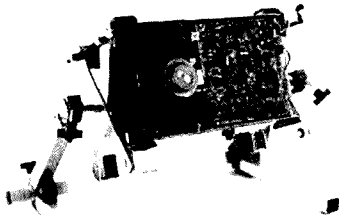


CHASSIS HOLDER ROTATES AND LOCKS

An irregular shaped 40 kg chassis which won't balance in the position you want can be dangerous and frustrating on the work bench.

A New Scope-Panavise work Holder will clamp irregular shaped chassis of up to 50 kg.

Available with either scissor type clamping heads (model 601) or self centering vise heads (model 602) this 'Chassis Mount' rotates about a horizontal axis 225 mm from the bench top.



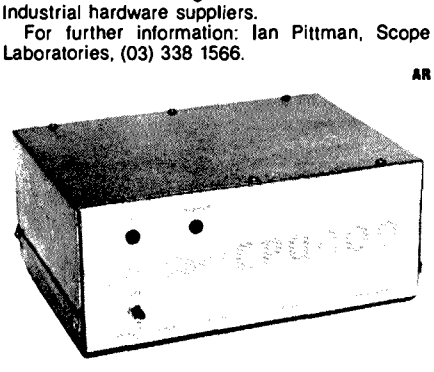
Rotation can be checked using an 8 position positive locking detent or by using twin friction brakes which allow chassis positions to be precisely selected.

Clamp capacity is 225 mm and whilst chassis widths up to 450 mm are accommodated on the standard model, greater widths are feasible with special wider cross bars.

Both units are lightweight (6 kg) and portable. They will be available through electronic electrical and Industrial hardware suppliers.

For further information: Ian Pittman, Scope Laboratories, (03) 338 1566.

AR



INTELLIGENT RAOIO DATA MODEM

GFS Electronic Imports have announced the availability of a new microprocessor controlled radio data modem. Known as the CPU-100 it is designed to provide both Baudot and ASCII data communications over a narrow band HF/VHF/UHF FM or SSB radio path. Being intelligent it relies on internal firmware for control of its operating facilities which may easily be "reconfigured" to suit a users requirements.

A number of versions of the CPU-100 currently exist. All are designed to connect directly to a dumb terminal or TTY KSR printer (ASCII) via the RS-232 port. Baud rate to this IO port is selectable from 50 to 19200 Baud via an internal Dip switch.

The commercial version of the CPU-100 provides a fully transparent Interface between the users remote terminal, narrow band radio bearer and main frame computer. It can do this either as a full duplex system (using a duplex radio link), a half duplex system or simplex depending on the users requirements. Error detection and/or full error correction can be provided. Data speeds used over the bearer may be up to 2400 Baud depending on the radio links quality. Other facilities may be also built in to the CPU-100. For example auto password/call sign transmission and reception could be included. Up to 2 k of internal backed up RAM and 8 k of ROM space is available to store such user requirements.

An amateur radio version of the CPU-100 is also available. It is designed to operate In either Baudot or ASCII modes and provides user variable Baud rates and selective call recognition.

Other facilities available include backed-up memory, user call sign buffer, three large multi-character buffers as well as auto terminal configuration.

For further information on the CPU-100 range contact the distributors: GFS Electronic Imports, 17 McKeon Road, PO Box 97, Mitcham, Vic, 3132, Phone (03) 873 3777.

AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

Having been burning the midnight oil of late has given me the opportunity of listening around the spectrum and listening to a number of signals from Europe particularly on the 20 metre band, short path.

I am still amazed at the number of stations that call CQ for long periods without a pause. One particular station was not having much joy in getting any replies, admittedly his audio was not of "broadcast quality", but he was persistant. After about the fourth CQ call, I timed his CQ call and it was 4 minutes and 22 seconds. Out of pity I called him, gave him R3 to R4 and S9, we exchanged names and QTHs but he either did not understand my remarks about his audio or did not want to. After completion of the contact he repeated the same procedure.

In my book this is a waste of time and energy, a 30 second CQ, then a break to listen and another 30 second CQ call is ample on a quiet band. If no luck, shift frequency, ask if the frequency is clear and if so, proceed again. It is less tiring and generally more productive.

With the band opening up, I was hooked and gave one CQ. Two hours and many enjoyable QSOs later I wanted to go QRT. It was not to be, as many stations were still calling. I firmly stated that three more reports would be my limit, kept my word and went QRT.

It has always been my policy in such a situation to periodically listen for QRP, YL and mobile stations. The QRP stations have as much right to a QSO as the mobile and neither have the advantage of power. The YL ploy doesn't always sort the baritones from the sopranos but if one is persistant the YL will emerge and on one evening I had the pleasure of making one mobile and three YLs happy as being their first VK. All were running around 25 watts into either a whip or dipole.

Try it sometime, it is nice to make someone's day, somewhere!

75TH ANNIVERSARY

The WIA is not the only one celebrating its 75th Anniversary this year. The Canadian Navy are also celebrating and prefixes of CF1-CF8 for VE1-VE8, CY1 for VY1, VC1-VC2 for VO1-VO2 and CF0 for VE0 have been active on the bands. Congratulations to the Royal Canadian Navy on their anniversary.

Another anniversary is the South Africa Amateur League who are celebrating their 60th Anniversary this year. One of the special stations is ZS1SARL which is quite active. Congratulations SARL.

SILENT KEYS

It is sad to report the passing of two well known and respected DXers. The first is of Sebastiao PY1SM, who passed away three days after a heart attack, less than a month before his 100th birthday. Sebastiao was consistently active up until the time of his attack and surely must have been the oldest active amateur in the world.

Another well known DXer and exponent of the hobby Tex TL8TX, became a Silent Key in a Paris hospital earlier this year. Tex sustained serious injuries after being involved in a nasty accident at the timber plantation where he was employed in the Chad Republic.

Tom K0VZR hopes to obtain all the logs for his operations under that call, which are still in Africa otherwise, he will have to return about 250 cards as he will not be able to verify them.

Both amateurs will be sadly missed but not forgotten for their contributions to the hobby.

DETECTIVES WANTED

Peter G3VIE, a member of the Chiltern DX Club, is desperately trying to find the OSL information for Ron AX9RY, who he worked on the 31st August 1970. It is believed this operator became P29RJ, but letters and cards have not been answered. It would be appreciated if anyone who has any clues could pass them on to Peter or to this column.

ACTIVITY FROM 3X

Harry DL7AH/3X has been active from Conarky in the Republic of Guinea. OSL to Harry at the Call Book address, but be patient as he will not process cards until he returns home, probably later this month.

NEW PREFIXES

Portugal presently CT is about to change its prefixes. They will be based on the class of licence and postcode. CO is for a Class A licence, CR for Class B, CS for Class C and CU for Class D. More confusion in the ever changing prefix alterations but a boon for the prefix hunter.

WHO NEEDS POWER

In reading the DX News sheet, Tom GW3AHN, after checking his logs, notes that he has worked 307 current countries in a recent six year period using only 25 watts input. No mention is made of the antenna or the number of confirmations that he has received. If you read this Tom, I am sure that all readers would be interested in your set-up and remarks concerning that period. *How about a few paragraphs for the VK readers, Tom?*

FAROE ISLANDS

News from Martin OY7ML is that OZ5DL and OZ5UR will be operational /OY from the Faroes during June. The operation will begin on 6th June 1985.

ALBANIA

The appearance of "ZA2BB" that was worked by at least three VK4s and amateurs from other countries prompts me to say that the last known legitimate operation from this country was in 1971, under the call ZA2RPS.

Since then quite a number of amateurs have applied for a licence, the answer always being "Sorry, no amateur radio". In 1979 a statement was made by an Albanian Embassy official that, "As from January 1975, amateur radio licences are only granted to nationals". According to an acquaintance from that country it is illegal to have a radio transmitter.

So Albania climbs to be one of the most wanted countries in the world and we wait until the Government has a change of heart. With the complicated political and economical situation in that country, it is personally felt that it will be very low on the list of priorities, unfortunately.

Personal feelings are that Marti OH2BH, may one day be the first to break the barrier and encourage the hobby, as Tom VE7BC did in China, which took over a decade to accomplish.

It is felt that the "ZA2BB" was the figment of a sick minded person who had access to transmitting equipment. Such actions that are perpetrated against a country that is inactive due to its government, are only further placing reactivation in the imminent future in jeopardy.

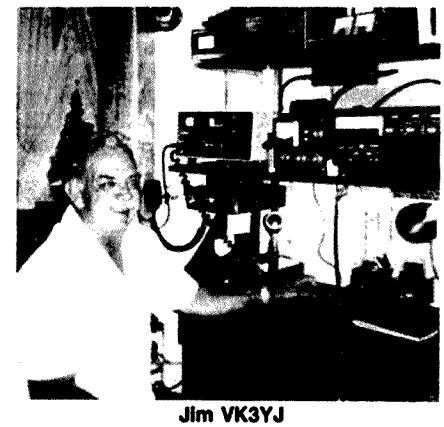
I hope that I am proved wrong and if I am, congratulations to those that made it.

Photograph courtesy World Radio

Unal Akbal TA1A, ex TA1UA, is the first amateur licensed in Turkey (see p39 — April).

CONGRATULATIONS

Any member who has access to the magazine "73 for Radio Amateurs" for April this year should read the excellent article written by Jim VK3YJ, their Australian correspondent.



Jim VK3YJ

Jim, a man of boundless energy, who is ably supported by his XYL Anne, has written articles for AR and regularly subscribes to this column. Jim has written an excellent article on the Institute and its 75 years of history for the overseas magazine. Also Jim has outlined why non-members should become members of their Society and it would be an excellent article to show to that friend who borrows your copy of AR each month but is reluctant to join. It is thought that all Divisions of the Institute would have a copy that could be photostated by supply of an SASE and a stamp to defray copying expenses.

CLIPPERTON

They made it and FO0XX signals into the Pacific were excellent. I worked Clark W8TN, not a member of the planned group, but took Kip W6SZN's place at the last moment due to his business commitments.

Congratulations to all on a first class effort.

FORTY AND EIGHTY METRE ENTHUSIASTS

Apparently JT1AQ is interested in arranging scheds for 40 and 80 metres. If you are interested drop him a line to CH Chadraawal, PO Box 844, Ulan Bator, Mongolia.

CARDS STILL AVAILABLE

F6AJA now FE6AJA still has logs for CC31MD (Oct 1983), FG0BKZ/FS7, FG0HVL, FG0HVL/FS, FG0FGM, FG0FGM/FS, FM0HVL, FM0HVM, FY0HVL, FY0HVM, TR0AB, TR8JD and TR8YL. If you have worked one or more of these stations and still require the paperwork, now is the big chance.

F6AJA's QTH is Jean Duthilleul, 515 Rue de Petit Hem, Ouvignies, F-59870 Marchiennes, France.

Still on cards you might have missed out on Rick NE8Z, (ex WB8ABN) an avid DXer, who OSLs 100 percent. Rick still has logs for the following operations and would be glad to supply cards for the needy.

F0MH-1969, FG0MH-1971, HC1EE-1974, HC1MD-1980 onwards, HC1MM-1972 onwards, HC5EE-1974-1981, HC7EE-1980, HC8EE-1977/79/80, HC8MD-1981, HC8MM-1979 HC9A-1981CQ WPX SSB, HD5EE-1976/1979, HD8CD-1977, HD8EE-1977, HD9EE-1977, HD9X-1979/80, HD0E-Oct 1978, HD0EE-1977, KZ5GC-1979/80, NE8Z/PJ3-Nov 1984, PJ8RD-1971, VP2AAB-1971, VP2EEL-1971, WB8ABN/HC-1971/74/75 and ZF1CW-April 1969.

Rick's new address is Rick Dorsch MD, PO Box 62, Rochester, Michigan 48063 USA.

ZC4 AGAIN

A letter from a member has brought to light a number of points regarding this new DXCC Country.

Apparently for security reasons the exact QTH was not readily given and it was convenient to use the name of a close town as the QTH. The Club station ZC4SS was operational from a location "fairly" close to Famagusta but not within the Sovereign Base of Dhekelia. The member was active from 1963 to June 1966 and was instrumental in getting ZC4SS back on the air.

If a service operator was living in civilian quarters outside any of the bases he used 5B . . . and all licences were issued by the Chief Signals Officers Branch, Dhekelia on production of the relevant authorisation of the applicants country of origin.

Apparently according to the RSGB DX News there is mention that the ARRL have been advised that all operations since 1974 have been within the Sovereign Base.

WHY THERE IS NO DX

The published 1984 figures from the Sunspot Index Data Centre in Brussels didn't paint a very pretty picture for the avid DXer as reported in Lee KH6BZF Reports publication.

The mean figures from January through to December were 57.0, 85.4, 83.5, 69.7, 76.4, 46.1, 37.4, 25.5, 15.7, 12.0, 22.8 and 18.7. The 1984 yearly mean was 45.85 and that is why so many have migrated to the lower bands. The bottom of the cycle is still to come but occasionally there are some good openings. Take heart, tune and listen, you may be pleasantly rewarded.

A CLASSIC AD

On reading January 1985 QST I came across a stray ad which read: *"I would like to get in touch with any amateurs who are professional clowns. James A Payne (Tiny the Musical Clown), W6JCR, 903 Mission Street, Santa Cruz, CA 95060."*

I would like to nominate quite a few, who in my book, are "professionals", particularly after listening to a rare DX station on frequency but I couldn't inflict their mentality on poor James. Sincerely James I do hope you get some genuine replies.

BITS AND PIECES

Bob NA6T was having quite a "Ball" from KH4 over the Easter break. ** Mike VK6HD's call still appearing regularly in DX Bulletins as being heard and worked on 160 metres. ** Visitors to Vienna have no problems in gaining permission to operate 4U1VIC. Basic requirements are a copy of your current licence and a station operator to be in attendance. ** It is believed that 5X5GK now, at last, has written permission to operate. ** Irma OHMA and Miriam OH8YL are believed to be the first OH YLs to operate from Longyerbyen when they handled the multitude in late March and early April. ** Gary VO1OC/S2 operating quite often on 14 MHz. Question: Has he the appropriate paperwork??? This also goes for DL8YR/ST2 who is quite QRV. ** Yet another paperwork problem may be XZ2HN, an amateur operating out of Rangoon from Czechoslovakia. ** Vlad, a Master of Sports in the USSR Amateur Organisation, has been signing J5WAD from Guinea-Bissau on 14 MHz at regular intervals. ** Patsy ZD7XY, an XYL operator from St Helena has been quite active on 14 MHz. ** It appears that more than one call was used from Navassa Island by the Jamaican crew. 6Y5NR/KP1 was the designated call but 6Y5/KP1 has been logged. It is hoped that it was not a pirate operation or someone testing their rig to get 5x9 reports! ** Another call for VR6, it is VR6IM and can be used for Medical Traffic only after approval from the Medical Officer or Island Magistrate. Please stay clear of operating near this stations frequency when in use. You may help to save a life. ** 8J1XPO is the official station of the Tsukuba Science Exhibition and is running 10 watts that remotely control the main transmitters several kilometres away. QSL via JARL.

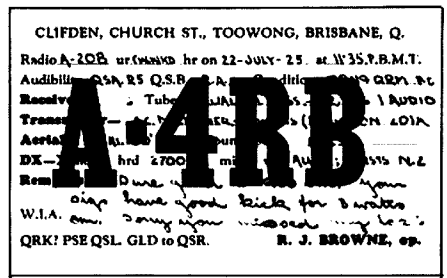
WORKED ON VARIOUS BANDS FROM THE EAST COAST

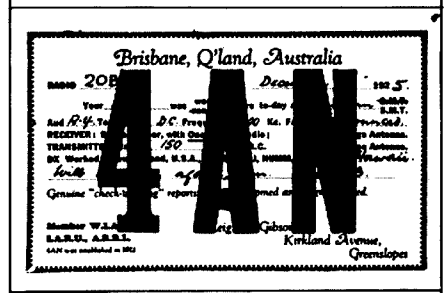
3D6AK*, 4S7NE, 7X5AB, 9Y4SA, A35EA*, AD7S(YL), AH8A, BV0AC*, BY4AA, C30UA, C30LBM, CO2HS, CT1UA, DU1JY, EA6NB, EM5T, EO9AYB, EO9AYC, FG4CB/FS, FM5CD, FO0XX, G4KHG, G4OYU, G4RJL, G6CW, GI3OOR, GM4OEZ, JW7VDA, KB6DAW/KH2, KB7TQ, KD7P/KH4, KH0AC, KL7IRT, KO7P/NH4, KH4/NA6T, KX6AZ(YL), LA8LF, LU1BTL, OR1OH, P29FG, SP4DC, SP6JOE, T32AF, TF3SV*, TF5TP, UZ0LWX*, UZ3MWD, V75A, VI3WI, VK0AK(YL), VK0GC, VK9ND, W6RO, WL7E, WW2ABN, YB1CS, YC0DNK, ZL4MCY.

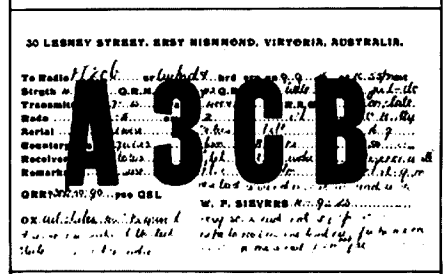
* *Denotes CW operation.*

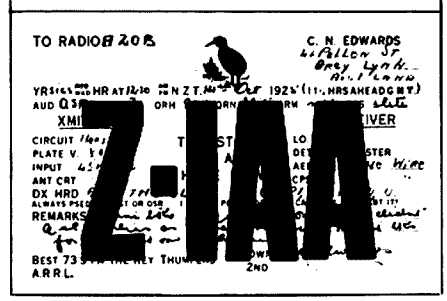
CARDS FROM YESTERYEAR

Again are reproduced some cards of yesteryear provided by the courtesy of VK2JM.









OSL INFO FOR SOME OF USSR "VICTORY 40" STATIONS

EM2C:UC1AWB, EM3AXK:UZ3XWW, EM3W:UZ3AXT, EM5BXV:UB4XWA, EM6AAK:UZ6AWA, EM6AYM:UZ6YWH, EM8CIL:UC1IWB, EM8CSB:UC1SWI, EM9BYK:UB4JWM, EM9BWL:UB4WWA, EM0CWN:UC1WWR, EM0COR:UC1OWE, EO0ALW:UZ0LWC, EO1AOK*:UZ1OWA, EO1AWL:UZ1WWE, EO2OGL:UQ1GXF, EO3ALS:UZ3LWA, EO3ATD:UZ3TWT, EO4APK:UZ4PWA, EO4AES:UZ4AWE, EO5BCK:UB4CWK, EO5BED:UB4EZZ, EO5BGH:UB4GWB, EO6AHG:UZ6HWF, EO8M:UM9MWO, EO9AHT:RZ9HZZ, EO9AFF:UZ9FWB, EO9AON:UA9OA, EO9AUN:UZ9UWN, EO9AYB:UZ9YWA, EO0AAK:UZ0AWB, ER3A:UZ3AZO, EU1O:UO1GWW, EU1R:UR1RWN, EU2P:UP1BWW, EU3A:UZ3AZW, EV4AP:UZ4PWR, EV6AW:UZ6WWA, EV6AX:UZXAWA, EV9AW:UW9WR, EW2C:UC1AWC, EW3A:UZ3AZM, EW7BF:UB4FWW, EW0CL:UC1LWA.

* *Denotes Fran Josef Land.*

The above were supplied by Ken G3NBC and his XYL Kitty G1EOD

OTHER QSL INFORMATION

4K1C	PO Box 204, 43010 Kuibyshev-10, USSR
4K1F	PO Box 88, Moscow, USSR
9V1VP	Jahnstrasse 16, D-6365 Rosbach 1, West Germany
BY5RA	PO Box 730, Fuzhou, Peoples Republic of China
CM8AR	PO Box 9028, Havana, Cuba
D68WB	PO Box 542, Grand Comoros, Republic of Comoros, Via France.
EL2AC	PO Box 58, Monrovia, Liberia
EL2CJ and EL2FJ	PO Box 45, Moriyama 463, Japan
EL2P	PO Box 1929, Monrovia, Liberia
GB2PX	105 Shiplake Bottom, Peppard Common, Henley, OXON RG9 5HJ, England
HC1BW	PO Box DX, Stow, MA 01775, USA
HG4OB	PO Box 102, Monor, Hungary
J28EI	BP 200, F-13300 Salon de Provence, France
K4OZL/KP4	PO Box 3022, NCS FPO Miami, FL 34051, USA
KB6DAW/KH2	300A Rendova, APO San Francisco, CA 96334, USA
KC2OU/V2A	C/- VOA, PO Box 19, FPO Miami, FL 34054, USA
KF7S/KL7	PO Box 591, APO Seattle, WA 98736, USA
KX6AZ	PO Box 1798, APO San Francisco, CA 96555, USA
P29PR	PO Box 2778, Boroko, Papua New Guinea
UA1OT	PO Box 261, 266000 Rovno, Ukraine, USSR
UB4JWF and 4J5JYC	DOSAAF Sport Technical Club, 12 Chekhol St, 334202 Yalta, USSR
UZ0AWB and RK0A	DOSAAF Sport Technical Club, PO Box 11973, 660028, Krasnoyarsk-10, USSR
XX9WK	PO Box 933, Macao
YS3HB	PO Box 23, San Miguel, El Salvador
ZD7YL	PO Box 25, St Helena Island
ZF2HI and ZF2HJ	KZ2E 4892 Occoquan Club Dr, Woodbridge, VA 22192, USA

QSL MANAGERS

3D2CQ:WA6VNR, 4N4EXA:YU4EXA, 4U1ITU +/- 16/02/85:AA4V, 4U1ITU 16/02/85 — 03/03/85: DF2PI, 4Z4DX:WA4WTG, 4Z4HF:WA4WTG, 5T5CJ:W4BAA, 5T5RY:F6FNU, 5V8WS:DJ6OT, 6W1DY:VE4SK, 6W1LL:DL1HH, 6W1NO:DL1HH, 6W2EX:F6EYS, 8Q7GW:W9GW, 8O7RD:DF2RG, 8O7YL:JA1AEO, 9Y4F:VE7DRW, A35EA:ZL1AMO, AP2ZA:W6NLG, BV0AC:JA9AG, CG7BXO:VE7BXO, DJ0SB/C6A:DJ0SB, DP0GVN:DJ4SO, DX1N:JH3OII, HI0B:HI8IH, HS4AMS:W7PHO, IY4FGM:I4IKW, J4ISV:SV1OI, JW0EO:LA5NM, KC6MR + KC6MR/KX6 + T30ZK:JJ1TZK, JW4E:LA5NM, OE3HGB/YK:OE Bureau, OH1MA/CT3:OH1MA, OH1RY/CT3:OH1RY, TI5MRC:VE3MR, TF5TP:DL7MO, TR8DR:W2PD, TU2BR:KN4F, YZ3F:YU3MX.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, ORZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S OSL MANAGER LIST and KH6BZF REPORTS. Magazines including CO, cqDX, OST, RADCOM, JARL NEWS, KARL NEWS, OZ, 73 for Radio Amateurs, BREAK IN, WORLD RADIO and VERON.

Members who have contributed include VKs, 2JM, PS, BBD, EBX, 3BY, FR, YJ, YL, 4AIX, BHJ, 6NE, PP, G3NBC and L30042. Overseas amateurs include G1EOD, I8SAT and ZL1AMM. Sincere thanks to one and all.

CW SWLING WITH ERIC L30042

21 MHz

FO0XX, JA1DOP, JG2ATO, JA3CXO, JI1NON, JH6AAT, P29PR, VK2VR, VK2BFJ, VK2PUG, VK4KF, W6THN, YB2BNJ, ZL1BSG.

14 MHz

A35EA, BY4AA, DU1ROJ, KA1BAZ/DV1, DL2XR, EO3ALS, EO0ALW, F8AH, FK8FF, FO0DX, FO0KX, HL1CG, H44IA, K0AX/KH2, KH6IHY, KC6MR/KX6, 14TSB, P29PL, T30AT, UB5ECJ, UC2WJ, UL7CAR, UO5GO, VI3BCY, XE1VE, YJ8TT, YU3NR, ZS1CS.

10 MHz

DJ9GD, EA5CHT, FD6IRO, G2MJ, G3XDK, HB9CTA, JH8NAM, 6Y5FS/KP1, OE5BOL, OK1DAV, OK2BJH, P29PR, KO2X, W1AOE, W2UGM, W3ORU, N4SU, WA5ZXZ, W6UOI, WA7OBY, W8KMX, KY9L.

7 MHz

3D2CU, A35EA, CT2FN, DL1BO, EA3ALV, EW1AA, FD1JOA, FE8VN, FO8HO, FO0XX, G6RJ, HB9CYW, HG4OB, I5LF, JH5EES/JD1, LZ2EV, NP4MO, ON4GN, SM0DUX, SP5BWO, UO0IDA, UZ1AWX, UC1WWF, UL7PGA, YC0BRX, Y85LMM, VU2IOC, ZK1XU.

3.5 MHz

KX6DS, LZ1KRB, OH1JT, OH1LO, OH1XX, SM0AGD/3B8.

1.8 MHz

K9UWA, N4SU, P29PR, VK2BAT, VK3DFI, VK4ATS, VK5BC, VK6HD, VK7BC, W3RCO, W8JI, ZL3GO.

AR

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BANDS BEACONS

Freq	Call sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth
52.310	ZL3MHF	Hornby
52.325	ZL2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie (1)
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland (2)
144.480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands

(1) According to "The West Australian VHF Group Bulletin" VK6RTU is being overhauled and a 2 metre beacon with a tripler to 70cm is being constructed as an addition to VK6RTU.
(2) From the same source, it is noted VK6RPB at Port Hedland is under test and may be intermittent. It is also audible on FM receivers!

There has been some pruning of the beacon list this month. VK and ZL beacons are listed, plus the Pacific regions and JA beacons. With the present very low spot in the Cycle it would seem a listing of beacons in other areas would be more appropriate at the periods of the equinox, when it seems there is a chance for the longer distance contacts to take place. Therefore for the time being it is proposed to give a complete listing in the issues of September and March.

NEWS FROM THE COLD AREAS

David VK0CK has left Macquarie Island and will be resident in Hobart until the end of 1985. He came back to Adelaide for a brief stay and I was able to meet him and he certainly doesn't look any the worse for the experience! The six metre equipment is still at Macquarie so hopefully there will be some operating from there later this year. David would like to do another tour to the cold areas, so we may yet see him operating six metres again from some other place.

Mark VK0AO (ex VK5AVQ) is safely entrenched at Mawson in Antarctica and enjoying the experience. It is certainly much colder than Macquarie Island. Sunday 14/4 it was −20°C and on some days they have been experiencing blizzards. After making some changes to the positioning of the 20 metre aerial Mark can now operate more satisfactorily on his skeds with me, not now causing the degree of interference as before. There are some problems with enough 240 volt power to run everything satisfactorily from the shack but he hopes to overcome this in due course.

Mark has had the VK0MA beacon running, firstly on 53.1 MHz and later 52.400 but there are some problems getting the gear to fire up on this frequency but he's working on that. The beacon uses a 6AK5 oscillator, 5763 doubler driving an 8165 (4/65) valve in the final for abcut 100 watts output, and the mode is MCW, and has a built in solid state call sign generator.

The immediate concern for Mark is to become operational on the satellite and now that the remainder of his gear has arrived he will be concentrating on achieving that operation. He proposes leaving the main bulk of the work on six metres until later in the year when chances exist for some contacts on that band.

The Mawson weather summary for February 1985 is interesting. The mean monthly temperature was −05.2° (0.8° below average), maximum −02.3°, minimum −08.1°, highest maximum +02.6° (1/2/85), lowest minimum −17.3° (28/2). Maximum wind gust 63 knots/ 117km from SE at 1616 MBT on 13/2, there were 23 days with strong winds with 7 days of gale force winds! The mean daily average of sunshine was 9.7 hours, there were 4 days with falling snow and one day of blizzard. The remarks mention that the −17.3° on 28/2 was the lowest minimum temperature for February, the lowest previously had been −16.0° on 25/2/68! So it does get cold down there and no doubt will get colder than that.

NEWS FROM TASMANIA

A letter has come from David VK7DC accompanying OSL cards for the contacts I had with him in January on 144 and 432 MHz. David says:

"VK7DC and Gary VK3ZHP have been maintaining regular skeds on 70cm for the past 15 months over a path of 385km. Contacts have varied from 5 x 3 to 5 x 9 and can drop to 3 x 1 during rough weather, when there is rapid fading not unlike continuous mobile flutter, and can last for 6 to 8 days. TV1 problems with Ch5A do not allow VK7DC to make full use of two metres.

"Andrew VK7ZAP and I have built up some 1296 MHz gear. Andrew has 1 to 2 watts FM/CW and can receive in all modes, a 15 element Yagi and has a two metre diameter dish under construction. VK7DC has 10/12 watts FM/CW, all mode receive and 1.8 metre dish. Experiments to date with VK3ZHP have produced at worst weak CW copy both ways and recovered audio sounds like you are listening at the other end of a drain pipe! When conditions are more normal, the carrier is usually strong and produces occasional FM quieting, but it will be interesting to see what happens over 12 months. At the same time 70cm has occasionally produced signals better than 2 metres especially during October and November.

"On 28/3/85 VK7ZAP on 70cm SSB worked VK3ZHP, VK3ZBJ, VK3BDL, VK3ZL, VK3ACH and VK3XEX. On 1296 FM: VK3ZEO, VK3ZYN, VK3ZHP

"On 28/3/85 VK7DC worked on 2 metres SSB: VK3ZHP, VK3ZBJ, VK3BDL (all 5 x 9), and VK5NY 5 x 3. On 70cm SSB: VK3ZH, VK3ZBJ, VK3BDL, VK3ZEM, VK3ZL, VK3XEX, VK3ACH (all at 5 x 9), VK3CGH 5 x 7, VK5NY 5 x 5. On 23cm: VK3ZHP 5 x 9 FM, VK3ZBJ 5 x 3 FM; VK3ZL in Ballarat 5 x 1 CW. This was followed on 31/3 with 2 metres to VK5NY by VK7DP and VK7DC, 5 x 2.

"QUERY: On 1/4/85 I (VK7DC) noted VK3RMB on 70cm at 0730 was just audible which was normal. At the same time there were strong lightning crashes and with almost every crash the beacon would rise to S9 for about 1 second. At 1030 the beacon was the same strength, but this time there was no enhancement with the same lightning crashes.

"Was there an increase in ionisation of the air at the moment of strike, or extra ionisation of the 'E' or 'F' layers, or something else? The weather at the time was 'lousy' and I assume the storm centre was between me and the beacon. Perhaps it had moved later. Has anyone any ideas, and have they observed this phenomenon?" . . . Can't really help you David, but lightning plays some funny tricks at times. Someone might write to me about it though . . . 5LP.

Still in Tasmania, a letter has arrived from Joe VK7JG who mentions he was not very active on 6 metres over Christmas but was still holding nightly skeds on 144 and morning skeds on 52 with VK3.

"I still have nightly skeds with David VK3AUU on 144.1 at 2000 local time (1000 UTC) and we have always been able to say 'hello' when both are there. I have also been trying to work the VK1 and VK2 stations on Saturday mornings in conjunction with the VK3s but so far nothing heard except for a few meteor pings. Obviously the antenna needs upgrading!

"There is now a UHF repeater in the Central Highlands with the call VK7RIW, transmitting on 438.5 and receiving 433.5 MHz altitude 4200 feet, antenna 6dB gain and power 15 watts.

"Lionel VK7HL is operational on 1296 MHz and 2.3 GHz and has worked to VK3 on both bands. He lives at Beaconsfield, about 50km north of Launceston.

"My present antenna system is 432: 48 element J Beam, 144: 10 element J Beam, 52: 8 element ATN Yagi. Looking to upgrade 144 to at least 16dB"

MICROWAVES

Des Clift VK5ZO has sent me a copy of the RSGB's Directory of Microwave Operators which rather puts to shame the degree of activity in VK. There are 350 entries in the directory, with call signs, addresses, and bands on which the operator can operate. There are quite a number with gear on 1.3, 2.3, 3.4, 5.7, 10.0 (wide), 10.0 (narrow) and 24 GHz. Twenty six stations can be operated on four or more microwave bands.

Des suggests one possible way of increasing the activity on our microwave bands would be to compile a list of those who can operate 2.3 GHz and above, with updates from time to time. To start off, Des offers the following: Operational FM gear on 3.3 and 10 GHz, and currently rebuilding the FM gear for 2.3 and 5.6 GHz. His current thoughts and actions are to use 100 MHz (Tandy FM tuners) IFs of about 100 kHz deviation for 2.3, 3.3, 5.6 and 10 GHz, the first two being crystal controlled, the other two being Gunn oscillators. For DX contacts on 10 GHz he has a 30 MHz coverage and can work anywhere in the band to suit anyone else.

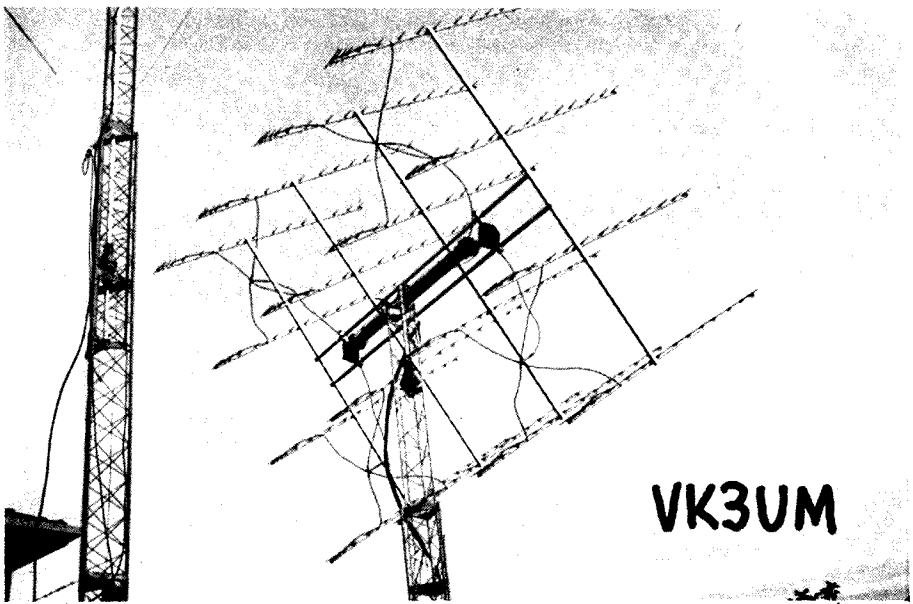
All these sets are /P and any gear possibly made for SSB will not be! He personally feels there is not enough interest in any of the bands in VK to fragment the current position by introducing anything else but FM. To support this Des already has two sets of gear for 3.3 and 10 GHz and will possibly finish up with two sets on the others channels.

If you are interested in outlining your microwave equipment why not contact Des Clift VK5ZO, 6 Netley Road, Mount Barker, SA 5251, and if Des finds there is enough interest to make a listing worthwhile, then I am sure space can be found in these columns to inform you what other people are doing in an area where there seems to be very little activity but where there may be much more than appears on the surface. Over to you!

EME ACTIVITY

Doug VK3UM advises that conditions were rather poor over the weekend of 30/31/3, but he did manage the following contacts: 0530 K2YUH 559 and 559; 0553 ZL3AAD 0/0; 0623 JA2JEJ 0/0; 0725 JA6CZD 0/0 there appeared to be only five stations on, no one from W land. 1125 F9FT 539 539; 1213 I5MSH with his 10.6 metres (35 feet) dish was 0/0 contact, usually is SSB copy; 1252 F1HI 0/0. In all there were 10 contacts for a long time spent. He valiantly spent an hour trying to make it with OZ7UHF but to no avail. Next period for trying was to be 27/28/4.

Doug is still maintaining his 144 and 432 MHz contacts to Sydney, and on the way picking up stations in Canberra. He has found signals are stronger on 432



VK3UM EME Equipment.

Transmitter:	ICOM IC-451A.
	Tokyo HY-Power HL-90U.
	K2RIW type Linear 2 x 4CX250B.
	1000 watts at Transmitter Output.
Receiver:	MGF 1202 Feed Pre-amplifier.
	MGF 1202 Shack Pre-amplifier.
	Microwave Modules Converter to 28 MHz.
	ICOM IC-720 with narrow CW filter.
	MFJ-252B Audio Filter.
Antenna:	16 x 16 element ATN (KLM design) 12.5 ft Yagis.
	Spacing 5 ft (H) x 4.5 ft (V).
	Phasing to all 5 power dividers in Belden 9913.
	Feed to Shack 3/4" Foam Heliax (19 metres).
	Gain 26 dBD. Sun noise 12 dB (quiet).
QTH:	145.19.06 E 37.45.00 S . . . Grid Square QF22PG.

but the duration is shorter than on 144. John VK4KAZ is using four DL6WU type antennas and has been able to copy Doug's EME signal.

THE SYDNEY SCENE

I was pleased to hear from Gordon VK2ZAB again, and as usual his letter contains a lot of information. He appeared to be disappointed that no one else had bothered, apart from VK3UM, to send any news of happenings on 144 and 432 from Sydney, or anywhere else for that matter. Gordon has been pretty busy since Christmas, what with getting up a new tower, jobs away etc, but he assures me that he cannot recall any weekend that it has not been possible to have two metre contacts between Melbourne and Sydney; there have been 70cm contacts too, plus 23cm contacts to ZL, all now dated of course, but they have been occurring.

Gordon's letter covers the period 16/2 to 16/3/85 and on two metres unless otherwise stated. On 16/2 2045 VK2EVB and VK2DGT both at Coffs Harbour were 5/2 and 5/5 respectively at his QTH. At 2055 VK2DDG at Byron Bay was 5/4 and VK4LC was heard faintly. At 2130 VK3KEG was 5/5. VK1GL and VK1BG participated and some 70cm activity ensued with VK2OD on that band in Sydney but no Melbourne contacts. During the following week VK2MQ in Moree and VK2AKU in Narrabri were worked from Sydney on three occasions. Signals S1 to S5 at the Sydney end.

On Saturday 22/2 at 2030, Graham VK2MO was 5/4, later VK2DDG also 5/4 and at 2046 Bill VK4LC was 5/1 and Paul VK4AUR and John VK4KJL both in Brisbane were 4/1 briefly VK2DGT was 5/5. At 2130 Ross VK2ZRE in Adaminaby was 5/5 and Trevor VK?KEG was 5/2. Other stations on at the time were Keith VK2BKL in Sydney, Glen VK1GL, Joe VK7JG, Les VK3ZBJ, Jim VK3AZY and Ian VK1BG.

Several Field Day stations were worked on 23/2, the Wagga group again putting in good signals. VK2WG was 5/5 at 0642, VK3KZR was 5/3 at 2148 from a site near Dargo. Earlier VK2DDG was 5/2 in Sydney. The following week was fairly quiet with the exception of the usual 'S meter' wrecking signals from VK2YEZ portable at Foster.

On 1/3 at 2045 VK2DDG was 5/2 with VK2EVB 5/3 at 2047. VK4LC and VK4KJL in evidence, but only just. To the south west things looked brighter, but VK2ZRE at Adaminaby was only 5/2 and hopes faded. Next morning he was 5/5 and Les VK3ZBJ was 5/4 at 2230. Unable to copy Michael VK3BDL but Lionel VK3NM was 5/1.5 at 2246 and Jim VK3AZY 5/5 at 2247. Try 432 was the message from Doug VK3UM via the VK1s. But Gordon didn't have to try very hard as Doug was 5/6 at 2249! VK2ZAB was 5/3 in Melbourne which clinched their fourth Melbourne/Sydney 70cm contact. Gordon heard contacts being made between VK1 and VK3 on 70cm, and heard VK1GL, VK1ZIF, VK1BUC, VK2OD and VK3UM.

The weekend of 8/3 started well with the boys in Coffs Harbour and Byron Bay at good strength on 2 metres and Paul VK4AUR hearing Gordon at S1 in Brisbane at 2150. At 2230 on 8/3 VK3KEG was 5/2 at 2243, VK3ZBJ 5/3 at 2258 and David VK3AUU at Drouin South 4/1 at 2259. He was unable to contact VK3AZY, VK3NM and VK3BDL although he knew they were there.

Gordon got his rewards on 15/3 when at 2132 he worked VK4LC at 5/5, John VK4KJL 5/4 shortly after, Paul VK4AUR 5/3 at 2135, Graham VK4KGS 4/1 at 2150. About this time VK4LC was 5/7 so 70cm was tried and there he was at S2 with QSB. Gordon's 10 watts couldn't quite make it to Brisbane so Bill was unable to make it two-way, but he did hear VK2BE in Sydney, but no two-way contact resulted. Beam around to the south west at 2230 and Doug VK3UM was 5/3 and Lionel VK3NM 5/2. Listen and call on 432.1 but no joy except for VK1BUC off the back of his beam. Peter VK1QS worked Norm VK3DUT on 2 metres.

Beam around to the north again at 2300, Bill VK4LC was still S7 on 2 metres. Try 432.1. Yes, can hear him up to S2 but no contact. Then Dick VK2BDN came on and made what we think is the first Sydney to VK4 contact on 70cm by working Bill at 5/5 both ways. Bill patiently waited until Gordon's 10 watts peaked above the noise and at 2332 they exchanged reports to clinch the contact 5/2 at his end, and 3/1 at Eagle Heights, Brisbane. Well done chaps . . . this would be an all land path of about 750km and over some rather rugged country . . . 5LP.

On 16/3 VK4KJL, VK4AUR and VK4LC were there again on 2 metres at 2130 but only S1. VK2EVB was 5/3 and VK2DGT 5/6. Beam south west at 2230 and Les VK3ZBJ 5/2. Other VK3s heard but not identified. Later, Peter VK1ZQS told Gordon he had worked Darryl VK3AQR at Geelong and Norm VK3DUT at Mill Park. However, John VK2YEZ back home in Griffith was S6 at 2240. Many stations on 2 metres and 70cm in VK1 and VK3 and a few in VK2 at this time. Gordon also had received reports of various VK/ZL contacts on that weekend via repeaters etc on the south coast, and that Ken VK2DGT in Coffs Harbour had an FM contact with ZL. For all that, Gordon says the elusive VK7 still evades him, but he's trying. Well Gordon, VK7 eluded VK5LP for a long time on two metres, and still longer, nearly 25 years in fact, for a 70cm contact, but I did have one to VK7DC in January so with your tenacity you will surely make it in due course. But thanks for writing and filling us in with the continuing happenings on 144 and 432 from Sydney, and wouldn't it be nice to hear from someone else over your way on how they see the scene!

A NOTE FROM BRISBANE

John VK4ZJB sends me a note which will warm the hearts of some six metre operators who have been waiting for a particular QSL card. John says Gary A35GW is now OK for a QSL. Send a SASE to Gary Wilson, Bucknor Drive, Deception Bay, Queensland, 4508 and you should receive your reply.

John also mentions Nev VK4ZNC is definitely going to Lord Howe Island next Christmas and it will be a 6 metre DX-pedition. Bookings are final and more details are to follow! Thanks John, good news all round.

WHAT HAVE WE BEEN DOING

Here in VK5 we have been getting the winter doldrums in the autumn. It certainly has been quiet, even Bob VK5ZRO says so and when he's not working stations it's quiet! Bob still keeps track of things via the satellite and recently worked ZF1GC in Cayman Islands, CN8EO Morocco, PJ2MI Netherland Antilles and the Clipperton Dx-pedition FO0XX. He was also pleased to have words with Bob VK5NZ who was in Florida, USA via the satellite.

Ron VK5ZVA at Whyalla is now on 70cm but presently vertically polarised, but he did work VK5ZRO at 5/7. Roger VK5NY has been noted working to VK3 from his 'gem' location, it doesn't seem to matter what time of the day or night the path is there, particularly on 2 metres.

The VK5LP log book shows only a few local VHF contacts so I have had to be content working VK0AQ at Mawson on 20 metres!!

NEWS FROM OVERSEAS

From April OST and "The World above 50 MHz" I note a listing of the 23cm and 13cm standings and a few points of interest arise. On 23cm the best terrestrial DX in statute miles is that of N6CA with 2472 miles and 10 call areas worked. One assumes that distance is out to Hawaii. The next best distance drops to 847 miles where there are three stations, K4NTD, K5LLL and W5LDV, all with 2 call areas worked. On 13cm WB5LUA has worked 508 miles and 2 call areas, next is W9ZIH at 340 miles and 2 call areas. Apart from the N6CA effort we in VK with our contacts from Adelaide and the south east to Albany in WA are well in excess of these distances. Nevertheless, one must be fair and say there has to be someone at the other end before you can extend any contact distances and I expect the W stations suffer from that the same as we do when we look to other areas than Albany.

While on the subject of standings, I note from "The

Shortwave Magazine" for February 1985, kind courtesy of Steve VK5AIM, that on two metres GW4TTU leads with 92 counties, 37 countries, followed by G1EZF with 83 and 26, then G6ECM with 79 and 28. It is worth noting the wide availability of two metres in Europe when one considers it is possible for someone to work 37 countries and I expect that is not the end of the road, there would still be more to work. No wonder two metre activity is so great there.

The 70cm table shows G8TFI at the top with 63 counties and 18 countries, followed by GW4TTU with 61 and 16, then G6DER with 61 and 14. One would have to say 18 countries on 70cm is a very worthwhile effort. On 23cm G8PNN tops the list with 38 counties and 13 countries, followed by G8TFI with 32 and 12, then GW4TTU with 29 and 8. And 13 countries on 23cm deserves praise for the obvious dedication needed to achieve that total. Even more to the point of dedication is the efforts of GW4TTU who heads the list on two metres, is second on 70cm, and third on 23cm. What an effort? Not only that, GW4TTU also tops the Annual CW Ladder for working 493 different stations on CW during 1984 on 2 metres, 104 on 70cm and 32 on microwaves CW. Total 629 different stations on VHF/UHF CW. G4SFY worked 553 stations and G4ARI 416 stations. This must mean that almost at any time there will be someone on those bands using CW. Quite different from VK where you could go weeks or months before you heard any CW at all.

MOONBOUNCE REPORT

From "The Propagator" Lyle VK2ALU advises that during the 12 months to end of February 1985 VK2AMW participated in a total of six 1296 MHz EME test periods, during which contacts were completed with 15 stations on CW. SSB signals were copied from OE9XXI on one occasion. Several receiving preamplifiers were tried and three methods of noise figure optimisation were used to improve receive system performance.

Dish pointing accuracy was markedly improved by the installation of an hour angle tracking computer designed and built by a University Undergraduate to their specifications. It provides a readout of error in degrees between the actual dish pointing direction and that of the moon, in hour angle and helped to achieve echoes from the moon when it was not visible due to cloud cover etc.

On 2/3 they participated in scheduled EME tests during which SM6FHZ and G3LTF were worked M/O copy. They were pleased with the G3LTF contact as several previous attempts over the past fourteen months had each just failed to achieve the necessary information transfer in the short "windows" available to them.

CLOSURE

That seems about it for this time, but before closing I want to add a further plea for people to respect what the calling frequencies are for. Three main calling frequencies presently exist, 52.050, 144.100 and 432.100 MHZ, and I often receive complaints from operators that local QSOs are being conducted at length on these frequencies mainly under the mistaken impression that because those using the frequency cannot hear anyone else then they assume no one else can either. I have received a further two complaints this month, from Doug VK3UM and Gordon VK2ZAB. In each case they are finding 144.100 and 432.100 being cluttered by long local QSOs so precluding the DX type contacts they are consistently chasing. I assure them it is not only happening in VK3 and VK2 but it is quite evident in VK5 as well.

May I again ask operators to remember what the calling frequencies are for, to call and when answered, particularly signals are strong or from stations near at hand, then to move off at least 20 kHz, conduct the QSO and then come back to the calling frequency if you need to. If the contact is conducted under very weak conditions then it may not be possible to move away in which case other operators should respect the situation. I guess one of the more important aspects of any such operating which is not being observed by most operators is that of leaving at least a 3 second break between transmissions. This does allow someone else to acknowledge they can hear what is going on, and you can allow them in or to complete their own quick QSO with another station. If you don't think any of this matters then consider how you might feel if you can just hear a weak DX station under another two stations much stronger who are just chatting. A general clean up of operating practices would help everyone. Thank you for your co-operation!

Closing with the thought for the month: "By ever taking out and never putting in, one soon reaches the bottom." 73 The Voice in the Hills.

AR

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Congratulations to the Department of Communications for the good work done recently to rid the VHF repeaters of unwelcome pests, which, I must add, is not the province of the Intruder Watch, who is concerned with MILITARY, GOVERNMENTAL and COMMERCIAL intrusions.

All intruders cannot be tempted to leave the amateur bands in spite of the work of the intruder Watch, as the presence of Radio Tirana, Radio Beijing, etc will testify. The DOC has complained on our behalf in the past re these nuisance transmissions, but the offenders continue to ignore repeated requests to QSY. More recently, of course, as reported in this column (AR, May 1985), the USSR Naval intruder 'UMS' was approached via the USSR Administration, and promised to 'take steps' to vacate the amateur bands. At the time of writing, UMS is still being monitored at will, and the DOC tells me that they are going to follow-up their original telex to the USSR. Many thanks to the DOC for sticking with us.

In this column in AR, January 1985, I mentioned the fact that Don Cross, formerly VK2VYI, had up-graded to the combined call of VK2JYI. I am pleased to report that Don's recent intruder reports to this shack were wearing the call sign of VK2EYI, so Don has done it again! Don is "wheel-chair mobile", and I know that he must have put a lot of effort into the upgrade — well done, Don.

Hopefully the conditions on 80 m will have settled down somewhat by now, and the Intruder Watch Net on 3.540 MHz at 1000 UTC will see more interested people joining in.

Looking through the IW Summary for February last, I see a CW station, AQP4/5/6/7 active on 14.011 MHz. This station is listed as Karachi Naval Radio, Pakistan, and I hope he's not moving in on us. Most of the stations signing with a three-letter call beginning with 'V', you will find, are based in Vietnam (eg. VRQ), and they are not above using VK-allocated calls.

Many thanks for recent reports received from VKs 1NET, 2BQS, 2DEJ, 2EYI, 2PWS, 4AKX, 4BG, 4BTW, 5BJF, 5GZ, 5TL, 7LR, 7RH, 8HA, 8XX and SWLs Arthur Bradford and Peter Boskos. Nice to know we can depend on regular help from people such as these and others.

The Wednesday evening 1030 UTC 3.540 MHz IW net has been good lately, with stations on from VK2, 4, 5 and 7. Col VK4AKX reports that UHF3, a nuisance intruder, seems to have effected his seasonal change, and left 40 metres in favour of some non-amateur band, which is good news, but Col hastens to add that he will probably re-appear about August next.

Amazing the number of Intruder stations which have a call sign beginning with the letter 'U' — I have 58 listed here as already-reported intruders on the various amateur bands. We can well do without these. Anyway, we'll just keep sniping away at them, and see what happens.

Please lend a hand by supplying reports of intrusions into the amateur bands, and reinforce the work done by our regular helpers. Any information can be obtained by writing to the address at the top of the column, or ringing me on (02) 477 2717, or get in touch with your Divisional Co-ordinator, whose particulars can be found either in the Call Book, or from your Divisional Council. See you in July, and keep the rig warm.

AR

In reference to Electrical Safety in the Amateur Shack — p31 May. It has been pointed out that fusing in the neutral as indicated in para 6b is contrary to the SAA wiring code throughout Australia and may actually introduce a shock hazard.

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

SHORT WAVE MAGAZINE. Jan 1985. VMOS 80 Metre Transmitter. (C&N)

SHORT WAVE MAGAZINE. Mar 1985. Feeders and ATUs. (P&N) T and PI circuits — standard resistor values. (P)

VHF COMMUNICATIONS. Apr 1984. Color Test Image Generator. (P) PLL Delay Line Oscillators. (T)

HAM RADIO. Jan 1985. Basic Gamma Matching. (T&C) Interdigital Bandpass Filters. (P&C) PIN Diode Switching. (P)

CQ-TV 129. Feb 1985. 1.3GHz Preamp. (C) Sync Processor. (P) SSTV Transmit Converter. (P)

WORLDRADIO. Mar 1985. General Amateur World News. Amateur Vacation Exchange. DX and Contest News. Satellite News. (G)

FOX TANGO NEWSLETTER. Apr 1985. News of mods and problems on all Yaesu equipment. Hard to get parts available to subscribers. *WARC* conversion kits.

NOTE. If you have a FT101B and find the final standing current varies or fuses blow for no apparent reason, take quick action or you may blow up the hard-to-get 6JS6C finals. C13, an 80pF coupling capacitor from the plate of the 12BY7 driver has a habit of leaking or shorting with disastrous results. Replace it with a modern high voltage ceramic. The value is not critical. (Contributed by Tom Ward G2FKO to the FT Newsletter.)

SATELLITE JOURNAL. Jan-Feb 1985. Issue 1 from AMSAT. To be the new journal of the Radio Amateur Space Programme. PO Box 575, Wharton, NJ 07885. USA.

AR

Your best friend could be our next member. Persuade them today to join . . .

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

Education officers in each division should, by now, have received copies of the revised syllabuses for examinations. These revised versions will appear in the revised Amateur Operators Handbook when it is printed.

I have asked for comments on the changes that have been made, and I would be pleased to receive them. By the time this is published, the revised syllabuses should be available in brochure form, and I will have a supply to send out on request.

The changes in content for the most part have been fairly minor, but there has been a rearrangement of some of the sections to bring the two syllabuses more into line, which should make it easier for those attempting to upgrade.

The context has been left fairly broad, and a note has been included that candidates should be aware of current technological developments. This means that there is still room for the gradual evolution which occurred with the original syllabuses.

This evolution may not have been apparent to those not directly involved with class or exams, and not all readers may be in favour of such a broad scope in the syllabus.

However, when we consider the developments that have taken place since the original definitions of the syllabus — FETs, PLLs, ICs, digital readouts — we see that much of the current 'state of the art' is fairly recent, and it is fair to expect the incoming amateurs to be familiar with the equipment they will probably be using.

It is unreasonable to expect a syllabus to be reviewed more often than about every six-eight years. By leaving it broad, we have the means to ensure that candidates are made familiar with current developments.

Our intention now is for the Institute to develop a Study Guide to go with the syllabus, so that we can define the depth of the topics where they have not been specified and suggest items that should be omitted.

I would be very pleased to receive input on any of this — all or specific topics — or collect names of members who would be prepared to criticise the draft. I apologise to those who feel that changes should have been referred back to members before proceeding to publication, but as with most productions, time was limited and deadlines had to be met.

Those who would have liked to participate are most welcome to participate in the development of the Study Guide.

Of course questions on any topics that have been added or significantly extended will not appear on papers until the revisions have been widely published.

By the time you read this a new printing of the Amateur Operators Handbook should be obtainable. This is just a reprint of the previous one and will contain the original syllabus. It has been reprinted because of demand, to cover the needs of candidates until the revised one is available.

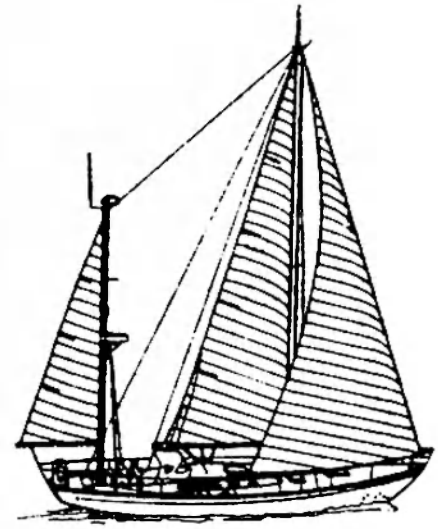
73, Brenda VK3KT

AR

Photograph courtesy The Burnie Advocate.

From left — Jim Davis VK7OW, Yuko Sato, Bil's sailing companion since Tahiti, Bil N6APE/VK4FAZ and Ian Ellings VK7QF. Bil is holding the four-legged 'biting' deck-hand George who came aboard in Queensland.

AROUND THE WORLD BY YACHT



Recently, after ten years, Bil Culthurst N6APE/VK4FAZ/MM reached the half-way point of his journey around the world and Bil would not be surprised if it takes him another ten years before he sails into his home port.

Bil docked at Devonport's Mersey Yacht Club marina at 12.45 a.m. on 13th February in his custom yawl 'Concerto' and was greeted by a small group of Coastal amateur radio operators, two of whom have been following his progress with regular scheds for eight months.

Concerto, conservatively estimated to value $300,000, was designed by a successful America's Cup defender, Ted Hood. Bil hopes to be in Perth in 1987 for the America's Cup.

Aboard are four transmitting and six receiving radios ranging from two hand-helds to a highseas SSB unit as well as amateur radio transceivers.

Information supplied by Ian Ellings VK7QF and the Advocate and Examiner Newspapers.

AR

1984 VK/ZL/OCEANIA DX CONTEST

OVERSEAS RESULTS

Jock White ZL2GX
NZART CONTEST AND AWARDS MANAGER

CW

ASIA

JM1LRQ•	10464
JO1ITV•	9494
JE1NWL•	4968
JA1BNW•	4224
JE1ARO	2610
JO1OZI	1102
JA1BSU	1008
JH1MTR	644
JA1BN	420
JL1CGT	270
JA1AAT	180
JA1JGP	60
JA2YKA*•	672
JA2BP•	9696
JE2IEO•	5148
JA2DN	1638
JH2CJW	792
JR2AOP	154
JA3YBF*•	8600
JA3YOD•	18144
JR3BOT•	5476
JA3UCO•	3286
JA3ARM	1920
JJ3JJL	1512
JR3WXA	220
JN1ENK/3	128
JA3BCT	108
JR3XEX	45
JH4IFF•	8148
JA4ESR•	1554
JR4ISK	1092
No "JA5"	
JH6ZHF•	13038
JA6AD•	8360
JA6GU•	6790
JH6WLP	4216
JS6AAT	2754
JA6GGD	2064
JH6ECK	1581
JA6LDD	810
JA7YFB*•	7760
JH7WKO•	8800
JA7YCO•	4176
JA7ARH	2112
JA7KM	1116
JA7OVC	810
JA7YFH	126
JA7OYM	120
JA7FFN	100
JR8QJZ•	7372
JA8CAO•	5832
JA9RYL•	8200
JA9FT	680
JH9CAV	84
JA0CGJ•	3480
JA0NCE	50
VU2JXO•	1872
9V1TL•	7440
9V1WH	8

NORTH AMERICA

TI4BGA•	1584
VO1AW•	126
HP1XKR•	1536
K1AR•	4278
KF1Z•	4004
WA1FCN	224
KW2J•	144
K3ZO•	4002
W5OB•	2816
K5TA	456
KA7T•	266
W9SE•	378
K9VKY	170
W0KEA•	9720

OCEANIA

5W1EJ•	32422
ZL7OY•	37620
FK8FA•	1302
YC2FEA•	5904
YB4FN	check

EUROPE

DL1SV•	812
DL3RD•	440
DL8KJ	252
DK7SU	240
DA2EBF	120
DK5OS	check
EA2CR•	126
EA2IA	72
EA5DJH	18
G3WPF•	1224
G5MY	360
G3KSH	32
HB9BOU•	1350
HB9IK•	1190
HB9CJH	528
HB9DX	456
HB0NL	286
HA7RB•	352
HA4YO•	120
HA4XX	32
HA5EA	check
HA5FA	check
OE1TKW•	2
OZ2E•	180
OH4ML•	1368
OH2YF	60
OK1AVD•	2358
OK3ZMV•	945
OK2BSG•	405
OK2ABU	333
OK1DBM	299
OK2BCI	120
OK3CEM	108
OK2BFX	110
OK2BBJ	50
OK2KOZ	18
OK1DMP	8
OK1KZ	8
OK1US	check
OK1XJ	check
PA0TA•	2
PA3DKX•	2
SP5CJQ/5•	580
SP6CDP	check
SP9AKD	check
SM4CMG•	1596
SM7ANB•	1088
YO3CD•	440
YO3CR•	252
YU4EZC•	64
LZ1KHY*•	6
LZ1HY•	2
Y22JD•	3920
Y36YM•	154
Y33VL•	108
Y27GL•	60
Y54UA	60
Y24YH	48
Y22WF•	40
Y22WF	18
Y58SA	18
Y62ON	18
Y22UB	check
Y37ZM	check
Y55XL	check

ASIA — SWL

JA4-30124•	10488
JA7-8347•	5984
JA8-3769•	260
JA1-23273•	96
4X4-1682•	180

SWL — EU

BRS44083•	744
DE8AAM•	8
OH6-145•	182
OK3-13095•	384
SP0288-LU•	24
SM3-5384•	288
Y2-6405-N31•	522
Y2-6698-F61•	90
Y2-16841/G63	32
Y2-9540/A55	12

PHONE 1984

ASIA

JA1ZOT*•	12400
JA1RZN•	3584
JE1ARO•	2900
JP1TRJ•	1280
JL1KCO	528
JG1WIC	240
JO1MCC	160
JP1SRG	144
JA2YKA*•	9576
JE2IEQ•	7412
JA2BNN•	6318
JH2KKW•	5472
JR2BPV	3024
JA2ATE	1848
JR3BOT•	9916
JA3YOD•	7644
JA3VXH•	5104
JR3WXA	1554
JJ3JJL	1440
JI3IMG	24
JA3HDF	4
JA3COA	check
JH4IFF•	15456
JA4ESR•	2900
JA4CUU	1260
JA5AHH•	3720
JR5HCU	300
JA6YAI•*	41440
JA6LDD•	4692
JA6EFT•	2068
JA6GGD	936
JS6AAT	690
JA7YFB*•	23028
JA7YCO*	4176
JH7DNO•	34160
JA7YFH	1560
JE7AWN	72
JA7FFN	50
JA8YAU•	18144
JE8CIS	1530
JA9RYL•	1776
JA9CAV	140
JA0VHI•	12054
JA0COL•	9718
JH0XUP	80
JA0GZ	48
HL1ABR•	1932
HL1APR•	1806
9V1TL•	928
4Z4VG•	2160

SOUTH AMERICA

PY5IW•	30
YV3ANG•	260
YV3ALK•	216
CE5CFR•	120

NORTH AMERICA

K1AR•	650
NB2P•	1040
K3ZO•	8576
W4MGX•	1080
K6SVL•	20500
WB7FOQ•	2058
K7LXC	272
W9SE•	900
W0ZV•	35604
W0KEA•	15680

OCEANIA

5W1EJ•	122910

EUROPE

DL3RD•	90
EA5CKP•	60
EA3EGI	check
G5MY•	256
G3KSH	56
HB9CHR•	1261
HB9IK•	610
HB9BVV	294
HB8DX	196
HA4XX•	780
HA6NP•	550
HA4KYN	156
HA5FA	check
OK1WT•	224
OK3CSC	168
OK1D8M	4
OK1KZ	2
PA0ZH•	504
PA3CEF	352
PA3CZP	56
SP6DVP•	176
SP9KJT	84
SP0LOP	check
SM4CME•	1216
SM2CEW•	546
SM0KVI0	18
SM6KMD	check
SM0MC	check
YO3CD•	198
YO2KHK	48
Y54VA•	2448
Y33TB•	616
Y23DG	288
Y58SA	112
Y54NL	42
Y22UB	6
Y22WF	2
Y23YE	check
Y53VL	check
OE1TKW•	2
OZ1ASP•	2
OH4ML•	2592
OH6IU•	1344
OH2AR•	880
OH7YF	306
OH7NW	240
OH1BV	182
OH4PW	120
OH2BMP	96
OH9UW	2
LA2AD•	504
LA3KBA	84
LA9SN	check
I4AVG•	492

USSR

SWL

UC2-006-43•	504
UC2-188-11	120
UB5 073-1610•	4740
UB5 068297	816
UA0-107-403•	1480
UA0-107-71•	1292
UA9-134-286	726
UA0-124-190	check
U1ZM*•	105
UZ4PZZ*•	2783
UZ4WWB*•	1328
UZ6AWJ*•	1066
UZ4FWO*•	6246
UZ3ZWF*•	1030
UZ4WWB*•	1023
UZ3DWH*	400
UZ4HWX*	320
UZ3DXW*	294
UZ1AWW*	150
UZ3WWW*	92
UZ4CWC*	35
UZ6HWY*	16
UZ4AXQ*	150
UA1OT•	70

CW

UA1DZ•	3080
RA3EA•	1819
RA1AO•	1620
RA3DX•	1485
UA6AIR	1183
UA4PCI	1040
UZ3DD	804
UA6LCN	528
UA1ADY	495
UA6HRZ	68
UZ1AWW	16
UA1ZDW	check
RA3NB	check
UA3XBB	check
UA4HKJ	check
UA3AGW	check
UA4HNP	check
UA4PO	check
UZ3XWB	check
UB4IZZ*•	1938
UB4XWB*•	1342
RB5MF•	2160
UB5NQ•	1632
UY5OO	960
UB5VAA	120
RB5QP	70
UB5QKC	check
UB5UHE	check
UZ0CWO*•	6888
UZ0OWA*•	6169
UZ9SWY*•	5130
UZ0LWC*	4464
UZ0OWH*	3920
UZ0LWG*	960
UZ0AWB*	1328
UZ9FZZ*	686
UZ0OWE*	280
UZ9OWM*	check
UZ0JWC*	check
UZ0SWM*	check
UA0LCZ•	17520
UA0SAU•	9560
UA0ZBP•	3472
UA9URF	1332
RA9HA	632
UW0CM	540
UA9LF	280
UV9FB	check
RV9UV	check
UA9YGO	check
UA900	check
UA0ZC	check
UA9CE	check
UC1WWF*•	576
UC2AIG•	80
UC2AW	32
UC2ACT	18
UP1BWI*•	270
UP1BWW*•	84
UR1RWX*•	854
UR2RND•	473
UR2FU	80
UF7FWW•	500
UF6DA	4
UD6CN•	400
UH8EWW*•	644
UJ8JA•	528
UL7CAA•	60
UL7PFH	2

PHONE

UV3CE•	2940
UA4PO•	2256
RA1AO•	893
UW4NN	624
UV3DN	378
RW3DW	279
UA1ADY	250
UA6XT	240
RA1AA	238
UA6LCN	132
UV3TE	check
UA6HON	check
UA1CT	check
UA3PB	check
UW4NH	check
UV3MM	check
UA4NC	check
UA6HRG	check
UA6HKN	check
UW3FW	check
UZ3XWB	check
UB4QWW*•	2016
UB4XWB*•	1083
UB4SWB*	949
UB4TWL*	check
RB5MF•	2040
RB5DX•	360
UT5GM	301
UY500	288
UB5VAA	231
RT5UO	check
UF7FWW	104
UD6GF	24
UZ9UZT*•	4860
UZ9SWY*•	3550
UZ0AWB*•	1696
UZ9FWR*•	1470
UZ0LWG*	570
RZ9UWH*	684
UZ9AWH*	552
UZ9OWM*	330
UZ0OWE*	210
UA0LCZ•	21168
UW0CW•	10745
UA9OO•	1292
UZ0OWA	1130
RA9HA	768
RA9OA	700
UW0CM	264
UA0QBB	80
UA9CS	24
UA0DAK	check
UA0JD	check
RV9UV	check
UV9FM	check
UA0ZBP	check
RA0SB	check
UA9XS	check
UA0OEZ	check
UM9MWO*•	200
RL8PYL*•	3060
UL7QF•	616
UL7TT	2
UI8CD•	666
UC1WWF*•	962
UC1WWR*	98
UC1AWF*	8
UC2AIG•	16
UP2BBF•	160
UO2GM•	860
RR2RX•	530
UR2OI	210
RR2RR	check

*denotes Multi-operator or Club Station

Many thanks to all participants and to the many who sent a log even with only a few contacts. Much appreciated.

Certificates sent to those with

Numerous logs had incorrect scoring. For 1984 all contacts were TWO points and each OCEANIA call area was a multiplier. This was introduced to make the activity more interesting tor overseas operators.

The 1985 VK/ZL/O DX CONTEST will be held over the first two weekends of October as usual. It is a SPECIAL EVENT as part of the 75th ANNIVERSARY of Australia's WIA. Your active participation to help celebrate this important milestone in amateur radio history is encouraged.

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR

Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA

Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC

Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC

2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

The sole contribution this month is from recent UoSAT Oscar 9 Bulletins.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR, the National Co-ordinator of AMSAT-Australia, is now producing a monthly newsletter containing updated satellite news, orbital predictions, kepierian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to realise funds for the funding of projects or the purchase of an item (items) of hardware for a future amateur satellite project, eg Phase-3C, Phase 4 or whatever. The cost of the Newsletter is $15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR, QTHR.

WHOLE-ORBIT-DATA (WOD) ON UO-11 (UOSAT-2)

The following summary was received on the Oscar 9 Bulletin recently and explains the significance of the WOD telemetry used on both Oscars 9 and 11. Our thanks to the UoS Team.

. . . *"One of the regular features of the UO-11 transmission is WOD surveys carried out using the 1802 On Board Computer (OBC). The OBC has direct access to the telemetry system and can store selected channels away in memory over the course of an orbit, or several orbits, to be read out (dumped) later. This facility enables telemetry data to be collected whilst the spacecraft is out of range of groundstations yielding a more complete picture of the spacecraft's operations and characteristics than can be gathered from just a 12 minute visible 'pass'. Any number of telemetry channels may be monitored by the OBC in this way — the amount of data collected is limited only by the size of memory available to the OBC, normally 14k Bytes but an additional 32k Bytes are available if required. The WOD surveys have been mostly used for navigation and stabilisation analysis using the X, Y and Z magnetometer channels. The motions of the gravity gradient stabilised spacecraft tend to be very slow (hours) and therefore surveys of navigation data spanning at least one complete orbit and frequently several orbits are necessary to observe and measure what is going on. In addition to navigation surveys, battery, downlink, solar array and spacecraft temperature data are gathered somewhat less frequently to provide updates to the overall engineering profile of the spacecraft. As there is a limit to the size of memory available to the OBC for data storage, the surveys can be organised to monitor many channels over a short period or a few channels over a correspondingly longer period. Apart from routine surveys, the WOD facility has been used to support special events such as gravity boom deployment, special downlink configuration tests and will shortly be used to establish baseline current consumption measurements for the DCE memories. The WOD surveys are initiated by the UoS groundstation by sending the OBC an instruction containing the telemetry channels to be monitored — the sampling rate can be further varied by controlling the telemetry rate (300-2400 bps) — the downlink multiplexers are then generally switched to WOD dump automatically by the OBC once the survey has been completed. The time at which the survey was started (UTC), orbit no and channel nos are then included in the following UO-9 Bulletin. Unless otherwise stated, the WOD surveys are carried out at 1200 bps hence each sample of the selected channels takes place every 4.84 sec (telemetry frame period). Generally, the WOD on UO-11 comprises navigation or spacecraft engineering survey data to assess the performance of the on-board systems. The most common surveys include telemetry channels 1, 2, 3 (the navigation magnetometer), 52 (the NiCd battery voltage) and, less frequently, the various spacecraft temperatures (x, y, z facets, battery and module boxes).*

The number of channels can vary up to a usual maximum of six limited by the current on-board computer software and the desired survey period. The WOD format comprises a 'sample (telemetry frame) address' followed by the three-digit value of the chosen telemetry channels in numerical channel order finally followed by a checksum. The sample addresses and their data are transmitted in an 'inter-leaved' format — sub-commutating every eighth address, ie addresses 0-8-16-24-32-40-48 (decimal) on the first run through memory, followed by: 1-9-17-25-33-41-49 etc on the second run through memory, and so on. This technique is employed to minimise the effect of burst errors on the received data — if you watch the data plotted in real-time, you will appreciate the power of this technique. An additional advantage (to the burst error resilience) used by the UoS Control Station is that a rapid appreciation of the trend of a data survey can be gained without the complete data dump thus allowing operators to proceed onto further activities in a minimum of downlink time . . ."

OSCAR-10 APOGEES

An explanation in the use of the apogees supplied in this column is given in the October 1984 Issue of Amateur Radio. The assumptions made in that column are still valid, however now that the bird is slowly drifting into the Southern Hemisphere the higher elevations required may necessitate some "DF-ing" for the strongest signal.

de Colin VK5HI.
AR

OSCAR-10 APOGEES
JUNE/JULY 1985

			SATELLITE APOGEE CO-ORDINATES			BEAM HEADINGS SYDNEY		ADELAIDE		PERTH	
	DAY #	ORBIT #	UTC HHMM:SS	LAT DEG	LON DEG	AZ DEG	EL DEG	AZ DEG	EL DEG	AZ DEG	EL DEG
JUNE											
1	152	1480	1723:14	-7	180	52	46	64	36	83	17
2	153	1482	1642:17	-7	170	62	39	72	28	88	9
3	154	1484	1601:20	-8	161	70	31	79	20	93	1
4	155	1486	1520:21	-8	152	77	23	85	12		
5	156	1487	0259:52	-8	327					267	1
	156	1488	1439:23	-8	142	83	15	90	4		
6	157	1489	0218:53	-8	317					272	10
	157	1490	1358:25	-8	133	89	7				
7	158	1491	0137:56	-8	308			265	-2	277	18
	158	1492	1317:27	-8	123	94	-0				
8	159	1493	0056:59	-8	299			270	6	283	26
9	160	1495	0016:00	-8	289	268	4	276	14	289	35
	160	1497	2335:02	-8	280	274	12	282	22	298	43
10	161	1499	2254:04	-8	271	279	20	288	30	308	50
11	162	1501	2213:06	-8	261	285	28	296	38	322	57
12	163	1503	2132:07	-9	252	292	36	306	46	341	61
13	164	1505	2051:10	-9	243	301	44	318	52	4	63
14	165	1507	2010:13	-9	233	313	51	335	57	26	60
15	166	1509	1929:14	-9	224	328	57	354	60	44	55
16	167	1511	1848:16	-9	215	347	60	15	59	57	48
17	168	1513	1807:18	-9	205	9	61	34	55	66	41
18	169	1515	1726:20	-9	196	29	58	49	50	74	32
19	170	1517	1645:22	-9	186	45	53	60	43	80	24
20	171	1519	1604:24	-9	177	57	46	69	35	86	18
21	172	1521	1524:54	-10	168	67	38	76	27	91	8
22	173	1523	1443:55	-10	158	75	30	82	19	96	-0
23	174	1525	1402:58	-10	149	81	22	88	11		
24	175	1526	0142:29	-10	324					267	5
	175	1527	1321:59	-10	140	87	14	94	4		

SATELLITE						BEAM HEADINGS					
			APOGEE CO-ORDINATES			SYDNEY		ADELAIDE		PERTH	
DATE	DAY #	ORBIT #	UTC HHMM:SS	LAT DEG	LON DEG	AZ DEG	EL DEG	AZ DEG	EL DEG	AZ DEG	EL DEG
25	176	1528	0101:30	-10	315					271	13
	176	1529	1241:01	-10	130	92	6				
26	177	1530	0020:33	-10	306			265	2	277	21
	177	1531	1200:03	-10	121	97	-1				
	177	1532	2339:34	-10	296	263	-1	270	9	282	30
27	178	1534	2258:37	-10	287	268	7	275	18	289	38
28	179	1536	2217:38	-10	278	273	15	281	26	297	46
29	180	1538	2136:40	-10	268	279	23	288	34	309	54
30	181	1540	2055:43	-11	259	285	31	296	42	324	60
JULY											
1	182	1542	2014:44	-11	250	292	39	306	49	346	64
2	183	1544	1933:47	-11	240	301	47	320	56	11	65
3	184	1546	1852:48	-11	231	314	54	338	60	33	61
4	185	1548	1811:51	-11	221	330	60	360	62	50	55
5	186	1550	1730:52	-11	212	352	63	22	61	62	48
6	187	1552	1649:54	-11	203	15	63	40	56	71	40
7	188	1554	1608:57	-11	193	36	59	54	50	78	31
8	189	1556	1527:58	-11	184	51	53	65	42	84	23
9	190	1558	1447:01	-12	175	63	45	73	34	89	15
10	191	1560	1406:02	-12	165	71	38	80	26	94	7
11	192	1562	1325:05	-12	156	78	29	86	18	99	-1
12	193	1563	0104:36	-12	331					261	-0
	193	1564	1244:06	-12	146	84	21	91	10		
13	194	1565	0023:37	-12	322					266	8
	194	1566	1203:09	-12	137	90	13	97	3		
	194	1567	2342:40	-12	312			260	-3	271	16
14	195	1568	1122:11	-12	128	95	5				
	195	1569	2301:41	-12	303			265	5	276	25

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

JUNE	
8-10	*VK/ZL 1985 RTTY DX Contest (Rules 'AR' May 1985)*
15-16	*All Asian Phone Contest (Rules this issue)*
22-23	*ARRL Field Day Contest*
28-30	*SMIRK QSO Party*
JULY	
6- 7	*Venezuela Phone Contest*
13-14	*International QRPp Contest*
13-14	*IARU Radiosport Championship*
20-21	*The Sunshine State Jack Files Memorial Contest (Rules this issue)*
20-21	*Venezuela CW Contest*
AUGUST	
10-11	*European CW Contest*
17-18	*REMEMBRANCE DAY CONTEST*
17-18	*SARTG RTTY Contest*
24-25	*All Asian CW Contest (Rules this issue)*

This month the rules for the Sunshine State Jack Files Memorial Contest 1985 are published. I would recommend this contest to you as one very worthwhile supporting. As well as reading the rules you might like to look back at the Thumbnail Sketch provided by Alan VK4SS which featured the late Jack Files VK4JF and appeared on Page 59 of 'Amateur Radio' for April 1985. Together with the copy of the rules I received a very nice note from Val VK4VR. It is a pleasure to hear from officers of a Division of the WIA, and perhaps indicates that there is some divisional interest in contests after all. I would like though to hear more in the way of comment from Divisions as well as receiving letters from individual members.

I recently wrote a letter of apology to Don VK1DH regarding his entry in the 1984 Remembrance Day Contest. For those of Don's friends who may have thought he omitted to send in his log I can say that was not the case. His entry unfortunately appeared as VK1OH due to a typographical error at this OTH.

From time to time I receive letters from various operators querying why their logs have been disqualified from a contest. In each case I provide an answer and in some instances I have received replies thanking me for pointing out where the mistakes lay. In one instance however, having explained in detail to the tune of two pages, as to why a log entry was unsatisfactory as well as answering personal criticism, I received a second letter in which the operator claims that I had been unreasonable by not returning the log with the advice that it was unacceptable in format. Unfortunately it would not be a practical proposition to adopt such an approach as you would undoubtedly realise. I would like to present for your thought a small insight into my attitude regarding the Federal Contest Manager's position and to this end I quote one paragraph of the letter which I wrote to the contestant concerned.

"In the past Federal Contest Managers have included in contest rules a paragraph to the general effect that the Contest Manager's decision is final and no correspondence will be entered into. I have tried to stay clear of this approach as I would not wish to stifle healthy discussion on any worthwhile contest matter. I do however have the right to implement such an approach should I see it as necessary."

I would hope that the situation will remain as is and that during my term as Contest Manager I will be able to help our contest operators here in Australia to improve their performance both in their actual operating as well as finishing the job properly by submitting logs of good quality. It will not always be that I can provide reams of comment and suggestions through this column as sooner or later I will run out of ideas. I am most happy to hear from you re any aspects of contesting you would like to see discussed and would make any contributions for direct publication most welcome as well.

Whilst still on the subject of logs I would like to quote yet another paragraph from the letter referred to above, namely *"In each instance the disqualified logs were examined by myself as well as another amateur assisting me with the compilation of results. The decision to disqualify same was not made lightly, however you surely will understand that there has to be some level arrived at beyond which any unsatisfactory logs may be measured."*

So, once again I would appeal to you to ensure that when you enter a contest you make yourself thoroughly familiar with the rules and go to at least some trouble to see that your log qualifies properly with the requirements laid down. I hope that I do not have to make much more mention of this aspect of contesting, nevertheless I will issue the warning once again that logs received which are considered unsatisfactory WILL BE DISQUALIFIED without further ado.

As I write this I am preparing to process the batch of logs received for this years John Moyle Memorial Field Day Contest.

A quick glance through these logs shows that some most excellent entries have been submitted. It will be most interesting to go through them to come up with the final result. At the recent Clubs Conference here in Adelaide, at which I was invited to speak, I made the comment that I would consider publishing a sample of at least two of the best logs submitted, one a manually produced log and the other a computer produced log. I would, of course, first approach the operators who submitted same to obtain their concurrence before going ahead and providing such copy for public scrutiny.

Also as I write this the Annual Federal Convention is soon to take place. I had the pleasure of meeting Guy VK4ZXZ, who is the Federal Councillor for the Queensland Division, as he passed through Adelaide on his way to the convention and was thus provided with the opportunity of discussing contest matters with him as well as with David VK5AMK, Federal Councillor for VK5. I provided a fairly comprehensive report to the convention and it will be very interesting to see just what comes out of this years convention.

It is certainly a fact that we all learn by our mistakes and that this is what experience means. Harking back to the Field Day Contest I have a feeling that the inclusion of multipliers for VHF operation may have created some interest even to the extent that the VHF section of the contest deliberately omitted this year due to obvious lack of interest in this section might well need to be re-instated. Other recent discussion has revealed a deal of dissatisfaction with the approach to VHF operation in the annual Remembrance Day Contest. I may be able to have the suggestion aired at the Federal Convention to the effect that the contest have completely separate sections for HF and VHF. Such an approach, it has been claimed, would make things somewhat more equal where country and city HF operators are concerned. Needless to say only good can come out of open discussion of such contest matters. It would not do for things to just stagnate with no progress or change taking place.

As part of making the contest scene more interesting to members I would like to see much more in the way of recognition of contest success. Both the VK4 and VK5 Divisions have put up ideas for memorial trophies which have yet to be discussed. Such could certainly be a help, whilst I would like to see such items as more plaques and pennants be awarded for competition. I would propose that the same trophy could not be won by an operator two years in succession and also that trophies, pennants and plaques should only be awarded to members of the Wireless Institute of Australia for contests organised by the Federal Contest Manager. Where operators, other than members, are winners they should receive certificates. If anybody would like to help towards this end by donating such items for presentation I would be very pleased to hear from you. Maybe even some of the electronics companies could consider donating worthwhile prizes to help things along in this way.

Well, that is all I have for you this month. In next months issue there will be the rules for our Remembrance Day Contest. It may well be that there will be a number of changes to these rules so you will be warned to study them carefully. I will also present the rules for the European DX Contests which include the CW Contest as shown in this months Contest Calendar as well as the Phone Section to be held in September and the RTTY Section in November.

Meantime I trust that you will enjoy all the aspects of our really modern and wonderful hobby which you are pursuing.

Just as an afterthought I might add that with the advent of the results of the past VK/ZL Contest being published I will be able to announce the winner of the Contest Champion Trophy for 1984.

THE SUNSHINE STATE JACK FILES MEMORIAL CONTEST 1985

All amateurs throughout the world are invited to participate in this contest, the aims of which are (a) to perpetuate the memory of the late Jack Files and (b) to enable amateurs to work stations for the WORKED ALL QUEENSLAND AWARD and other awards issued by amateur radio clubs in Queensland.

Date and Times: Saturday 20th July 0830-1230 UTC. Saturday/Sunday 20th/21st July 2330-0130 UTC.

Divisions and Sections: (1) Stations within VK4 (a) Tx all bands, (b) Tx HF only, (c) Tx VHF UHF only, (d) Tx QRP only (e) Tx all bands Club Stations. (2) Stations outside VK4 (a) Tx all bands. (3) SWLs (a) receive all bands.

Rules:

1 Except as specified below, rules on cross band, cross mode, repeaters, log keeping and submission will be as per 1985 RD Contest.
2 Stations may be worked repeatedly on all bands and modes provided that one hour has elapsed since the previous contact on that band and mode.
3 For scoring purposes on HF, VK4 is divided into two zones, the dividing line being the Tropic of Capricorn. On all bands a bonus of ten points may be claimed for the first contact to a Qld City or Shire on each band during both, NOT each, sessions. Also a bonus of ten points may be scored for each contact with a Club Station.

(a) Stations in VK4.
HF contacts within same zone, 3 points. Opposite zone 5 points. Outside VK4, 1 point.
UHF/VHF contacts to another City or Shire, 5 points. Same City or Shire, 3 points. Outside VK4, 1 point.

(b) Stations outside VK4.
HF, VHF, UHF contacts to VK4 Stations, 1 point. Bonus points apply. No points for contacts to other call areas.

4 On the various HF bands it is recommended that operation is below: 1.820, 3.575, 7.060, 14.175, 21.175, 28.450 MHz.
5 Logs must be submitted before 16th August 1985 to: The WIAO Contest Manager, 5 Koomooloo Court, Mermaid Waters, Qld. 4218. It would be appreciated if WIA contest log sheets be used.
6 Awards will be given to the highest scorer in each section. However, should a contestant receive an award in one section he/she will not be eligible for an award in any other Section.
7 The Contest Manager's decision will be final and no disputes will be entered into.

AR

THE 26TH ALL ASIAN DX CONTEST

The purpose of this contest is to enhance the activity of radio amateurs in Asia and to establish as many contacts as possible during the contest periods between Asian and Non-Asian Stations.

CONTEST PERIOD:
(1) Phone: 48 hours from 0000 UTC 15 June 1985 to 2400 UTC 16 June 1985
(2) CW: 48 hours from 0000 UTC 24 August 1985 to 2400 UTC 25 August 1985

BANDS:
Amateurs bands under 30 MHz

ENTRY CLASSIFICATIONS:
(1) Single operator, 1.9 MHz band (CW only)
(2) Single operator, 3.5 MHz band
(3) Single operator, 7 MHz band
(4) Single operator, 14 MHz band
(5) Single operator, 21 MHz band
(6) Single operator, 28 MHz band
(7) Single operator, Multi band
(8) Multi operator, Multi band

POWER, TYPE OF EMISSION and FREQUENCIES:
Within the limits of own station license.

CONTEST CALL:
(a) Phone....."CQ Asia"
(b) CW....."CO AA"

EXCHANGES:
(1) For OM stations: RS(T) report plus two ligures denoting operator's age.
(2) For YL stations: RS(T) *report* plus two figures "00 (zero zero)"

RESTRICTIONS ON THE CONTEST:
(1) No contact on cross band.
(2) For participants of single operator's entry: Transmitting two signals or more at the same time including cases of different bands is not permitted.
(3) For participants of multi operator's entry: Transmitting two signals or more at the same time within the same band, except in case of different bands, is not permitted.

POINT AND MULTIPLIER:
(a) Point . . . Perfect contact with Asian stations (excluding US auxiliary military radio stations in the Far East, Japan) will be counted as follows:
1.9 MHz band.....3 points
3.5/3.8 MHz bands.....2 points
Other bands.....1 point
(b) Multiplier . . . The number of different Asian Prefixes worked on each band. According to the WPX Contest rules:

SCORING:
(The sum of the contact points on each band) X (The sum of the multipliers on each band)

THE SUMMARY AND LOG SHEETS
Available from JARL.

AWARDS:
(1) For both phone and CW, certificates will be awarded to those having the highest score in each entry in proportion to the number of participants from each country and also those from each call area in the United States.
(a) The number of participants under 10 . . . Award only to the highest scorer.
(b) From 11 to 20 . . . Award up to the runner-up
(c) From 21 to 30 . . . Award up to the top third
(d) From 31 or more Award up to the top fifth
(2) The highest scorer in each Continent of the single operator multi band entry will receive a medal and certificate from the Minister of Posts and Telecommunications of Japan.
(3) The highest scorer of the multi operator multi band entry in each Continent will receive a medal.

REPORTING:
(1) Submit a summary sheet and logs of only one classification.
(2) Both log and summary sheet must arrive in JARL, PO Box 377, Tokyo central, Japan *on or* before the following dates:
(a) Phone . . . 30 September 1985
(b) CW . . . 30 November 1985

DISQUALIFICATION:
(1) Violation of the contest rules.
(2) False statements in the report.
(3) Taking points from duplicate contact on the same band in excess of 2% by the total.

ANNOUNCEMENT OF THE RESULT:
(1) Phone . . . About February 1986
(2) CW . . . About April 1986

COUNTRIES LIST OF ASIA:
A4, A5, A6, A7, A9, AP, BV, BY, EP, HL/HM, HS, HZ/7Z, JA-JS, JD 1 (Ogasawara Is.), JT, JY, OD, S2, TA, UA/UN/UV/UW, UZ/RA/RN/RV, RW/RZ9-0, UD, UF, UG, UH, UI, UJ, UL, UM, V85, VS9M/8Q, VU, VU (Andaman & Nicobar Is.), VU (Laccadive I.), XU, XV, 3W, XW, XX9, XZ, YA, YI, YK, ZC4/5B4, 1S (Spratly I.), 4S, 4W, 4X/4Z, 7O (S. Yemen), 9K, 9M2 (West Malaysia), 9N, 9V (Singapore), (AbuAil)

RESULTS OF VK STATIONS PARTICIPATING IN 25TH ALL ASIAN DX CONTEST

PHONE SECTION

*VK5BW	3.5	88	24	2112
*VK6AOK	7	10	8	80
*VK2XT	21	1788	76	135888
VK6NPT	21	771	80	61680
VK5KJT	21	76	1	76
*VK2PFQ	28	365	66	24090
VK2BQS	28	201	52	10452
VK2KCN	28	98	38	3724
*VK2APK	M	588	114	67032
VK5ATU	M	421	131	55151
VK3PBQ	M	377	93	35061
VK1LF	M	22	4	88
VK2JPC	M	76	1	76
VK4NAS	M	31	1	31
*VK6MD	Mop	2993	259	775187

CW

*VK4TT	14	285	60	17100
VK3RJ	14	31	27	837
*VK5AGX	21	233	66	15378
*VK4XA	28	75	30	2250
*VK2APK	M	640	185	118400
VK2BQQ	M	284	134	38056
VK3AUO	M	253	123	31119
VK5GZ	M	237	108	25596
VK2DID	M	31	23	713
*VK3EZ	Mop	855	220	188100

(VK3s FY,JJ,DMU,DMI,oprs.)

** JARL Certificate*
M Multi Band Single Operator
Mop Multi Band Multi Operator
in the order of Call Sign, Entry, Points, Multiplier, Final Score.

AR

WICEN NEWS

Ron Henderson VK1RH,
FEDERAL WICEN CO-ORDINATOR,
171 Kingsford-Smith Drive,
Melba, ACT, 2615

STANDARDISATION OF CONNECTORS

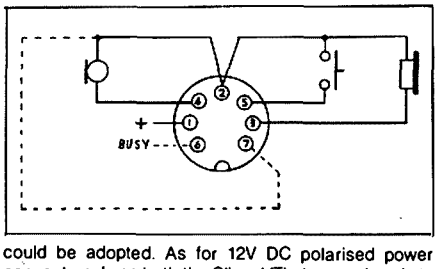
I recently received an interesting letter on this topic from Paul Howarth VK2ZPS and with his permission I am including it below.

I read, with great interest, both articles on standard connectors for amateur equipment which appeared under WICEN News in July 1984 and January 1985.

Although I am not a member of WICEN, my interest comes from my association with a volunteer emergency service organisation and being an amateur I was surprised to learn that a standard does not exist within WICEN as a whole. I am a believer in the use of standards wherever they are practical, and the adoption of a standard wherever they don't.

Both systems have merits, ie: the separate earth for microphone circuits, the busy line for repeater operation, (this feature being omitted where equipment is not modified for this purpose) and a +12 volts line for indication, electret microphones and low current switching. Perhaps a combination such as

1 — +12V supply
2 — Ground
3 — Audio Output
4 — Microphone Input
5 — PTT
6 — Busy (Optional)
7 — Microphone Ground (Optional)



could be adopted. As for 12V DC polarised power connectors, I use both the Clipsal 'T' plugs and sockets as well as 6.5 mm phono plugs and sockets (Metalised type), and believe both have their place. I do understand that the Standards Association of Australia (SAA) has been approached with regard to issuing a standard for the polarity of the 'T' connectors.

I am putting my comments to yourself, WICEN members and amateurs as a whole, hoping to see some active discussion resulting in the adoption of a standard.

This I believe, would further enhance the professional image of WICEN amongst statutory authorities.

Regards,

Paul Howarth VK2ZPS.

The key need is standardisation and interoperability of equipment and accessories within a recognised group of **WICEN** operators, probably on a regional or geographical basis as they will be working together.

AR

MAY'S BEST PHOTOGRAPH

The Judges at Agfa-Gevaert Ltd Australia chose the selection of photographs accompanying the article of Lizard Island in May. Anne VK4FAB will now be eligible for the Agfa prize.

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

This month we will be detailing some of the awards which are sponsored by YL groups.

These awards can be gained without much effort as there are a significant number of YLs operating on all bands.

Many countries have special nets operating for YL activities and OMs are welcome to participate, unless stated otherwise.

Some of these nets are shown below:-

ALARA, sixth of each month, hourly and may be found on 7.088, 14.280, 14.288, 21.188, 21.380, 28.050 and 28.588 MHz.

3.525 MHz at 0800 UTC on Mondays. WARO CW net.

3.570 MHz at 0830 UTC on Mondays. ALARA net.

14.160 MHz at 0800 UTC on Mondays and Thursdays. Natter net.

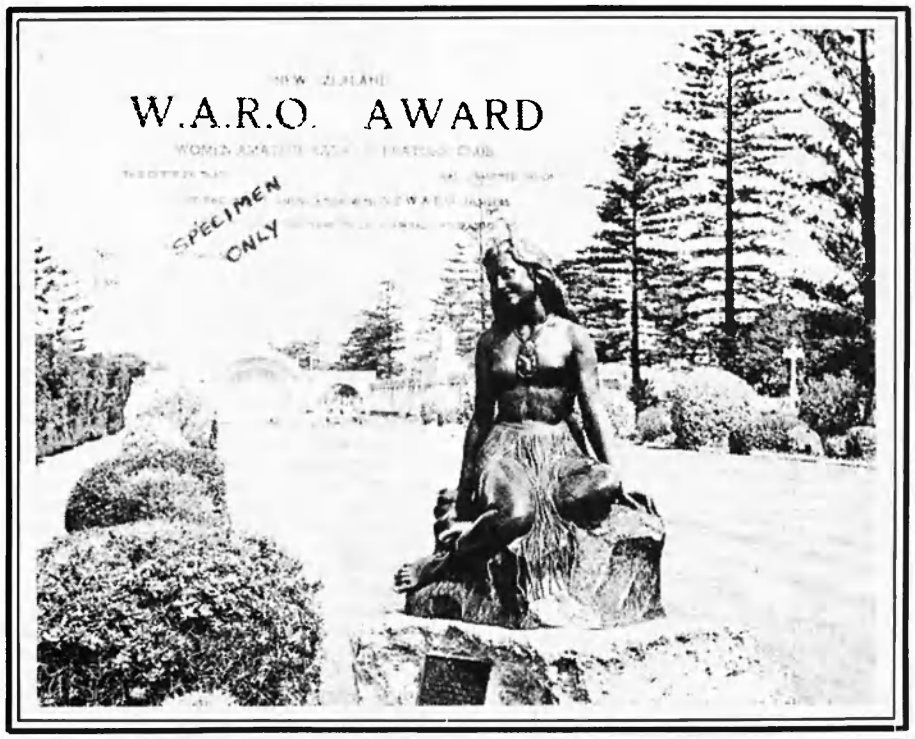
14.160 MHz at 0500 UTC on Mondays and Thursdays. VE/VK/ZL net.

14.220 MHz at 0630 UTC on Mondays DX YL net, OMs welcome on first Monday.

14.333 MHz at 0300 UTC on Saturdays. VK/ZL net.

21.183 MHz at 0400 UTC. VE/VK net.

21.355 MHz at 1430 UTC daily. DX YL net.



ALARA AWARD

This award displays eight hand painted wild flowers native to each of the Australian States. The artist is VK3AZU.

The logo is black and yellow and the whole is printed on dull white paper, 21cm x 30cm. A most attractive addition to any award collection.

Rules for application for ALARA Award

VK/ZL applicants. 10 members to be contacted and to include 5 Australian States. DX applicants. 5 members to be contacted and to include 4 Australian States.

All contacts to have been made with members on or after 30th June 1975. No repeater contacts will be allowed.

Applicants must submit a complete extract of log entries, which is to be certified correct by two other amateurs, whose signatures must be appended. In the event of an applicant in an isolated location being unable to obtain certification, QSL cards should be forwarded in lieu.

Application must include full name, address, signature and call sign of the applicant. All contacts must be made from the same call area. Official ALARA net contacts do not qualify.

Special endorsements available eg Mixed, All CW, All Phone, All 28 MHz, etc. Endorsement stickers available for each ten additional members contacted. For DX applicants, 5 additional.

Fee. Applications should be accompanied by the equivalent of 3 Australian dollars or 7 IRCs. Additional stickers 1 Australian dollar.

Applications should be forwarded to: ALARA Awards Custodian, Mavis Stafford, 16 Byron Street, Box Hill South, Vic. 3128.

WARO — NZ

This award is issued by The New Zealand Women Amateur Radio Operators.

Requirements.

ZL and VK stations must work twelve WARO members resident in New Zealand. DX stations require six contacts. Contacts for amateurs date from 1 June 1969 and for SWLs on and as from 1 January 1979.

VHF Section: Requirements are ten VHF contacts with WARO members and applicants may be home stations, mobile or portable. Endorsements are available for each five additional contacts. Commencing date 1 January 1979.

SWL Section: ZL and VK stations must list twenty contacts heard with WARO members. DX stations need to list ten contacts heard. Heard contacts only from 1 January 1979. Log details with call signs of both stations heard.

General Requirements: Contacts via repeaters, WARO nets or contests are ineligible for the award. Contacts may be any mode or band, with applicants contacts from the same QTH, except as for VHF.

No QSLs are required only GRC list certified by one other amateur and sufficient postage for return of the award to be forwarded with the application

Applications to be forwarded to. Custodian WARO Award-ZL1OC, Vicki Shaw, PO Box 2088, Whakatane, NZ.

BYLARA AWARD

This attractive award is sponsored by the British Young Ladies Amateur Radio Association. It is available

to all amateurs and SWLs.

Requirements

DX outside Europe. Work ten YL members, to include six British YLs, as from 29 April 1979.

All bands, all modes. One contact per member. Open to all YLs, OMs and SWLs. Special endorsements, available on request. eg. "all CW", all "10m SSB", etc.

Applications to be made to: Custodian Bylara Award, G4EZI, 3 Primley Park Crescent, Leeds LS17 7HY, England, UK.

QSLs are not necessary. Log data only required signed by the applicant. Fee is One pound fifty p, 12 IRCs or US$4. List of members may be obtained from the Custodian — please enclose SASE.

THE 88 CERTIFICATE

The Dutch-YL-Club was started on 9 May 1981 and is affiliated with VERON, and they are the sponsors of this Award. Rules are as follows: HF-Eu-DYLC members count 8 points; non members of DYLC, but still Netherlands YLs, count 4 points. DX — All Netherlands YLs plus the members of DYLC, 11 points. Submit proof of having established two-way radio contacts with Dutch YLs or members of DYLC. Each contact is awarded with a number of points and the applicant must earn a minimum of 88 points. (Same rules apply for SWLs.)

Only QSOs from 9th May 1981 are valid. Have list certified by two other amateurs, Club Officer, or Notary Public. Cost is 8 IRCs. Apply to: Awards Manager, M Wolf-Wildeboer, Polotenweg 14-b, 8303 EJ Emmeloord, The Netherlands.

CWRJ "YL" FLOWERS AWARD. (YLAW)

CW only. With the first letter of the suffix of the call sign of stations worked in the 10 metre band (28MHz) spell the names of five flowers (English or Portuguese names). Stations worked must include 5 YL operators. YL stations may be used to substitute letters in the names of flowers (as in poker). YL contacts may be on any band. Contacts may be any country. Endorsements — none. Send log data, certified, calls (listed in order to form names of flowers) YL infor, date.

Fee is 6 IRCs, QSOs valid after 1 January 1982. Manager is PY1DWM, PO Box 24039, 20522 Rio de Janeiro, Brazil.

MINERAL FIELDS AWARD

This Award is to create an interest in the north-east of Queensland, and to bring an awareness of local conditions to interested amateurs.

The Award is on a points attained basis, and point scores are as follows:

Contact with a Mount Isa Station on HF count 1 point
Contact with a Mt Isa Station on VHF count 2 points
Contact with a District Station on HF count 2 points
Contact with a District Station on VHF count 3 points
RTTY and CW counts double points score for that contact.

The District Stations are those stations within the boundary of the area north of Boulia to the Gulf, and west of Cloncurry to the Northern Territory border.

Stations can be claimed once per band, per mode (phone CW RTTY) ie VK4ACE:- 80m phone, 40m CW and phone, 15m CW and phone and VHF =
1 + (1 + 2) + (1 + 2) + 2. Contacts after 1/1/76 may be claimed for the Award.

AWARDS: 1 LEAD/ZINC. 10 points, at least one contact with a station in Mount Isa and one District Station compulsory.
2 COPPER: LEAD/ZINC + 5 points.
3 SILVER: LEAD/ZINC + COPPER + 5 points.

APPLYING FOR THE AWARD: CHC GCR applies. Send certified list of contacts and points claimed to *MIDARG, PO Box 1715, Mount Isa, Old. 4825.*

Please include 4 IRCs to cover P & P and costs.

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HIROSHIMA DX CLUB

The Hiroshima Kangaroo DX Club are issuing a HKDXC Award for the third anniversary of its foundation. HKDXC hopes many stations all over the world will participate in hunting this Award. The rules are as follows.

CLASS A: To get more than 500 dissimilar VK stations QSL cards including VK1 to VK8 and also more than 3 HKDXC member's cards.

CLASS B: To get 300 dissimilar VK stations including VK1 to VK8 plus 3 HKDXC member's cards.

CLASS C: To get 100 dissimilar VK stations including VK1 to VK8 plus 3 HKDXC member's cards.

COMMENCEMENT: 1st February 1984. (Effective QSOs only after this date.)

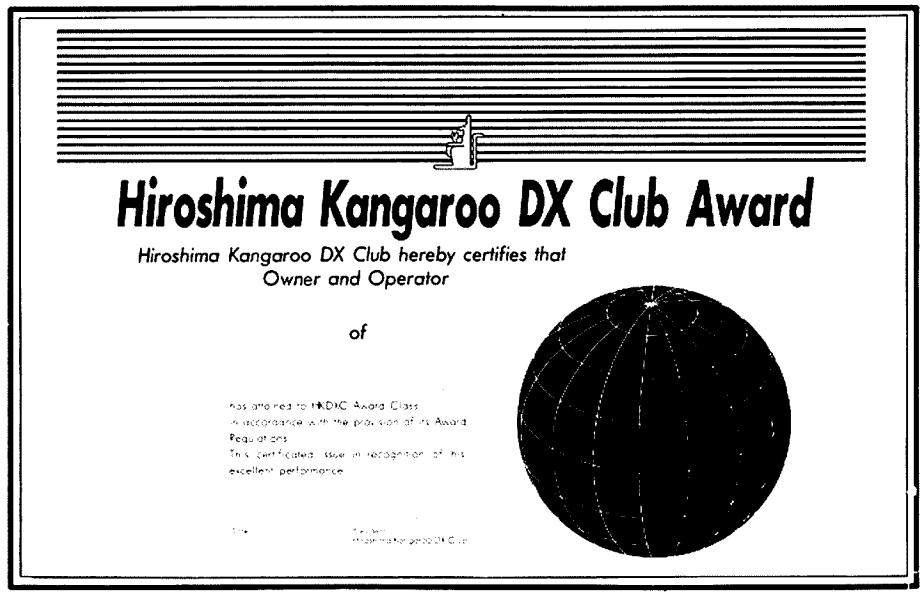
OTHERS: HKDXC member's card must have a membership of HKDXC to be valid for the Award.

The applicant is required to send following objects to the addressee.

1) Each one card of VK1 to VK8 confirmed
2) Three HKDXC member's cards confirmed
3) The summarised log sheets (GCR)
4) Ten IRCs for return postage

THE ADDRESSEE: H Ichikawa JR4WWT 20-20, 5-Chome, Midori, Minami-Ku, Hiroshima 734 JAPAN

AR



WIA 75 AWARD MANAGERS REPORT

The following are quotes from letters included with claims for the award.

Val Rickaby VK4VR *"I had a most enjoyable time collecting the numbers and worked a lot of new stations."*

Ron Millingen VK2PZW *"May I say that as a newcomer to amateur radio and only on air for four months that I found this a most stimulating award."*

John O'Brien VK1NCO *"Thanks for organising the award, it has caused a lot of interest on air."*

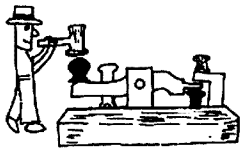
Dennis Tidy VK2DET *"I am looking forward to receiving this one off award. It will take prominent position on my shack's wall. I have made many more friends on radio through the amount of interest shown for the award."*

Brian O'Neill VK2AKU *"I would like to thank you for the time and trouble in preparing this award for radio amateurs on this occasion."*

Arthur Harris VK2KFV *"Good luck with the award, and by the sound of the airwaves, particularly 80 metres, you will be sending a few out."*

John Heaver VK3VNQ/XEH *"Having enjoyed the exercise very much and I do wish the Institute all the success it deserves."*

AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

INDEX OF COLUMNS AS AT 16-03-85

No	Pub Date	Subject
1	8/82	Intro, Subjects to be covered.
2	9/82	The CW QSO (I), Establishing Contact.
3	10/82	The CW QSO (II), the QSO
4	11/82	Abbreviations, Query re use of QRL.
5	12/82	Contest Operation.
6	1/83	Keys and Keyers (I), Manual Keys.
7	2/83	Correspondence — VK4RF, VK2BIW, Overlining, Pet Hates
8	3/83	Keys and Keyers (II), Mechanical and Electronic.
9	4/83	Keys and Keyers (III), Paddles, Keyers, AEA.
10	5/83	Signal Reporting, RST.
11	6/83	Signal Report Amplifications.
12	7/83	Retrospective, Zero-beat Operation.
13	8/83	Zero-beating, Applications, Break-in Operation.
14	9/83	Getting Rid of the Garbage.
15	10/83	Learning the Code.
16	11/83	Increasing Speed, request info on Practice Material.
17	12/83	VK5EK Letter, ICW, Circuit for ICW PA.
18	1/84	ORPp Club Fold-up.
19	2/84	Morse Examinations.
20	3/84	ORP Operation.
21	4/84	Readers' letters re ICW and MCW.
22	5/84	ICW and Gentlemen's Agreement.
23	6/84	Spark to CW — 1928 ARRL Handbook.
24	7/84	Net Operation, More 1928 Material.
25	8/84	Birthday, Codemaster.
26	9/84	Establishing Contact.
27	10/84	Poor Sending.
28	11/84	Speed, Letters.
29	12/84	Abbreviations.
30	1/85	Whither CW, RST Reporting.
31	2/85	Signal Report Amplification.
32	3/85	Why Use CW?
33	4/85	Speed Practice for the Novice Operator.
34	5/85	Bits and pieces, correspondence.
35	6/85	Correspondence. Biggest Key.
36	7/85	Getting it right.
37	8/85	Learning the Code.

You may well be wondering about the photos which accompany the column this month — is it a giant key or a midget operator? Is it a normal-size operator who is suffering from elephanitiasis of the key? Read on, and all will eventually be revealed.

But first, I have some more correspondence to deal with. Thanks very much for the letter from Lloyd Collier, who commented on the article "Whither CW?" which appeared in January. Lloyd's comment was that you could engender some interest in CW operation by "reversing" the exam requirements. His suggested exam format would be —

Full call — Regs and CW at 10 WPM.

Novice — Regs and Theory.

Thanks also for an encouraging letter from Ken VK5PKP, who neglected to include a return address. Drop me another line Ken, because the fact that your dad is an N6 indicates we may have more in common than an interest in CW!

Glen Torr VK1FB sent a very interesting letter describing a visit to the Canberra Space Centre at Tidbinbilla. Glen writes:

"Part of the display was a map of Australia showing the locations of previous NASA tracking stations in Australia. There was a short story about each station. They story about the Carnarvon WA station which was used from 1963-1975 for the Gemini Project contained the following, copied word for word —

> *'An interesting event illustrating the initiative of the Outback of Australia was when Carnarvon first began tracking and was just waiting for a spacecraft to be launched, when a bolt of lightning cut all communication out of the town. The time of launch was passed from Geraldton to Carnarvon by* ***Morse code****, using the top wire of fences in places.'*

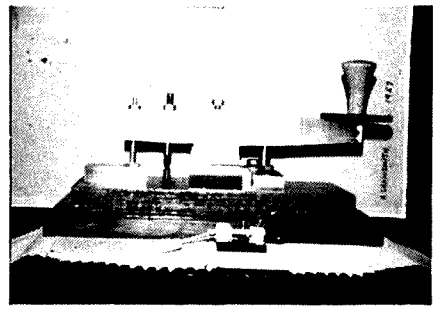
"Even though Morse may be old there will always be need for a code which can convey intelligence by the presence or absence of a medium."

A meeting of the old and new. I well remember as a lad in the USA the fascination of following the early manned space programmes — Mercury and Gemini — little did I suspect I would be reporting a connection between the most modern and the oldest applications of wireless communication.

I was reminded the other night of Glen's letter when I was giving a talk on the history of CW for a local club. As part of my work lately I have had to write formal papers for management, and the best way is to start with an outline which puts the whole thing in perspective. As I was outlining the talk, it suddenly dawned on me that Morse code is essentially a digital mode of communication, having a lot in common with its predecessors smoke signals, signal fires, and heliographs. Meanwhile, there was a side-development, as it were, in analogue modes, which have more or less been perfected in such areas as telephone, television, and FM radio, but the real leading edge in technology is in — you guessed it — digital techniques.

The talk was called "From Key to Computer", and concluded with a rather bald but reasonable assertion on my part that computer reception of Morse code transmissions is a "Cinderella" technology. Where conditions are good enough for computers to read Morse, then they are good enough for more advanced digital codes which are far more efficient. Where conditions are not so good, the human ear will beat the machine every time. I was delighted to prove my point after the talk when two different machines using two different programmes were unable to make any sense out of code which I could read with ease. It was gratifying to see the spectators who had been staring at garbage on the screen slowly drift over toward the receiver, where I was able to tell them what the computer couldn't!

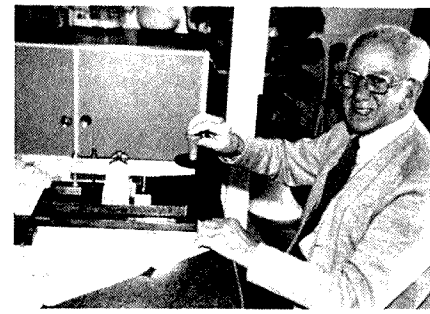
There is a simple elegance about a manual Morse key which has attracted brass pounders through the last century. Most of us use "gadgets" such as paddles and keyers, but I would bet that nearly every one of us has a straight key somewhere in the shack "just in case". Keys have been made from all sorts of materials, with all sorts of decorations and "improvements", and in my learning days I was able to use what must have been one of the smallest — a two inch key bolted onto the top of a portable military transmitter.



The photos show what may well be the largest key in the world. Alan Shawsmith VK4SS kindly provided the photos and some background information.

Alan feels that someone somewhere could produce something larger, but until this happens, he is claiming this straight hand key capable of being used to key any rig as the largest of its type ever made.

It sits on a two tier base and measures overall 19" by 9½" by 9¼" high. The weight is approximately 17 pounds or 7.5 kg; it can be carried in one hand if you have a strong wrist? It would pulp toes if dropped on one's foot, and would make an ideal door stop for a cathedral, yet it is so beautifully balanced that excellent code can be sent with a light touch of two fingers. The



base is of exotic wood and all the machined parts are of first quality inch-thick solid polished brass. The contacts are half an inch in diameter, so it could key a spark transmitter of very high power.

The question, according to Alan, is *"Was it designed for use as a functional instrument, or for static display only?"*

"The Incredible Hulk", as it is now affectionately known, was donated to Alan's key collection by an American collector who prefers to remain anonymous. The collector is desperately keen to expand his collection with some Australian keys (viz the Pendagraph, vertical and broadside models, the Auto Morse 3 paddle, Buzza Bug and others). He is prepared to pay a good price and anyone who can help should contact Alan Shawsmith VK4SS, 35 Whynot Street, West End, Brisbane, Qld. 4101.

A footnote explains that Harry VK3CM paid Alan a visit, and since they couldn't find room in the shack they photographed it on the kitchen table. Much to Alan's surprise, Harry could send 20 WPM on it!

So who knows of a bigger key? Failing that, who wants to go for a place in the record book and build one? I've got an idea or two but I'll say no more until I can see if it will work. Thanks again to all contributors and correspondents, and I hope this column will stimulate some of you to dig into your memories and your files for some more CW ephemera.

AR

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

In last month's column, I happened to mention the existence of Single-Letter Beacons and the speculation surrounding their operation. Now William Orr W6SAI, has followed up with an article on so-called "cluster" beacons. (1)

These beacons differ from the high powered stations employing a 500 Hz frequency shift keyer, because they use the standard A1A mode and are generally weaker also. These "clusters" are over a narrow frequency range of 4 kHz and are spaced approximately 500 Hz apart. Reportedly located in different locations within the USSR, they are further inland than the "K" or "U" beacons which are on the coast.

Interestingly enough, these beacons appear in exactly the same position within each frequency span. Therefore, one can subdivide them into eight "channels" with the first one being 500 Hz above the commencement of the Span and the final one at the edge of it. You will readily hear the "F" beacon on "channel 1" and as you tune across the sub-band you will hear other Morse I/Ds including some with Cyrillic letters such as "···.", or "..··" or ".·.·.".

The approximate "Cluster" Beacon Frequency Spans are as follows:—

3.564 to 3.568 MHz	*5.305 to 5.309 MHz*
6.801 to 6.805 MHz	*8.645 to 8.649 MHz*
10.643 to 10.647 MHz	*13.635 to 13.639 MHz*
17.015 to 17.019 MHz	*20.991 to 20.995 MHz*

Of all the "clusters", I have personally found that the 8 and 13 MHz bands is where they can be easily heard from 1000 UTC until they fade out around 1400 UTC. This to me is indicative of an Asian OTH. Orr also states that these beacons will occasionally send different digital information, but I haven't personally noticed this yet. These SLBs are generally weak, being easily lost within the cluttered marine allocations. Their exact purpose is not known, yet appears related to Soviet Defence Communications. For further details, I would refer you to the very interesting article in "Popular Communications".

AN INTRODUCTION

For those just starting out to listen to amateur radio communications for the first time, there is now a very helpful publication entitled "An Introduction To Amateur Radio DXing". It has been written by Rob Wagner VK3BVW, who edits the amateur DX section of the "Australian Radio DX News". It is primarily designed for the SWL and/or DXer as an explanation of the hobby. It has the background to amateur radio together with explanations of the various modes and bands, how to send reception reports to amateurs plus a wealth of information for the SWL/DXer.

I find that the booklet is well prepared and generally free from too many non-technical terms and is ideal for the beginner who has had no experience in amateur radio operation. It could be also a good introduction to the general public at displays, expo's etc, although as it is a little expensive, I would recommend distribution only to those showing interest.

The publication sells for $3.00 within Australia and can be obtained from the publication department of the Club at the following address:— *Australian Radio DX Club, PO Box 77, Glenhuntly, Vic. 3163.*

DX POSITION

Incidentally, the Australian Radio DX Club is holding a "DXposition" on the Queen's Birthday Weekend (8th and 9th June). It will be at Normanby House, Monash University in Melbourne's south-eastern suburbs. It commences at 1 pm and there will be several sessions devoted to various aspects of DXing including antennas, accessories such as ATUs etc. as well as DXing various regions of the World. It will also be an opportune time to meet fellow DXers and enthusiasts. On the Sunday, those attending will inspect the Radio Australia studios at Burwood and the AUSSAT ground receiving station adjacent to the RA studios.

HEAR THIS!!

While tuning across the bands recently, I happened to come on to several programmes for the short-wave listener and/or DXer. We are all familiar with programmes such as "Talkback" over Radio Australia or "Media Network" over Radio Netherlands etc, that I thought it would be a good idea to have a table of DX programmes in this month's column. I have not rated them for quality as that is a matter of individual taste. I include those only that I have heard recently together with the times and days of operation.

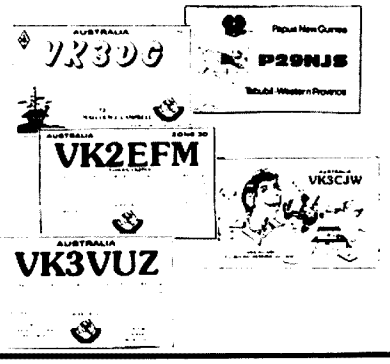
JAMMING

You have by now encountered an unusual jamming sound over the past year or so. It can be likened to a klaxon or ambulance siren. I can now confirm that these signals are based in Iraq. As you are aware, there has been a war between Iran and Iraq for over four years now. The Iraqi's have been jamming a variety of stations, both broadcasting and military. The jammer has even been observed on MW, where it caused severe interference to a station in New Zealand, so much that a station in the North Island had to go to a new channel to get away from the pulses. Certainly a long way from the Gulf!

Well, that is all for this time. All the best of 73 and good listening! — Robin VK7RH

AR

Station	Programme	Frequency MHz	Time/Day
Radio Australia	*"Talkback"*	*6.045, 9.580*	*0810 Sun.*
Radio Netherlands	*"Media Network"*	*9.630, 9.715*	*0750 Thur.*
Radio HCJB	*"DX Partyline"*	*6.130, 9.745*	*0930 Sat. & Mon.*
			0700 Wed.
BBC WS	*"Waveguide"*	*11.750 & others*	*1115 Tue.*
Radio Sweden Int'l	*"Sweden Calling DXers"*	*15.190*	*1230 Tue.*
Voice of Turkey	*"DX Programme"*	*9.560*	*0440 Sun.*
Swiss Radio Int'l	*"Swiss Merry-Go-Round"*	*9.560*	*2nd & 4th Sat. 0705*
Radio Polonia	*"DX Club"*	*7.270*	*0640 Thur.*
VOA	*"World-wide Shortwave Spectrum"*	*6.110, 9.350 (LSB) 9.760*	*1330 Thur.*
KTWR	*"DX Listener's Log"*	*11.840*	*1000 Sat.*
Radio Moscow WS	*"DX Segment"*	*15.130, 17.880*	*Very Erratic but heard Sundays 0525*



CLUB CORNER

THE WIA 75TH ANNIVERSARY HAMFEST

Will be held at the Montrose Yacht Club, Hobart on 8th and 9th June 1985. Amateur radio — yesterday, today and tomorrow will be the theme.

There will be a RTTY display, satellite communications, home brew section, QSL card display and more.

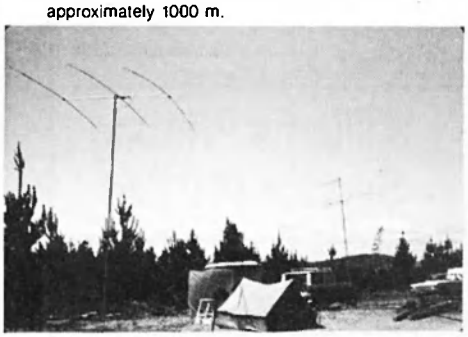
AR

CANBERRA RADIO SOCIETY

During the John Moyle Memorial Field Day, Canberra Radio Society, using the call sign VK1ACA, operated from Kowen Pine Forest for 24 hours.

Fire Tower

The station was located beside the fire look-out tower, 16 km east of Canberra, with an elevation of approximately 1000 m.



A view of the antennas and operating tents.

Eric VK1EP beside the power unit.

Bands 80, 40, 20, 15, 10, 6 and 2 m plus 70 cm were used. Power was supplied by a 5kVA, 240V petrol/electric generator.

Operators were VK1s- TH, AOP, KRS, EP and KCM.

Supplied by M Laybutt VK1ML

AR

WESTERN SUBURBS RADIO CLUB

Recently there was an Open Weekend at Melbourne Airport which saw the biggest public relations exercise ever undertaken by this radio club.

Members of the club participated in providing operators for a WICEN communications exercise as well as promoting amateur radio with operating and demonstrating equipment.

It was estimated that in excess of 80,000 people saw the club in action, complete with amateur television transmissions through the Melbourne ATV repeater.

Over a hundred signatures were gathered from people interested in learning more about amateur radio.

From Western Suburbs Radio Club Monthly Gazette for March 1985

AR

TOWNSVILLE ARC 1985 CONVENTION

Don't forget the dates, 30th, 31st August, 1st September. We are looking forward to any new ideas you might want to have incorporated in the 1985 event. Don't forget also to start getting the home brew display ready. Home Brew sections are also available for XYLs and harmonics. For XYLs your entry may be anything from a potato pie to the latest in embroidery and knitting, just so long as it is made in the home.

Junior displays usually cover some aspect of craft work, but this may not necessarily be so. What we need is a convention with something for everyone.

from Back-Scatter

AR

BALLARAT AMATEUR RADIO GROUP

On the weekend of the 17th and 18th August 1985 members of the BARG will be holding a Field Weekend from the Grampians National Park.

It is hoped this operation will enable amateurs and SWLs to work towards the National Parks Award. (See rules February AR, page 39).

The group also hope to enter the Remembrance Day Contest.

Propagation willing, the bands operational will be 2, 10, 15, 20, 40, 80 and 160 metres.

Submitted by Neville Pietsch VK3PNP

AR

CENTRAL QUEENSLAND BRANCH

The Central Queensland Branch of the WIA has recently changed its Executive Officers. The new president is Ted Woodford VK4ZEI.

Kay and Clive Sait VK4ACC proudly display the Queensland Recreation Trophy.

Clive Sait VK4ACC, immediate past president, was recently awarded a trophy by the Queensland Recreation Council for his dedication and voluntary services in educating new amateur enthusiasts. Clive and his XYL Kay are extremely proud of the trophy, which was one of ten presented by the Honourable Keith Wright MLA for services in the Central Queensland area.

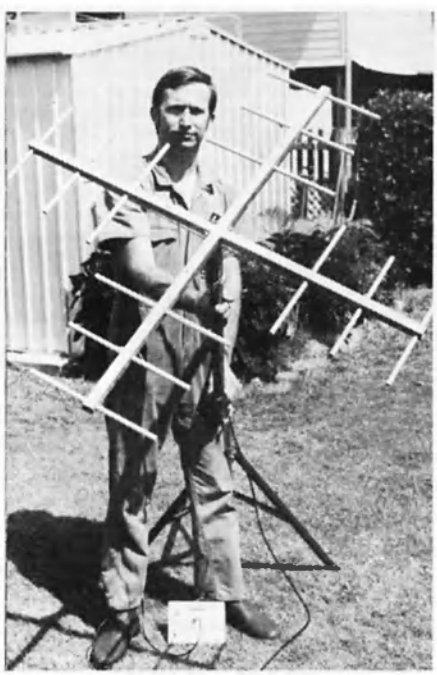
Clive VK4ACC and Frank VK4CAU with the "Ham's Ham"!

Close-up of the ladybirds on the 2 m repeater.

Last years festivities of the Branch culminated with a special dinner catered by Frank VK4CAU. Frank's 'piece de resistance' was a "Ham's Ham" completely emblazoned with the WIA logo.

The 70 cm beacon VK4RAR, sponsored by the Branch, is now operational from Rockhampton.

Recently VK4RAR's 2 metre site played host to a host of ladybirds. The ladybirds, during their annual migration to higher places, caused a few problems, but moved off again as quickly as they came.



Ted VK4ZEI maintaining the 70 cm beacon.

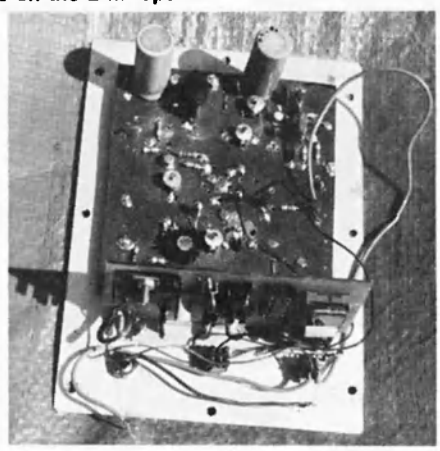
VK4WIR is operated each Monday night at 1030 UTC on 3.570 MHz +/– QRM. Amateurs wishing to attain the "Worked Rockhampton Award" are welcome to join in.

To attain the award amateurs need to contact fifteen member stations of the CQ Branch whilst overseas amateurs need five member stations.

Correspondence to the Branch should be sent to Box 496, Rockhampton, Qld. 4700.

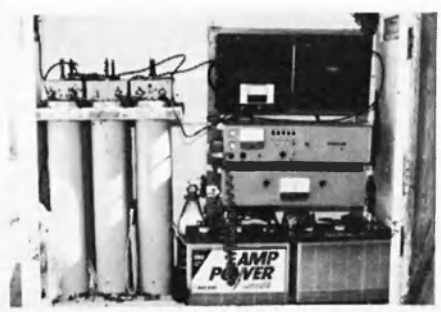
Contributed by Nick Quigley VK4NFL.

AR



Inside the 70 cm beacon.

Front panel of the 70 cm beacon.



VK4RAR played host to a host of ladybirds.

MT ISA AND DISTRICTS AMATEUR RADIO GROUP

PRESIDENT:	Steve Stevens VK4KHQ
SECRETARY:	Roger Wood VK4ARZ
TREASURER:	Graham Algie VK4VJQ
CLUB REPEATER	VK4RMI, 146.7MHz
CLUB CALL:	VK4WII
CLUB NET:	Tuesdays, 1000hrs UTC, 3.610MHz + QRM
CLUB ADDRESS:	PO Box 1715, Mt Isa, Qld 4825

The group administers the Mineral Fields Award and issues attractive multicolour certified for contacts.

AR

BRANCH NEWS FROM THE NORTH WEST COAST

The North West Branch of WIA, Tasmania, VK7NW held its monthly meeting on the 9th April 1985 at the Penguin High School with an attendance of 19. The meeting opened at 8 p.m.

The president is Tony VK7AX, and standing in as secretary for Tony VK7AH who was in Germany was Bruce VK7MB. Tony will be back for the next meeting. The minutes were read from the last meeting and accepted.

WICEN EXERCISE

At the last meeting the Branch were asked if they would provide communications for the National Horse Trials being held at Wynyard, which were held over the Easter long weekend. It was decided that this would be a good WICEN exercise and also a good publicity opportunity for the club. A number of volunteers would be needed and a show of hands resulted in 9 people being accepted. They all attended the horse trials on the Sunday of Easter which turned out to be a very eventful day, as not only did they provide communications for the day, they also became judges for the day, and some were provided with lunch. The people who gave up their time were John VK7ZPT (WICEN Co-ordinator) with VKs-7WJ, 7ZBT, 7WP, 7WL, 7ZNP, 7ZAP, 7AX and Peter Westerhof.

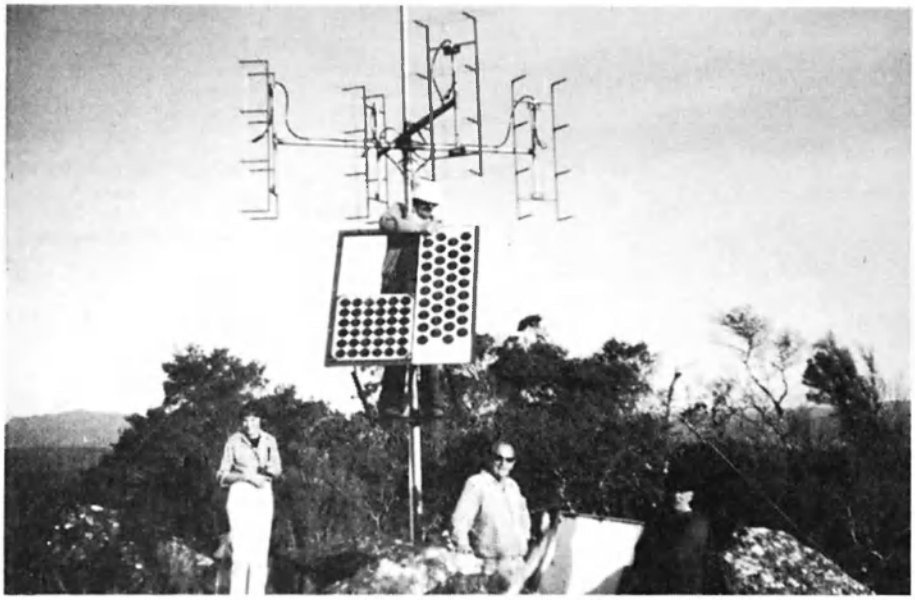
REPEATER 3 VK7NW

The repeater has been giving a little bit of trouble but Andrew VK7ZAP has it in hand, as he is in charge of the NW Branch repeater. For those who happen to visit our State the repeater is situated at Lonah out of Ulverstone, and the theory is if you can hear it you can work it. Andrew does a good job, as he keeps it running well.

ATV Repeater.

ATV REPEATER

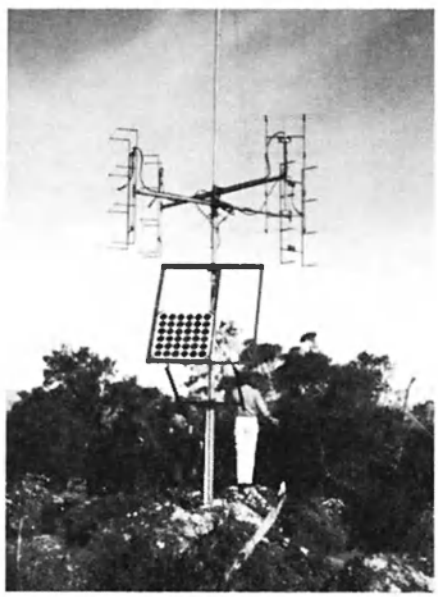
The ATV repeater is located on top of Mount Duncan which is part of the mountain range just behind Penguin, and a picture has been received as far as Devonport to the east, and there has been a report that it was received in Melbourne. The work was hard to get it



Tony VK7AX on the mast and, from left ... Geoff VK7WZ, Jack VK7WJ and Peter Westerof.

Working on the ATV input are VK7AX and VK7WZ.

The output ATV unit.



The input.

where it is, with many man hours carting the equipment to the top of the mountain, but it has been working well, and it seems to be putting out a good picture to most stations who can receive it.

RTTY

Broadcasts are being put out on every second Friday night and as long as the news comes in and interest is shown they will continue. Broadcasts are generally run on activity nights from the branch station VK7NW, so listen for them on the bottom end of 80 metres, and also on 2 metres. Other improvements are on the way and more will be heard on that later or when more information is at hand.

QSL

Not very much in the way of cards coming in at the branch but it is hoped that it will pick up later in the year.

ENTERTAINMENT

VK7ZNP showed a video of the Canberra area and the Communications Tower, also the tracking dishes that are around the capital, and the Mint. These were enjoyed by all. Meeting closed at 10.30 p.m. and coffee and biscuits followed.

Photographs and Article contributed by Max Hardstaff VK7KMF.

AR

NEWS FROM THE USSR

The following items of interest appeared in the Russian journal "Radio" 11/84 and were translated from the original Russian by Dexter Anderson W4KM.

The new QTH locator system for IARU Region 1, adopted at the Cefalu meeting April 1984, will be introduced nationally in 1985 in the USSR.

Boris Stephanov UW3AX in an article "Pathway to the Airwaves" has quoted six Russian morse code abbreviations

Transliterated/Morse equivalent of abbreviation	Russian Expansion	English Meaning
BGL –... ·· ·–..	Blasgodaryu	Thank you
DSV (DSW) –·. ... ·–	Dosvidaniya	Goodbye
ZDR – –·. –·. ·–·	Zdravslvuyle	Hello
SPB ... – ·–· –...	Spasibo	Thanks
SLD ... –·. –·.	Sledite	Follow me (OSY?)
TOV (TOW) – ––– ·–	Tovarishch	Comrade

Academician Vladimir Aleksadrovich Kotel'nikov Vice President, Academy of Sciences of the USSR, Director of the Institute of Radiotechnology and Electronics of the Academy of Sciences of the USSR, Twice Hero of the Soviet Union in an interview replied (in part) to the following question.

Q *"What, in your opinion, is the place of radio amateur creativity in conditions of the new stage of rapid development of radiotechnology?"*

A One of the needs of man is the need to create. Amateur radio opens up broad possibilities in this connection for youth as well as for adults . . . Hundreds are participating in the SNERA (Sportivno-Nauchnyy Eksperiment RadioAvrora — sport — scientific experiment radioaurora) being conducted by a number of establishments of the Academy of Sciences of the USSR, the Ministry of Communication of the USSR, and by "Radio" magazine. Amateur radio has been and remains a wonderful school for mass training of personnel for radio electronics. Many young people entered radio electronics via amateur radio, judging by our experience . . . Of course the problems that occupy radio amateurs change from year to year. In the past, we made condensers, induction coils, tuning systems. Present-day radio amateurs deal with integrated circuits and space communication — for six years now Soviet Radio Amateur Satellites have been flying in space . . . But the main goal of amateur creativity has remained unchanged — to attract youth to active participation in the struggle for technical progress and to teach it inventiveness, innovation, and improvements in technology. This is very important for our country.

AR

KDK

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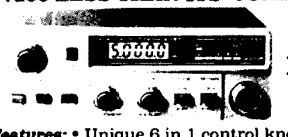

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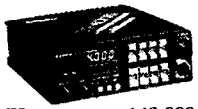

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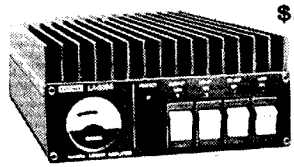

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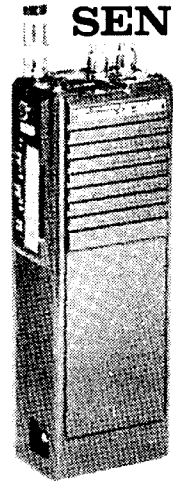

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FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

COMING MEETINGS

Just a reminder that the VK1 Division holds its monthly meetings on the fourth Monday of each month, in Room 1 of the Griffin Centre, Civic, commencing at 8 p.m. Topics to be presented in the next few months are:

24 June — *Computers and Amateur Radio*
22 July — *Winter Sale and Social Night*
26 August — *Test Equipment and its Uses*

Doors open at around 7.45 p.m., with the QSL Bureau and bookstall available before and after the meeting. Visitors and non-members are most welcome, come along and renew old friendships or make new ones.

SIX METRES

With winter now on us, this is the time to stay inside the shack on these cold winter nights and work what DX there is. (Guess whose new house has an indoor shack!). However, the clear sunny Canberra weekends are the time to improve your 6 metre installation prior to the spring sporadic E season. Six metres, once the forgotten band in VK1, has seen a resurgence in the past two years. There are now quite a few VK1 stations capable of operating on this band, at least 15 or 20 stations. In fact, some of the higher rating stations would have well in excess of 10 countries confirmed on six; your humble scribe only has 4 VK1s confirmed. That in itself is an indication of the activity — it is not very long ago when there weren't that many six metre operators in VK1. With the VK1 six metre beacon expected to be operational soon, this will give a better indication to interstate six metre ops when the path is open to Canberra.

BROADCASTS

The 21st of April 1985 saw the 11th anniversary of the VK1 Divisional broadcasts. In that time, many amateurs have contributed to the success of these broadcasts, either by providing news items, or giving their time and stations to send the broadcast to air.

As a reminder, the Divisional broadcast goes to air each Sunday evening at 8 p.m. local Canberra time, on 3.57 MHz LSB and 146.950 MHz FM via the VK1RGI repeater, high on Mount Ginini. Often, relays are made on other bands, such as 10 metres, 70 cm and the UHF CB band. Normally the VK1 Award net operates on 3.57 MHz at the conclusion of the 80 metre callbacks. Join in if you have the time, its a good place to make some contacts for the 75th Anniversary award as well.

AR

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

The 1984/85 AGM and election was held on Saturday the 30th March. A report will be included in a later issue of the Minibulletin. The office bearers for this year are listed below.

Mike Burns VK2AUE: Parramatta Property Officer, Vice President
Roger Henley VK2ZIG: Member Services, JOTA Officer, Vice President
Peter Jeremy VK2PJ: President, New Membership
Tim Mills VK2ZTM: Repeater Committee Chairman, Mini-Bulletin Editor, Alternate Federal Councillor
Jeff Pages VK2BYY: Secretary, Broadcast Officer, Dural Property Officer
Paul Lorentzen VK2ATR: Affiliated Clubs, QSL Bureau Liaison
Max Smith VK2YKF: Assistant Treasurer, Publications Officer
David Thompson VK2BDT: Treasurer
Cec Bardwell VK2IR: Correspondence Course Supervisor
Bill Martin VK2COP: Intruder Watch Co-ordinator
Aub Topp VK2AXT: Librarian
Vince Roberts VK2PRB: Slow Morse Co-ordinator
Ken Hargreaves VK2AKH: Education Service
Jo Harris VK2KAA: Divisional Historian
Stephen Pall VK2PS: Federal Councillor
Wally Watkins VK2DEW: Alternate Federal Councillor
Fred Herron VK2BHE: Honorary Solicitor
Maureen Lavery: Administrative Secretary
David MacKay VK2ZMZ: WICEN Co-ordinator

DINNER DEFERRED

The VK2 75th Anniversary Dinner is being deferred until the warmer weather of Spring. Members who would like to take part in the operation of the next series of the special 75 call sign should write to the Divisional Council to register. The operation is being co-ordinated by Steve Pall VK2PS . . . wet weather reduced the attendance to the fireworks night at Dural on the 13th April. Those who made it saw a very good display . . . In previous notes the wrong date for the South West Zone Convention at Wagga has been quoted. The weekend chosen is 26/27th October. This gets away from a busy holiday time in Wagga. Look for the programme in a later AR . . . The range of QSL cards has been altered to include the 75th logo and are available from the Divisional office in 10 colour combinations . . . Divisional Council notes that while some offenders on two metre repeaters have been located and charged there are still a few to be located. They are concerned however that some amateurs' behaviour leaves a lot to be desired. Perhaps they could take time off to reread the Operators Handbook. They cannot expect the authorities to act if they are not doing the right thing . . .

NEW CALLBOOK

A final reminder for Clubs, Groups and amateurs to check and adjust any entries for the next edition . . . The September issue of AR will feature another Special for VK2. If you have any material for inclusion would you see that it reaches the Divisional office by the end of this month.

AR

VK4 WIA NOTES

Bud Pounsett VK4QY Box 638, GPO, Brisbane, Qld. 4001.

WIAQ COUNCIL FOR 1985
QPO BOX 638, BRISBANE, QLD. 4001

PRESIDENT	VK4QA	John Aarsse
SNR VICE PRESIDENT & ALT FED COUNCILLOR	VK4IY	Ross Mutzelburg
JNR VICE PRESIDENT & MIN SECRETARY	VK4YAN	David Jerome
HON SECRETARY	VK4MU	Theo Marks
HON TREASURER	VK4APN	Paul Newman
VHF/UHF LIAISON & SERVICE LIAISON	VK4VR	Valerie Rickaby
STATE WICEN CO-ORD	VK4KD	Ken Ayers
NEWS & INFORMATION	VK4QY	Bud Pounsett
RESEARCH OFFICER	VK4HB	Harold Bremerman
OSL LIAISON OFFICER	VK4BHS	Hugh Shaw
CLUB LIAISON & OUTWARD OSL	VK4UB	Bill Dalgleish
FED COUNCILLOR	VK4KEW	Dennis Breilkreutz
VK4WIA MANAGER	VK4ZXZ	Guy Minter
BOOKSHOP MANAGER	VK4AGY	Jack Gayton
MEMBERSHIP SEC	VK4KZX	Anne Minter
OSL OUTWARDS & VK4AWI MANAGER	VK4UG	Dave Richards
OSL INWARDS	VK4UB	Bill Dalgleish
VK4 IWS CO ORD	VK4AOK	Murray Kelly
HISTORIAN	VK4KAL	Gordon Loveday
AWARD MANAGER	VK4SS	Alan Shawsmith
CONTEST MANAGER	VK4YX	John Moulder
WIAQ EDUC CO-ORD	VK4AIX	Joe Ackerman
MEETING CONVENOR	VK4AGS	Ron Smith
DISPOSAL MANAGER	VK4BIK	Barry Ker
		To be elected/appointed

AR

EDUCATION WANTED

Brenda VK3KT, Federal Education Co-ordinator, is attempting to correlate a list of all classes teaching amateur radio throughout the length and breadth of Australia. At present she has a list of forty, but surely there must be more.

This list is needed so that when she gets enquiries she may direct the would be amateur to the nearest class or instructor as learning with an instructor is quite often much easier than trying to swat alone.

Brenda also runs an education net on 80 metres each Thursday night, with minimum success. This net is conducted for many reasons but it is particularly a forum for educators to exchange ideas re teaching methods, syllabus interpretation, examination procedures and discuss problems etc. (One instructor may have run into a particular problem which, by discussing it with other instructors, it may not be a problem.)

Do instructors feel a net is worthwhile? Has anyone any ideas at all about educating the would be amateurs? If so please let Brenda know. She is awaiting your letters and calls.

Contact Brenda on the Education Net 3.610-3.625 MHz at 1030 UTC or 3.685 MHz at 1130 UTC or write to Brenda Edmonds via the Federal Office or to 56 Baden Powell Drive, Frankston, Vic 3199.

AR

VK3 WIA NOTES

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

NEW MEMBERS

The Victorian Division of the WIA wishes to welcome the following new members.

Christopher Bennett, Robert Bradford, Eric Davies VK3PJP, Stephen Dempsey VK3VMD, Tadeusz Dobrostawski VK3NCK, Gordon Ferguson VK3PZF, Robert Gawne VK3NGR, Geelong Technical School Radio Club VK3YTG, David Harrison VK3NDH, Gavin Hatfield, A. Jones.

Hector MacLean VK3ZLM, J. McDonald VK3PJD, Peter McDonald VK3PTE, Chris Milionis, Neville Pietsch VK3PNP, Stanley Pill, John Piovesan VK3KZC, Mark Richardson VK3PMD.

Jeffery Searl VK3KRF, Angus Jones, Bruce Keilar VK3KWK and C Purvis VK3DEN.

VIC DIV COUNCIL

There were eight nominations for the 1985-86 Council, two short of the maximum number.

While this situation meant a costly postal ballot of members was not required, it again leaves Council short of people to carry out the administration of your Division.

Those who nominated were (in alphabetical order) John Adcock VK3ACA, Andy Chan VK3DPJ, Des Clarke VK3DES, Alan Heath VK3KZ, Jim Linton VK3PC, Lindsay Rohrlach VK3KAF, Bill Wilson VK3DXE and Barry Wilton VK3XU.

They were all members of the 1984-85 Council with the exception of John Adcock, a former councillor.

Portfolios will be decided at the first council meeting later this month.

CFM QSO/RPT WITH

VICTORIA 150

The Victoria 150 Award has been highly successful with claims being received from throughout Australia and overseas.

As previously mentioned in AR magazine, the award period has been extended to 31 December.

Another major part of our hobby's involvement in celebrations of the 150th anniversary of European settlement was use of a commemorative callsign VI3WI, and the general use of the VI prefix.

All QSLs received acknowledging contact with VI3WI have now been answered; if you had a QSO with VI3WI please don't forget to QSL.

The callsign was activated by individual WIA members, and WIA member/clubs on a roster basis throughout Victoria in a combined effort resulting in good public relations for amateur radio.

MELBOURNE 150

While Victoria's 150th anniversary started last November, the capital city of Melbourne will have its own 150th bithday later this month.

The WIA has the support of an amateur radio group in Melbourne, Florida, USA, to assist in a special public relations exercise.

The Platinum Coast Amateur Radio Society (PCARS) has contacted their Mayor of Melbourne, Harry Goode, who will be sending, via amateur radio, a goodwill message to the Lord Mayor of Melbourne, Eddie Beachman.

In reply to a letter from WIA public relations officer Jim Linton VK3PC, the PCARS publicity chairman, Robert Wilson KI4LP, said: "At the last meeting of PCARS the membership whole-heartedly endorsed a plan to pursue this public relations exercise. Thank you for the opportunity to participate in this celebration and bolster the good name of amateur radio."

LIBRARY

The reference library available to members through the Wireless Institute Centre is in need of owners and workshop manuals for most types of amateur radio transmitters, receivers, and transceivers.

The plan is to collect the material so it will be available for photocopying by WIA members in years to come.

If you can assist in donating, or loaning for photocopying, manuals for amateur radio equipment, contact Des Clarke VK3DES, who is handling this library project.

Many members are using the reference library, by either dropping into the Wireless Institute Centre, or requesting photocopies of articles via the post.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

In case you received your "AR" before Saturday 1st June let me remind you that the J150 Launch Celebrations will be going on in Rundle Mall from Sunday 26th May to the 1st of June; so if you still want to help it may not be too late. The dates were put back by a week, in the end, so that they did not clash with the GPO Display Station.

At the time of going to press I am still trying to catch up with the back-log of work (mine and the WIA's!) caused one way and another by the Clubs' Convention in April. Still, I think most of those who attended will agree that it was a most worthwhile exercise. One of the highlights of the weekend was the attendance of our worthy Editor, Bill Rice VK3ABP. Bill was the guest speaker after Dinner on the Saturday evening and the main part of his topic was the processes that an article for AR goes through before you see it in print. Although this was Bill's official function, unofficially he was able to take part in many items of discussion giving us background information from his positions as a member of Federal Executive and his past involvement with FTAC. Also, I believe much was gained by Divisional Council members, and Club Representatives alike being able to discuss things with Bill on an informal basis away from the conference table.

On the Saturday afternoon, Ian Hunt VK5QX, the Federal Contest Manager, spoke on several aspects of Contests and the Contest Manager's job, and answered a number of questions; and after the afternoon tea break, Graham Horlin-Smith VK5AQZ spoke on our involvement to date and in the future with Jubilee 150.

We were disappointed that there were no VK8 representatives present this year. Clubs represented, were: SA ATV Group, Lower Eyre Peninsula ARC, South East Radio Group, South Coast ARC, Elizabeth ARC, Port Adelaide ARC, Whyalla ARC, and the 2nd Adelaide Scout Group.

The consensus of opinion was that this year's Convention was an improvement on last years. Unfortunately, I can't take the credit for that, I can only say thank you to David VK5AMK who "ironed out" all the "bugs" last year and made my job a lot easier this year. This year, for the most part, we all knew what to do and what to expect. Subject to the date of the Federal Convention, our Club's Convention has tentatively been booked at Parnanga for the same weekend (11th-13th April) next year, 1986.

DIARY DATES

DON'T FORGET . . . The S E R G Convention 8th-10th June.

General Meeting . . . Tues 25th (possibly a Forum on Computers)

AR

SLOW MORSE PRACTICE

The following operators have offered to make themselves available as detailed, for contacts with any operator desiring CW practice at the speeds nominated (times shown are local):

Vic VK3PGY 80 metres 7WPM
Mon-Fri 1300-1400, Sun 1100-1200

Murray VK5BVJ 3.530 MHz 6-12WPM +/-
Mon-Fri 1900-2100, Sat-Sun 0900-1100
Contributed by Marshall Emm VK5FN

AR

QSP

VI PREFIX

Australian radio amateurs can use the alternative prefix VI from 1 June to 31 December 1985.

Approval was given by the Department of Communications following a request from the WIA for use of an alternative prefix during the Institute's 75th Anniversary.

It had been WIA policy to seek a special prefix other than AX for the birthday year.

This is the first time all VK radio amateurs will be able to sign VI — although the prefix was available for a limited period during the Victoria 150 celebrations.

HISTORY REVISITED

For newcomers interested in the early days of WIRELESS in Australia "The Best of Australia's Wireless Weekly" will give a fascinating and nostalgic trip back into the past.

This is a magazine size booklet of 130 plus pages containing reprints of pages from Wireless Weekly in 1927. It is interesting to see the ultimate in broadcast receivers and note their prices — comparing the change-over to decimal currency and the devaluation all these years hence, equipment is not too expensive today.

Wireless Weekly was one of the first radio magazines in the world and in 1939 changed to a monthly publication with a name change to Radio and Hobbies. Just prior to televisions inception in Australia it became Radio, TV and Hobbies, then in 1965 the name was changed again to Electronics Australia, a name which it still carries today.

A forward is written by Neville Williams who began working at Wireless Weekly in the early 1940s and retired as Editor-in-Chief of EA in 1983.

AR

WA BULLETIN

Fred Parsonage VK6PF
HONORARY SECRETARY
VK6 DIVISION
Box 10, WEST PERTH, WA, 6005

EARLY APRIL.

In spite of many requests made over the Broadcast and at meetings, there has only been one nomination for the Divisional Council for 1985 outside of the incumbent members. This is Cyril VK6MY.

This means that including the present council there are ten nominations for the nine positions. The present Secretary VK6PF has agreed to stand down to prevent an expensive and unnecessary ballot. Therefore, your Divisional Council for 1985 will be:-

Dave VK6IW	*Membership Secretary.*
Cliff VK6LZ	*Treasurer.*
Cyril VK6MY	*Halleys Comet Sub-Committee.*
Neil VK6NE	*Federal Councillor*
Bruce VK6OO	*President and Alternate Federal Councillor.*
Jill VK6YL	*WA Repeater Group.*
Alyn VK6ZGA	*Vice President and VHF Group.*
Christine VK6ZLZ	*Booksales Officer.*
Douglas VK6ZMG	*Vice President and Broadcast Officer.*

All positions to be ratified at the AGM and first meeting of the new Council.

Postal Addresses for 1985 will remain as follows:-
WA Division, PO Box 10, West Perth 6005.
Booksales, PO Box 425, Cannington 6107.
Broadcast, PO Box 899, Fremantle 6160.
QSL Bureau, PO Box F319, GPO, Perth 6001.

The Secretary for 1985 will be appointed at the first Council meeting and may be appointed outside of the Council as per the constitution.

RADIO RALLY 1985

Due to many requests it has been decided to run another Radio Rally in 1985. The dates will be the 16th and 17th of November at the same location as last year, Advent Park.

Commercial houses have already been approached and have promised support as have various groups within and outside of the Institute. After the first and second Radio Rallies, wash-ups were made, both through the broadcast and at meetings, and the many points from "More for the Ladies" to "Signposts to the toilets" were received. All agreed that the first Rally was good and the second one even better so it now is on us to make this year's Rally better still.

We have no paid employees and everything that is done, is done by volunteers and those volunteers must be you and I. To date, apart from the groups taking part, there has been a shortage of support in spite of frequent requests over the News Broadcast. We don't need you to work every week until the Rally although a few willing helpers would be appreciated, but we do need people who will willingly give just a couple of hours of their time on the Saturday to help set the show up and on the Sunday to help dismantle it. In 1984 there were many willing hands but still no one could be found to do an hour on the entrance, so who did it? Chris Milne the organiser. Who put away the chairs? Chris Milne. In fact the Goldfields Amateur Radio Group have volunteered to man the gate on the 1985 Rally but really, is this necessary? Surely we don't expect a country group to travel 600 km, have their own display and man the gate as well. How about a few of us who enjoy the Rally and enjoy amateur radio putting our names forward to be counted.

The Radio Rally is laid on for two main purposes, one to provide a social function and two, to have a meeting place where city and country amateurs can meet. The site at Advent Park has been chosen as a location adjacent to the city where low cost overnight accommodation is available to city and country members. Support for this overnight facility has increased since the first Rally and the GARG and the PARG have made use of it. The Division is keen on seeing as many country groups as possible come to the Rally in strength and perhaps to participate with their own display as does the Goldfields and Peel Groups. Perhaps now is the time to start some forward planning and advise the Division on what you would like to do and what you would like provided.

This is a story about four people, namely Everybody, Somebody, Anybody and Nobody.

There was an important job to be done and Everybody was asked to do it. Everybody was sure that Somebody would do it, Anybody could have done it, but Nobody did it.

Somebody got angry about that, because it was Everybody's job. Everybody thought Anybody could do it, but Nobody realised that Everybody wouldn't do it. It ended up that Everybody blamed Somebody when actually Nobody asked Anybody.
Sound familiar?

AR

Bill and the TVI . . .

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

Bill was feeling quite happy. He hummed tunelessly to himself as he worked quietly away in the jungle known as his garden. He had managed to pull down the remnants of his ancient dipole and the tattered shreds of wire which were still attached to it and had now erected a brand new one. Almost new, at any rate. He had fortunately been able to purloin some tubular scaffolding poles from a nearby building site, where they had been lying, apparently abandoned, on the ground. Bill had naturally assumed that they were not required and decided that his needs were greater than the owner's.

Apart from a couple of incidents while he was taking them home, involving a car *mirror and a green* plastic dustbin, he had managed to get two lengths home without undue difficulty. Now here they were, rising into the sky, supporting a brand new multi-band dipole.

He had thought of putting a balun in position but had decided against it, after inspecting a balun which he had stored away under his bench. This was not looking the best, and had not, ever since he had trodden on it some years before. In any case, he decided, a balun wasn't really necessary for inverted vees. After tying the ends to convenient tree limbs, he felt satisfied with the result and thought he would go indoors and try the thing out.

Since the unfortunate business with the FT 101E he had been able to get a couple of tubes to replace the ones he had inadvertantly burnt out. Also, after some argument, he had come to a reasonable arrangement with the person who sold it to him. The man hadn't taken too kindly to the idea of reducing the price because of the problem with the valves. On balance, Bill felt that perhaps the chap had been a little unreasonable, since, after all, the rig hadn't actually belonged to Bill at the time the finals became blown.

As he desperately wanted a rig of some kind, Bill decided not to press the matter, although he did not entirely give up his opinion as to the justice of his cause.

He had brought his old ex-Army tuning unit back into service — after cleaning it up a bit — and had connected everything up, using patchcords salvaged from an overflowing junk box. Now for the acid test!

Since it was early evening, he thought he would have a go on 80 metres. Tuning around the band, he found it to be fairly busy but he found a space just on the edge of two QSO's and started to tune. Surprisingly enough, the SWR (with the aid of the tuner) wasn't too bad — only about 3 to 1. Bill felt this to be highly satisfactory and he started to call CQ.

When Bill called CQ he usually went on for quite some time, as there was always the possibility that someone would not hear him. However, it was apparent that someone had heard him, because there was a loud and peremptory ring on his front door bell. Cursing mildly, Bill went to answer it. It was his immediate neighbour and he did not seem pleased.

"*You are mucking up my TV*", said the neighbour.

"*Who, me?*" replied Bill.

"*Yes*", said the neighbour. "*Dirty great bars across the screen and a strange noise like a duck talking. It's got to be you.*"

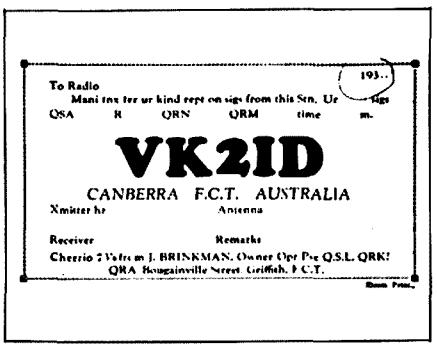
At this point Bill made his greatest mistake.

"*OK*", he said. "*I'll come in and fix it straight away*".

AR.

OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.


To Radio 193..
Many tnx for ur kind rept on sigs from this Stn. Ur sigs
QSA R QRN QRM time m.

VK2ID

CANBERRA F.C.T. AUSTRALIA

Xmitter hr Antenna

Receiver Remarks

Cheerio 2 Volts m J. BRINKMAN, Owner Opr Pse Q.S.L. QRK!
QRA Bougainville Street Griffith, F.C.T.

SOME ADDITIONAL AUSTRALIAN CAPITAL TERRITORY TRIVIA

I would like to add a few words to the various stories written in last April's issue of Amateur Radio on VK1 activities and AJ Ryan.

I joined the Canberra Post Office, as a messenger in May 1927, the first official messenger appointed, and learned Morse code in the Canberra Telegraph Room, where a keen Sydney telegraphist put in a lot of hard work and energy to steer me up to TIT standard (Telegraphist in Training). After passing through various stages — messenger, telephone exchange, postman and postal assistant — I moved to the Taxation Office in 1935.

I obtained the Ticket of Proficiency — No 1425 — on 18th February 1935, with the Postmaster, Bill Piper, acting as Supervisor. I was allocated the call sign VK2ID.

As a boy, I lived in Westlake, a Canberra settlement consisting of over 100 Hudson built houses, which are now demolished, but were located near where the American Embassy Buildings now stand.

My outfit consisted of 182.9 metres (200 yards) of wire feeding a galena crystal and a miniature Brown Horn speaker. I later up-graded to a three 409/415/410 valve type receiver plus associated batteries. These I obtained from Stan Gee, a shop around the corner from AJ Ryan's shop in Kingston.

It was while using this set that I learned a lesson the hard way. Whilst probing around in the set trying to eliminate whistles, I was successful, but it was necessary for me to pick up a new set of valves from Gee's shop costing five shillings per pay over a period. A costly experiment!!!

My family later moved to a semi-double storied house in Manuka located exactly opposite Woolworths. My amateur equipment then consisted of a TPTG 210 carbon plate valve, AC power, a four valve TRF receiver and monitor . . . all home-brew. This fed into a 15.2 metre (50 feet) high Windom antenna, one end being attached to a mast tied to the chimney top on the roof.

I later picked up a 40 metre crystal. The 210 was obtained from a shop in George Street, Sydney.

I experimented with AM using a hand-made mike. The first trial with the mike was made with a clock left in front of it while I dashed across the road to my friends place and checked it out on an AWA all-bander. Yes, it was their alright . . . . . all over the place.

AJ and Gee's shops were regular sources for bits and pieces.

About this time I wrote to the Post Office suggesting that the VK1 prefix be allotted to the ACT.

There was another amateur living in Forrest, who was mainly active on 20 metres.

Upon leaving the Taxation Office for the Commerce Department I spent seven months in a school in Sydney, training for Aeradio. After passing my First Class Certificate of Proficiency I spent some short stints at Rose Bay, Liverpool and Mascot before transferring to Canberra Aeradio.

After only a few weeks of duty at the station, I was in contact with an incoming Military Aircraft one morning when there was a jumble of sound and then silence. (In those days operators used a key). The OIC, who had been up in the DME tower came in, said "He is burning", calmly prepared a message and then sent it to Head Office.

Later the Interior Groundsman gave me a detailed description of the crash. He had only a few pounds of foam on a trailer drawn by a Chev utility for fire fighting which was useless with the heat and fueling of this fire. The description was pretty grim.

About the early 40s, when I was absorbing large amounts of noise from the 325/333 kHz receivers, (there was no carrier operated anit-noise equipment in those days), there was a loud bang. I meandered over to the hanger doors but there didn't appear to be anything amiss. As it happened, A J Ryan had mis-judged a cross wind and landed his light aircraft on the hanger. Fortunately, no-one was injured.

I never heard AJ on air as an amateur, he may have been too busy with his business and 2CA.

Leo Deluil, my OIC at Canberra, and an old experienced Marine Operator, made one good point. He said that the First Class Ticket was only a licence to learn. Probably the same can be said for the amateur ticket???

Yours faithfully,

Jim Brinkman VK2IS,
61 Gundagai Street,
Coffs Harbour, NSW. 2450.

AR

HIGHER POWER AND ACCESS

I am aroused to put pen to paper after reading the letter from RA Davey VK6NND in which he demands the novices of Australia pressure the WIA to accede to the higher power and access to 2m request made by a number of novice and some full call operators. (AR April 1985).

There are a number of points to which I draw Mr Davey's attention:

— High power is not a prerequisite for world-wide communications. Highly efficient, high gain home-brew antennas can be as effective. 30W PEP into a 9dB gain antenna will give an ERP of 240W which is better than a full call running 100W into a dipole or vertical.

— High power causes more problems than not. Next time Mr Davey listens to full calls on 20m on what, to us seems a perfectly clear band, he may be staggered to hear a VK told he is unreadable because of the ORM level within the USA. There are many US amateurs who are advocating a down rating of US power outputs to those generally observed by other countries world-wide. Most Americans will admit that higher power simply means more ORM!!!

I run 400W PEP into a 9 element quad-Yagi array and have actually received 4 x 9 plus reports from the States because of ORM. The solution was to work split frequency to transmit below the US phone band.

At no stage was the US signal unreadable at this end.

Could Mr Davey imagine the ISM band if all Japan was allowed full power? On reflecting, *I am sure he will* comprehend my point.

Be patient Mr Davey, we are at the bottom of the sun spot cycle. Believe me, in a few years you won't need kilowatts to work the world.

The logical solution to this problem apparently faced by so many novices is simple. Remember we have an incentive licencing system which several other countries have copied.

If you want more privileges, study more, sit for the higher exams and keep sitting until you pass.

The attitude displayed seems typical of the 80s . . . everything has to be handed on a silver platter! Don't think this is sour grapes from a grouchy old full call — it isn't. I started as a novice. I hated CW and still do but was prepared to work for the goal of the full call and gained it along with all the privileges.

In 1980 I received the first DXCC issued to a VK with a mobile endorsement — achieved as a novice. The first 42 countries were worked at 10W PEP from a converted CB set and modified Helical whips on 28MHz. The remainder came at 30W on both 10 and 15 metres. This was achieved in 6 months then, with the full call received in late 1980 . . . world first WAZ mobile was achieved to be followed by single band number one on 28MHz and 21MHz and number 2 on 14MHz.

Mr Davey will probably not believe this but I am still the only amateur entitled to print SSB WAZ Mobile on their QSL cards, and all this with a TS-130S at 100W into mobile whips that conformed with NSW traffic regulations, regarding height.

Try taking on the really big DX pile-ups with that set-up and you soon find how hard things can be.

Yet rag-chewing was easy and great fun with generally good signals on a regular basis into the States whilst operating mobile.

The solution to Mr Davey's problem is not one of lifting power but sticking with it and attempting to have the Americans drop theirs.

And don't forget that not very many countries have a novice grade licence.

Just because the US does something is that good enough reason for us to copy them?

Since when does higher power in DX contests encourages more people to enter amateur radio?

Why does everyone seem to want 2m? In a hilly city like Newcastle, except for repeater operation, 28MHz is a vastly superior band.

Work for the goal Mr Davey, do that little extra study and gain the full call and you will have nothing more to gripe about, or can we expect demands for 1kW on the Australian amateur bands?

Yours faithfully,

Philip Greentree VK2IW,
7 Heather Cresent,
Garden Suburb, NSW. 2288.

AR

TEN FM USERS NET

With the decline in sunspot activity the ten metre band of late lacks not only DX signals but any signals at all, which is a pity as it is an excellent noise free band for local contacts. In order to encourage activity on ten metres, and also for something different, I am proposing the running of a ten metre FM users net.

This net will be open to anyone interested in using frequency modulation on ten metres. It will be held on 29.6 MHz, the FM calling frequency, every Thursday evening starting at 1000 UTC. I will use horizontal polarisation and use 145.6 MHz FM for liaison. The net will provide signals for those testing equipment, discuss band conditions, and help keep the band active. I ask Melbourne stations for their support in getting this net going. Hope to hear you on the net.

Yours faithfully,

Ian Sinclair VK3DSI
58 Chute Street,
Mordialloc, Vic. 3195

AR

COMMENTS FROM A NEWCOMER

As a relative newcomer to amateur radio and an aspiring 'Brass Pounder', I would venture a few comments on Pounding Brass, and a Letter to the Editor by B R Schoiz, both in the April magazine.

Having, on more than one occasion, had my humble 10WPM CO answered at a good 20WPM, I can heartily endorse the general principles and sentiments expressed in the first article.

However, whilst the need for word abbreviation and economy in CW is appreciated, it can be rather frustrating for a novice to have to decipher strings of (sometimes home-brewed) abbreviations, all before the next "K".

Similarly, repetition may be boring for an experienced operator, but it can be very reassuring for a new chum, particularly when dealing with strange, foreign names and QTHs, even in a 5 9 9 situation.

I was somewhat saddened to read of B R Scholz's experiences, as my own entry into amateur radio was so different.

After a lifetime in other pursuits, I too (and also encouraged by my wife) studied for and got my 'call' (November 1984). I did it because of my interest in radio, and I did not expect my AOCP to be a key into a fraternity, nor did I expect anyone to go out of their way to help or welcome me. (I did not study through the WIA).

I was therefore pleasantly surprised when it was, and they did anyway.

Nor is my experience confined to one band or location. I started at the DC end, ie HF, and having run the gammit of mistakes and faux pas there, moved higher into the AC part of the spectrum, ie 2 metres, only to find the same help and welcome, despite my tumblings with the repeater(s).

Could it be that Mr Scholz's expectations were a bit too inflexible and disappointment was allowed to come too quickly? And of course, one could, as an absolute last ditch effort for acceptance, actually consider attending the odd meeting of the local amateur radio club or even the WIA!!

Maybe I have been lucky, but all I can say is thanks fellow amateurs. I only hope I can reciprocate adequately in kind when it is my turn to welcome the new chum.

My only regret is that there aren't more available hours in the day for more QSOs.

FB all round.

Dmitri Perno VK4BDP,
7 Hancock Street,
South Brisbane, Qld. 4101

AR

PLEASE QSL!

I observe some concern expressed by thinking amateurs about the need to QSL, with valid cards, all operations using special call sign prefixes such as AX and VI.

Indeed, at the 1984 Federal Convention, Divisional Federal Councillors agreed on a motion recommending QSLing, with appropriately printed cards, all operations using AX prefixes.

It has just come to me that a solution to this problem exists within the Divisions, namely, a service to members in the form of partially printed QSL cards available free or at a concessional (subsidised?) cost or even at a recovery of printing costs. The cards would need to be pre-printed AX1, VI3 etc with space for the individual amateur to add by means of a rubber stamp his individual suffix. Home addresses could be added by means of self adhesive pre-printed labels.

Divisions should think seriously of providing this service as it would become a tangible indication of local action; besides most divisions have considerable accumulated funds and can well afford to subsidise a print run for members.

Yours faithfully,

R G Henderson VK1RH
171 Kingsford Smith Drive,
Melba, ACT, 2615

AR

CONTESTS AND THE TWENTY FOUR HOUR TIME SYSTEM

In the contests column of AR for February 1985, there are some glaring errors in the starting and finishing times for several of the contests listed.

In the 24 hour clock system of recording time in general, radio communications, signals message systems, marine and aeronautical navigation systems there is no such thing as 0000 hours or 2400 hours.

A moments careful thought will show why. The first minute of a new day is always written as 0001 hours because a change of date is involved, similarly the last minute of that date is always written as 2359 hours because the date is about to change again.

For example . . . 2359 hours 1st March — 0001 hours 2nd March.

There must be this clear distinction to avoid confusion in the dale.

Reasoning thus the 1985 CLARA AC/DC Mystery Contest is really a mystery because according to the times shown it could be a non-event taking place in no-time.

73,

Ted Gabriel VK4YG,
PO Box 245,
Ravenshoe, Qld. 4872

AR

NO METRICS

Amateurs are fairly sensible and practical people on the whole, and among the fraternity, bureaucratic stupidity is rare. When it happens in the pages of "AR", I tend to blow my top — as when I read on Page 48 of the March issue that "these large rail car tanks are highly dangerous at over 304.8 metres". (Presumably 304.7 metres is a safe distance?)

Since metric measurement is meaningless to me, as to most practical people, I reached for my calculator and translated it to feet. The readout was "1,000 feet", and the information immediately made sense. The original estimate of the danger area was obviously a reasonable approximation.

Who was the pedant who translated the original distance to decimetres? Why was it converted at all? Feet are legal Commonwealth units and are internationally used. The Metric Conversion Act does not impose mandatory obligations on anyone to convert to metric, nor to abandon customary measures (feet and inches).

None of us were asked if we wanted metric and most of us don't want it. Now that Canada has abandoned metric conversion, Australia is the only major English-speaking country with a metrication programme. Such items as the one referred to above only emphasise the impracticability of metric units.

Marconi measured his wavelengths in feet, but in the early years we adopted the European practice of measuring electrical wavelengths in metres. Enough is enough! Most amateurs measure their physical dimensions in feet and inches — I certainly do, and have no intention of changing. It is time someone pointed out that the Emperor is nude. So please, Mr Editor, speak to me in English.

Yours faithfully

P D Thomas VK5ZPT,
Thomas Hill Road,
McLaren Flat, SA, 5171

In many technical areas metric measurements are easier to handle. 1000 feet should have been converted to 300 metres. I apologise for 304.8. Both you and I feel happier with feet, but our children prefer metric and our grandchildren will know nothing else. Ed.

AR

LET'S NOT BE APATHETIC

The whole concept of amateur radio has always been one of freedom of choice to do "one's own thing" within the confines of our licence conditions.

In recent years our hobby has not only been largely taken over by the black box industry, but it seems big business is now using its muscle power too, by devious methods, take over our magazines and tell us what they consider is best for us . . . like what makes the fastest buck for them!

A recent example of big business flashing its new found power was in the 1296 MHz band plan issue. Pressure was applied by a leading amateur equipment manufacturer to make our band plan fit their current production-line equipment. Of course, there are many far more subtle examples of the "big business syndrome".

Unlike Europe and America, Australia has only two magazines devoted entirely to amateur radio. To lose either magazine would be extremely detrimental to our hobby; it would leave us even more open to commercial pressure.

No matter what our individual opinions may be about either magazine, both are devoted entirely to amateur radio. It is most important, not only from the commercial pressure view, but for the freedom of speech that both magazines continue to thrive. I am sure all Australians would agree that a one-party government is bad news for any country.

Both "Amateur Radio" and "Amateur Radio Action" provide a great service to members of the Amateur Radio Service with communications in the written form. The WIA (AR) claims around 43% membership; therefore, in rough figures we have around 50% per magazine. Notwithstanding the detailed mathematics, there are sufficient licensed amateurs, SWLs and other interested persons in Australia to support two magazines. So, let us try to ensure these magazines and their organisations are working for us, the amateurs, and not big business laughing all the way to the bank.

"The pen is often mightier than the mic!" Let us not be so apathetic that we lose the right to use both in the way we want to.

Yours Sincerely,

Tony Tregale VK3QQ,
38 Wattle Drive,
Watsonia, Vic. 3087

AR

HAPPY WIA MEMBER

I recently received a packet of "goodies" from the Institute in respect of the Seventy Fifth Anniversary Subscription Renewal Scheme.

In a covering letter received it was hoped I would receive "some pleasure" from the WIA Book and other items. This is quite an understatement, I received a great deal of pleasure. Firstly as being a recipient of the package and secondly from the excellent nature and quality of the items.

The WIA Book is excellent. Congratulations to those who put it together. The pennant, woven badge, decals and the thought behind the whole scheme are all first class.

Again my thanks.

Regards,

C H Judd VK5HQ,
531 Goodwood Road,
Colonel Light Gardens, SA, 5041.

AR

G FOR GEORGE

The following is a letter to the President of the WIA, Victorian Division.

The Association of 460 (RAAF) Squadron have to express their appreciation of the support given by you and your colleagues in the quest for items required to restore the wireless equipment for installation in the Lancaster, "G" George.

The T1154 transmitter and R 1155 receiver performed admirably at the presentation to the Canberra War Memorial. This was in great part due to the work of those who searched for, and those who generously donated, the equipment required for assembly. The thanks of this Association is extended to all who contributed to this work.

On behalf of the President and members of the Victorian Division, 460 Squadron.

Yours sincerely,

B A Niven,
Hon Secretary,
460 Squadron (RAAF) Association,
Victorian Branch,
9 Selbourne Road,
Toorak, Vic. 3142.

AR

CONGRATULATIONS

The excitement of attaining 75 years in the WIA will be a period of reflections and the looking forward to an exciting future.

The WIA has contributed a tremendous amount to amateur radio, since its inaugural meeting in March 1910, and no doubt are well prepared for the future.

As one gets a little older, we tend to look back at the early exciting days of our introduction to this exciting hobby of amateur radio. At the time, it does not appear too significant, but as the years pass by, those who have served in the national organisation, and at local club level can proudly look at the achievements over the 75 years. The recording of events in 'Amateur Radio' and branch newsletters, maintain a comprehensive history of progress made by amateurs in Australia.

May I, on behalf of the New Zealand Association of Radio Transmitters (Inc), its Council, and members, extend to the Wireless Institute of Australia, its warmest congratulations on 75 years of service to amateur radio. I sincerely hope that the Institute will continue to lead the cause of amateur radio in the decades ahead.

Yours faithfully,

D J Mackay ZL3RW,
PRESIDENT NZART,
22 Waipara Street,
Christchurch 2, NZ.

AR

ANOTHER 75TH

I would like to offer my congratulations for the great achievement in reaching the 75th year of the WIA.

As it is coincidental that I will (I hope) reach my 75th birthday in June, I thought it might be interesting to discover, through Amateur Radio, how many WIA members will celebrate their 75th year this year.

73 and good wishes.

Edgar Nicholls VK7RY,
8 Garden Lane,
Midway Point, Tas. 7171.

AR

THANKS

I would like to take this opportunity to thank the Committee for the very lovely clock, book and logos.

I must say, I was overwhelmed at being one of the lucky ones to be picked out of the draw, for these lovely items.

It is the first time I have ever won anything in a draw and this might be a good omen, to try for my NAOCP at the next exam.

Thanks once again, cheers and 73.

Fred Page L60354.

I wish to thank you for the Birthday Gift package and the beautiful Quartz clock. I am not usually a lucky person and I certainly consider myself very fortunate to have received these gifts.

I think the selection process gave all members a chance and the gifts very suitable for the occasion. I have already put the stickers to good use.

I have been working for the 75th Award and encouraging others to do like-wise.

Very best wishes to all and thank you for your efforts. 88.

Poppy Bradshaw VK6YF.

Many thanks for the book and gifts as a result of the 75th Anniversary of the WIA.

The book has been able to answer quite a number of important questions for me. I am very pleased with it.

Sincerely,

G Eves VK4FGE.

SURPLUS

I am writing on behalf of the Karratha Chapter of the North West Amateur Radio Society. We have recently obtained a large quantity of surplus radio equipment from one of the local mining companies and we wish to make it available to amateurs throughout Australia.

The equipment consists mainly of STC 151 VHF 'Hi Band' mobiles most of which are the remote type and have no control heads. The condition of the units externally varies from reasonable to poor, however internally all of the units that have been opened are in good condition with their full compliment of boards. These radios would suit conversion to the two metre band (a number have already been successfully converted), or as parts for the junk box; the units all contain a 25 watt PA. We also have a very limited quantity of Philips 828s and General Electric MVP VHF Hi Band sets, these we believe would make excellent units for conversion to repeater sets.

We are asking that interested clubs can get in touch with us. Because of distance and the resultant high freight charges it is not practical to sell the radios as individual units (except perhaps the repeater ones), so we would envisage clubs getting together to take a bulk amount, say at least ten, and sell them to their members.

If clubs are interested in this equipment they can write to the Society address. We can then give full details of what is actually available and the costs involved. In the case of the 151s the unit cost will be very small — freight will probably constitute the major cost!

73s from Karratha NWARS

Nigel Dudley VK6KHD,
Karratha Chapter,
North West Amateur Radio Society,
C/- 58 Padbury Way,
Karratha, WA 6714

ANOTHER WORD ON THE T PLUG

Following the recent publication of a letter in March AR and WICEN notes in April AR, I would like to enlarge on my previous comments, published as part of the Federal WICEN notes, AR, Jan 1985, regarding varying conventions for polarity of Extra-Low-Voltage plugs (Clipsal 495) and sockets with a 'T' pattern of the pins.

To begin, I do not have **ANY** of these fittings in use myself. I therefore have little egotism vested in the arguments I offer, although most amateurs I have tried on this point have been of like mind:

1) *The argument that, when the plug or socket is held or mounted such that the two pins form a 'T', the horizontal pin naturally looks like a '-' sign is, I suggest, banal. While the trade and serial marks on the fittings do suggest this mounting orientation, having the pins side-by-side is just as easy, and would imply the convention as I described it!*

2) *Telecom commonly uses these fittings, but usually on 50V, positive earth systems so, even if someone should inform me which convention they use, I shall suggest it has no bearing on 12V, negative ground usage.*

3) *The import of my previous letter was that, as an easily remembered convention, the 'T' vertical be the* ***EARTH*** *as this is so obviously suggested by the correspondence to the Australian standard 240V mains plug and socket. There are good engineering reasons that this be so,* ***vide infra.*** *It is purely consequential to this that this pin be the negative, as the usual source of 12V supply is of course, a car or van, and positive chassis vehicles (12V) are very much hens' teeth.*

4) *In common with mains fittings, the design of the plug is such that the 'horizontal' pin is significantly farther from the skirt of the plug, affording this pin a greater safety margin against either contact with a finger (not particularly dangerous at 12V, but important for 240V) or a metallic (earthed) object (very common on the floor of a van!). This design feature is* ***not accidental.***

5) *It will be noticed that 240V plugs are made with the earth pin longer than the others. This is to ensure that the earth pin is the first to make and last to break contact. This is significant if partial insertion occurs, such as when the cord is stood upon. Similarly, for the 2-pin plug, although both pins are equal in length, sidewise pulls are more likely to dislodge the 'horizontal' pin first. (It may take a little thought on the shape of the pins and leverages involved to see why this is so.) If the active pin is disconnected, the equipment shuts off outright. If the earth pin comes loose, funny things happen!*

6) *The idea of carrying a test plug with polarity indicator is quite good and saves the mandatory fuse being blown by the mandatory 25A 'crowbar' diode fitted inside the set. Unfortunately a LED in series with a (560ohm) resistor rarely indicates at all once it has been connected to 12V in reverse unless it has a second diode reverse connected across itself, preferably another LED of contrasting colour. (Use a transparent plug!)*

7) *I have referred to the Clipsal series number. Both the 2- (ser 495) and 3-pin (ser 439) plugs of this make appear vastly superior in cord grip, wiring tell-tale and finger grip/skirt design. Transparent covers may also be substituted.*

I agree with VK6RD that 'someone' should define the standard for the use of these fittings in Australian amateur usage. It should be borne in mind, however, that this might be just a little against the amateur nature. It was indeed my reason for submitting the letter to the national WICEN co-ordinator in the first place. The April WICEN column refers to a so-called 'WICEN convention', but the lack of 'official' reply to my original letter convinces me that this really means 'Melbourne WICEN Group convention', just as I quoted the Sydney group signal/control line convention.

My hope is that, on both these matters, a Federal WICEN meeting, or perhaps poll by mail, might result in an overall standard following consideration of both engineering principles and actual numbers of members with a given system in use. Certainly, WICEN is the only 'authority' in a position to do this. Publication in catalogue and callbooks could then follow.

73,

Paul Webster, VK2BZC
59 Gore Street, Port Macquarie NSW 2444

AR

Correspondence has been received from VKs: 2AEV, 2DTH, 4EH and L50567 with reference to the type size in Amateur Radio. We are acutely aware of some readers' problems with the type and are trying to devise some means within our limited budget, of at least reverting partially to a more readable type.

SHOW A NON-MEMBER

The progress of amateur radio from spark transmitters to the modern day transceivers, must rate as one of the greatest achievements of this century. Of course there have been a few little problems along the way, but amateurs being amateurs got together to talk over these diversions, and so an organisation was formed to look after the needs of amateurs. Thus the Wireless Institute of Australia was formed.

Not only is it the worlds oldest radio society, but today it still is a vigorous and dedicated body looking after the needs of all amateurs. Today, I believe the need for an organisation such as the WIA is just as parmount, and I would strongly recommend your membership. The continuing pressure worldwide on frequency allocations alone, needs a united stand. We need a strong society, for undoubtedly the benefits we enjoy are a reflection on the Institutes ability.

Well done and congratulations to the WIA on your 75th anniversary. Long may your service and vision continue.

Editorial from Back-Scatter

AR

LIFE MEMBER

Lyle Patison VK2ALU, well-known from his exploits with moonbounce and EME written up regularly in the VHF/UHF columns of AR, has been recognised for his services to the Illawarra ARS. Lyle recently received life membership of the Society.

Silent Keys

It is with deep regret we record the passing of —

GEORGE CRUICKSHANK	VK2BCG
01:04:1985	
WALTER FERRIS	VK2PWF
18:03:1985	
R L C GREAM	VK2AFP
W M (BILL) MOORE	VK2HZ
27:03:1985	
ERIC G PIDGEON	VK2DLO
31:08:1984	
LES SIMONS	VK2NLE
04:04:1985	
MRS MARGARET STAHL	VK2AHD
26:03:1985	

WALTER GEOFFREY FERRIS VK2PWF

Wal passed away on 18th March following a long period of indifferent health.

Born near Benalla, Vic in 1904, Wal studied at Avondale, NSW, qualifying as a teacher with additional qualification in business administration and as a minister.

He served as a missionary in Fiji for twenty-three years and for shorter periods in Tonga and the Gilbert Islands. During this time he studied for his Masters' Sailing Ticket and had many overseas voyages in both large and small craft between the West Coast of the USA and various Pacific Islands.

In the later years of his missionary service he was stationed on Pitcairn and he designed the Pitcairn flag which was recently accepted by the colonial government. (Refer AR page 38, May).

Following his return to Australia he was appointed to an Aboriginal mission and then back to Lord Howe Island where he had spent much time as a boy.

It was whilst in the remote places he lived that Wal learned the value of amateur radio and he gained his amateur licence at the age of eighty years. He had passed the limited licence and was awaiting the results of his Morse test when he passed away.

This truly remarkable gentleman will be sadly missed by all who knew him.

Westlake ARC-Monthly Newsletter March 1985.

JOHN WALTER GERARD VK2ADN
24.03.1906 — 03.03.1985

John Gerard VK2ADN, radio amateur, movie projectionist, news cameraman and recently author, passed away in Baringa Private Hospital on 3rd March 1985 at the age of 78 years. John had been a radio amateur since 1934.

John and the late Eric Pugh VK2ADK, who later became his brother-in-law, studied for and passed the amateur examinations together and enjoyed many happy hours of amateur operating. They exchanged some thousands of QSL cards with amateurs they met on air and Jack received one from Castros of Cuba.

On one occasion John was speaking with an American who had a visitor in his shack. The visitor identified himself as 'Ike'. He later discovered that it was President Eisenhower.

In 1958 John and his XYL, Marie made a trip to the USA, Canada and Mexico. They attended the Lions' Convention in Chicago and later met and were entertained by many amateurs, some of whom later visited them in Australia. One particular meeting of interest was when John met John W9WCE, as they had had a long friendship over radio for 22 years, and finally met face to face.

John was a member of Coffs Harbour Lions' Club for over 31 years and was one of very few who could recite the Code of Ethics and the Lions' Objects from memory. He participated yearly in the "Hunting Lions in the Air" contest.

He always maintained an interest in moving pictures and was instrumental in forming a company with the late Lawrence Penn (The Picture Show Man).

On 15th March 1937 he opened the Tasma Theatre in Coffs Harbour which provided a high standard of entertainment for the patrons until 30th June 1968. He also acted as a Cinesound newsreel cameraman on the North Coast.

John was the great-grandson of one of Sydney's first surgeons and a nephew of the founder of the retail and shipping firm, Gerard and Co.

During the past five years the writing and publication of his book "From Pastures Green to the Silver Screen" occupied much of his time and was a climax to an eventful and interesting life.

John is survived by his wife, Marie, a son, two daughters, eleven grandchildren and two great-grandchildren to whom deepest sympathy is extended.

From information supplied by Mrs Marie Gerard.

WILLIAM MCINNES MOORE VK2HZ

WILLIAM MCINNES MOORE was born on the 18th February 1911 to ERNEST and LUCY MOORE, of Crows Nest, and was their eldest son. He attended the Suspension Bridge Primary School, Cammeray — then a junior technical school, where he passed his Intermediate Certificate at the age of 15. Although his mother was keen for him to obtain tertiary qualifications, the death of his father when he was only 19, required that he remain in the workforce as it was left to Bill to be the sole support of his mother, sister and brother who is now Sir John Moore. Immediately after obtaining his Junior Technical School Certificate, he joined the Metropolitan Water Sewerage & Drainage Board as an apprentice fitter and turner. He retired 42 years later due to ill health in January 1969 and was then Chief Inspector, Testing and Inspection.

During his early teens, he developed an avid interest in what was at that time the exciting new technology of wireless. On the 29th July 1931, at the age of 20, he was issued an Amateur Operators Efficiency in Radio Telegraphy Certificate No 792. This interest was to have a dramatic effect on his life as it led him to many places which he may otherwise not have seen and certainly created for Bill Moore, a network of friends throughout Australia and the world. As an example of his passion for this new technology, his original logbook shows that he made almost 1500 contacts with other operators in the first two years — an average of 2 every day for that period. The Water Board recognised not only his keen interest in radio, but technical proficiency, and in 1938 he was seconded from his normal duties to carry out experimental work in connection with the Board's use of radio telegraphy.

For 30 years, 1933 to 1963, he was a regular journalist firstly for the Wireless Weekly then Radio and Hobbies, and finally Television Radio and Hobbies. He wrote a monthly column which when I was going to school, I recall was titled "Around the Ham Bands with Bill Moore". I can remember well, my father sitting up night after night copying in his very good handwriting, his notes for despatch to the editor, and the assistance which the receipt of the fee cheques made to our then very tight family budget. Bill Moore joined the Wireless Institute of Australia in 1929 and at the young age of 24, was elected Federal President during a period of some turmoil and interstate rivalry. He held this position for four years until 1938. After the war, he was State President of the NSW branch in 1947 and 1948. Later he was instrumental in forming the Blue Mountains branch of the Wireless Institute in 1958 and was Secretary for its first ten years and President for another four years until 1972. To Bill Moore, his wireless, and his wireless room, was more than an interest; it was an excitement, a stimulation, a sanctuary in times of stress, and a love. He was a life member of the Institute.

In 1934 another and more significant love appeared in the form of Doreen Ashton who he had met by chance at a dance at the Wollongong Golf Club. He was boarding in Wollongong whilst carrying out inspection work at the Australian Iron & Steel works in Port Kembla, and on this night Doreen Ashton had been asked to attend a dance as company for the girlfriend of her brother Harry. Bill and Doreen were introduced by the Club Secretary, and a lifetime attachment was formed. They married fifteen months later on the 13th April 1935 in St Michael's church in Wollongong and would have celebrated their fiftieth wedding anniversary this year. A son, John, was born on the 23rd August 1936.

By 1938 the international scene had deteriorated and war clouds were massing. It was in this year that Bill Moore joined the RAAF Wireless Reserve so that at the outbreak of war, he was called up and commenced duties on the 6th September 1939 as an aircrew wireless operator. He embarked for Singapore on the 10th August 1940 where he was attached to No 8 squadron in Northern Malaya. Early in 1941, he was seconded to the Royal Air Force and attached to their pioneering radar installation and maintenance unit.

He was responsible for the erection of radar stations throughout Northern Malaya. In April of the same year, he was first commissioned as a Pilot Officer and then in the October, was promoted to Flying Officer. As the Japanese advanced, he was responsible for the progressive destruction of the radar stations which he had installed. Still attached to the RAF, he was evacuated from Singapore to Java in February 1942. He was captured in the March and for 3½ years until his release in September 1945, was held in 8 different prisoner of war camps, having been moved 10 times. He returned home on the 30th September 1945 just over 5 years from the date of his departure and was met by his family of two at No 1 platform, Central Railway.

An excerpt from the "Saga of Achievement", written by Group Captain D R Hall, Retired.

"In March 1942 all Airforce personnel remaining in Southern Java were assembled at Tasik Aerodrome prior to being moved as prisoners of war to barracks in Batavia. Flying Officer W M Moore, an RAAF radar officer removed some command receiving equipment from Kittihawk aircraft, a number of which was scattered about the aerodrome either in a new or crashed condition. This receiving equipment was then smuggled into the camp in Batavia where it was modified for operation from *torch batteries.*

"The radio was concealed in a hole in the floor of the barracks formed by moving two tiles and excavating earth and replacing the tiles in position to give the appearance of an undisturbed floor. While operating the set after dark, a tile was removed and an aerial was run up and connected to a wire strung across the room and used to support a mosquito net. Head phones were removed from the hole and Moore received the news bulletins *from All India* Radio *Delhi. Later bulletins were received from the ABC and the BBC. Next morning, the news bulletins were passed to a senior officer, who*

secretly disseminated the news to other prisoners of war.

"When batteries became scarce, small transformers were manufactured and the unit was rebuilt to fit into the bottom of two standard issue water bottles. A false bottom was installed in each water bottle to allow 4 inches of water and a space below for the parts of the radio. This radio was used for 18 months, carried from camp to camp and survived numerous searches by Japanese guards.

"In 1944, all water bottles held by prisoners of war were seized by the Japanese for use by native troops so a new place of concealment had to be found for the radio. The final receiver was built into the heels of a pair of wooden cloggs which were standard footwear tor prisoners of war. It was with this receiver, that news was received of the atomic bomb and the capitulation of the Japanese."

For this gallant and dangerous activity, Bill Moore was awarded a "Mention in Despatches" and received on Oakleaf Emblem.

After the war Bill set about rebuilding a normal life with Doreen. They had two children — Lucille who was born in 1946 but who survived only a few days, and Bill who was born on the 15th April, 1949. Bill senior returned to the Water Board and over the years became involved in many community activities.

He was a keen fisherman, particularly for "niggers", and many a happy hour was spent with him by his friends and family standing beside his special spot, trying to encourage those elusive fish to the greenweed bait — and more often than not, he succeeded. He was a keen photographer and has left a wonderful legacy of photographs.

In 1956 the Springwood RSL sub branch was in the words of their Golden Jubilee Review, "in deep crisis" and "survival threatened". Bill Moore had joined the year before and in 1956 was appointed Treasurer. For the next two years, a period described in the same Golden Jubilee Review as "the great recovery", he was President, and his organisational and leadership abilities were a major factor in the renaissance of the sub branch during that period. Until he was stopped by ill health, he was for many years, the organiser of the Anzac Day marches in Springwood.

Bill was a person that never sought the public stage, nor the limelight and yet both people and organisations turned to him when problems developed and steady, dependable and strong leadership was required. He probably never achieved his real potential due to the circumstances of his education, his early working life, and the intrusion of World War II. However, this to him was never a regret. He viewed his life and his achievements with a quietly modest and unassuming joy of life and people. May he be remembered for those good works which gave him so much satisfaction. Although reserved and quiet, he was a good man, a wonderful father and husband, a person who enjoyed his life to the full in a very personal way. Especially, he is remembered for good humour and in the words of a close friend who wrote to him when he retired in 1968, "Bill, I will miss your cheerful face — I cannot remember it any other way".

John A Moore.

LES SIMONS VK2NLE

On Thursday, 4th April 1985 amateur radio in general and the Royal Signals Amateur Radio Society in particular sadly lost one of its most efficient and courteous operators.

My first contact with Les was in the latter part of 1980. Les, at the time, was conducting a net on behalf of the Royal Sigs ARS and was in contact with the UK chapter of the Society. Being, at that time, newly licensed and eager to possibly make my first DX contact, I called in and will never forget the kind and efficient way in which Les introduced me to his compatriots in the UK.

Les, in addition to being Secretary of the RSARS (VK/ZL Chapter) was also editor of the Society's official journal "Jimmy", which was originally produced in Palestine in 1940. Due to the untiring efforts of Les, the VK/ZL Chapter grew from a handful of operators in the 1970s to the stage that it is now — one of the largest and most respected groups of its kind.

To his immediate family on behalf of his many friends and fellow amateurs we extend our most sincere and deepest sympathy.

Tom Delandre VK2PDT.

MARGARET STAHL VK2AHD

I regret to advise that Margaret Stahl VK2AHD passed away in her sleep, after a short illness on the 26th March 1985.

Margaret served in the WAAAF for a period of five years during World War II, rejoining the WRAAF on it's formation after the war, attaining the rank of Sergeant. Margaret was the first Australian Servicewoman to receive the Long Service and Good Conduct Medal.

At the age of 60, Margaret was persuaded by her OM to study for the Novice examination. Not satisfied, she continued her studies and achieved her Full Call in two years of study, having four call signs in twelve months: VK2VPQ, VK2YYL, VK2KES, and VK2AHD.

Margaret was a member of the WIA, ALARA, WARO, AFARN, YL INTERNATIONAL SSB'ERS, TAREE ARC and WESTLAKES ARC. She was the only regular YL on the call backs on the Sunday Broadcasts.

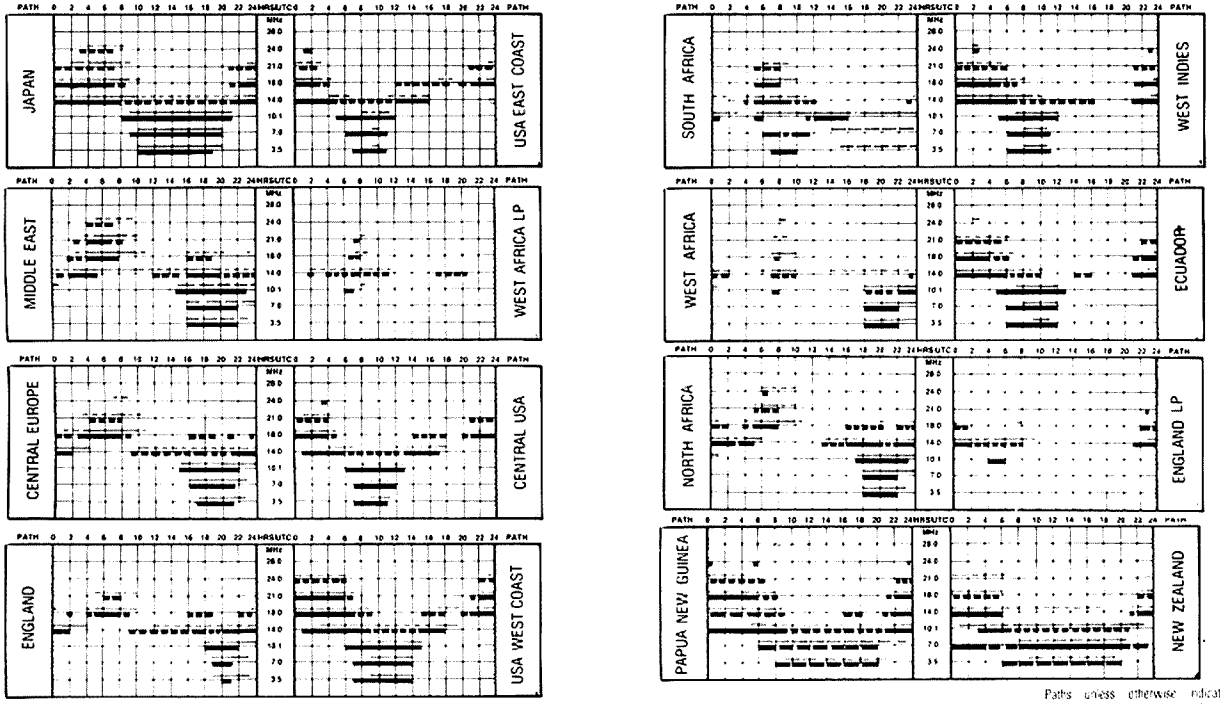
She will be sadly missed by all who had the pleasure of contacting her.

Deepest sympathy is extended to her OM Les and family, and her sister Gwen Pearce and family.

D Pearson VK2AVO

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court. Fawkner. Vic. 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)
Mixed Mode. Dependent on angle of radiation
(long broken lines)

Paths unless otherwise indicated. (e LP = long path) all paths are short path.
Predictions reproduced courtesy of the Department of Science and Technology Ionospheric Prediction Service Sydney.
All times in UTC

NOTICE

NOTICE

All copy for inclusion in August 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 21st June.

HAMADS

PLEASE NOTE: *if you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- *QTHR* means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

☐ TRADE ☐

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle. NSW. Truscott Electronics, Croydon. VIC. Willis Trading Co., Perth. WA.

70 cm power/VSWR meters (see p 23, AR July 1984) 50 W @ $112.80. 23 cm long loop yagis from $64.80. Waveguide modules, tubing & flanges. Gun & mixer diodes at good prices. 0.141" semi-rigid coax @ $2.50/metre. 1/16" DS PTFE board @ 14c/sq cm. 17 pF UHF Porcelain variables @ 10 for $3.50. Send SAE for lists to Microwave Developments, 6 Netley Road, Mount Barker, SA 5251.

☐ WANTED — NSW ☐

COPIES OF BOOKS: Australian Official Radio Service Manual or Gernsbacks Radio Encyclopaedia or old radio text books. Please state price to Brian VK2DLM, 60 Yellow Rock Road, Urunga, NSW. 2455.

DON'T DUMP IT — DONATE IT . . . All that surplus radio gear stored in your garage is now too old to be of any value. Before you dump it please contact me for possible donation to our museum. Particularly seeking ex-military comms equipment that can be refurbished for working exhibition — as described in AR. Colin MacKinnon VK2DYM, Box 21, Pennant Hills, NSW. 2120. Tel: (02) 634 6259 AH.

HANDBOOK FOR IC-502: in English language. Will reimburse for out of pocket expenses. Please contact Carl VK2EEC, QTHR. Tel: (02) 671 6595.

MANUALS . . . Loan required of circuit diagrams or photocopies of PRC10 tcvr. All costs paid. Q Campbell VK2ZQC, Box 403, Drummoyne, NSW. 2047. Tel: (02) 81 2143.

☐ WANTED — VIC ☐

FRONT COVER, TELESCOPIC AERIAL: volume & band change Bowden cables, also full webbing are required for WWII Army HF back-pack rx/tx. VK3AQB. Tel: (03) 337 4902.

ICOM 22S: 2m tcvr. Peter VK3PRB, QTHR. Tel: (051) 44 3398.

☐ WANTED — QLD ☐

VALVE TESTER: In QC and working. Also CCT diagrams/h'books for the following. All costs paid in full. Triplet tester model 1183-SC, Triplet valve tester No 321, Triplet cap Tester 240, AWA BFO R 7077 No 6 & Weston osc 776. Roland VK4EG, QTHR. Tel: (07) 376 4772.

YAESU FRDX-400/FLDX-400: Also Eddystone 680 QC rx. State price & cndx to VK4CB, QTHR. Tel: (07) 202 6566.

YAESU 480R: tcvr. 2m all mode, complete in QC. VK4QM. Tel: (079) 34 2910.

☐ WANTED — SA ☐

SWEEP GENERATOR PLUG-IN: E-1 or E-2 for a Telonic SM-2000 sweeper & any plug-in oscillators for an Alfred 650 sweep osc. Details to Charles VK5MC, QTHR. Tel: (087) 35 9014.

☐ FOR SALE — ACT ☐

TS-520 & EXTERNAL DIGI VFO, FV-101DM: 12 mems, scanning, split freq op. 100+W, all bands. $450 in VQC. FQQ-7 comms rx. $200 VQC. Full manuals with all gear. VK1KCM, QTHR. Tel: (062) 48 8826.

YAESU FT-757GX: tcvr. $875. YAESU FT-757HD (heavy duty power supply) $245. Yaesu FC-700 ATU with inbuilt 100W dummy load. $125. Yaesu MD-1B8 desk mic. $75. A1 cond. Is a complete HF station-package deal for $1200. Theo VK1KV, QTHR. Tel: (062) 61 2097 BH.

☐ FOR SALE — NSW ☐

ICOM R-70 SUPERIOR COM RX: in mint cond. 100% performance. $550. VK2ETF. Tel: (049) 45 4989.

ICOM 750 TCVR: power supply, 3 band Fritzel vert antenna, 3 band Yagi (unused), rotator, mast, guys, cables & access. (All new). $950 ONO. Tel: (043) 32 5163.

KENWOOD TS-520S: Immac cond. First to see will buy. VK2DVJ/VK2KL, QTHR. Tel: (044) 76 7650 AH.

SHACK CLEARANCE: Swan 500 with VOX unit & electret desk mic. $350. 410 outboard Swan VFO unit. $120. $450 as complete unit or will separate. 227R Yaesu 2m tcvr. $200. DX-160 comms rx. $65. Hustler 2m ant twin 5/8 co-linear, nearly new. $35. Home-brew ATU in Dick Smith cabinet. $25. All gear in perfect working order, some spare valves. Brian VK2DLM, QTHR. Tel: (066) 55 1570.

TOWER SECTIONS: 6' long by 8" per side triangular, braced & galvanised. Very strong, ex Army. Can be stacked to 108' using guys. $20 per section. Colin VK2DYM. Tel: (02) 634 6259 AH.

WILSON SYSTEM 2: four el triband Yagi. Very strong design. Max input power 4kW. In VQC. $220. John VK2DFC, QTHR. Tel: (069) 62 5547 AH.

YAESU FL-2100Z LINEAR AMP: As new $600. VK2CE, QTHR. Tel: (02) 871 7758.

☐ FOR SALE — VIC ☐

COLLECTORS ITEMS: Palec valve tester, Palec sig gen, Palec VTVM, 5" CRO, WWII equip. Wave meter type W1117, CRO indicator unit type 6A/APN-4 & more. Old tx, rx, valves & parts including a Ford spark coil. Also old radio text books & WWII equip instr books. All $400. VK3WD, QTHR. Tel: (054) 35 2274.

COMPLETE HF STATION: TS-120V 10-80m tcvr, VFO 120, TL-120 linear, MC-35 mic. All as new with leads, manuals etc. $600 carriage paid. VK3CVA, QTHR. Tel: (051) 49 4123.

ICOM 720A: In mint cond with manual, orig pack, etc. See, hear it working. $850. Ken VK3AJU ex VK3KQX, QTHR. Tel: (03) 654 2533 or (03) 527 9029 AH.

KYOKUTO: tcvr (just serviced by Dick Smith). 12V, 10W FM, 800 freq, 5kHz digi steps 144-148 MHz. Manual incl $150. Standard h'held FM 144-148MHz tcvr. 12V, 2W out. Suited for port or base use. Complete with charger, mic & n'cads, xtal switching. 5 positions, just serviced. 2 sets xtals. $150. VK3AAP. (055) 62 6016.

MFJ-941C ANTENNA TUNING UNIT: 300W ATU incl VSWR & watt meter. Very little use. $80 ONO. Max VK3AMC, QTHR. Tel: (03) 592 9036.

SHACK SELLOUT: Kenwood TS-430S HF $900 with mobile mount. TS-660 with power supply. $450. TW-4000A, 432/144 FM twin. $500. Icom IC-251A $700. All prices ONO. VK3BEL, QTHR. Tel: (053) 34 1397 weekends.

YAESU FT-107DMS: tcvr. 160/10m. Built-in power supply, 12 mems, h'held scan mic, all cables, h'book etc. VQC. WARC bands not fitted but all factory supplied parts, circuits. Instrs for any YWO WARC bands incl. On air demo can be arranged. $850. Yaesu FRG-7 rx. 0.5-30MHz. AC or battery operation. VQC. $220. Allan VK3AMD. Tel: (03) 570 4610.

YAESU FT-7: tcvr with instr manual. $375. Also power supp to suit $150. Chirnside CE-42 duo beam 15-10m. $100. Ken VK3VKS, QTHR. Tel: (03) 547 4082.

YAESU FT-707: with FV-707DM. 16 mems & scan mic in QC. $725. Jim VK3DPO, QTHR. Tel: (03) 857 5342.

YAESU FT-7: HF tcvr. 10-80m plus 11m fitted. Ex cond with manual. $325. Paul VK3AJJ. Tel: (03) 435 3643.

YAESU FTDX-400: tcvr. Excel cond. Must sell. $350. Andy VK3DPJ, QTHR. Tel: (03) 553 3483 AH.

☐ FOR SALE — QLD ☐

ATV EQUIPMENT: Incl B & W Sanyo VC-1400 video sound camera, converter, tx, 88 el antenna. The lot $495. Tel: (075) 56 0039.

COMMUNCATIONS RX: DX-302. Quartz synth digi LED read-out. 10kHz-30MHz in 1MHz steps. USB/LSB, CW, AM, S meter, tuneable RF stage etc. PC $250. Fred VK4RF, QTHR. Tel: (07) 200 7916.

KENWOOD TS-120V: tcvr. 80-10m. Very little use. Complete with noise cancelling mic & power supply. Mint cond. $520. Kenwood TS-120 linear to suite above tcvr. 100W PEP. Never used. $200. Scalar SC-22DX, 5 band trap vert. Never used. $80. Quantity of coax, PL-259 plugs, low pass filter & coax ant. $30. Tel: (07) 284 1127 after 6pm.

S-100 16k DYN RAM: $95. VK4ZLO. Tel: (07) 288 2921.

☐ FOR SALE — SA ☐

ATVERS!! Looking for a port VHS VCR to match your colour camera? This is for you. Hanimex VR-650 (same as Hitachi 6500) with Campanion 8 mem timer/tuner/pwr sup/batt charger. Full remote control with visual search, slow-mo frame advance etc. 2 good re-charge batts, shower proof back-pack, aluminium carry case, h'books. Superseded model. Cost $1450 new — $950 ONO. VK5KQ, QTHR. Tel: (08) 269 3130.

KENWOOD TS-520S: HF tcvr with manual & mic. QC. $500 ONO. VK5FF, QTHR. Tel: (087) 25 4248.

☐ FOR SALE — NT ☐

MICROLOO AIR-1 CW & RTTY: Plug-in unit to suit Commodore 64. Computer complete with adapter plugs & manual. No software required all in onboard ROM. $200. Roger VK8IG, QTHR. Tel: (089) 52 4087 AH.

ADVERTISERS' INDEX

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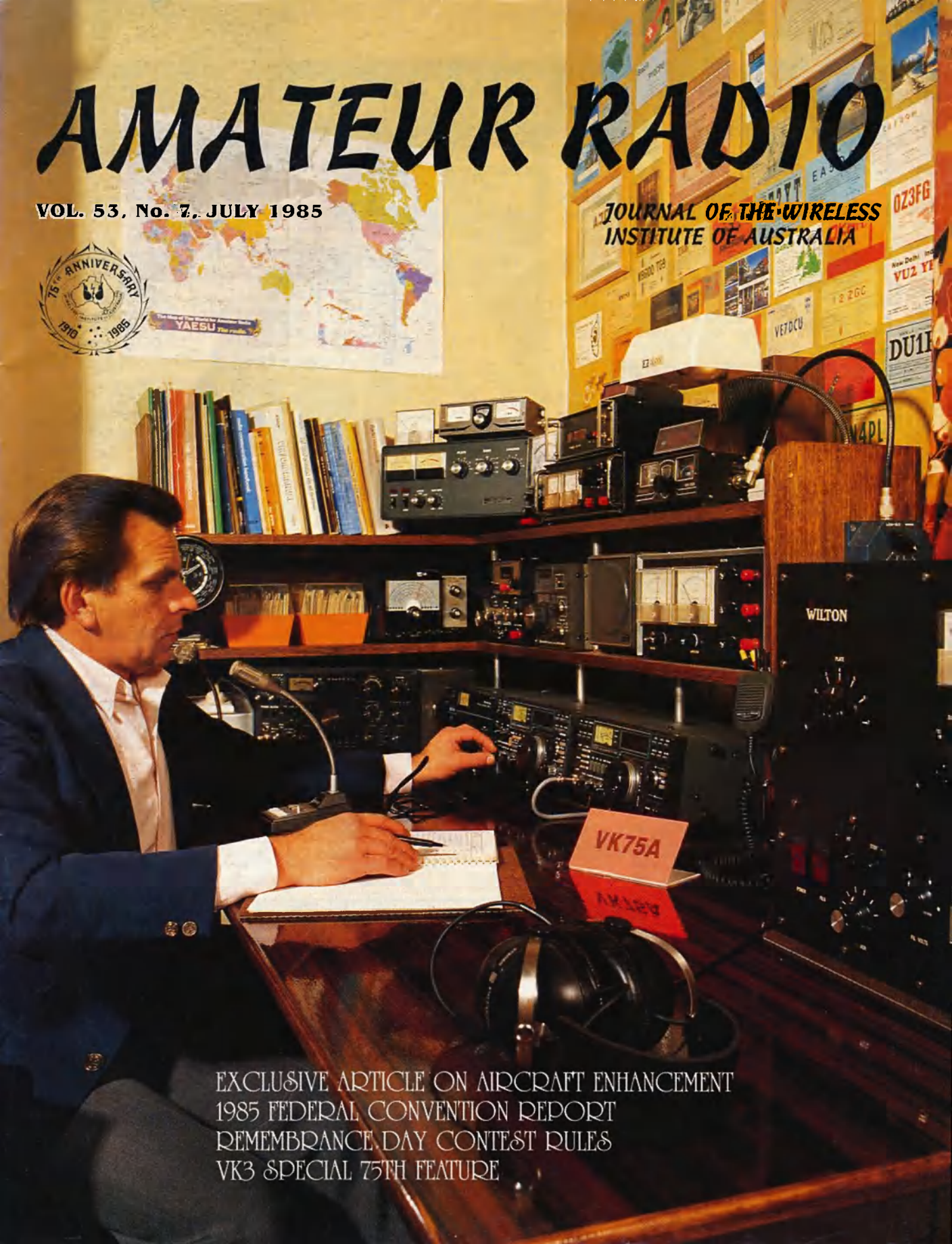
AMATEUR RADIO

VOL. 53, No. 7, JULY 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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RG-8/U	1.95	N/A	N/A	7.44
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Photograph courtesy Barry Wilton VK3XV.

VK3 was the first WIA Division to operate the special commemorative call, VK75A which opened on SSB at 0001 UTC on 15 March from the station of Barry VK3XV and worked continuously for 48 hours. Operation was on 40 and 20 metres with some contacts on 2m FM and SSB. Propagation was very poor on the higher frequencies and 40m proved to be the most reliable. A total of 503 DX stations were worked covering 41 countries. The station was operated by Fred Mackiewicz VK3ZZN, John Ambler VK3DJE, and Barry Wilton VK3XV. Equipment line up included an IC-751 driving a pair of 3 500 Zs in a home brew linear, a FT101ZD driving a FL2100 Z linear, and an IC-271H.

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AMATEUR RADIO

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Ever read Eric's VHF UHF column and wondered exactly what 'aircraft enhancement', which he refers to frequently, means? Doug VK3UM, one of the pioneers of this mode in Australia, has written an exclusive article for AR, p4, explaining how aeroplanes function in enhancing signals on 144 and 432 MHz, the experiments he and others have conducted on this medium and how others may join in 'to give it a try'.

There is another 'Amateur in Space' launch due around the middle of this month and the WIA wrote to enquire if the amateur, Tony England, would be able to send greetings to the WIA for the 75th Anniversary whilst passing over Australia. Turn to p6 for David K1ZZ's reply.

Interesting comparison! Brenda VK3KT, Federal Education Co-Ordinator, features a trial AOCP exam paper in her column this time and on page 63 there is a Pre-World War II exam paper courtesy of Fred VK4RF. This exam was a written paper with a time allowed of two hours, in which the candidate had to draw diagrams, write answers and also do a little calculating whereas the exams of today, the candidate has to know the answers and tick the appropriate box.

The rules for the 1985 Remembrance Day Contest are printed in this magazine and contestants are requested to peruse the rules thoroughly prior to the contest. There are a few alterations to the rules, but Ian VK5QX has explained them finitely in his lead-up to the rules and has also included diagrams of how the log sheets should be laid out. Also announced in the contest columns is the winner of the Contest Champion for 1985 and the results of the John Moyle Memorial Field Day Contest.

International News, p18, features a special story of how the IARU came into being as it celebrates its 60th Anniversary.

Next month's magazine will feature a review of the Icom IC-735 All Mode HF Transceiver and an informative article of the history of VK6 bridging the communications gap with the eastern states and overseas on VHF and UHF. Also there will be details of a lecture given by Dr Karl Meinzer DJ4ZC in Melbourne on 28th May. Karl visited Sydney, Adelaide and Melbourne en route to the annual amateur convention in Christchurch. He is one of the best-known members of the German AMSAT DL, which was largely responsible for our present operational satellite, OSCAR 10. (a KP)

DEADLINE

All copy for September 1985 AR (including regular copy of Hamads and columns) must arrive at PO Box 300, Caulfield South, Vic 3162 at the latest by midday 22nd July 1985.

Enquiries and material to:
The Editor
PO Box 300, Caulfield South, Vic. 3162

Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962.**

Hamads should be sent direct to same address.

Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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EDITOR'S COMMENT

MORE HISTORY

As part of the WIA 75th Anniversary activities, the Publications Committee has, for some months, been searching through old issues of AR to extract items of historical interest. Ultimately this collection will be the framework supporting a full and detailed history of the WIA. We simply do not have enough people with enough spare hours to produce such an ambitious work before the end of 1985. Perhaps our centenary in 2010 could be the target for which our historians should aim.

In the meantime we hope to publish a number of historical reviews during the latter part of this year, each probably limited to just one particular aspect of amateur radio. Thoughts which occur to us are the evolution of VHF, or the techniques and development of SSB, or the growth of amateur television. Amateur radio has such a rich range of individual fields of activity that many full-scale books would be needed to do justice to all.

One such area, of obvious interest to the people who produce it, is the evolution of this magazine. On its own this could be the subject of a book; but let us look at one small aspect, the way in which costs have changed since the first post-war printed issue in October 1945. (The history of AR from its first issue, October 1933, until the war reduced it to a duplicated newsletter, is yet another story.)

The October 1945 issue was of 20 pages and had a cover price of 6 pence (or 5 cents in post-1966 decimals). This, from a value for money angle, is ¼ cent per page. *Seems cheap enough, doesn't it?* In 1949 the price rose to 9 pence, still for 20 pages, although odd issues were of 24 and very rarely as many as 28 pages. So we might say it was still about the same cost per page until 1953, when inflation really hit and the price went to one shilling (10c) for only 16 pages (in January 1953).

How does this compare with today? We do not show a cover price these days, for several good reasons, but each member pays from his/her annual subscription to the Institute about $1 per monthly copy. Each issue now has 64 pages, so the cost per page is less than 2c, about a seven-fold increase over 1945, but only 2½ times as much as that January 1953 issue! And we now have full-colour covers and vastly more information between them!

In 1950 the price of petrol was 3 shillings a gallon (about 7c/litre). It is now nearing 60c/litre in the capital cities. Even as late as 1958 a Melbourne morning paper cost fourpence (3.3 cents) but is now 30 cents. "Amateur Radio" is now even better value than ever. *Can you afford not to belong to the WIA?*

Bill Rice VK3ABP
Editor

Our first tests were very encouraging and although contacts were made the signal levels and reliability was just not as predicted. This however was more due to "what we thought we had" than what we actually were achieving in system performance. Finally when we both got our acts together, presto, signal levels were as predicted!

During our initial tests, we quickly realised that peaks of 30dB or more were evident for periods varying from a few minutes to tens of minutes. It was during one of these "good condition" periods (2130 UTC 1st May 1983 to be exact) that Ralph VK1RK broke on the frequency and almost took the cone out of my speaker! Expecting signals to Ralph to last, Gordon and I continued chatting but when we turned it over to Ralph — *Zilch! No Ralph!* About ten minutes later during another peak in signals to Gordon, Ralph again broke with S9 + signals. This time we did not leave him out on a limb and quickly exchanged reports etc. Without warning signals, which were steady with little or no QSB, started to drop rapidly and Ralph disappeared from the scene leaving Gordon and I communicating via forward scatter with signals about 3dB above the noise!

What caused this strange propagation? The times of the opening seemed to bear a relationship to an aircraft passing between us. A check the next morning positively established that two domestic services from Sydney to Melbourne were mid path at the very times of the enhanced propagation. Actually on hindsight (always a 20/20 vision), Gordon and I had observed this effect on many occasions but the "penny" only dropped when VK1RK appeared on the scene.

The rest of the story is history, but from our hundreds of "scheds" over the last eighteen months our observations may interest others who, under their *own* unique circumstances, may care to observe and utilise this novel form of communication medium.

It is most interesting to consider the path profile and relate the enhancement aspect that aircraft have on the Melbourne-Canberra path. Firstly the mountainous terrain between the two cities prevents direct communication except at rare times of exceptional trophospheric enhancement.

I have worked Canberra on 2 metres via Sporadic E back-scatter but, between normally equipped stations, ground wave propagation is most restricted by the mountains around Canberra. Knife edge bending is predominant on similar paths, however the angle presented at the Canberra end is most acute and to hear signal levels of those encountered and without any appreciable QSB, was somewhat of a surprise.

I have deliberately coined and used the word "enhancement" as aircraft reflection (off the body of the plane) is seemingly not the actual propagation or reflecting medium. Checking the surface area of the aircraft and noting the exposed area to the signal, the height and distance of the aircraft, combined with what would be the reflected signal level, did not tally with the signal levels received. They were simply too strong. Moreover it has been found that they can vary most markedly given certain weather conditions.

Well, what causes the effect? The aircraft are believed to be the cause and not the actual media of the enhanced propagation.

Candidly I am not sure of the mechanism but offer some possibilities that seem to relate to our observations.

1 Under the worst circumstances enhancement of minimal proportions are present on all transient aircraft and although the signal level increase is small it is always present. This effect will only be noticeable by those stations employing high power, high gain arrays and state-of-art (SOA) receiving systems for the signal increase may only be 3-6dB above the scatter path (Melbourne-Sydney). This effect can be related directly to reflections off the body of the aircraft itself and computes closely with the calculated figures.

2 Reflection caused by the condensation trails (con trails) left by aircraft flying above 30,000 feet.

3 Refraction caused by the air turbulence wake left by such aircraft. (Temperature heating effect or vortex turbulence.)

It is notable that although 2 and 3 are offered as explanations, normal aircraft radar returns indicate (other than the aircraft's reflection) the presence of this reflecting medium is seemingly not evident. This could be explained by the fact that such returns would comprise a back scattered signal or possibly insufficient attention has been given to this aspect. Another explanation could be related to the design of such systems which generally display only moving targets. Nevertheless back scatter does occur and will be related later in this article.

Some readers may wish to ponder the actual cause and pursue this aspect to a conclusion and accordingly there are many additional effects which may assist in the derivation of a more scientific answer.

Ignoring point 1, which would be of interest only to high powered or advanced stations, and complies with predictable data, the latter two (or more?) of extended communication range provide the most exciting possibility to stations of more moderate proportions. Signal levels can be very high indeed (over S9 on the Melbourne-Canberra path) and provide reliable and predictable contacts between the two cities. Predicting such enhancement can be as simple as obtaining domestic air time-tables, however as regular air travellers will know, they sometimes only provide a guide! Fortunately there are simpler and more accurate ways.

Aircraft en route report to ground stations remote linked back to the cities via UHF/SHF bearers. Simple sums will show a line of sight path exists from an aircraft midpath between Sydney and Melbourne back to both cities. Naturally you will not hear the ground station but the aircraft provide saturation signal levels.

It is customary for all flights to report their position at designated intervals and in particular the Sydney to Melbourne aircraft use 128.4 MHz, when overflying Canberra. From this report your can ascertain from the call signs and some knowledge of air carrier information, the type of aircraft and more importantly derive just when the enhancement will commence. Experience, plus a little knowledge of aircraft and airspeed dictates that enhancement will commence about 10 minutes from that time on the Melbourne-Sydney path and 12 minutes later on the Melbourne-Canberra path. These figures relate to my location in Chirnside Park (35km east of Melbourne), VK2ZAB (10 minutes) and VK1BG (12 minutes). Significantly all aircraft do not precisely report their position at this point and variations can and do occur. It can be assumed that Air Traffic Control have all aircraft en-route visually on radar and it does not matter too much!!?? *However we can tell!!*

Another method is by observing what is proving to be a most excellent beacon and a prime example of the application of such a device. VK1RCC is located at Mount Majura, near Canberra and transmits FSK CW on 144.490 MHz at about 12-14 watts output to an omnidirectional horizontal polarised antenna. Not much power you may say, but it can be heard in Melbourne during each aircraft enhancement period. Take a listen to Melbourne stations and you will most likely become fascinated by the effect. Signals will appear from nothing, peak rapidly, hold steady, and disappear into the noise about seven minutes later. Signal levels can be anything from just above the noise floor to S9 on

Aircraft Enhancement of VHF/UHF Signals ©

Doug McArthur VK3UM
30 Rollaway Rise, Chirnside Park, Vic. 3116

About two years ago, Gordon VK2ZAB and I commenced forward scatter tests on 144 MHz between Melbourne and Sydney. The path loss indicated a system gain to overcome -245dB was required. This was achievable with our combined stations. The VK2ZAB station consists of four bays of 9 element Yagis (18.5dBd), 400 watts output and a receiver sensitivity of better than 270 degrees K. The VK3UM station consisted of a slightly higher antenna gain (19.5dBd) and the same transmitter and receiver performance. Combining each station's performance with that of the encumbrant path loss, signals should be received at each end of the circuit approaching 3dB above the noise for better than 90 percent of the time. It was this figure that Gordon and I set out to prove. Probably the time and effort required to verify the text books would normally not be warranted. However as we were both "into the two metre scene" such an effort seemed worthy of the time. Besides the Sydney-Melbourne path had never been worked before on two metres!

occasions, but are always present.

Application of this beacon is most useful as it provides an indication that propagation exists (or is just about to become available) to Canberra stations depending upon their location. It does however herald the passing of propagation enhancement to Sydney.

The next interesting facet of this enhancement mode relates to the times signals are received at locations that may only be a few miles apart. Although thought to be strange at first, again one should then relate your own and the other station's location, with that of the aircraft. Naturally times will vary and because of the no signal to signal present aspect it will seemingly appear more dramatic. As an example, stations located in the Melbourne suburb of Frankston hear Sydney some two minutes prior to myself. However because of the flight path signals are present for a longer period at my location. Again one should consider the respective incident angles involved. With respect to the Melbourne-Canberra path Eddy VK1VP appears about one to one and a half minutes earlier than Ian VK1BG at my location. It is of interest to note that Eddy's signal from his SOA station never reaches the signal level of Ian's. This is explained by Eddy's location which at the time of best enhancement (critical angle) is blocked by Black Mountain. (6.5 degrees elevation equals -65dB additional loss on a horizon signal.)

Stations throughout Canberra "come and go" at predictable times commensurate with the angles involved. Thus this aspect may prove a little difficult to initially define for your particular location. However given you know each other's location and the flight path of the aircraft or can hear someone from the distant end, you can from this pretty closely predict when signals will be present at either station. At first you may feel despondent upon hearing a station in your city giving the distant station S9 when you are hearing zilch. Don't give up; assuming your system to be performing well you have either just missed or are about to hear the other guy! If you don't hear them well you have problem(s) to solve.

Back to the signal characteristics. As mentioned earlier I was initially surprised at the level and lack of QSB of Ralph's VK1RK signal. *Where was the characteristic aircraft flutter?* Again the penny dropped! The normal aircraft flutter is caused by the multipath effects of signals between the aircraft, ground, and other relevant reflecting objects. In this case the path is direct, and the received angle on the horizon. Consequently no multipath would be present. That explained that one!

It was not long before it became most apparent that the signal levels were not always strong. In fact levels vary up to 60dB under certain conditions. *Why?* It was this fact that (with continued observations) derived the possible explanations given in 2 and 3.

Ian VK1BG has been a most regular contributor and back-bone to our experiments. His unique location in Canberra provides midpath observations and co-ordination with Sydney. Moreover we can always liaise on 80 or 40 metres. Ian, given favourable weather conditions, can usually observe the aircraft first hand. The viewing of condensation trails provides a possible explanation to our varying signal levels. As a sideline to the saga, if he can actually see the aircraft we can predict to within 10 seconds when enhancement will commence. This you can see is most beneficial on the Melbourne-Sydney path where signals are less strong. Thus given this knowledge you are ready and prepared to go prior to the onset of enhancement.

Ground surface weather conditions naturally play little or no part on the received signal levels. It is what is going on above 30,000 feet that is determining the enhancement. Simply put, it is believed that, given stable conditions "upstairs" (viz winds are minimal and temperatures consistent) signals are higher and remain present for longer periods. Unstable conditions and jet stream effects diminish both these parameters. A simple check of the weather map gives some guidance to what may be expected. Close isobar lines between the cities in question invariably relate to lower enhanced conditions (time and level). It has been found that winter seems to provide better enhancement (on average) than summer, and evenings better than day and mornings. This is a subjective assumption related only to our operations over the past few years which may have to be qualified through a more scientific approach. It does however support the theories although it is a somewhat "chicken and egg" situation. The baseline is however from a practical sense the period of enhancement (for 144 MHz) can vary (for a single aircraft) from 2-7 minutes and is present for better than 95 percent of each aircraft pass.

I mentioned "for a single aircraft" in the previous paragraph and on this aspect we find additional benefits from our "bunched domestic time table" which, although most inconvenient to most travellers is helpful to us as amateurs. As you are aware our domestic airlines on the Sydney-Melbourne route run almost parallel services. In practice this provides two flights separated by about 8-15 minutes. This aspect does provide on many occasions continuous enhancement spanning 15 minutes or so. Throw in an International flight or two in a similar time bracket and you can see we have a propagation medium of practical proportions. Thus aircraft enhancement is not quite the "flash" propagation you may first believe.

The extra flights have a side effect. Now we get QSB! This results from multipath effects between the medium or body of the aircraft in transit. It varies from extremely rapid (making copy difficult) to extremely slow, and seemingly occurs when one aircraft is leaving the mid path area utilised for the enhancement path. It also relates to the speed and direction of the aircraft involved.

The flight path of the aircraft is of prime importance. Coincidentally, my location favours the Sydney-Melbourne route where I have a small incident angle. This is not a limitation to others off route. It has been proven that stations from Geelong to Frankston to Lilydale are all able to use this propagation medium. How far either side of the aircraft track this is possible (given the height of the aircraft and stations separation) has, as yet, to be accurately defined. Activity has not been great but hopefully others reading this article may become sufficiently interested to participate. What is known however, is that David VK3AUU in Drouin South, has worked Gordon VK2ZAB in Sydney. The enhanced period is short, but present at about 80 kms from the aircraft track.

What aircraft routes are useful? Well that's dependent upon the respective locations. In the Melbourne-Canberra-Sydney path, only south bound (out of Sydney) flights are practical. North bound flights (out of Melbourne) fly too far west to provide us with the direct mid path enhancement. Canberra flights are of course too low at the point enhancement.

The Sydney-Melbourne flights fly at altitudes of 31, 33, 35 thousand feet and in addition to height separation may be separated laterally. It is the most easterly path which suits us more. This has become more evident from our 432 MHz experiments to be discussed later in this article.

Obviously many factors come into play but armed with an aircraft route map, time table or VHF aircraft receiver, a hand calculator combined with a couple of suitably equipped stations you could really make a mess of the Ross Hull Contest!!

Aircraft size and type have a bearing on the received signal levels. From our observations and by use of the information given when the aircraft report their positions, we have been able to know just what we are "working off"! Naturally as would be expected the 747s and DC10s provide a higher level of enhancement. 737, 727 and aircraft of this type also provide excellent enhancement. What is somewhat interesting is that the smaller aircraft F28s etc (if flying high enough) provide similar levels. Don't get tricked on the smaller aircraft, they fly slower and naturally your predicted times will be different. Thus pure or turbo prop aircraft provide similar degrees of enhancement.

In November 1984 I dismantled my 144 MHz EME array and decided to put all my effort into 432 MHz. If you read Eric's VHF/UHF notes in this magazine you will be aware of results. Currently I run 16 bays of 16 element ATN yagis which provide just over 26dBd of antenna gain. Under terrestrial working I run 375 watts output (SSB) and the receiving system approaches 45 degrees K. With this background information the aircraft enhancement effects on this band will now be discussed.

Firstly, yes it does exist! Moreover it seems that the peak signal levels may be greater than 144 MHz, although insufficient data to confirm or deny this aspect is, as yet, to be determined.

Currently Gordon VK2ZAB is only running 10 watts to four Yagis and without a low noise preamplifier. Nevertheless we have had many two-way contacts. (The first Melbourne-Sydney 432 MHz.) Signals from me have peaked over S9 and Gordon himself has reached S9.

What we do find difficult between the two bands is the period available for communication and the signal differences between relative sites. In the first case it appears that only one half to two thirds of the enhancement period exists on 432 MHz. Secondly, the transit time of signals appearing (cross town in Canberra) is quite dramatic. Signals can be S9 at one location and inaudible a few miles distant.

I hasten to add that it is early days yet and when stations participating in our experiments improve their systems commensurate to 144 MHz, more definitive conclusions may be resolved.

Naturally as I employ a EME station capability of not too modest standards, allowances must be made in this regard. Advantages of lower sky noise and a greater realised receiver sensitivity offset or actually surpass that of 2 metres, but to discuss this and associated aspects is beyond the intent of this article. In theory my scatter signal in Sydney should surpass (by almost 6dB), that of my previous 2 metre signal, however currently the Sydney guys have as yet to reach this point. (Gordon VK2ZAB is working on it!!) Canberra stations, and in particular Ian VK1BG can copy me on scatter (CW) for greater than 90 percent of the time as evidenced from retransmissions on 80 metres. It is most useful for Ian to be able to copy (on SSB via forward scatter) for 75 percent of the time to be able to wait until signals peak (from enhancement) to S3, before responding.

I strongly believe that aircraft enhancement will support 1296 MHz and wonder just who will be the first to bridge the gap between Sydney and Melbourne on that band. Melbourne-Canberra should be a breeze!

To summarise, what can be expected? Firstly on two metres equipment wise. A well equipped station would, I consider, consist of say a single ATN 13LB type antenna (13.5dBd) fed with half inch heliax or Belden 9913 and 100 transmitter watts output power. Receiver

wise a preamplifier (preferably masthead mounted) with better than 1 dB NF (BF981 or better). Such a station, if located in Melbourne, will work a similar equipped station in Sydney and expect to hear on average signals between S2-S5. On occasions short periods of up to S9 will be achieved.

On the Melbourne-Canberra path signals will "blow your head off" at times and on average be better than S7. Accordingly you may relate this to lower powers and antenna gain. It is quite easy to work this path (Canberra) with 10 watts and a modest antenna.

Don't worry about elevating the array! Signal received angles are right on the horizon due to distances involved, and secondly beam in the direct straight line path.

Some other interesting effects that have come to our notice during our scheds has been the incidence of backscatter signals off the reflection medium. When enhancement is very strong Ian VK1BG receives backscattered signals from Gordon VK2ZAB. Normally Gordon is inaudible when beaming towards me (at VK1BGs QTH) and only on the very strongest of such enhancement (towards me) are signals of this nature heard. Conversely, Gordon can hear VK1BUC, when he is beaming my way.

Multi-propagation modes in association with aircraft enhancement have been noted. Gordon VK2ZAB runs schedules northwards from Sydney on weekends. Many VK4s in Brisbane and Bill VK4LC (Mt Tamborine) are worked. I try to monitor such schedules and relate the meteor "ping" rate from week to week. Generally speaking the VK4s always provide from 5-15 (less than 1 second) pings for each 5 minute period. When meteor showers are present this increases dramatically with some classic pings exceeding 15 seconds. It has come to my notice that on several occasions I have heard Bill VK4LC with a steady signal for periods of up to one and a half minutes. Not sporadic E nor a "beaut" meteor ping! My only explanation would be that of aircraft enhancement plus tropospheric enhancement. (The distance far exceeds that for an aircraft flying at normal heights!! or maybe we have discovered a very high flying aircraft??!!!)

Finally to conclude, mention must be made of operating techniques. This is not the medium to ragchew although those suitably equipped can make a fair fist of it! Thus, it requires short, precise overs if you want to succeed and more importantly for others waiting to participate. Nothing worse than someone hogging the channel and talking through an enhancement period. Treat your operating like working the RD contest. Generally speaking if you are new at the procedure, listen for a couple of weekends and chat afterwards with those involved. Note the times you hear and whom you hear. This can be related to others and especially to your own capability. For example: a Melbourne station hearing Gordon VK2ZAB on two metres and getting him at S2 should realise he is running 400 watts and it is most likely that your 50 watts would not be heard. (This may not be quite true as most "big mouths" have associated "excellent ears" and may make up for your deficiency.) Moreover nothing is worse than stations at both ends of the circuit chatting on the scheduled frequency complaining nothing is happening.

Many has been the time when I have listened to Sydney stations on 432 MHz chatting during the scheduled period, and Gordon reports the same of Melbourne stations on 144 MHz. What is required are very short transmitting sequences and unnecessary chatter. This aspect would be beneficial on the SSB calling frequency of 144.1 and 432.1 MHz!!! For this reason Gordon and I chose 144.2 and 432.2 MHz. At one stage we were forced to work split to avoid the smart "Alecs" but this is the last thing we all would wish.

Currently these are the operating times and frequencies:
144.200 MHz: Gordon VK2ZAB "co-ordinates" the Sydney end beaming Melbourne from 0803-0900 EST (2230-2300 UTC) each Saturday and Sunday morning. He calls for the first 30 seconds of each minute and listens the last 30 seconds when things are quiet.
432.200 MHz: I (VK3UM) "co-ordinate" the Melbourne end beaming Sydney during the same period above. I call and listen alternatively each 10 seconds and monitor 3.690 MHz prior, during and after the scheduled period. If 80 metres is poor, we utilise 7.293 MHz.

Just why did we pick this particular time? Well it was convenient but we know that current flights provide at least two domestic services and generally an International flight during this period. Fog at either airport and resultant closures can cause consternation at times!

I emphasise everybody is most welcome to join and would respectively suggest if the group gets too large (as often it does) to pair off to another frequency.

There *you have it*: "aircraft enhancement" as we have coined the phrase and hopefully this article will inspire others to give it a try and for those scientists out there to come up with a concrete explanation of the "mechanics".

Special acknowledgements include Ian VK1BG, Ralph VK1RK, Eddy VK1VP, Les VK1BUC, Col VK1AU, Glen VK1GL, Peter VK1ZQS, Gordon VK2ZAB, Brian VK2QP, Ron VK2DVZ, Dick VK2BDN, Trevor VK3KEG, Les VK3ZBJ, Lionel VK3NM and David VK3AUU. Apologies to any that have been inadvertently missed.

AR

JUNE'S BEST PHOTOGRAPH

The judges at Agfa-Gevaert selected the photographs on page 21 of the June magazine. Next month the winner of the Agfa prize will be announced.

TRY THIS

Arthur Sibley,
RMB 24, Cooper Road, Wamboin, NSW, 2620.

POWER SUPPLY AMMETER

I had much trouble looking for an ammeter for high current power supplies. This is what I settled on and it works quite well for general measurements.

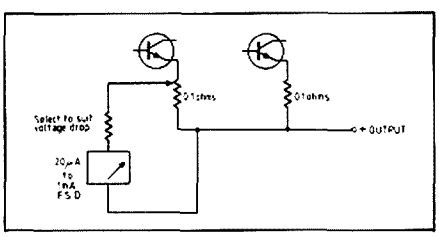


Figure 1: Circuit for the Ammeter. Note that only 2 transistors are shown but any number may be used.

Effectively the arrangement is a voltmeter reading a voltage drop across the transistor equalising resistor of any one of the parallel voltage regulating transistors, any type or make.

I used 2N3055s and have six in parallel. The resistor is 0./ohms and at 6amps the voltmeter has to measure full scale at .6V.

This corresponds to 30,000 ohms for a 20uA meter. As the internal resistance of the meter is 5,000 ohms, a 25,000 ohm resistor will give full scale for 6x6 = 36A.

I selected my resistor so the scale could have 40A full scale. The meter originally came from a tape recorder level meter — nothing sophisticated, but very useful.

AR

VHF COMMUNICATIONS MAGAZINE

Subscribers please note!!

Following the notice in May Amateur Radio, there have been some delays in the 1985 edition due to the lack of a translator.

Please be patient and any further developments will be published in AR.

ERRATUM

The April issue of AR carried a book review of the Confidential Frequency List which stated that the book could be obtained from AR advertisers such as GFS. This was incorrect. The book is available from AR advertiser Dick Smith (Catalogue No B-9602, cost $15.95), or as per Spotlight on SWLing for February 1985, page 37.

Apologies are offered for any inconvenience caused.

WIA 75th Anniversary News

LETTER TO WIA SECRETARY RE SPACE SHUTTLE FROM DAVID SUMNER K1ZZ OF ARRL

Tony England will be carrying two-metre FM and slow-scan TV equipment with him on the 51-F mission that is now slated for mid-July. Unfortunately, he will be limited to using the in-the-window antenna that was used by Owen Garriott, rather than an external antenna in the cargo bay. Also, his operating time will be extremely limited owing to other commitments.

We are passing along your request for a message of greetings to be sent from the Shuttle. The biggest problem is likely to be that Tony will not know, more than one orbit in advance, when he will be able to operate.

At this point I guess the best we can do is to suggest that WIA members equip themselves to receive FM (and preferably SSTV) on 145.55 MHz, and hope that things will fall into place for the mission.

It must be emphasised to members the difficulties with this type of operation — Good Listening.

AR

WIA Seventy Fifth Anniversary

JULY 1985

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Dominion Day – Canada	2 Middle of the year	3	4 USA Independance Day	5 Alice Springs Show	6 Venezuela Phone Test
7 Venezuela Phone Test	8 School resumes VK4	9	10	11	12 National Aboriginals Day Tennant Creek Show	Colombian DX Test IARU Radiosport Championship International QRPp Test West Coast 180 SSB Test
Colombian DX Test French National Day IARU Radiosport Championship International QRPp Test West Coast 180 SSB Test	15	16	17	18	19 Katherine Show	20 1985 Seanet WW DX Test CQ WW VHF Test Jack Files Memorial Test Venezucla CW Test
1985 Seanet WW DX Test Belgium National Day CQ WW VHF Test First Man on Moon – 1969 Jack Files Memorial Test Venezuela CW Test	22 CQ WW VHF Test School resumes VK8 VK1 GM at 7.45pm	23 VK5 GM	24	25	26 Darwin Show	27 County Hunters Test
28 County Hunters Test	29 County Hunters Test	30	31			

EQUIPMENT REVIEW

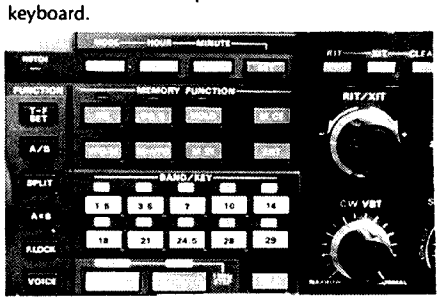
Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150

KENWOOD TS-940S ALL MODE HF TRANSCEIVER

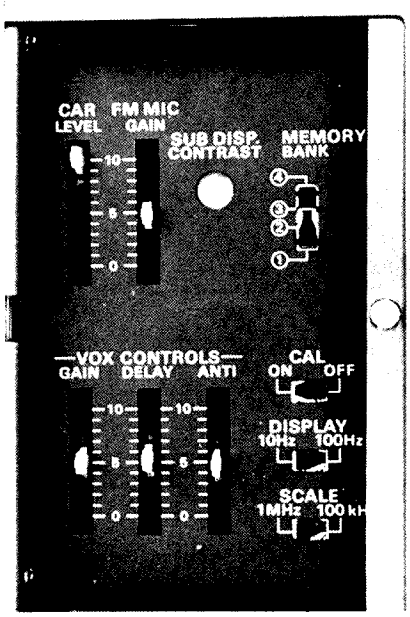
The TS-940S is an updated version of the well known and respected TS-930S. The 930 became available around mid-1982 and quickly became a status symbol among amateurs.

However in many respects, the 930 was surpassed by the TS-430 released just a few months later. Perhaps the greatest draw back of the 930 was the inability of the memory system to store mode information. The 940S overcomes this and at the same time introduces many brand new and unique features.

At first glance, you might suspect that the 940 and the 930 are packaged in the same cabinet. There is certainly no doubt from their appearance that they are closely related. But in fact the 940S is both larger and heavier than the 930. Width is up from 374mm to 401mm, other dimensions remain the same, weight is up from 18.5kg to 20kg. Some of this increase in weight is accounted for in the automatic antenna tuner which now covers 160 metres, and in the improved cooling for the final which allows a longer duty cycle for RTTY. The most striking improvement in the 940 is in the tuning, memory and frequency selection areas. On the 930 this was limited to amateur band selection buttons, 1 MHz up/down selection and the eight position memory switching. All of this has been replaced with a multi function keyboard.



Keyboard.

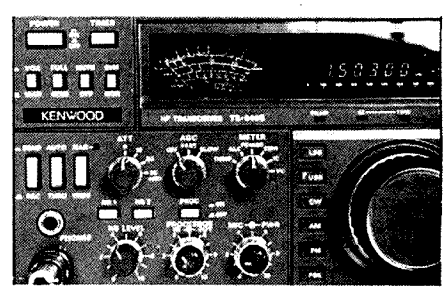


Controls within the Top Hatch.

Let's look at this in some detail. Ten band/key buttons allow instant selection of each amateur band with two buttons for 10 metres at 28 and 30 MHz. When in the memory mode these same ten buttons select memories one through ten in any one of the selected four memory banks. There are now a total of forty memories.

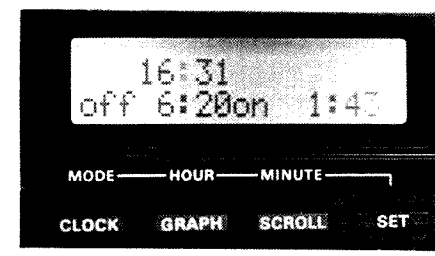
The four memory banks are selected by a switch through the top hatch. Unfortunately the memories are not tunable. They can be shifted up to +/– 9.9 kHz with the RIT, but if a greater range is required, the memorised frequency must be transferred to VFO A or B which you then lose. Memory scanning works well with a 5 second hold on each memory as the scanning proceeds.

Finally, the same ten buttons can be used as a direct entry keyboard to provide direct access to any required frequency. 1 MHz up/down keys are also available.

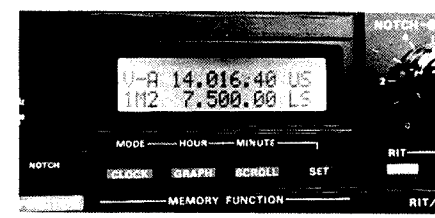


Mode Selection Buttons.

Six mode selection buttons to the left of the tuning control replace the old style rotary switch of the 930. As each mode is selected, a small indicator lights and the mode is signalled in Morse code — 'L' for LSB, 'U' for USB, etc. To the right of the VFO knob are five VFO controls and the voice frequency readout selection button. That is another of the new features of the 940. Along with the Morse code identifier this will make operating much easier for sight impaired amateurs. A voice readout is an optional extra. Eight memory controls are arranged above the keyboard,



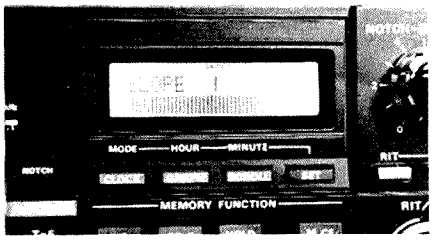
Clock Display.



Frequency Readout.

which allow for memory entry and recall, VFO to memory and memory to VFO transfer as well as memory scan.

Next is the Sub Display, simple name for an LCD display that imparts more information than anything seen before. Let's run through what it displays. A twenty four hour clock, on/off times for unattended switching of the transceiver mains power, frequency in the VFO not being used at the time, ie it displays VFO B if VFO A is in use. It displays, in turn, all the frequencies stored in memory and gives a graphical display of the status of the SSB slope tune and also the CW VBT. It indicates when the auto antenna tuner has been selected, when it is tuning, when it has completed tuning, and whether a match is possible or not. Selection of the various display functions is selected by the four buttons under the display except for the antenna tuner display which appears when the auto tuner is activated.



Slope Status.

SSB and CW tuning rate remains the same as the 930 with one knob revolution for 10 kHz shift but on AM and FM this is changed to one knob revolution for 100 kHz shift. I feel that this is too fast and that perhaps a 50 kHz rate might have been better.

It has been reported in some magazine previews (not AR) of the 940S that transmitter power output is 250 watts. However as we shall later see the output is around 100 watts and the INPUT is claimed to be 250 watts.

Antenna Readout.

Some of the other handy additions to the 940S include switching of the digital display to either 100 or 10 Hz resolution and the analogue slide rule frequency indicator under the digital display to either 1 MHz (where it was on the 930) or to 100 kHz.

Power Output Meter.

The power output meter, which is quite accurately calibrated in watts, now also indicates PEP output on SSB. I found the meter needed a bit more damping when reading PEP but at least this is a start.

Numerous facilities are available on the rear panel, although like the 930, they are a bit hard to get at. The IF output socket is now directly compatible with the SM-220 monitor scope and providing the 220 is fitted with a BS-8 adaptor the band display feature can be used.

On the cosmetic side of things, the S meter colour scheme has been changed. It now has a black background which I rather liked but a 930 owner, who tried the 940, preferred the light coloured meter on his rig.

As 930, the 940 has two cooling fans, one for the power supply and one for the transmitter's final amplifier. The power supply fan tended to operate quite a bit during receive-only operation. The noise produced was quite audible although not all that obtrusive. In fact I noticed more when it had switched off. The final amplifier fan was much quieter and only came on after several minutes of transmission.

The 940 RIT/XIT control deserves a mention. The offset required can be preset to any required amount up to +/-9.9 kHz by rotating the continuously variable control. Push the RIT button and there you are. Push the RIT button again and the receiver is back on the original frequency with the offset frequency still preset and available. Pushing the clear button resets the RIT offset to zero.

Rear panel facilities have been increased and now include two accessory sockets for a computer interface and for the connection of data communications.

CIRCUIT DESCRIPTION

The TS-940 is a triple conversion circuit for transmit and also for the FM receive mode. Other receive modes include one extra conversion down to 100 kHz which includes a most effective notch filter.

The conversion set is: first IF at 45.05 MHz, output from the synthesiser at 45.08 to 75.05 MHz which converts the incoming signal to 30 MHz for the first IF. Second IF is 8830 kHz, and it is at this frequency, common to most Kenwood HF equipment, where the main IF shaping filters are located. Third IF is 455 kHz. The transmitter balanced modulator is at this frequency and a separate 455 kHz IF strip comes off at this point for FM reception.

Output from the synthesiser is in 10 Hz steps for SSB and CW and 100 Hz steps for AM and FM operation. Tuning around on AM there were plenty of clicks when tuning across strong signals as the synthesiser changed frequency. In this respect the 940 is very much inferior to the 930. The variable bandwidth controls operate at the second IF frequency and employ two variable carrier oscillators at 8.83 and 8.375 MHz. The noise blanker also operates at this frequency and uses a four diode switch ahead of the main filters.

It is interesting to note that the specified selectivity of the 940S is rated at 2.4 kHz at -6 dB and 3.6 kHz at -60 dB as against 2.7 and 4.0 kHz for the 930S. In a side by side test there was no detection of any difference in the two transceivers.

The RF output from the solid state transmitter output stage is diode switched to allow the full break in CW operation.

TS-940S ON TEST

The following equipment was used to produce the test figures. A Yaesu YP150 terminating watt meter, Drake R-4 through line watt meter, Kenwood SM 220 monitor scope, AWA F242A noise and distortion meter, Daven terminating audio output meter and Marconi TF995A/5 signal generator.

Frequency Stability

The stability of the 940 is most impressive. It was checked against VNG, WWV and several broadcast stations over long periods and under various ambient temperature conditions. It is really hard to be sure that the 940 drifts at all but if it does, the total would be under 20 Hz. If this type of performance does not satisfy, an optional high stability master oscillator is available which claims a long term stability of +/- x 10-6/year.

Power output

As mentioned earlier, some previews of the 940 have indicated that the power output has been increased to 250 watts. Not so, but the input is claimed to be 250 watts and the output is around 100 watts.

Power was measured under CW conditions with full drive, referenced to the PEP output as indicated on the monitor scope. For good measure a two tone test was carried out.

Band	CW output	PEP output from scope	Two tone output x 2 to give PEP
1.8MHz	127 W	130 W	110 W
3.5 MHz	127 W	130 W	110 W
7.0 MHz	127 W	130 W	110 W
10.1 MHz	126 W	130 W	110 W
14.0 MHz	124 W	135 W	105 W
18.0 MHz	124 W	130 W	105 W
21.0 MHz	124 W	130 W	105 W
24.5 MHz	123 W	125 W	105 W
28.5 MHz	123 W	125 W	100 W

While doing these tests, the power output meter calibration on the 940 was checked. With steady carrier, the 940 meter was 10 percent low compared to reference meters. Under PEP conditions it was hard to arrive at an accurate estimation due to the rather fast ballistics of the meter. Perhaps Kenwood might consider the addition of a hold circuit or even a simple increase of the meter decay time.

The scope pattern indicated a very clean output at all times even with large amounts of speech processing in use.

The power control allows the operator to reduce output in all modes to about 5 watts. This can be easily monitored with the power output setting of the 940 meter.

Subjective tests of the transmitted audio quality was carried out in the three available modes. SSB quality was rated as very good with an actual perceived improvement with the processor in use. Many critical amateurs have noted the distinctive quality of the TS-930. It's pleasing to report the 940 retains the same sound. AM quality was smooth and clean particularly with the optional MC-60A microphone in use. But the big surprise was the superb quality of the FM mode. Over a given path, the FM gave much better quality and signal to noise ratio than either AM or SSB. Why don't more amateurs use this mode on the wide open spaces of the 10 metre band?

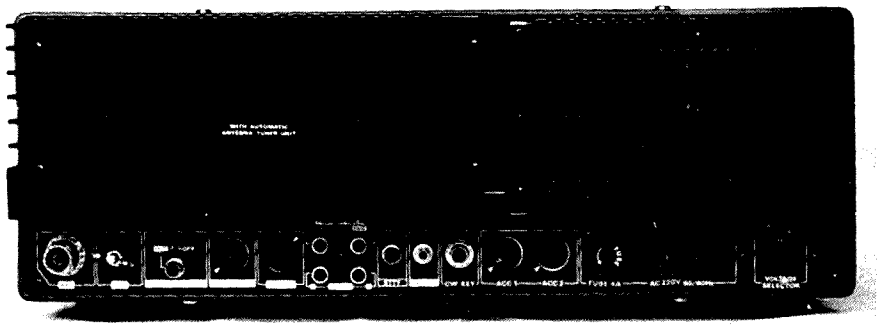
Receiver Tests

The extension speaker output was connected to the terminating audio power meter and the noise and distortion meter. An 8 ohm load was selected. Residual noise with the audio gain at zero was -55 dBm unweighted and -52 dBm weighted. This is a reasonable figure, better than many transceivers but well down on the best (the FT-102). Audio output power and distortion were:

Output Power	Distortion
.5 watts	1.6%
1.5 watts	1.6%
2.0 watts	3.5%
2.5 watts	13%

While these figures are reasonable and representative of modern amateur equipment, I often wonder why a transceiver of this class doesn't have 10 or 15 watts audio output. Surely the cost of producing 10 watts would be very little more than 2 watts but the improvement in recovered audio could be substantial.

Received audio response in LSB was checked by



Rear of the TS-940S.

tuning across the signal produced by the 940 internal crystal calibrator. The results were:

100Hz	200Hz	300Hz	400Hz	1kHz	1.5kHz
-10	-2	-.5	0	0	-1
2kHz	2.2kHz	2.5kHz	2.7kHz	3.0kHz	
-3	-4	-5	-7	-26dB	

While this is very smooth, it shows that the carrier is set a little too close to the filter skirt. A slight adjustment would give a better HF response, although as shown above in the transmitter tests, this is not all that bad.

Frequency response was also checked in the AM reception mode.

100Hz	200Hz	350Hz	700Hz
-10dB	-4dB	0dB	0dB
1kHz	2kHz	3.5kHz	5kHz
0dB	-3dB	-12dB	-22dB

The fall off is surprising at the low frequency end, however feeding a good quality speaker the audio was clean and quite acceptable.

The action of the SSB slope tune controls were checked and should be referred to the overall response figures above.

SSB slopes tune, high. Control at centre (12 o'clock) point.

1kHz	1.5kHz	2.0kHz
0dB	-1dB	-20dB

Control full on (7 o'clock) point.

1kHz	1.25kHz
-13dB	-26dB

SSB slope tune, low. Control at centre (12 o'clock) point.

400Hz
-20dB

Control full on (5 o'clock) point.

1.1kHz
-20dB

The notch filter was checked at four points through the audio range. It was able to produce a -30dB notch at 1kHz, 2kHz and 2.5kHz and a notch of -25dB at 500Hz. The notch was very sharp and its action had very little effect on the received audio quality. There was no overall drop of the received audio level as often happens with these devices. The notch filter can be used with equal effectiveness on all received modes.

The CW VBT (variable bandwidth tuning) operation was measured. No optional CW filter was fitted to the review transceiver and from the results obtained only the most dedicated CW operator would probably require one. Two are offered as options.

With the VBT at normal the band width was 2kHz at the -20dB points, but with it at narrow was reduced to 800Hz at -20dB points with an overall drop of 10dB in the actual audio output.

Receiver signal to noise ratio was next measured. This was checked at two frequencies.

At 14.2 MHz LSB.	1 uV	20dB
	.2 uV	10dB
	.1 uV	5dB
At 28.2 MHz LSB.	1 uV	22dB
	.2 uV	5dB
	.1 uV	2dB

FM quieting was measured at 14.2 MHz and turned in a remarkable 27dB. AGC action was also checked at 14.2 MHz. The signal generator output was slowly increased and the audio level monitored. From 1 to 10 uV there was a 7dB increase in output. From 10 uV to the maximum output of the generator the increase was less than .5dB. AGC decay time from S9 (100 uV) was 10 seconds with slow decay and 2 seconds with fast decay. The AGC was very smooth acting in all modes with no hint of pumping or clicking.

The S meter calibration was checked at 14.2 MHz with the following results:

S 0 — 2dB	S 6 — 4dB	9+20 — 8dB
S 2 — 2dB	S 7 — 4dB	9+30 — 9dB
S 3 — 6dB	S 8 — 3dB	9+40 — not checked
S 4 — 4dB	S 9 — 9dB	9+60 — not checked
S 5 — 5dB	9+10 — 8dB	

It took a signal level of 2 uV to reach S1 and S9 was calibrated at 100 uV. Apart from its reluctance to move off the stop with relatively weak signals, the action of the S meter was very good. You might find quite a few S0 readability 5 signals though.

The increase in the noise floor with an adjacent S9 signal was checked. With 3kHz separation the noise came up 1.5dB with the adjacent signal increased to S9+20dB the noise rose to 14dB. With 5kHz separation these figures decreased to 1 and 8.5dB respectively.

Tuning the receiver from 30 MHz down to 100kHz, a time consuming job, revealed a total of 22 birdies. Of these, only six reached an equivalent input of .2 uV. All of the others would be lost in the noise with an antena connected. Below 500kHz several gurgles were noted possibly eminating from the digital display. Again these were not audible with an antenna connected.

It was noted, during the transmitter tests, the SWR meter was indicating 1.3 : 1 when feeding a 50 ohm dummy load.

No tests were conducted to determine losses, if any, in the auto ATU. Most of the time it was not used during on air tests but a quick evaluation with a trap verticle well off its resonant frequency showed that a 3 : 1 SWR could be easily corrected.

INSTRUCTION BOOK

From an operational point of view, the sixty page instruction manual is well presented. There are three pages devoted to a description of the circuit and three more to basic adjustments and maintenance. The installation of the optional filters, auto antenna tuner and voice synthesiser is also covered.

With a transceiver of the complexity of the 940, operating instructions are of great importance. Each mode of operation is explained with a two page spread showing the operation of each control that is used with that particular mode. Several pages are devoted to memory entry, recall, scanning and direct keyboard entry. Also supplied with the review transceiver was the optional service manual. This consists of 108 pages of technical and service data. I am not sure if a copy of this is supplied with each TS-940. If not, I would recommend that a new owner should invest in one.

SUMMARY

The quickest way to sum up the 940S is to say that it has the lot. Of course if you require a mobile or portable transceiver then one of the smaller, lighter transceivers will perhaps suit better. For home station use it is hard to imagine a more complete rig or how Kenwood are going to improve on this transceiver in the future. Facilities offered are second to none and the overall performance is excellent in all respects.

The TS-940S used for this review was supplied by Trio-Kenwood (Australia) Pty Ltd and all enquiries regarding price and delivery should be addressed to them or one of their authorised local dealers.

EVALUATION AND ON AIR TEST OF THE KENWOOD TS-940S — Serial No 5100619

APPEARANCE
Packaging
*** Strong carton with foam inserts.*
Size
**** Large*
Weight
**** No lightweight (20kg) but everything self contained.*
External finish
***** Superb finish.*
Construction quality
**** Good quality boards and components. Accessibility seems fair.*

FRONT PANEL
Location of Controls
***** With 64 separate controls, layout excellent.*
Size of knobs
**** All frequently used knobs bigger than average.*
Labelling
***** Clear labelling. Mode selection also identified in CW tone.*
Status indicators
**** Most functions well indicated.*

VFO ACTION
Tuning knob
***** Large and smooth action.*
Tuning rate
**** Well chosen for SSB and CW. Too fast for AM and FM.*
Digital readout
***** Would have to be the best available.*
VFO stability
***** Impossible to fault. High stability optional oscillator makes it better.*

RECEIVER OPERATION
Memories
**** 40 available with mode storage, but only 10 at one time. Memories not tunable.*
Slope tune
***** Both high and low end independently variable.*
Notch filter
***** One of the best. Sharp notch with little effect on received audio quality.*
CW VBT
***** Gives excellent CW selectivity without the use of special CW filters.*
CW pitch and tune
***** Selects required CW pitch and changes bandpass tuning to suit.*
Spurious responses
**** Quite a few throughout tuning range but all very low level.*
S Meter
**** Sluggish at low signal level. Otherwise good — see test section.*
AGC performance
***** Excellent response — see test section.*
Signal handling
***** No sign of overload.*
RIT/XIT
***** +/- 9.9kHz on both transmit or receive (selectable) separate offset readout. Main digital display also follows.*
Sensitivity
***** Excellent — see test section.*
RF attenuator
**** 10, 20 and 30dB-handy for checking S meter.*
RF gain
***** Smooth progressive action.*

NOISE BLANKER
Woodpecker
**** Better than most. Very effective when pulses are sharp and clean.*
Ignition noise
***** Cuts it dead.*
General electrical Noise
**** Very good with most types of domestic noise.*

QUALITY OF RECEIVED AUDIO
Internal speaker
** Better than usual quality from upward facing speaker.*
External speaker
NA Matching speaker available as option. Quality very good on my usual station speaker.
Headphone output
**** Stereo phones compatible. Output level ideal.*
Cooling fan noise
** Power supply fan often runs during receive. Quite noticeable but not intrusive.*

TRANSMIT OPERATION
CW and PEP output
**** Output very flat from band to band. See test section.*
Audio response
***** Very smooth quality on all modes.*
ALC action
***** Most effective. No flat topping even when overdriven.*
Compressor
***** Really adds some punch to speech with no audible distortion.*
Metering
***** Compression, ALC, Power in watts, auto SWR, IC and VC (PA stage metering).*

Relay noise
**** None!
VOX operation
**** Very smooth and of course no relay noise.
CW operation
**** QSK (full break in) available. Should suit the most ardent CW operator.
Cooling
*** Two fans, one for power supply, one for final amp. Runs cool at all times.

MANUAL
(Owners handbook)
** Operational information good. Not much else. Workshop manual recommended.

*Rating Code: Poor * Satisfactory ** Very Good *** Excellent ****

AR

Next month the Icom IC-735 All Mode HF Transceiver will be reviewed.

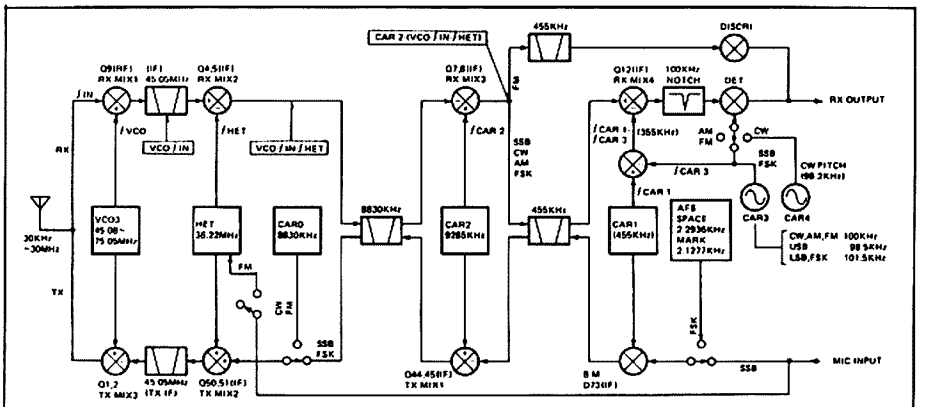


Fig. 1 TS-940S signal channel

75th Nostalgia

THE RIPPLE FROM THE SOUTH

Alf Chandler VK3LC
15 Point Avenue, Beaumaris, Vic. 3193.

The writer first became interested in wireless about 1920, when he was fifteen. He had been listening to Broadcast Station 3UZ on his cousin's wireless set which had been built by George Graham, a celebrity from Brunswick Street, Fitzroy, so the first project was to build a crystal set for myself to listen to the broadcasts. However, living in Beaumaris was a bit far for good reception on a crystal set so the next step was to build a one valve set.

By 1923 the equipment had advanced to a three valve set detector and two audios using 201A valves which I used to receive Madame Melba's opening of 3LO. My father ran a guest house which had a large hall and billiard room and it was in this hall that the wireless set became installed so the neighbours could come and listen to this new fangled set-up. Unfortunately, it was not realised that a hall full of people would dampen the reception and it was necessary to be quite near the set to hear anything.

In 1924, having left Scotch College and working in the guest house I decided it was time to learn more about wireless and perhaps go to sea as a wireless operator; I took a correspondence course in Wireless Telegraphy with the Marconi School of Wireless. A valve set was constructed to listen to VIM and ships in the bay on 600m. This set used three honeycomb coils inductively coupled on hinges, and 201A valves. A gramophone with records of Morse code was also attained which assisted the learning of the code.

After about eight months, a call was received to attend the school in Melbourne and complete the course, and in 1925 their exam was passed for 20WPM Morse, theory and practice.

For the practical exam we had a rotary gap spark transmitter in the basement at Queen Street, power is forgotten but there was a ventilator above into the footpath. (When the key was pressed, passersby would get the fright-of-their-lives!) There was a fault in this transmitter and I was asked to find it. What a fault! A piece of paper had been placed between the contacts of the key.

After the exam, the instructor lined the class up (about six or eight lads) and introduced us to a fellow who said, "I have a job for one of you, whoever steps out first gets the job." I was first out and started employment with Crystal Clear Radio on the corner of Bourke and Swanston Streets. After about nine months an offer was made to join a tramp steamer plying from Darwin to Broome as a Wireless Operator/Purser. Being only 19 at the time and not being too versed in the ways of the world, the offer was declined and I remained with Crystal Clear until their demise in 1927.

An experimental licence was applied for in 1926 with the call sign 3WH being allocated. I then became quite active with CW on the 30 and 80 metre bands. Trevor Evans 3NS initiated me into the "Rag Chewers Club" in 1927.

Upon joining the newly formed Victorian Radio Transmitters League (VRTL) in 1927 as Communications Manager I met with Jack Kling 3BJ, Harry Clift 3HC, Bill Gronow 3WG, Geoff Frew 3PM, Allan Reid 3JR, Chris Rainbow 3CR, Bill Martin 3MJ, Leo Paul 3LP, Bill Seivers 3CB, Charlie Whitelaw 3BH, Ron Jardine 3PR, Col Chirnside 3WQ and many others. This organisation, a branch of the Australian RTL with Mat O'Brien 4MM as President and Leo Feenaughty 4LJ as Secretary, was a break-away group of members who were disillusioned with the WIA at that time.

I joined the WIA in 1928 when, after a meeting between the secretaries of the WIA and ARTL, the two bodies merged with the WIA retaining its identity and the ARTL being totally absorbed. This meeting was ostensibly to present 3WH with a pennant as winner of an 80 metre contest.

After being a member of the WIA Airforce Reserve for some years, resigning in 1937, I enlisted in the RAAF in October 1940.

Training was done at Point Cook and after passing out parade posting was to Ballarat, No 1 WAGS (Wireless Air Gunners School) mustered as Wireless Operator Ground. After many promotions a posting came through to Townsville and then to Cairns in charge of signals at the Radar Zone Filter Station.

In October 1945 I was discharged from the RAAF and it was to be another ten years before amateur radio became an interest again. It was during a reunion of WAGS personnel when Fred Bail, Roth Jones and Peter Lemprierre were talking of what they were doing on 20 metres, that the bug bit again. An application was made for a call sign and VK3LC allotted, a call sign which is still heard quite frequently today.

FOOTNOTE:

From 1963-1970 Alf was a member of the WIA Publications Committee, firstly as Circulation Manager and subsequently as Magazine and Publications Manager.

In 1967 he became Intruder Watch Co-Ordinator for VK3, a position he held until 1970 when he became Federal Intruder Watch Co-Ordinator. In 1975 the IARU were in need of a co-ordinator and Alf filled the bill, a position he retained until 1982.

Awards presented to Alf in recognition for his services to amateur radio are:

1978 — the Ron Wilkinson Achievement Award 'In recognition of outstanding achievement in the field of Intruder Watch activities'.

1983 — a silver medallion 'For meritorious service to the Victorian Division of the WIA'.

1984 — a silver plaque which reads 'Our appreciation to AWH Chandler VK3LC for his long term (1975-1982) contribution to the Association as Regional IW Co-Ordinator. IARU Region 3 Association'.

AR

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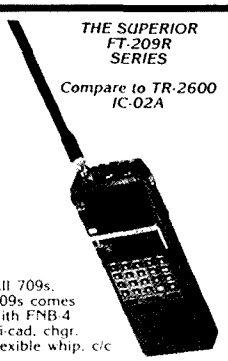

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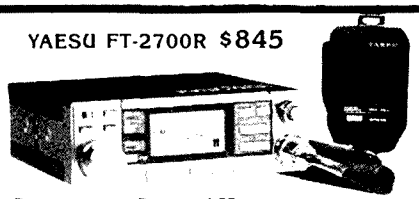

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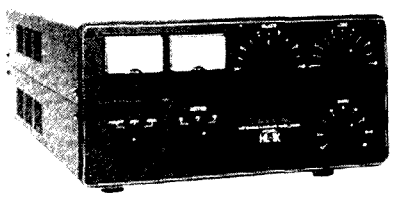

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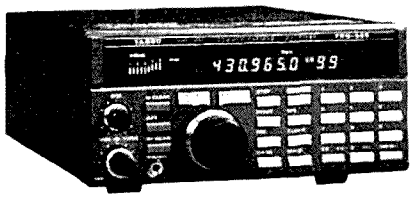

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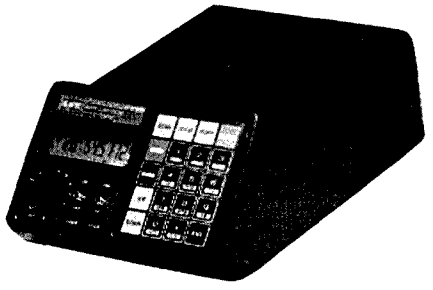

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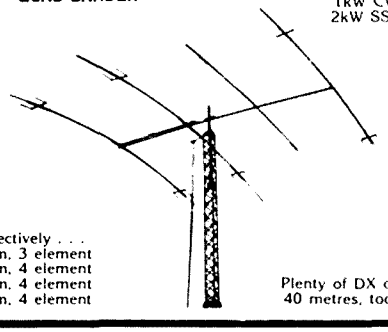

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1985 FEDERAL CONVENTION

The 49th Annual WIA Convention was held in Melbourne from the 26th to 28th April 1985. Federal Councillors and Alternate Federal Councillors from all Divisions attended. Observers were present from VK3 and VK5. All members of the Executive were in attendance, along with several Federal Co-ordinators and members of the Federal Technical Advisory Committee.

The Executive, elected to serve for 1985, is as follows:

President *David Wardlaw VK3ADW*
Alan Foxcroft VK3AE
Earl Russell VK3BER
Peter Wolfenden VK3KAU
Michael Owen VK3KI
Ron Henderson VK1RH
Ross Burstal VK3CRB
Jack O'Shannassy VK3SP
Bill Rice VK3ABP
Gordon Bracewell VK3XX.

The President, David Wardlaw, opened the Convention by welcoming the delegates and asking the Convention to stand for one minutes silence in memory of Peter Dodd VK3CIF, the first full-time Secretary/Manager of the Institute.

The Convention then moved on to the Reports of Federal Officers (some 17), the President's Report is reproduced later in this article. Other reports of note were: the Report of the IARU Officers which dealt with the continuing problems of the IARU Constitution and 10MHz narrow band usage.

The Convention endorsed the Constitutional amendment proposals to be discussed further with the ZL IARU representative at the NZART Conference. The conflicting needs of the 10MHz band plan were discussed, the value of voice modes, in our geographical isolation was acknowledged, but the International recommendations should be observed. The Convention agreed to qualify the Australian band plan in the respect that narrow band usage be adopted for communications beyond the Australian call areas.

The Treasurer's Report gave an overview of operations in conjunction with the Auditors figures and some form of indexing the reserves of the Institute was agreed.

The Editor made the delegates aware that Amateur Radio was being produced within the budget predicted and there was spirited discussion on the subject of the type size. The questionnaire, which members received with this year's subscription renewal, had proved a useful exercise. Members of the Publications Committee were still to study the final Report.

After discussion of the reports, the Convention moved to agenda items:

Minor amendments to the Articles and Memorandum of Association of the Federal body were discussed and agreed unanimously. These changes are before the Corporate Affairs Office (Victoria) for agreement.

The rationalisation of the VK0 and VK9 call areas were discussed and it was agreed that the Executive should approach the Department of Communications at its next Joint Meeting. As examples of the proposal, VK0H . . would refer to Heard Island and VK9X . . would refer to Christmas Island.

The WICEN calling frequencies as published in Amateur Radio were adopted.

A proposal to remove the age limit on licences was discussed and it was agreed that representations to the Administration should be made that licences be issued in respect of ability to pass the required examination.

The position of HF beacons was debated and the IARU representatives given guidance to take the IARU Region 111 Conference in November.

It was agreed to create a Trust Fund for the training and assistance of potential amateurs in the developing islands of Region 111. The funding of this Trust to consist solely of donations/bequests from members.

The mechanism of band planning was discussed and agreed upon, this motion was to ensure that hasty decisions would not be made.

The Convention decided that the Divisional subscription table would no longer be printed in Amateur Radio or any other publication in the future, as the differential in subscriptions shown in the tables as printed, did not clarify the different services offered by each Division.

A motion to frequency restrict contests, as carried out by some other Societies, was discussed at length — the final agreement being that the Federal Contest Manager could restrict the frequencies used in contests at his discretion.

The Convention discussed the policy with regard to Packet Radio. It was agreed that the matter of Protocols should not be included in the policy statement when issued as it was felt that by recommending protocols experimentation could be inhibited. The policy statement should only address itself to Regulatory and Operational requirements. The Federal Technical Advisory Committee was tasked with raising a draft policy for discussion.

This is a very brief outline of some of the items discussed and voted upon, if you require more detail, please contact your Federal Councillor.

PRESIDENT'S REPORT — 1984/85

75TH ANNIVERSARY

The WIA, the world's oldest national amateur radio society, is 75 years old this year. Naturally the Executive has spent a reasonable amount of its time in ensuring that this Anniversary will be adequately celebrated.

A 75th Anniversary Co-ordinating Sub-committee, chaired by Jack O'Shannassy VK3SP, was created at the first meeting of the Executive for the year. Other members of the Committee are Peter Wolfenden VK3KAU, Jim Linton VK3PC, Earl Russell VK3BER, Greg Williams VK3BGW, Max Hull VK3ZS, John Hill VK3WZ and Reg Macey. Thanks must go to this Committee for all the hard work they have put in.

All Divisions are participating in Anniversary activities which have been well publicised in Amateur Radio.

Australia Post will be issuing a pre-stamped envelope in recognition of our 75 years of existence. Max Hull, a past Federal President, and the present Federal Historian, has been a major force in this achievement. I must admit that we had originally hoped for a commemorative stamp, but, as explained by Australia Post, we unfortunately did not meet the criteria for the issue of a special stamp.

In November there will be a special Anniversary Dinner — a very important guest being Dick Butler, the Secretary-General of the ITU.

A special Anniversary Call-sign, VK75A, has been authorised by the Department of Communications. The issue of this call-sign was a special and important gesture by the Department of Communications in recognition of our 75 years of existence.

The CW Contest will already have been held, and there is to be a National "Foxhunting" Contest.

COMPUTER "IN HOUSE"

In accordance with a resolution of the last Federal Convention, the WIA has purchased its own computer at a very competitive price, and like most other users of new computers, has run into the usual teething troubles. However at the time of writing this report it appears that all problems have been resolved. The computer is a Dual Processor 8/16 bit Cromemco System One.

RADIO COMMUNICATIONS ACT

The Radio Communications Act was passed in September 1983, but at the time of writing this Report, still has not been proclaimed. Naturally there will be a new set of regulations under this Act, and I am pleased to report that the WIA was offered every opportunity to comment on various drafts of the Radio Communications Bill and was successful in having most of its comments acted upon.

The value of the ability to be able to input material during the drafting of the Bill is almost impossible to estimate. We, in Australia, are lucky to have such good liaison with our DOC.

The length of time it has taken to proclaim the new Act has led to problems with the Amateur Operator's Handbook. Copies of the old book have run out and more are needed for exam candidates. DOC proposed that an interim update be produced to provide information for exam candidates. Even without the new Act there are a number of changes that arise from concessions gained by the WIA since the last revision of the Handbook in 1978. Also there are a number of changes due to WARC 79, not only in frequency bands but also in the classification of emissions. DOC put pressure on the WIA to produce comment on their draft of this interim handbook. With very little lead time the Divisions rose to the occasion and provided the CASPAR Committee with comment at very short notice.

The CASPAR Committee prepared a comment based on a limited life temporary Handbook. As many of the comments from the Divisions also contained matters that could well be applied to a complete revision of the Handbook, they were, at that stage, put to one side for future use. Time went by and no action on printing by the DOC. In the meantime CASPAR was charged with looking at the existing regulations under the Wireless Telegraphy Act and their relevance to existing practices and privileges of amateurs. Further discussions with DOC made it apparent that a much more detailed revision may take place and that the old book will be reprinted as a stop gap. CASPAR luckily has a deal of material on hand for further negotiations.

DUAL CHANNEL TV SOUND CH0. CH5A

The introduction of dual channel sound for TV broadcasting in Australia is a matter of grave concern to the WIA. This is because the occupied bandwidth will be greater than the 7MHz allocated channel width and TV channels are adjacent to our 2 VHF bands. The WIA has exchanged correspondence with the Minister and we feel his replies are not completely satisfactory, particularly with reference to prior consultation, and also the apparent new method of frequency planning on the 'give and take' principle. However, one item of good news is that there is a sunset on Ch5A albeit somewhere in the future.

The extension of the use of Ch0 by the SBS — although a problem for those 50MHz operators in South Australia and Tasmania, who had hoped for more liberal use of the low edge of the 50MHz band — gives the public more time to learn about UHF, while keeping other new TV stations from

obtaining access to Ch0. The Minister has pointed out the reception problems of Ch0 stations and says it is unsuitable for metropolitan areas. However, it still remains an Australian TV allocation. SBS will cease using Ch0 from December 1985.

The DOC was aware of our concern about the possibility of additional interference to amateur stations by TV stations using dual carrier sound on TV channels adjacent to our band, and requested a meeting to specifically discuss the subject.

It was said that offsets could and probably would be used which would prevent any increase in interference to amateurs from dual carrier sound as used on Ch5A and CH0.

ATV on 576MHz

With the increasing usage of the UHF band for TV the 576MHz temporary allocation to amateurs could be in jeopardy. A submission has been made to the Secretary of the DOC outlining a number of alternatives which would allow ATV continued access to this part of the spectrum. One proposition is that as its use is for ATV, the frequency need not necessarily be uniform throughout Australia. To date we know the submission is receiving attention within DOC.

IMPORT DUTY

The importation of amateur transceivers under by-law entry continues where the technical expert advisers to the Institute certify that the specific equipment will not transmit on other than amateur bands without substantial modification. This requires the certification of individual batches of equipment. In order to cover costs a fee is charged which, as was indicated in the original announcement of the scheme, is not waived. The scheme certainly poses problems for the individual amateur importer, but at the time the scheme was considered to be a compromise that would provide benefit to the greatest numbers.

When the Radio Communications Act is proclaimed it would appear that a new set of conditions would apply which should change the WIA's involvement.

PHONE PATCH

On the matter of phone patch Telecom would not waive the $2.00 per month charge, but there would be no timing charge for calls from amateurs.

EXAMINATIONS

The WIA and the DOC are closely co-operating in the examination area. We have been asked to give assistance in the preparation of material for examinations and are in a position to monitor standards. The DOC has expressed their gratitude as to our assistance, particularly as they wish to make it as easy as possible for candidates to sit for all parts of the examinations and thus require many more different papers to be available. Of course the overall responsibility for the exams in all aspects lies with the DOC.

The DOC has now formalised its arrangements for testing amateurs who so desire at higher Morse code speeds — a fee of $20.00 is to be charged and a formal letter accreditation will be provided.

JOINT MEETINGS

The WIA and DOC continues to hold their regular quarterly joint meetings, at these meetings agreement and clarification has been reached on many subjects. The DOC has agreed that there will be no difficulty in these meetings continuing in Melbourne even after the transfer of the remainder of central office staff to Canberra.

AMATEUR SATELLITES

During the year there will be an ITU World Administrative Conference to deal with planning the Geostationary Satellite Orbit. The Agenda for this conference covers all satellite services including the Amateur Satellite Service.

A CCIR Conference Preparatory Meeting produced a report which makes no suggestion to alter the conditions applying to the Amateur Satellite Service. There is remote possibility that the Amateur Satellite Service could be swept up in some broad Satellite regulations which are not appropriate to the Amateur Satellite Service. The WIA is in contact with members of the Australian delegation, and has indicated our concern as to this possibility. The IARU will be represented at the Conference.

STANDARDS

During the year the WIA became a contributing member of the Standards Association of Australia and is represented on Committee TE3 by Alan Foxcroft VK3AE, who chairs the working group on immunity. Dick Huey VK2AHU and Jim Lloyd VK1JL are also involved in helping the WIA on Standards Association matters in a number of areas, including the Standard involving non-ionising radiation.

PACKET RADIO

During the year the implications of packet radio have been studied by the FTAC with submissions having been received from a number of sources. (The DOC has also shown some interest in this aspect of amateur radio). The matter of protocols seems to have caused some controversy but this is not an important regulatory issue so much as an internal amateur issue. To date the approach is to leave as much self regulation as possible within the understood bases and purposes of the amateur service. No doubt much more will be heard on the subject in the future.

THIRD PARTY TRAFFIC

The Institute has requested that DOC conclude third party agreements with at least the same countries that have agreements with Canada and USA. The replies received so far have not been very helpful.

AMATEUR ADVISORY COMMITTEES

On studying the WIA submission on Amateur Advisory Committees, the DOC replied to us in the following manner:

While the Department recognises the valuable contribution made by AACs to the Amateur Service since their inception, it has been decided that the rigid committee structure should be discounted and replaced with informal meetings. Noting, however, the differing views within the Institute on AACs, the format and timing of these informal meetings will be left open to negotiation between State Managers and the Institute's Divisional representatives. It is considered that this flexible arrangement should cater for individual State requirements and continue to provide a valuable forum for liaison between the amateur fraternity and the Department.

IARU

The matter of an international amateur licence and reciprocal licensing will be the subjects for WIA submissions to the IARU Region 3 Conference in Auckland this year.

At a meeting of the Executive a presentation was made to Alf Chandler VK3LC, on behalf of the IARU Region 3 Association in recognition of his work as Region 3 Intruder Watch Co-ordinator for many years.

The WIA has been invited to attend the NZART Conference in Christchurch this year. This is in accordance with an arrangement made some years ago where one year the NZART would be represented at the WIA Federal Convention and the next year the WIA would attend the NZART Conference and so on. These reciprocal visits have proved to be very fruitful. This year there is the very important issue of amendments to the new IARU Constitution to be discussed. The WIA and the NZART hold similar views on many aspects and a unified approach could vastly help to put these matters across with a great deal more strength.

At the IARU Conference at the end of the year, there are a number of matters, apart from the Constitution, which will be the subject of Agenda items from the WIA. Many of these matters arise out of Federal Council resolutions.

The WIA received a copy of a notice of proposed Rule making by the FCC (USA) which concerned the assignment of a fequency between 7.100 and 7.300MHz for a shortwave broadcasting station on Guam Island, which is administered by USA but is within ITU Region 3 and therefore could have an allocation within this band unlike the rest of the stations administered by the FCC which are in Region 2. In Region 2, 7.100-7.300MHz is an amateur band, not a broadcast band. While understanding the facts of regional allocations the WIA corresponded with the ARRL expressing our worries. A reply from the ARRL has let us know that they have submitted an objection to this Notice of Rule Making. To date the results are unknown.

SPECIAL LEGACY

A legacy of $500 was received from the Estate of the late W Otty. In order that this is not lost in general funds, this legacy will be used to update our promotional material.

DEATH OF PETER DODD

In early March this year Peter Dodd VK3CIF, our first Secretary-Manager, passed away. In his 12 years of tireless service to the WIA Peter was intimately involved in many advances made by the WIA during the period. This year Peter volunteered to assist Max Hull with the preparation of Historic material for the 75th Anniversary. Unfortunately his deteriorating health forced him to relinquish the job.

DUTIES

As Bill Rice VK3ABP is now Editor of Amateur Radio, he felt he could no longer act as Chairman of FTAC, and Peter Gamble VK3YRP has taken over the position.

Gordon Bracewell VK3XX was appointed Chairman of the CASPAR Committee last year. His Committee has been working on the Amateur Operator's Handbook and also the regulations under the Act.

It is with sadness I report the death of our Federal Awards Manager, Hugh Spence VK6FS. Bill Hempel VK4LC has taken over the job.

Thanks to Fred Robertson-Mudie VK1MM for all the work he is doing for the Executive.

This year we have a new Contest Manager, Ian Hunt VK5QX a well-known Contester and past President and Federal Councillor of the VK5 Division, I thank Ian for taking on this difficult job. In his report, Ian is putting a number of matters to the Federal Council. A postal motion on several contest matters was deferred until the Convention as Article 44 of the Constitution was invoked.

For the first time in the history of the WIA a member of the Executive, Ron Henderson VK1RH lives interstate — this was possible because Ron's work brought him to Melbourne regularly. Ron is also the Federal WICEN Co-ordinator, and took on the task of updating the WIA policy book and has produced an updated listing of WIA policies.

Early this year we lost a hard worker when Tony Tregale VK3QQ resigned from the position of EMC Co-ordinator and as a member of the Executive. Tony has extended a great deal of effort in providing the EMC service for the WIA and our sincere thanks go to him for this.

Alan Foxcroft VK3AE Federal Vice-Chairman, represents the WIA at the SAA.

Jack O'Shannassy VK3SP and Peter Wolfenden VK3KAU have been very busy on the 75th Anniversary Committee.

Earl Russell VK3BER is very much involved with the WIA Computer and office liaison.

Ross Burstal VK3CRB our new treasurer, has capably filled this position vacated by Courtney Scott VK3BNG.

Michael Owen VK3KI is joint IARU Liaison Officer and provides valuable help on constitutional, legal and administrative matters. He is also a director of the IARU Region 3 Association.

Our Intruder Watch Co-ordinator, Bill Martin VK2COP has had some success this year.

In other fields:

Greg Williams VK3BGW, Contest Manager.

Neil Penfold VK6NE, Federal QSL Manager.

Fred Robertson-Mudie VK1MM, Federal RTTY Co-ordinator.

Max Hull VK3ZS, Federal Historian.

John Ingham VK5KG, Federal Video-tape Co-ordinator.

Brenda Edmonds VK3KT, Federal Education Co-ordinator.

John Stevens VK4AFS, Federal Asert Co-ordinator.

Graham Ratcliff VK5AGR, Federal AMSAT Co-ordinator.

Bill Roper VK3ARZ and Ron Fisher VK3OM continue to provide that valuable service, the Federal Broadcast Tapes.

I would like to pay tribute to our Secretary-Manager, Reg Macey and his staff:

John Hill VK3WZ, Advertising Manager (part time).

Mrs Ann McCurdy (part time).

Mrs Helen Wageningin (part time).

OFFICE

This has been a hard year in the office with the acquisition of our own computer, which has necessitated considerable re-arrangement of the office and procedures. Those visiting will appreciate the improvement.

Reg has been a tower of strength to me and I hope you all appreciate the hard work he puts into the job. Reg is the only full time officer, the other staff are employed on a part time basis.

The Federal office has continued to provide support to myself and the Executive and through them to the Divisions and membership as a whole. During the year the Secretary has made further changes to the physical layout of the office as well as giving it a much needed coat of paint. This has given the staff a more amenable working atmosphere as well as providing a better environment for Executive and sub-committee meetings. Some changes were necessitated because of the introduction of the new computer and associated hardware. All office equipment likely to produce distracting noise is now grouped at one end of the office.

Despite the re-arrangement within the office it is still overcrowded and lacking storage space. This is becoming a serious problem and one to which the Executive must address itself in the near future.

The general workload on the office is steadily increasing, in part because of the organisation involved with the 75th Anniversary activities. Much of this extra workload has had to be handled by the Secretary himself, partly because of its nature but mainly because the other office staff are fully occupied with their own regular duties. There is far more work than one person should be expected to handle even though the Secretary regularly writes up minutes of meetings in his own time. The Executive has been able to provide some voluntary assistance to the office to alleviate the necessity to employ temporary staff.

It is anticipated that when the computer system is fully operational this situation will be eased.

Betken Productions continued to contribute to the high standard of "Amateur Radio" this year and by diligent negotiations enabled us to hold our costs down in a number of areas.

It is disappointing to note that there was a slight reduction in the number of members last year. I hope that in this our 75th year we will have a significant increase.

In closing this report I would like to thank all those of you who provided me with such great assistance throughout the year.

DAVID WARDLAW VK3ADW,
FEDERAL PRESIDENT

MEMBERSHIP STATISTICS

All statistics are to 31st December 1984 (previous year in brackets). DOC statistics (as supplied to WIA) refer to licences issued, where WIA statistics refer to individual amateurs.

Table 1

	Total liceaces DOC	WIA licences	% members to total licences	Other WIA members	Total WIA members
VK1	309(321)	215(197)	69	17	232
VK2	4709(4582)	2195(2194)	47	98	2293
VK3	4444(4447)	2206(2106)	50	191	2397
VK4	2502(2402)	1281(1284)	51	46	1327
VK5	1884(1875)	1032(1047)	55	74	1106
VK6	1334(1291)	714(689)	53	37	751
VK7	562(534)	317(322)	56	12	329
Totals	15744(15452)	7960(7743)	50	521	8435

Table 2

Percentage increase/decrease (31/12/84 compared with 31/12/83.

	DOC licences %	WIA licences %	Total WIA members %
VK1	−1	+1	+3
VK2	+1	—	−2
VK3	+1	+1	—
VK4	—	—	−3
VK5	+1	−1	−3
VK6	+1	+1	—
VK7	+1	−1	−2
Totals	+2	+1	−2

Table 3

DOC Licences by grade 31/12/83 to 31/12/84.

	Full	Limited	Novice	Combined	Totals
VK1	182(179)	57(61)	51(59)	19(22)	309(267)
VK2	2622(2510)	831(799)	970(1023)	286(250)	4709(4582)
VK3	2329(2281)	1012(1015)	810(882)	293(269)	4444(4447)
VK4	1332(1255)	331(323)	617(631)	222(193)	2502(2402)
VK5	1062(1029)	292(291)	397(428)	133(127)	1884(1875)
VK6	821(796)	200(182)	227(240)	86(73)	1334(1291)
VK7	328(320)	104(102)	94(82)	36(30)	562(534)
Total	8678(8370)	2827(2773)	3166(3345)	1075(964)	15744(15398)

Table 4

WIA members by Grade.

	F	C	A	T	G	S	X	L	Total
VK1	189	9	17	1	3	7	3	3	232
VK2	971	790	98	65	308	26	28	7	2293
VK3	1272	506	191	49	270	50	39	20	2397
VK4	505	533	46	39	147	11	39	7	1327
VK5	564	267	74	23	13	16	26	7	1106
VK6	399	178	37	21	7	11	25	6	751
VK7	153	96	12	9	4	12	2	4	329
Total	4053	2379	475	207	972	133	162	54	8435

Note: Membership Grades:
F = Full, C = Country, A = Associate, T = Town, G = Pensioner, S = Student, X = Family and L = Life Membership.

APPENDIX 2

Attendance at executive meetings from 17th May 1984 to 18th April 1985 inclusive.

	Attended	Maximum No. Possible
Mr D Wardlaw	13	13
Mr A Foxcrott	13	13
Mr E Russell	11	13
Mr R Burstal	10	13
Mr W Rice	13	13
Mr T Tregale	6	8
Mr J O'Shannassy	11	13
Mr P Wolfenden	10	13
Mr M Owen	7	13
Mr R Henderson	6	13
ALSO ATTENDED:		
Mr R Macey	13	
Mr G Bracewell	5	
Mr P Gamble	8	
Mr B Bathols	2	
Mr C Scott	1	
Mr K Seddon	1	
Mr I Hunt	1	
Mr R. Hartkopf	1	
Mr J Hill	1	
Mrs B Edmonds	2	

DIRECTORS' REPORT

The Directors of the Wireless Institute of Australia submit their report with respect to the profit of the Institute for the financial year ended 31st December 1984 and the state of the Institute's affairs as at that date.

The Directors of the Institute in office at the date of this report are:

Wardlaw, D.A.	VK3ADW	President
Foxcroft, A.	VK3AE	Vice President
Burstal, R.A.	VK3CRB	Honorary Treasurer
Wolfenden, P.A.	VK3KAU	
Russell, E.R.	VK3BER	
O'Shannassy, J.A.	VK3SP	
Owen, M.J.	VK3KI	
Henderson, R.G.	VK1RH	
Rice, W.M.	VK3ABP	

The principal activities of the Wireless Institute of Australia are to:

(a) Represent generally the views of persons connected with amateur radio in the Commonwealth of Australia, its territories and dependencies.

(b) Promote the co-operation between the Divisions in the encouragement and development of amateur radio.

(c) Safeguard the interest of the Divisions and the members in relation to frequency allocations rights and privileges.

(d) Promote the development progress and advancement of amateur radio in all matters in relation to amateur radio in general.

The profit of the Institute for the year ended 31st December 1984 was $18,078 (1983 profit $13,946). No provision for income tax is required as the Institute is exempt from paying income tax under the provisions of the Income Tax Assessment Act.

No dividends have been paid or declared since the end of the previous financial year.

There were no material transfers to or from reserves or provisions during the financial year, other than those disclosed in the accounts.

In the opinion of the Directors the results of the Institute's operations were not substantially affected by any item, transaction or event of a material nature.

The Directors took reasonable steps before the profit and loss statement and balance sheet were made out to:

(a) Ascertain what action had been taken in relation to the writing off of bad debts, and adequate provision to be made for doubtful debts.

(b) Ascertain whether other current assets would realise, in the ordinary course of the business, their value as shown in the accounting records of the Institute, or to see that the unrealisable portion had been fully provided for if not already written off.

At the date of this report:

(a) The Directors are not aware of any circumstances which would render the amount written off for bad debts or the amount of the provision for doubtful debts inadequate to any substantial extent.

(b) The Directors are not aware of any circumstances which would render the values attributed to current assets in the accounts misleading.

(c) There does not exist any charge on the assets of the Institute which has arisen since the end of the financial year, and secures the liability of any other person.

(d) No contingent liability has arisen since the end of the financial year.

(e) The Directors are not aware of any circumstances not otherwise dealt with in this report or accounts which would render any amount stated in the accounts misleading.

No contingent or other liability has become enforceable, or is likely to become enforceable, within the period of 12 months after the end of the financial year which, in the opinion of the Directors will or may substantially affect the ability of the Institute to meet its obligations when they fall due.

In the interval between the end of the financial year and the date of this report no item, transaction or event of a material and unusual nature has arisen that is likely, in the opinion of the Councillors, to affect substantially the results of the Institute's operations for the next succeeding financial year.

No Director of the Institute has, since the end of the previous financial year, received or become entitled to receive a benefit.

The auditors, Messrs Hebard & Gunning, have informed the Institute that following upon an amalgamation of firms they are now practising in the name of Touche Ross & Co. The Directors have agreed to the continuation of their appointment in that name and accordingly the audit opinion for the current year has been issued in the name of Touche Ross & Co.

Signed: D.A. Wardlaw
R. Burstal

Cautfield,
12th April 1985

THE WIRELESS INSTITUTE OF AUSTRALIA BALANCE SHEET AS AT 31ST DECEMBER, 1984

MEMBERS FUNDS	*1984*	*1983*
Retained profits brought forward	$55109	$41163
Net profit for the year	18078	13946
	$73187	$55109

These funds are represented by:

CURRENT ASSETS			
Cash in hand		173	56
Trade debtors	14303		10162
Less provision for doubtful debts	(2000)		(2000)
		12303	8162
Prepayments		1146	0
Stock on hand Note 1(c)		5963	13634
		19585	21852
DEDUCT CURRENT LIABILITIES			
Bank overdraft		1442	(33814)
Trade creditors		2680	4141
Other creditors		2050	0
Provision for annual leave		4313	2063
Provision for amateur satellites		0	2972
Education grant		500	500
Subscriptions in advance Note 1(a)		87011	114034
Deposit VK4		0	500
Accounts payable to state Divisions		20803	41782
Ron Wilkinson Achievement Award		1733	1623
		120532	133821
WORKING CAPITAL DEFICIT carried forward		$100947	$111969
ADD			
FIXED ASSETS			
Office equipment — at cost	35577*		16284
Less accumulated depreciation	(10917)		(6854)
		24660	9430
Furniture & fittings — at cost	1213		0
Less accumulated depreciation	(96)		0
		1117	0
		25777	9430
INVESTMENTS — AT COST			
Australian Resources Development Bank		5800	5800
Short term deposits		142557	151848
		148357	157648
NET ASSETS		$73187	$55109

To be read in conjunction with the attached notes.
** Only two-thirds of total computer amount paid.*

THE WIRELESS INSTITUTE OF AUSTRALIA PROFIT AND LOSS STATEMEMT FOR THE YEAR ENDED 31ST DECEMBER 1984

	1984 $	1983 $
OPERATING PROFIT BEFORE INCOME TAX (Note 2)	18,078	13,946
After charging/ (crediting)		
Auditors remuneration — for auditing the accounts	1,600	—
— other services	— 1,150	—
(No other benefits were received by the auditors)		
Annual leave	7,734	—
Depreciation	4,159	3,306
Interest received — other persons	(14,454)	(14,020)
Income tax expense (Note 1 (d))	0	0
OPERATING PROFIT	18,078	13,946
ACCUMULATED FUNDS 1st January 1984	55,109	41,163
ACCUMULATED FUNDS 31st December 1934	$73,187	$55,109

THE WIRELESS INSTITUTE OF AUSTRALIA NOTES TO AND FORMING PART OF THE ACCOUNTS FOR THE YEAR ENDED 31ST DECEMBER 1984

NOTE 1 — ACCOUNTING POLICIES

Accounting policies which have been consistently applied in the presentation of the financial position and results of operations are in accordance with the accounting standards issued by the Australian accounting bodies. The accounts have been prepared under the historical cost convention, and therefore do not reflect changes in purchasing power of money or, except where specifically stated, current valuations of non-monetary assets.

(a) Subscriptions are accounted for on a cash basis, with the exception of subscriptions paid in advance which are taken up as current liabilities.
(b) Fixed assets are depreciated at the rate of 20% based upon the prime cost method.
(c) Stock on hand is valued at the lower of cost and nat realisable value.
(d) The company is a non-profit organisation, and no income tax is payable for the year ended 31st December 1984.

NOTE 2 — REVENUE

Subscriptions	$185,819
Advertising	48,892
Interest	14,454
Other	23,897
	$273,062

WIRELESS INSTITUTE OF AUSTRALIA DIRECTORS' STATEMENT

In the opinion of the Directors of the Wireless Institute of Australia:

(a) The Profit and Loss Statement is drawn up so as to give a true and fair view of the Profit of the Institute for the financial year ended 31st December 1984.
(b) The Balance Sheet is drawn up so as to give a true and fair view of the state of affairs of the Institute as at the end of the financial year.
(c) At the date of the statement, there are reasonable grounds to believe that the Institute will be able to pay its debts as and when they fall due.

Signed on behalf of the Council
D A Wardlaw
R. Burstal

Caulfield,
12th April 1985

AUDITORS' REPORT TO THE MEMBERS OF WIRELESS INSTITUTE OF AUSTRALIA

We have audited the accounts in accordance with Australian Auditing Standards.

In our opinion:

(a) the accounts are properly drawn up in accordance with the provisions of the Companies (Victoria) Code and so as to give a true and fair view of:
(i) the state of affairs of the company at 31st December, 1964 and of the profit of the company for the year ended on that date;
(ii) the other matters required by Section 269 of that Code to be dealt with in the accounts;
and are in accordance with Australian Accounting Standards.
(b) the accounting records and other records, and the registers required by that Code to be kept by the Company have been properly kept in accordance with the provisions of that code.

Touche Ross & Co.

Signed: A P McGee — Partner
Chartered Accountants

Moorabbin
12th April 1985

DISCLAIMER

The additional financial data presented in the following columns is in accordance with the books and records of the Wireless Institute of Australia which have been subjected to the auditing procedures applied in our statutory audit of the company for the year ended 31st December 1984.

It will be appreciated that our statutory audit did not cover all details of the additional financial data. Accordingly, we do not express an opinion on such financial data, and no warranty of accuracy or reliability is given.

Neither the firm nor any member or employee of the firm undertakes responsibility in any way whatsoever to any person (other than Wireless Institute of Australia) in respect of such data, including any errors or omissions therein however caused.

Touche Ross & Co.
Chartered Accountants

12th April 1985

THE WIRELESS INSTITUTE OF AUSTRALIA DETAILED PROFIT AND LOSS STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 1984

AMATEUR RADIO	1984	1983
INCOME		
Subscriptions	3263	2400
Advertising	48692	46164
Inserts & divisional notes	1564	2484
Sundry income	12	0
	53731	51068
LESS EXPENSES		
Awards	230	0
Bulk posts	24547	21191
Drafting	980	0
Envelopes	5744	0
Printing	53387	74211
Sundries	1105	0
Salaries	26388	20775
Telephone	1370	0
Travel	6203	14869
Typesetting	17167	0
Wrappings	6030	5999
	143151	137845
NET LOSS	$(89420)	$(85977)
GENERAL		
INCOME		
Donations	913	1550
— Other	0	150
— Import duty by-law	0	1400
Interest received	14454	14020
Technical committee	5185	0
Call Book	13688	17101
WIA Book Vol 1	0	86
Subscriptions	182556	172996
Magazines & publications	2050	3082
Sundry income	465	0
	219331	210367
LESS EXPENSES		
Annual leave	7734	2083
Audit and accounting fees	2750	1505
AMSAT	(1505)	0
Awards	24	207
Bank Charges	1302	1092
Committee expenses	1799	3024
Convention expenses	9581	7904
Depreciation	4159	3306
Electricity	761	545
EDP expenses	5450	6500
General expenses	477	1328
Import duty by-law	0	2435
Insurance	1280	1503
IARU dues	3850	4347
Membership recruiting	1632	0
Postage & freight	5618	7577
Printing, stationery & office supplies	5633	4562
PR activity	1164	1324
Rent & rates	5106	4560
Repairs & maintenance	1615	532
Salaries & secretarial	46661	55206
Telephone	1322	1044
Travel	3420	1943
	(111833)	(110444)
NET PROFIT	$107498	$99923
TOTAL NET PROFIT	$18078	$13946

This is the Detailed Profit and Loss Statement referred to in our disclaimer dated 12th April, 1985.

Touche Ross & Co.
Chartered Accountants

INTERNATIONAL NEWS

THE 60TH ANNIVERSARY OF IARU

In every walk of life, achievement results in great part from the ability of leaders to have a vision of the future, from their ability to look beyond today's petty problems and see what might be.

Thus it was that in 1924 Hiram Percy Maxim and the American Radio Relay League (ARRL) realised that amateur radio had become international in scope, and that there ought to be an international organisation, to take advantage of the progress and to tackle the problems that would surely attend such a growth. So in March 1924, Mr Maxim met with a group of talented amateurs in Paris, and made preliminary plans for an international organisation to be known as the International Amateur Radio Union (IARU), with a Congress to be held in April 1925 to effect the permanent organisation. Present at the 1924 meeting were enthusiastic representatives from France, Great Britain, Belgium, Switzerland, Italy, Spain, Luxembourg, Canada and the USA.

During the Easter holidays of April 1925, the amateur radio representatives of 23 countries met again in Paris to officially create the International Amateur Radio Union and to adopt a constitution. The original IARU differed a bit from what we have today, but the goals were much the same — to promote and co-ordinate amateur radio worldwide, to encourage fraternalism and to represent amateur radio at international conferences. In the original organisation, individual amateurs became members of IARU, and Mr Maxim was member number one. While most of the 23 countries represented at the first meeting were from Europe, there were also representatives from North and South America, and from Japan.

On 17 April 1925, the constitution of IARU was unanimously adopted, and on 18 April, at the final plenary session (by which time 25 countries were in attendance), all actions of the organising Congress were approved, and the International Amateur Radio Union was born.

As an aside, it is fascinating to note that two individuals who participated in those 1924/1925 meetings are still alive and are active radio amateurs. One is Dr Giulio Salom I0ACL, operating on the air regularly from his homes in Venice and Rome. He visited the Region 1 IARU conference in Cefalu, Sicily last year, and he is a hale and hearty 82 years of age. Dr Salom is a physical sciences and law graduate, and served for 30 years in the Italian Navy. The other IARU pioneer is Jean Wolff LX1JW, who is a familiar figure at amateur radio meetings throughout Europe and in the USA. He served the US Army with distinction in WW II, and was a member of the Luxembourg telecommunications administration. He, too, is in fine health and is a great source of knowledge about amateur radio throughout the years.

Although IARU started out life with individual memberships, it was later changed to a union of member-societies, and now has 121 national societies as members, with two more applications pending. As a result, IARU represents the international interests of one and a half million radio amateurs.

The history of IARU has been that of gradually increasing effectiveness, and there are clear signs that the effectiveness has increased markedly in the past decade. The Union has grown from one whose emphasis was largely on the issuance of Worked-All-Continents certificates and the reporting of exploits of long-distance communication (DX), to one whose primary emphasis is on the preparation for international telecommunications conferences.

And yet, back in 1925, in the earliest days of international radio regulation of any sort, when international DX was still a rare occurrence, those men of vision who put together the first IARU constitution recognised that preparation for conferences was an important goal for IARU.

It was the continued emphasis on that goal of conference preparation that led to the restructuring of IARU subsequent to 1979, a restructuring that has made IARU more truly international not only in scope but in administration and leadership. Now, the decisions made in the name of IARU are reached by a body — the IARU Administrative Council — which has on it two representatives from each of the three IARU regions.

There are some growing pains when adapting to a new organisational structure, but there is every indication that it is better prepared to handle the next General WARC than it was for WARC-79. IARU has a more truly international leadership, and continue to have the substantial support of ARRL, whose distinguished president, Hiram Percy Maxim, got the ball rolling in the first place 60 years ago.

In the history of mankind, 60 years is but the blink of an eyelid, hardly to be noticed. In the history of amateur radio, 60 years is a long time indeed.

(The above was originally written for the April 1985 issue of QST, the official journal of ARRL, which serves as the International Secretariat of IARU.)

HF BAND PLANS

At its meeting in Paris last July, the Administrative Council of the IARU requested that the Secretaries of the three Regional Secretariats send copies of regionally adopted band plans to the International Secretariat for publication "in a format that will permit comparison".

Here are the band plans for the bands below 30 MHz. The plans that have been adopted for bands above 30 MHz will be presented in the future.

The members of the Administrative Council are to attend the November meeting of the Council prepared to discuss the band plans, with the objective of adopting such internationally recognised band plans as may be appropriate at that time.

The only band plan adopted so far by the Union itself is as below.

21.000-21.150 MHz — Telegraphy only
21.150-21.450 MHz — Telephony (AM and FM) and Telegraphy

This appears, as Rule 8, in the Summary of Miscellaneous Rules (which are still in effect under the new Constitution, pending a review scheduled for the aforementioned Administrative Council meeting).

Region 1

The IARU Region 1 Division has adopted the following band plans:

3.500- 3.800 MHz	*CW*
3.580- 3.620	*RTTY*
3.620- 3.800	*Phone (except 3.730-3.740 MHz)*
3.730- 3.740	*SSTV*
7.000- 7.100 MHz	*CW*
7.035- 7.040	*RTTY and SSTV*
7.040- 7.100	*Phone*
10.100-10.150 MHz	*CW*
10.140-10.150	*RTTY*
14.000-14.350 MHz	*CW*
14.080-14.100	*RTTY*
14.100-14.350	*Phone (except 14.225-14.235 MHz)*
14.225-14.235	*SSTV*
18.068-18.168 MHz	*CW*
18.100-18.110	*RTTY*
18.110-18.168	*Phone*
21.000-21.450 MHz	*CW*
21.080-21.100	*RTTY*
21.150-21.450	*Phone (except 21.335-21.345 MHz)*
21.335-21.345	*SSTV*
24.890-24.990 MHz	*CW*
24.920-24.930	*RTTY*
24.930-24.990	*Phone*
28.000-29.700 MHz	*CW (except 28.200-28.300 and 29.300-29.550 MHz)*
28.050-28.150	*RTTY*
28.200-28.300	*Beacons*
28.300-29.700	*Phone (except 28.675-28.685 and 29.300-29.550 MHz)*
28.675-28.685	*SSTV*
29.300-29.550	*Satellite*

Region 2

So, far, IARU Region 2 has adopted band plans only for the 10, 18 and 24-MHz bands, which are identical with those of Region 1.

Region 3

Below are the band plans adopted by the IARU Region 3 Association. Note that RTTY is permitted in the entire 10-MHz band.

10.100-10.150 MHz	*CW and RTTY*
18.068-18.168 MHz	*CW*
18.100-18.110	*RTTY*
18.110-18.168	*Phone*
24.890-24.990 MHz	*CW*
24.920-24.930	*RTTY*
24.930-24.990	*Phone*

TURKEY AND THAILAND AUTHORISE AMATEUR RADIO

After many years of efforts by Turkiye Radyo Amatorleri Cemiyeti (TRAC), the Turkish government has legalised the amateur service. The first license was issued on 30 January to Dr Unal Akbal, who is General Secretary of TRAC. Unal's official callsign is TA1A.

TA1A is the prefix for Istanbul, while the Asian part of the country is divided into seven call areas: TA2 through TA8. Privileges are all bands (including the WARC bands), all modes, up to 400 watts PEP.

During 1984, the Royal Thai Government authorised the use of two callsigns by the Radio Amateur Society of Thailand (RAST) on five special occasions. HS0A was operated in the Seanet DX, European DX, and CQ Worldwide Phone Contests, and at the RAST 20th anniversary celebration in November. The other authorisation was granted in July for the operation of HS0JUA on behalf of UNICEF. RAST is working towards full recognition and legalisation of amateur radio by the administration.

Congratulations to all those whose persistence made these achievements possible in Turkey and Thailand.

ANNIVERSARIES

1985 is the 60th anniversary year for IARU. In addition, this year marks special anniversaries for many of its member-societies, including the WIA's 75th Anniversary.

Three societies celebrate their 60th anniversary: Reseau des Emetteurs Francais (REF), South African Radio League (SARL), and Foreningen Sveriges Sandareamatorer (SSA).

In conjunction with its annual convention, the French society organised the first Radio Telecom Show in Chateauroux on 25-27 May.

Festivities to mark the 60th anniversary of SARL centred around its annual general meeting over the first weekend of April.

The Swedish society will issue a 60th anniversary version of the popular operating award it sponsors: WASM-60. Only contacts made during 1985 are valid for this special award.

Two societies were founded in 1945, thus celebrating the 40th anniversary this year. They are VERON of the Netherlands, and CREN of Nicaragua.

The Korean Amateur League (KARL) held its 30th anniversary ceremony on 28 April. A special station, signing HL30HQ, was QRV from 25 April to 1 May. In addition, the KARL 30th Anniversary Award will be issued to those who have contacted 30HL stations during the first four months of this year.

Other societies for whom 1985 is a special year are: GARC of Grenada (30th anniversary), ABARS of Antigua and Barbuda, FRA of Faroe Islands (20th anniversary), and SLARS of Sierra Leone (10th anniversary).

Congratulations to all!

TSUKUBA EXPO ON AIR

The Japan Amateur Radio League (JARL) has established a special amateur radio station at the Tsukuba Science Expo '85, which is being held in Tsukuba Science City, Ibaraki, Japan, from 17 March to 16 September, 1985. Signing 8J1XPO, the station is QRV in the 3.5, 7, 14, 21 and 28-MHz bands with a maximum output power of 500 watts. Transmission can be made in CW, SSB, RTTY, FAX and SSTV.

JARL asks amateurs who plan to go to this event to take their amateur radio license; any licensed amateur may operate 8J1XPO without individual authorisation by the Japanese government.

Further information can be obtained from: *Japan Amateur Radio League, 1-14-2 Sugamo, Toshima, Tokyo 170, Japan.*

UN AT 40 AWARD

On 24 October 1985, the United Nations will celebrate the 40th anniversary of the coming into force of the United Nations Charter signed in San Francisco in 1945. To celebrate this event, and in the spirit of developing friendly relations among nations, the United Nations Staff Recreation Amateur Radio Club is sponsoring the UN at 40 Award.

This award is available to any amateur radio station (or SWL) that has contacted two of the three amateur radio stations operating with the United Nations prefix, during the United Nations 40th anniversary celebration year from 1 January to 31 December 1985. Contacts can be made on any band or mode. The three stations are:

4U1UN at the United Nations Headquarters in New York, USA
4U1ITU at the International Telecommunication General Secretariat in Geneva, Switzerland
4U1VIC at the Vienna International Center in Vienna, Austria

Applicants must send a list of the stations worked, including date, time, mode, report and band. This list must contain a signed statement vouching for the bona fides of the application. The cost of the award is US$5.00 or 15 IRCs, of which US$4.00 will be donated to the United Nations Children's Fund (UNICEF).

The application must be sent before 1 February 1986 to: *United Nations Staff Recreation Council, Amateur Radio Club, United Nations, Room DC1-0724, PO Box 20, New York, NY 10017, USA.*

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AUSTRALIA'S FIRST ICOM DAY

Icom Day, the first of its kind held in Australia, is being hailed as an unqualified success according to spokesmen from parties sponsoring it, Icom Australia and GFS Electronic Imports.

It was held on Sunday 14th April at GFS Electronic Imports' premises. An extremely bad electrical storm held off, fortunately, until the show was over. Both a range of Icom products as well as others handled by GFS were on display including a new range of Japanese antennas from Sagant Antenna Co.

Visitors to Icom Day were also given a live demonstration of Satellite TV which included programmes direct from the USA, Perth and Brisbane. It was also hoped that three new Icom products would make their debut on the day but due to Murphy, as well as some production delays, this didn't eventuate. Icom express their apologies to those who came especially to view these.

The IC-2A door prize, offered by Icom Australia, can be seen in the photo being presented to the winner, Tony Falla VK3XFK by Greg Whiter of GFS.

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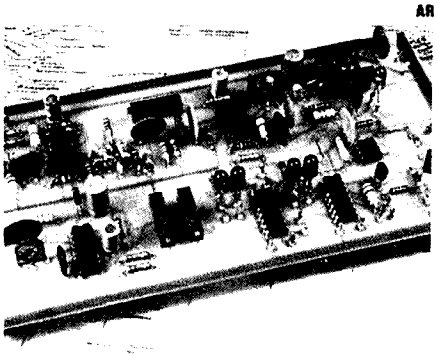

RTTY/CW MOD-DEMOD

GFS Electronic Imports have available, in kit

AR SHOWCASE

form or fully assembled and tested, a radio teletype and CW modulator-demodulator which is designed to provide its user with satisfactory performance even under noisy HF operating conditions.

Known as the MDK-17 this radio modem uses a receive line-up that consists of an active 40 dB limiter and bandpass filter followed by a phase locked loop detector. Signal tuning is simplified by the inclusion of three LED indicators — Lock, Mark and Space.

A wide range of shifts, tone frequencies and speeds are accommodated including those used in ASCII, AMTOR, SITOR and ARQ.

The MDK-17 can be interfaced with most of today's popular computers through its TTL level I/O port. Instructions are also included on the addition of RS-232 for those who require it. It additionally provides a direct high voltage current loop I/O for use on mechanical RTTY machines such as the Siemens 100 etc. High isolation between the current loop and the MDK-17s electronics is provided by an opto-coupler.

The MDK-17 kit is priced at $118 while the MDK-17 fully assembled and tested version is $181 plus $14 P&P in both cases.

For more details contact: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone (03) 873 3777.

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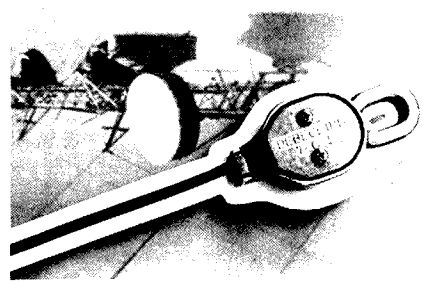


SIMPLE TERMINATION CLIPS

New guy termination clips are now available from GFS Electronic Imports for their range of Debeglass tower guys. Debeglass is a high tensile strength, low elongation, non-corrosive, non-conductive guy wire substitute. Its extremely high strength, to cross section ratio is brought about by the use of a continuous filament fibreglass core sheathed in UV stabilised PVC. Four Millimetre DB-4 has a tensile strength of 430 kg while 5 mm DB-5 is rated at 560 kg tensile strength.

Up until recently standard termination procedures for Debeglass included the use of thimbles and "D" clamps. The new Debeclips offer an alternative to this which saves the installer quite a deal of time, particularly on a large installation.

Attachment of a Debeglass guy to a Debeclip simply involves knotting the end of the guy, inserting it into the clip then screwing on its cover.

For further information contact the Australian distributors, GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone (03) 873 3777.

AR

HOME-BREW REGULATED POWER SUPPLY

Des Greenham, VK3CO
16 Clydesdale Court, Mooroopna, Vic. 3629

Some time ago an article on this subject was published by the author resulting in a surprising response by amateurs from all around Australia who were keen to "home brew" a power supply that would operate a 25 watt 2 metre FM unit and at the same time, keep down the cost to an absolute minimum. The unit to be described is basically the same as the previous article except that the overall cost has been further reduced by utilising some less expensive components.

The supply to be described has an output of 13.8V adjustable, with an output capability of 10 amps, more than enough to drive the average 25 watt transceiver.

The actual layout and construction details are left to the constructor as they are not critical. The heart of any power supply is the transformer. A commercial unit, with the necessary capacity, is a costly item to buy. In this case, the transformer to be used is one recovered from an old black and white television, many of which are resting as junk in shacks, sheds and elsewhere.

The transformer is partly dismantled and the old secondary removed and replaced with a new 19 volt winding. This operation is not difficult but takes a little time and patience.

The 19 volt winding is fed into a conventional rectifier bridge of 30 amps capacity, and the DC output is then controlled by a UA78MG regulator and a pair of 2N3055 power transistors which are mounted on a heavy heat sink. This can either be a commercial fin type or a very heavy piece of aluminium or copper U section material. The heat sink is best mounted outside the case to allow better ventilation and heat dissipation.

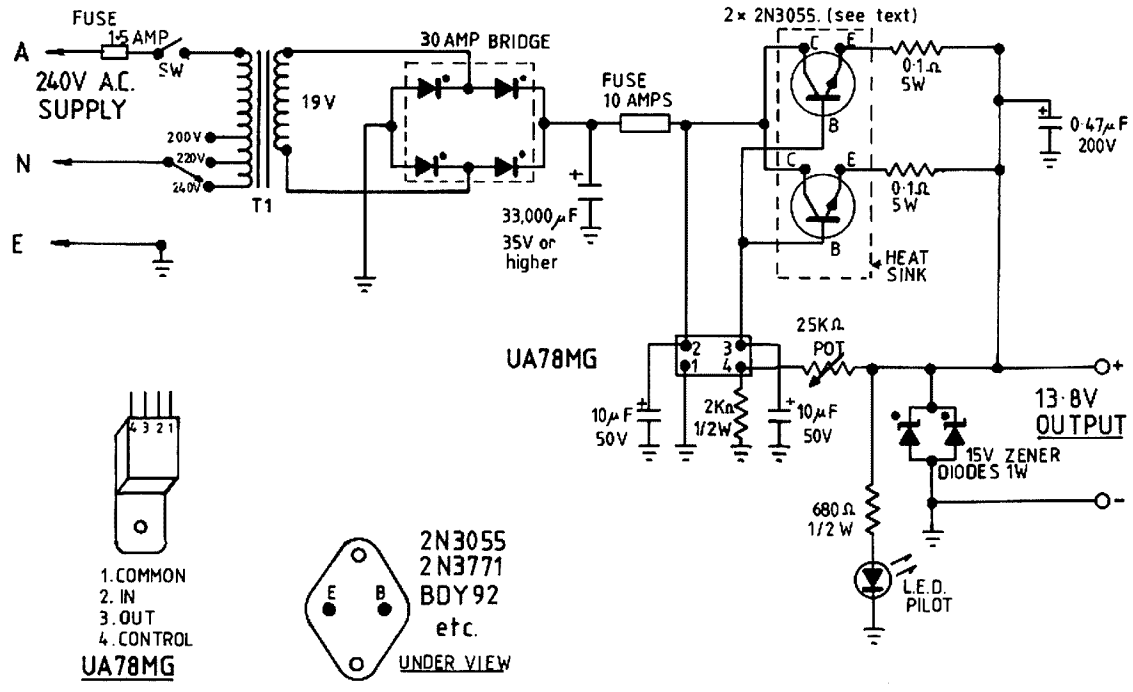
Generally, components these days are most reliable. However should one of the regulating transistors develop an internal short circuit from collector to emitter the output voltage would immediately jump to a dangerous value, around 25 volts, causing instant damage to valuable equipment. Most equipment can operate up to 15 volts before damage occurs. It is desirable therefore to protect the equipment from anything above 15 volts.

Many commercial suppliers have sophisticated and naturally expensive protection systems one being the crowbar. In this type when the output exceeds 15 volts a Zener diode conducts and fires an SCR which in turn short circuits the output and operates a fuse. In this supply to keep costs down we have fitted two Zener diodes (15 volt) across the output. In the event of some internal fault developing causing an increase in output voltage, the Zener diodes conduct and short the output thus protecting the equipment. The current carried by the Zener diodes far exceeds their normal rating and they immediately burn up. When a Zener diode is destroyed it invariably becomes short circuit and consequently operates the fuse, switching off the supply and completely isolating the equipment. The only cost of repair would be the faulty regulating transistor and the replacement of two well-cooked Zener diodes worth only a few cents. However, this is a remote risk and may never happen. It is reassuring however to know there is some form of over voltage protection when using the supply on valuable equipment.

CONSTRUCTION DETAILS

The TV power transformer should be carefully examined for any damage. It should be removed from the chassis noting and marking the 240, 220, 210 volt primary input winding connections. The secondary heater winding is usually 6.3 volts. This winding is obvious because it is wound with heavy gauge wire. After removal, connect the primary to the 240 volt mains supply and check the secondary heater winding with a multi-meter (AC volts) to ascertain if it is 6.3 or 12.6 volts.

After checking carefully tie back the primary connections to avoid breaking the wires. The transformer should now be dismantled by firstly removing the four bolts holding the laminations and frame together. After removal of frame and



Power Supply and 13.8V Regulated Output

clamps the first lamination should be removed. This is the most difficult part of the entire project as these are usually pressed in by machine and difficult to remove. A thin bladed screwdriver driven in between laminations can frequently enable one lamination to be gripped by long nosed pliers and removed. The laminations are usually in a "E" and "I" shape configuration and should be completely removed and stacked.

The heater winding is on the outside of the winding and this should now be carefully unwound making sure to *count the turns as they are removed.* When this winding has been removed and the number of turns noted the remaining secondary winding can be stripped either by unwinding or *careful* use of a hacksaw. This is because the primary winding underneath is to be reused. Some transformers from Astor and AWA sets have a double bobbin winding with *primary on one* side and *secondary on the other.* These are particularly easy to rewind. The more usual type have the primary against the core then the high voltage secondary and finally the heater winding on the outside.

Having now stripped the bobbin down to its basic primary winding we must now calculate the turns ratio of the transformer. The turns per volt figure is found by dividing the turns counted by the heater winding voltage. This is nominally 6.3 or 12.6 volts however most manufacturers wind transformers for 6.5 or 13 volts to allow for a voltage drop. It is common to find that the 12.6 volt winding has thirty nine turns. The turns per volt figure would be $\frac{39}{13} = 3$.

This means we need three turns on the secondary for each volt of secondary output. In our case we need 19 volts, therefore we would need 3 x 19 = 57 turns. This is only an example and you must calculate for your particular transformer to obtain 19 volts output.

To rewind the secondary we need wire that will supply 10 amps without overheating 14 Gauge B & S is adequate and can be purchased from retailers or automotive electricians. A length of 10 metres should be enough for an average transformer. The winding is wound on carefully layer by layer. It can be jumble wound if there is enough space.

The turns must be carefully counted on and when the winding is completed a layer of PVC tape wound around the winding. The ends should be covered with spaghetti (plastic tubing) and extended out in a similar way to the original heater winding. Now the core should be replaced by fitting the laminations back into the bobbin. If the laminations are the E and I type it is easier to fit three E sections at a time alternating the direction. The I pieces can be fitted later.

It is part of Murphys Law that all the laminations removed will never be replaced so do your best. The last few will be difficult to fit and careful use of a *small* hammer will assist. The assembly should be tapped into square shape with the hammer and the four bolts and mounting plates fitted. When finally together, and looking like original, connect 240V AC to the primary and check the secondary voltage. If your calculations have been correct and all care taken your meter will read 19 volts. If your reading is NOT EXACTLY 19 volts you can adjust by changing the primary tapping. By connecting 240volts mains to the 250 volts tapping, the output will be dropped and similarly connecting to the 230 volts tapping will increase the output.

The general assembly of the power supply will be left to the constructor. The transformer should be well mounted and all bolts tightened to prevent buzz. The regulator can be mounted in any position and does not require any heat sink. It can be mounted on a small piece of aluminium formed into a bracket. It is important that the bypass capacitors be mounted directly on the regulator itself and *not* wired away. The output fuse should be rated only marginally higher than the maximum load expected. To operate a set such as an IC22S a fuse rating of 5 amps would be adequate. The main filter capacitor shown as 33,000 mFd is from a disposal computer power supply and is readily available.

Any value larger than 25,000 mFd would be acceptable and this could be made up from several smaller capacitors wired in parallel. An example could be five capacitors, each 5000 mFd, wired in parallel. Be sure the voltage rating is adequate. Any rating higher than 30 volts working is sufficient.

Whilst 2N3055 power transistors are specified, other similar types can be used provided they are NPN construction. Many are available on the disposal market at a very reasonable price. Equivalents that have been tested and found to be suitable are BDY-92 and 2N-3771.

CONSTRUCTION — GENERAL

After completion of wiring and circuit check, remove one side of the Zener diodes before switching on in case the output voltage is high. Connect an accurate DC voltmeter across the output and switch on. If everything is correct, output will be seen. This can be carefully adjusted with the control potentiometer to 13.8 volts — the LED will be glowing. Switch off, and reconnect the protection Zener diodes. Your supply is now ready for use. Connect a transceiver and check with another station for any noise or hum. The supply is clean and hum free and exhibits good regulation. The voltage drop when transmitting is barely discernable.

With the values shown, and a good transformer, a regulated output in excess of 10 amps will be obtained with a minimum dent in the domestic budget.

AR

Technical Editors Note

Constructors of projects such as this should pay particular attention to component ratings. The output load, environment, and duty cycle may well require special consideration. This is of particular concern as the output capabilities increase. Heat sink requirements and power transistor ratings should be carefully considered.

SPURIOUS TRANSMISSION CHECKER

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA 5112

This checker is so simple and so useful that it is difficult to understand why it is not already in use in most amateurs shacks. I originally developed it for RTTY but it is also useful for SSB and CW. Looking at the circuit of the unit you could be excused for thinking how on earth that simple thing can do any useful checking of any kind whatsoever?

From the circuit of the unit it will be clear if it is coupled to a properly functioning transmitter nothing will be heard unless amplitude modulation is taking place. The coupling to the transmitter is done by a short length of insulated wire from the checker antenna terminal wrapped around or taped to the coaxial feeder near the transceiver. Use enough wire to get good coupling so reasonably loud modulation can be heard when transmitting SSB. Check the coupling is sufficient for all bands you use. Normally the speaker will be used for CW and RTTY and the phones for SSB.

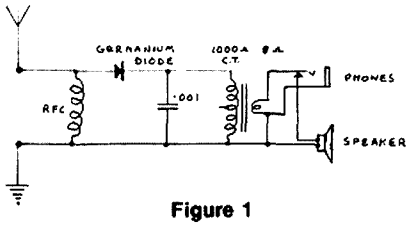


Figure 1

Firstly checking for CW problems, keying will modulate the carrier and the level of key clicks compared to the SSB level of a normal SSB transmission will tell if you have key click problems. Usually the clicks will be quite faint and more of a thump than a click. Also if the carrier is not clean and some hum, etc is present this will be easily heard. If any audio tones or squarking sounds are heard you have big problems and these are probably due to RF feedback oscillations.

For HF bands FSK RTTY a clean carrier (even one changing in frequency) will produce no audio output apart from slight key clicks of about the same level as good CW. However if spurious keying or modulation outputs are present these are then heard as audio tones or "squarks" of some sort. With HF band FSK RTTY generated by audio tones into a SSB transceiver it will normally be found low levels of audio input produce no audio signals from the checker but as the input level is increased a setting will be found where spurious tones or squarks are heard, needless to say you then operate at a somewhat lower setting or find out what is wrong. This checker is very useful indeed for RTTY generated in this manner, as soon as you do the wrong thing or something goes wrong you get an audible warning from the checker speaker.

With SSB, the modulation will be heard in the headphones but be barely understandable, if there are no spurious modulation signals present the modulation will have a "smooth" sound but with spurious signal outputs this will become rough and harsh sounding. Using a dummy antenna, try overdriving the transceiver and note the change of sound that occurs when spurious outputs are being generated.

Fortunately almost all spurious outputs of a modulation distortion or key clicking nature produce beats that will give rise to audio being heard in the checker, once an operator gets used to using the checker and what sounds to expect from it no more bad transmissions of spurious modulation signals should occur.

AR

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	Call sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.300	VK6RPH	Perth
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland
144.460	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.00	VK6RVF	Roleystone

The Roleystone 10.3 GHz beacon is now listed in the "Western Australian VHF Group Bulletin" so it seems sensible to include it in this list.

THE EME SCENE

Doug VK3UM continues to successfully work stations via the moon and his present tally is 15 countries for 30 individual contacts on 70cm from November 1984 to April 1985. His latest successes were realised on 27/4 when the following took place:

0402: K2UYH 559 sent, 549 received, then two way SSB 5x5 and 4x4. 0440: JA6CZD 449/449; 0555; W7GBI 0/0; 0630: JA4BLC 549/549; 0700: ZL2AQE 0/0; 0843: JR4AEP 0/0; 1020: OK1KIR 439/439; 1033: LA1K 439/439; 1100 SM6EUP 0/0; 1120: HB9SV 549/569; 1130: G3LTF 549/539; 1149: F1FHI 549/559.

On 28/4: 0500: K2UYH 559/559; 0537: VE4MA 439/439; 0559: N9AB 549/549; 0950: OZ7UHF 0/0; 1008 SM3AKW 449/449 (he was using 100 watts to a 5m dish); 1112: DF3RU 449/449; 1127: G3LQR 449/449; 1149: G3SEK 439/439; 1207: DL9KR 559/559; 1244 F1FHI 559/559.

On looking back over the list there are some very good signal reports emanating so it looks as though there are a lot of people including Doug who are getting their act right. Additionally, on 13/4 Doug worked VK2DVZ at 0845 at 5/1 and 5/3 and VK7DC was 5x9 off the back of his EME antenna whilst it was at an elevation of 10° on the moon!

MORE FROM MELBOURNE

Lionel VK3NM, has been getting in the act by sharing the contacts being made via aircraft enhancement, the theory being that vapour trails from jet engines can lift the signals significantly for many minutes sometimes. This is the work that Gordon VK2ZAB has been so actively engaged in with Doug VK3UM, where 144.200 MHz is used on Saturday and Sunday mornings at 2230 to conduct the experiments. Lionel says no super high power is needed, only a good antenna with a suitable pre-amp being needed as well as some patience!

Plans are in hand at an appropriate time to have stations on at both ends with continuous signals all day and to make notes of the observations.

One method of handling the contacts is outlined by Lionel when VK3NM made two contacts with VK1BG on 70cm. Both stations liaised on 80 metres, monitored aircraft traffic and calculated when contact should be possible. On both occasions both signals were the same strength and duration.

That results have been encouraging is shown by the following contacts either by tropo (T) or aircraft enhancement (AE). *16/2 VK7DC 432 (T); 18/2: VK5ZDR, VK5NY, VK5RO 144 (T); 17/2: VK5NC 144 (T); 2/3: VK1GL, VK2ZAB 144 (AE), VK5NY, VK5RO 144 (T); 3/3: VK7ZAP 432 (T); 8/3: VK1GL 144 (AE);* 9/3; VK1BG, VK1GL 144 (AE); 14/3; VK5NY, VK2YEZ *144 (T), VK2ZAB 144 (AE); 16/3: VK7DC 52,144, 432 (T), VK7KAJ 432 (T); 17/3: VK2YEZ 144 (T); 18/3: VK5DK 144 (T); 21/3: VK7DC 144 (T); 24/3: VK5NY 144 and 432 (T); 29/3: VK2ZAB 144 (AE), VK7JG, VK5NY, VK5RO 144 (T); 30/3: VK2ZAB 144 (AE); 31/3: VK1BG 432 (AE); 7/4: VK5NY 144 (T); 12/4 VK1GL 144 (AE), VK7DC 432 (T).* Lionel certainly seems to have been a busy boy and it is good to see four States sharing in the contacts.

NEWS FROM THE SYDNEY AREA

Gordon VK2ZAB sent another letter during April which was just too late for inclusion last month but is still current for this time. It continues to show what can and is being done on 144 and 432 MHz and from the jottings it is hoped others will be tempted to give it a try and so spread the contacts.

18/3: 144 Graham VK2MQ Moree 5x3, Ralph VK1RK was 5x7; 19/3 and 20/3 to VK1RK and VK1GL again at S7 to 9 on 144; on 21/3 VK2MQ 5x3 on 144. 22/3 the Friday night, worked on 144 VK2MQ 5x5, on 432 VK1VP 5x5, VK1RK 5x2 and John VK1CJ 5x5. The next morning (Saturday) 23/3: 144 VK2MQ 5x4, Paul VK4AUR Brisbane 5x4, Bill VK4LC Eagle Heights 5x4, John VK4KJL Brisbane 5x3, Peter VK2EVB Coffs Harbour 5x2, Ross VK2ZRE Adaminaby 5x7 plus several VK1s. Several 70cm contacts between Doug VK3UM and VK1 stations but Doug not heard in Sydney by any of the several stations listening for him. 23/3: On 144 Tom VK2DDG Byron Bay 5x6, Ross VK2ZRE 5x5, Les VK3ZBJ Frankston 5x4, Doug VK3UM 5x2, no VK4s copied. 24/3 through 28/3: 144 and 432 contacts with Ralph VK1RK most nights, also a rare 144 contact with Tom VK2QT at Mittagong. 29/3 VK4AUR 5x3, VK4AGQ Angus at Brisbane 5x1, VK4LC 5x2, VK4KJL 5x1, Ken VK2DGT at Coffs Harbour 5x3 all on 144. Later VK1 and VK3 were on both 144 and 432, and Gordon worked VK1BUC, VK2ZRE, VK3ZBJ, VK3AZY, and VK3NM all around 5x3. Nothing heard of VK7JG though he was known to be on. 30/3: VK4LC very weak at 2x1 on 144, but south west contacts were reasonable and included Trevor VK3KEG 5x3, VK2ZRE 5x3, Jim VK3AZY 5x2, Lionel VK3NM 5x1 and VK3UM 5x4, the latter on 432 for the fifth time.

4/4 Friday morning: No replies to calls to north, but 144 to south west gave VK1BUC 5x2, VK1ZQS 5x2, VK1VP 5x3 with their beams on Melbourne. Graham VK1ZEI 5x4, David VK3AUU 5x1, VK2ZRE 5x4, VK3KEG 5x3. On 432 Ross VK2DVZ 5x4 from Taree (5x8 on 144), Tom VK2OD heard working VK2DVZ as well as on 432. 5/4: VK2ZMX 5x4 from Cooma, VK3ZBJ 5x3, VK3KEG 4x1, VK2ZRE 5x5 on 144, VK3UM on 432 5x4 heard working VK1. 6/4: 144 VK1BG, VK2ZRE, VK1ZQS, VK1BUC, VK3ZBJ, VK1GL, VK1ZIF. VK3UM was 5x3 on 432 but mistook Gordon's call for VK2DVZ who was 5x5 in Sydney from Taree! Dick VK2BDN also heard VK3UM. 7/4: 144 VK3ZBJ 5x3, Trevor VK3KEG at 0020. 10/4: 0947 VK3UM and VK3ZBJ both 5x2 on 144, but no 432. At 1033 VK3ZBJ 5x3 on 144 and 1043 VK3UM 5x3 also, but still no 432. Conditions were poor on 11/4 and 12/4 to Melbourne, but on 12/4 Graham VK2MQ at Moree was 5x4. Signals to Melbourne still too weak on 144, but heard VK3UM on 432 at 5x3. 13/4: VK2DDG 5x2, VK2ZRE 5x4 on 144. VK4s on both too weak to work. Also the first weekend since Christmas that no 144 MHz contact was made to Melbourne! 14/4 and 15/4: Local and VK1 contacts on both bands. 16/4: VK2MQ in Moree 4x2 on 144.

Gordon VK2ZAB repeats what I have said many times before, and I quote: *"DX contacts on both 144 and 432 MHz are being frustrated to some extent by people conducting local QSOs on the calling frequencies of 144.1 and 432.1. The newcomers are not always to blame either, some old-time VHF operators seem to forget that some others may not be interested in their lengthy conversations with third parties on the calling frequencies. During the weekend of 12/4 one such conversation on 144.1 lasted 43 minutes. Fair go!! I understand the problem is not confined to Sydney either. Melbourne VHF DXers have the same complaint."*

The above paragraph is straight to the point and quite explanatory and will hopefully be heeded by those offending. It certainly happens in VK5 too, so one can assume there are offenders in all States. Something which adds to the overall problem is that many operators do not leave any breaks between overs, thus no one has a chance to break in. It has been said to me before, these stations are operating on the call frequencies so they might attract the attention of others, then they have little chance of "the others" letting them know they are there if no breaks are left between overs. Three seconds would be quite long enough. It only needs a bit of self-discipline and thought for others for this to be done regularly and everyone would feel better about it. Unfortunately, in quite a few cases these and similar comments are not read by the offending parties because they are not WIA members, so it seems they need to be told direct.

But thanks for writing Gordon. Your notes indicate the quite large degree of activity mainly between VK2,1 and 3 on both 144 and 432 MHz and as times progress hopefully more stations will be attracted to give it a try.

NEWS FROM USA

From Bill Tynan W3XO and "The World above 50 MHz" from May 1985 "QST" comes two interesting items which I would like to share with you. The first is called "A Banner Year for Meteors" and I quote the relevant parts as follows:

"This may be an especially good year for the 'ping jockeys'-VHF operators who make meteor scatter, or MS, one of their principal pursuits. As mentioned in last month's column, Michael Owen W9IP, believes this may indeed be a 'year to remember'. He bases his contention on the fact that several comets are approaching our part of the solar system. Since comets are accompanied by clouds of particles, and it is particles travelling through space crashing into the earth's atmosphere that are responsible for the ionisation we know as meteor pings, it stands to reason that there may be some really interesting meteor showers in the months to come.

"Meteor showers are named for the area of the sky, the constellation, from which they appear to come, not for the comets that provide the particles. Thus, the Perseids shower, so familiar to VHFers, appears to emanate from the constellation Perseus. Few of us are aware, however, that it is the Swift-Tuttle comet that furnishes the numerous particles that produce this shower. Probably the best known of the comets is Halley's. Almost everyone has heard by now, it is due to visit the inner portion of the solar system over the next few months, putting on a spectacular visual show as it approaches the sun.

"Last month's column contained W9IP's reminder that the Eta Aquarids Shower is due in early May. Mike pointed out that this shower is caused by particles travelling in the same orbit as Halley's comet but somewhat ahead of it. This is the first of the showers that he believes will be particularly productive for MS operators this year. W9IP further notes that its particles approach the earth almost head-on and thus slams into the atmosphere at higher-than-customary velocity. As a result, they ionise the atmosphere at a greater altitude than is the case with many of the other showers. Thus, the Eta Aquarids should be particularly productive of better-than-average MS DX. That shower is expected to peak about 1300 Saturday, 4 May, with east west paths favoured for us in North America.

"Besides the Eta Aquarids in May and the Perseids in August, there are other meteor showers that W9IP believes bear more than mere watching this year. The 3 October Dracanids, a product of the Giacobini Zinner comet, provides another potentially good opportunity.

This comet will have passed the earth's orbit only 29 days before we arrive at that point in space, so there should be a substantial quantity of particles still around when we get there. That should mean lots of meteors. Mike warns, however, that the peak of this shower will last only an hour or so, and will probably occur about 1600UTC, favouring northwest-southeast paths. Eleven days later, on 20 October, particles accompanying Halley's comet should produce the Orionids shower. W9IP notes that this close proximity of comets provides a similar situation to that which made the 1966 Leonids shower so spectacular, with over 150,000 meteors per hour.

"This may be an MS year we will long remember. It should not only be a great sport for experienced ping jockeys, but also serve as an ideal opportunity for newcomers to get their feet wet in this fascinating and productive propagation mode."

Those of you who intend giving the MS mode a try this year could have an interesting time. Why not share your experiences with others by letting me know in a letter for use in this column.

EME ANNALS

The other item of interest from "QST" is headed "EME ANNALS" and shows for each of the bands being used for EME work the number of different stations (not total QSOs) worked and the number of countries contacted.

6 metres: List headed by K5WVX with two stations and one country, others with the same score include WA5HNK, WB6NMT and VP2EME. 2 metres: K1WHS 552 stations, 61 countries and also WAC. Then VE7BQH 443 54 WAC, WA1JXN/7 344 43 WAC, SM7BAE 306 65 WAC. Incidentally, on 6 metres there are 7 call signs listed, and on 2 metres 120 and the list is not complete. On 220 MHz: K5FF 33 stations, 4 countries, W1JR 26 and 3, W5FF 25 and 3. On 432 MHz: K2UYH 268 stations in 41 countries, and WAC, DL9KR 225 35, I5MSH 200 37 WAC, W1JR 171 31, K3NSS 167 20 WAC. There are 54 call signs listed. 1296 MHz: K2UYH 46 20, OE9XXI 46 — , G3TLF 35 16, with 24 call signs. On 2304 MHz: W4HHK 2 1, WA4HGN 2 2, DF0EME 2 2, W3GKP 1 1 and OE 9XXI 1 1, and those five make up the total list.

EME BEGINNINGS

Also from "QST" this is how the EME scene emerged:

27 January, 1953: first amateur reception of echoes from the moon — W4AO and W3GKP on 144 MHz.

27 July, 1960: first amateur two-way contact via the moon — W1BU and W6HB on 1296 MHz.

11 April, 1964: first 144 MHz moonbounce two-way contact — W6DNG to OH1NL.

20 May, 1964: first 432 MHz two-way moonbounce contact — W1BU and *KP4BPZ (followed shortly by a number of other contacts from KP4BPZ using the 305 metres (1000 feet) dish at Arecibo, Puerto Rico.*

15 March, 1970: first 220 MHz two-way moonbounce contact — WB6NMT and W7CNK followed by a contact next day between WB6NMT and K2CBA.

19 October, 1970: first 2304 MHz two-way moonbounce contact — W3GKP and W4HHK.

30 July, 1972: first 50 MHz two-way moonbounce contact — K5WVX (now K5CM) in conjunction with W5WAX (now K5SW), and WA5HNK in conjunction with W5SXD.

It is always interesting to read about or again remind us who the pioneers were in establishing, what is substantially commonplace today, EME contacts. They still do not come easily, and require a lot of preparatory work and dedication to achieve, so it will never be for the faint-hearted, but obviously the rewards are there for those who make it.

CLOSURE

These notes are being prepared a week in advance of the usual date as I am due to have a period in hospital for an operation on my back for a problem which has been affecting my walking.

Any letters which arrive from now on will have to be included next month unless I am back home within a week in which case I might be able to make the deadline. However, in the meantime, all the best with the winter time DX which you should be experiencing as you read these columns.

Closing with the thought for the month: *"If you don't get everything you want, think of the things you don't get that you don't want."* 73. The Voice in the Hills.

AR

Don't miss the VHF/UHF Story of Firsts from VK6 — August AR.

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and UoSAT Oscar 9 Bulletin 126.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR the National Co-ordinator of AMSAT-Australia is now producing a monthly newsletter containing updated satellite news, orbital predictions, Keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populace informed on the latest information available and to realise funds for the funding of projects or the purchase of an item/s of hardware for a future amateur satellite project, eg Phase-3C, Phase 4 or whatever. The cost of the Newsletter is $15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR QTHR.

The following news items are direct from the UoSAT Bulletin-126 17th May 1985.

ANNIVERSARY

Tuesday 14th May last week saw the anniversary of the successful recovery of the UoSAT-2 spacecraft following the communications problems experienced just after launch on 1st March 1984. UoS dedicated 14th May to the memory of Finn Stollstrup OX3FS, who assisted in the recovery and who was, sadly, killed shortly after.

MILESTONE

UoSAT-OSCAR-9 passed the 20,000 orbit mark on Tuesday 14th May — obviously an auspicious date!

PACSAT

VITA has received some 'start-up' funds from the Hoover Foundation to initiate a major fund-raising activity to support the PACSAT mission. $30,000 has been made available to employ the services of a fund-raising group — TAFT.

JAS-1

The April 1985 (No 4) issue of the Japanese "CO Ham Radio" journal has some details of the user interface for the JAS-1 satellite, including a sample message using the digital communications system on the spacecraft.

UoSAT-OSCAR-11 OPERATIONS

Spacecraft engineering data surveys and 2400/4800/9600 BPS AFSK transmission tests on 435MHz have continued this week — with good result at 4800 BPS.

The spacecraft has been allowed to spin-up to a Z-spin period of 47 seconds and modified magnetorquing algorithms generated by Stephen Hodgart are being assessed which should, hopefully, minimise the introduction of unwanted libration during these manoeuvres. The de-spin manoeuvres have been taking place in range of UoS so that their effect can be monitored closely. However, this generally means that the orientation of the spacecraft to the local geomagnetic field vector is not optimum for such manoeuvres and, as was seen last November, some unwanted component torques are also generated. These undesirable torque components have maximum effect when the spacecraft is spinning at very slow rates and tend to introduce excessive libration — sometimes going so far as to push the spacecraft over and out of lock! The long-term solution is to execute these manoeuvres, using the OBC, when the spacecraft and geomagnetic field vector are optimally aligned — probably out of range of UoS. This will complicate the data collection slightly and requires some further OBC software development but should effect the attitude control manoeuvres with minimal risk of increasing libration and losing gg-lock.

Revised software has been uploaded into the DCE this week by NK6K with a test message sequence. A greater amount of 145MHz downlink time is now scheduled for the DCE.

The telemetry clock on UO-11 has been reset twice since launch and appears occasionally to 'glitch'. We are not sure at present why this occurs, but it is under investigation. We intend to reset the clock once more soon.

INFORMATION FOR 'NEWCOMERS'

In recent weeks I have received a number of letters from newcomers to the amateur satellite ranks enquiring about information and literature pertaining to satellite activity.

As a reference text the following publication is highly recommended, and is priced at about $16 through the WIA.

'The Satellite Experimenter's Handbook'
by Martin Davidoff K2UBC
Published by The American Radio Relay League.
This publication may be available through your WIA Divisional Office. If not contact AMSAT-Australia.

The following organisations also provide literature and information specifically for the amateur satellite communicator. With the value of the Australian dollar depreciating against overseas currencies, subscription rates for the below mentioned groups may not seem as attractive as in recent years. Therefore if your funds are limited I suggest to you the AMSAT-Australia Newsletter mentioned previously in this column as the first priority with membership of AMSAT-UK being the second priority. Membership of AMSAT-UK provides an excellent publication called OSCAR News at least quarterly, with special editions for specific events and launches.

1. AMSAT membership

Those persons wishing to join AMSAT, The Radio Amateur Satellite Corporation based in Washington USA (the parent body of the amateur satellite service) are requested to direct their enquiries to:

AMSAT
PO Box 27
Washington DC 20044

Various categories of membership are available as well as services. These items will be detailed upon receipt of your enquiry.

2. Amateur Satellite Report

This is a bi-weekly newsletter published on behalf of AMSAT. It is mailed first class to all subscribers (AIR MAIL to Overseas). ASR is the update of all satellite activities and events worldwide.

Direct all enquiries to:

Satellite Report
221 Long Swamp Road
Wolcott, CT 06716 USA

3. AMSAT-UK Membership

The English affiliate of AMSAT, AMSAT-UK wishes to advise all intending new members that the correct procedure to join AMSAT-UK is to first write to:

Ron Broadbent G3AAJ
Hon Secretary AMSAT-UK
94 Herongate Road
Wanstead Park
London E12 5EQ

requesting a membership application form and the current subscription rate.

COMPUTER PROGRAMMES

To assist the calculation of the various satellite orbits there are now a number of versions of the Tom Clark W3IWI, ORBIT Programme, available to suit various home computers. If you are personally interested in a suitable programme contact Graham VK5AGR, QTHR supplying a SASE for details.

CURRENT OPERATIONAL SATELLITES

As at the 1st May 1985 the following satellites were still fully operational: Oscar 9, Oscar 10 and Oscar 11.

The following satellites are unfortunately erratic in operation due to their failing batteries: RS5, RS7 and RS8. In respect to the RS Series I will attempt to get a schedule of operational times for inclusion in the next issue.

UPS AND DOWNS

From Bob VK3ZBB we have the latest listings of launches and re-entries.

FROM BOB VK3ZBB

Consideration is being given to the provision of a Transponder operating in the amateur 'S' Band which is 2300 to 2450 MHz. It is suggested that the transponder will be installed in the Phase 3C amateur satellite which should fly in 1986-7.

Obviously potential users of this 'S' Mode will require some experience in the design and development of suitable equipment and it is perhaps fortunate that the USSR is understood to have two satellites operating beacons in this shared frequency band.

Although no details of transmission times etc are yet available the Keplerian Elements for the two satellites have been obtained and, hopefully, will be updated from time to time. These figures will enable amateurs to determine the location of the satellites in the sky and to listen for the beacons on their reported frequency of 2304 MHz.

The Keplerian Elements are:

SATELLITE: Cosmos 1547
Number: 84-033A 14884
Element Set: 559

Epoch	85-103
Epoch Decimal	0.94042977
1st Deriv of Motion	-.00001009 RPD/I
Inclination	83.1767 deg
Right Ascension	114.8966 deg
Eccentricity	0.7157046
Argument of Perigee	318.9628 deg
Mean Anomaly	5.0863 deg
Mean Motion	2.00574 RPD
Orbit Number	753

SATELLITE: Cosmos 1804
Number: 84-107A 15350
Element Set: 281

Epoch	85-101
Epoch Decimal	0.75713789
1st Deriv of Motion	-.00001228 RPD/I
Inclination	62.8725 deg
Right Ascension	232.9319 deg
Eccentricity	0.7289528
Argument of Perigee	318.2842 deg
Mean Anomaly	4.6969 deg
Mean Motion	2.005231 RPD
Orbit Number	380

HAMADS

are a free service for members.

OSCAR 10 APOGEES FOR JULY-AUGUST 1985

DAY	ORBIT	APOGEE U.T.C	SATELLITE CO-ORDINATES LAT	LON	I----------BEAM HEADINGS----------I SYDNEY AZ	EL	ADELAIDE AZ	EL	PERTH AZ	EL
	N	HHMM:SS	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG
1st July										
182	1543	2013:12	-11	249	292	40	307	50	347	65
2nd July										
183	1545	1932:13	-11	240	302	48	321	56	12	65
3rd July										
184	1547	1851:16	-11	230	314	55	339	61	34	61
4th July										
185	1549	1810:17	-11	221	331	60	1	62	51	55
5th July										
186	1551	1729:20	-11	212	353	63	23	60	63	48
6th July										
187	1553	1648:21	-11	202	16	63	41	56	71	39
7th July										
188	1555	1607:23	-11	193	37	59	55	49	78	31
8th July										
189	1557	1526:25	-11	183	52	52	65	42	84	23
9th July										
190	1559	1445:26	-12	174	63	45	73	34	90	14
10th July										
191	1561	1404:29	-12	165	72	37	80	26	95	6
11th July										
192	1563	1323:30	-12	155	79	29	86	18	99	-2
12th July										
193	1564	0103:01	-12	331					262	0
193	1565	1242:32	-12	146	85	21	92	10		
13th July										
194	1566	0022:04	-12	321					266	8
194	1567	1201:34	-12	137	90	13	97	2		
194	1568	2341:05	-12	312			260	-2	271	17
14th July										
195	1569	1120:36	-12	127	96	5				
195	1570	2300:07	-12	303			265	5	276	25
15th July										
196	1571	1039:37	-12	118	101	-3				
196	1572	2219:09	-12	293	263	3	270	13	282	34
16th July										
197	1574	2138:10	-12	284	268	11	275	21	289	42
17th July										
198	1576	2057:13	-12	274	273	19	281	30	298	50
18th July										
199	1578	2016:14	-13	265	279	27	288	38	311	58
19th July										
200	1580	1935:16	-13	256	285	35	297	46	329	64
20th July										
201	1582	1854:18	-13	246	293	44	308	53	354	67
21st July										
202	1584	1813:20	-13	237	303	51	323	60	21	66
22nd July										
203	1586	1732:22	-13	228	316	58	344	64	42	61
23rd July										
204	1588	1651:24	-13	218	335	64	8	64	57	55
24th July										
205	1590	1610:25	-13	209	360	66	31	61	68	47
25th July										
206	1592	1529:28	-13	199	25	64	48	56	76	38
26th July										
207	1594	1448:29	-13	190	44	59	61	49	82	30
27th July										
208	1596	1407:32	-13	181	58	52	70	41	88	21
28th July										
209	1598	1326:33	-14	171	68	44	78	33	93	13
29th July										
210	1600	1245:36	-14	162	76	36	84	25	98	5
30th July										
211	1602	1204:37	-14	153	83	28	90	17	103	-3
211	1603	2344:08	-14	328					261	4
31st July										
212	1604	1123:38	-14	143	88	20	95	9		
212	1605	2303:09	-14	319					266	12
1st August										
213	1606	1042:41	-14	134	94	11	100	1		
213	1607	2222:12	-14	309			260	1	271	20
2nd August										
214	1608	1001:42	-14	124	99	4				
214	1609	2141:13	-14	300	258	-2	265	9	276	29
3rd August										
215	1611	2100:16	-14	290	263	6	270	17	282	37
4th August										
216	1613	2019:17	-14	281	268	14	275	25	289	46
5th August										
217	1615	1938:20	-14	272	273	22	281	33	299	54
6th August										
218	1617	1857:21	-14	262	278	31	289	41	312	62
7th August										
219	1619	1816:23	-15	253	285	39	298	50	333	67
8th August										
220	1621	1735:25	-15	244	293	47	310	57	2	70
9th August										
221	1623	1654:26	-15	234	304	55	327	63	30	67
10th August										
222	1625	1613:29	-15	225	319	62	351	66	50	61
11th August										
223	1627	1532:30	-15	215	341	67	17	66	64	54
12th August										
224	1629	1451:32	-15	206	8	68	39	62	73	45
13th August										
225	1631	1410:34	-15	197	33	64	55	55	80	37
14th August										
226	1633	1329:36	-15	187	51	58	66	48	86	28
15th August										
227	1635	1248:38	-15	178	64	51	75	40	91	20

SATELLITE ACTIVITY FOR PERIOD 1-28 FEBRUARY 1985

Number	Name	Nation	Date of Launch	Period mins	Initial Data Apog km	Perig km	Incl deg	Remarks
1985								
019A	Cosmos 1632	USSR	Mar 1	89.2	263	206	72.9	
020A	Cosmos 1633	USSR	Mar 6	97.6	654	619	82.5	
021A	GEOSAT	USA	Mar 13	100.6	814	757	108.1	
022A	Cosmos 1634	USSR	Mar 14	104.8	1008	957	82.9	
023A	Cosmos 1635	USSR	Mar 21					
023B	Cosmos 1636	USSR	Mar 21					
023C	Cosmos 1637	USSR	Mar 21					
023D	Cosmos 1638	USSR	Mar 21					
023E	Cosmos 1639	USSR	Mar 21					
023F	Cosmos 1640	USSR	Mar 21					
023G	Cosmos 1641	USSR	Mar 21					
023H	Cosmos 1642	USSR	Mar 21					
024A	Ekran 7e	USSR	Mar 22					
025A	Intelsat F10	ITSO	Mar 22					
026A	Cosmos 1643	USSR	Mar 25					

LAUNCHES

RETURNS: During the above period 12 objects decayed, including Satellite 1966-044A Explorer 32 on 22 February.

SATELLITE ACTIVITY FOR PERIOD 28 FEBRUARY-29 MARCH 1985

Number	Name	Nation	Date of Launch	Period mins	Apog km	Perig km	Incln deg	Remarks
1985								
011A	Cosmos 1627	USSR	Feb 1	104.8	1015	955	82.9	
012A	Cosmos 1628	USSR	Feb 6	92.2	512	353	72.9	
013A	Meteor 2-12	USSR	Feb 6	104.0	512	936	82.5	
014A	USA 9	USA	Feb 8					
015A	ARABSAT 1		Feb 8	1390	35859	33911	0.2	Ariane vehicle
015B	SBTS 1		Feb 8	1437	35850	35779	0.1	do
016A	Cosmos 1629	USSR	Feb 21					
017A	Cosmos 1640	USSR	Feb 27					
018A	Cosmos 1641	USSR	Feb 27					

RETURNS: During the above period 25 objects decayed, including 1985 002-A COSMOS 1616 on 4th March and 1985-019A COSMOS 1632 on 15 March.

GENERAL INTEREST: 1966-100A AT51. On 12 March at 0219 UTC, this satellite was located at 176.540 degrees with an inclination of 11.704 degrees. Transmit on 136.460 and 137.350 MHz.

Dr Karl Meinzer DK4ZC recently gave talks in Melbourne, Adelaide and Sydney. Karl is a member of the German Satellite Organisation, which was largely responsible for the operation of OSCAR 10. During his talks, Karl demonstrated a hand-held computer for calculating satellite positions. There will be a full story of Karl's talk next month.

Special 75th Anniversary

Victorian Division — VK3's

Feature

VICTORIA 150
GROWING TOGETHER 1984-5

Jim Linton VK3PC
4 Ansett Crescent, Forest Hill, Vic. 3131

VICTORIA: PREMIER DIVISION

This 75th anniversary gives us a chance to look back on the achievements of pioneers and reflect on what the future may hold. One thing that must be stated early is that much of our history remains unrecorded.

The date 30 November 1911, is accepted as when a public meeting was convened by P H McElroy to form an "Amateur Wireless Society of Victoria" (Reference "The Argus" newspaper 1.12.1911).

However there's some doubt as to whether a prior organisation existed and the 1911 meeting was to both form an Amateur Wireless Society and amalgamate an exising body of wireless experimenters.

It would be desirable if someone could shine some light on this mystery.

There's no doubt about the role Victoria has played, and continues to play in the affairs of our hobby, and developments in the science of wireless.

In the late 1880s George William Selby of Malvern, Vic was experimenting with radio waves, and progressed to wireless telegraphy.

The turn of the century saw an increase in wireless experimentation.

H W Jenvey at Queenscliff, Vic, in 1901 made wireless telegraphy contact with HMS St George, the escort cruiser for a state visit by the Duke and Duchess of Cornwall.

In 1910, G A Taylor of Vic successfully demonstrated that pictures could be sent by wireless.

Exploring further the use of wireless, in 1911 he conducted the first communications between moving trains in Australia, in 1912 was the first to fly a model airship by remote control, and 1913 saw him being the first to fire a gun by wireless.

The immediate post-World War 1 era was a period of great improvements in the science of wireless.

Playing a key role in reviving the Institute after the war was Victor Nightingall.

Australia retained its leading status in experimentation with history making contact to the United Kingdom and the USA.

Max Howden VK3BQ is forever associated with the startling developments of world-wide communication in the 1920s. His exploits have been well covered in a previous historical article.

Others from Victoria involved in this era include Ross Hull and Howard Kingsley Love. This pair had dominant roles in the Institute, being jointly involved in early publications about wireless (Reference AR August 1970).

The Victorian Division in 1921 began transmitting in telephony news bulletins nightly on 200 metres.

HK Love, President of the Victorian Division, heard transmission from high powered US commercial stations in December 1922.

Being convinced amateur stations on the Pacific coast of the US might be heard he proposed and organised Trans-Pacific tests.

He was appointed head of a special committee to organise the tests (Reference AR October 1983).

Winner of the tests was Max Howden who was congratulated by the whole radio fraternity.

The following period saw broadcasting start, and a growing interest in the medium of wireless.

Moving ahead to 1933, the publications era of the division began as a result of the President, Harry Kinnear, suggesting the printing of a magazine. This key figure in Institute affairs was also the founding editor.

Up until February 1972, the division produced the magazine before handing it over to the Federal Officer due to the financial burden it put on the division.

AR magazine was maintained during World War 2 and sent to radio amateurs serving their country.

The full story about AR magazine can be read in an article entitled "Golden Jubilee" in AR October, 1983.

It is probably timely at this point to mention that the "Premier Division of The Commonwealth" title came to light during interviews with Harry Kinnear and the 1935-41 President, Bill Gronow.

Victoria led the way up until WW2 and forged ahead in the post war years.

The business sense of Kinnear and Gronow was used to benefit the division in the area of war surplus disposals equipment.

This brief history of the division merely attempts to cover the first 50 or so years.

It does not adequately cover the parts played by Victor Nightingall or H K Love.

The formation and activities of the Wireless Reserve is another omission.

There were of course other events and personalities which could have been mentioned — for instance the Exhibitions in Melbourne, 1948, 1949 and 1950.

These public displays of amateur radio will hopefully be written up during the WIA 75th year.

The remaining 25 years of history is well overdue to be recorded in an article.

Those involved in this period are more qualified to accurately put together a record of events and complete the division's history.

By deliberate action good records of events in the years 1983-85 exist within the Victorian Division Council minutes and AR magazine.

AR

FURTHER READING:

An article "A Bit of Victorian History" written by John Adcock VK3ACA, the Victorian Historical Officer, was published in AR magazine in December 1980.

This records the founding of the Amateur Wireless Society of Victoria, which later changed its name to the Wireless Institute of Australia.

It uses a tape recording of a Vic Div General Meeting in December 1979, which was attended by two founding fathers. They were W K Witt and T F O'Shannessy, both who had been at the 1911 foundation meeting.

GEORGE WILLIAM SELBY:

AN EARLY WIRELESS PIONEER

His activities and considerable achievements are clearly remembered by Mr Selby's youngest son, 93-year-old Alexander (Dick) Selby. A remark by him last November at a Bird Observers' Club meeting in Echuca about his father experimenting with wireless at the same time as Marconi was overheard by a WIA shortwave listener. The lead was given to the WIA which tracked him down living with his niece, Jenny Johnson at Gunbower.

Mr Selby has been deaf from an early age, but through letters and other material has supplied all of the information for this story.

G W Selby became interested in electricity when he read an article in "Every Boy's Annual" in 1872, which told how to make a galvanic battery. He was about thirteen at the time, and when sent to England the following year to complete his education, he managed to continue experimenting.

However G W Selby's father had little belief in electricity and sent a letter to the English school master, asking him not to encourage George in electrical matters, as it may be many years before anyone could make a living out of it. But the master presented the letter to George as he graduated from the school.

Mr Selby had returned to Melbourne and was working as a clerk when news was received that Alexander Graham Bell had invented the telephone. He was inspired and soon after built a telephone himself. Mr Selby then established his own business in Queen Street, Melbourne, as an electrical engineer, with accountancy on the side.

His interest in experimental activities gravitated to wireless telegraphy, and to increase his knowledge of this then practically unknown science, taught himself French and German so he could read foreign technical papers. His experiments were developed to the extent of enabling him to transmit radio waves through a solid wall.

This was in the late 1880s and claimed to have been the first controlled radio waves in Australia.

In 1896, he sent a wireless telegraphy message from Brighton to Caulfield (Victoria), and continued these experiments until at least 1900. His assistant in that particular experiment was a Calder Oliver of Brighton, believed to have been involved because of his Morse code knowledge — nothing more is known about him.

Mr Selby had a seven acre block of land on the corner of Alma Road and Khartoum Street, and that was where he transmitted from. He also pioneered the manufacture of X-ray equipment, and owned and operated one of the first X-ray units in Melbourne. The equipment he couldn't buy, he made himself, including the blowing of glass tubes.

In 1896 his equipment was used to locate a bullet in a man's jaw. The medical profession, including the British Medical Association (renamed the Australian Medical Association) was eager to learn about X-rays and turned to Mr Selby for help.

G W Selby also gave his name to the Dandenong Ranges township of Selby, as he was a first councillor for the Shire of Ferntree Gully.

Among his life's achievements include 59 years continuous service as auditor for BHP, with his retirement being in December 1945.

Should any reader have further information on Mr Selby, please pass it on to Jim Linton VK3PC, who's still researching historical details.

APPARATUS DESIGNED BY G W SELBY IN THE ARGUS 29/4/1899

The sending apparatus is a Hertz oscillator, comprising two brass balls or spheres and a powerful battery and induction coil.

While the transmitter theory is easy to understand — radiation from the spark gap directly fed to a wire antenna — receiving needs a little explanation.

G W Selby in The Argus article, later reproduced in The Radio Experimenter, 15 February 1924, said: "The Coherer is an extremely sensitive detector of the kind of electric waves discovered by Hertz.

"This instrument consists of a few metal filings contained in a gap between two pieces of metal, called the pole pieces, which have connected to them longer or shorter collecting wires, and which are respectively joined to the two terminals of a Lechlanche cell or electric-bell battery.

"The sensitiviness of this arrangement to electric waves or jerks, is extraordinary, and the instrument works in this way.

"So long as no waves reach the filings the circuit is practically open and no current passes across the gap, but the instant the waves arrive the filings become a conductor and allow the current from the single cell to flow.

"It is, in fact, a kind of electric-bell push or telegraph key, worked by invisible waves instead of by a human finger."

The early descriptive diagrams

He said many experimenters in different countries worked at improving and suggesting improvements to the apparatus.

Among those to be specially mentioned are Drs Lodge and Jackson, in England, Professor Bose, in Calcutta, Nicola Tesla in America, Popoff in Russia, Righi and Marconi in Italy and England.

"I can lay claim to being a fellow-worker in Melbourne," said Mr Selby.

In the diagram of the receiving apparatus shown in this article, the relay activates another battery with sufficient power to work a Morse sounder or ink-writer.

The code could be copies by ear as a series of taps, or rattles, of longer or shorter duration, or as dashes and dots on the tape of an ink-writer.

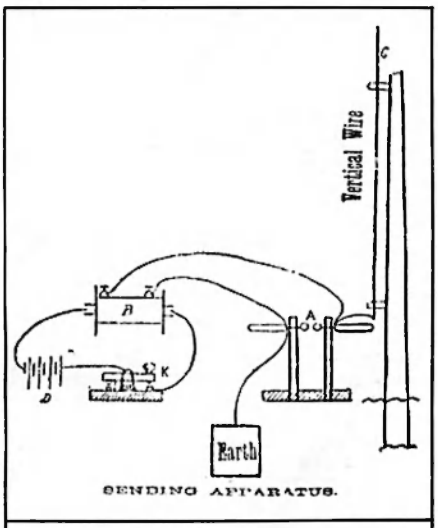
The Knocker shown in the diagram is an ordinary electric bell minus the bell. It is in the same circuit as the Morse sounder or ink-writer.

The purpose of the Knocker is to tap the Coherer to cause the filings to de-cohere and open the circuit.

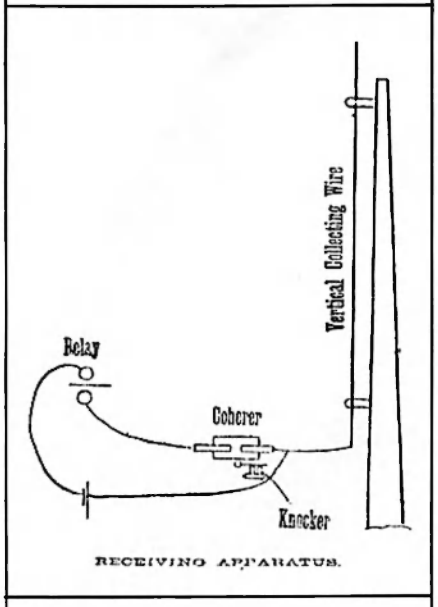
Mr Selby said Dr Lodge had suggested in 1894 the use of an electric bell for this purpose.

In a publication called "Salute to the X-Ray Pioneers of Australia" published by W Watson & Sons Ltd, Australia & New Zealand, an interesting account of Mr Selby is recorded.

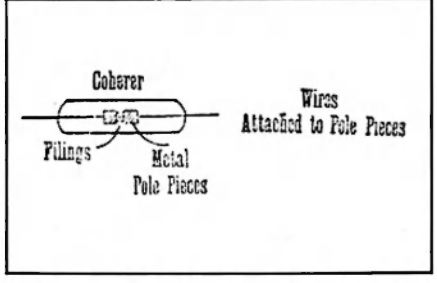
It said: *"Long before Marconi sent the first*



SENDING APPARATUS.



RECEIVING APPARATUS.



signal hurtling across the Atlantic, Selby was engaged in wireless experiments which were the subject of an article published in the 22nd November 1897 issue of the Australasian.

"Two months later he received a letter from Professor Oliver Lodge referring to wireless developments he had communicated to the distinguished English scientist.

"It was Selby who transmitted the first wireless signal in Australia."

His choice of electricity as a hobby arose out of an implement no more significant than a tin tack. It happened in this manner. When a boy at school he was selected to carry out the time-honoured prank of placing a tack in the master's chair. The trick succeeded so well that it is recorded that the learned gentleman suffered pain in a certain part of his anatomy.

Exceedingly wrath, he sought the culprit, and extracted a confession from young Selby, who was reported to the headmistress. That lady punished the youthful offender by withholding from him four prizes that were due to him at the end of the term. Considering this penalty too drastic, the master took the lad aside, forgave him and presented him with a book. It was this book which fired the young scientist to embark upon his electrical experiments. Although his parents greeted his decision in a lukewarm-manner, relatives and friends encouraged him to proceed.

As far back as 1878, G W Selby was experimenting with coils and tubes. In 1880 he exhibited a number of Crookes Radiant Matter Tubes before an interested audience at the Royal Society's Conversazione held at Melbourne.

There is still to be seen a programme printed for the Science and Arts Conversazione held at Melbourne Town Hall on 24th September 1885. In this it is announced that G W Selby would demonstrate:-

Crookes Radiant Matter Tubes.
Vacuum Tubes.
Induction Coil.
Electric Transmission of Power.
Dynamo Electric Machines.

TEN YEARS BEFORE ROENTGEN

Selby was actually operating a Crookes tube 10 years before Roentgen discovered X-rays in 1895 by means of a similar tube.

Had it not been for the fact that G W Selby was ill of scarlet fever when the announcement of the revelation of X-rays reached Australia, it is possible he would have preceded Professor Lyle in the verification of Roentgen's discovery. However, upon recovery early in 1896, Selby set himself to produce X-rays along lines indicated by the great German scientist, losing no time in examining the Crookes tubes still in his possession. Luckily, some were functioning, and he already had the rest of the apparatus required for a test.

While pondering a suitable subject it occurred to him that there might possibly be a rat caught in the trap set in the cellar of his Malvern home. Descending, he found his hopes realised, for there was a rat ensnared in the trap. Here then, was a body for his first successful radiograph. A reproduction of this radiograph was published in the "Australasian" of 16th May 1896.

Reproduction of rat radiograph

From that time onwards, G W Selby carried out in an honorary capacity, X-ray work for several Melbourne doctors and hospitals.

TELEVISION: A PIONEER REMEMBERS

After World War 2 the Australian Government did not want experimenters dabbling in television, but that didn't stop the pioneering spirit of a few in our fraternity. One of them, Len Moncur VK3LN, remembers the saga of trying to get an "Iconoscope" — the then TV camera tube only available from the United States.

He said: *"I was hostile over the government's action at the time in refusing to allow us to buy an Iconoscope.*

"The government didn't want us (experimenters) creating a public demand for television — there were more important things needed like housing and post-war reconstruction."

Len graduated from shortwave listening to take out his licence at the age of 18 in 1928. He said it was a logical progress from radio to TV experiments in his early days.

In fact after reading a few overseas articles on Logie Baird scanning discs Len began TV transmissions in 1932.

"The TV signal at first was literally from one side of the room to the other.

"There were a couple of others experimenting also in New South Wales and South Australia, and I used about 56MHz," said Len.

In 1934 he decided to visit the USA, and meet some of the many DX friends he had made.

He said: *"I bought an A Model Ford coupe, and with QSLs in hand visited 83 amateurs.*

"The QSLs were an open sesame to everything."

While a visiting one shack he was asked by another station on air what route he would be taking. The next day while driving down the highway he heard a car horn sending CQ in Morse and stopped. One amateur had sat on the side of the road sending CQ to every passing car with a Californian numberplate.

The hospitality was running hot for Len and he was invited home. About 10pm the amateur showed me his TV set, and I watched amazed at a commercial TV programme, Len recalled.

"I flippantly said I would like that (TV) in Australia," he said. Immediately, the amateur offered me the TV set, but I politely declined saying it would not fit in my coupe.

To Len's surprise the amateur had the inner workings of the TV set sitting on the back seat ready for his departure next morning.

On arriving back in Sydney, almost penniless, ship's passenger Mr Moncur posed a problem for a customs officer. The words "television set" did not appear in the customs book of words.

Len said the officer asked him which were the most important parts in the TV set, and then fetched a set of tools.

"You hack out the parts you want," said the officer.

Len said: *"Then with great ceremony the remains were dropped into the harbour."*

The most important parts obtained by Len included a state of the art Baird scanning disc, which helped further his TV experiments.

During WW2 Len served his country's war effort like many radio amateurs, with his involvement being in the field of radar installation and the training of others.

After the war he wanted to further his TV experiments by using an Iconoscope.

About 1948 an exhibition was to be held in Melbourne and the WIA was invited to put up a stand. It was suggested by an organiser, a Reverend Elliot, that there be a display of amateur TV. Len said he could oblige — if he had an Iconoscope, but these were not available in Australia. However Rev Elliot arranged for the Mission of Seaman in New York to give two Iconoscopes to the Mission of Seamen in Melbourne. If all went well they were due to arrive about two weeks before the second exhibition in 1949.

Photograph courtesy Herald-Sun Melbourne.

Len and his XYL Phyl working on a 2m rig in 1958.

Len kept track of the important cargo via amateur radio, and great publicity was being made of how TV would be shown at the exhibition.

Alas, the Iconoscopes got lost, and on inquiry customs said they would not be allowed into the country because the Iconoscopes were not unsolicited gifts.

They finally arrived — the Monday morning after the exhibition finished.

At the 1950 exhibition the general public was finally shown the wonder of television — this was six years before commercial TV started in Australia for the Melbourne Olympics.

Len found himself giving a 10 minute lecture on how TV worked.

"I did great magical things like turning the picture upside down, he said. On one night there were three 18-year-old girls among the crowd and two of them described their girlfriend as being most photogenic on TV. The girl asked Len if she could see herself on TV, and Len replied *"only if you can run fast enough."*

The crowd urged her to give it a go. She ran between the camera and TV screen and missed herself every time. Len said that incident made him understand that not one of the crowd which had heard his lecture about TV knew what he was trying to tell them.

When commercial TV began Len lost interest in the mode of transmission which had then ceased to be experimental.

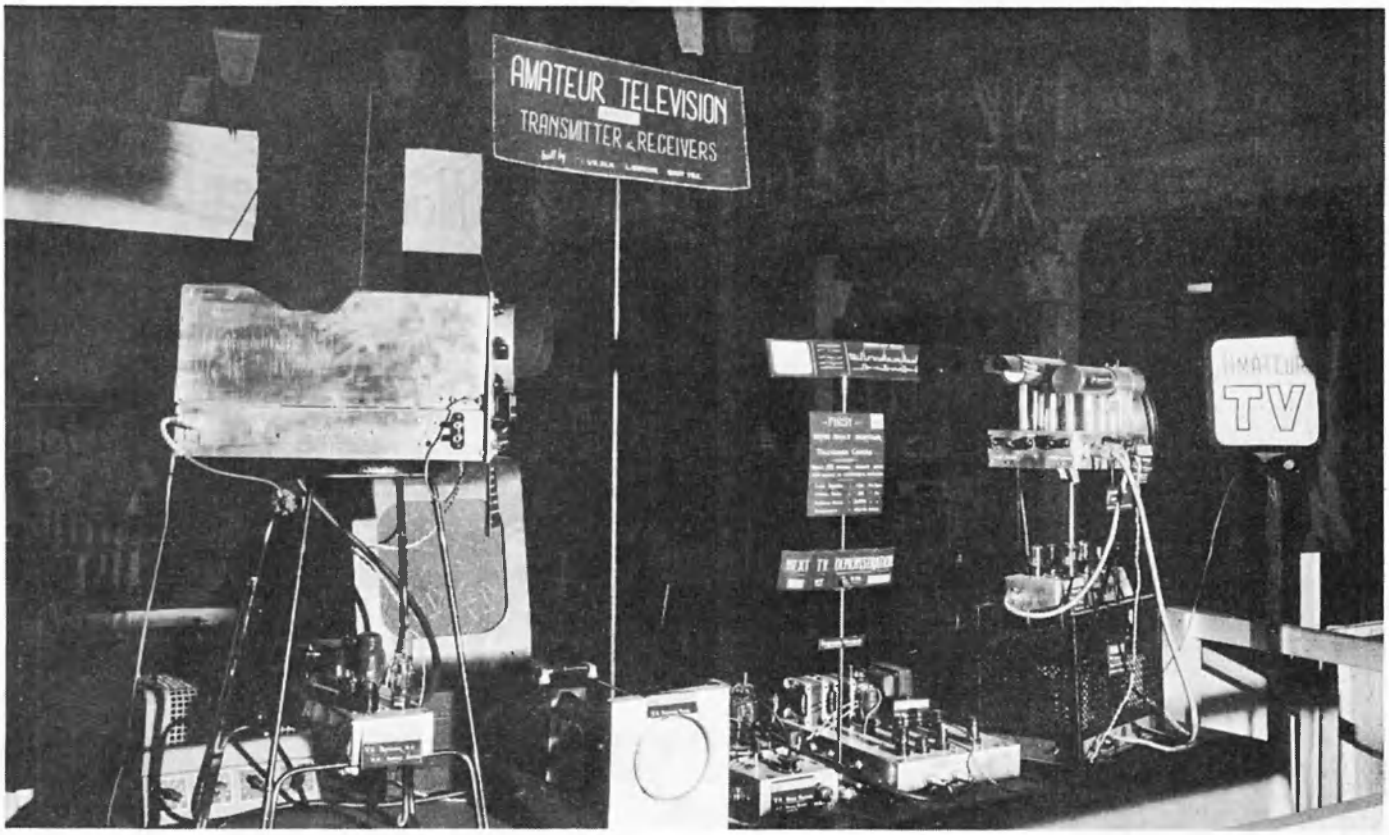
Len's ambition is to travel and this month is in China with his wife Phyl. It's their 97th country, and they hope to notch up 100 countries with a European holiday next year, or as Len puts it: *"Our DXCC of countries."*

Making films is another of Len's activities and he has won several awards, including those from the Melbourne Film Festival. One film was an animation of the opera Madame Butterfly using dolls which required their physical movement (placement) by hand and many thousands of camera shots. The cruel treatment of golf balls by inefficient golfers was the theme of another animation. It used 100 or more golf balls with pipe cleaners for arms and legs, and again using the same technique brought them to life.

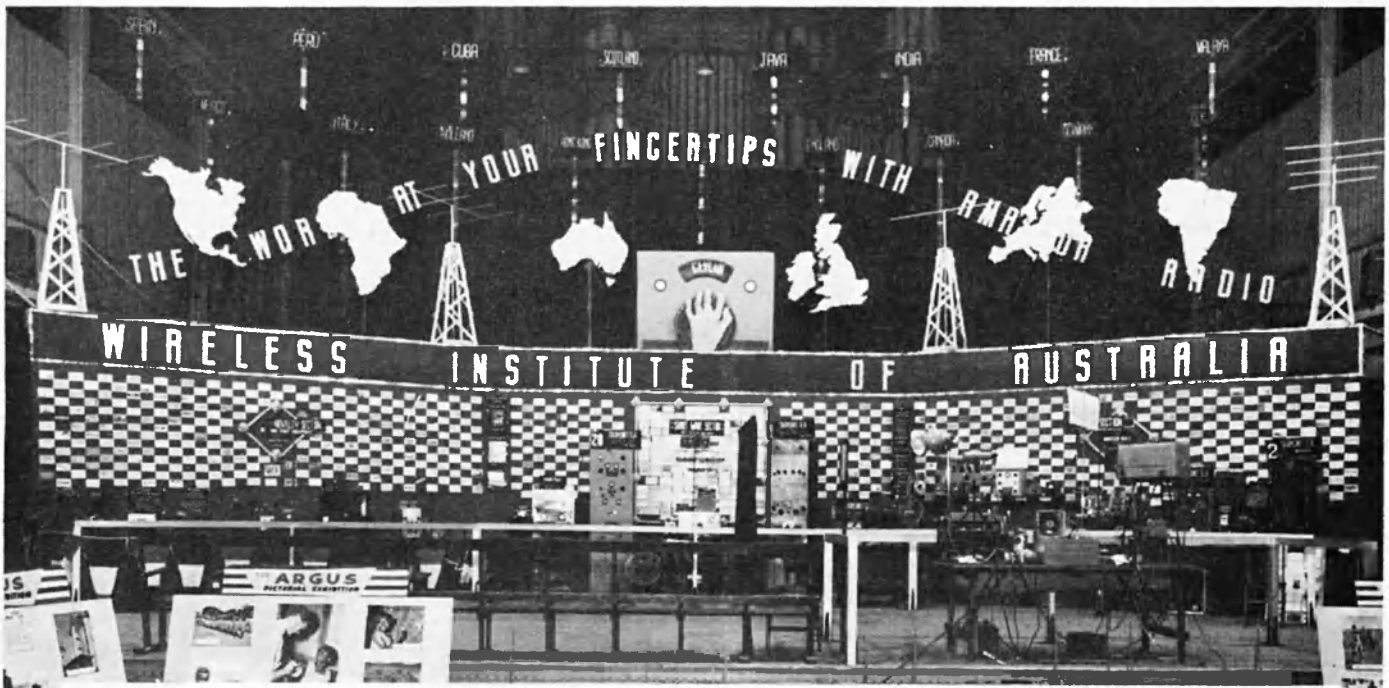
Len Moncur has a drive to do something nobody else has done — he gives it a go — which is the mark of a true experimenter and pioneer.

AR

WIA Stand at the All Models Exhibition with VK3ZAQ operating the 2m station.



The Equipment used by Len in 1949.



WIA Display at the All Models Exhibition in Melbourne in 1955. Len's TV equipment is to the right. The chequered back-board is made up of QSL cards.

SW Gadsden 1930-31

Harry Kinnear 1934-35

WIA VICTORIAN DI

David Wardlaw 1959-63

Sid Clark 1977-78

Bert Semmens 1950-52

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1915-19	Institute i
1919-20	Victor Ni
1923-25	Howard
1929-30	Howard
1930-31	S W Gads
1933-34	George T
1934-35	Harry Kin
1935-41	William
1941-45	Herb Stev
1945-47	Harry Kin
1947-50	Bob Cunn
1950-52	Bert Sem
1952-57	Gordon
1957-59	Fred Bail
1959-63	David W
1963-65	John Bat
1965-68	Ken Pinc
1968-70	Keith Roc
1970 (part)	Ken Sed
1970-72	Jim Lloyd
1972-74	Peter Will
1975 (part)	Russell K
1975 (part)	Ian Morel
1975-77	P Fitzhe
1977 (part)	Alf Kerr
1977-78	Sid Clark
1978-80	Eric Bug
1980-81	Alan No
1981-82	Peter Dru
1982-83	Alan Nob
1983-85	Jim Linto

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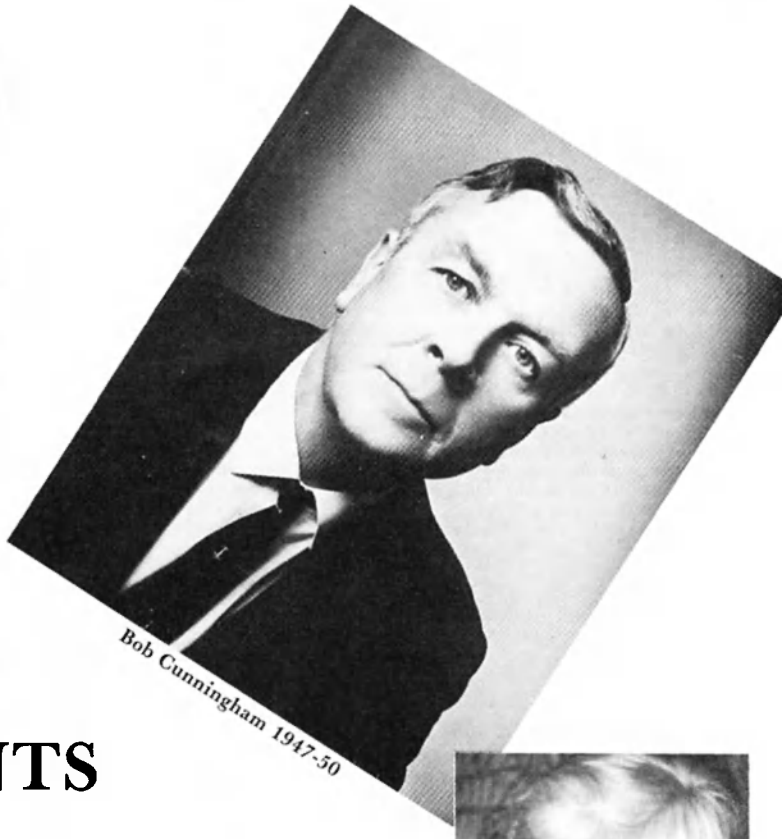
Bill Gronow 1935-41



Bob Cunningham 1947-50

VISION PRESIDENTS

Ken Seddon part 1970

Alan Noble 1980-81 & 1982-83

Jim Linton 1983-85

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ion exists in the years 28. A project to collect st Presidents is continuing, ying them permanently at uarters. Nothing is known unding President, M A K roy who convened the n 30/11/1911 and was Perhaps a reader may be ven the barest of details members of this division.

AR

VK3 WIA NOTES

VICTORIA 150

PRESIDENT'S REPORT 1984/85

Delivered at the Wireless Institute, Victorian Division, Annual General Meeting, Wednesday, 8 May 1985

MEMBERSHIP

The number of WIA members continues to increase in Victoria, as it has for the past three years.

The 1985 Membership is on target and by December the Division should have recorded its fourth consecutive year of growth.

A concerted effort has been made by the 1984/85 Council to increase membership — and special thanks go to those individual members throughout the state who have recruited new members.

DOC LIAISON

A good relationship between the WIA and DOC is to the benefit of members.

Representations on interference, examinations and licensing have achieved satisfactory results.

An agreement now exists whereby either DOC or the Institute can call a joint meeting should a significant problem arise.

Normally routine matters are dealt with by letter or phone.

RADIO MASTS

As published in AR magazine, May, planning permits are now required for some radio masts in residential areas.

While the outcome of this matter hasn't been entirely to the Institute's satisfaction, it could have been far worse without the WIA making its views known.

The Minister's decision could be seen purely as a political one in that it appears to be a compromise between what a minority of councils through the MMBW wanted, and the position taken by the WIA.

However, the Institute through Alan Noble VK3BBM and Council continue to monitor the situation.

Although members are facing difficulties in their applications for building permits — no radio amateur has yet sought a planning permit.

In one recent case a member at Ringwood had opposition to his building permit application from a neighbour.

Part of the objectors' case included a valuers report claiming a proposed mast would have an adverse impact on property values.

The WIA obtained its own independant valuers report, which costs $100, stating the property values would not be affected. An appeal against the Council's refusal to grant a permit was upheld.

WICEN

This area of Institute activity has never been stronger or more professional in Victoria.

The post-Ash Wednesday restructure including formation of regions has enabled the workload to be spread and means it can confidently respond to calls for help from government and welfare agencies.

Fires in January this year saw the Department of Agriculture making good use of the Amateur Radio Service, and the Department throughout the state won't hesitate to call on us in the future.

GENERAL MEETINGS

Sadly these have deteriorated in recent months because no-one has been available to arrange speakers and adequately publicise the meetings.

The Frankston and Mornington Peninsula Amateur Radio Club has offered to make its club venue at Carrum Downs available for a WIA general meeting night.

This seems to be a good idea and could be expected to attract members from the south eastern and peninsula areas.

Perhaps other metropolitan clubs might offer their venues for a WIA meeting.

WIRELESS INSTITUTE CENTRE

The purchase of a better and more reliable photocopier has added a new dimension to the production of correspondence and public relations material.

The Administrative Secretary, Maxine Conheady, contributes greatly to the functions of Council, and in recent months her workload has expanded to include assisting the AR Liaison Officer, and mailing of the Victoria 150 Award and WIA 75 Award.

Without Maxine's dedication the active public relations and membership drive campaigns would not have been possible.

Thanks also go to the team of Wireless Institute Centre volunteers who keep the centre open Monday to Friday, and handle out of hours inquiries recorded on the phone answering machine.

PUBLIC RELATIONS

Strong internal and external public relations continued throughout the year with most achievements being recorded in AR magazine.

An awareness of public relations has been translated to most WIA zones, committees, and adopted by some individual members.

Taking advantage of the WIA's 75th Anniversary and the issue of a pre-stamped envelope by Australia Post on 22nd May, the Institute has obtained permission to display leaflets in all 330 official post offices.

Additional material including a take away leaflet will be available at thirty philatelic sales centres.

WIA 75

This has been fully covered in AR magazine. The Victorian Division has played its part by initiating and carrying through the highly successful WIA 75 Award.

Our Division was the first to activate the commemorative callsign VK75A.

Members have got right behind the anniversary celebrations including the CW Contest and World Amateur Radio Day WARC Bands activity.

It was a VK3 member who designed the WIA 75 logo — there were also other good entries from VK3 for both this competition and for the amateur radio posters.

CLASSES

In the past twelve months even more effort has been necessary to keep the theory and Morse classes at viable levels.

There's a serious decline in the number of candidates going to the Novice theory exam — and the WIA in Victoria will try all it can to attract newcomers to amateur radio.

This is where individual members can assist by making it a personal aim to introduce someone to the hobby.

VICTORIA 150

The state's sesquicentenary which started last November has been celebrated through a commemorative callsign, general availability of the alternative prefix VI, and the Victoria 150 Award.

Use on a roster basis throughout the state of VI3WI enabled clubs, zones and individuals to take part in a special event.

At the same time it brought them together in a union of common purpose.

The public relations value of our hobby's participation in Victoria 150 includes the opportunity to get a message to all members of the Victorian Parliament.

They were sent a copy of Amateur Radio magazine — the December edition which featured Parliament House on the front cover and contained a WICEN post-Ash Wednesday article and a feature on emergency communications following Cyclone Tracy.

THE FUTURE

Challenges are ahead for the WIA to further improve its membership, push even harder with public relations initiatives, and strengthen its relationship with member clubs.

With only one percent of WIA members being under the age of twenty, ways must be found to raise the number of youngsters in our hobby.

More attention should be paid in Victoria to our heritage and history before it's too late.

And in this 75th Anniversary Year, serious thought needs to be given to future directions for both amateur radio and the Institute. Jim Linton VK3PC

AR

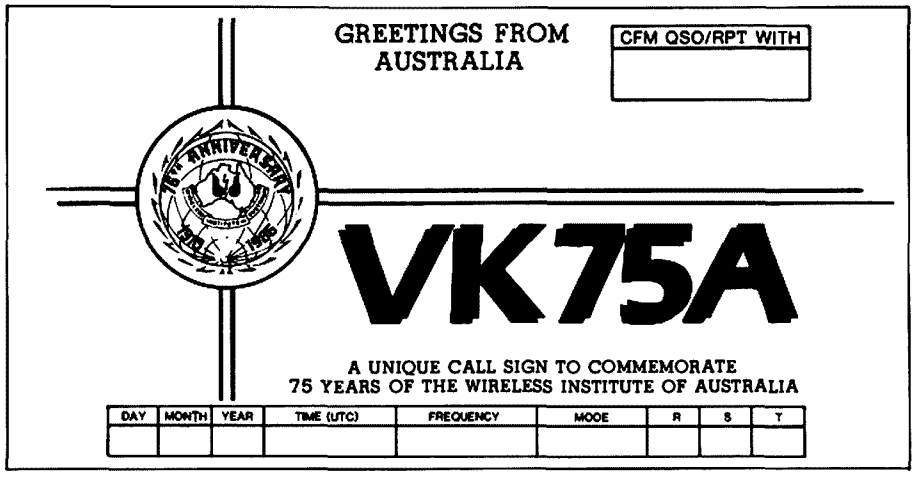
OSCAR STAMP MAYBE

There are recommendations afoot in the US for the issuance of a commemorative postage stamp to mark the 25th Anniversary of OSCAR 1.

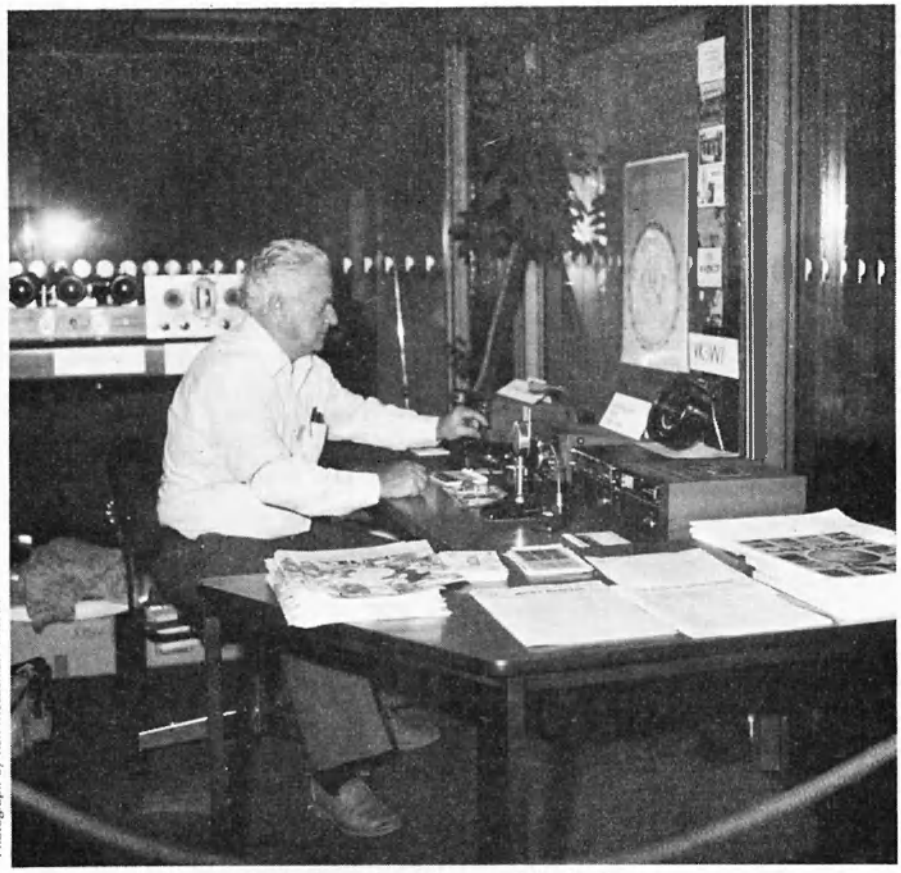
OSCAR 1 was the first non-government satellite placed in orbit and was launched on 12th December 1961, exactly sixty years after Marconi's first trans-Atlantic experiment and exactly forty years after the first amateur trans-Atlantic signals got through.

From The ARRL Letter, Vol 4, No 10.

AR



Philately Day — 22nd May 1985



Photograph by Ken McLachlan VK3AH

The display at the Melbourne Philatelic Centre.

Photograph by Ken McLachlan VK3AH

Miss Jill Johnson displaying one of the first envelopes for sale.

Wednesday the 22nd May saw the release of the special Australia Post commemorative 33 cent pre-stamped envelope for amateur radio and the 75th Anniversary of the Institute, as reproduced on the front cover of the May issue.

The Melbourne Philatelic Centre, located in the centre of the city, had static and working displays, including an operative authentic 1936 station loaned by Mac VK3RV. The Manager of the Centre, Mr Ray Bolitho commented on the interest shown by the public to the exhibition and leaflets freely available, to explain more of our hobby.

Other Post Offices in the state had varying displays concerning the launch of the envelope, as space permitted, including the Mooroolbark Office, where a local amateur had loaned modern and equipment of yesteryear, to foster the hobby and promote the sale of the unique envelope.

DUAL BROADCAST

Permission was given by the Department of Communications to a simultaneous broadcast being made from 3RPC Portland and patched to the eighty, forty and twenty metre bands. The programme was opened by a short address from the Minister of Communications, the Honourable Mr Michael Duffy and was followed by a forty minute tape produced by Ken McLachlan VK3AH, interviewing Mr Chris Long, Acting Electronics Curator of the Museum of Victoria. The tape comprised a tour of the museums archives, interspersed with recordings made of Marconi, other notable gentlemen and some of the actual musical broadcasts that used to frequent the broadcast band from home-made transmitting equipment prior to World War II.

Call back stations, which were also patched through the Community Broadcast station, showed extreme interest and commented on the transmissions.

Australia Post salutes the radio buff
Ballarat Courier

Amateurs who rule the airwaves
Geelong Advertiser

Radio enthusiasts celebrate birthday
Warrnambool Standard

Amateur radio makes its stamp on society
Latrobe Valley Express

Post Office display will mark event
Mildura Independent

Talking to the world via space
Regional Times Extra

Amateur radio design
Shepparton News

Radio stamp
Bendigo Advertiser

Simulcast historic occasion
Portland Observer

Headlines used by provincial newspapers to publicise the pre-stamped WIA envelope throughout Victoria.

SOME MILESTONES IN COMMUNICATIONS

1832 Samuel Morse develops a system of "Morse" code.

1864 J C Maxwell mathematically proves existence of radio waves.

1887 Heinrich Hertz demonstrates Maxwell's theory.

1888 Prof R Threlfall repeats Hertz's demonstration, Sydney University.

1895 Marconi shows practical use of radio waves for sending/receiving messages.

1896 G W Selby, Malvern, Victoria, experiments with wireless telegraphy transmissions and built Australia's first x-ray machine.

1899 Demonstrations of wireless telegraphy in Melbourne, Sydney, Adelaide, Western Australia, and Tasmania.

1900 A number of wireless experimenters known to be active in Australia.

1901 Marconi's historic trans-Atlantic wireless telegraphy transmission.

1906 Marconi Company opens radio link between Queenscliff Victoria and Devonport Tasmania.

1910 Successful demonstration by GA Taylor in Melbourne that pictures could be sent by wireless.

1914-1918 Amateur Radio ceases during WW1, wireless experimenters serve.

1921 Nightly broadcasts of news by the Victorian Division on 200 metres.

1922 Wireless experimenters given permission to broadcast music and live entertainment on the new AM broadcast band.

1923 2SB (Sydney Broadcasters) now 2BL commences operation on 13th November, the broadcasting era begins.

1924 Experimenters make first wireless telegraphy contact between Australia, UK, and USA.

1925 Plans begin for outback wireless, forerunner of Royal Flying Doctor Service. Experimenter Alf Tragear develops pedal wireless. Experimenters establish Australia-wide wireless telephony communication.

1932 Len Moncur VK3LN Ascot Vale, Victoria, experiments with television.

1939 Black Friday, radio amateurs provide emergency communications.

1939-1945 WW2, radio amateurs play key roles in military communications.

1950 Public demonstration of television, by Len Moncur VK3LN.
Signals bounced off the moon by Victorian radio amateur Ray Naughton, who pioneers this medium with contacts to USA.

1970 WIA Project Australia team of radio amateurs in Melbourne build Australia's first satellite and have it launched in the USA.

1974 Cyclone Tracy, a radio amateur in Darwin and another in Melbourne set up vital emergency communication link.

1983 Ash Wednesday, 200 radio amateurs provide emergency communications.

AR

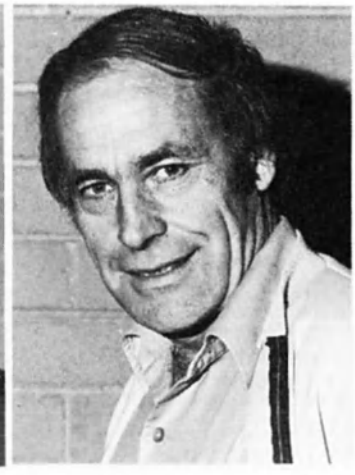
Max VK3BQ conducting the first two-way contact across the Pacific Ocean on 250 metres.

WIRELESS INSTITUTE: TO MANY IT'S A MYSTERY PLACE

Des Clarke — Secretary

Lindsay Rohrlach — Treasurer

Derek McNeil — WICEN Co-Ordinator.



Bill Wilson — Council Chairman

Many members probably haven't given Australia's national radio society much in-depth thought – of course they get the monthly journal or use the various free services provided by the Victorian Division – but actually understanding the WIA is another thing.

Perhaps it's not until one has served on the Council that an insight into the Institute's operations can be fully realised. No matter whether the year is 1925 or 1985, having a position on Council can mean some hard work. You have to make sacrifices, at times this can mean going QRT for weeks and turning your energies on a typewriter, the telephone, or attending meetings.

But all the time a dedicated councillor has in the back of his mind the basic foundations of the Institute set in 1910: "To protect and further the interests of wireless experimenters."

The Council is a barrier to the excesses of bureaucracy, governments and their agencies. It must formulate policies and strategies aimed at getting the best possible (realistic) for the Amateur Radio Service. One on-going task is liaison with DOC and other agencies to help maintain co-operation and understanding. This coupled with the work of managing the affairs and finances of the division can mean a heavy load falling on the shoulders of a few.

And being on Council can often mean you become the subject of criticism by the ill-informed. Admittedly some criticism stems from the "fear of the unknown" – a lack of knowledge about how the Institute works. But it's also generated by those in our fraternity who fail to (or don't bother to) learn the facts of a matter and vent their own personal emotional feelings.

Your national radio society is also harmed by those who hear these people rubbishing the WIA, and then repeat unfounded claims on air – often by prefacing their remarks with phrases like "I've been told that . . .".

The Institute in Victoria is open to scrutinity by its members – should you hear or read anyone voicing anything anti-WIA – remember you can find out the facts through the Divisional Secretary.

As stated earlier – the WIA is a human organisation – and being human means it too can sometimes make mistakes.

But a true supporter of the Institute will seek the full facts before forming an opinion about something the WIA is alleged to have done or not done.

AR

The WIA can be accurately described as a "human organisation" run by volunteers interested in the preservation and furtherance of amateur radio. These volunteers desire to bring out improvements to the Amateur Radio Service and put something back into their hobby.

THE FUTURE: A PROGNOSTIC LOOK AHEAD

Just what will the next 25 years hold for the world's best hobby?

Of course changes in technology will be reflected in amateur radio equipment. Industry sources predict in-built language translation to help radio amateurs (and presumably shortwave listeners) bridge the foreign language gap. Others consider microwave handhelds will be in vogue to link you with your mobile or home rig.

For this (and many other things) to happen, the thorny question of unattended amateur station operation, now prohibited, will have to be resolved.

Will in fact radio amateurs be redundant in the year 2010?

Imagine due to crowded bands and commercial pressures on the spectrum, amateur telephony is banned. It would be possible for our rigs to call CQ, make contacts, exchange signal reports, run a log and print-out QSLs. All of us in 1985 would find that type of development unacceptable.

Packet radio was born in Canada/USA a mere five years ago, and is being hailed by packeteers and others in Australia this year as the emerging trend. A digipeater is operational in Melbourne and packet facilities are to be part of satellites.

No matter how well digital techniques are accepted one feels confident that telephony will remain the major mode of amateur transmission. But only you reading this article in 2010 will know if the confidence held now was valid.

The great potential of packet radio and related keyboard-based techniques is to make our hobby attractive to computer buffs. This issue needs to be addressed with a sense of urgency as part of any WIA strategy to increase growth in radio amateur numbers.

Other obvious challenges include the issue of Morse code being a licensing requirement (no correspondence please – this is not an invitation to open up the code versus no-code debate again), and why not have a geostationary amateur satellite for Australia, New Zealand, Papua New Guinea, and the South Pacific.

This is feasible if an amateur satellite was piggyback launched with a future AUSSAT, the domestic satellite system.

AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

It is on again, having started overseas, and it is something the hobby can do without or for that matter, anyone can do without, in my opinion.

I am specifically referring to the chain letter syndrome, which admittedly has been very quiet over the last three or four years but by all accounts they are around and about again. If any appear at this QTH, I will name the originator and the suggested recipients before casting it into its correct file, the waste paper basket.

There are many ways to ruin a hobby or friendships and this is one of them. In the past, the "letters" have been franked by a business type machine, probably at no cost to the originator, only to his employer who is paying the postal expenses.

CLIPPERTON

The full story is yet to be written, but the operation lasted 6 days 3 hours and 31 minutes, where 11,140 CW and 19,737 SSB contacts were made in temperatures between 35 and 38 degrees Celsius with a relative humidity of 98 percent. Not pleasant.

On landing and departing two boats overturned, luckily no serious injuries were sustained, seas were high and they had to suffer strong winds which brought in the salt spray, if it was not raining. The cost, estimated to be in excess of US$60,000, for less than a week's holiday, to give those number of contacts in round figures equals US$2 per QSO.

Thanks from all DXers, particularly those in the Pacific, to all the operators and donations would be gratefully accepted to help defray the expenses on the members and may be sent to "1985 Clipperton Expendition" c/- Rusty Epps W6OAT, 12866 La Crest Drive, Los Altos Hills, CA94022, where they will surely be appreciated.

All OSLs to YASME, PO Box 2025, Castro Valley, CA 94546 USA.

MT ATHOS

After all the attempts, it appears that I0SNY has received the following letter translated from the Greek language and as printed in QRZ DX.

Sacred Community of Mount Athos
Karie, 21.2.85
To the Civil Authorities of Mount Athos:

Dear Director:
As an answer to your letter (15.1.85) about the request made by the radio amateurs to visit and transmit from Mount Athos, we are sorry to have to tell you that the Sacred Community have decided to forbid forever the making of such transmission from Mount Athos.
Truly yours,
Signed: All the representatives and directors of the twenty Monasteries of Mount Athos.

In my opinion, it is sad that the monks have seen fit to ban a hobby in a rare DXCC country, that means so much to all amateurs, worldwide. My comment is, why?

UGANDA AND OTHERS

Some say there is no paperwork, as the authorities will not issue it because of more important duties and verbal permission is all that is required. This does not suit Don Search at the ARRL DXCC Desk. Others say that written permission has been granted and it is in Don's hands. Apparently Don says that he has documentation of a number of stations but has not processed them as yet.

I go along with the last statement but guess we will just have to wait, see and hope.

On the subject of what is and is not acceptable, the "nots" include C9, 5U7LD, DJ5CQ/SV/A and F6BFN/TT. The good news is, if you are a 40 metre enthusiast, that J5U91 was genuine for the frequency of 7.000 to 7.100 MHz. Outside of this allocation will not be allowed owing to the specifications noted on his documentation.

BAND ENTHUSIASTS

Lee KH6BZF, quite a humourist, predicts very good VHF propagation between the 9th to the 13th of this month, the HF types can expect good activity possibilities from the 1st until the 8th and says there is only 1000 days to go until we reach the bottom of Cycle 21, that is January 1988. This cheerful gentleman asks *"Have you another hobby"*? He closes his Newsletter with the notation *"If we indulge — we bulge..."* Lee a photo please, not head and shoulders either, thank you.

HERIKS DEVALUATION PROBLEM!

Remember Herik FR0LO. Who could forget? Well Herik now sports the call FR5DX and was visited by a couple of European amateurs, demanding an explanation for where were the cards that the dollar notes were sent for. Heriks reply was that it was illegal to send currency in the mail system. I was lucky in getting my card with no hassle and apparently it is not illegal in Herik's code of ethics to receive it.

Herik's many excuses, for not receiving mail at the time, sounded to be genuine but my question is "Did he get in before the devaluation?" and what a killing he must have made either way, as I listened to him a couple of years back, for hours on end, day after day, working the United States at a rate of 30 or 40 contacts per hour. No further comment is necessary except perhaps to note that this has happened in other countries including VK over the years. All countries have their "rare ones"!!!!!

FORUM

George VK3GI has brought to my attention that he worked HI3RST/KP5, last July and has just received the card. The contact was quite difficult and the reports on SSB were 5x1 both ways.

To George's amazement, he received a card with most of the information pre-printed, including the report which was pre-printed at 5x9.

George states *"What utter nonsense this makes of the reality of a contact. I do appreciate the pressure in sending out QSL cards in the thousands after a DXpedition, but is there any value in giving RS reports at all?"*

George likens it to contests, where the monotonous 5x9 reports roll off the tongue hour after hour and in my experience you are requested to, at times, repeat Call and/or report and serial number.

George would like to know how other DXers feel about this matter and I am going to ask you to write to him direct to save overloading my Post Box and trust that he will correlate the replies and pass them on, so they may be printed for the readers' benefit.

George, I don't agree with anyone, but you are an exception with this one and I wonder how the ARRL DX DESK views a pre-printed signal Report. Comments to George please at PO Box 22, Woodend, Vic. 3442.

THE UN AT 40 AWARD

Not trying to steal the Awards Editor's thunder but a special "UN At 40 AWARD" will be issued to any station or SWL working two of the United Nations stations during their 40th Anniversary Celebrations between 1st January and 31st December 1985. The stations are 4U1ITU, 4U1UN and 4U1VIC.

The cost of the award is US$5 of which US$4 goes to the United Nations Children's Fund (UNICEF).

Applications must reach the United Nations Recreation Council Amateur Radio Club, United Nations, Room DC1-0724, PO Box 20, New York, NY 10017 USA before the 1st February 1986.

4U0ITU has been very active on the bands. The operators have been F6EYS and F6HIX.

SALVAGENS ISLAND

The Madeira Club is intending to make an all out effort between the 10th and 20th of next month. No call or QSL information as yet. For those interested the IOA reference is AF-47.

SWEDEN CELEBRATES

Congratulations to the Swedish Amateur Radio Society who celebrate their sixtieth anniversary this year. Selected call signs using the prefix 7S have been heard.

KOREA

An amateur from the German Democratic Republic will be in the People's Republic of Korea and hopes to obtain a licence. Call sign and documentation particularly could be another problem and an interesting "red tape" exercise for the licensing authorities!

BITS AND PIECES

Treat 5A1A as a Pirate**. YV0SE and YV0SEE are thought to be YV40SE and YV40SEE, a special call from EAST Germany. Y40BER has been heard and his QTH is Berlin**. St Brandon didn't eventuate. Amateur operations from 3B7 and 3B8 by foreigners is now forbidden.** Ghis ON5NT, showed how it shoud be done, he made 7210 QSOs from "Bull" 9U5JB's QTH, on all bands 10 through to 80 metres. Only one "G" station appeared in the log. QSL to ON5NT.** Many European stations not happy about the treatment, even though propagation was good, from the Clipperton Expedition. No trouble in the eastern part of VK.** XF4MDX made it, but only for 48 hours, for the many VKs that made it, QSL to XE1MDX. **Crete will be activated by Hal W0PU and his XYL Lynn SV0DW until December. Father John SV0DZ is also presently active. **Three stations, EO1AOK, UW3HY/1 and UA1OT are active from the much sought after Franz Josef Land, ** 3A2CZ and 3A2TO are unissued licences, therefore they are to be treated as "pirates". ** 9U5JW mainly active on CW. ** Twelve JY nationals have passed the examinations and are awaiting the allocation of their licences. ** A wellknown VK3 operator is touring North America, with his XYL operating Motorcycle Mobile and is having a "Ball". ** A positive leap second was put into WWV, WWVB and WWVH on the 30th of June at 23:59:60 UTC. This will retard UTC by one second. Ladies and gentlemen, check your clocks!! ** A well known VK DX operator and QSL Manager has received an invitation to go to the cold south this year. Will he accept??? ** Rumour has it that the residents of Papakura in ZL are jubilant. Dave ZL1AMN, one of the controllers of the Pacific DX Net and Aola ZL1ALE have the tower down for repairs. The neighbours can now see the skyline but I am assured it will not be for long. Will it be a better signal??? ** Still no contact or mailed log to hand on the last boat out from Macquarie Island, from Denise VK0YL, which unfortunately does not allow me to verify the many cards that I have on hand.

PERSISTENCE

Remember in last month's column an appeal for help by Peter G3VIE? Well Peter solved the puzzle of where to find the much wanted cards. A scrutiny of the VK calls one by one, a likely looking similarity, an enquiry to the overseas telephone operator, subsequent phone call and an amazed VK. Peter luckily started at the front of the book and not the VK8 listings as it was found in the first few pages.

Congratulations on your persistence and determination Peter after 15 years of waiting.

DEDICATION

This month, regrettably will be the last segment of "CW SWLing by L30042". Eric has been a constant contributor, except for an overseas trip, since I took over the column.

From all readers and particularly from Bett, my XYL and myself a big thank you Eric, for your contributions that would appear regularly in the mail box on the appropriate day.

Eric feels that it would be impracticable to continue on a regular basis due to the impending change in his lifestyle, which is on the secret list at the moment.

It is hoped to reveal Eric's secret in a future edition of this column but in the meantime our friend, health, happiness and every good wish.

FRANCE

Confusion! The French authorities have decided that first-class licensees may use either the "F" or "FE" prefix at their discretion. For example FE6EYS may also use F6EYS.

WILLIS ISLAND

The new operator Kim VK9ZB, will be active until Christmas. QSLs to VK6YL.

PREFIX CHANGES

VX6 will be used to celebrate the 100th birthday of the City of Lethbridge, Alberta and may be used in lieu of VE6 from the 14th to the 27th of this month.

The X* prefix has been authorised to commemorate the 100th anniversary of Parks in Canada

from the 29th June until the 29th August. Newfoundland XO1, Labrador XO2, Maritimes XJ1, Quebec XJ2, Ontario XJ3, Manitoba XJ4, Saskatchewan XJ5, Alberta XJ6, British Columbia XJ7, NWT XJ8 and the Yukon XK1.

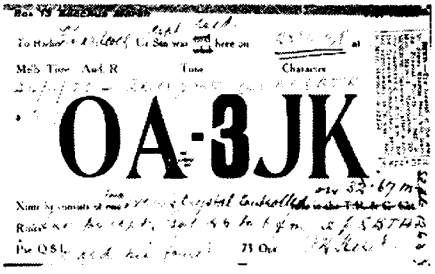
PROPAGATION UPDATE

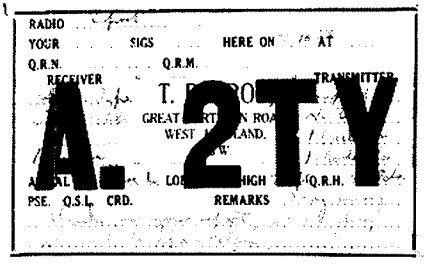
Lee KH6BHF, in KH6BZF REPORTS, estimates that the following dates should be good for long haul twenty metre activity.

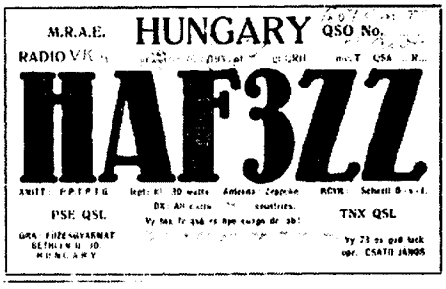
From the 1st to the 3rd, 5th to the 8th, 10th, 15th and 16th, 25th and 26th and the 28th of July. Thanks Lee and we trust that you are correct.

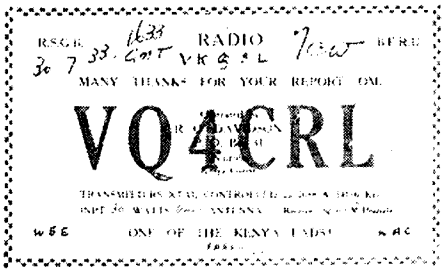
SWL CARDS

Below are reproduced some SWL cards received by Eric L30042. The two Australian cards, OA3JK and









A.2TY were of the 1928 vintage. The overseas cards are 1933. All of course on CW.

ERNST KRENKEL

This old-time DXer, who is now a Silent Key, had the unusual call of RAEM. RAEM was the call of the SS Cheluskin that was smashed in ice in the Arctic Sea in 1934. Ernst was the Chief Radio Operator and was allowed to use the call as late as 1965.

Many references are made to him on some USSR cards and there is an Antarctic and Arctic award in his honour.

TRIVIA

Coaxial cable has been around for over a century. It was patented by Werner Siemens, a German inventor and industrialist, on the 27th March 1884. The first cable of this type was used to carry TV signals between Berlin and Leipzig, for the Olympic Games in 1936.

This type of cable has been used by the majority of amateurs in their time and is still being updated to provide better characteristics.

STATISTICS

The FCC released the following figures regarding Amateur Licences as of the 29th March this year.

The USA has 410,775 individual operators in all Classes and in January 1,097, February 1,454 and March 1,923 amateurs upgraded their licences. In the same period 4,586 people became new licensees.

CW SWL-ING WITH ERIC L30042

28MHz

VK2RSY, VK3AGR, VK3DXF, VK3KNJ, VK3PIW.

21MHz

HL4UV, HL0ARC, JP1FEE, JA3CXQ, JA7YFB, JH8LQD, JH9DPP, KH6IM.

14MHz

EO9AAA, FK8FE, FK0AT, HL1CG, I2ILJ, KG6JIC, LA7XB/3B8, P29FJ, SW2UF, UA0LCZ, UR1ROK, UZ4CWP, UZ0LWX, VE7CLZ, XE1CCB, XE1MZH.

10MHz

DL3OO, DF5MX, DJ8NY, F3BC, F8TP, G2BY, G3TSA, G6ZO, G8FW, HB9QO, JR2QKH, JA6HGX, LX1BJ, SM4DIG, SM5DFF, VK1EP, KU1H, W2AQT, W3ORU, WY4E, KE5RB, WD0EPH.

7MHz

AH6V, CE0ZIG, CO2OM, CT1BIX, CT2AO, DF8PH, DJ9GD, EA2CU, EA5OY, EA7LI, EA9KD, FK8FA, FM5CD, GD0/DL4VU, HA9OA, HA1KSK, HA5GN, HB9BFQ, HI8LC, I2DMK, I3LDS, IT9JII, KH6RM, KP2J, LZ1KVF, LZ2KKW, LZ9MAY, OA4ZV, OE5BCM, OH1LO, NP4MO/AE, SM6CVX, SP5BWO, SV0AH, TI2PI, UA3TG, UA6LJ, UA0JAW, UB5IFW, UL7WH, UP1BZO, UT5SG, UZ6AXJ, WL7ARV, YB3CO, YC3SO, YU1ABH, YU3DKR, YU2AKL, 4N7A.

1.8MHz

VK2APG, VK2BAT, VK3XU, VK4KO, VK5NM, ZL1HJ, VK3BVS, VK3ST.

QSLs RECEIVED BY ERIC L30042

A35EA, HA9RT, JA7WWH/JD1, KL7AF, OE3ZOC, ON7KD, UK8AAI, K9MK/V2A, VS6TEN (28MHz Beacon), N7YL, YV4AU, 4S7EMG, ON6TZ/4S7, 4X4HQ, 5W1ER, 9K2BE and 10MHz, DJ3XF, DF0BA, DL7AEA/EA6, GM3JDR, JA4FM, JA5DOH, W1NHJ, W2GT, W2KTF, WA2LBA, W3ARK, ZL4PO/C.

THANKS

This column would not be possible without the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, PAPAKURA RADIO CLUB NEWS, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including CQ, cqDX, QST, RADCOM, JARL NEWS, KARL NEWS, OZ, 73 for Radio Amateurs, BARG NEWS, BREAK IN and VERON.

Members who have contributed include VKs 2JM, PS, 3GI, YJ, YL, G3NBC and L30042. Overseas amateurs include G1EOD, G3VIE, I8SAT, ZL1AMM, and ZL1AMN. Special and sincere thanks to one and all.

AR

At the last meeting of the Publications Committee, mutual agreement was that I would continue writing these notes. I sincerely thank the Committee for their confidence, the contributors over the last four years and look forward to more contributions from all readers in the future.

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

FROM: Federal Awards Manager

ANNUAL UPDATES

The Federal Awards position now comprises two members, VK4AIX and VK4LC. Joe VK4AIX handles all the overseas awards and submissions to AR, Bill VK4LC handles all WIA awards.

Evidence has been received to confirm that VU7WCY did operate with Indian Government approval from the Laccadives. Their QSL gave no indication where the operation was from (see DXCC rule 1.3). If your card was rejected please resubmit it to FAM.

Cyprus ZC4 was previously mentioned in AR. QSLs for the new country will be credited from 1 June 85. The QSL from ZC4 must indicate that the contact was made from a Sovereign Base Area. If you have doubts please forward the QSL.

Now for details of new DXCC members, DXCC updates and new WIA Awards Certificates issued up to 1 March 85.

Again it is requested that new submissions for DXCC be on a photocopy of the DXCC listing from the 1984-85 Call Book. Thank you for your co-operation.

DXCC NEW MEMBERS

Callsign	*Certificate*	
Phone	*Number*	*Total*
VK9ZA	329	102
VK1LF	330	101
VK4EJ	331	106
VK3APT	332	108
CW		
VK6FS	125	145
OPEN		
VK6FS	226	229
VK3DNC	227	119
RTTY		
VK5RY	003	102

WAVKCA AWARD

VK7DS	1268	JJ3WUG	1299
VK1KAL	1269	I3TZP	1300
YC2DNT	1270	JE2QWC	1301
IN3ANE	1271	JF2LEX	1302
OK3YCA	1272	JA6AKV	1303
G3YRM	1273	OK3CGP	1304
4Z4VG	1274	DJ4SK	1305
JA7KPE	1275	G3WP	1306
UB5GBD	1276	VK3KYL	1307
UW3DR	1277	JE3WTH	1308
UA0FCL	1278	JR3CUJ	1309
RA3DKE	1279	VU2JXO	1310
UA3FT	1280	JG1FVZ	1311
JG3EUM	1281	JH2ABL	1312
JR1UIO	1282	JA3UCO	1313
JA5DVP	1283	JA1ATB	1314
JR2CFD	1284	JA4CPZ	1315
VK2EBM	1285	JH4MPI	1316
ON5KL	1286	DL1ES	1317
ON7ZM	1287	VK1MV	1318
JM1MGP	1288	JR6PGB	1319
JA7TQK	1289	I2MQP	1320
JR8AYI	1290	VK4YX	1321
JA3CJL	1291	GM2BUD	1322
JR3RRY	1292	JA7OUV	1323
JF1CKL	1293	JH7DFZ	1324
UB5EDU	1294	YB3CDL	1325
UB5BAT	1295	JE1ZSK	1326
UA3DFK	1296	G4KJF	1327
UY5OQ	1297	I8SAT	1328
UA9EJ	1298	YB0BZZ	1329
		JA7IC	1330
			1331

DXCC LADDER AS AT 1-3-85

DXCC — PHONE

314 — VK6RU; VK5AB; VK6MK; VK4KS. 310 — VK4VC. 309 — VK6LK; VK6HD; VK4AK. 307 — VK7LZ. 306 — VK3JF. 303 — VK4FJ. 302 — VK3AKK; VK5WV. 301 — VK4LC. 300 — VK6NE; VK3AWY; VK2DFE. 299 — VK5XN; VK3AMK. 298 — VK6FS. 296 — VK5WO. 293 — VK7BC. 291 — VK6YL; VK4PX. 290 — VK3RF; VK2APK. 288 — VK6IH. 281 — VK2AHH. 279 — VK6IR; VK4BG; VK3DU. 278 — VK6AJW. 275 — VK5OU.

DXCC—CW

310 — VK2QL. 306 — VK3YL. 300 — VK4FJ. 299 — VK3XB. 292 — VK3YD. 291 — VK4RF. 290 — VK4UC. 280 — VK6HD. 279 — VK2APK. 277 — VK3KS.

DXCC — OPEN

314 — VK6RU; VK6MK; VK4KS; VK3YL. 313 — VK4SD. 312 — VK6HD; VK4AK. 310 — VK4RF. 309 — VK7LZ; VK3JF; VK4FJ. 305 — VK5WO. 303 — VK3XB; VK5WV. 302 — VK7BC; VK3AKK. 301 — VK4LC; VK4PX. 299 — VK3AMK; VK6FS. 298 — VK3OT. 297 — VK2APK. 293 — VK4UC. 287 — VK4BG; VK3JA; VK2AHH.

WAVKCA (VHF)

VK4ZJB — 19. VK2BNN — 20. VK2QF — 21. VK4ZNC — 22. VK3VF — 23. VK2YO — 24.

WAS (VHF)

VK4ZSH — 155. VK2BNN — 156. VK3YTT — 157. VK3VF — 158.

VHFCC

VK2BNN — 116. VK3VF — 117.

HAVKCA (SWL)

UA9-14530 — 80. UB5-0732589 — 81. L30055 — 82. UA3-1687 — 83. ZL2-266 — 84. UO5-039166 — 85. UAO-1038 — 86. UA3-170483 — 87. UQ2-03726 — 88. UB5-065494 — 89. UAO-110199 — 90. UB5-078589 — 91. UA3-135215 — 92. VK3-L30037 — 93. ZL-202 — 94. SC DX 490 — 95. ZL-2259 — 96. JA7-8257 — 97. JA2-8764 — 98. JA2-8764 — 99.

DXCC OVERSEAS MEMBERS

311 — WA3HUP. 296 — WB3CQN. 140 — G3NBC. 104 — ZS5CO.

Enquiries have been made to the Federal Awards Manager for information relating to awards which are issued by the ARRL, CQ Magazine and 73 Magazine.

Full details of these awards will be published in Amateur Radio for the information of amateurs and SWLs.

ARRL AWARDS

The ARRL sponsors the DXCC, 5BDXCC, WAS "Satellite 1000", A1 Operators Club and Code Proficiency Awards.

The DXCC Award is one of the most sought after awards. Its issuance is carefully supervised by three staff members at ARRL Headquarters. Separate DXCC Awards are available for: mixed modes, all phone, all CW, RTTY, 160 metres and satellite.

Applications must be made on the correct forms and endorsements which are available from ARRL Headquarters for an SASE. The forms will be returned, together with a guideline for postage fees if you require the return of your QSL cards.

Further information may be obtained from: ARRL HQ, 225 Main Street, Newington, CT. 06111. USA.

Under the new call system in the USA where a call has been issued for a call area the amateur, on moving to another call area, retains his original call sign. This now makes it possible to work WAS with all W3, W4 etc. I wonder if ARRL will have an endorsement for this achievement?

73 AWARDS

The editors of 73 Magazine provide the following awards: The DX Country Club, Specialty Communications Achievement (two classes), Worked All USA and Century Cities Awards.

These awards do not require you to forward QSL cards, only certification made by either two other amateurs or a local club secretary.

Further information may be obtained from: 73 Awards Manager, Mr Bill Gosney KE7C, 2665 North Busby Road, Oak Harbour, Whidbey Island, WA. 98277. USA.

CQ MAGAZINE AWARDS

Some very interesting awards are sponsored by the Editor of CQ Magazine. WAZ, WPX, WNPX for Novice operators and VPX for SWLs.

Application form CQ 1051A is available from the Awards Editor by sending an SASE. Use sufficient postage if required by return air mail.

Cost of the awards is $US4.00 for subscribers and $US10.00 for non subscribers. Endorsements require application on a special form and cost $US1.00.

Address: CQ DX Awards Editor, Mr Billy Williams N4UF, Box 9673, Jacksonville, Florida, 32208. USA.

ALASKA GOLDPANNER AWARD

Remember the lure of gold and the halycon days of the gold rushes in Australia, California and Alaska?

To commemorate the entry of Alaska as the 49th State of the USA the Alaska DX Association has sponsored an award highlighting, as the centre piece of the award, an OT with his pan sluicing for the elusive metal.

It is produced on white litho paper, the border being green and gold. Inside the border the colour is cream with gold rays leading from the miner's pan to each border edge. Printing is in blue.

The Award is available to all amateurs and SWLs on a heard basis.

Contacts on and after 1 September 1948 are valid.

QSLs are not required. A list certified by an awards manager of a radio club or a representative of the National Society verifying that the QSLs are correct is to be forwarded with the application together with the fee of $US2.00 or IRCs and/or stamps (US) to the value of the fee is acceptable.

Applications to be forwarded to: Alaska DX Association, Awards Manager, Tony P Smaker Jr KL7AF, Box 1614, Kodiak Island, Alaska. 99615. USA.

Requirements: One QSO with each Alaska prefix, AL7, KL7, NL7 and WL7, and nine additional QSOs with any other Alaska station, thus "4-9er".

Awards are issued for mixed, CW only and SSB only. Band endorsements are available on request.

THE WAC AWARD

The ever popular Worked All Continents Award (WAC) can be yours by simply submitting QSLs as proof of contact with each of the six continental areas of the world, Africa, Asia, Europe, North America, Oceania and South America.

Confirmations submitted with all CW, mixed CW and phone will receive the basic award.

Special endorsements include: 1.8 MHz, 3.5 MHz, 144 MHz, RTTY, SSTV, SSB and phone.

A unique version of the award is available for working all six continents on each of five or six bands.

Applications are to be forwarded to the WIA Federal Awards Manager, Bill Hempel VK4LC, QTHR enclosing the six QSLs together with an SASE for the return of your cards.

After certification by the FAM the application will be forwarded to the IARU. Your award will be sent direct to you from the IARU.

The worlds first WAC Award was issued by the ARRL in April 1926 to Brandon (Brandy) Wentworth U6O1. Brandy is still around as K6UJ, living in Maine.

In 1930 the ARRL transferred administration of the popular WAC Award to the International Amateur Radio Union. The first WAC Award issued under the auspices of the IARU went to Sam Cantor W2BOZ, now W6TSQ and active on the low CW ends of the amateur bands.

Who claims the first WAC issued by the ARRL and also the first Award issued by the IARU to VK amateurs?

COPPER COIN AWARD OF FALUN

The CCAF Award is issued by the Falun Radio Club, Sweden and consists of a hand-made, engraved miniature in copper of a l-Daler-piece from the time of Carolus Rex (Charles XII) 1715. Size 57x63x3 mm or 2¼"x2½"x1/8", weight 100 grams (3.5 oz).

The award can be earned by all licensed amateurs in the world, club stations included, who have been in two-way contact with amateurs within the Falun area and thereby gathered at least 10 points according to the table below. Only one contact per station and band after 1st January 1966 will be counted.

3.5 MHz — 5 points, 7 MHz — 3 points, 14 MHz — 2 points, 21 MHz — 2 points and 28 MHz — 2 points.

All contacts have to be made on the same mode, ie CW, AM, SSB, RTTY, etc. A minimum report of 338 on CW and 53 on phone must be recorded in each direction.

Applications with an attached record of the contacts claimed and $US5.00 should be sent to: Falun Radio Club, PO Box 12, Falun 1, Sweden.

Before an application can be approved, all amateur stations in Falun, with whom the claimant has been in contact, must have received the applicants QSL card. The award will be sent by registered mail. The following stations are located within the Falun area: SM4: AJG-AMC-ARY-ATJ-AUU-BJX-BPD-BPU-CGP-CIM-CSF-CUQ-CYR-DAG-DJO-DNX-EAC-ENH-ENK-EPX-FCD-FPR-FTQ-FZQ-GIB-GL-GLX-HFI-HOU-IRX-JCY-JD-JLX-JNC-KRI-KRL-KSM-KVB-MEC-MJH-MVW-MYG-NBG-NDW-NEI-NSQ-OGR-OHH-SX-TO-TU-WQ and SL4BP.

The Daler is a square shaped coin peculiar to Sweden. Coining of big sized copper coins goes back as far as 1644 when the 10-Daler appeared. Coining of square shaped pieces then went on until 1776. The 10-Daler coin from 1644 is the biggest coin in the world and of the 25539 pieces minted only four have been preserved. Falun is located at Lat 60° 36'30"N, Long 15° 38'E.

This is a most unusual type of an award and is surely one which would provide satisfaction to the recipient.

THE WASHINGTON TOTEM AWARD

The Western Washington DX Club, the north-wests largest and most active DX group, takes pleasure in issueing the first W7 major award. This award is issued to any licenced radio amateur who submits proof of two-way radio contact with the State of Washington. The totem pole shown on the colourful award is typical of the totem poles once found in the State of Washington.

Requirements: 1 Applicants must submit proof of QSOs with 100 different Washington stations. Twenty of these must be confirmed contacts with different Western Washington DX Club members. DX stations need only confirm twenty five Washington stations including ten WWDXC members.

2 General certification rules apply. Submissions of QSL cards is not required.

3 All contacts must be dated 1 January 1973 or later.

4 Certified lists submitted should be in alphabetical order with the date and time in UTC.

5 The Washington Totem Award is free to all stations outside the USA.

6 Special endorsement: The Washington Totem Award may be issued for specific bands or modes if all supporting information is included with the application.

7 The WWDXC will furnish a current membership list upon request including an SASE. Address for applications: Awards Chairman, Western Washington DX Club Inc, PO Box 224, Mercer Island, Washington. 98040. USA.

ITALIAN AWARDS

The Torino Section of ARI issues the following awards to amateurs and SWLs who have established QSOs as follows.

DIPLOMA TORINO DT (1953)

Stations of Torino Province
15 for Italian stations
10 for European stations
5 for Extra European stations, all in the same mode and the same band.

DIPLOMA UNITA 'D'ITALIA (1960)

One station of the Province of Torino plus 18 QSOs with 18 stations located in 18 different Italian regions.

It is not necessary to send QSLs confirming the QSOs; all that is required is to send a log extract with the necessary indications countersigned by another amateur to: ARI, PO Box 250, 10100 Torino. Italy.

AWARD "TEATRO GRECO"

This award is instituted by the Syracuse Section of the ARI. To obtain this award it is necessary to send to the ARI Syracuse Section, PO Box 130, a log extract containing all the details of contacts or listenings made, not QSLs.

10 contacts for Italian stations
5 contacts for European stations
4 contacts for Extra European stations

There is no limitation to the band-12 IRCs to cover return postage is required.

The "jolly" stations are valid for 3 points. Member section: IT9: BYJ-DHR-DSL-EJA-FGH-FQF-FTT-GAI-GKY-IDD-KMU-KUG-LHQ-MLT-MNG-NTO-NTQ-PBR-PLT-QDS-QMA-RHK-RIE-RVZ-USV-VEU-VFZ-YRS-YRE-YSI-XNM-ZHB and ZVT.

IT9 stations are very active and this award should not be a difficult one to obtain.

AR

WABAS AWARD (WORKED ACTIVE BRUGES AMATEUR STATIONS)

Class III requires 6 points
Class II requires 12 points
Class I requires 24 points
Endorsement requires 20 points

Points allotted are: phone 2, CW 3, other modes 2 with the Club Station, ON6BR counting one point extra.

Every answered QSL from a Bruges SWL will double the points for that QSO.

The same rules apply for SWLs.

No QSLs are required, just a list signed by two amateurs plus your mailing address. Contacts from the 1st January 1983 are valid for this award.

Cost is 10 IRCs or 200 Belgian francs. Updating is 2 IRCs or 40 Belgian francs plus SAE.

Applications should be sent to the awards manager, ON4AYL, PO Box 24, 9990 Maldegem, Belgium.
Members of WABAS.

ON1: AIL, AIT, AJO, AJZ, ALE, AWI, AWU, AYD, BEW, BFG, BMW, BTU, BUC, BWE, CE, DO, KAN, LV, OK, PW.
ON4: AAJ, ACH, ACK, ADI, ADO, AGD, AJ, AJD, APC, ARL, ASF, ASV, AYL, CJ, DZ, GJ, IA, IK, KE, KF, KZ, LO, ND, NF, OD, OO, PY, RP, UO, WV.
ON5: BG, CV, FU, IA, IG, JR, KG, LO, NO, NT, NY, OE, OJ, SB, TO, VA.
ON6: AA, BK, BR, DX, FF, HO, IU, JA, JI, JN, OH, OU, PX, TL, UM, WU.
ON7: CA, ER, FV, HT, HW, IE, IN, KV, PE, PY, ON, QU, TE, UE, VK, XN, XX.
ON8: RB.

FIELD AWARD

The Swedish Amateur Radio Society will issue the Field Award diploma to licenced radio amateurs and short wave listeners for verified contacts with fields, as defined by the locator system adopted as from 1 January 1985 (Maidenhead locator). Contacts on or later than this date are valid for the diploma.

The field award is issued in four classes:

PLATINUM	*— All 324 fields verified*
GOLD	*— 300 fields verified*
SILVER	*— 200 fields verified*
BRONZE	*— 100 fields verified*

All amateur radio bands and modes are permitted. Endorsements will not be issued.

All contacts shall be made with stations on the earth's surface.

Contacts shall be verified by QSL cards or their equivalent, on which it is clearly stated the field or position, with such accuracy that the field can be determined. The term "position" refers to latitude and longitude or to a place name.

If there is any uncertainty about a field, SSA may demand further information before approving the contact. If the uncertainty remains, then the contact will not be approved.

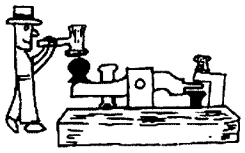
A random sample of individual QSL cards will be made, which must be sent in for checking.

The application shall be made on a GCR list, containing the information from each QSL card which is required for approval. The GCR list shall be verified by the applicant's national diploma manager or other official in the applicant's national amateur radio society.

The fee is 30 Swedish Crowns, 10 IRCs or 4 USD.

Application address is: *Field Award Manager, SSA, Ostmarksgatan 43, S-123 42 Farsta, Sweden.*

AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

GETTING IT RIGHT

Some months ago I quoted a local newspaper column which gave advice on adapting 240 watts appliances to 110 watts with a three-prong to two-prong converter, or some such. They say a little knowledge is a dangerous thing, but I think you could say a little knowledge goes a long way. The following material forms the gist of some recent reading, and I hope you will find it as amusing as I did.

The scene is the Defence Headquarters conference room, and the President is discussing ways of foiling a blackmail attempt based on a thermo-nuclear device hidden in the Capital. The blackmailer has threatened to trigger it with a radio transmission. Aside from all the speculation, what they don't know is that a "forgotten" OSCAR satellite, which doesn't appear on any listings of orbiting objects (!) is to be used for the detonation signal. But that's getting ahead of the story. Listen in as a Colonel gives all the technical detail to the "Big Chief". . .

". . .'For a transmission over this distance he'd have to use long waves which bounce off the ionosphere and come back down to earth. That means low frequencies.'

" 'How many frequencies would be available to him for something like this?' the "Chief" asked.

" 'A megahertz. One million cycles.'

" 'One million!' the "Chief" rubbed the stub of his chin between his thumb and forefinger. 'Could we jam all one million of those frequencies?'

" 'Sir, if you did that you'd wipe out all our own communications. We'd close down the police, the military, the fire departments, everything we'd need in an emergency.'

" 'Never mind. Suppose I gave the order, could we do it?'

" 'No, sir.' "

Well, the plot thickens, as they say, and there is later reference to very low frequency communications on frequencies of "10 Hertz" or less, and they finally give amateur radio a reasonable plug in describing how the forgotten OSCAR came to be there. For me, however, what could have been a fascinating thriller had become more akin to a comic book. It would have taken so little to get it right — but I suppose the days of critical editing are long gone. Used to be the cardinal sin in writing a thriller was to give your hero an automatic pistol, and then have him point his "revolver" at someone.

What it all boils down to is a matter of **standards**, and therein lies the moral of the story. Effective communication requires adherence to standards or it is meaningless, if not laughable.

Look at the Citizen's Band, where the only enforced standards are a result of peer pressure. They've developed their own standards, so you hear jargon which sounds silly to an outsider (eg "QRZ, ORA, modulate the breaker!") but sounds "cool" to other members of the fraternity.

Things are different in amateur radio, primarily because the hobby itself is serious in purpose, and generally practiced by serious people. Nothing like it used to be, as my old-timer readers are undoubtedly saying, but then **nothing** is like it used to be. Certainly not yours truly.

Am I turning into an old-timer already? I suppose at the ripe old age of 35 one tends to take stock a bit and start to look at things differently — half of the allotted three score years and ten has already been used up. It's too soon to start thinking of yourself as a tribal elder, but it's time to realise that one is no longer a young hot-shot. One is already threatened by or at least feeling a lot of pressure from the next generation of young hot-shots. Things could be a lot worse, of course — pity the young super-star gymnast whose career is over at the age of twenty or less.

So as I grow older, I grow more conservative, and develop an ever increasing nostalgia for the way things used to be done. I use commas where one would pause if reading aloud, despite a ukase from the Australian Government Style Manual that they should be used only where absolutely necessary to the sense of what one is writing.

So where have all the standards gone? Has amateur radio evolved into something so informal that anything goes? I think most of us would hope that some standards can be preserved. I have no doubt that I have led a sheltered, spoiled life in comparison with my parents, and their parents; my own children look pretty sheltered and spoiled to me. In the face of the current "me-first" culture, how can I inculcate in them an understanding that if something is worth having, it is worth working for? Now I think I should get down to what all this philosophising (or whinging) has to do with pounding brass.

As a group within the hobby of amateur radio, we Knights of the Key are a dying breed. We can all sit back comfortably and take pride in the way we operate, in the way we represent tradition, and in the way we could handle an emergency. But I don't think we have a lot to be proud of in terms of preservation of our species. Because of the disciplines imposed by the mode and our pride in our accomplishments we tend to set ourselves apart. We think of ourselves as an elite, and could not care less that other amateurs think we are a bunch of old-fashioned freaks.

Well, if this is freakishness, let's have more of it. We can beat a computer anytime, right? Yes and no. We can demonstrate superiority till the cows come home, but the computer is likely to win in the end because human nature will, like water and electricity, seek the path of least resistance. If people do not understand what we are doing, or think it's too difficult, they will ignore it and in some cases ridicule it.

If CW as a mode of operation is to continue to exist (and we are all agreed that it deserves to continue, I trust) then it follows that we must make some effort to bring newcomers into this hobby within a hobby and encourage their metamorphosis into brass-pounders.

To this end I would like to throw this column open to suggestions as to what incentives and techniques can be used to upgrade the image of CW operation among those who should be worthy candidates for the brotherhood.

Some of the ideas which are worth considering are awards and certificates, contests, a revival of the "Key Section".

I've often thought I should prepare a handbook for CW operation, based on this column, because as a beginner I had a lot of trouble figuring out how things should be done. Please write and let me know if you think such a book would be useful, and if so, what you think should be in it.

On the individual side, why not make it a point to enjoy al least one CW QSO every week with an operator who is much slower?

Well, there's some food for thought. Chew it over, and if you don't get indigestion, drop me a line with a suggestion or two (even rude suggestions will be treated as informative feedback!).

Next month we'll do a reprise on learning the code.

73 till then. AR

THEY'RE GOING TO BURN THE IONOSPHERE

The ionosphere over Tasmania will this month (July) have a 155-mile long hole burnt in it by the space shuttle Challenger.

The hole will be created by firing the shuttle's manoeuvring motors and also spurting water, carbon dioxide and hydrogen.

This will give scientists a chance to analyse the ionosphere, and a glimpse at stars which emit radio waves that normally won't penetrate the ionosphere.

The Australian Science Department's Antarctic Division will use the test to monitor the effect of changes in the ionosphere on satellite transmissions and the earth's magnetic field.

The hole will last until sunrise when solar radiation will recharge and restore the ionosphere.

Contributed by Jim Linton VK3PC
AR

SEANET ANNUAL CONVENTION

The 15th Annual Seanet Convention will be held in Cebu City, Philippines from 22nd November to 24th November 1985. Convention headquarters will be the Cebu Plaza Hotel.

Further details may be obtained from the Net at 1200UTC on 14.320MHz or from the Cebu ARL Inc, Box 304, Cebu City, Philippines. AR

PACKET RADIO

David Furst VK3YDF
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PACKET RADIO IN TURMOIL?

Letters have been received from Jon Bloom KE3Z of the ARRL and Lyle Johnson WA7GXD of Tucson Amateur Packet Radio (TAPR) in response to my November 1984 article. I apologise for not answering these letters sooner and trust that the following will be sufficient answer to this correspondence.

The gist of the arguments raised by both American letters was that the AX.25 protocol is superior to the Vancouver protocols, that anyone using the Vancouver protocols was likely to cut themselves off from the rest of the world and that the hardware standard I proposed in that article was not appropriate.

Following the above correspondence an article has appeared recently in another magazine which requires some clarification. Many of the points it raises re-iterate things said in the American letters.

I take this opportunity to write a combined reply to all the above material.

In particular I feel that the magazine article has misrepresented me and my comments rather unfairly. I will not stoop to such personal attacks and I expect no less of others. To criticise a pioneer in a new field for an article published six months ago and written eight months ago is easy with the benefit of hindsight.

The magazine claims Packet Radio to be stricken by rifts, petty politics and conflicting interest groups. It also contains many errors and inaccuracies.

Many misconceptions about the Vancouver Protocol are put forward — amongst others that it *'unfortunately almost set Packet Radio back enormously.'* Vancouver was where Packet Radio was born. It was invented and implemented by Doug Lockhart VE7APU who can be considered the father of Packet Radio. Doug still inputs all he can both to the AX.25 and Vancouver projects.

One misconception appears to be that those of us who propose the Vancouver Protocol as a standard want to close Australia off from the advantages of overseas communication with AX.25 satellites, gateways, etc. We have had an AX.25 option on our systems from almost the time that AX.25 first surfaced. This is more than can be said of TAPR TNCs. The present TAPR TNC does not implement Vancouver 2. The new TAPR 'Tiny TNC' does not implement either Vancouver protocol.

I was criticised for the suggestion that the TAPR people did not make their AX.25 code available. In reality, after I made that complaint TAPR released the software and THEN stated that my criticism was invalid. At the time I wrote those comments the code was not available and it was not policy to release it. We would very much like to put the latest version of the AX.25 software onto our TNCs. Such a large point is made of how freely 'available' it all is. We've had our order in for the new software since January and it still hasn't arrived.

Much is made of how many AX.25 implementations have been released and how wrong I was about there only being the TAPR machine available. This is a distortion of my comments. There was also the GLB board available at that time. In the Melbourne group we obtained both the TAPR board and also the GLB board for evaluation before making our choices.

The Americans at that time were going in all directions and my major proposal was for a hardware standard which was easy to develop software for and which would stay with us for a long time. I criticised the American effort for their choice of processor for which few people could write code (the 6809).

TAPR developed their TNC and have sold over 2,000 of them. Harold Price, who developed the software which runs on it, (using an HP64000 which few of us have access to) has since become involved in so many organisations that the software development has stopped and is unlikely to re-start. TAPR don't supply these TNCs any more. It is worth noting that Doug Lockhart (of Vancouver) suggested to the ARRL that X.3 and X.28 standards be adopted for talking betwen TNCs and computers, which the ARRL have endorsed. TAPR have said that they'll stick with what they already have.

It was implied that the TAPR unit is cheaper than the Vancouver Unit. When TAPR still supplied it, it cost $240 — American. First add about $100 to account for the weakness of the Australian Dollar. Then add 5 percent duty ($17). Finally add 20 percent sales tax ($71) for a grand total of $428. The Vancouver unit can be built up here in Australia for around $200.

The Americans have followed an interesting path. Their first phase was the TAPR board. Then followed a phase where they developed lots of other boards and systems. Most recently they discovered the Xerox 820 computer and moved things across to that. A word about the Xerox 820. It has a Z80 processor and runs CP/M. They did that because lots of people have plenty of expertise with the 8080/Z80 family of processors and CP/M. Now they have released the TAPR II — their 'Tiny TNC'. It also uses a Z80. My point is that I originally proposed standardising on 8080/Z80 family processors and that the Americans have (belatedly) shown me right by their actions. They are using battery backed up RAM, lots of CMOS components, single voltage supply, lower supply drain and have priced it under $200. I proposed all these things in that article written eight months ago.

TAPR are not sure when this TNC will be available. They won't put you on a waiting list for it either. The Sydney Amateur Digital Communications group have already got a couple of prototypes of a new 'Australian' TNC going and they will be releasing it in August/September. It has all the above (and more). Much more, because it will talk AX.25, Vancouver V1 and V2.

Put bluntly the AX.25 proponents would like it believed that we are trying to kill off AX.25. We are not about to try to take on the might of the USA. We want an orderly development of Australian Packet Radio on hardware that the Americans themselves have endorsed. We do not believe that AX.25 is the 'be all, end all' of protocols — neither do the Americans. The 'Tiny TNC' has AX.25 mark I AND AX.25 mark II. (Yet another protocol). We believe that there is much work to be done in this area and we are doing it. If there are some responsible choices of hardware made, no-one need be left behind as the technology develops. As it is, all those 2,000 owners of TAPR I TNCs appear already to have been dumped by TAPR while the owners of the original Vancouver TNCs still have very usable systems.

The magazine article makes much of the digipeating possibilities of the AX.25 protocol and later admits that most of these abilities contravene our Radio Communications Act. The wording leads to the mistaken impression that the AX.25 system allows you to do what is illegal under the Vancouver system. It does not.

Consider this: *If digipeating is so hot why haven't there been reports of huge networks and long distance multi-digipeat contacts in all the magazines?* The answer is a bit technical, but it boils down to the fact that on a long link you can't get a message and acknowlege packets up and down reliably. When the errors do come along the ACKs and NAKs flying up and down the system bring it to a standstill. The XA.25 system was limitations in this area which the Vancouver protocol does not. The Americans keep talking about level three (in language sounding rather like Vancouver V2) but no code or results have been seen thus far. On the other hand many Vancouver proponents here and overseas have been working on Level 3 networking and we will likely be testing such a system by the time this article appears in print.

The article confuses the V1 and V2 protocols and is accurate about neither. It states that the address field allows only two Bytes of information which will allow only 256 addresses; that we must keep a list of who has which address; that the address field limits the amount of data; that some of us are stuck with V1 and that the Vancouver board is not intelligent.

Anyone will tell you that in two Bytes (16 bits) there are 65,536 possible addresses. V2 allocates these numbers automatically and we don't even need to know what they are. As for the address field limiting the amount of data; what about AX.25 with up to 8 fields of 6 characters? — not that this limits data either. It just slows down the channel with a lot of useless information. None of us is stuck with V1, we can and do upgrade frequently. As for the board not being intelligent it just isn't so.

The magazine editor says *that there is a need for more articles on the subject preferably written by someone with more in-depth knowledge of packet radio than I can claim.'* On the strength of the above, I can only concur.

He further claims that *'there are those who would dearly love to leave this mode shrouded in mystery.'* I am at a loss to know who he's talking about. I for one do many talks to groups, write articles, talk about it on the repeaters and generally spend a lot of time working for nothing when I could be in the arms of a lovely lady!

There should be some mention of the achievements of the two Vancouver oriented packet groups in Australia. The Sydney group has been testing a digital repeater for a couple of years and have been running a bulletin board for almost all that time. The Melbourne group has been running a repeater on test for six months and it is now licensed. They have been running a bulletin board for a year.

The article further states: *'In April 1982, there was not a single soul to be found in Australia who was using the new mode'* (Packet Radio). Elsewhere it says *'Packet radio had its Australian beginnings in Sydney in the early '80s.'* Which is it Sir? The Sydney Amateur Digital Communications group was certainly going at that time.

Further, there are only two groups of Packeteers. Those who want only AX.25 and those of us who want Vancouver, but are willing to put the very latest and best of AX.25 into our TNCs but can't get it. The reference to an 'old guard' who want nothing to do with AX.25 is simply not so.

The suggestion that the Sydney Amateur Digital Communications Group has 'splintered' with some people leaving to form the TAPR Users Group is also not so. The TAPR Users Group is an entirely new group composed of new people. They are not disenchanted ex members of the SADCG.

I was taken to task for Implying that AX.25 software is limited to the 6809 processor — I said nothing of the sort.

It is suggested my complaint that the Americans did not even consider the V2 protocol as a Packet standard is unfounded because V2 was not in widespread use. Of course it wasn't. It was the 'newest kid on the block'. I believe that future developments in level 3 networking will prove it superior to AX.25.

The essential difference between the AX.25 and Vancouver camps is that the Vancouver protocol was developed by Doug Lockhart VE7APU who has been involved with commercial packet communications for many years (with IBM) and can rightly be considered a pioneer in that area.

AX.25 by comparison, was designed by a committee. Lockhart's work displayed an intimate knowledge of the complications and requirements of the higher levels of packet protocols and thus ensured a sound foundation on which to build. It is my opinion that this is less true of the AX.25 protocol. Time will tell.

I am castigated for saying that the American approach was aimed at appliance operators. I have nothing against appliance operators, however when the effort is aimed at them to the point of discouraging experimentation (which it was at that time) I have the gravest objections. It is a matter of much satisfaction that the Americans have started encouraging experimentation by individual amateurs.

Then there are the comments about me criticising the TAPR board for its 6809 processor and the consequent difficulty in software development. TAPR themselves have dumped this processor with the release of their new TNC. The information that AX.25 code will run on Vancouver TNCs is no surprise to those who own them.

Next quote: *'Furst has raised the ire of local and overseas packet users, as evidenced by the amount of mail in response to the comments made in Amateur Radio.'* To my knowledge the only letters received were those two noted above. In fact my phone number was on that article so that people could criticise me easier. Not one phone call was received on the subject — not even from the magazine editor.

Once more: *'Lyle Johnson WA7GXD, President of TAPR, responded to Furst by saying his comments were "erroneous and perhaps misleading". Johnson states that the first Tucson TNCs were developed "for about half the price" of the VADCG TNC and the "Bell 202" modem required to use it.'* The operative expression in the price argument is 'and the Bell 202 modem required to use it'. The modem was the expensive part. They should have done what the group in Sydney did when they developed a cheaper, specialised modem. Lyle Johnson continued: *'But TAPR will continue to make the (TNC) kit available'.* 'Gateway — The ARRL Packet-Radio Newsletter' of 7 May, 1985 states 'The TNC 1 is no longer produced by or available from TAPR'.

Mr Johnson goes on to say that *'there is no harm in multiple TNC designs'* and criticises me for proposing another. My design standard was an old one which was based on the essential parts of the Vancouver design and put forward in the interests of maximum compatibility. I note with interest that his organisation has adopted so many of my recommendations.

Both American writers contend that development of the AX.25 standard was to remedy deficiencies in the Vancouver standard of the time and that the development of new hardware was likewise to address problems with that. Surely it would have made more sense to develop along established lines rather than chart entirely new waters by so radical a departure in both areas? By doing so they immediately created a split in the rather small Packet Radio community of the time. Neither the protocol nor the hardware justified so great a change. Without being ungenerous I can only speculate that these changes came about because someone wanted to 'Americanise' the Packet Radio which someone else had invented.

The article further states: *'What we do advocate is a rational, experimental approach that does not rule out any available option until proven one way or another'.* Surely our approach of a common 'hardware bus' which can run any protocol and will not have to be thrown out if and when a 'perfect protocol' comes along is just that?

The point is made that the TAPR Users Group will have to guard against isolating themselves from the existing V2 systems. We wholeheartedly agree and wish to point out that our repeaters will already repeat AX.25 and will continue tp make such provision. Anyone who wishes to use our installations for AX.25 work is more than welcome to do so.

More: *'Canada and Australia are the only countries experimenting with Vancouver protocol on a large scale and stand to isolate themselves from the rest of the world if they do not adopt a more flexible attitude.'* Given all the above it strains my imagination to see just how we could be more flexible. Would you have us exclude any other technology just because the Americans don't like it?

There is a common thread of misconception throughout the article implying we won't be able to use Oscar 10, JAS-1, PACSAT and other services. *1 We do have and will continue to have AX.25 on our TNCs. 2 It is not envisaged that everyone will talk directly to a satellite, but through a 'gateway' which can translate between protocols — and you won't even notice it happening!*

In conclusion the magazine recognises merit in the Vancouver approach by admitting it *'is more "time efficient" than AX.25'*; that there are many *'Australian Amateurs now competent in writing software for this protocol on popular CP/M computers; that there is a high level of expertise here to develop the hardware; and that the hardware is relatively cheap to acquire and appears to be likely to become cheaper still.'*

A final suggestion is that we *'should use every resource available to ensure that Australia has the best, most flexible packet system in the world'.* A view many of us have dignified by working hard towards it.

I regret that this dissension has arisen. Why, oh why, don't we all go back to where the spirit of Packet Radio was a year ago when we all knew what we were talking about, not bickering, but working towards a common goal?

AR

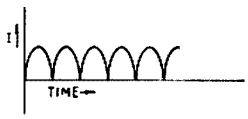
EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

TRIAL AOCP EXAMINATION

Select the correct alternative.

1 This graph shows the output current of a:



a balanced modulator.
b full-wave or bridge rectifier.
c reactance modulator.
d dual voltage power supply.

2 The sidebands of an FM amateur transmission:
a should not be more than 3 kHz wide.
b occur only on one side of the carrier.
c occur at multiples of the modulating frequency.
d add to the power of the carrier.

3 The SWR measured at the output of a 435 MHz transmitter is 1.1 : 1, but at the antenna it is 3 : 1. This may be because:
a the antenna is resonant at 435 MHz.
b of a severe transmitter to feeder impedance mismatch.
c of excessively lossy coaxial cable being used.
d the UHF SWR meter introduces a severe power loss.

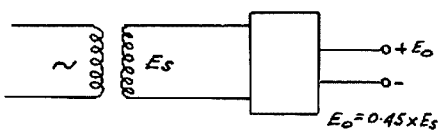
4 The power amplifier in a 144 MHz transmitter is driven by a tripler which is not neutralised because the:
a low power stages do not suffer from positive feedback.
b drive circuit incorporates negative feedback.
c power amplifier provides a passive load for the tripler output.
d tripler input frequency is one third of the output frequency.

5 A bipolar transistor will have a current gain of less than unity:
a in a common base configuration.
b in a common emitter configuration.
c in a common collector configuration.
d when used in an oscillator circuit.

6 A step down transformer has an impedance ratio of 64 : 1. If the input voltage is 120 V AC, the output voltage will be:
a about 2 volts.
b 15 volts.
c 240 volts.
d 960 volts.

7 Typical amateur repeater offset frequencies in Australia for systems operating on 146 MHz and 438 MHz are respectively:
a 600 kHz and 5 MHz.
b 5 kHz and 600 kHz.
c 600 Hz and 5 kHz.
d 500 Hz and 5 MHz.

8 The device in box B is probably a:



a filter.
b voltage doubler.
c bridge rectifier.
d half wave rectifier.

9 A capacitor functions as a result of the:
a storage of energy in an electrostatic field.
b storage of energy in an electromagnetic field.
c dielectric charge.
d accumulation of electrons on the positive plate.

10 In a direct conversion receiver, good selectivity is achieved by:
a the IF stages.
b using a narrow band audio filter.
c low distortion audio amplifier stages.
d a tunable beat frequency oscillator.

11 The reading on a dip meter reduces sharply when it is coupled to a circuit:
a and is tuned to the resonant frequency of that circuit.
b because at resonance it absorbs power from the circuit.
c because the impedance of a parallel tuned circuit is lowest at resonance.
d which is energised.

12 A hot carrier diode may be used:
a as a rectifier in a high current power supply.
b where high heat dissipation is required.
c as a rectifier at microwave frequencies.
d to replace a varicap diode for tuning at VHF.

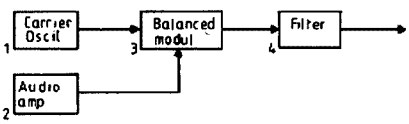
13 To check the linearity of an SSB transmitter to two tone audio test signal is applied. A sample of the transmitter's output is connected to:
a a wave form generator.
b a sweep generator.
c the vertical deflection plates of an oscilloscope.
d an output power meter.

14 Crossmodulation occurs when:
a two signals of precisely equal input strength are received at once.
b the modulation of a strong unwanted signal is transferred to the desired signal.
c two transmitters are operated in close proximity to each other.
d signals are rectified in the receiving antenna.

15 HF multiband transmitting antennas should preferably be used with an antenna tuning unit to reduce the:
a radiation of harmonics.
b angle of radiation.
c height of the antenna.
d generation of intermodulation products.

16 The maximum deviation commonly used in amateur FM transceivers at 144 MHz is:
a 5 MHz.
b 600 kHz.
c 15 kHz.
d 5 kHz.

17 The frequencies which occur at significant levels in the output of block 3 should be:



a AF, RF, sum and difference of AF and RF.
b AF and RF only.
c sum of AF and RF only.
d sum and difference of AF and RF.

18 A receiver's ability to reject unwanted signals is limited by:
a crossmodulation of weak adjacent frequency signals.
b the skirt response of the selectivity circuits.
c generation of harmonics at the transmitting station.
d AF distortion products generated in the detector stages.

19 A 5/8 wavelength vertical antenna is:
a does not require earthing of the radials.
b may use a loading coil to make it an electrical 3/4 wavelength.
c has a higher angle of radiation than a 1/4 wavelength vertical antenna.
d uses its built-in capacitance to reduce it to an electrical 1/2 wavelength.

20 A solid state device having four semiconductor layers but only three terminals could be a:
a NPNP bipolar transistor.
b bridge rectifier.
c silicon controlled rectifier.
d dual gate FET.

21 The 'skip' distance at HF will depend on the:
a radiation angle and virtual height of the ionosphere.
b frequency of local weather changes.
c conductivity of the surface over which the wave travels.
d height of the troposphere.

22 An electret microphone works on the principle that:
a external bias is required.
b its changing capacitance will alter the input frequency.
c a permanent electric charge on the plates provides bias for the amplifier.
d sound waves cause its capacitance to change with consequent output voltage variations.

23 The addition of extra elements to a Yagi antenna will result in increased:
a bandwidth.
b side lobe radiation.
c forward gain.
d SWR.

24 A voltage measuring device incorporates a diode in its probe. It is likely to be used to measure:
a very high pulse voltages only.
b DC voltages.
c RF voltages.
d very low AC voltages only.

25 The rating of a fuse in a transmitter power supply should be approximately:
a 3 to 5 times the expected current.
b twice the power output of the transmitter.
c 1.5 times the current used the output stage.
d 10-20% higher than the expected current.

26 In a transmitter using low level modulation:
a no audio amplifier stage is used.
b all subsequent amplifier stages must be linear.
c the oscillator output must be low.
d the modulation is applied to the buffer stage.

27 To calculate the DC input power to the final stage of a transmitter it is necessary to know the:
a cathode current.
b control grid current and screen grid voltage.
c screen grid current and cathode voltage.
d anode current and anode voltage.

28 A common application for a field-effect transistor is:
a in high voltage, high current power supplies.
b to control the series current in a regulated DC power supply.
c as a high impedance input amplifier.
d as a linear detector for high fidelity reception.

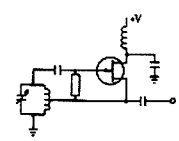
29 The specifications for a device state, in part, '-20 dB quieting with 0.25 uV input signal'. This refers to the:
a image rejection by a superheterodyne receiver.
b sensitivity of an FM receiver.
c carrier suppression in an SSBSC transmitter.
d quality of the noise limiter in a direct conversion receiver.

30 To stabilise the output of a 150 V DC power supply we could use:
a a gaseous regulator tube.
b five 30 V zener diodes in parallel.
c a voltage divider network.
d a choke input filter.

31 An unstable output at VHF from a 3.5 MHz transmitter implies:
a excessive harmonics.
b rectification in the antenna.
c an oscillating power amplifier stage.
d mixing with RF from a nearby television receiver oscillator.

32 One difference between Class AB 1 and Class AB 2 amplifiers is that:
a Class AB 2 amplifiers need less driving power.
b Class AB 2 amplifiers operate without any standing anode current.
c grid current does not flow in Class AB 1.
d two valves in Class AB 1 in push-pull will cancel out odd harmonics.

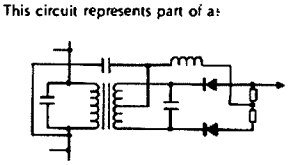
33 The type of oscillator shown is a:



a Hartley.
b Colpitts.
c Armstrong.
d Clapp.

34 To prevent direct radiation of interference from an amateur transmitter it is important to:
a check the SWR at the transmitter output.
b ensure that the transmitter is adequately screened.
c install an antenna tuning unit in the feedline.
d monitor the output on a spectrum analyser.

35 This circuit represents part of a:

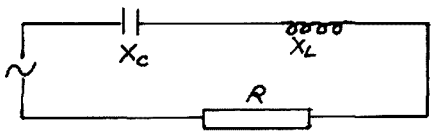


a *frequency doubler.*
b *product detector.*
c *FM discriminator.*
d *full wave power supply.*

36 A multiband dipole can be fed with a single transmission line because:
a *this produces a more omnidirectional radiation pattern.*
b *each dipole presents a high load impedance at other than resonant frequencies.*
c *this produces a uniform vertical radiation pattern on all bands.*
d *a ten metre dipole can act as a matching stub for the longer dipoles.*

37 Ground wave propagation:
a *is not possible across large bodies of salt water.*
b *can be carried out over longer distances on HF than on VHF.*
c *will vary according to the time of day and the sunspot cycle.*
d *can only be used for vertically polarised transmissions.*

38 In this circuit the total impedance (Z) is given by the formula Z= :



a $X_C + X_L + R$

b $R + (X_L - X_C)$

c $\sqrt{R^2 + X_L^2 - X_C^2}$

d $\sqrt{R^2 + (X_L - X_C)^2}$

39 An advantage of the point-contact diode over the junction diode is that:
a *it does not require high purity semiconductor material.*
b *it can be manufactured in a smaller package.*
c *the lower capacitance allows operation at higher frequencies.*
d *temperature sensitivity is higher.*

40 An HF amateur transmitter may produce spurious emissions at VHF. The cause can be identified by using a:
a *sensitive tunable absorption wavemeter.*
b *nearby television receiver.*
c *RF power meter.*
d *RF voltmeter.*

41 Inductances of 20, 30 and 60 Henries are connected in parellel. Ignoring mutual inductance the total will be:
a *110 H.*
b *60 H.*
c *37 H.*
d *10 H.*

42 Marker crystals are often used to:
a *allow simultaneous transmission on several harmonically related frequencies.*
b *calibrate receivers at the band edges.*
c *check for overmodulation.*
d *calibrate the BFO.*

43 A filter has several series and parallel resonant circuit combinations, it is probably a:
a *high pass filter.*
b *low pass filter.*
c *band pass filter.*
d *mechanical filter.*

44 When an alternating voltage is applied to a capacitor, the relationship of the voltage to current is:
a *90° out of phase, current leading.*
b *90° out of phase, voltage leading.*
c *180° out of phase.*
d *in phase at all times.*

45 Hysteresis losses in an iron-cored transformer are due to:
a *the resistance of the wire of the coils.*
b *localised electrical currents in the core.*
c *the extra bulk of the insulation of the coil wires.*
d *the opposition to a change of the magnetic state of the core.*

46 The "D" layer of the ionosphere:
a *is more dense at night than by day.*
b *absorbs MF signals more than HF signals.*
c *is the layer furthest from the earth.*
d *is present only at the peak of the sunspot cycle.*

47 As a safety precaution, before working on a transmitter which has recently been used, it should be disconnected from the mains and:
a *have the microphone removed.*
b *have the fuse removed.*
c *the power supply capacitors should be discharged.*
d *the transmitter earthing strap removed.*

48 The standard colour coding for 240 VAC power leads in Australia is:
a *active red, earth blue.*
b *neutral blue, earth brown.*
c *active brown, neutral blue.*
d *neutral brown, earth green and yellow.*

49 A 'temperature inversion' causes:
a *the air temperature to increase with an increase in altitude.*
b *ionization along a cold front.*
c *improved HF propagation.*
d *VHF signals to be trapped above the inversion layer.*

50 The actual output frequency of a fifth overtone crystal oscillator may be:
a *exactly 5 times the crystal frequency.*
b *one fifth of the crystal frequency.*
c *slightly offset from the fifth harmonic of the fundamental crystal frequency.*
d *adjustable over a 20% range of the fundamental crystal frequency.* **AR**

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

It was interesting to note, as I looked through some Intruder Watch figures lately, that, for the last three years, most intruders were reported in September of each year. I can't guess what this means. We can't assume that intruder activity is greatest in that month, as it may be that OBSERVER activity is greatest in September. I favour the latter theory, and suspect that, with the coming of Spring, and the temperatures in the various shacks becoming more conducive to radio activity, more observers are doing more monitoring than in colder months.

THANKS TO OBSERVERS

The time-lag between processing all the reports received and the lead-time for this column means that thanks to contributing observers are very often belated. However, if you keep that in mind, I now take the opportunity to say thank you to those who sent in reports for February last. VK2BQS, VK2DAT, VK2DEJ, VK2PS, VK2PWS, VK2QL, Arthur Bradford (SWL), VK3PIW, VK3XB, VK3XU, VK3YF, VK4AKX, VK4BG, VK4BHJ, VK4VFG, VK5AOZ, VK5BJF, VK5GZ, VK7RH, VK8HA.

With Spring only a few weeks away, when the shacks will start to warm up, wouldn't it be nice if some more amateurs and SWLs sent in some reports of intruders they hear on the amateur bands? There are plenty to choose from, and I'm sure that the above-mentioned workers wouldn't mind at all if others lend a hand.

NEW CO-ORDINATOR

News has come that we have a new IW Co-ordinator in the ACT Division. Ray Roche VK1ZJR, PO Box 81, Campbell, ACT 2601, has taken up the challenge, and we offer a warm welcome Ray to the ranks of intruder watchers. Any reports from the VK1 area can now be sent direct to Ray.

RE-PRINTED HANDBOOK

Recent enquiries reveal that the new edition of the "Amateur Operators' Handbook", was in fact printed, and was available at the Government printing office, but was subsequently withdrawn from sale due to printing errors. However, by the time this column appears, all should be rectified, and the publication should be back on the shelves (a re-printed edition). This handbook is a must for every Amateur Shack, and, of course, the aspiring amateur licensee must have a copy to study the regulations, not only to obtain a pass mark in the regulations examination but to acquaint him/herself thoroughly with the regulations in force at the time so as to save embarrassment on air. That may save them the panic I went through on one occasion, when, as a Novice licensee, a JA asked me to QSY up the band, which I did, and when I realised I had moved up right out of the Novice segment, I was back in about a micro-second!

LEND-A-HAND

A special appeal goes out this month to VK7 amateurs and SWLs to lend a hand with intruder watching. If you have any enquiries in VK7 re the IW, drop a line to Robin VK7RH (QTHR), the Tasmanian Co-ordinator, who will assist you to assist us to assist you (what'?). Robin is waging a lonely war against intruder stations from down south, and could do with some help. Athol VK7LR is helping, but what about some others chipping in. I have the worked 100 Tasmanian Devils Award, so I KNOW there are more active amateurs in Tassie than Robin and Atholl *What about making it a Club project for, say, one month, to see what you can come up with?*

DISTURBING NEWS

Disturbing news to hand that a ship, currently in the Marshall Islands (at the time of writing), is passing commercial traffic in the AMTOR mode on 14.069 MHz, and that two American amateurs are involved. This is disappointing news, and we hope that the FCC will get something done about it. I have been in touch with the Region 2 IW Director in Washington, and hopefully he will be able to get moving on the matter.

Well, that's about all for the month, see you next time, and let's all try to band together and use kinetic energy to get the solar cycle to get moving upwards!

AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

HAM RADIO. March 1985. Radio Astronomy. (G,N.) Harmonic Signal Mixer. (P) Low Voltage Power Supplies. (P,N.) Rhombic Antennas. (T) List of VHF/UHF Publications. (G.)

SATELLITE JOURNAL. April 1985. General News. Beginner's Guide. Index of Co-ordinators. (G)

RADIO COMMUNICATION. May 1985. Cumulative Index, 1980-84. (G) VHF/UHF Front End Design. (T)

73 MAGAZINE. April 1985. Low Noise 2m preamp. (P) Ishmod's Journal. (AF) Rubber Duck "Hat-tenna". (P) Commercial RTTY. (G)

73 MAGAZINE. May 1985. Special Antenna Issue, including HF Band Discone Antenna. (G)

QST. April 1985. Variable Reference Oscillator. (P) CW Demodulator. (P) Resonance. (N)

BREAK IN. April 1985. Annual reports and remits. (G)

WORLD RADIO. April 1985. World Radio News. Turkey's First Amateur. New Products. Satellite News etc. (G)

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

Well this is ALARA's big month when we reach the grand old age of TEN YEARS; what a milestone and certainly one the founder of LARA can be justly proud of.

At our get-together at Mildura last September Norma was presented with a bouquet and I quote her reply *"ALARA started because I was bored; Too many old ladies; There weren't enough old ladies and there weren't enough young ladies either, they were all men. It was a traditional old story, when you visited an amateur where do you go? You go to the shack with the fellas, or into the kitchen with the ladies, so I thought we had better do something about it and try to get the ladies together. The original idea wasn't necessarily that all the ladies get their licence, but somehow or other that got changed. The idea was to all get together and have family outings, the ladies and men together, and have a good time.*

I am very proud to see what it has turned into."

CELEBRATIONS

VK3: Is having a luncheon at the Moorabbin Radio Clubrooms, Turner Road Reserve in Highett from 11.30 am on Saturday 27th July.

Please bring a plate of food to be shared; cutlery and crockery. Tea and coffee will be provided. Please notify Bron VK3NTD for further details.

VK4: Are also having a luncheon at Redcliffes on Saturday 27th July; details from Margaret VK4AOE or Josie VK4VAN.

VK6: Lunch was on 21st June as this suited the YLs better than July.

Welcome to a new member — Lynda Francis from WA, the daughter of Poppy VK6YF.

On a sad note ALARA has lost three members this year; condolences are extended to the families of Margaret VK2AHD; Verle VK2MR and Valerie VK4FKL.

ALARA CONTEST MANAGER

Marlene VK2KFQ has offered to wear the hat of contest manager for the incoming committee. My thanks to you Marlene for your offer and I do hope you enjoy your involvement with the task.

AGM

Most positions for the new committee are filled now, but please, if you feel you can help in any way, write to Jenny VK5ANW and offer, new ideas and new faces are always welcome.

MINI CONTEST

To coincide with our tenth birthday on the 6th July activity day, a mini contest is being held.

Contacts to be on the novice section of 80, 15 and 10 metres.

Phone and/or CW may be used.

YLs to contact YLs only (not necessarily ALARA members).

Each station can be worked ONCE ONLY.

A special mystery prize will be awarded to the YL who has had the greatest number of contacts (if a draw the YL with the most prefixes wins).

Send your log to Contest Manager VK2KFQ, 31 Cadell Street, Wentworth, NSW 2648 by 27th July 1985.

This will be my last report for ALARA in AR. After nearly six years it is a sad day for me, but it is time someone else has a say for you.

My very sincere thanks to all who have helped me with the column. To those who produce AR the best of luck in the future, the magazine is a credit to you all. I am going to sit back and look forward each month to what our next Publicity Officer has contributed instead of looking to see if my column turned out the way it was intended.

All the best to you all
33/73/88

LIST OF MEMBERS AS AT 21ST MAY 1985

		Joining Date
VK1NEJ	Charlene	21 Feb 82
VK2ACP	Kathleen	1 Oct 80
VK2DIX	Joyce	22 Jul 80
VK2DJO	Norma	20 Aug 75
VK2DVL	Beryl	11 Aug 79
VK2EBX	Joy	25 Jan 80
VK2HD	Heather	22 Oct 76
VK2KFQ	Marlene	11 Nov 83
VK2KYL	Betty	9 Mar 81
VK2MI	Joyce	5 Nov 76
VK2MV	Margaret	20 Mar 82
VK2NKN	Maree	6 Aug 81
VK2NVQ	Dorothy	17 Mar 83
VK2PNG	Margaret	23 Mar 81
VK2PSC	Suzanne	20 Oct 82
VK2PXS	Bobbie	6 Oct 77
VK2SU	Freda	26 Jul 80
VK2YQK/VKD	Wendy	20 Mar 82
Jean Darling		23 Nov 83
VK3AGO	Lorrie	6 May 79
VK3AYL	Rae	20 Apl 76
VK3BIR	Mavis	23 Aug 75
VK3BJB	Joan	2 Aug 76
VK3BRE	Mona	1 Sep 76
VK3BTU	Janet	1 Sep 77
VK3BYK	Barbara	1 Feb 84
VK3BYL	Anne	14 Nov 76
VK3CVW	Valerie	22 Feb 85
VK3CWA	Margaret	25 Mar 81
VK3CYL	Kim	8 Nov 83
VK3DML	Margaret	8 Jun 77
VK3DMS	Marilyn	24 Oct 77
VK3DVT	Valda	25 Mar 81
VK3DYL	Gwen	20 Apl 81
VK3HQ	Marjorie	3 Oct 76
VK3KS	Mavis	22 Aug 75
VK3NLO	Joan	19 Oct 81
VK3NMM	Nita	17 Nov 76
VK3NTD/XTD	Bron	6 Nov 82
VK3PBL	Bonnie	11 May 83
VK3PEH	Dale	26 Nov 82
VK3PIP	Alma	4 Mar 85
VK3PRC	Judy	29 Mar 84
VK3UE	Clarice	29 Oct 76
VK3VAN	Jessie	12 Feb 81
VK3VBK	Joyce	17 Mar 79
VK3YL	Austine	5 Apl 76
Jean Truebridge		3 Aug 75
Kate Duncan		11 Aug 75
Raedie Fowler		16 Nov 76
Muriel May		9 Jun 79
Bronwyn Lewis		2 Oct 80
Rita Astbury		26 May 83
Alice Crain		9 Oct 83
Jean Shaw		12 Dec 83
Edna Sandford		17 Feb 85
VK4ACJ	Sandra	22 Jul 80
VK4ABM	Chris	14 Jul 79
VK4AOE	Margaret	10 Oct 80
VK4ATK	Connie	1 Sep 82
VK4BDH	Dulcie	6 Jan 81
VK4BSQ	Wendy	2 Mar 82
VK4FAB	Anne	12 Jun 81
VK4FFQ	Lori	27 Jun 84
VK4JFA	Phyl	12 Jan 81
VK4NAM	Dorothy	21 May 76
VK4NEZ	Heather	16 May 83
VK4NNJ	Valarie	21 Aug 79
VK4PZ	Mary	9 Mar 81
VK4QW	Cecily	9 Sep 83
VK4VAN	Josie	27 Feb 85
VK4VNK	Jill	8 Oct 84
VK4VR	Val	7 Apl 83
VK5ANW	Jenny	21 Apl 76
VK5AOV	Meg	26 Nov 83
VK5BJH	Joyanne	30 Mar 81
VK5BYL	Judy	20 Mar 82
VK5LM	Lorraine	4 Apl 76
VK5PWA	Carol	14 Jul 83
VK5QO	Marlene	12 Feb 81
VK5YJ	Joy	14 Jul 79
VK5YL	Denise	20 Apl 76
Pauline Keon		24 Dec 83
VK6DE	Bev	2 Mar 80
VK6HI	Helene	23 Nov 83
VK6KYL	Diane	14 Jul 79
VK6MH	Bobbie	14 Dec 76
VK6NSU	Sue	2 Oct 80
VK6OV	Inge	31 Mar 85
VK6QL	Trish	3 Dec 84
VK6QM	Margaret	21 Jun 80
VK6YF	Poppy	3 Jul 78
VK6YL	Gillian	15 Sep 76
*Olive Couch		21 Oct 77
Daphne Hugo		25 Aug 80
●June Greenaway		24 Dec 83
Lynda Frances		13 May 85
*VK6ZLZ	Christine	17 Dec 83
VK7CC	Christine	10 Jun 83
VK7HD	Helene	29 Dec 77
VK7NYL	Laura	2 Feb 84
VK7ZSU	Sue	25 Aug 79
VK9NL	Kirsti	1 Jun 80
DF1LV	Christel	11 Dec 82
DJ1TE	Christa	15 Sep 79
DF2SL	Anny	15 Sep 79
DF3LX	Heidi	12 Mar 83
DK5TT	Margot	1 Nov 81
DJ0EK	Paula	1 Nov 81
FK8FA	Aimee	22 Oct 84
JA1AEQ	Fumi	21 Sep 84
JH1GMZ	Akiyo	6 Feb 85
JI1VLV	Nanako	8 Jul 84
JJ1LQI	Hisako	25 Oct 83
JJ3WWS	Sayoko	1 Sep 82
JA6KYP	Etsuko	14 Jan 85
K1IJV	Jean	23 Mar 81
WA1UVJ	Karla	10 Dec 79
W2GLB/7	Phyllis	23 Jul 76
WB2YBA	Christine	1 Jun 78
		(other callsign VK2ASZ)
KA3CEO	Jeanne	19 Jan 84
W3CDQ	Liz	1 Nov 78
WA3HUP	Mary Ann	6 Oct 81
WB3CQN	Ruthanna	30 Mar 81
WB3EFQ	Lois	19 Oct 83
WA4SRD	Edith	17 Oct 79
K5AVX	Charlotte	20 Feb 82
KK5L	Carol	11 May 83
WD5FQX	Darleen	16 Jan 85
K6INK	Jerrie	9 Jun 79
KA6V	Joanie	16 Oct 82
KB6CLL	Mary	22 Oct 84
N6GGR	Maxine	28 Dec 82
WA6OET	Jessie	17 Jan 84
		(other callsign VK3BCO)
KA7CRO	Martha	2 Mar 82
KD7RA	Gerry	19 Jan 84
KD7SH	Alice	26 Apl 84

KD7YB	Joan	11 Apl 83
KF7F	Jan	20 Dec 78
KQ7Y	Shirlee	1 Oct 80
N7FXF	Denise	22 Nov 82
KB8RT	Lee	2 Oct 80
KM8E	June	10 Feb 85
WD8MEV	Shirley	1 Feb 84
K9RXK	Ann	22 Aug 83
G3HCQ	Sheila	20 May 81
G4EYL	Ann	28 Mar 81
G4EZI	Diana	19 Dec 78
G4JMT	Rae	8 Mar 84
G4KVR	Cilla	1 Nov 81
G4OUZ	Joy	17 Dec 84
G4VFC	Dee	17 Dec 84
Jeanette Arter		17 Dec 84
GM4LUS	Shirley	20 Dec 80
GM4UXX	Anne	23 May 84
GM6KAY	Kay	17 Dec 84
LA8UW	Karen	20 Feb 84
PA3ADR	Agnes	12 Jun 81
PA0HIL	Hil	12 Jun 81
PY2JY	Inge	23 Jan 84
VE6AUP	Hallie	1 Oct 80
VE7YL	Elizabeth	1 Oct 79
VE7CBK	Bobby	28 Oct 78
VE7CIX	Rae	28 May 78
VE7XYL	Diana	30 Jan 82
YJ8NJW	Iunia	6 Feb 85
ZL1ALE	Aola	12 Dec 79
ZL1ALK	Celia	1 Nov 81
ZL1BDZ	Clarrie	18 Mar 77
ZL1BOR	Lesley	11 May 80
ZL1FV	Gail	8 Nov 83
ZL1MY	Shirley	20 Nov 83
ZL1OC	Vicki	11 Sep 77
ZL2ADK	Cathy	30 Oct 82
ZL2AWP	Alma	17 Dec 84
ZL2AZY	Biny	11 Jan 81
ZL2BAO	Jos	1 Nov 81
ZL2BOA	Marilyn	16 Sep 84
ZL2BOD	Jeanne	26 Dec 82
ZL2BOV	Anne	23 Jan 84
ZL2PQ	Lynn	25 Dec 82
ZL2QW	Pauline	4 Nov 83
ZL2QY	Pearl	22 Apl 76
ZL2TZG	Gail	17 Jan 85
ZL2VQ	Carol	30 Oct 83
ZS6GH	Diane	1 Jun 78
ZS6VC	Pat	20 Nov 83

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

There has not been too much to get excited about this past month. Band conditions have been very poor and unpredictable with the occasional blackout severely disrupting communications on HF. One highlight though was the unexpected appearance of Radio Greenland in mid-April on 13.797 MHz with reduced carrier USB. It was carrying a news programme in a Nordic language — Danish I would presume, as there were actualities from Tel Aviv. I think that the programme material would have originated in Copenhagen as Greenland's population is not that large, although in the atlas Greenland appears large, it really is because of the distortion of land masses around polar regions on the Mercator Projection. You can see it's true size on a globe.

STATIC LEVELS DOWN

Because of the lack of activity on the higher frequencies, I have been listening down in the tropical allocations between 2 and 6 MHz. The static levels have diminished now and I have been observing some interesting Latin American and Asian signals in our local evening hours. Unfortunately as well, there seems to be a corresponding increase in the amount of utility services utilising these frequencies, because of the lack of HF propagation. This has made reception even more difficult. When you appreciate that the majority of broadcasters down there use low to medium power, you do especially find it difficult to positively identify a station, as there are local languages and dialects spoken plus there are several stations sharing the same channel.

Another complication I have encountered is the presence of several international broadcasting stations, such as Radio Beijing and Radio Moscow in these tropical allocations, which are primarily allocated for local domestic coverage. Both stations have been observed in Japanese and Korean. I have even observed Beijing broadcasting in English around 1200 UTC in the 60 and 75 metre allocations. The frequency was not announced at the microphone nor is it mentioned in the schedules. However the 75 metre allocation (3.900-4.050) is used within Europe and Asia but not in the Americas.

SURPRISE!!

And talking of unlisted outlets, I came across Radio Australia on one of their regular 49 metre channels at 0400 UTC. It was quite strong and unusual because Radio Australia doesn't employ the 49 metre allocation in the local daytime. I think that they could have been using Lyndhurst and not the Carnarvon site which normally is on 6.080 MHz. The VOA was in various European languages underneath from their Wofferton (UK) base. I don't think it was a scheduled transmission as there was no acknowledgement at the microphone of the frequency's use. I guess that they were experimenting to see what propagation was like on 49 metres at that time.

UNIDENTIFIABLE

Around mid-winter, it has been usually possible to hear signals coming in from Europe across the Antarctic regions at midday locally. So far this year, I am hearing several carriers yet the modulation appears well down. There is a characteristic flutter, indicative of a polar path present on the carriers. Perhaps by mid-June, I will be able to identify them.

At present, I am hearing stations broadcasting to North, Central and South America around 0200 UTC which corresponds to our local midday. Signals on the 25 and 31 metre bands have been particularly good. Another unusual propagational occurrence has been the presence of several Pacific Island broadcasters on the 41 metre band during the daytime. Noumea has been heard around 0200 UTC on 7.170 as well as Vanuatu on 7.260, which quickly disappears when the Europeans dominate the channel.

There were several live broadcasts of special events during May. First off, we had a description of the May Day Celebrations in Red Square in English and other languages. Then on the 8th May, better known as VE Day, the BBC World Service carried live the Service of Remembrance from Westminster Abbey. Then the next day, the Soviets had a big Military Parade in Red Square and R Moscow had descriptions over their World Service plus a commentary in German. Apparently the USSR regard 9th May as VE Day.

The BBC World Service has been experimenting with a new audio processing system called OPTIMOD. This new system aims to equalise audio output and is not like the compression system they used previously.

Then you could hear the announcer in between phrases drawing in breath, or the sound effects would drown out the dialogue on a sports description or play. The new system appears much better and easier to listen. Now I would only wish Radio Moscow reduce its compression on its modulation. It sounds lifeless and artificial with no depth. The audio is better on their Domestic Feeders on SSB than it is on the normal DSB (AM) signals, particularly on music programmes.

Well, that is all for this month. I hope to work many of you to obtain my 75th Anniversary Award. Next month, I will have a report on the Australian Radio DX Club's "DXPO" that I attended last month. Until next time, the best of 73 and good listening — Robin. **AR**

QSP

TRANSCRIPT OF JOTA TAPE

JOTA information for broadcast on Sunday, 26th May 1985 from Stan Ellis VK2DDL, JOTA Co-ordinator for 1985 for Central Sydney Area of the Scout Association.

The Scout Association is hoping, this year, to see a much greater response from Scouts, Guides and amateurs to Jamboree-On-The-Air. We feel that, in International Youth Year, amateur radio offers a great opportunity for Scouts and Guides around the world to make contact.

The Scout Association has set up groups of JOTA Co-ordinators at Area and District levels to liaise with the WIA, and, in particular, the Institute's JOTA Co-ordinator, John Bunn VK2NDJ.

We ask any amateur who can spare the time, to participate. Although JOTA is still some months off, we would like to see amateurs and Scout Groups, or Districts, meeting to arrange for the siting of JOTA stations and also for preliminary instruction of Scouts and Guides in operating procedures.

A suggestion is that groups of two or more amateurs visit Scout and Guide meetings and demonstrate procedure, as well as giving some details of the history of amateur radio. It has been found in the past that many of those participating in JOTA, when confronted for the first time with a microphone, become tongue-tied, and contacts degenerate into much giggling and incoherent noises. This does not enhance either the Scouts', Guides' or amateurs' appreciation of the event, and can be avoided if some familiarisation with the art of communicating is provided. A very effective way of providing training in procedure is by the use of intercom units or tape recorders. Intercom units, particularly those FM units which operate over the mains, offer a very easy means of demonstration under conditions which closely approximate push-to-talk operation.

Communication is becoming an increasingly important aspect of Scout training. We hope, in the future, to see more and more amateur stations permanently installed at Scout halls. For many Scouts and Guides the first contact they have with amateur radio is at JOTA. The willingness of amateurs to introduce them to their hobby can often result in the awakening of an interest which will continue for many years.

Any amateur willing to assist with JOTA has only to advise John Bunn on 02-772-3437, giving his or her name, address and call sign. This information will be passed on to the Scout Association who will arrange for a District Co-ordinator to make contact and arrange for a meeting where facilities, a suitable station location and any other necessary arrangements may be discussed. **AR**

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

JULY

6-7	*Venezuela Phone Contest*
13-14	*International QRPP Contest*
13-14	*IARU Radiosport Championship*
13-14	*West Coast 180 SSB Contest*
13-14	*Colombian DX Contest*
20-21	*The Sunshine State Jack Files Memorial Contest (Rules 'AR' June 1985)*
20-21	*Venezuela CW Contest*
20-22	*CQ WW VHF Contest*
27-29	*County Hunters CW Contest*

AUGUST

10-11	*European CW Contest (Rules this issue)*
17-18	*REMEMBRANCE DAY CONTEST (Rules this issue)*
17-18	*SARTG RTTY Contest*
24-25	*All Asian CW Contest (Rules June 1985)*
24-25	*SARTG RTTY Contest*

SEPTEMBER

14-15	*VK NOVICE CONTEST*
14-15	*European Phone Contest (Rules this issue)*

OCTOBER

5-6	*VK/ZL OCEANIA PHONE CONTEST (Not yet confirmed)*
12-13	*VK/ZL OCEANIA CW CONTEST (Not yet confirmed)*
26-27	*CQ WW DX Phone Contest*

NOVEMBER

23-24	*CQ WW DX CW Contest*

CERTIFICATES

As I write this, action is still in hand to complete the issuing of all the certificates and overcoming the backlog of same. My plans have gone a little astray regarding this matter and I had sincerely believed that I would have had it all cleared by now. So, please be patient for just a little longer. I can assure you that you have not been forgotten.

REMEMBRANCE DAY CONTEST

This is the biggest of our contests for the year. There are quite a few rule changes, many of which have been previously intimated, and I would suggest that you read the rules carefully. Hopefully there are no ambiguities or mistakes in same.

The weighting factors to be applied for the 1985 Contest with respect to each WIA Division are as follows:–

VK1 — 1.08, VK2 — 7.81, VK3 — 5.96, VK4 — 5.83, VK5/8 — 1.31, VK6 — 1.26, VK7 — 1.27.

I would like to thank Ron Henderson VK1RH for his assistance in calculating the figures from the data available from the 1984 contest and providing same to me. I still have some reservations as to the method used in deriving the formula to determine the winning Division and I mentioned this fact in my Annual Report to the Federal Convention. I trust that there will be some continuing discussion on this subject but would not like to mess with the current system until the matter has been more closely studied. It is a much more complicated matter than may appear at first glance.

CONTEST DATES

Following my Annual Report to the Federal Convention and discussion of same by the Federal Council my recommendations regarding the change of dates for the John Moyle Memorial Field Day and the VK Novice Contests were accepted. It is too late now to be able to do anything about the VK Novice Contest date so we will have to wait until 1986 before that can be sorted out. As you can see by the Contest Calendar published above it will still be held this year in September sandwiched in between the Remembrance Day and VK/ZL/Oceania Contests.

The Convention agreed that the date for the Field Day Contest could be moved to as late as the end of March. It may interest you to know that I am in correspondence with the ZL Contest Manager Jock White ZL2GX on this subject. The New Zealand boys would like our Field Days to continue to coincide as has happened on occasion in the past, so I hope that we can come to some suitable arrangement on this.

There seems to be a large amount of material for the Contest Column this month and it is that season of the year when my work as Contest Manager will be hotting up. I also have a very heavy commitment in other areas as well so the column may be a little sparse in the way of editorial comment and news for several issues. However, do not let this deter you from sending letters of comment and suggestion. They are always welcome, the more comment and discussion the better for all concerned.

REMEMBRANCE DAY CONTEST 1985

This contest is held to commemorate those amateurs who died during the Second World War and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all participants.

This contest is held annually during the weekend nearest the 15th August, the date on which hostilities ceased in the South-west Pacific area.

The contest is preceded by a short opening address by a notable personality which is transmitted on various WIA frequencies during the 15 minutes immediately prior to the commencement time of the contest. As part of this opening ceremony a Roll Call of names of those amateurs who paid the Supreme Sacrifice is read.

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice and so perpetuates their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and in addition the winning Division will receive a suitable certificate.

OBJECTS

Amateurs in each VK call area will endeavour to contact other amateurs:

1 In other VK Call Areas, P2 and ZL on bands 1.8 to 30 MHz, (except the 10 MHz, 18 MHz and 24 MHz bands).

2 In any VK Call Area, including their own, P2 and ZL on bands above 52 MHz, and as indicated in Rule 5.

CONTEST PERIOD

0800 UTC 17th August 1985 to 0759 UTC 18th August 1985. All Australian amateur stations are requested, as a mark of respect, to observe 15 minutes silence prior to the commencement of the contest. It is during this period that the Opening Ceremony Broadcast referred to above will take place.

RULES

1 There will be TWO CONTEST CATEGORIES.
(a) HIGH FREQUENCY (HF) ie for operation on bands below the 52 MHz Band.
(b) VERY HIGH FREQUENCY (VHF) ie for operation on bands from 52 MHz and upwards.

2 In each Category there will be THREE SECTIONS.
(a) Transmitting Phone.
(b) Transmitting CW.
(c) Receiving.

Modes applicable to each section are as follows:–
(a) AM, FM, SSB, TV.
(b) CW, RTTY.
(c) Rx A or B.

3 ALL AUSTRALIAN AMATEURS (VK Call sign) may enter the contest whether their stations are fixed, portable or mobile. Members and non-members of the Wireless Institute of Australia are eligible for awards.

4 CROSS MODE OPERATION is permitted. CROSS BAND operation is NOT permitted excepting via a satellite repeater.

5 SCORING CONTACTS.
(a) ALL CONTACTS SCORE **ONE POINT.**
(b) On all bands a station in another call area may be contacted once on each band using each mode. That is, you may work the same station on each band on Phone, CW, RTTY and TV.
(c) On the bands 52 MHz and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than THREE HOURS since the previous same band/mode contact. However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit.
(d) Acceptable logs for all entries must show a minimum of at least 25 valid contacts.

6 MULTI-OPERATOR STATIONS ARE NOT PERMITTED (except as in Rule 7) although log keepers are allowed. Only the licensed operator is allowed to make a contact under his/her own call sign. Should two or more operators wish to operate any particular station each will be considered as a contestant and must submit a log under the individual call sign which applies to that operator.

7 CLUB STATIONS may be operated by more than one operator but only one operator may operate at any time, ie no multi-transmission. All operators at any club station must sign the declaration.

8 CYPHERS. For a contact to be valid serial numbers must be exchanged between stations making the contact. The serial number will comprise THREE FIGURES commencing at **001** for the first contact and incremented by one for each successive contact. Should the serial number 999 be reached the serial number will revert again to 001.

9 TERRESTRIAL REPEATERS. Contacts via terrestrial repeaters are not permitted for scoring purposes. Contacts may be arranged through a repeater and if successful on another frequency will count for scoring purposes. The practice of operating on repeater frequencies in simplex mode is not permitted.

10 PORTABLE OPERATION. Log scores of operators located outside their allocated call district will be credited to that call area in which the operation takes place, eg VK5XY/2. His score will be added to the VK2 Division scores.

11 ENTRIES. A log of all contacts must be submitted. This should be in the format as shown in the example and must be on one side of the paper only.

A FRONT SHEET must also be included showing the following information in this order:
Category (HF or VHF), Section (Phone, CW, or Receiving), Call sign, Name, Address, Total Score, Page Tally.
Declaration: "I hereby certify that I have operated in accordance with the rules and spirit of the contest."
Signed.....Date.....

Logs are to be forwarded to the Federal Contest Manager, PO Box 1234, GPO Adelaide, SA, 5001. Envelopes are to be endorsed "Remembrance Day Contest" on the FRONT outside. Entries must be forwarded in time to reach the Box Number by 27th September 1985. Any entries received later than this date may be used as Check Logs only.

12 DISQUALIFICATION. See general disqualification rules as printed in detail in the August 1984 issue of 'Amateur Radio'.

Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may also be disqualified.

AWARDS Certificates will be issued generally on the following basis:– To the top scorers for each call sign class in each Section of each Category. The right of the Federal Contest Manager is reserved to issue additional certificates where considered warranted and to NOT issue certificates where, in the opinion of the contest manager, the entry does not warrant same. Certificates will be issued to top P2 and ZL scorers under the same conditions.

DETERMINATION OF WINNING DIVISION

Scores by stations in VK0 are added to VK7 and VK8 to VK5. Scores by VK9 stations are added to the mainland call area which is geographically nearest. Scores claimed by P2 and ZL stations are not included in the scores of any VK call area.

The formula to be applied to determine the winning WIA Division is as follows:– Total Contacts per Division/Total Licences per Division multiplied by Weighting Factor.

The Weighting Factor is calculated such that should each WIA Division perform equally as well in 1985 as in the past nine years (averaged) the result would be a seven way dead heat. Consequently, the most improved Division will win the trophy and also earn a revised and lower weighting factor for the following year.

RECEIVING SECTION RULES

1 This Section is open to all shortwave listeners in Australia, Papua New Guinea and New Zealand. No active transmitting station may enter this section.
2 CONTEST TIMES and logging of stations on each band are as for transmitting.
3 All LOGS should be set out as per the example. It is not permissable to log a station calling "CQ". The detail shown in the example must be recorded.
4 SCORING will be as per Rule 5 for transmitting with other aspects of that same rule also applying.
5 CLUB STATIONS may enter this section. All operators must sign the declaration.

AWARDS FOR SWLs

Certificates will be awarded to the highest scorer in each call area. Further certificates may be issued at the discretion of the Federal Contest Manager.

DUPE SHEETS

Where stations make a reasonable number of contacts it is most helpful that they use some form of checking system to ensure that they do not have invalid duplicate contacts. A form of sheet which provides a convenient method of making such checks for each band was described in "Amateur Radio", December 1984, page 54. I would suggest that you should use such sheets. Whilst it is not mandatory that you do so, it would be of assistance to the contest manager if you forward a copy of same together with your log.

COMMENT ON RULE CHANGES

You will note that there are a number of changes again made to the rules of the Remembrance Day Contest this year. These may be summarised as follows:–

The splitting of the contest into two Categories HF and VHF.
All contacts to score ONE point only.
Repeat contacts on VHF each 3 hours.
Dupe sheets are NOT mandatory.
Operation of more than one call sign is legitimate. Certificates awarded at the contest manager's discretion.

Before you attempt to query these changes I would submit for your consideration some additional information:

There has for some time been some disagreement as to the point that city operators have an advantage over country operators where VHF operation is concerned. Making two Categories and separating such operation should help solve that problem. It is a fact of life that one can obtain a greater number of VHF contacts by either living within an area of high population density or up on a mountain with great line-of-sight paths. I might also add that in some respects country operators have some advantage with less QRM from local stations, lower general noise levels and often more space for antennas, etc.

Under the rules for this contest any operator may enter in both the HF and VHF Categories, however it becomes obvious that he would have to submit two distinctly separate logs. The same would apply to the submission of logs for both Phone and CW operation.

CW and Phone comprise totally separate sections of the contest, however any operator may utilise both modes if he so desires. It seems to be a matter of pride for CW operators to state that they can get through more easily and faster than phone operators when the going is rough. The more important point for this contest is that by providing additional points for one mode over another the whole idea of the special formulas devised to make the competition between WIA Divisions more equal is thrown off balance by such bias.

The change to 6 hours between repeat contacts on VHF last year was excessive and produced a flood of complaints. The choice of the figure of 3 hours is attempted as a compromise. It may be that further change might be made on the basis of more experience with a VHF only category.

As stated above copies of dupe sheets would be helpful, however until more operators properly understand how to use same I am loath to make them mandatory. Some of the examples provided with logs for the contest last year would certainly bear out my point here.

If an operator has more than one call sign legally issued I see no reason why he cannot use them in any manner he wishes as long as he is abiding by the contest rules and licensing regulations. It would not normally provide him with any extra advantage to operate both call signs consecutively and can even add to the fun of the contest. This approach also allows a club call sign to be aired and encourages any such additional operation in the contest.

The matter of issuing certificates can become a problem. Under the previous rules it may surprise you to know that in excess of 96 certificates would be issued against the annual Remembrance Day Contest results. In many cases these certificates were issued to operators who, whilst they did comply with the rules, made in fact very few contacts at all. In some cases, full-call operators, who made hundreds of contacts less than Novice operators in the same call area, became eligible for a certificate just because they made a handful of contacts on phone and maybe one or two on CW and thus became the only entrant for their call area in the 'Open' Section. In another instance some limited-call holders made in the order of 10 contacts on 2 metre FM and then made just one or two RTTY contacts with their friend just down the road. Such an entry qualified for a certificate as the ONLY limited-call holder in the State with an entry in the Open Section.

At the recent Federal Convention I recommended in my annual report that the Contest Manager should accept discretion in the matter of issuing certificates. The Federal Council saw the wisdom of this approach and agreed. The guidelines for the Remembrance Day Contest do however suggest that where possible certificates be issued to holders of each class of call sign. This suggestion would be followed at the same time as consideration under the more general terms of reference for the Federal Contest Manager. The increase of the minimum number of contacts for a valid log from the previous requirement of 10 to the currently required 25 contacts is an effort to assist in overcoming the problem. Let us face the fact that any reasonably competent operator should be able to make at least 25 contacts in not much more than an hours operation and in most cases even less than one hour.

Generally speaking I would wish to pursue a policy which would not provide contestants in any contests with some kind of an advantage due to the fact that they manipulated their entry to fall into some unusual kind of category which brought them the right for an award with very little expenditure of effort as against those other operators who try hard in contests and operate in a fair manner.

In any case, I do hope that you will enjoy the Remembrance Day Contest this year and that you will provide your support for this, our major event for the year, as well as doing the right thing and being in there trying to help your WIA Division to gain the coveted trophy. I will look forward to exchanging a serial number with you.

EXAMPLE FRONT SHEET

REMEMBRANCE DAY CONTEST 1985

Category: HF **Section:** (A) Transmitting Phone
Callsign: VK1XXX **Name:** Joe Brown
Address: P.O. Box 123 Farm Orchard, ACT. 2611
Total Score: 1498 points

Page Tally	10 Sheets	1498 Points
	Page	Score
	1	40
	2	39
	3	40
	—	—
	—	—
	Pages 10	Total 1498

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.
Signed: J. Brown **Date:** 20-8-85

JOHN MOYLE MEMORIAL FIELD DAY CONTEST 1985 — RESULTS

This appears to have been a success this year particularly taking into account the changes made to the rules to try and provide added interest. Even with the fairly short notice quite a number of stations seemed to come up with sources of 'Natural' power. I think perhaps the one to really 'take the cake' was the operator who set a magneto type generator together with a hand drill on a piece of board and turned the unit by hand to power his IC202 Transceiver. Amateurs seem constantly to show their ingenuity. I operated in the 6 Hour Division of the contest and I asked many stations about their feelings on date changes to same. Almost without exception

EXAMPLE TX LOG:

REMEMBRANCE DAY CONTEST 1985

Callsign: VK1XXX **Category:** HF
Section: (A) Transmitting Phone

Date/Time (UTC)	Band (MHz)	Mode	Call	No. Sent	No. Recvd	Pts.
17-8-85						
0800	14	SSB	VK2QQ	001	002	1
0802			6LL	002	001	1
0805			5ANW	003	011	1
0807	"	"	ZL2AGQ	004	003	1
0809			VK4XX	005	007	1
Page 1 of 10						Page Total 40

EXAMPLE RX LOG

REMEMBRANCE DAY CONTEST 1985

Name/SWL No: L30371 **Category:** HF **Section:** (C) Receiving Phone

Date/Time (UTC)	Band (MHz)	Mode	Stn. Calling	Stn. Called	No. Sent	No. Rcvd	Pts
17-8-85							
0800	14	SSB	VK1XXX	VK2QQ	001	002	1
0802			1XXX	6LL	002	001	1
0805	"	"	5ANW	1XXX	011	003	1
0807			ZL2AGQ	1XXX	003	004	1
0809			VK7AL	2PS	007	010	1
Page 1 of 7							Page Total 40

Jill VK6YL, on Penguin Island during the John Moyle Memorial Field Day, used Wind Turbine Power.

all those asked indicated that they would favour such a change as was mooted. This matter was discussed at the recent Federal Convention and it was agreed that the contest could be run as late as toward the end of March. As I have been pointing out this would definitely improve the situation as far as bush fire dangers are concerned and also possibly improve matters for the operators in the north of the country by being further away from the middle of the great wet season.

The introduction of the incentive type multipliers for VHF operation seems to have been satisfactory. Rather than very little VHF operation, as in the past, there was quite a lot carried out on a fair number of bands. VK6KZ for example operated on 6 HF bands (1.8, 3.5, 7, 14, 21, 28 MHz) and 7 VHF/UHF bands. (52, 144, 432, 576, 1296, 2304 and 3456 MHz). This was certainly an excellent effort. It might be said that this contest became too VHF orientated however something different had to be tried. As a result of this year's contest it would seem to be a wise move to re-introduce a VHF ONLY Section. I can assure you that even this Contest Manager can learn by his mistakes. Experience is a good teacher.

Some comments from logs:—

'I think your change of rules rather good as it spreads the scoring possibilities, although I will need to revamp my VHF/UHF aerials to be competitive.' — VK3BAF.

'Congratulations on the revamping the rules for the John Moyle . . . the multiplier rule of map reference for VHF could be changed to make it necessary to provide information only on stations worked over 50 kilometres as all contacts are obviously eligible for at least the multiplier of 2.' — VK2YUP/PEP (A valid point — 5QX.)

'I look forward to the next John Moyle Contest as it seems to be the only contest that I have noticed that is friendly and that stations are operated in a gentlemanly manner, unlike the RD Contest where a lot of stations seem to reply to a call then proceed to take over the frequency from low powered stations.' — VK2YUP/PEP.

'Firstly I like the idea of the Section Letter after the serial number. It certainly aided me whilst adding the scores. I question the RS number. It was quite obvious we were not getting dinkum signal and readability numbers . . . We have entered the John Moyle Field Day Contest since 1979 and have a lot of fun . . .' — VK4YX Log Co-ordinator for Southern Downs Ad-Hoc JMFD Contest Group.

'So again, congratulations on an excellent presentation and development of the rules. May your efforts at revising the other National contests be as successful . . . Also I liked the new classification of 'Home Station Emergency Powered'.' — VK2BQS. (Jim enclosed a polaroid photo of his emergency powered station however the photo is not good enough for reproduction — 5QX.)

'It was obvious from the small number of novices contacted by my station that there needs to be some thought put into the rules for novice participants. Maybe an HF ONLY section. We need to encourage the novices to enter as many facets of 'AR' as possible and contesting is one. Especially the John Moyle, as it is meant to familiarise amateurs in 'field' operation . . . look forward to next years event.' — VK1PJ.

'Thanks for another fine contest, unfortunately this year I recently arrived on Christmas Island and events prevented me from activating a portable station . . . Christmas Island has 5 amateurs, two being fairly active . . . We may try and activate the Club Station VK9XI for the RD Contest so keep an ear out for VK9X.' — VK9XZ (VK6CZ). (How about the Club in next year's JMMFD? — 5QX.)

'It was an enjoyable contest and I would like to thank the organisers once again.' — VK5DL.

'You obviously put a great deal of thought into the rules but some thoughts may be of value to you . . . I do not believe there is a place for VHF in the NFD. The Ross Hull Contest caters for the VHF devotees. The present system allows near city operation on VHF to crank up huge scores in a fashion which has no rational significance.' — VK2ARZ. (Max made quite a few rather pertinent comments apart from those quoted here. — 5QX.)

'Next time I see the need for portable HF antennae rather than the mobile whip if one is to be competitive.' — VK6KZ.

'Every Tuesday morning at 10 am at the Moorabbin and District Radio Club venue there is a meeting of the old retired members. About 40 to 50 turn up and of them there is about 10 who used to operate VK3APC during past field days. We have now left it to the young chaps to carry on while we take it easy hi . . . If you study the word Portable in the dictionary you will find the definition does not really suit our situation. When we had VK3APC in the field days we needed a fleet of cars to carry all the gear.' — VK3JI.

'The 6 and 24 hour sections should be retained as it allows people who can't devote all the time to the contest to participate at times to suit them.; — VK5AIM.

'The recent rule changes made the contest more enjoyable to take part in . . . The monster vertical for 160m collapsed when one of the guys broke . . . A hearty slap on the back for an innovative change in the Field Day rules! The introduction of solar power to the contest was a real challenge . . . the generating equipment finally used was only a small portion of that actually experimented with (others included turnstile, exercise bike and chemical batteries using lemons, copper and zinc sheet!) — VK3CGH President North-Eastern Radio Group. VK3CNE. (I believe the NERG will be providing a separate article for Amateur Radio on their Field Day operations. — 5QX.)

'This was my first contest in 6 years of operating. I thoroughly enjoyed it and hope to catch you again next year.' — VK6KHC.

'Ian, I wonder if you are the same Ian Hunt that used to be a member of the VK3 SWL Group many years ago?' — VK3RN. (Yes Ron. And I wrote the SWL column for 'AR' for some time too.)

'Once again it was a good fun weekend . . . Late February was better than early February . . . Probably late March would be better still . . . VHF/UHF Multipliers: We feel the whole contest this year was slanted to operators to use these bands, and the multipliers (plus low HF DX points) gave no incentive to novice operators to go portable.' — Eastern and Mountain District Radio Club.

'The distance multiplier for VHF is a good idea to get stations active but how does someone in a low activity area (ie Mt Newman or some remote area) score highly in VHF or UHF . . . My father's name is John Moyle.' — VK3GK.

'A majority of our operators were novices . . . no stations were heard on 10m . . . This Division runs the station in Weston Park which is located on the shores of Lake Burley Griffin . . . being in the park amongst the public has its advantages as far as publicity for amateur radio.' — VK1KAL VK1 Divisional President for VK1WI/P.

'Next year we go wind power — the points are worth the effort . . . band conditions couldn't be worse . . . It helps to get 50 km from the city . . . we will compete again next year.' — VK6XZ.

Included amongst correspondence about the Field Day Contest was a multi-page letter from David VK4NLV representing the Radio Amateurs' Group. He also supplied copious details regarding past suggestions concerning Field Day rules. All of this material will be considered and discussed where necessary with a view to further 'fine tuning' and improvement of the contest rules in the future.

One final comment to critics of the fact that not much advance notice was given regarding the natural power rule for the contest. Such an innovation had to be brought into the contest sooner or later so always the first introduction of new ideas may seem to be without enough advance notice. As early as the November 1984 issue, this column canvassed the possibility of inclusion of such a rule as well as pointing out that it was already Federal Policy to pursue such an approach, so it should not really have come as too great a surprise.

Congratulations to each of the Section winners in the contest. I will have your certificates on the way to you as soon as possible. I would like to thank all those who entered the contest and for your supporting and encouraging comments.

On a lighter note, it was interesting to see that a number of operators are certainly well aware which state they live in. In the front summary sheet where it was necessary for them to show the 'Division' of the contest they were entered in (namely 6 or 24 hour) quite a few instead showed 'VK2' or 'Victorian Division' etc. (Hi). Perhaps this indicates a mark of really strong state loyalties.

A total of 71 logs, including 3 check logs were received for the Field Day Contest this year.

6 HOUR DIVISION

Section 'A'
Single Op Phone

Call	Contacts	Score
4ZML	58	2268
3BAF	124	2066
5QX	145	1611
3ADW	63	858
6KZ	40	850
5AIM	32	389
2OD	19	253

Section 'B'
Single Op CW

5DL	25	566
2BQS	53	539
2JM	17	474

Section 'C'
Single Op Open

2EL	88	1410
2ARZ/M	56	827
3SP	51	775

Section 'D'
Multi-Op Phone

3CMZ	114	3462
4ANK	184	1850
1PJ	169	1635
5ARC	88	1138
6YG	44	712
4WIG	36	516

Section 'E'

No entries

Section 'F'
Multi-Op Open

3WIA	116	3402
2BOR	75	1607
4WIN	181	1296

Section 'G'
Home Emergency Power

3AKJ	62	879

Section 'H'
Home Mains Power

2DXV	39	323
7NIM	24	213
3JI	12	132
7AL	12	120

Section 'I'
SWL

L30371	21	115

24 HOUR DIVISION

Section 'A'
Single Op Phone

5BJA	291	3386
6KHC	87	3360
4AG	55	1370
4ADB	43	930
4AHO	43	925
4YAF	18	540
1LF	18	392
4KAC	15	360
4ZDV	19	54

Section 'B'

No entries

Section 'C'

No entries

Section 'D'
Multi-op Phone

3CNE	630	23632
3ANR	517	12398
4WIZ	473	9256
6YL	163	4783
1WI	172	2601
4WIT	168	1667
1KBW	23	690
4WIM	34	492

Section 'E'

No entries

Section 'F'
Multi-op Open

3ATM	1123	27238
3ER	1079	17753
2WG	522	16500
3APC	1072	15102
3BML	728	13683
1ACA	221	4142
5LZ	287	4079
6YS	275	3198
2FFG	285	2453
6TJ	98	2337
5AT	158	2145
5BPA	83	1972
4HM	70	847

Section 'G'
Home Emergency Power

2YUP/PEP	270	5782
4AOE	60	725

Section 'H'
Home Mains Power

3ZI	56	549
3DNC	81	424
5AGX	35	375
3RN	50	331
3XF	25	170
9XZ	36	127
7RY	3	50

Section 'I'
SWL

John Ramsay	64	568

Check logs were received from VK4APZ, VK4BIL and VK58G. All entrants in this contest must be congratulated for the general high standard of logs submitted. In most respects they were according to the rules and were tidy and well laid out almost without exception. I trust that this standard can be maintained for future contests.

AUSTRALIAN CONTEST CHAMPION 1984 — VK5AGX

With the publication of the results of the VK/ZL Contest I can now provide the results of the Contest Championship Competition for 1984. Congratulations are due to Vic Noble VK5AGX. He has been a consistent entrant in all the Australian contests for the year and his persistence has paid off. A highly honourable mention must go to the runner-up VK5NOD. It can probably be easily seen that if one is to have any chance at gaining the trophy you must enter in all four of the contests concerned as well as take part in both the phone and CW sections. The results below list only the scorers in the four contests who have entered at least two or more.

Observant readers may have noticed that the caption under the photograph depicting the previous Contest Championship winner VK3XQ being presented with the trophy as published in the May issue of Amateur Radio stated that he was the winner for 1984. This was not correct and the caption should have read 1983.

EUROPEAN DX-CONTEST

1. **Contest-periods:** 1985: 10/11 August
   1985: 14/15 September
   1985: 9/10 November
   0000 UTC Saturday to 2400 UTC Sunday
2. **Bands:** 3.5 — 7 — 14 — 21 — 28 MHz.
3. **Classifications:** Single Operator — all band; Multi Operator — Single transmitter; Multi operator/ Single-transmitter-stations are only allowed to change band one time within a period of 15 minutes. A quick band-change and return for working new multipliers is allowed.
4. **Rest period:** Only 36 hours of operation out of the 48 hours are permitted for single-operator-stations. The 12 hours of non operation may be taken in one, but no more than three periods at any time during the contest and have to be marked in the log.
5. **Exchange:** A contest QSO can only be established between a non-European and a European Station. Exchange the usual five or six digit serial number RST/RS report plus a progressive QSO number starting with 001. W/K-stations in addition give their state (e.g. 599011 MA).
6. **Points:** Each QSO counts 1 point. A station may be worked once per band. Each confirmed QTC — given or received — counts 1 point (see below).
7. **Multipliers:** The multiplier for non-European stations is determined by the number of European countries worked on each band. Europeans will use the last ARRL countries list. In addition each call area in the following countries will be considered as a multiplier: JA, PY, VE, VO, VK, ZL, ZS, UA90 (see special regulations for RTTY Fig. 13). Each W/K-state will be considered a multiplier, but not W/K call areas.
   The multiplier on 3.5 MHz may be multiplied by four
   The multiplier on 7 MHz may be multiplied by three
   The multiplier on 14/21/28 MHz may be multiplied by two
8. **Scoring:** The final score is the total QSO points plus QTC points multiplied by the sum total multipliers from all bands.
9. **QTC-Traffic:** Additional point credit can be realised by making use of the QTC traffic feature. A QTC is a report of a confirmed QSO that has taken place earlier in the contest and later send back to a European Station. It can only be sent from a non-European station to a European station. The general idea being that after a number of European stations have been worked, a list of these stations can be reported back during a QSO with another station. An additional 1 point credit can be claimed for each station reported (note special regulation for RTTY see 13).
   a) A QTC contains the time, call and QSO number of the station being reported ie: 1300/DA 1AA/134. This means that at 1300 GMT you worked DA 1AA and received number 134.
   b) A QSO can be reported only once and not back to the originating station.
   c) Only a maximum of 10 QTCs to a station is permitted. You may work the same station several times to complete this quota. Only the original contact, however, has QSO point value.
   d) Keep a uniform list of QTCs sent. QTC 3/7 indicates that this is the 3rd series of QTCs sent and that 7 QSOs are reported.

   Europeans may keep the list of the received QTCs on a separate sheet if they clearly indicate the station who sent the QTCs.
10. **Contest Awards:** Certificates to highest scorer in each classification in each country, reasonable score provided. Continental leaders will be honored. Certificates will also be given to stations with at least half the score of the continental leader.
11. **Disqualification:** Violation of the rules of this contest or unsportsman like conduct, or taking credit for excessive duplicate contacts will be deemed sufficient cause for disqualification. The decisions of the Contest-Commitee are final.
12. **Logs:** It is suggested to use the log sheets of the DARC or equivalent. Send large size S.A.S.E. to get the wanted number of log-and summary-sheets (40 QSOs or QTCs per sheet). Use a separate sheet for each band. All entrants are required to submit cross-check (dupe) sheets for each band on which they worked more than 200 QSOs. For each duplicate contact, that is removed from a log by the checker, a penalty of three additional contacts will be crossed out.
13. **Special regulations for RTTY:** In the RTTY-Section of the EUROPEAN DX-CONTEST also contacts between all continents and also one's own continent are permitted. Multipliers will be counted according to the EUROPEAN- and ARRL-countries list. QSO as well as QTC-traffic with one's own country (district) is not allowed. SWLs apply to the rules accordingly.
14. **Deadline:** CW: 15th September; Phone: 15th October; RTTY: 15th December.

European Country List: C31 — CT1 — CT2 — DL — EA — EA6 — EI — F — FC — G — GD — GI — GJ — GM — GM Shetland — GU — GW — HA — HB — HB0 — HV — I — IS — IT — JW Bear — JW Spitsbergen — JX — LA — LX — LZ — OE — OH — OH0 — OJ0 — OK — ON — OY — OZ — PA — SM — SP — SV — SV5 Rhodes — SV9 Crete — SV Athos — T77/M1 — TA European part — TF — UA1346 — UA2 — UA Franz-Iosefs-Land — UB — UC — UN/UK1N — UO — UP — UQ — UR — Y22-99/DM — YO — YU — ZA— ZB2 — 1A0 — 3A — 4U1 Geneva — 4U1 Vienna — 9H1.

AR

COLOMBIAN INDEPENDENCE CONTEST 1985

CONTEST PERIOD: Saturday 13 July 0000 UTC to Sunday 14 July 2359 UTC.
MODES: CW and phone.
CATEGORIES: A Single operator, single band, CW only, phone only. B Single operator, multi-band, CW only, phone only. C Multioperator, single transmitter, multiband, CW only, phone only. D Multioperator, multitransmitter, multiband, CW only, phone only. *(Note: There is only one single-band category, ie: Single band operators using 14 MHz compete only in this band).*

BANDS: 1.8, 3.5, 7.0, 14.0, 21.0 and 28.0 MHz.

CONTEST CALL: Phone: CQ HK Contest.
CW: CQ HK Test.

EXCHANGE: Phone: Signal report plus three numbers starting with 001. Example: 59001. CW: RST plus three numbers beginning with 001. Example: 599001.

CALLSIGN	CONTEST and TROPHY POINTS					
	JMMFD	Novice	VK/ Phone	ZL CW	RD	Total
5AGX	6	19	3	10	—	38
5NOD	9	20	5	—	—	34
5QX	4	—	8	7	10	29
2BQS	9	10	8	—	—	27
1LF	6	10	8	—	—	24
2PS	—	8	7	5	—	20
5FF	—	10	4	—	5	19
5BW	9	—	9	—	—	18
3ADW	7	—	—	—	10	17
3AUQ	10	—	6	—	—	16
4XA	—	—	—	10	2	12
4AIX	8	—	—	—	3	11
2HT	7	—	—	—	3	10

SCORING: Non-HK stations
With HK stations.....10 points
With non-HK stations outside own country 5 points
With stations of one's own country..... 1 point

MULTIPLIERS: The combination of different countries worked on each band plus different HK districts worked on each band.

FINAL SCORE: Total QSO points times multipliers per band.

LOGS SHOULD INCLUDE THE FOLLOWING:
Time in UTC; station worked; report sent; report received; multiplier; QSO points.
Separate sheets should be used for each band.
Multipliers should be indicated only the first time they are worked on each band.
A summary sheet should be included with the submission, indicating point computation, category of participation, name and address of operator, list of operators in case of multi-operator stations, standard contest declaration. Submissions not including summary sheet will be counted as check logs.

PRIZES: Every station which shows a minimum of 50 QSOs, at least 10 of which are HK stations for phone entries, or five for CW entries, will receive a certificate of participation. Overall winners receive plaques or cups.

OTHER CONDITIONS OF ENTRY: Each participant must communiate with at least 10 HK stations on phone, or five HK stations on CW in order to have the entry accepted by the contest committee.
Each entrant must submit proof of a total of 50 QSOs, at least 10 of them with HKs if one phone or five HKs if on CW, in order to be eligible for any prizes.
Only one contact per band with the same station is valid.
Cross-band or cross-mode contacts are not valid.

DISQUALIFICATION: Violation of amateur radio regulations in the country of the participant, or of the contest rules, lack of ethics, phantom QSOs, duplicates in excess of 2% of the total number of contacts, may be sufficient to merit disqualifications. In any such case, the decision of the LCRA Executive Committee on contests will be final and not subject to appeal.

MAILING INSTRUCTIONS: Logs should be mailed no later than 30 August 1985. Logs received after 30 Dec 1985, will not be eligible for consideration, though they may be used as check-logs.

MAIL: All contest logs or other correspondence to:
LCRA
C/o Direction de Concursos y Diplomas
Apartado Aereo 584
Bogota-Colombia
Sur America.

1985 SEANET WORLD-WIDE DX CONTEST

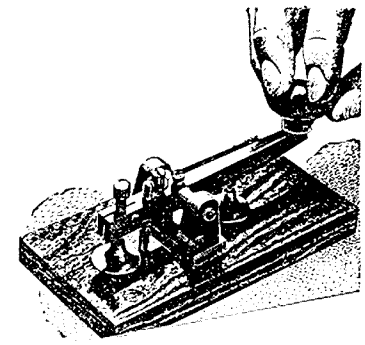
CW Contest: 0000UTC Saturday 20 July to 2359UTC Sunday 21 July 1985.
PHONE Contest: 0000UTC Saturday 17 August to 2359UTC Sunday 18 August 1985.
BANDS 10 thru 160 metres.
ENTRY CLASSIFICATION
Single Band — Single Operator
Multi-Band — Single Operator
Multi-Band — Multi-Operators
POWER OUTPUT As stipulated in the regulations governing the licence of the operator.
CONTEST CALL "CQ SEA" for CW Contest, "CQ SEATEST" for Phone Contest.
REPORTING RS/RST report plus serial numbers starting with 001 and increased by one for each successive contact. See also rule 4d.
LIST OF SEANET AREA PREFIXES A35, A51, AP, BV, BY, C21, DU, FK8, FR, FW8, HL,HS,H44 JA (etc), JD1, KA, KC6, KH2-3-4-5-6-7-8-9-0, KX6, P29 S2, S79, T2, T3's, VK (all), VQ9, V85, VS6, VU2, VU7, XU, XV5, XW8, XX9, XZ2, YB, YJ8, ZK, ZL (all), 3B6-7-8-9, 3D2, 4S7, 5W1, 8Q7, 9M2-6-8, 9N1, 9V1, and 1Z9.
SCORING RULES
1 *For stations OUTSIDE SEANET AREA*
- *a Contacts with stations WITHIN SEANET AREA of the following "bonus" prefixes: DU, HS, YB, 9M2-6-8, 9V1 & V85*
  20 points on 160 metres
  10 points on 40 and 80 metres
  4 points on 10, 15, and 20 metres
- *b Contacts with other stations WITHIN SEANET AREA NOT listed above in 1a:*
  10 points on 160 metres
  5 points on 40 and 80 metres
  2 points on 10, 15, and 20 metres
- *c Contacts between stations OUTSIDE SEANET AREA will not be counted.*
- *d Multipliers will be 3 points for each SEANET country worked.*

2 For stations in the SEANET AREAS
- a *Contacts with stations OUTSIDE SEANET AREAS:*
  10 points on 160 metres
  5 points on 40 and 80 metres
  2 points on 10, 15, 20 metres
- b *Contacts between stations WITHIN SEANET AREAS:*
  6 points on 160 metres
  3 points on 40 and 80 metres
  1 point on 10, 15, 20 metres
- c *Contacts between stations in own country will not be counted.*
- d *Multipliers* —
  Contacts with countries WITHIN SEANET AREA count 2 points for each country worked,
  Contacts with countries OUTSIDE SEANET AREA count 3 points for each country worked.

3 The final score will be the sum of the POINTS multiplied by the SUM of COUNTRY MULTIPLIERS.

4 Restrictions —
- a *Contacts on cross-modes or cross-bands or mixed CW/PHONE logs will be disqualified.*
- b *Operators are not allowed to transmit two or more signals at the same time.*
- c *Only one contact per band with the same station will be counted.*
- d *Contest numbers should begin with 001 on each different band.*

Certificate No.....



THE WIRELESS INSTITUTE OF AUSTRALIA

CW CONTEST

This Annual Contest was inaugurated to celebrate the 75th Anniversary of THE WIRELESS INSTITUTE OF AUSTRALIA — the oldest Radio Society in the world — formed at a meeting at the Hotel Australia in Sydney on March 11th, 1910. It was felt that with the advent of modern equipment and methods that there was a need to further the ability of morse knowledge, practice and skill.

AWARDED TO

.....

FOR OUTSTANDING PARTICIPATION

.../.../...
DATE

.....
PRESIDENT

a *All entries in violation of the contest rules, incorrect statements in the submitted reports, taking points from duplicate contacts, and practices against the brotherhood of amateur radio will be disqualified.*

f *The decision of the SEANET contest committee will be final.*

ENTRIES, LOGS, AND SUMMARY SHEETS All entries must be in the form of logs and summary sheets (list each country worked; number of contacts with that country, per band; and full, clear listing of your mathematical calculations of scoring). ALL TIME must be in UTC. Entries must be received by the Contest Manager not later than 20 October 1985. Results will be announced at the SEANET Convention, with individual winners notified by mail in advance. If you require the results to be sent to you, please include a self-addressed envelope and two IRCs, together with your entry. Please retain a copy of all material sent as these logs will not be returned.

CONTEST PRIZES AND AWARDS The Highest scoring entry, in each classification, three for CW and three for PHONE, will each receive a very unique trophy.

In addition, the **highest single operator entry**, either as single band or multi-band, one for CW and one PHONE, will receive a prize consisting of the following:

Free convention registration (includes two dinners);

Free convention accommodation at Cebu Plaza Hotel (three days, two nights).

If you win but are unable to attend the convention, your trophy and a substitute prize, a copy of the Call book, Foreign Edition, latest copy available, will be mailed to you.

MAILING ADDRESS FOR ENTRIES CEBU Amateur Radio League, PO Box 304, Cebu City, Philippines 6401. Att: Seanet Contest.

CW 75 ANNIVERSARY CW CONTEST RESULTS

The contest was held on the weekend of the 75th Anniversary of the WIA, and it was unfortunate that it clashed with BERU. However NOT to be held on the actual anniversary would have lost the meaning for the contest.

From remarks sent with entries, it would seem that everyone enjoyed the contest and many hope it will continue as an annual event.

Logs were of a high standard with 95 percent being correctly scored. Thank you for participating and for your comments.

Wally Watkins VK2DEW
CW Contest Organiser.

CALL	SCORE	160	80	40	20	15	2	C'TACTS
VK2PA*	16088	54	11400	2074	2560			247
VK75A	13970		1080	10488	1988	414		222
VI3AUQ	9943	105	1260	7626	798	154		93
VK8HA*	7616				7616			119
VK5ARC	5825	75	1026	1200	2484	1040		193
VK3JI	4446	6	1140	858	2412	30		146
VK7RO	3521		324	3036	160	1		99
VK3CM	3160		1134	1428	594	4		128
VK5GZ	2924		2337	260	135	192		88
VK2II	2902		1716	864	322			135
VI3KS*	2736			2736				57
VK2PS	2664		90	32	2542			76
VK4YG	2419		1848	220	351			93
VK6ABL	1908		936	342	630			100
VI3XB*	1776		1776					37
VK4VAT*	1749		1539			210		72
VK4RF	1732		24	392	1340			100
VK4BSQ	1710		672	408	630			107
VK4AIX	1512		414	70	228	800		81
VK6RU	1509			594	915			115
VK4NGF*	1485		1485					55
VK3VF	1457		810	372	275			86
VK7DQ	1430		420	800	210			81
VK2SU	1423		987	420	16			81
VK6AFW	1394		480	210	704			79
VK2EIW	1343		315	560	468			92
VK3BGH	1330		810	396	112	12		80
VK4XY	1227		861	204	162			76
VK4NUN	1092		1092					52
VK7KR	1006		486	168	352			80
VK4AGL	961		360	348	252	1		78
VK6ED	850		396	18	435	1		55
VK3XF	730		150	468	112			50
VK3CGE	649		441	204	4			40
VK5ZM	619		576	18	25			32
VK5DL	581	36	420	80	45			43
VK3RJ*	525					525		25
VK2VEM	420		420					28
VK3ABR	294		54	216	24			30
VK2BRC	285		285					19
VK2AZR	234		3	230	1			25
VK7RY	168	3	144		21			20
VK4XW	130			128	2			18
VI3DOV	100		3	16	81			14
VK4APZ	24		12	8	4			8
VK2DEW	17				16		1	5
ZL1AIZ*	570		162	192	216			49
JM1LRQ*	360				360			36
ZL1AMM	194		18		176			25
OH7YF	98				98			14
JH7XGN	70				60	10		15
JR6LJO*	27		27					3
JA1AAT	20				16	4		6
JO1QZI	20				20			5
JM1WZP*	15					15		5

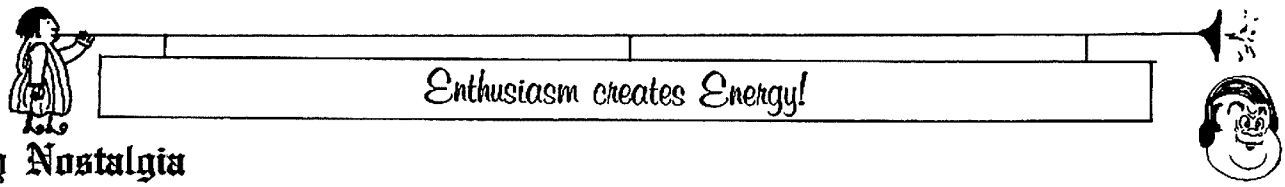
*denotes section winner

Of interest:

VK75A - op VK3AE

VK5ARC - op VK5ADY

VK3CGE - QRP - 1 watt



75th Nostalgia

SHORT WAVER

In this 75th Anniversary Year we have had historical stories from or about amateurs in the by-gone era. This article is about a world-wide known, Australian SWL. The article was contributed by Charlie Nelson VK3WC, with original material from The Australian Radio World, Vol 13, No 1, 15th June 1948. The Radio World issued a SW League Badge. Charlie still has his badge numbered RW98DX.

"No listener is better known in this world than BERS195, otherwise Eric Trebilcock of Wynyard, Tasmania. Eric prefers listening to transmitting, ample proof of which liking is the fact that he got his ham licence just prior to September 1939 and hasn't bothered to renew it. Maybe a surfeit of daily operating in Civil Air work is more than enough, but for relaxation BERS195 turns to 28mc/s CW listening.

"For this work he has always preferred a TRF receiver, and the one made for him previously fell into Japanese hands when Eric found it neeessary to leave Rabaul in a hurry. Now a new TRF rx is on the job, using a VR65 RF stage, 954 regen detector and 647G headphone audio stage. Butterfly condensers tune RF and detector stages with coverage of the 50 and 28mc/s bands by miniature plug-in coils. Such a receiver is a joy to handle and Eric says of it — relative to 28mc/s — 'it is the goods. I scored in the recent BERU contest with ZL, VK4, VK5, VK6, VE6, VE7, ZS5, ZS6, ZS1, ZS2, ZE, MI3, VQ4, G, AP and V4. Many of the Gs etc, were RST 599. Last Sunday (25/4/48) I heard G, 1, ON, F, PA and VK2EO as well as many VK6 phones at S9 plus.' There isn't a thing wrong with using a smoothly operating TRF for receiver work.

"If sufficient readers are interested, a description of the receiver in use at BERS195 may be forthcoming."

Eric still retains his BERS number today and also has the VK L30042 number and has been a stalwart of the WIA for many years having been made a Life Member in recognition of his work. Together with his late wife Gene, Eric manned the VK3 QSL Inwards Bureau for many years and has been a regular supporter of How's DX, for the current columnist, with his SWL reports.

Eric is shortly to embark on a new direction in his life which may leave him a little short of time for SWLing, but one may be sure that if there is a spare minute, Eric will be listening.

AR

CLUB CORNER

DEVIL NEWS FROM THE NW BRANCH

The monthly meeting of the NW Branch, with fifteen in attendance, was held at the Penguin High School with Ross VK7WP, being in the chair due to Tony VK7AX, holidaying in Cairns. (just as he was receiving some good SSTV from VK3 on 7.130 MHz). All accepted the comprehensive Treasurer's Report that was given by Jack VK7WJ.

The application by John Vanderlinde to become a member was accepted. Welcome John. Robert VK7NAE, responsible for Youth Affairs, hoped to report more at the next meeting. QSL cards are not moving very fast according to the report given by Greg on behalf of Max who was unable to attend.

REPEATER REPORT

No problems have been reported with two metres and it is with pleasure that it can be reported the NW will soon have a new ATV repeater on the air. The location will be at Kelseys Tiers, behind Devonport, where the tower is installed with 240V AC being available. The Visual and CW ID boards are completed and the antenna design is well on the way. Yet to be completed are a couple of boards and the purchase of the co-axial cable.

Sincere appreciation is tendered to and includes VK7s AX, OL, OM, RN, UD, WJ, WZ and Peter Westerhof for their invaluable assistance so far.

GONG AWARD

It appears the introduction of this award has kept the use of the repeater down under the three minute mark. The name has been changed and if you are heard to make a mistake or other misdemeanour, you are a contender for this award at the next meeting.

Thanks to Greg VK7ZBT for his assistance in gathering the news for me and 73 till next month. Max VK7KMF.

AR

WESTLAKES AMATEUR RADIO CLUB

21st BIRTHDAY CONTEST
***** PRIZEWINNERS *****

1st: ticket no 0063 — Sharp portable colour television VHF/UHF — Mrs J. Webster (XYL VK2BZD), Earlwood.

2nd: ticket no 1733 — Dick Smith UHF transceiver kit — T Soundy VK2ETS, Merimbula.

3rd: ticket no 1380 — Makita cordless drill and flashlight — J Saunders VK2DEJ, Ryde.

4th: ticket no. 0956 — home weather station — Efimov VK2DPY, Elermore Vale.

5th: ticket no 0348 — handyman tools to $100 value — B Laughlin, Mount Hutton.

6th: ticket no 1705 — bathroom decorator style taps, handles and fittings — P Elson, Rockhampton Qld.

Prizes were drawn at the 21st Anniversary Birthday Dinner held at the Lakeside Motel, Warners Bay on 27 April 1985 under the supervision of Aid G Pasterfield, Mayor of Lake Macquarie City.

The organising committee thanks the following for their generous donations:

Watson and Crane (NSW), Wes Hughes Timber and Hardware, M J Cant VK2CMJ and Westlakes Education and all who prepared, distributed, purchased and folded tickets to make this a worthwhile fund-raising venture. All proceeds go to Westlakes Amateur Radio Club.

AR

WAGGA WAGGA '85 — 26-27 OCTOBER

The annual South West Convention will be held in Wagga Wagga this year. This event, one of the largest outside the central coast area, is already attracting exhibitor enquiries.

The National Fox Hunting championships may also be held in conjunction with this event. The expansive undulating landscape and extensive road network is sure to make this event a precedent hard to follow.

The Convention will also include fox hunts and hidden transmitter hunts for both novices and experts.

Wagga Wagga is located just off the Hume Highway. It is on the main Sydney/Melbourne rail link and has airlines serving Melbourne, Canberra and Sydney.

Don't forget to include this important event on the 1985 Event Calendar.

. . . see you there . . .

Contributed by Peter Clee VK2KZZ
Publicity Officer

AR

LISTENING AROUND

Joe Baker VK2BJX
Box 2121, Mildura, Vic 3500

Well! It is the Saturday after Anzac Day, and because of a variety of personal problems, I've missed a few deadlines. Never-the-less, here I am with a new typewriter, a typing table which I have fabricated out of a piece of junk and a nice sunny day so I'm out in the yard under the cheerful beams of "Old Sol."

It's months since I wrote the last column, yet from all over the country I've received on air compliments about past columns which is very encouraging, particularly at times when I've been going through a bad patch.

ANZAC MARCH

As I was in the Mildura march from the post office to Henderson Park (the Cenotaph) on Anzac Day I thought that before I write more about the Northern Territory, a few lines about that march might not be out of place.

I found a place among members of the Second AIF, as there was no special place for Sigs. There were about ten or eleven sections of the march led by the Mildura Pipe Band which kept us well in step. Our section was commanded by a uniformed Sergeant Major, and to hear those orders barked out for the first time after so many years, made me feel almost homesick for army life.

There were great crowds along the route of the march, many of them young people who had not even been born when WW2 was on. Men from the Korean and Vietnam conflicts marched proudly, and there were many from the womens services.

The guest speaker at the Cenotaph was an Aboriginal officer who had seen much service.

Past experience of the marches has taught me that at the end of the march, I would miss out on getting a seat in Henderson Park as the crowd arrives there before the marchers. This time, however, a young scoutmaster guided me to a supply of bucket-type seats, where I rested my weary bones. And who should I find right beside me, looking as chipper as a young colt, but "The Wizard of Oz" — VK3OZ, Bert Shire (ex VK5OZ of Tumby Bay). I don't know who was the more suprised to see the other. Bert is ex-RAAF, and this Anzac Day was his eighty first birthday.

I had brought a pocket camera with me, and needless to say I had it soon aimed at Bert.

BACK TO THE NT

Most serving personnel in the Northern Territory, by virtue of the fact that it was wartime, were not free to wander just anywhere. So, we missed out on many of the prime tourist spots that we hear of these days and were usually confined to restricted areas. However, my brother and I — he was an RAAF Security Guard — managed to keep tag of each other through the various field-telephone links (Don R Telephones and Freddie Phones).

One time I heard that he was up near Darwin on guard duty and when I got there found him standing in the middle of a minefield guarding an RAAF bomber that had failed to make it to base and found itself nose down in the mulga with its tail high in the air. As I approached along the roadway, he screamed out at me to keep back as the whole area was mined. How the RAAF got him into that patch just to keep the mosquitoes away from that bomber, I shall never know, but I took the hint and our conversation was carried out in loud voices across the minefield.

I was in the Territory when Fenton Strip and Adelaide River was bombed and my brother Frank (who died in 1983 at Mildura), said that the Zeros came in so low near Adelaide River that he could hear the bomb doors open.

BOMB ATTACK!

What's it like to be chased by a bombing plane, when you're in the back of a military truck going up a long road? Well, it happened to me and a truckload of others who were hitching a ride to Darwin up a long road from the 67 mile post near Coomalie strip. We were probably somewhere near Manton Dam when the bomber was observed approaching from the south. The pilot had spotted us, and lower and lower over the road he came while we panicked and thumped as hard as we could on the cabin of the truck. He was zooming straight towards us, then when he got so near that we could see him in the cockpit and almost hear him laughing at us, he zoomed straight up and over us. He did three or four dive-bombing attacks at us in this way and when we saw that he was one "of ours" we all shook our fists at him and would have killed him if we had got him on the ground.

SPECIAL RADIOS

In the Territory there was a special radio unit, which it was said, had gear which was so sensitive that it could intercept enemy pilots doing a test-run of their radios before they took off from their island bases. I don't know exactly where the unit was located but we all knew that it existed, and as well as listening to the enemy, their special job was to monitor our own army sigs, lest there should be some unauthorised operating. As far as I know, there never was — our own sigs having to stick to the correct message-form procedure, and on certain links it was customary, to keep up the same average number of messages per day, which of course were all in cypher. Not all of these were "Action" messages, some were dummies, just to make up the average number, for if the enemies began to notice that traffic on such and such a link was a bit busier than usual, they would smell a rat." Stations were also provided with means which any challenging station could identify and know which were ours and any that were not.

There's much, much more that I could say about the Territory. It was an adventure for us rookie soldiers who saw the north under wartime conditions, yet all of us, I am sure, would like to see the Territory again some day, and like the Diggers of Gallipoli, would like to visit again the places where we served.

AR

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

It is approaching mid winter so I hope that your shack is proofed against the elements. These notes cover a few activities over the next few months for you to take part in.

SEMINAR PLANNING

Is in hand to hold the 1985 Seminar at Amateur Radio House, 109 Wigram Street, Parramatta on Saturday the 21st July. The first session will commence at 10 am. Presentations of various awards will be made during the day. The Divisional broadcasts will advise further details.

REMEMBRANCE DAY CONTEST

To be held as usual next month — see rules elsewhere this issue. Last year this Division won the RD for the first time since winning in the first year the event was held in 1948. 36 years has been too long to wait to see it back in VK2. However this is an annual event so each August all States compete to try and win it back. It is hard for the larger Divisions and it requires extra effort to achieve the scoring ratio. Now that the 'Trophy' is back in VK2 how about making sure it stays here for a while. Set aside some time during the RD weekend to take part and help the VK2 score.

Photograph by Ken McLachlan VK3AH.

Left.
Steve VK2PS, the VK2 Federal Councillor accepting the RD trophy on behalf of the VK2 Division from Federal President David VK3ADW at the 1985 Federal Convention.

75TH DINNER

It is planned to hold the VK2 75th Anniversary Dinner on a weekend during September. The Federal Dinner will be held in Melbourne early November.

WICEN

Major coming exercises in the next few months, which will require a lot of operators, include the following. *Sun 'City to Surf' on Sunday 4th Aug. in Sydney. The car rally at Batemans Bay on the weekend 21/22 Sept. The Hawkesbury Outward Bound Canoe Classic on the weekend 26/27 Oct.* All amateurs are invited to assist with these events. Details and calls for operators will be made on the broadcasts nearer the time. As an experiment the weekly WICEN net times have been brought forward to 8 pm on Thursdays, 3.600 MHz and VK2RWS 7150.

SEPTEMBER AR

Is to be another special VK2 issue. If you have anything to contribute please have it reach the Divisional office at Parramatta before 17th July. If you have a small technical article send it direct to AR, there is always a need by the Editor for these.

CONFERENCE OF CLUBS

The next meeting will be hosted by Westlakes ARC at Teralba on 3rd Nov. Agenda items for discussion should be considered now and submitted through your Club to the Divisional office to allow early circulation. Items which may need later national (Federal) consideration should also be submitted to this meeting so that if passed by the C of C there will be sufficient time for other States to consider it before the 1986 Federal Convention, which will be held in Melbourne on the 1986 ANZAC weekend.

MUSEUM STATION

The Museum station VK2BQK has been re-established in the first stage of the new Powerhouse Museum in Ultimo. VK2BQK had been first set up in the original Museum in Harris Street. When this section of the Museum was closed, work started to establish a station for the new building. VK2BQK has been designed so that, on completion of the final stages, it can be relocated in the main section.

The VK2BQK station was officially launched on the evening of 14th May last by Alan Jones from Radio 2UE. A future issue of AR will carry a feature on the station. VK2BQK is operational on weekend afternoons and one day during the week. The operators are members of the Museum Radio Club. To help ease the roster workload additional operators are required. If you would like to help out, please contact Pierce Healy VK2APQ on (02) 705 6125 or leave your name with the Divisional office or the reception counter at the Museum.

Other Museum stations I know of in Australia include the Science Museum in Swanston Street, Melbourne which is used by the VK3 Division for their broadcasts. There is also Wireless Hill at Applecross in Perth. Also some static displays are in other major museums. There are several private displays which often concentrate on a particular subject or aspect of electronics. It would be nice to feature all the Museums and displays in a later issue of AR. If you have or know of a display which could be included in the feature please advise the VK2 Division or Federal offices.

HOME BREW CONTEST

It is again time to start thinking about this annual VK2 activity. Entry forms and details may be obtained from the Divisional office. Call in to the office at 109 Wigram Street, Parramatta 11 am to 2 pm weekdays and Wednesday nights 7 to 9 pm. You can ring during the above times on 02 689 2417. The presentations for the 1984 contest will be made at the July Seminar.

VK75A OPERATION

There is to be another VK2 segment early July. Amateurs who would like to be able to use this call sign in a personal capacity for a 24 hour period should register their interest with the Divisional office. Steve VK2PS is in charge of operations while the call is available to VK2 — 8 to 21st July.

CLUB AFFILIATION

At the May Council meeting the following Clubs were granted affiliation with the VK2 Division. The TARP Users Group and the Chifley Amateur Radio Club. Both groups are located in Sydney. Any club or group seeking affiliation with the Division should apply to the office for application forms.

AR

NEW BAND

On 22nd June 1985 the 24MHz or 12 metre band was released to US amateurs and the 10MHz or 30 metre band became permanent.

Full power of 1500 watts PEP output is allowable from 24.890-24.990MHz with the sub-band 24.890-24.930MHz limited to CW and RTTY only. In the sub-band 24.930-24.990MHz CW, phone, FAX and SSTV are permitted.

On the 10MHz band (10.1-10.15MHz) power is limited to 200 watts PEP on CW and RTTY, the only modes allowed.

From The ARRL Letter, Vol 4, No 10.

AR

NEW THREAT TO SIX??

A German atmospheric radar called SOUSY operates in the region of 50MHz. It is a vertical atmospheric radar or sounding system. Events in the atmosphere and up to 100km altitude are tracked.

A system has been installed for US space shuttle launches from Cape Canaveral. This system checks for severe clear air turbulence and other hazardous phenomena.

A beam peak pulse power of 200kW is used with an antenna array which has a gain of around 30dB. Multiple Yagis are used in phased array.

Resolution to 150 metres is achieved at levels between 500 metres and 30,000 metres. The profile of conditions is dynamic providing a minute to minute read-out.

The SOUSY system was developed by the Max-Planck Institute for Aeronomy. The first trial system was tested in the Harz Mountains in West Germany.

The Cape Canaveral system is leased and operated by Radian Corp of Austin, Texas.

Let us hope that SOUSY is not heard on 6 metre DX. 70cm Syledis on EME is bad enough.

Adapted by Gil Sones VK3AUI from an original report published in Electronics Week, 8th April 1985.

AR

VK4 WIA NOTES

Bud Pounsett VK4QY Box 638, GPO, Brisbane, Qld. 4001.

1

All photographs were taken at the Conference of Queensland Radio Clubs, 13 and 14th April 1985, at Griffith University, Brisbane.

1 Delegates from all parts of Queensland were listening with rapt attention. 2 Mike VK4YOB, speaks on behalf of the South East Queensland Teletype Group. 3 The informal sessions are where a lot of problems are solved. 4 On display. Dept of Communications monitoring equipment including a $100,000 Doppler DF. 5 Doug VK4ADC, representing DOC during his presentation shows a long print out of activity logged on Brisbane 2 metre repeater, VK4RBN. 6 Alan VK4YAF, reports on the radio amateurs group intruder watch programme. 7 Summit meeting of federal representatives. Guy VK4ZXZ (Federal Councillor), Len Keogh, MHR (Federal Member for Bowman) and David VK3ADW (WIA Federal President). 8 Geoff VK4AG, presenting the radio amateurs group report. 9 David VK3ADW, spoke to the Conference. Seated Barry VK4BIK and David VK4NLV, Minutes Secretary and Conference Chairman respectively.

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FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

70cm REPEATER

The 70cm repeater is back on the air after repair. It is operating at a temporary site until spring, when we can get access to Mt Ginini to install the repeater in its final location. For those interested, the technical details are:

Callsign	*VK1RGI*
Frequency	*438.525 MHz output*
	433.525 MHz input
	(DSE Explorer ch21)
Output Power	*8.5 watts*
Antenna	*25 element colinnear*
Time Out	*2.5 minutes*

The transmitter is a VHF high band unit, with the 25 watt output strip feeding a varactor tripler, which then feeds through a cavity filter to the 4 cavity diplexer. The receiver is a high band receiver, with a UHF converter. This gives it three IFs — 170 MHz, 10.7 MHz and 455 kHz. Output spurii were undectable on a spectrum analyser, which would put them at least 80 dB down.

Once the winter snows clear, the repeater will be installed on Mt Ginini; with the channel 6950 2m repeater. For those interested, Mt Ginini is one of the highest mountains in the ACT, at 1762 metres high. That makes the VK1RGI repeaters the highest in Australia, at least according to the 1984 Call Book. Mt Ginini is part of the Brindabella range, the rugged mountains which form the western boundary of the ACT, and close to the northern edge of the Kosciusko National Park. For those wanting to know where to point their beams, the site co-ordinates are:

Latitude: 35.5311 deg S
Longitude: 148.7703 deg E
(See Natmap 1:100,000 sheet 8626)
AMG — Zone 55
Easting 660500
Northing 6066600

In summer, a pleasant day's outing can be had from Canberra, driving up into the beautiful alpine country. In winter, it is often cut off by snow for four or five months; and the snow-capped peaks can be seen from Canberra on a clear day.

ITU DAY STATION — AX1ITU

Friday, 17th of May was ITU day, and the VK1 Division set up a display station at Belconnen Mall, one of Canberra's major shopping centres. The station operated from 0200 to 1030 UTC, and 109 contacts were made to the following countries: CT, EA, V2, ZL, W, AL7, C21, JA, XE and of course VK.

Thanks to the following VK1s who gave their equipment and time — KAL, PJ, NEB, CJ, ZZD, KEN, NCO, KCM, ZZT, KRM, UE, OK, NDV, ZL, IC, HZ, and ZXA.

JULY MEETING

Don't forget the July meeting on Monday the 22nd in the Griffen Centre. We will be having our mid-winter sale and coffee night. Doors open at 7.45, see you there.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Well, barring any "hiccups" over the next two days, I think I shall be able to say that our display station at the GPO was a great success. At the time of writing I have just spent all day at the GPO display which coincided with the release of the pre-stamped envelope to mark the 75th Anniversary of the WIA.

We were very lucky to be able to use the VK75A call sign for this occasion, and thus ensured no shortage of contacts for the public to hear. The GPO staff were extremely helpful and this along with the free cups of coffee were really appreciated.

My thanks must go to the following:– John Moffat of ICS, and Dick Boxall for the loan of rigs. David Clegg, and David Hogben of the GPO for the "high-wire act" they did in rigging the aerials! Jack Wright for the loan of VHF/UHF aerials, power-supply and coax and all the time he has put into it; and also to Les VK5KLH, Bill VK5AWM, Cyril VK5KEM, Ray VK5RK, Colin VK5FX, Tom VK5TL and Roland VK5OU, for spending varying amounts of time there. And not forgetting the many amateurs who came along in the lunch hour, or dropped in "between jobs" to see how we were getting along.

Lastly, but by no means least a huge "thanks" to Peter Koen for two new panels on the display board, dedicated to the 75th Anniversary, and an improved lighting system; and also my grateful thanks to John and Louise Badcock for their work on the new PR "Flyers" (handouts) and for the media releases which resulted in a photographer from the News being present. If I have inadvertantly forgotten someone, I apologise in advance. It really is great to have so many willing volunteers.

(Don't stop now, we have just heard that the Morphettville News-Electronics Show will be from 18th-20th October this year!)

DIARY DATES

Tuesday 23rd July . . . A Special General Meeting has been called for this date, please refer to your "Journal" for details. We hope that this part will not take long and that there will also be a speaker, but details of this are not known at time of going to press.

AR

WA BULLETIN

Fred Parsonage VK6PF
HONORARY SECRETARY
VK6 DIVISION
Box 10, WEST PERTH, WA, 6005

At the 1985 AGM of the West Australian Division, the following were appointed to the Divisional Council.

VK6IW	*Dave Wallace*	*Membership Secretary*
VK6LZ	*Cliff Bastin*	*Treasurer*
VK6MY	*Cyril Rice*	*Peel ARG and Comet sub-committee*
VK6NE	*Neil Penfold*	*Federal Councillor*
VK600	*Bruce Hedland-Thomas*	*President*
VK6YL	*Jill Weaver*	*WA Repeater Group*
VK6ZGA	*Alyn Maschetti*	*VHF Group*
VK6ZLZ	*Christine Bastin*	*Booksales Officer*
VK6ZMG	*Dougal Gordon*	*(XYL of VK6LZ) Broadcast Officer and Vice President*

There were nine nominations for the nine positions, therefore no ballot was necessary.

In accordance with the Constitution which states that the Secretary may be appointed from outside of the Council Fred Parsonage VK6PF was appointed to the position.

AR

QSP

FM RADIO DX

During March 1984, a low power FM broadcast test transmission was received in Italy. The transmission came from a low power test being carried out near Melbourne.

This transmission, on 106.5MHz, was being made by a local radio broadcasting group called Southern Community Broadcasters. The ERP achieved was only between 6 and 9 watts.

The report from Italy gave a SINPO report of 35333. This is a strong signal.

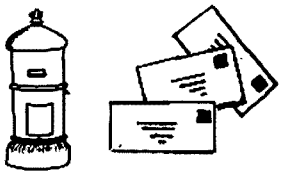
The transmission would have taken place close to the equinox, a good time for such propagation on other occasions.

Previously Channel 0 has been received overseas, also there have been a number of reports of FM radio station reception from Argentina.

This report must be pretty well up in the kilometres per watt stakes. One can only speculate on the possibility of 50 and 144 MHz contacts over such paths.

Contributed by Gil Sones VK3AUI from original source material in IREE Monitor, March 1985.

AR



OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

AMATEUR COOK BOOK

The Wagga Amateur Radio Club is compiling an Australia Wide VK Cook Book.

Invitations are extended to amateurs and their families for their favourite recipes to be published in the Cook Book.

The book will be printed and for sale at the Annual Wagga Convention to be held on the 26th and 27th October 1985.

Recipes should be forwarded to the Wagga ARC, QTHR.

Thanks and 73,

Dave Longmore VK2ZYE,
Box 126S,
South Wagga, NSW, 2650. AR

Mobile Operation

Regulation 6.18 of the Amateur Operator's Handbook states, inter alia, that " . . . the licensee . . . may operate the station in a mobile capacity . . .". This seems to infer that operation in a moving vehicle is permitted.

It is a fact of life that operation from a moving vehicle is being carried out by a multitude of operators — amateurs, CBers, taxi drivers, fleet drivers and truckies. However, it is also a fact that each such operation breaks the law as interpreted by the police in Victoria.

I believe that the WIA should consider the principles involved, since our hobby at present induces many of us to break the law. I am, of course, not concerned with the law being broken by taxis, truckies — that is their business, not ours.

May I suggest an approach to the authorities concerned with a view to have the relevant regulations modified. I believe that the main objection to operating in a moving vehicle rests in the necessity to drive single-handed while holding a microphone with a receive/transmit switch. If the regulations were to be amended to specifically permit radio operation by the driver of a moving vehicle provided that both hands are used at all times to control the vehicle, it would open the way for legal operation under the following conditions:

Use of either a throat microphone or a headset microphone (lapel microphones are likely to pick up too much noise).

Use of a foot switch, a switch mounted on the steering wheel or, preferably, VOX operation for receive/transmit control.

Use of only one headset ear piece, to allow police or emergency vehicle sirens to be heard, or use of the transceiver speaker.

By using the most convenient combination of the above, operation in a moving vehicle would be no more dangerous than talking to a passenger or listening to the car radio. The use of handhelds would, clearly, be still illegal.

It would be interesting to find out whether action by the WIA in this matter is favoured by other amateurs.

Best 73,

George Cranby VK3GI,
Box 22,
Woodend, Vic. 3442
AR

TECHNICALLY — NO FRILLS CASSETTE LOG PROGRAMME

In the "Cassette Log Programme" article in March 1985 AR, the offer of "a highly abridged version for the unexpanded VIC-20", brought a large number of letters. The programme is "no frills" with the limited VIC memory in mind and like the previous programme, stores 250 callsigns plus the page number in your written log for quick reference.

With 8K expansion RAM-pack on board, the number of calls per cassette may be increased to 500. Further increases are possible at the expense of loading time of the file and for practical use, 500 calls just about takes it out. To increase the number of calls, the following two lines in the programme must be altered to,

```
570 I=I+1:C$(I)="*":IFI> 498THEN940
840 DIMC$(500),P$(500):RETURN
```

The system requires that you have many cassettes so that you split calls by country, prefix etc as described in the March 1985 article. As usual, if you want to avoid Repetitive Strain Injury from the typing, $5 to the author will get you a tape and a summary of the instructions from the March article which don't bear repeating here.

73,

Neil Cornish VK2KCN,
56 Sherwin Avenue,
Castle Hill, NSW 2154

AR

MAN IN MOTION

The Institute has received a request of assistance for the following:

The British Columbia PEP Amateur Radio Service would like to enlist WIA support and assistance in the provision of amateur radio communications for the Man in Motion World Tour, organised by the Canadian Paraplegic Association.

Rick Hansen, a world class wheelchair marathoner, will wheel 25,000 miles around the world in a historic, first ever World Tour to carry a symbolic torch of inspiration to 6 continents, 34 countries, and 60 cities with metropolitan populations totalling over 200 million people.

Rick Hansen is an articulate wheelchair athlete from Canada who has won 19 international marathons in such cities as Montreal, Toronto, Boston, Miami, Honolulu, Sydney, Australia, and Oita, Japan. Rick has won 9 gold medals in athletics at the 1982 Pan-Am Games and is a champion in several other sports. He has also competed in the XXIII Olympiad in Los Angeles in the 1500 metre wheelchair race.

The World Tour began in March 1985 in Vancouver, BC, Canada and will end 17 months later at the gates of the 40 country Vancouver World Exposition, EXPO 86, in August 1986.

The World Tour will roll through the United States and Mexico before going to Europe, North Africa and the Middle East in 1985. In 1986, Rick will wheel through Australasia, Japan and the Far East, departing from China for Central and South America and the home stretch across the breadth of Canada.

The major objectives of this historic undertaking are to provide an awareness of and potential for the disabled person, and to initiate a world wide fund for spinal cord research.

The official caravan will include one specially equipped van or recreation vehicle for Rick and his personal team and one van for an advance party who will be contacting media, making certain the route is still OK, etc.

The amateurs are being asked to provide operators who can ride in or accompany both of these vehicles to provide them with communications to each other, and transmit at least daily situation reports back to Man in Motion headquarters in Vancouver.

In British Columbia, amateur communications will be organised by the Provincial Emergency Programme Amateur Radio Service with a number of paraplegic amateurs at Pearson Hospital in Vancouver, BC operating their HF station as the local end of the communications chain. In the United States, it is being co-ordinated by the Courage Handi-Hams, an organisation of handicapped radio amateurs. It is hoped that in other countries the national amateur radio organisation in each country can be persuaded to assist the project.

I hope that the WIA will consider arranging the amateur activities in your country for us.

Thank you very much for your assistance.

Yours sincerely,

Robert Smits VE7EMD
202-13640 67 Ave.
Surrey BC
Canada
V3W 6X5
604-590-1014

Rick will wheel from Sydney to Townsville during late December 85 to early January 86. Volunteer operators to assist this marathon are required. The Institute fully supports Ricks endeavours and hopes that members, clubs or groups will provide the assistance required.

Contact the VK2/VK4 Divisions for further details.

AR

FURTHER TO QUESTIONNAIRE

I refer to the recent survey of AR readership. I wish to congratulate the Federal Executive for their initiative in conducting this survey and to urge the Divisions to make full use of the results.

This survey, when the results are fully analysed, will provide the Federal Executive and the Divisions with information on the distribution of interests of their members. This information has never been available before in this detail or accuracy. At Federal level, this information provides a data base for decisions on such things as AR content, band and mode planning, funds distribution and in negotiations with licensing authorities. It can be used at Divisional level as the basis for decisions on meeting subjects, funds allocation and activity programmes.

Hopefully, Federal and Divisional committees will make the fullest use of the information gained from this survey. The rate of return of completed questionnaires may reflect the value seen by members in the survey.

Finally, a vote of thanks must be passed to Earl Russell VK3BER, for his valuable assistance in deducting the returns to a usable form. Earl has put many hours into this task and this effort is much more than that normally expected of a volunteer official of the WIA. Well done, Earl!

73

Ray Roche VK1ZJR
Box 81,
Campbell, ACT. 2601

AR

CODE AN LCD?

Is there anyone who has information as to the coding used to activate the LCD display on small pocket calculators?

I have a number of these — not working — and the LCD display would be ideal for use with home brew projects. But the method of activating the display is **NOT** the normal strobe method used for 7 segment displays. It is a complicated four voltage level arrangement applied to all of the 28 connections regardless of the number of digits which are displayed. Each of the connections seems to go to several digit segments, not always the same corresponding segment. The basis of the coding is a 3 level sequence to each connection and uses all possible combinations of the four available voltage levels.

Anyone who can crack the code is welcome to a few of these displays.

Roy Hartkopf VK3AOH,
34 Toolangi Road,
Alphington, Vic. 3078
AR

ANOTHER MOTOR VEHICLE INTERFERENCE PROBLEM

Just recently, before the May issue of AR arrived at my home, I was confronted with an unusual problem concerning RF interference to a modern vehicle. After I had "cured" the problem, AR arrived and I read with interest the story by Rod VK3UG, page 17.

Firstly, let me relate my first problem. This concerned a four-wheel-drive vehicle owned by a friend. He brought the vehicle to me complaining that when he pushed the transmit button of his transmitter, the engine stopped!!!

I found this hard to believe but on test it was so. The engine, a powerful V8, stopped dead when the button was pushed, even with the engine "revving" hard. Upon investigation, it was found that the trouble was being caused by a recently connected tachometer. The instrument was fitted on the dash panel and had a lead to the "hot" side of the ignition coil. This is where the trouble originated . . . RF was being picked up by this lead to the tachometer and fed back into the electronic ignition system. Removal of the "tacho" wire cured the problem. But, the owner was keen to retain his tacho, so some RF filtering was called for.

Coaxial cable was tried with the tacho wire being fed through the inner conductor and the outer being earthed. The problem was still there although considerably reduced. The engine would only "miss" but not stop. An RF choke wound on a ferrite ring was placed in the lead to the tacho adjacent to the ignition coil. This was the answer — the problem was completely cured. Bypass capacitors were not used because this would interfere with the electronic ignition system and possibly cause other strange effects. It was just after this event that AR arrived with Rod's story. Not quite the same, but certainly involving the same approach . . .

A few days later I took delivery of a new Australian-made car, appropriately designated as a "VK" model. The old reliable two-metre gear was moved from the old vehicle and installed in the new "one". To my surprise, when turning a corner and transmitting at the same time, the flasher went crazy . . . It not only sped up as Rod described, but broke into continuous "buzzing" depending on the engine revs. In fact, my XYL thought I was using the horn when I was turning the corner and thought I was really going crazy!!! To cure this effect I re-read Rod's article with greater interest . . .

The flasher unit was located, fitted under the dash to the right of the steering column. It proved quite easy to remove being a "plug in" unit with three pins. The unit can be opened revealing a chip and a few components. I decided to install bypass capacitors outside the unit. These were soldered direct to the pins as close to the unit as possible. I used 0.22 MFD capacitors as these were available from the "junk" box. These proved to be quite effective and I am happy to relate that I can now turn corners and transmit at the same time without a loud "buzz" coming from under the dash!!!

With more and more electronics being introduced into the automotive scene, one wonders what other strange effects will appear . . .

Des Greenham VK3CO,
16 Clydesdale Court, Mooroopna, Vic. 3629

Note: Care must be taken when installing RF equipment in modern vehicles as RF has nasty effects on the electronic systems which feature in these vehicles.

AR

WHERE WILL WE BE?

I wonder where amateur radio will be in ten or twenty years time. It is noticeable that we are an ageing fraternity with too few of the younger generation joining our ranks. In a recently published American amateur magazine it was stated that the average age of licence holders there was over fifty. I would like to estimate that Australia would be similar. What can we do? I would like to put forward the view that we are, ourselves, killing the hobby by our own apathy.

Recently I had occasion to call for volunteers, firstly for new blood to come on to Council in VK6, as all members of the Council had served for a number of years and, with the exception of our two YL members, were near or into middle age. There was one nomination from outside the sitting Council, that of Cyril VK6MY who was a regular visitor already. In spite of frequent calls on the news-broadcast and at meetings, no one was prepared to serve. So we have the same members again, plus Cyril.

The second time was for volunteers to come forward to put their names down for work at the November Radio Rally. Many comments had been made previously as to the popularity of the two previous Rallies and how much annual ones would be enjoyed. Total number of volunteers apart from the participating groups? Seven. As a consequence, there will be no Radio Rally in 1985.

Lastly, I had been approached by a mother of a fourteen year old blind boy for help in preparing the boy for the May novice exam. The boy had studied in the UK for the full licence but had failed the exam. I suggested that the novice exam would be well within his capabilities, as his theory was based on the full UK licence and he had no problems with Morse. Consequently appeals were made over several news broadcasts and at the General Meeting for someone in the area to put in one or two hours a week going over regulations and generally assisting. Result NOT A SINGLE RESPONSE.

Fred Parsonage
20 Ranger Trail, Edgewater, WA 6027

AR

Silent Keys

It is with deep regret we record the passing of —

MR ROY BAXTER 20:04:85	VK4FJ
MR PETER M COHN	VK1KPC
MR GEOFFREY SAINT COOMBE 05:04:85	VK5ML
MR J M GIBSON 19:04:85	VK6GQ
MR MICHAEL FULLER JENNER 16:04:85	VK7MJ
MH FRED MAZURE 31:03:85	VK6MZ
MRS VALERIE NORTON 19:05:85	VK4FKL
MR A G OSWALD 03:04:85	VK2AEF
MR LIONEL TAMSETT SWAIN 26:05:85	VK2CS
MRS VERLE WESTON	VK2MR

Obituaries

ROY BAXTER VK4FJ

Yet another old timer has left us, with the passing of Roy Baxter, age 70 years, on the 20th April. Roy held his call, VK4FJ, for 50 years, and, in the past, was one of our top DX men. He was one of the brave souls who first activated Mellish Reef in July 1972, and was a long time member of the First Class CW Operators Club, AMIRE, Amateur Advisory Committee and spent some 48 years in the Salvation Army Temple Band.

Roy also served every day of World War 2 in the Royal Australian Navy, with most of that time at sea. Failing health over the last few years prevented him from pursuing his hobby to the full extent. Roy will be sadly missed by all his mates world-wide.

Fred Lubach VK4RF
AR

MICHAEL (MIKE) F JENNER VK7MJ

Mike was born in England in 1907 and came out to Tasmania in 1912. His early life was spent on Tasman's Peninsula, where, with his father and elder brother, he experimented with the wonderful world of radio.

With a super-regen receiver using a 'Weaco' valve, occasionally they would communiate with VIH Hobart Radio, sending Morse with a damp finger dabbed on the grid.

The seeds of an interest in radio communications were therefore sown at an early age, but did not bear fruit until much later in life.

Mike trained as a motor mechanic in Hobart, and for a time was employed in the trucking garage of Anthony Hordens' in Sydney.

In 1941, he and his wife, Grace, moved back to New Norfolk, in the Derwent Valley, where he lived for the remainder of his life.

During the years his interests included fishing and photography, he was involved in scouting, and was Deputy Fire Chief of the local Fire Brigade.

His interest in radio was re-kindled in the fifties when his eldest son started playing with radios, and the Morse training was put to good use.

Mike was convinced that he was too old to pass an exam but with a little help from his friends, qualified for his amateur licence in 1973. Forced to retire early due to ill health, amateur radio, and later, a computer, made a wonderful and fulfilling hobby for him, Morse being his first love, followed closely by RTTY.

He was a 'man' in the true sense of the word — thoughtful, loving, caring, and a real gentleman.

His family was with him at the end and his caring, understanding and acceptance of the inevitable, helped make his passing, on 16/4/85 at the age of 77, so much easier for his loved ones.

He was my friend, and my father.

Mike Jenner (Jnr) VK7FB
AR

FRED MAZURE — VK6MZ

It is sad to report the passing of Fred Mazure VK6MZ, who died suddenly on 31st March 1985. He was in his late seventies.

Fred rose to the rank of Warrant Officer in the RAAF, and after the war spent all his working life farming in the Busselton district. He never married, and after his retirement he moved into town, where he lived alone until his death. It is to people like Fred that amateur radio is of such inestimable value. In earlier days he was a keen CW operator, and in recent years kept regular daily skeds with friends on 80 metres. Despite his age, Fred kept well abreast of the technical scene. His shack was well equipped for HF and VHF, and he subscribed to several radio magazines, which he always read thoroughly.

Like most of us, Fred may not have made any great mark on the world scene, but he was a good friend and neighbour, and this kindly and gentle man has a place in the hearts of those who knew him.

Ted Davies, VK6ED
AR

LIONEL TAMSETT SWAIN VK2CS

The death on Friday 26 April of Lionel Swain VK2CS closed a chapter of amateur radio history in the Newcastle area.

Born in 1902 in Hamilton, a Newcastle suburb, Lionel took an early interest in the newly emerging "wireless" science and by 1922 he was responsible for the founding of the Radio Society of Newcastle of which he was the first president. The call sign 2SO was allocated to this organisation.

It was two years later that Lionel gained his own call sign 2CS and, as was common in those times, he conducted on air tests with a small group of enthusiasts but his music transmissions on the medium wave band reached a far wider audience in the local area.

In 1929, as with all other call signs in Australia, the prefix "VK" was added and Lionel became VK2CS, the call by which he was known until the time of his death.

He was a civil engineer by profession and on retirement held the post of Distribution and Maintenance Engineer, Water Supply, Hunter District Water Board. During World War II he served as a Lt Commander RANR in the Milne Bay area and later was seconded to the Department of Munitions where he worked on radar research in Sydney.

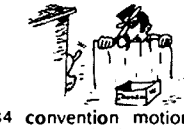
Lionel was a serious experimenter and meticulous with his construction work. Any of his "projects" could have won a constructor's prize. He was an expert on aerials and for this reason alone was much in demand as a lecturer. He had a keen perception of the part radio was playing in the technological developments of Australia and he was often quoted on technical matters in the press. He was a keen WIA supporter from the earliest days and held the post of President WIA Hunter Branch for some years. In 1962 Life Membership of the Institute was bestowed upon him.

The large attendance, including many old timer radio amateurs, at his funeral was an indication of the high esteem in which he was held in the community.

Lionel is survived by his wife Enid and family including several grandchildren and it is to these that our sympathy is directed in the loss of their loved one, a true radio amateur and a gentleman.

K Howard VK2AKX
AR

STOLEN EQUIPMENT REGISTER



In accordance with 1984 convention motion 84:17:01, the Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them, may write or telephone the Federal Office their queries.

Update to the list published previously.

MODEL	SER NUMBER	FROM
ICOM IC-25A	03831	VK2DPM
ICOM IC-45A	01876	VK2DPM
ICOM IC-211	6804309	VK3BRV
KYOUTO FM-144/10	5027	VK2KUR
DS EXPLORER 70cm TRANSCEIVER (HAS EXTENSIVE INTERNAL MODS)		
ICOM IC-215	05156	VK2AMX
YAESU FT-209RH	4KO50838	VK3CE (BLUE VYNL CASE)
ICOM IC-2A	04484	VK1MX
YAESU FT-207R	10132725	VK2EMC
KENWOOD TS-120V	0081224600	VK2VWN
ICOM IC-22	12266	VK3BLC
KENWOOD TR-2400	0061926 (Call sign engraved on case)	VK2PJ
YAESU FT-708R	1HO1948 (Call sign engraved on case)	VK2PJ

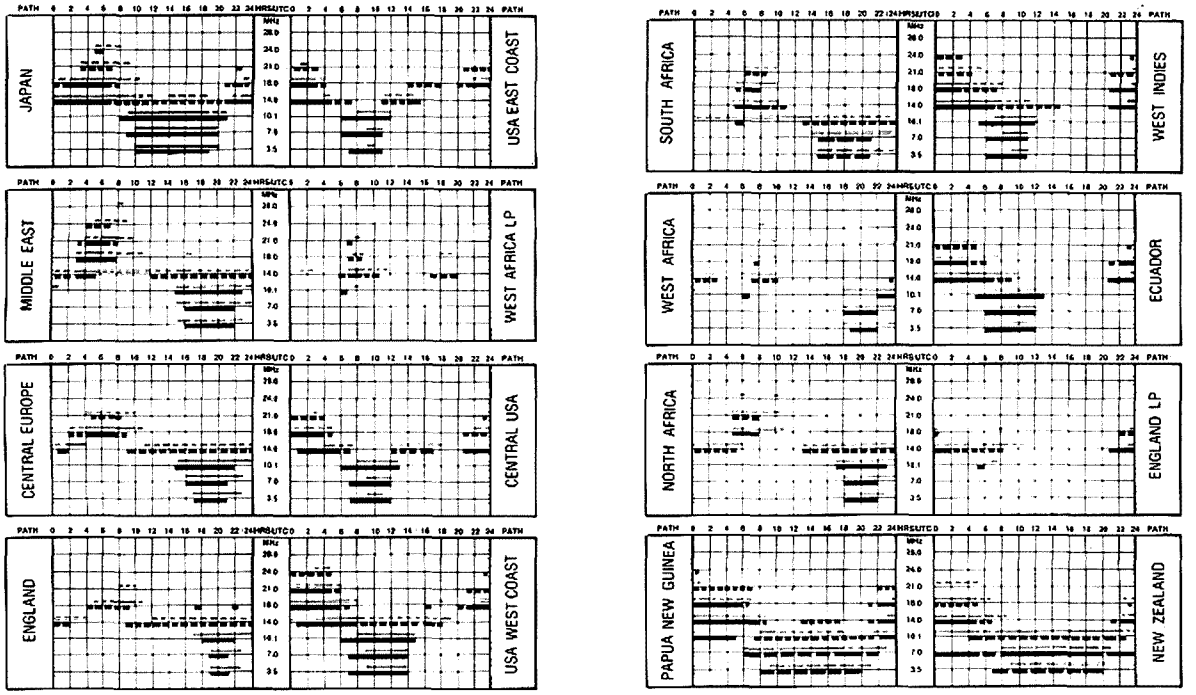
The first success of this register has been notified to the Federal Office. An Icom 2A has been discovered by an alert member in a batch of equipment offered to a retailer. The equipment is now back with its owner.

If you are offered second hand equipment, please check with the stolen equipment register before purchase.

AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)

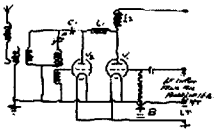
Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated lie: *LP = long path; all paths are short path.*

Predictions reproduced courtesy of the Department of Science and Technology, Ionospheric Prediction Service, Sydney.

All times in UTC.

75th Nostalgia



EXAMINATION PAPER PRE-WWII

Commonwealth of Australia
PMG Department
Amateur Operators' Certificate of Proficiency
Time allowed 2 hours

THEORY

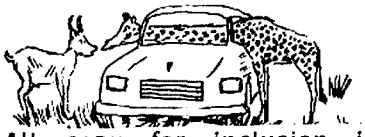
1. Discuss the relative merits and demerits of Heising and Suppressor grid modulation.
2. Draw a schematic diagram of a 3 stage crystal controlled transmitter suitable for amateur operation.
3. Draw a diagram of a key click suppressor. Also state what method you would adopt to prevent high frequency surges getting back to the mains.
4. Draw a diagram of a B class modulator and briefly discuss its function.
5. Assuming that a screen and plate of an audio frequency amplifier takes 5 and 15 mA respectively, what size bias resistor would be required to give 30 volts negative bias on cathode of indirectly heated valves. State how bias takes place.
6. Describe 3 kinds of microphones used by amateurs and their functionings.
7. Describe, and draw a circuit of a modern frequency checking unit for use in amateur stations.
8. Calculate the capacity of 1, 2 and 4 mF in parallel connected, in series with 3 and 3 mF which are also in parallel.

REGULATIONS

1. Give details of the distress call for telegraphy and telephony.
2. How many times may the CQ call be used? Give an illustration of the use of that call.
3. Which is signalled first in a message, the time or date? What time is indicated by the figures 0420?

Submitted by Fred Lubach VK4RF
AR

NOTICE



All copy for inclusion in September 1985 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 22nd July.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

☐ TRADE ☐

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, VIC. Willis Trading Co., Perth, WA.

70 cm power/VSWR meters (see p 23, AR July 1984) 50 W @ $112.80. 23 cm long loop yagis from $64.80. Waveguide modules, tubing & flanges. Gun & mixer diodes at good prices. 0.141" semi-rigid coax @ $2.50/metre. 1/16" DS PTFE board @ 14c/sq cm. 17 pF UHF Porcelain variables @ 10 for $3.50. Send SAE for lists to Microwave Developments, 6 Netley Road, Mount Barker, SA 5251.

☐ WANTED — NSW ☐

MAGAZINES — Australasian Radio World, Radio & Electronics, Radio Monthly, etc. Also lamphouse radio books, Mingays IF frequency index & official service manual No 9. Brian VK2EFD, QTHR. Tel: (049) 77 2178.

SSB CRYSTAL FILTER with USB & LSB xtals, 5 or 9 MHz. Ray VK2BRR, QTHR. Tel: (043) 92 3236.

☐ WANTED — VIC ☐

AR7 — not necessarily working. Details to Fred VK3DRX, QTHR. Tel: (03) 787 2866.

FT-107R tvert to match series 107 Yaesu. Price to Mal VK3KSA. Tel: (03) 726 8752 AH.

MONITORSCOPE — YO-100 or YO-101. Also Hy-Gain 2 el triband quad. VK3YI, QTHR. Tel: (03) 398 4192.

PROP PITCH ROTATOR. Working or for spares (especially low speed spider bearings). Command rx BC-946 (R24-ARC/5) 520-1500kHz. To complete collection. Any cond. Don VK3DON, QTHR. Tel: (03) 848 3059.

ROTATOR — Ham II or Ham M with controller or suitable heavy duty type for use with TH6DXX. Gordon VK3DBU, QTHR. Tel: (050) 83 3380.

☐ WANTED — QLD ☐

RCA TX TUBE MANUAL. Army PRC-10, PRC-9 radio sets, aerials RS-292, AT-339, power supply AM-598U. VK4EF, QTHR. Tel: (07) 38 1803 AH.

☐ WANTED — WA ☐

CRYSTALS — for repeater channel 7350 (ch15). Miniature HDK type, 5mm pin spacing. 2 sets required if poss. Any reasonable price paid. Ted VK6ED, QTHR. Tel: (097) 52 1173.

DIGI-DISPLAY — DG-5 for Kenwood TS-520S. Charlie VK6MP. Tel: (09) 271 4965 — shift worker, phone anytime.

☐ FOR SALE — ACT ☐

DECEASED ESTATE — VK1FS. Yaesu FT-757 $750. Yaesu FT-107 $650. Kyokuto 25W, 2m FM $225. Clipsal GPO type key $30. LP-50 low pass filter $15. Kenwood SW-200 meter + SWC-1 coupler $80. Scalar SC-22DX 5 band trap vert $50. TH6DXX tri-band beam $250. John VK1CJ, QTHR. Tel: (062) 51 1816 AH or (062) 64 3459 BH.

KENWOOD TS-820S, VFO-230, AT-230, opr & svce manuals, new $1100. Yaesu FT-290R, cradle, manual, as new $375. FL-2050 all mode linear, new $150. YP-150 dummy load/watt meter, 3-250MHz $80. Osker SWR mtr $50. Taxan 12" green monitor, new $150. Olympia ES-100P daisy wheel typewriter/printer $800. Extra RS-232 interface for Olympia $175. Henk VK1ZVR. Tel: 80 5469 BH or 48 9586 AH.

UNIMETRICS STINGRAY II CB converted to 24 channels on 10m USB & AM. Ex cond. $140 ONO. Frank VK1ZL, QTHR. Tel: (062) 81 3956.

☐ FOR SALE — NSW ☐

FT-707 with mic & h'book in ex cond. $475 ONO. Ray VK2TV. Tel: (043) 25 8549 BH or (043) 92 2244 AH.

ICOM IC-211 2m all mode AC tcvr. $425. VK2CIM. Tel: (060) 25 1843.

ICOM IC-701, PS-701, ICRM-3 controller. All ex cond. $690. Macrotronics RTTY interface, software (cass & disk) for Apple, MDK-17 Modem. All cost over $500. Sell $190. Roger VK2DNX, QTHR. Tel: (02) 546 1927.

KENWOOD TS-120S with mic & 500Hz CW filter fitted + AT-120 ATU. Both ex cond. W/shop & oper manuals $525. Icom 260A all mode 2m rx/tx c/w mic, manual, leads $300. Helical mobile whips. ASE. ADJ stubs for resonance 50 ohms. V/well made. 80, 40, 20 & 15/10m. Ex cond. All $30 each except 80m $35. VK2DJH. Tel: (043) 24 7630.

KENWOOD TS-520 tcvr fitted with 500Hz CW filter, + Kenwood remote VFO-520. Both one owner & in good work ord. Complete with mic & connecting cables with h'books for both units & orig packing. VK2BFJ, QTHR. Tel: (043) 32 5758.

KENWOOD TS-520S tcvr — used 3 times, still in orig pack. Kenwood antenna tuner for all bands, brand new. Yaesu lin amp FL-2000 output to 2000W CW or 1200W voice. Has 2 new output triodes fitted. Battery charger for 6 & 12V, new $10. Yaesu spkr $10. Kenwood Micro Three 2 moving coils, new. Yaesu Super Crystal, in ex cond. Vertical ant 10-40m. New in orig box, never used. Number of Absorption Wave meters Q-Max. $5. Scope soldering iron $10. New British soldering iron $10. Multi-range multi-meter. Needs small repair $5. Quantity of sundries too numerous to list. Tel: 48 5097 Sat or Sun to arrange convenient time to call. Bert Hay, Flat 1/rear 21 Redleaf Avenue, Wahroonga, NSW.

KENWOOD TS-820S. 1 owner, recently serviced by Kenwood. Immac cond complete with w'shop manual & MC-50 mic $450. Icom IC-70 comm rx, as new. $420. Ken VK2XS, QTHR. Tel: (02) 707 4393.

TOWER SECTIONS — large quantity, ex-Government triangle, galv, 6' lgth. Bolt together. $10 per section + freight. Trio 550 rx. 30MHz Model 9 R-59DS. Ex cond with manual $150 ONO. A Walsh 120181, QTHR. Tel: (048) 61 2092.

TV CAMERA. B&W Philips LDH-215, transistorised, video & RF outputs. Zoom Lens, 12V & 240V, 4.5" pic tube view finder. 5.5kg. H'book $100. VK2AZT. Tel: (069) 42 1392.

YAESU FC-700 ANT TUNER. As new $160. Yaesu mobile 2m stub (RSE-2A) $10.

RSL-7A 40m resonator $22. RSL 3.5 80m resonator $22. All perfect. Laurie. Tel: (062) 54 2679.

YAESU FT-102 (3x6146B) tcvr with MH-1B8 mic, WARC bands. As new. $900 ONO. Em VK2AEZ, QTHR. Tel: (065) 54 8269.

☐ FOR SALE — VIC ☐

CLEAN OUT — AF/RF Tech sig gen 20-D $75. TV align gen & osc Heathkit $40. 11 el, 2m beam (BWW fittings) $50. ZL 16 el special 2m beam. Designed & made by VK3AUP $85. ATV module 444.25 $50. Wafer switches, rotary. Electro caps assorted. Assorted prices. Valves, 803 etc. Mal VK3KSA, QTHR. Tel: (03) 726 8752 AH.

DECEASED EQUIPMENT: Yaesu FRG-7 comm rx in good work cond. Copy of Radio Amateurs H'book, World Radio TV H'book, ARRL Antenna Book & assorted pieces of equip. Price $250 ONO. Tel: (03) 277 4936.

FT-102 with narrow SSB & CW filters. FV-102 DVFO, FC-102 tuner, SP-102 spkr, desk & list mics. 3 mths old $1500. Tokyo Hi-power linear pair 4x50A, 1000W. WARC bands $750. Kenwood TS-670, 7, 21, 28, 52MHz + gen cov rx. 6 mths old. $675. Delica digi D/M to 500MHz $150. Delica ant imped analyser AZ1 $450. VK3OT. Tel: (055) 72 3333.

KENWOOD TR-2400 H'held 2m tcvr + ST-1 pulse charger with ext mic & aerial connections for base station operation. MC-30S 500 ohm mic to suit the lot. $250. Frank VK3DDK, QTHR. Tel: (03) 529 1686.

SHACK CLEAN OUT. 2 section wind-up tower c/w all guys, winches & tiltover mechanism. Will free stand to 35', total hght 47' $500. TH3Mk3 c/w balun GC $250. FT-101 with processor & CW filter. AC/DC. $275. Woodpecker blanker $50. CW filter to suit TS-430 etc. $50. Europa 2m transverter to suit 101 series. $150. Set of 6, 2V, 500Ah batts to power S5 rigs. GC $100. Assort mags, coax, turnbuckles, guy wires etc. Offers? Will accept any reasonable offer. Peter VK3QI. Tel: (03) 29 6396 AH.

SSTV ROBOT 400. Asaca Monitor, Asaca Camera, National Tape Recorder, partly built keyboard with all parts, cables and instruction books. All very little use and in EC. Tel: (03) 725 9285 AH.

YAESU COMM RX. All bands incl 27MHz FRG7. .5-29.9MHz. Perfect cond $250 ONO. N I Hawkesworth. Tel: (03) 82 4853.

YAESU FT-480R, all mode, 2m tcvr. Excell cond. $400. Tony VK3DXS. Tel: (03) 725 8071.

☐ FOR SALE — QLD ☐

ASSORTED VALVES FOR ONLY 50 CENTS EACH. Most brand new. 1S2, 5AS4, 5V4, 5Z3, 6H6, 6L6, 6N3, 6N8, 6R4, 6V4, 6Y9, 6AB4, 6AH6, 6AM5, 6AS6, 6AU4, 6AL3, 6AV6, 6AZ8, 6BM8, 6BN8, 6CK6, 6CM7, 6CW5, 6DC6, 6DE7, 6DX8, 6EA8, 6EB8, 6EJ7, 6GV8, 12AB6, 12AU6, 12AU7, 12AV7. Metal tubes 6SA7, 6SH7 etc & lots more. Fred VK4RF, QTHR. Tel: (07) 200 7916.

BLACK CTW ANTENNA. Resonant 3-30MHz, invert V configuration. Near new. New price $120, asking $95 ONO. Rob VK4CRM ex VK4VRM, QTHR. Tel: (076) 35 0142.

CTV CAMERA. National WV-3200N. Built in B&W monitor & auto zoom $450. Telequipment CRO (needs repair to time-base). Valves-572s, Q83/300-4-125As new, TY4/1250s new, HR-8 heat dissipating connectors. Vacuum variables 5-50pF, 15kV (Amperex), 16uF 5000V W paper caps, AWA field test set A-412, VHF/UHF with 140-180MHz module. Ex cond. 4-1000A valves. Single phase trans, 2000-1800-CT, 1800-2000V at 1.75kVA. Collins 455kHz mech filters, old radio valves, etc. VK4ZIB. Tel: (07) 269 6647.

☐ FOR SALE — SA ☐

FT-101B tcvr, DC-DC converter. AC-DC power cables, spare tubes, mic, pwr/SWR meter + patch leads. Diawa lo-pass filter, instr man (p/copy 101E/EE). Good PO, Good cond $450. Also IC-2E, 2m h'held tcvr, 2 batt packs + charger, carry case, spkr/mic. Ex cond & orig pack. $250. Simon Ex VK2PMM/ELT/5BSM. Tel: (08) 269 1213.

FT-101E with ext VFO FB-101B & match spkr. $550. George VK5NGB. Tel: (08) 337 8813.

SIEMENS 100 TELEPRINTER. $100 ONO. Trevor VK5ATB, QTHR. Tel: (085) 62 2886.

TRANSMITTER. AM in 6' steel cabinet. Slide-in units. 160-6m. 829B final. Modx 100W amp. Tx tubes 4-65A, QE3-300, 2x807s, 4x866As. 1x829B & socket, 815, 4CX250B (new), 4x150A (7034), 4E27 (like 813), VCR139. 200 rx tubes incl 2 sets KW2000. Vintage radios & recorders. Tel: (08) 271 6841.

YAESU FT-101E HF tx in orig carton. 80-160m incl 27MHz. $325 ONO. Owner up-grading. Recently tuned & serviced. Rob VK5ARC. Tel: (081) 381 7261 or 275 9230. Will ship interstate.

☐ FOR SALE — TAS ☐

AZDEN PCS-300 2m h'held. As new, complete with charger, h'held ext spkr/mic & leather case. $255 ONO. Kenwood HMC-1 headset/mic with VOX. New, suit TR-2600 h'held. $30. Will post above items. VK7AN. Tel: (003) 31 7914.

☐ FOR SALE — NT ☐

SHACK CLEARANCE. Yaesu FL-2100Z HF lin amp, like new, $640. Cushcraft A-3 Yagi, CD rotator, 13m winched HD steel tower, $750. BY-1 paddle keyer $75. Shure 444D desk mic, $110. MFJ 1224 RTTY/CW comp interface, $175. W2AU/W2VS 10-80m trapped dipole, 100' coax, $95. Larsen LM-MM 2m mag mt ant, new, $95. Tokyo HL-30V 2m 30W lin amp $75. Xitex SCT-100 (ASCII/Baudot tenn). Keytronics kybd, in case. NEC B&W monitor, $175 for all. TEK P-6106 probe $95. Apple Super Serial RS-232C card, $175. HP-15C calculator, 2 manuals, $225. 2kW Ultimate Transmatch ATU, roller ind, balun etc. $275. Gould/Advance OS-3300B 50MHz dual trace, dly'd swp, lab qual. CRO, 2 probes, $1750. Most items ONO. Shipping by arrangement. Nick Ellis VK8DE, QTHR. Tel: (089) 52 3692.

ANSWERS AOCP THEORY

1. b	11. a	21. a	31. c	41. d
2. c	12. c	22. d	32. c	42. b
3. c	13. c	23. c	33. a	43. c
4. d	14. b	24. c	34. b	44. a
5. a	15. a	25. d	35. c	45. d
6. b	16. d	26. b	36. b	46. b
7. a	17. d	27. d	37. b	47. c
8. d	18. b	28. c	38. d	48. c
9. a	19. b	29. b	39. c	49. a
10. b	20. c	30. a	40. a	50. c

ADVERTISERS' INDEX

Printed by Waverley Offset Publishing Group, (03) 560 5111.

NEW 2m FM HANDHELDS from YAESU

bail

FT203R

2.5 watt
144-148 MHz

VOX operation with optional YH-2 Headset.

Thumbwheel Channel Selection.

PA-3 DC/DC Car Adapter/Trickle Charger (option)

FT209R

3.5 watt/350 mW

FT209RH

5 watt/500 mW

Microprocessor controlled

10 Memories

Reverse Repeater

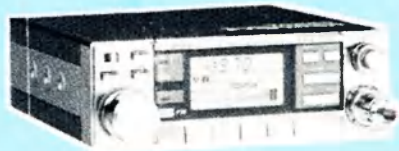
Power Saver to extend battery life

VOX operation with optional YH-2 Headset

PA-3 DC/DC Car Adapter/Trickle Charger (option)

bail

FRG-8800



FT-2700RH

BAIL ELECTRONIC SERVICES
38 FAITHFUL STREET, WANGARATTA 3677
Telephone: (057) 21 6260 — Telex: 56880
AGENTS IN ALL STATES Mail Orders and Bankcard Welcome

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MasterCard VISA

Stan Roberts and Staff — VK3BSR

AR85

ICOM'S IC-3200A Dual Band Radio.

Actual Size

It's the most compact size, most affordable price.

The IC-3200A is surprisingly small, so small we think it's the smallest Dual Band radio in the amateur service, but that doesn't affect performance or PRICE.

POWER. 25 watts of output power is available on both bands. Or if you prefer, low power is adjustable (internally) from 1 to 10 watts. Great if you have an afterburner.

SIMPLE YET FLEXIBLE: You don't want to be fiddling around with a squillion controls in heavy traffic, so ICOM have provided the minimum number of front panel controls to do your job.

MEMORY. 10 tunable memories are available each capable of remembering the receive and transmit frequencies, and each can be tuned up or down when selected. Yet the radio will automatically return to home frequency when reset. These memories are backed up by a lithum battery. Memory lockout is used to scan only the memories required.

SCANNING. Four scanning systems are available. Memory scan, Band scan, Programme scan and Priority scan.

OUTSTANDING FEATURES: A built-in duplexer means only one antenna connection with a minimum of messing around. A Dual Band Antenna will be available shortly. 5KHz and 25KHz steps of tuning are provided. Option UT-23, a voice synthesizer, is backed up with many other accessories for the home or car.

ICOM

Simply the best.

7 DUKE STREET,
WINDSOR, VICTORIA. 3181
PHONE (03) 51 2284

ALL SPECIFICATIONS ARE TYPICAL ONLY

ICO 019

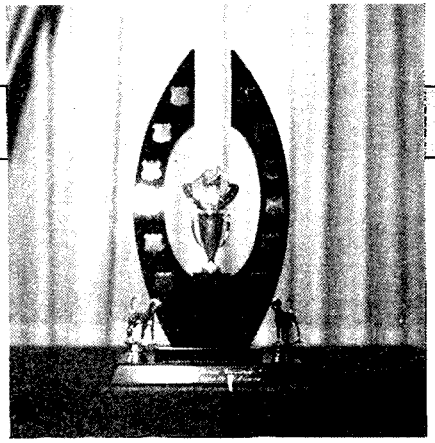
AMATEUR RADIO

VOL. 53, No. 8, AUGUST 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

WIA's 75th Anniversary Fox Hunting Championship — 25th & 26th October 1985

37th Annual Remembrance Day Contest — 17th & 18th August 1985



On 25-26th October 1985, the first National Fox Hunting Championship will be held at the Wagga Convention, in conjunction with the WIA's 75th Anniversary. The winning team will hold the trophy, featured on the cover, for twelve months. Inset: The late William McInnes Moore VK2HZ. Bill, a life member of the Institute, saw service in the RAAF as a wireless operator. See page 29 for a tribute to Bill.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

AMATEUR RADIO

Published monthly as the official journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6859. Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

As a special feature for this month's RD contest, Max VK3ZS has written an informative article of how this contest began (see centre pages). Max lists the radio amateurs whose memory is perpetuated by this contest.

Another type of contest begins this year — the first National Fox Hunting Championship. This inaugural Hunt is being conducted during the Wagga Convention, 25th and 26th October, and is part of the WIA's Seventy-Fifth Anniversary. The winning team will hold the magnificent trophy featured on the front cover. Full details appear on page 9.

This month the overall winner of the Agfa photographic competition for the past twelve months, is announced, p. 29.

VHF/UHF enthusiasts will be interested in the history of bridging the VK6-VK5 and VK6-VK3 paths on 144MHz and other bands, between 1951 to January this year. Walter VK6KZ has spent many hours studying the logs of the late Rolo Everingham VK6BO, to glean much of this information. (BKP)

DEADLINE

All copy for October 1985 AR (including regular copy of Hamads and columns) must arrive at PO Box 300, Caulfield South, Vic. 3162 at the latest by midday 21st August 1985.

SHOOT YOUR SIGNAL OUT OF THIS WORLD

SCAN THE BANDS WITH OUR NEW SX-155

PROGRAMMABLE POCKET SCANNER

This new unique scanner provides coverage of 26-32, 68-88, 138-176 and 380-514 MHz with a sensitivity of less than 0.5 uV. Four banks of 40 memory channels, total of 160 memories. High scan speed of 16 CH/SEC. Auto search and store mode. Priority channel. 4 hour life on supplied Nicad batteries. 24 Hour clock. Selectable Scan/Search delay of 0.1 or 2 seconds. Includes Nicads, charger, carrying-case & antenna.

ONLY $449

AR-2001 CONTINUOUS COVERAGE 25-550 MHz SCANNER

If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2001 from GFS.

$619 + $14 P&P

LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

LOSS IN DB/30 METRES

TYPE	100 MHz	200 MHz	400 MHz	900 MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8/U	1.96	N/A	N/A	7.44
RG-213	1.74	N/A	N/A	7.20

FB SERIES CABLE & N CONNECTORS

CABLE		N-CONNECTORS	
5D-FB.....	$2.80 m	NP-5DFB.....	$10.90
30-FB.....	$3.80 m	NP-8DFB.....	$11.30
10D-FB.....	$5.80 m	NP-10DFB.....	$11.80
12D-FB.....	$7.90 m	NP-12DFB.....	$12.50

BUMPER HOOK MOBILE MOUNT

$49 + $8 P&P

HS-FB is a heavy duty antenna mount designed to fit on your car's tow hook or tow bar.

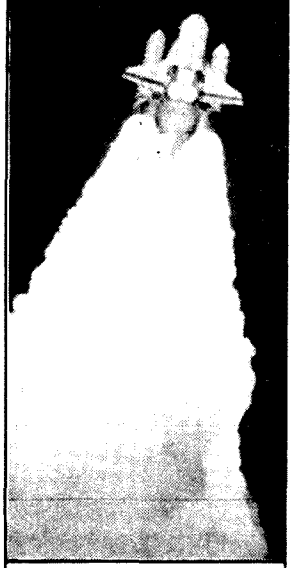
NO HOLE MOUNT

$11 + $6 P&P

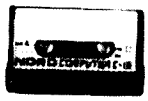
The HS-25 is a "No Hole" boot lip mobile antenna mount designed for Scalar type bases.

Our fully equipped service department services a range of communications equipment. Hourly rate $37

WITH COMMUNICATIONS ACCESSORIES FROM GFS



RTTY/SITOR & FAX FOR TRS-80C



DCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR.

RBA provides transceive on RTTY (BAUDOT) – ASCII.

(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programs.

DCM $75 + $5 p&p
RBA $55 + $5 p&p

FAX is a high resolution weather facsimile programe for displaying weather maps etc, received on shortwave. It does not need a modem.

Morse $55 + $5 p&p
FAX $75 + $5 p&p

MORSE is a unique program for sending & receiving Morse code. 1-99WPM

ANTENNA MATCHER FOR CONTINUOUS HF COVERAGE – MFJ-941D

Apart from being extremely versatile the MFJ-941B includes a 6-position coax-switch, SWR power meter, 4:1 Balun and will feed balanced line, single wire and coaxfeed antennas.

$334 + $14 P&P

2 KW DUMMY LOAD

MFJ-250 Low SWR to 400 MHz, 2 KW PEP, supplied with transformer oil.

$89 + $14 P & P

EXPANDED RANGE OF HF VHF UHF ANTENNAS

BROADBAND ANTENNAS

LOG SP – 85 to 520 MHz
$177 + $14 p&p
LOG-S 100 to 520 MHz
$125 + $14 p&p

HF BROADBAND DIPOLES

New T2-FD series provides continuous HF coverage

200 WATT MODELS

3.5-30-T2-FD-200 is 25m long, 3.5-30 MHz.
1.8-30-T2-FD-200 is 30m long, 1.8-30 MHz, **both priced at $149 + $14 p&p.**

2KW MODELS

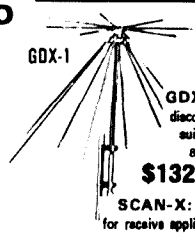
3.5-30-T2-FD-2KW is 40m long, 3.5-30 MHz.
1.8-30-T2-FD-2KW is 50m long, 1.8-30 MHz, **both priced at $189 + $14 p&p**

ACTIVE OUTDOOR ANTENNA FOR SWL's

MFJ-1024 gives longwire performance from its 54" whip, 50 KHz to 30 MHz

$359 + $14 P&p.

BROADBAND OMNIDIRECTIONAL ANTENNAS FOR SCANNERS



GDX-1: 16 element discone 80 488 MHz suits transmitters and receivers.

$132 + $14 p&p

SCAN-X: 6 element discone for receive applications 85-520 MHz

$84 + $14 p&p

2 metre RINGO

The antenna for 2 mx FM work. 9dBi gain, omnidirectional.

$94 + $14 P&P

GIVE YOUR RINGO ANOTHER 1.5dB

with our RK-1 decoupling radial kit.

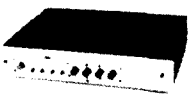
$23 + P&P

FOR THE RTTY OPERATOR

MDK-17 (KIT) MOD-DEMOD

A high performance RTTY/CW modem kit for use on a computer or teletype. Offers high noise immunity on receive. **$129 + $8 p&p (kit) or $199 $8 p&p, (assembled).**

MFJ-1224



Versatile RTTY/CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64. **$348 + $14 p&p**

Great Circle Map

Now point your beam in the correct direction using this Great circle Mapl centred on Melbourne **$2 + $3 P&P.**

What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators, or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

	DB-4 (4mm)			DB-5 (5mm)		
	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)
Debeglass	2.5	3.9	430	3.0	6.3	560
Steel wire	2.5	5.6	370	3.15	9.3	530

DB-4 (4mm) $0.51m DB-5 (5mm) $0.71m
We also have DB-8 (8mm) available on special order.

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EDITOR'S COMMENT

LOOSE ENDS

From time to time there are occasions when your Editor can actually spare an hour or so for a little listening on the bands, maybe even making a contact or two. It should be compulsory for all of us, on the bridge of the good ship "Amateur Radio", to make this effort to keep in touch. So for this month of August 1985, the occasion of the 38th Remembrance Day Contest, I thought I might mention a few unrelated items heard on the air, or which come to mind.

The first is AR's print size, which we have to admit has been a little on the small side for the last year or so. There is a continuing necessity to put a great deal of material into a limited amount of space. But improvements are already being made by our skilled typesetters. It is possible with computerised equipment to fit larger type into the same space by cutting down on spacings between letters and words etc, and this condensing process is well under way. But if you really want larger type and a bigger magazine there is one certain way to help. Enlist a new member (or two, or more?). Our budget is set by our subscription income, and the more there is the more efficiently we can function. This will become even clearer when our promised article on the production of the magazine appears in print soon.

Finally, if there are some of you in North Queensland or the Top End who would like an opportunity to "earbash" the Editor, your chance is coming. My XYL and I are planning a flying trip up north during the August/September school holidays. We look forward to hearing you on 2m FM, with perhaps the occasional "eyeball".

Bill Rice VK3ABP
Editor
AR

WIA Seventy Fifth Anniversary

Letter of congratulations from overseas societies, presidents, etc. are arriving daily, listed here are those received to date:

NZART
IARU Region 2
IARU Headquarters
Radioklub de Deutshen Demokrtischen Republik
Radio Society of Bermuda
Grenada Amateur Radio Club
Israel Amateur Radio Club
Chinese Radio Sports Association
IARU Region 3
OVSV Austria
IARU President
RSGB
Amateur Radio Society Bahrain
Canadian Radio Relay League
South African Radio League
CRAS of El Salvador
Radio Club of Chile
Radio Club Venezuela

75TH ANNIVERSARY DINNER

Arrangements for this important function are well in hand, a registration form is inserted in this issue to facilitate booking arrangements. It looks as if the 75th Anniversary dinner at the Southern Cross Hotel on 9th November will truly be a night to remember in the long history of our Institute. At this time the official guest list is growing, to date acceptances have been received from:

The Honorable Michael Duffy, Minister of Communcations
Richard Butler, Secretary General of the ITU
Richard Baldwin W1RU, President of the IARU
Carl Smith W0BWJ, Vice President of the IARU Region 2
Pedreo Seiderman YV5BPG, President of the IARU Region 2
David Rankin VK3QV, Chairman of the IARU Region 3
Masayoshi Fujioka JM1UXU, Secretary of IARU Region 3
John Alloway G3FKM, Secretary of IARU Region 1

MEMBERSHIP

In the January issue of Amateur Radio it was announced that each 75th new member during 1985 would receive a quartz multi function clock for their shack. Listed below are the recipients to date of these clocks:

C W Purvis VK3DEN
A R Clark VK3CAC
D H James L20348
D Perno VK4BDP
K J Chipper VK6ZEB
J C Kemp L50129

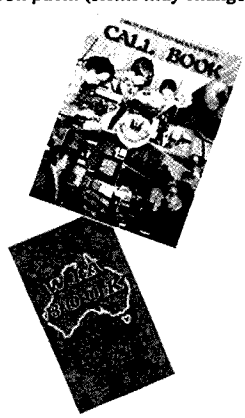
As the year progresses more names will be added to this list, hopefully many more.

Next month we will be listing of proposers of new members, the computer will be selecting a separate listing of proposers of members and gifts will be despatched. Keep up the good work!

BOOK PACKS, THE 75TH ANNIVERSARY and THE YEAR OF YOUTH

The June issue on this item has generated a great deal of interest and mail to the Federal Office. In order to satisfy many of the questions being asked, listed below are the contents of each book pack. (Items may change subject to availability).

$15 pack. P&P Paid.
Into Electronics (NSW Education Service)
Novice Electronics
100 Basic Projects
Guide to Amateur Radio (RSGB)
WIA Book 1
WIA Call Book
Radio Amateurs World Atlas
$30 pack. P&P Paid.
The following plus the $15 pack:
Basic Training Manual (NZART)
Hints and Kinks (ARRL)
Weekend Projects (ARRL)
$50 pack. P&P Paid.
The following plus the $30 pack:
ARRL Handbook (ARRL)
Maidenhead Locator World Atlas



Each pack will contain information on amateur radio in the form of letters, leaflets and posters.

When applying for a book pack please ensure that you enclose, in your request to the Federal Secretary, details of the Club/Group making the presentation and the recipients. It must be stressed that the value of these packs bears no resemblance to retail prices.

POSTER COMPETITION

The 7th Anniversary sub-committee has awarded the prize for the poster competition to V Marsden VK2EVM. Hearty congratulations.

PRE STAMPED ENVELOPE

The success of the envelope released by Australia Post to celebrate the 75th Anniversary was extremely good. The displays put on by Divisions and clubs in Post Offices was not only appreciated by the general public

but by Australia Post also. The envelope has also generated considerable interest overseas, mail from amateur radio collectors has been heavy and news to date is that the envelope will be featured in QST as well as Region 3 news. It has been indicated to the Executive that this envelope has been one of the most popular ever issued!

75TH AWARD

This Federal award, being run by the Victorian Division, is still creating considerable interest both at home and overseas. Our awards manager for this Anniversary event, Jim Linton VK3PC, has advised the Executive that, to date, some 200 of the awards have been issued. To remind you, your membership number is printed each month on the label of your copy of AR. If you have not qualified yet there is still plenty of time as this award runs until the end of the year, the certificate itself is well worth the effort to obtain. The rules for the award appeared in the March issue of AR, page 52.

VK75A

The QSL manager for this special Federal call sign, Des Clark VK3DES, now has supplies of the special QSL card and is busy catching up on the 6000 contacts to date. If you have not been lucky enough yet to have had a QSO, there is still time. During August the VK4 Division will be operating the special call sign, followed in September by the VK1 Division.

WORLD AMATEUR RADIO DAY-18 APRIL 1985

As a result of the Institutes listening stations on the 10, 18 and 24 MHz bands, to increase the use of these bands, the following stations have been selected from the many "heard" during this Special Day:
VK4NL, VK2DVU, VK3AMB, VK1ZU, VK7CH, VK6WT, VK5GZ, VK2AJO, VK3ZM, VK4NR.

These stations will receive, in the very future, 75th Anniversary gift packs.

CW CONTEST RESULT

The results were published in the July issue of AR. The winner of this event P Alexander VK2PA was presented with the Presidents Cup during the Oxley Region Field Day at Port Macquarie over the June long weekend. The presentation of the special 75th Anniversary prize for this inaugural event, the William Willis specially mounted and engraved Morse key, will take place at a later date this year.

All entrants to this special CW event this year have received their certificates.

AR

RADIO AMATEURS WIN MINISTER'S TRIBUTE ON 75th ANNIVERSARY

The Minister for Communications, Mr Michael Duffy, recently paid tribute to the work of the Wireless Institute of Australia which this year celebrates its 75th anniversary.

On 22nd May 1985 Australia Post issued a special stamped envelope marking the occasion.

"Amateur radio is usually looked as a leisure-time hobby," Mr Duffy said, *"but in times of war and emergencies such as bushfires, the operators have proved truly professional in the help they have been able to give."*

The WIA was formed in 1910 and is the first and oldest radio society in the world. Its membership includes operators of all ages, both sexes, the handicapped and the disabled.

Mr Duffy said 1985 was of special significance in the history of Australian communications because of the imminent launch of the AUSSAT communications satellites.

"It is not generally known that fifteen years ago a team of radio amateurs in Melbourne built a satellite and had it launched in the US," Mr Duffy said.

The satellite was named OSCAR 5 (OSCAR is the acronym for Orbiting Satellite Carrying Amateur Radio) and although it operated for only forty-four days it demonstrated that radio amateurs had the expertise and capability to activate a spacecraft radio beacon by transmitting command signals from earth.

"These days ordinary citizens around the world use amateur radio equipment and satellites to communicate with each other," the Minister said.

Mr Duffy said that in its administrative/regulatory roles his Department had a close relationship with the WIA which represents some 16,000 amateur radio operators.

"The two organisations sometimes disagree on matters concerning use of the radio frequency spectrum, but the Department values its links with the WIA and the advice it puts forward."

Press Release No 37/85 — 23rd May 1985 from Minister for Communications.

AR

RECIPIENTS — WIA 75 AWARD

NAME AND CALL SIGN	*CERTIFICATE NO.*
Graeme Harris VK3BGH	1
Kim Wilson VK3CYL	2
Gwen Tilson VK3DYL	3
Brian A O'Neill VK2AKU	4
Charles H Thorpe L40018	5
Arthur J Harris VK2KFV	6
R E Richards VK7NAI	7
David V Furman VI3DVF	8
John E C Heaver VK3VNQ	9
Mary Ann Crider WA3HUP	10
Ruthanna Pearson WB3CQN	11
Keith Russell G4RZQ	12
Steve Ireland VK5AOZ	13
John K O'Brien VK1NCO	14
A T Menham VK4VAT	15
Jim Thornton VK2VRT	16
L A James VK2EDQ	17
Colin Davidson VK2JCO	18
Brian H Lackie VK2DLM	19
G A Devonshire VK4NRG	20
David Jewell VK0DJ	21
Bill Martin VK2COP	22
Steve Pierrehumbert VK3XSP	23
E K Williams VK4VDD	24
Michael Wilson VK3VMW	25
Frank James VK3CFJ	26
Keith F Turk VK2PKT	27
Ivan A Gee ZL1AQO	28
Ben Bodnaruk VK2DLB	29
S G Honey VK7NGH	30
D R Hurley VK3BCD	31
Bobbie O'Hare VK2PXS	32
D G F Meerstadt VK2RM	33
George Cranby VK3GI	34
V E Hearne VK3PXC	35
Barry J Funk VK2DYV	36
Gerhard A Koziol VK3KJI	37
M R Raabe VK4KWO	38
Ewen Templeton VK3BMV	39
B P Dilworth VK7BD	40
Dennis Tidy VK2DET	41
Ron Millingen VK2PZW	42
Val Rickaby VK4VR	43
Ken Gott VK3AJU	44
Paul McFadzean SWL	45
Peter Kenyon L30O37	46
Don Randall VK2PYD	47
Steve Pall VK2PS	48
Eric Shaw P29KES	49
Ronald Crosby VK2BCH	50
Harry Ellson VK3DRO	51
A F Cruikshank VK4MAX	52
Leonard J Brines VK2PLN	53
Margaret Mann VK3CWA	54
Derek Reed VK2ERJ	55
Dion M Hucker VK3VIN	56
M C Brockbank VK2EXB	57
Des Hancox VK2AGA	58
Dennis Middleton VK2NAN	59
Richard Moore VK2NQN	60
David B Beecham VK2CDB	61
R C Marschke VK1PP	62
John C Moulder VK4YX	63
F H Macklin VK1ZL	64
D M Harrison VK3NDH	65
B A Humphry ZL1BWB	66
C Holland VK4NBL	67
R J Glassop VK4BG	68
Adolf Ehni DL1SX-DOK HO8	69
Peter McGill VK2DUA	70
Graham Petty VK3AOT	71
A R Jackson VK7NBF	72
F J Sullivan VK3ZJ	73
Ben Bailey N4IZ	74
John Howden VK3BQ	75

THANKS

I wish to convey my appreciation and thanks for the prizes which arrived recently in connection with the 75th Anniversary subscription renewals, and congratulate the Institute on the activities undertaken to celebrate the Seventy Fifth Anniversary.

73.

Jim Oliver VK7JO

Re my receipt of the gift package to be followed with my receiving the clock. These moments in amateur radio I shall not forget. Very greatly appreciated and sincere thanks to those concerned.

Best of 73,

Yours faithfully,

H R Hodgson VK5AP

Many thanks for your advice re my membership of the Institute.

I also wish to convey my thanks to the Institute for the presentation clock which came as a complete surprise, and is very much appreciated.

Yours sincerely,

C W Purvis VK3DEN

A note of thanks and appreciation for your letter of the 14th June 1985 and the quartz clock received in the mail.

Just how much appreciation may, perhaps, be judged if I tell you a little about myself: having been "forced" into a somewhat early retirement by the widespread unemployment in the building industry, I took the opportunity, of extra leisure time, to fulfill a lifelong ambition and become an amateur and whilst I have acquired some "necessary" items of equipment the budget certainly does not run to such items as clocks (to date my shack clock consisted of an old resurrected digital watch with a smashed case!).

However, I have received a great deal of enjoyment from my relatively short sojourn in the amateur ranks and as a member of the WIA.

To receive a gift in addition to the pleasure of membership makes me feel very fortunate indeed.

So thanks again, and let me just add that here is a member who is very appreciative of the time and effort expended by the Executive, Officers etc, of the WIA, on members' behalf

Yours sincerely,

Dmitri Perno VK4BDP

AR

AUGUST 1985

SUN	MON	TUE	WED	THU	FRI	SAT
				1 National Day — Switzerland	2 Independence Day — Macedonia	3 Novice Revision — VK3
4 1985 World Police/Fire Games-W6YL begins Novice Revision — VK3 Sun City to Surf — VK2	5 Bank Holiday — VK2 Picnic Day — VK8	6	7	8	9	10 AOCP Revision — VK3 European CW Contest
11 1985 World Police/Fire Games — W6YL ceases AOCP Revision — VK3 European CW Contest	12	13	14 Brisbane Show Day	15 Independence Day — India	16	Ballarat ARG Field W/end KCJ CW Contest National Day — Indonesia RD Contest SARTG RTTY Contest
18 Ballarat ARG Field W/end KCJ CW Contest RD Contest SARTG RTTY Contest	19	20 Anniv of 1st King crowed in Hungary DOC Examinations St Stevens Day	21 Deadline for copy for AR	22	23 School Break up — VK1 School Break up — VK2 School Break up — VK3 School Break up — VK6	24 All Asian CW Contest GARTG RTTY Contest
25 All Asian CW Contest GARTG RTTY Contest	26 AOCP Theory — VK3 General Meeting — VK1	27 General Meeting — VK5 Novice Theory & CW Classes — VK3	28	29	30 School Break up — VK5 School Break up — VK7 Townsville ARC Convention	National Day — Malaysia Townsville ARC Convention VK Income Tax Returns Due VK3 RTTY Art Competition closes

AURORA SCATTER — ANTARCTICA

Don Richards VK2BXM
The Ski's Inn, Sackville Road, Ebenezer, NSW. 2756

Between November 1984 and March 1985, the Research Vessel, the Dick Smith Explorer, which is owned by the Oceanic Research Foundation, voyaged from Sydney to Commonwealth Bay, Antarctica, and back again. She spent five weeks moored in the Boat Harbour, Commonwealth Bay, the site of Douglas Mawson's hut which was erected by his party during the 1911-1913 expedition.

Commonwealth Bay is almost directly south of Tasmania and about 2000 nautical miles from Hobart.

During the voyage and whilst moored, the writer carried out experiments on 2m SSB, aimed at using auroral scatter, to make contacts with Australian amateur stations. The call sign which was allocated to the expedition AX0PB (Project Blizzard) was used.

Equipment was a TS9130, all mode 2m transceiver courtesy Trio-Kenwood, a Mirage 160W linear amplifier and pre-amplifier courtesy ATN Antennas, a 2m horizontal dipole made at short notice by Brian VK7BP and a 10 element, 2m Yagi loaned by Ross VK2ZRU as arranged by Dick VK2BDN.

For the voyage south and return the dipole was used and the Yagi was used whilst moored in the Boat Harbour.

Each night, during the voyage, (6.12.84-24.12.84 and 6.2.85-20.2.85) from 2100UTC on 144.100MHz, for about 15 minutes, slow Morse was sent calling CQ with identification AX0PB. The CW was interspersed with voice, sent and listened at about 2 minute intervals.

The same procedure applied whilst moored between 30.12.84 and 5.2.85, only the Yagi was used. The Yagi was pointed at the east coast of Australia for about 15 minutes, then changing direction to the Perth-Albany area.

I was also operating HF daily and would come up immediately on 2m if there was any detection of what sounded like auroral effect on the HF bands. At other odd times through the day and night I would often send and listen.

Arrangements had been hurried before departure but word got through to Pierce VK2APQ, the broadcast, Gordon VK2ZAB and later to Art VK6ART, as to what the programme was.

Good contacts had been made before leaving, with amateurs on sideband in Melbourne and Hobart and it was possible to hold the Hobart repeater for about 120 nautical miles while moving south. For the rest of the time nothing was heard until we were within range of Tasmania again.

So far, a report has been received from Greig VK7KJ, who heard slow Morse on 144.100, at the right time and from the correct direction, on the night of 11.1.85. He was unable to identify the call sign.

Any other reports would certainly be appreciated.

Thanks go to those who helped, including Moonraker, Hobart, with some components and advice and Roger VK2ZTB, who suggested the experiments in the first place.

Next time this vessel goes south it is hoped to take 6m gear and attempt to give more notice of the planned activity.

There was a fair amount of activity on HF, both at sea and from Commonwealth Bay. A report of this activity is being prepared and will appear in AR when completed. **AR**

THE WESTERN AUSTRALIAN — INTERSTATE-OVERSEAS VHF/UHF STORY

75th Nostalgia

Walter J Howse VK6KZ
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Recent events on VHF/UHF included the bridging of the Perth Adelaide path (2137 km) on 432 MHz for the first time ever. The author owes his interest and activity on VHF/UHF to the late Rolo Everingham VK6BO who made the first contacts in 1951 and 1952 on 144 MHz to Clem Tilbrook VK5GL and Reg Galle VK5QR. Rolo, as well as the author and others, frequently looked to repeat his feat. This article is an attempt to bring together information on the bridging of the VK6/VK5 and VK6/VK3 paths over the period 1951 to January 1985 as well as other interstate and overseas "firsts" on 144 MHz.

50 MHz — 6 November 1948

The first VK6 to work interstate on the 50/52 MHz band was VK6HM in Kalgoorlie who made his contact at 1035 UTC on 6 November 1948 by working VK5GB (1). He was closely followed by Wally Green VK6WG in Albany who worked VK5GH at 1045 UTC. At 1109 UTC Wally worked Reg Galle VK5QR — the first of many VHF/UHF QSOs between these two amateurs as will emerge later (2). Another Wally — the late Wally Peterson VK6LW chalked up the first interstate QSO on 50 MHz from Perth in December that year (3). By April 1949, the stage had been reached where Don Hawksworth VK6DW at Bruce Rock needed to work a VK6 before he could claim the "Worked All States" award for 50 MHz. Don finished with Certificate No 3 (4). It was not until 1963 that the second such award was made to a VK6 amateur and that was to the author as VK6ZAA (5). The long gap was due primarily to the lack of activity in the Northern Territory.

144 MHz — 30 December 1951

On 144 MHz, the log of Rolo VK6BO shows that on 30 December 1951 the 50 MHz band was opened at 0108 UTC when he worked VK5MK. This was the first of a continuous stream of 50 MHz contacts until at 0705 UTC Clem Tilbrook VK5GL was worked for the fourth time that day on that band. The next entry in Rolo's log was for the 144 MHz band. Rolo gave VK5GL a 5/5-8 report and he received a 5/6-7 on AM with the contact concluding at 0712 UTC. At 0718 Rolo resumed working VK2,3,4,5,7, ZL1,2, and 4 on 50 MHz until 1330 UTC. At that time the log shows "called CQ CW ZS till 12.00 midnight (ie. 1600 UTC)". In all, Rolo had 86 interstate contacts that day on 50 MHz. This contact of 2164 km was just short of the then world record distance of 2253 km.

9 February 1952

On the 9 February 1952, Rolo called CQ at 0245 UTC on 50 MHz and worked VK5GL at 0245 and VK5HD at 0250. The next entry at 0312 UTC was VK5GL on 144 MHz with report sent 4/2-8 and received 5/6. At 0223 UTC Reg Galle VK5QR made his contact with reports of 5/5-8 sent and 5/5-7 received. Rolo called CQ on 144 MHz "on and off till 1145 (ie. 0345 UTC)" and from 0400 onwards worked VK5HD, VK5GL and VK5QR on 50 MHz with the final six metre contact recorded at 0645 UTC (6).

The equipment used at that time gives an idea of the changes now evident in technology. Clem Tilbrook VK5GL used an RL7 tritet oscillator with an 8 MHz crystal, a 6V6GT doubler to 48 MHz, and an RK34 tripler to 144 MHz with an 832 final with 18 watts input. The amplitude modulation resulted from a modulator using a pair of 6V6s in Class A push/pull. The receiver comprised a crystal locked converter with a 6J6 push/pull RF amplifier, 6J6 push/push mixer with a 6C4 cathode follower. The oscillator section used an 1852 tritet, fifth harmonic from 9.4 MHz driving a half 6J6 trebler to 141 MHz. The band tuning from 3-7 MHz was done "on a conventional 12 tube receiver". Clem's antenna comprised a four over four with the bays spaced a full wavelength apart with the top 28 feet (8.5m) high. Folded dipoles were used as radiators fed with 300 ohm open line (7). Clem commented on his QSL card *"look forward to many more contacts with you. Who knows that it won't by 288 MHz soon — here's hoping. Clem".*

Reg Galle VK5QR commented *"Clem and I intend watching each time the weather map indicates a possibility viz cold front from west to east near the coast plus a parallel isobar close to it. Both breakthroughs showed this oddity on weather maps . . . we are very keen to test one metre gear!" (8).*

Rolo's equipment is not so well documented. His colleague Don Graham VK6HK agrees with the author that the antenna on 144 MHz was a five over five array spaced a wavelength apart and the transmitter had an 815 valve in the final.

The input power on AM was 45 watts and his converter used a tunable oscillator. Because of the length of the run between the shack and the tower Rolo constructed his own open wire line.

Near Misses From Perth

In many six metre openings in the period to 1976 when Rolo died, VK6BO could be heard around 144.22 MHz, on the key, seeking to repeat his 144 MHz contacts. The nearest he came to this was probably on 1 January 1967 when Col Moore VK5RO heard Rolo at 0435 UTC (9). The Perth 144 MHz beacon was heard that day at 0305 UTC in Adelaide by VK5ZBR and VK5ZMW (10). Another near miss for Rolo was on 15 February 1970 when he recorded in his log *"At last! 07.15 heard VK5VF on 144.8".* At that time the Mt Barker two metre beacon was 5/9+ off the side of Rolo's beam. Kevin Bicknell VK6ZCB (now VK6AB) also heard VK5VF at that time at 529. These observations immediately followed Rolo's daily early morning checks with Wally Green VK6WG on 144 MHz. Wally was in Norseman at that time. VK6WG's signal was 5/2-5 in Perth at 06.45 WAST (11).

Western Australian VHF Group (Inc) and Beacons

However to revert to the general story of 144 MHz, a significant event had occurred on 30 April 1955 when thirteen amateurs met at the home of Ron Mould VK6FM in Mt Pleasant, Perth and decided to form the Western Australian VHF Group. Following an application for a permit in January 1958, this Group established the first amateur beacon in Australia on 50 MHz. This had the call sign VK6VF and was placed on air in January 1959 in Kalamunda at the QTH of Bob Elms VK6BE (Bob now lives in Albany). On 14 July 1961, the Post Master General's Department approved an application from the VHF Group and the Group established a beacon on 144 MHz in addition to its six metre one. In 1962, the Group built a six metre beacon for operation on Cocos Island which was operated under the care of Lionel Allen VK9LA. The beacons were to facilitate detection of band openings. (12)

Near Miss from Narrogin

On 3 January 1961, Kevin Bicknell VK6ZCB, who was living in Narrogin (165 km south west of Perth), worked Doug McArthur (now VK3UM), then VK5KK, crossband from two to six metres. The six metre band had been wide open with rock crushing signals. Doug had no problem in receiving Kevin's AM signal on 144.18 MHz. However Kevin had chosen that day to rebuild his two metre converter so preventing a two way contact on 144 MHz. The crossband contact continued until 1510 UTC, ie. nearly midnight local time! (13).

Bunbury/Adelaide — 8 January 1965

During a six metre opening to the Eastern States, Andrew Martin VK6ZCN (now VK3KAQ) in Bunbury (150 km south of Perth) worked Colin Hurst VK5ZHJ (now VK5HI) in Adelaide on 144 MHz at 0520 UTC on 8 January 1965. The Adelaide beacon VK5VF on 144.8 MHz was heard at 0612 UTC by Andrew but no other two metre contacts eventuated (14). The commonly accepted theory has been that Rolo and Andrew had achieved their contacts via Sporadic E. However a new phenomenon was about to emerge, to dramatically alter the thinking about east-west VHF/UHF DX.

Weapons Research Establishment Propagation Tests 1966-68

The Weapons Research Establishment of the Australian Defence Scientific Service turned its attention to the anomalous propagation over the path between Albany, Western Australia and Salisbury, 25 km north of Adelaide, South Australia. In December 1966, a VHF transmitter on 135.5 MHz, a power output of 5 kW and Yagi antenna with a gain of 12.2 dB was installed at Albany. A second transmitter on 1769 MHz at 1 kW and parabolic dish antenna with a gain of 35.7 dB was added at Albany in October 1967. Received signals at Salisbury over the 1890 km path indicated frequent openings on both frequencies. Signals on 135 MHz reached as high as 10 dB below free space and 25 dB below free space on 1769 MHz. An early report of that research published in May 1969 showed that from October 1967 to April 1968 there were sixty openings on 135 MHz of at least two hours duration, eighteen openings of 24 hours duration and one which lasted for a fortnight in January 1968. The openings on 1769 MHz were not as frequent (twelve occasions only) nor did the signal reach the same high level as at VHF. Further the VHF signal was always present when a UHF signal was received (15).

Mt Barker 144 MHz Beacon and First Contact 3 January 1969

Spurred on by the success of these tests, the West Australian VHF Group (Inc), (urged on by the then president Don Graham VK6HK) obtained a licence for a two metre beacon which was installed in October 1968 at Mt Barker, 50 km north of Albany under the care of Tom Reed VK6TR. Initially operating as VK6VF/P and later VK6VE, the beacon was heard in Adelaide and the first of many 144 MHz contacts between Albany and the Eastern States was achieved by Wally Green VK6WG and Mick McMahon VK5ZDR on 3 January 1969 (16).

After a power failure in July 1969, the beacon was rebuilt and reinstalled at Mt Barker in December 1969. In May 1970, the beacon was sold to the Southern Electronics Group based in Albany (17) and it was moved to Albany as it was thought that the inland location of Mt Barker was a great disadvantage.

The award for the unluckiest pair of amateurs might go to Rod Graham VK6ZDS (now VK2BQJ) and Charles Kosina VK6LK (now VK3BAR) who, for the three summers of 1964 to 1966, operated just east of Albany with equipment for the six and two metre bands and worked an extensive amount of DX on six metres but none on 144 MHz. Maybe six metre conditions were too good! (18).

Other Near Misses 1969-1970

Back in Perth things were also happening. Kevin Bicknell VK6ZCB was now living in Lesmurdie, a suburb about 20 km east of Perth (and about 300 metres higher!) On 17 January 1969, Kevin copied the VK5VF beacon on 144.8 MHz from 2203 to 2227 UTC (ie. 0603 to 0627 WAST 18 January 1969) at signal strengths peaking 5/9. Wally Green VK6WG in Norseman also copied that beacon at this time. On 15 February 1969, Kevin again heard the VK5VF two metre beacon with strength 3 at 0705 WAST. Reference was made earlier to Rolo Everingham hearing VK5VF on 15 February 1970 and Kevin's confirmation of receiving it. Kevin tells how at 0625 WAST (ie. 2225 UTC on 14 February 1970) he first heard the beacon at 5/9+. Frantic calling for a QSO was unsuccessful. The beacon was still audible when Kevin went out at 0952 WAST and again at 1025 WAST when he returned home. Kevin expressed regret that he did not record in his log when he lost the signal completely. (By the way, the dates 15 February 1969 and 15 February 1970 were double checked to confirm that the events described were one year apart!). On each of these occasions there was no evidence of a six metre opening (19).

First VK6/VK3 Contact on 144 MHz — 1 February 1970

Early in 1970 there was a lengthy opening from 30 January to 4 February when Bernie Gates VK6KJ made sixty six contacts to the Eastern States including the first VK6/VK3 contact on 144 MHz. This occurred on 1 February 1970 at 0050 UTC to Bob Halligan VK3AOT over a 2441 km path for a Western Australian distance record (20).

Inland Contacts

At that time Wally Green VK6WG was in Norseman and during the opening he had difficulty in attracting the attentiion of the Adelaide stations but on 30 January 1970 at 2225 UTC Wally worked Gary Herden VK5ZK for the first Norseman/VK6 contact (21).

On 3 January 1972 at 1206 and 1340 UTC Bob Pine VK6ZFY/P feeding 10 watts AM to a five element Yagi at the north east corner of the Stirling Ranges worked Kerry Adams VK5SU at Ceduna. Bob was one of the earliest, if not the first amateur from an inland location north of Albany to achieve a two-way contact on 144 MHz (22).

The Author's Experiences Along the South Coast of Western Australia

Exploration of the 144 MHz path between West Australia and the Eastern States has been a strong interest of the author, being first encouraged to investigate the VHF/UHF regions by the late Rolo Everingham VK6BO who had had the early successes on 144 MHz. The author missed two important periods described earlier, by being absent from Western Australia in 1968-70 and 1972-74. Beginning in December 1976, he has operated portable during each summer period along the south coast of Western Australia.

In 1976, the equipment used was limited to 144 and 432 MHz and the antenna depended on an adjacent post or tree or, on one occasion, one tall son for support! Contacts were made from Albany to VK5 on both 144 and 432 MHz. Learning from that experience, the author has developed a comprehensive system which enables him to set up a complete portable station for all bands from 1.8 to 3456 MHz at very short notice. This has permitted waiting in Perth until the conditions for DX appear promising before venturing to the south coast.

In 1977-78, heavy QRM in Albany resulted in a shift 20 km west to Torbay Hill. From there, many VK5 and VK3s were worked on 144 and 432 MHz. A contact on 8 January 1978 at 1316 UTC with Mike McDonald VK3ZQV (140 km east of Melbourne) resulted in a new Western Australian distance record of 2614 km for the 144 MHz band.

In 1978-79, Walpole (85 km west of Albany) was selected to see if the two metre path extended further west. Signals were heard and they resulted in contacts on 144 MHz with VK5 and VK3 over paths up to 2571 km.

Also in 1979, two-way 144 MHz contacts were achieved on SSB from inland points. On 28 January 1979 from Mt Burnside, stations as far east as Hatherleigh, near Mt Gambier (VK5MC) were worked on two metres. Mt Burnside, halfway between Walpole and Manjimup, was 35 km from the coast but the direct track to Adelaide had to cover 160 km of land before reaching the Great Australian Bight.

On 4 March 1979, the author, VK6KZ mobile, worked to Peter Smith VK5ZPS whilst returning to Perth from Albany. From roadside locations he was able to work Peter until 1310 UTC when he was 10 km north of Kojonup, ie. 150 km inland from Albany and 225 km from the Bight in the direction of Adelaide.

First VK6/VK4 Contact on 144 MHz

The first contact between VK6 and VK4 occurred on 3 May 1983 at 2150 UTC by John Harlock VK6GU at Wyndham and Steve Hutcheon VK4ZSH portable at Carnooweal using meteor scatter (23). The contact required about one hour to complete.

First VK6 to Indonesia Contact on 144 MHz — 2 October 1982

This was achieved on 2 October 1982 at about 0400 UTC. The Port Hedland repeater (1330 km north of Perth) on 147.0 MHz was opened intermittently with an occasional Indonesian word.

Mark Dunning VK6WV was the first to make contact when he got a call sign and broken English coming back to his call. Harry YD9BC and Gede YD9BR in Denpasar, Bali asked them to QSY off their official Police frequency! Contact was continued direct on 146.5 MHz FM. (24)

First VK6 to Japan Contact on 144 MHz — 23 April 1982

John Harlock VK6GU in Wyndham worked Yuki JH4JPO at 1052 UTC and then JH4XTN at 1103 UTC on 23 April 1982 for the first WA to Japan two metre contacts. The characteristic flutter of transequatorial signals was observed by him. The distances involved were 5509 km and 5501 km respectively. (25)

FM Contacts Through Repeaters

There have been VK6 and VK5 contacts made on FM through the Wagin two metre repeater (146.40/147.00 MHz) from Wagin and Katanning and also from these locations through Adelaide repeaters as well as direct on simplex. On 9 February 1979 some FM contacts were made to VK5ZCT via the Bunbury repeater (146.30/90). Detailed data on these contacts is not available to the author.

144 MHz Distance Record from Cape Leeuwin — 23 January 1980

In the 1979-80 season, VK6KZ operated from Cape Leeuwin, the most south western portion of Western Australia. This was 260 km west of Albany. On 23 January 1980, over forty eight contacts were made on 144 MHz with VK5 and VK3 stations with the longest path being 2785 km to Andrew Martin VK3YLR (formerly VK6ZCN) who was operating portable at Ross Hill, 80 km east of Melbourne. VK6KZ was using 10 watts SSB to a five element Yagi.

Perth/Adelaide on 144 MHz Again After 28 Years — 23 January 1980

However, whilst the author was operating at Cape Leeuwin, the long awaited event was happening. The Perth/Adelaide path on 144 MHz was bridged — this time by four amateurs — Wayne Dowie VK6WD, Jack Borthen VK6ZEL (now VK6KDX), Phil Casper VK6ZKO, and Ron Mould VK6FM who all worked Les Wood VK5ALW in Adelaide. Wayne made the first contact at 0003 UTC on 23 January 1980, following a phone call from Don Graham VK6HK who had heard the VK5VF beacon on 144.8 MHz after a contact with VK6KZ/P at Cape Leeuwin. Poor Don did not receive his report from Les VK5ALW to complete the contact. Other Adelaide stations worked from Perth were Ken Yates VK5RP and Reg Galle VK5QR. Signals to Perth from Adelaide disappeared at about 0110 UTC.

This opening extended to Katanning (250 km south east of Perth). Ken Thompson VK6ZFQ worked into Adelaide over a 1933 km path to Les VK5ALW at 0025 UTC. Ken had two further contacts to Adelaide on SSB during the opening viz at 1255 UTC with Col VK5RO and at 2305 with Eric Jamieson VK5LP. Ken reported hearing VK6KZ/P (237 km away) working Eastern States stations but he was unable to hear the other end of the contacts. (26)

Perth/Adelaide Again on 144 MHz — 28 December 1980

During a six metre opening to VK1, 2, 5 and ZL, on 28 December 1980, the 144 MHz band opened briefly to Adelaide. Don Graham VK6HK at last achieved two-way contacts. He worked Mick MacMahon VK5ZDR and Col Moore VK5RO. Ron Mould VK6FM also worked these two stations. The author (at home this time) heard VK5RO and was heard by him but in frantic efforts between 2245 and 2257 UT was unable to complete a two-way exchange of reports.

Receptions of beacons in Adelaide and Perth were reported on 2 January 1981 when VK5VF on 144.8 MHz was heard by Phil Casper VK6ZKO at 2228 UTC and on 3 January 1981 when T Power VK5ZPE reported hearing VK6VF on 145.00 MHz from 2107 to 2218 UT.

First Perth/Adelaide Contacts on 432 MHz — 10 January 1985

On 10 January 1985 Bob Blinco VK6KRC in Perth was in contact with Max Faulkner VK6FM in Manjimup (250 km south of Perth) on 144.100 MHz and Max asked *"who broke in"*. Bob listened and heard a voice. Thinking it may have been Peter Grumball VK6ZPG (210 km north of Perth), Bob swung his beam only to hear unfamiliar voices to the east. He proceeded to work Brian VK5KBU at 2247 UTC exchanging 5/9 reports. Bob then rang a number of Perth amateurs alerting them to what was going on. At 2302 UTC Bob made the first ever 432 MHz contact between Perth and Adelaide with Brian VK5KBU with reports of 5.9 and 5.3. The author was thrilled to work (from the home QTH in Perth), at 2258 UTC VK5KBU on 144 MHz and then VK5ZRO and VK5ZTS before working VK5ZRO at 2304 UTC and then VK5ZTS on 432 MHz. Other 144 MHz contacts by the author between 2304 and 0014 UTC included VK5ZDR, VK5NY and VK5ZPS. Tests on 1296 MHz between VK5ZRO and the author were unsuccessful.

First VK6/VK5 Contacts on 432 MHz — 11 December 1972

The Perth/Adelaide contacts in 1985 were not the first between Western Australia and the Eastern States. The first VK6/VK5 contact on 432 MHz was made by Wally Green VK6WG on 11 December 1972 with T Bellim VK5ZDY.

Wally later worked Les Jenkins VK3ZBJ, in Frankston near Melbourne, for an unclaimed world record distance of 2440 km. That distance was extended to 2460 km on 8 January 1978 by VK6KZ/P at Torbay Hill working Les VK3ZBJ and this contact was recognised as the world record. Then Aub Keightley VK6XY in Albany worked Mike McDonald VK3ZQV at Carrajung over a 2593 km path to gain the world record. He in turn lost the record when on 18 July 1979 contacts on 432 MHz were established between California and Hawaii. On 23 January 1980, VK6KZ/P at Cape Leeuwin regained the Australian distance record by working Les VK3ZBJ over a distance of 2717 km.

1296 MHz — 25 January 1977

On 1296 MHz it was once again Wally Green who made the first interstate QSO for a world record distance of 1885 km to Reg Galle VK5QR in Adelaide on 25 January 1977. This distance was extended on 29 December 1978 at 1138 UTC when the author VK6KZ, portable at Walpole, worked Chris Skeer VK5MC at Hatherleigh near Mt Gambier, South Australia over a distance of 2107 km. Reports exchanged were 559 to VK5MC and 55 to VK6KZ/P. On 23 January 1980 at 0057 UTC, the 1296 MHz 2146 km path was bridged by two-way SSB between VK6KZ/P at Cape Leeuwin and Reg Galle VK5QR in Adelaide. Later that day at 1202 UTC, Chris Skeer was worked by VK6KZ/P from Cape Leeuwin. This path was 2290 km long.

2304 MHz — 17 February 1978

On 2304 MHz it was again Wally Green VK6WG and Reg Galle VK5QR who made the first VK6/VK5 contact. This occurred at 0650 UTC on 17 February 1978. Signal strengths ranged between S1 and S7. Reg used SSB which was processed in a divide by 6 circuit and mixed to 28 MHz. The 28 MHz signal, with processed SSB, was then transverted to 384 MHz and then tripled and doubled to 2304 MHz. This multiplication by 6 restored the original SSB. Wally used a modified World War II SCR522 which, from a 7 MHz crystal, produced 128 MHz. This was then multiplied to 384 MHz with a BAY96, varactor tripled to 1152 MHz in a modified Microwave Modules MMV1296 and then doubled in a 2C39 which drew 90 mA at 600V. No other amateurs have had a VK6/VK5 QSO.

3456 MHz — Year to Come

Tests have been carried out on this band between Wally Green VK6WG and Reg Galle VK5QR since the 1979-80 summer period but as at 15 January 1985 no contacts had been achieved.

So there is the story of the VK6 interstate and overseas VHF/UHF contacts on AM, CW and SSB in the period 1951-1985 as researched by the author. So far as is known no contacts from VK6 have yet been made with amateurs in VK2, VK7 and VK8. *Will FM operators please write their story or inform the author to complete the picture?* Little comment has been made of the possible modes of propagation but this is another story to be told.

The higher frequency bands have yet to be exploited.

In summary, the first VK6/VK5 contacts were achieved as follows:

50/52 MHz band	*VK6HM/VK5GB*	*6 November 1948*
144	*VK6BO/VK5GL*	*30 December 1950*
432	*VK6WG/VK5ZDY*	*11 December 1972*
1296	*VK6WG/VK5QR*	*23 January 1977*
2304	*VK6WG/VK5QR*	*17 February 1978*
3300 MHz and up	*yet to be achieved*	

The first VK6/overseas contacts on 144 MHz have been

VK6/Japan	*VK6GU/JH4JPO*	*23 April 1982*
VK6/Indonesia	*VK6WV/YD9BC*	*2 October 1982*

REFERENCES

(1) "Fifty and up" Amateur Radio January 1949 p27
(2) as for (1)
(3) Personal communication to the author from Mr Graham
(4) "Fifty and up" Amateur Radio April 1949 p20
(5) "Worked All States on 50/52 MHz" Certificate No 47
(6) Log book of the late Rolo Everingham in the custody of the author
(7) QSL card to the late Rolo Everingham VK6BO from Clem Tilbrook VK5GL
(8) QSL card to the late Rolo Everingham VK6BO from Reg Galle VK5QR
(9) As (6) above
(10) "VHF" Amateur Radio March 1967 p27 (see also WA VHF Group Bulletin June 1967 p3)
(11) As (6)
(12) Records of the WA VHF Groups Inc
(13) Personal communication to the author from Mr Bicknell
(14) Personal communication to the author from Mr Martin
(15) L G McAllister "Radio Ducting at 135 MHz and 1769 MHz between Albany (WA) and Salisbury (SA)", Technical Note CPD(T) 173, Department of Supply, Australian Defence Scientific Service, May 1969
(16) WA VHF Group Bulletin May 1969 p3
(17) WA VHF Group Bulletin May 1970 p3 and the records of the WA VHF Group
(18) WA VHF Group Bulletin January 1967 p7
(19) As (13)
(20) Personal communication to the author from Mr Gates (see also Amateur Radio March 1970 p27)
(21) Personal communication to the author from Mr Green
(22) Personal communication to the author from Mr Pine
(23) "VHF UHF — An Expanding world" Amateur Radio October 1983 p55
(24) "VHF UHF — An Expanding World" Amateur Radio June 1983 p38
(25) "VHF UHF — An Expanding World" Amateur Radio June 1982 p48
(26) Personal communication to the author from Mr Thompson

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WIRELESS INSTITUTE OF AUSTRALIA'S 75TH ANNIVERSARY NATIONAL FOX HUNTING CHAMPIONSHIP

The first Australian Fox Hunting Championships are to be held as part of the WIA's 75th Anniversary. They will be conducted at the Wagga Convention on the weekend of the 26th and 27th October 1985.

Entries are invited from interested teams who should fill out the entry form and send it to:
Australian Fox Hunt Championships,
Box 270,
Greensborough, Vic. 3088.
by the 16th September 1985.

Hunts will be held on the 3.5, 28, 144 and 432 MHz bands and there will be further advice and regulations sent to each participant.

If you wish to register at the Wagga Convention, send a normal convention registration directly to them as well as a Fox Hunt Championship one.

The trophy for this event is shown on the front cover of this months magazine. It will be held by the winning team for twelve months.

RULES

There shall be no more than four members in each team.

All equipment and team members will be in one vehicle.

Passing of information to or from teams is not permitted.

All road laws are to be observed.

The Fox will always be on public property and there will always be public access. This may not be easy to find, however. Hounds should not venture onto private property.

Each team will be issued with a single ID card which is to be handed to the fox controller when the transmitter has been located. A team may have any number of 'sniffers' but the handing over of the ID card is the only way of recording a result in the hunt.

The fox may be hidden anywhere and may not be in a vehicle.

When the fox is mobile it will obey all road laws.

The fox transmitter will not be turned off when a hound approaches unless as part of a predetermining sequence.

The fox may use any authorised mode of transmission, with due respect to appropriate band plans.

SCORING

The first team to find the fox scores zero points. Other teams score one point for each minute (or part thereof) elapsed since the first team.

After ten minutes, the fox will announce 'time up' and hounds should then assemble for the next hunt. The maximum score is ten points.

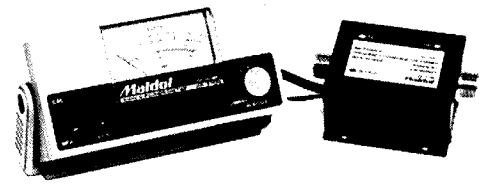
The winner of the championship will be the team with the lowest score.

In the event of a tie, a count-back will be conducted and the team with the most wins on individual hunts will be declared the winner. If a tie still exists, a two metre sniffer hunt will be held to decide the Championship.

SUPPORTED BY ICOM AUSTRALIA PTY LTD

Icom Australia have donated a special 75th Anniversary year prize of a handheld IC-2A to the winning team.
The Wireless Institute of Australia's 75th Anniversary Committee thanks Kioshi Fukushima of Icom.

SUPPORTED BY GFS ELECTRONIC IMPORTS



GFS Electronic Imports have donated a special 75th Anniversary year prize of a VHF/UHF SWR meter for the winning team.
The Wireless Institute of Australia's 75th Anniversary Committee thanks Greg Whiter of GFS for the donation.

WIRELESS INSTITUTE OF AUSTRALIA
AUSTRALIAN FOX HUNTING CHAMPIONSHIP
ENTRY FORM

Team Leader's Name: ..... Team Call Sign: .....

Address (for correspondence): .....

.....

Postcode: ..... Phone: ( ) ..... BH ( ) ..... AH

Team Members:	1	2	3
Name:	.....	.....	.....
Call Sign: (If known)	.....	.....	.....

Booking Details:

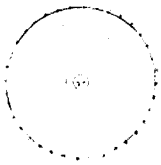
ACCOMMODATION ☐ Motel single ☐ Twin share persons In ☐ Other

☐ O'nite van

If other, details: .....

AN EXPERIMENT IN ANTENNA POLARISATION

Bob Slutzkin VK3SK
8 Lynedoch Avenue, East St Kilda, Vic. 3182.



Most operators on the twenty metre band will probably have observed, as I have, that virtually all the big signals from afar eminate from horizontally polarised beams. Even W1DBM's 4 x 4 array of verticals, which put in a big signal over here a few years ago was still surpassed by some of the horizontal beams.

The International broadcasters almost always use horizontally polarised panels. An exception was our Darwin Radio Australia station, which used vertical log periodics until Cyclone Tracy intervened and blew them down. The station has been restored again, but this time with horizontal panel arrays. Another instance of International broadcasters using vertical polarisation was in the 30s or 40s when the BBC had a large Franklin array for their broadcasts to India. An interesting paper (the reference for which I have now lost) described how the Franklin required maintenance, so the stand-by dipole was commissioned during the exercise. Reports came back from Delhi that signals were much better. This triggered off a series of controlled tests over a period of time; and these led to the cautious conclusion which went something like this:

> *Over the path in question, at the frequencies in use, and during the prevailing Ionospheric conditions, it might appear that the horizontal dipole gave a better performance than did the vertical Franklin array.*

All this might suggest to us amateurs that we might be able to do better with horizontal polarisation.

In spite of this, vertical antennas have many advocates. In CQ Magazine, Commander Paul H Lee W3JHR wrote convincingly in favour of verticals for DX, in November 1962. Then, as Captain Paul H Lee W3JM, wrote a magnificent twelve-part series, as good as a handbook, on vertical antennas, in the June 1968 through May 1969 editions of the same magazine. This, plus all the various texts on the subject in the literature should enable any radio amateur to design, erect and adjust an effective vertical antenna to suit his needs; so why is it that we hear so very, very few big signals from verticals in distant lands? Has the ground system anything to do with it, perhaps? An efficient ground system might be a little difficult, expensive or laborious for a lot of us on our suburban lots; but International broadcasters would not be put off by such minor difficulties, and they seem to prefer horizontal panels. Does Ionospheric propagation prefer horizontal polarisation perhaps? The widely accepted theory seems to be that, irrespective of the polarisation of a transmission, once it has encountered the ionosphere, it will continue to the distant point, to reappear with its polarisation randomly mixed; suggesting that the polarisation of a transmission would be of no importance. Perhaps this is an over simplification of a complex subject.

Realising that I will never find all the answers, I nevertheless set about to do some experiments. I used a quad, the polarisation of which I could change from the shack.

The polarisation of a quad element is dependent on the position of the feed point. If the element is fed at the top centre or bottom centre, its polarisation is horizontal. If it is fed at the centre of either side, its polarisation is vertical. My quad was of diamond configuration, and it had a very good bazooka type balun built into one of the support arms. The boom could be revolved like an axle, by a horizontally mounted Stolle rotator; and as the loops turned like wheels, the feed point would change from bottom, to side, to top, to the other side, the polarisation changing in the process. It was a tri-band quad, but I concentrated in optimising its performance at 14.250 MHz, with the idea of conducting the experiments very close to that frequency. This project started early in 1978, at a beach house at Blairgowrie, Victoria, which is on the Mornington Peninsula, about 30 km across Port Phillip Bay from Melbourne.

Harold Tribe VK3AVH provided some valuable help in the early adjustments of the quad. About 750 m from my QTH he had a 4 element Yagi 15 m high, and was good enough to keep many scheds with me across this rather doubtful antenna range. In the end, I could repeatedly measure a front-to-back ratio at the design frequency of better than 25 dB, and a cross polarisation rejection of better than 20 dB. By accident we discovered that Harold's dummy load leaked sufficiently for measurements to be made across our "range"; and fortunately that leakage radiation was vertically polarised, enabling us to do the cross polarisation tests two ways.

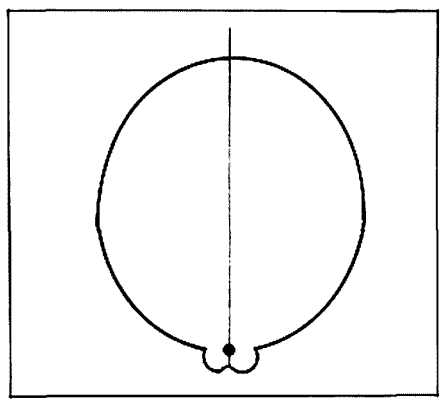


Figure 1 — Azimuth pattern of a quad antenna.

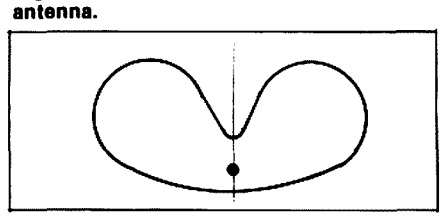


Figure 2 — Cross polarisation azimuth pattern of the quad.

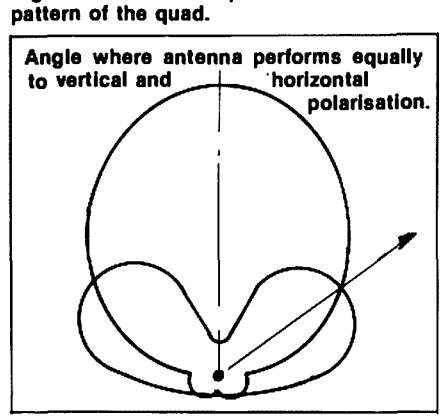


Figure 3 — Figures 1 and 2 superimposed.

During the front-to-back runs, I could see that the quad's azimuth response conformed generally with that shown in the text books (see Figure 1) but I considered that there would be no point in trying to plot it, because of the inadequacies of the "antenna range". The cross polarisation azimuth response was interesting. There were two forward lobes (as depicted in Figure 2), but again there was no attempt made to plot this. More about these later. The tests certainly gave me confidence in the performance of the quad as a beam, and in the effectiveness of the polarisation control. Not only was the front-to-back performance optimised for 14.250 MHz, but also the SWR was minimised for that frequency, at almost 1:1. There was no practical change in the SWR with changes in the quad's polarisation, which would suggest that the balun was effective, and that as the loops were revolved to change polarisation, the radiation efficiency of the quad itself would remain constant. (I believe that any change in radiation efficiency would be accompanied by a change in impedance and SWR). Satisfied that the quad was efficient, it was time to commence the main part of the project, namely to investigate the effects of polarisation on propagation. This part continued intermittently for about two years, at which time the Stolle started to malfunction (possibly because it was not designed to operate on its side). As a temporary measure, to allow the Stolle to be checked over, the quad was fixed for horizontal polarisation; but other projects have become more pressing now, and I cannot see myself continuing the polarisation tests.

During the two years, thousands of observations were made. No statistical analyses were carried out; but a fairly definite trend was apparent, as will be shown.

OBSERVATIONS

Over DX Paths:

The large majority of tests were made over the short and long paths to USA, next came the short paths in the Pacific area, and the long path to Europe. Listening tests showed that on no occasion was the quad better in its vertical polarisation condition; neither was mixed polarisation (half way between the two positions) any better, strengthwise. I did endeavour to test the possibility of mixed polarisation improving fading conditions but was unable to obtain any evidence of this. A minority of tests indicated that the polarisation change made no significant change in signal strength. The majority of tests showed horizontal polarisation to be superior, by at least one S unit and sometimes more than two S units.

On those occasions when I had a QSO with the DX station and obtained reports on my signals as I changed polarisation, these reports showed good agreement with my reciprocal observations.

Local Working:

As would be expected, matching the other party's polarisation was best for close contacts; but strange things happened across Port Phillip Bay to stations 50 or so km away. I had quite a number of QSOs with VK3ADR, VK3IY and the late VK3AHR, all of them using beams.

Most often, signals were better both ways when my quad was vertically polarised, but on some occasions conditions favoured the horizontal setting.

Tests with a Mobile Station:

When Jim Rumble VK6RU motored across to Melbourne from Perth, this gave me a wonderful

opportunity to test the antenna. We kept daily scheds all the way across; and did the polarisation test each time. From Perth (about 2700 km away) to Adelaide (about 600 km from me) signals were significantly better in each direction with the quad horizontally polarised. As Jim left Adelaide climbing the Lofty Range, this was still the case. During the sched on that morning, as he reached the top of Mount Lofty, there was a spectacular increase in his signal to S 9 + 20. At this stage I did the polarisation test, and to my surprise changing to vertical polarisation improved signals by at least 10 dB. I am still puzzled about the mode of propagation over that 550 km path on that day; because, once he reached lower ground we lost contact.

DISCUSSION

Except for local contacts, and over unusual paths, the quad performed better when horizontally polarised most of the time. Had it been at a different height (it was 15 m above the ground) with different foreground conditions, or had an entirely different part of the spectrum been used, the results may not have been the same. However, some comments could be made on the tests that were carried out:

1 We do not know with any certainty that the quad's radiation efficiency remained constant as the polarisation was changed; but it would be reasonable to assume that it did — particularly as I did measure the impedance and SWR as the loops were being revolved and observed virtually no change. Let us assume that the efficiency was constant.

2 We could therefore claim that horizontal polarisation was better for most DX paths — ie from the quad itself, across its foreground, through the ionosphere, to the distant station. Was it the foreground (where a horizontally polarised signal undergoes a phase change at the point of reflection, and the phase of a vertically polarised signal is not changed) which caused this effect? If so; a different location, different antenna height, different ground conductivity or terrain could produce different results. It is my guess that it was the foreground, because otherwise the theory that ionospheric waves are randomly polarised would be under suspicion.

3 An explanation is needed, therefore, for the inconsistency of the results. Why, on some occasions, was no significant change in signal strength observed with the polarisation change? And why was the observed change different on different occasions?

Figure 1 shows the general shape of the quad's polar pattern, ie its azimuth response to a horizontally polarised signal when set for horizontal polarisation. (This is only estimated, because it was not measured and could not be measurable accurately over our doubtful antenna range). Figure 2 shows the cross polarisation polar pattern (also not measured for the same reasons). Figure 3 shows these two patterns superimposed; and it can be seen that there is intersection between the two patterns. Because of the lack of detailed information of the individual curves, we do not know with any certainty where the intersections occur; but what this indicates is that at some angle to the side of the main lobe's centre, revolving the quad loops would make no difference to the polarisation performance; because at that angle the quad's polarisation would be half horizontal and half vertical. If you want to be fussy, the radiation pattern of an antenna cannot be expressed fully as in Figure 1 and 2, but these figures represent the supposed azimuth patterns at one particular vertical angle of radiation. The size and shapes of the lobes would be different at different vertical angles. Therefore that magical azimuth bearing where the antenna performs equally to vertical and horizontal polarisation might be expected to vary over a range of vertical angles of radiation.

As I was not always certain to have had the beam pointing over the optimum path (and many of us must have observed, particularly, over very long paths, that the best signals do not always come in on the great circle bearing) this could be an explanation of why some observations showed a parity between vertical and horizontal polarisation. Had I thought of this at the time I would certainly have checked that I was beaming optimumly before each test.

CONCLUSION

I cannot help but conclude that for the higher frequency bands, at the vast majority of amateur station locations, horizontally polarised antennas are better for DX. I said "higher frequency bands" because these are the bands where an antenna can be mounted high enough above the foreground in terms of wavelength. When a horizontally polarised antenna is strung up an eighth of a wavelength or less above the ground, the ground will act as a reflector and cause most of the signal to be radiated at very high angles. I think you need to have a horizontally polarised DX antenna at least a half wave above ground — the higher the better. Therefore, for the lower frequency bands a vertical might be expected to do better, particularly if a good ground system can be employed.

Before signing off, I must tell you about my friend W2GCX who has a 60 ft x 40 ft all aluminium (or aluminum) mobile home in Florida for winter use. It is a huge complex of similar mobile homes; and no antenna of any kind is permitted. There is no ban on flagpoles, so he has one (complete with traps) mounted at roof level. He flies Old Glory most of the time, but he sometimes flies the Aussie flag that I sent him (when conditions between us are poor). We are amazed at the excellent and consistent contacts we have had over the long path when he is down there, even when conditions aren't the best. His 60 x 40 aluminium ground system, good location, and undoubtedly the Aussie flag make it work well . . . but then, his signal is never as good as those from the boys with horizontal beams.

AFTERTHOUGHT

An interesting thought comes from Figure 3. For reception, a quad may have a disadvantage over a Yagi in locations where directional properties are required to help reject strong QRM from locals — a typical situation in most parts of USA. I do not think that a Yagi would have a cross polarisation response that the quad has, and most Yagis that I have encountered have a very deep null off the side and towards the rear. The null would be drastically reduced by the quad's cross polarisation response, in my opinion. **AR**

SOME COMMENTS ON ANTENNA GAIN

Graham Wiseman VK5EU,
19 Washington Street, Hilton, SA 5033

Whenever a potential user examines published literature and advertisements, describing antennas and evaluating antenna gain, what stands out is the wide variation in actual figures quoted, often on otherwise similar antenna types. Another factor is the use, or more often than not, the lack of use of terms such as gain with reference to an isotropic radiator or dBi, gain with reference to a dipole or dBd, pattern gain, and many others. Here we will briefly look at the difference between these figures and at some other important antenna characteristics.

There are numerous antennas and antenna models that are used as standards for comparison. Some of these are:

THE ISOTROPIC RADIATOR

An antenna model — not practically realisable. Used as a standard of comparison as it has the most basic pattern. Radiates equally well in all directions.

THE HERTZIAN DIPOLE, OR SHORT DIPOLE

Not accurate when used as a reference antenna due to lack of ability to discriminate against error causing reflections. A very short dipole, length much less than a quarter wavelength. Pattern similar to the familiar half wave dipole but flatter "doughnut".

Gain 1.76 dB above that of an isotropic radiator, ie 1.76 dBi.

THE HALF WAVE DIPOLE

Not accurate when used as a reference antenna due to lack of ability to discriminate against error causing reflections. Familiar "doughnut" pattern.

Gain 2.15 dBi or 0 dBd.

EIA STANDARD

Consists of two half wave dipoles fed in phase, mounted in a prescribed manner above a plane reflector.

Gain 9.85 dBi or 7.7 dBd.

ANTENNA GAIN VS SIZE

Assuming the same efficiency, all circular aperture antennas with the same gain will also have the same beam width and aperture or capture area.

From this we can see that in order to increase gain, we must increase aperture and decrease beam width, or alternatively improve efficiency.

A simple way of comparing antennas is to compare their apertures (where similar efficiencies can be assumed).

Rules for evaluating aperture (for comparison purposes).

Parabolic 'Dish' antennas	*aperture equal to surface area*
Corner Reflector antennas	*aperture equal to surface area*
Horn Antennas	*aperture equal to front surface area*
Yagi Antennas (optimum)	*aperture equal to an area included by a circle of diameter equal to the length of the boom of the antenna*
Helical Antennas	*as for Yagi antennas*
Log Periodic Antennas	*difficult to evaluate but is proportional to length of active area at the frequency of interest*
Collinear Antennas	*aperture equal to frontal surface area, plus a strip around the outside equal in width to the 'half aperture' of a dipole.*

COMPARISON BETWEEN MEASUREMENT METHODS

There are two commonly used methods used to evaluate antenna gain, one direct, the other indirect.

REAL OR DIRECT GAIN MEASUREMENT

With a fixed transmitting source, a comparison is made between the voltages measured at the terminals of a standard gain antenna, and that at the terminals of the unknown gain antenna.

PATTERN GAIN OR INDIRECT METHOD

The half power beam width of the antenna to be tested is measured and the formulae relating gain and beam width is used to determine a gain figure.

This method makes no allowance for aperture and coupling efficiencies of less than 100 percent. This consequently gives higher gain figures than direct measurement. It is however much easier to use than direct methods.

ANTENNA BANDWIDTH

Firstly let us oppose one commonly held belief. There is NOT necessarily any correlation between the frequency or range of frequencies at which an antenna exhibits good or best VSWR (voltage standing wave ratio), and that where good or best gain occurs.

One glaring example of this that the author found was a commercial '470 MHz' antenna which exhibited a VSWR of 1.1 : 1 at 465 MHz and almost no gain. Best gain occurred at 560 MHz where the VSWR was 2 : 1.

BANDWIDTHS OF DIFFERENT TYPES

NOTE — considerable variation occurs between different designs; the figures shown are representative only.

Collinear antennas — conventional types are limited to about 4 percent at best or about 17 MHz at 420 MHz.

Extended expanded collinear arrays are limited due to matching constraints, to between 1 and 2 percent or about 8.5 MHz at best at 420 MHz.

Yagi arrays vary considerably depending on driven element type, element size and whether optimum or non optimum. An optimum (maximum gain) conventional long Yagi will probably be well below 1 percent bandwidth, possibly 0.5 percent whereas a near optimum Log Periodic Yagi or Swan Yagi with large elements can achieve better than 10 percent bandwidth with ease.

Helical antennas properly designed can achieve bandwidths in excess of 50 percent.

Reflector type antennas, eg Parabolic and Corner Reflector. Bandwidth is determined principally by the driven or feed element or device. Feeds used include the above antennas, also triangular, biconical, horn and other types. Bandwidths achieved can be multioctave.

TIPS FOR EVALUATING PARASITIC ARRAYS (YAGIS ETC)

Several points worthy of note have been found by the author and others over a period of many years of experimentation.

The elements should not be mounted through the boom unless welded both sides — with time, corrosion between the boom and the element at the points of contact, causes variation in the electrical length of the element with a resultant change in characteristics and loss of gain. Elements isolated from the boom are to be preferred.

Wood booms are subject to similar effects to the above, although not so severe except in extreme contamination. Losses in the wood are also significant, particularly when wet or contaminated.

Element material is relatively unimportant when medium and large element sizes are used (also provided non ferro-magnetic materials are used). Tests made on a dipole antenna at 144 MHz using 3/8 inch (9.5 mm) diameter elements, of aluminium in one case and austenitic stainless steel in the other case, showed less than 0.2 dB difference the two in spite of a 5 : 1 difference in resistivity.

Antenna types with 'gain' driven elements, eg log periodic Yagis and quagis, appear to be less critical in design and construction than conventional types. A change in element length of 1/16 inch or 1.6 mm at 420 MHz reduced the gain of an optimum conventional 13 element Yagi by 8.5 dB. Similar changes made to log periodic Yagis have minimal effect.

FORMULAS RELATING GAIN, BEAMWIDTH AND APERTURE

Antenna gain dBi = 10 log K $\left(\frac{30000}{\Theta_H \Theta_V} \right)$

for small beamwidths

where

Θ_H = horizontal beamwidth 3 dB points in degrees

Θ_V = vertical beamwidth 3 dB points in degrees

K = coupling efficiency

Antenna gain dBi = $10 \log K' \left(\frac{\pi d}{\lambda} \right)^2$

for a circular aperture

where
d = diameter of aperture
λ = wavelength
K' = aperture efficiency

EFFECTIVE APERTURES OF SOME SMALL ANTENNAS

Isotropic radiator

$$\frac{\lambda^2}{4\pi}$$

Very short dipole

$$\frac{1{\cdot}5\lambda^2}{4\pi}$$

Half wave dipole

$$\frac{1{\cdot}64\lambda^2}{4\pi}$$

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AR

Each proposer of a NEW MEMBER to the WIA receives a small gift during the WIA 75th Anniversary Year.

Join a new member now!

See January AR — page 5 for details.

THE WOODPECKER PROJECT

Bill Martin VK2COP,
33 Somerville Road, Hornsby Heights, NSW. 2077.

Given up on the Woodpecker ? Read on ....

The war against the 'woodpecker' still wages, and, contrary to the beliefs of many amateurs and short-wave-listeners, the various intruder watches and monitoring societies are still gathering information for yet another thrust at this greatest-of-all sources of QRM to the short-wave radio listener.

For those who have just tuned in — The 'Woodpecker' is a colloquiallism for Over-the-Horizon-Radar, which is a defence early-warning system employing high power pulses. The signal is reminiscent of a woodpecker, hence the title. Technically, the signal is a 3 milli-second square-wave pulse with a stable pulse-rate of one tenth of a second. Rates of 17 and 7.4 seconds have been heard, but rarely. The signal is wide-band, with most of the signal concentrated in about 15 kHz, and a weaker 'pulse-scape' filling the adjacent spectrum. The energy concentrations can be clustered together to cover 100 kHz or more. The 'Woodpeckers' change frequency abruptly and often. Their 'dwell-time' varies from a few seconds to a few minutes.

At the 1978 WARC for Aeronautical Services, an anti-Woodpecker statement was signed by eight countries in attendance, and there is some evidence that the Woodpecker QRM in those bands diminished — at least for a while. Similar attempts at ridding the HF bands of the pest have met with little success, and diplomatic overtures have been found to have apparently been in the wrong key. Consequently, "The Woodpecker Project" is under way, and is co-ordinated by the Association of North American Radio Clubs OTH Radar Committee. A major exercise is planned for October 1985, utilising a large number (about 720) volunteer monitoring stations. Each station will be asked to monitor parts of the radio frequency spectrum between 5 and 23 MHz for three-hour periods during the month. If each monitor covers 3 MHz, and at least three geographically-separated monitors are scheduled for each time and band-segment, then at least 144 monitors are needed for a 24-hour coverage. A minimum five days of data is desired. Volunteer monitors will be asked to sweep the assigned band segment for three hours over the 3 MHz segment at will, BUT TO TUNE EVERY FREQUENCY AT LEAST ONCE EVERY 10 MINUTES. This information will be logged graphically. Of course, it is equally important to know when the Woodpecker is NOT transmitting.

The Woodpecker has been observed spending a great deal of time around 10.7 MHz lately. That happens to be the intermediate-stage frequency of a number of popular short-wave receivers. Some of the less expensive models have poor image rejection, so that when the Woodpecker stops at 10.7 MHz, it can be heard across the radio's entire tuning range. It is reported that England and Japan may get OTH radars. America has it, of course, as has the USSR and Australia.

SURFACE-WAVE OTH RADAR

An experimental variant OTH radar is being developed which operates only over the sea. If vertically-polarised radio waves are transmitted close to the sea surface, they induce electrical currents in the water which causes the radio waves to adhere to the sea surface and therefore travel around the curvature of the earth. There is also a good possibility that the reflected energy will couple with the sea surface for the return journey. The proposed frequencies of operation are unknown, but this development could be yet another potential interference threat to communication services.

So you see, the battle is not over. The Association of North American Radio Clubs (ANARC) is to be congratulated on its efforts to do something about the Woodpecker, and concerned amateurs and SWLs will no doubt be interested in the outcome. When next you hear the Woodpecker (and you will), send in a report to the WIA Intruder Watch. Write to your Divisional Intruder Watch Co-ordinator, or to Bill Martin VK2COP, WIA Federal Intruder Watch Co-ordinator, 33 Somerville Road, Hornsby Heights, NSW. 2077.

AR

HOW LONG IS A DOT?

Guy Fletcher, VK2BBF
3/34 Benelong Road, Cremorne, N.S.W. 2090

The last year or two has seen a proliferation of calculator-based and computer-based methods of generating random Morse code characters for practice purposes. In order to produce Morse at a known speed, you need to know the duration of a single dot at that code speed. Surprisingly no two programmes seem to agree about the length of one dot.

Morse code is designed for people rather than for machines. An efficient machine code, such as Baudot, has every character the same length, whereas in Morse code the common letters like E, I and A are shorter than less common letters such as Q and Z. This feature appreciably shortens the time to send a plain-language message of a given number of words and dot duration.

It is commonly agreed that a "standard word" has five letters. A dash is exactly equivalent to three dots. In the case of ITU Morse code, the spacings are one dot between dots and dashes, three dots between characters (letters), and seven dots between words.

It ought to be easy to work out the number of "effective dots" or dot durations in a standard word, but it isn't quite as easy as you might think.

The Length of a Letter

The number of effective dots in a given letter is easily added up. The letter A has one dot, one dash (of length three dots), and one space (of length one dot) between them, making a total length of five dots. Similarly B has a total length of nine dots (three for the dash, one for each of three dots, and one for each of three spaces) and so on through the alphabet.

We need to know the average length of a letter in dots, but it is not correct simply to average all twenty six letters of the alphabet.

The Frequencies of Letters

You can build a device to send random Morse code at exactly ten "words" per minute, in the sense that it will generate exactly ten groups of five letters each minute, with all letters equally probable. This is a great way to learn Morse code, but the characters are NOT really being sent at ten words per minute.

If you take any sentence of ten real words, chosen so that it has exactly fifty letters in it, and then send it with exactly the same length dots and dashes as for the random code above, it will take, on average, about 49 seconds. This is because the sentence contains relatively more of the shorter letters like E, I and A. Obviously the sentence is being sent "too fast". If the speed of Morse code in words per minute is to have any real meaning at all, then in amateur circles at least it HAS to refer to words of plain English language.

The frequency of use of each letter of the alphabet in plain language text can be found by literally counting the number of times each letter appears in a long piece of text. Computers are good at doing this, but it is very laborious manually. The answer depends slightly on the kind of text chosen. It is a little different for, say, a novel than for a technical article. But these differences are slight. Table I shows the average number of times each letter is likely to appear per thousand total letters. These figures are taken from some research a few years ago (1) but are not likely to be greatly in error.

TABLE I
Average occurrence of letters in plain English language

Letter	Times in 1000 letters	Length in dots
A	86	5
B	14	9
C	28	11
D	38	7
E	131	1
F	29	9
G	20	9
H	53	7
I	63	3
J	1.3	13
K	4.2	9
L	34	9
M	25	7
N	71	5
O	80	11
P	20	11
Q	1.2	13
R	68	7
S	61	5
T	105	3
U	25	7
V	9.2	9
W	15	9
X	1.7	11
Y	20	13
Z	0.8	11

Length of an Average Letter

The data in Table I can be used to find the total duration (in dot lengths) of a message containing 1000 letters, broken up into 200 words of average length of five letters each. This average message will contain 86 As each of length five dots, 14 Bs each of length nine dots, and so on. In addition there will be 200 spaces after words, each seven dots, and 800 spaces after letters not at the end of words, each three dots. The grand total is 9818 dot lengths.

The length of an average letter can be found by taking the total for the 1000 letters alone (without the spaces between letters and words). This is 6018 dot lengths, an average of 6.018 dots per letter, and is an average of the lengths of all the letters, weighted by the frequency of each letter. This should be compared with the straight average of 8.231 dots when all letters are weighted equally.

It is worth noting that the letter frequencies used refer to plain English language text. Other languages such as French or German will be somewhat different, and the corresponding length of one dot for a particular "words per minute" will also differ slightly.

The Length of a Dot

We are now ready to write down the correct length D1 of one dot for a given word speed of L words per minute. Our 200 words should take 200/L minutes or 12000/L seconds. Since the whole message contains 9818 dot lengths, each dot should take 12000/(9818 L) seconds, so

$$D1 = 1222/L \text{ milliseconds.} \quad (1)$$

This may be compared with 997/L milliseconds if the letters had been equally weighted.

If the figure of 1222/L milliseconds for one dot is used in a computer programme, the speed will be exactly equivalent to a plain language speed of L words per minute. However it must be emphasised that L groups of random letters will actually take 73.5 seconds, and this does not mean that the speed is wrong.

Non-ITU Morse

It is quite common to speed up the dots and dashes to a length somewhat shorter than the correct ITU length discussed above, and to leave correspondingly longer gaps between letters and words. This practice makes the code slightly easier to receive (because of the longer thinking time between characters), and is an important aid in learning Morse code. The individual letters can be sent from the beginning at 8 WPM (as in the novice examination) so as to become used to the correct letter speed, yet the overall word speed may only be 5 WPM or less.

A Morse code programme on a computer should therefore provide for independent setting of the letter speed and word speed. The letter speed L, expressed in words per minute, is equivalent to the words per minute of ITU code of that dot length. The length of each dot is given by equation (1) above.

The word speed W is the actual number of 5-letter plain-language words sent in a minute. Since the spaces between letters

and words are lengthened, clearly W must be less than L.

It is actually more convenient, in a computer programme, to leave the first dot after each letter unstretched (at D1), and to stretch (to D2) only the remaining two dots between letters and six dots between words. This has the effect of slightly changing the ratio of word space to letter space from the ideal 7/3, but the Morse is not ITU code anyway. The practical advantage gained is that it is not necessary to identify the final dot or dash of a letter in order to decide whether to stretch the following space; EVERY dot and dash is followed by a single unstretched space.

Our average message of 200 words now contains

(i) 1000 letters of total duration 6018 dots, each D1,

(ii) 800 spaces after letters, each (D1 + 2*D2),

(iii) 200 spaces after words, each (D1 + 6*D2).

This adds up to a total duration of (7018*D1 + 2800*D2), which must be equated with 200/W minutes, or 12000/W seconds. D1 is already given by equation (1) above, and substitution of this leads to

$$D2 = \frac{4286}{W} - \frac{3064}{L} \text{ milliseconds.} \quad (2)$$

You can see that if W = L (for ITU Morse), equation (1) is recovered.

The pages of AR (and other magazines) have been well decorated with listings of computer programmes in recent months. The detailed code for generating dots and spaces depends on the machine used, so I will refrain from giving my own programme, which uses the formulae derived above. However I will list its features, since any versatile programme for teaching and learning Morse code should have these:

Division of the characters into 6 sub-sets A-G, H-M, N-T, U-Z, the 10 figures, and 4 punctuation marks (full stop, comma, oblique slash and question mark). While punctuation is not examined, these 4 are needed on air.

Character set for practice to be selectable from any combination (or all) of these 6 sub-sets, or from a string entered on the keyboard. This enables concentrated practice on any desired characters.

Choice of group (ie word) length, with option for random length (in the range 3 to 7 characters).

Independent choice of letter speed and word speed (both expressed in words per minute) using equations (1) and (2).

Choice of number of groups in a "block" (ie message).

Use of standard START and STOP signals round each block of groups.

Output of ASC11 characters for subsequent checking if desired.

Simple options for changing speed and number of groups without completely restarting the programme.

An automatic option in which the programme repeats after a pause of, say, 10 seconds. This is useful for generating cassette tapes.

The actual dots and spaces are normally generated from programme loops. The cycle times of these loops depend on the machine used, and the expressions for D1 and D2 above must therefore be multiplied by conversion factors. The easiest way to set these conversion factors accurately is to choose a speed of 0.1 WPM and time the dots and spaces with a stop watch.

To achieve accurate Morse code it is necessary to write very compact programme code in the section which actually generates the audible characters. All possible repetitive calculations should be performed in advance of this. Using only interpretive (non-compiled) BASIC without machine code subroutines, I have been able to generate Morse code on a pocket computer up to 25 WPM before the spacings depart perceptibly from the ideal. Higher speeds are easily achieved using a machine code subroutine for the spaces.

REFERENCE

(1) "On Human Communication" by Colin Cherry. MIT 1965.

Postscript

The word PARIS has sometimes been used to define a typical word for the purpose of calculating Morse speeds. Including four spaces between letters and one space between words, PARIS has a total length of fifty dots.

This corresponds to a dot length D1 = 1200/L milliseconds. Comparison with equation (1) shows only a 2 percent difference from the "correct" value of 1222/L milliseconds.

AR

THUMBNAIL SKETCHES

LYLE PATISON VK2ALU

When only 13 years old and living in Lane Cove, Lyle was introduced to radio by a family friend, Merv Norris, at Greenwich. Merv's home-made TRT fascinated young Patison to such an extent that Merv gave the lad some bits and pieces to keep him occupied. This led to the beginning of Lyle's lifetime hobby with radio. Starting with a crystal set (he still has some of the parts) he graduated through a TRF receiver to a seven valve superhet, on which he heard the declaration of WWII.

After gaining his intermediate certificate at 15, Lyle left school and joined RCS whilst awaiting an electrical apprenticeship with the Sydney City Council. Starting on the production line at RCS, his avid interest in radio soon had him promoted to their laboratory.

An opportunity for a position as an apprentice electrical operator in the Railway Power Stations arose and Lyle found himself on shift at White Bay Power Station in April 1940.

The publishing of Radio and Hobbies in 1939 led Lyle's interest into amateur radio. In between his trades technical courses and shift work, Lyle found time for self-education in radio theory, regulations and Morse and he obtained his AOCP in March 1942 with 12 WPM, however WWII kept him off the air.

Lyle joined the Air Force Reserve in 1942 and started rigorous training in Morse under the watchful tuition of Mrs McKenzie. He graduated to 20 WPM.

In March 1943 he joined the RAAF and departed to the UK via Canada to join an Illawarra Lancaster squadron as a navigator.

It was during this time that radar techniques attracted Lyle's attention — microwave, dishes, wave guides, klystrons, etc.

Lyle returned to civilian life in 1946.

Back to shift work at White Bay and doing an electrical diploma part-time, Lyle somehow found time for amateur radio and was first on air on 166 MHz on 29th June 1946 using CW.

In those days, Prices Radio in Angel Place, Sydney was the Mecca for amateurs and that's where all the 'fancy disposals gear' was appearing. Soon Lyle had some of this gear cranked up on 576 MHz and was building, what was possibly the first crystal controlled rig in Sydney on 144 MHz.

Promotion within his work took Lyle to country power stations in Cowra and Tamworth, with a short stint at Port Kernbla, but he still managed to find time to work on the VHF bands — his major interest.

On his return to Wollongong in 1962 he became a foundation member of the reformed Illawarra ARS. Lyle spent a year as president in 1967/68 and still is actively involved in the club.

The CSIRO had its initial 'large' radio telescope at Dapto but with the advent of time this was closed down and was lying idle. Lyle looked

longingly at the dish but the CSIRO donated it to the Wollongong University. Fortunately, the University knew nothing about radio telescopes but were keen to get it working. Lyle convinced them that the Illawarra club would be an ideal organisation to rejuvenate the dish and the first confirmed EME contact by VK2AMW was made on 10th March 1973, after many months of overhauling the dish and home-brewing gear for 432 MHz.

Vandalism forced the closure of activities for a time but Lyle found a new location and re-established the gear. He also made some new equipment suitable for operation on 1296 MHz.

As a result of his untiring and persistent work, with EME, the club station VK2AMW is well known internationally. Lyle received the Ron Wilkinson Award for his moonbounce activity this year and was also awarded life membership to the Illawarra Club for twenty three years of unstinting duty.

As Lyle retired from the workforce in 1984 he now has ample time to pursue his hobby???

Compiled from an article in The Propagator, June 1985 which was written by Don Reynolds VK2ZRK.

AR

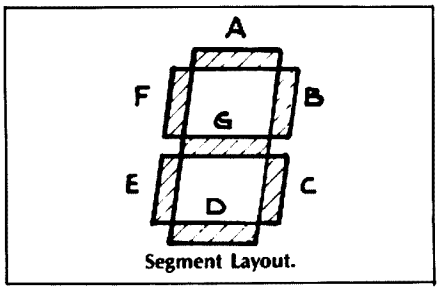
ADD ON MODIFICATIONS FOR THE SIEMENS TELEPRINTER

Peter Fraser VK3ZPF
52 Heathfield Rise, Box Hill North, Vic. 3129

A SHIFT INDICATOR

This is the first in a series of projects you can add to the Siemens Model 100 Mark 1 teleprinter. It will include a counter that shows how far from the left hand margin you are, a figures or letters shift indicator, and a power supply (built into your machine) to run the add ons. To construct these you will need a soldering iron, solder, pieces of matrix board and lots of patience. Now what RTTY'er hasn't got that?

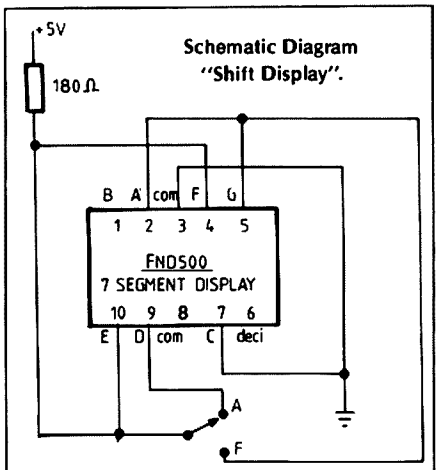
The indicator uses a 7 segment display to show either an 'L' for letters or an 'F' for figures depending upon the shift you are in. The display used by the author was a FND 500, a "common cathode" device. Any "common cathode" display could be used, but I found the FND 500 was large and the easiest to read.



Segment Layout.

CONSTRUCTION

The display is mounted on a piece of matrix board, fastened to a strip of aluminium which can be screwed to the right-hand side of the platen. It should be mounted so you can see it easily through the glass when the cover is down. The 180 ohm resistor is best mounted on the power supply board (to be described later in this series).



1 — Segment 'B'
2 — Segment 'A'
3 — Common
4 — Segment 'F'
5 — Segment 'G'
6 — Decimal Point
7 — Segment 'C'
8 — Common
9 — Segment 'D'
10 — Segment 'E'

HOW IT WORKS

Segments 'E' and 'F' are wired 'on' at all times and through SW-1 segments 'D' is lit to represent an 'L' when in letter shift. In figure shift segments 'A' and 'G' are lit to show an 'F'. The +5V is taken from the power supply. SW-1 is a micro-switch mounted in such a way that, when the carriage goes up and down, the switch also goes on and off. The switch can be mounted on a right angle bracket fashioned from tinplate or aluminium, then screwed, using the existing screws, to the rear frame of the machine. A suitable place for the switch is in the middle of the back frame above the motor. Here, if you look, you will see a lever that pokes in and out as the carriage goes up and down. The switch needs to be bent so that it follows the travel of this lever and switches as the different shifts are selected.

So that's the 'shift indicator' which, when fitted, is very handy if you are distracted halfway through something and don't know if you are up or down.

Next in this series is a power supply to run the indicator and a counter to be described later.

AR

QSP

MORE HISTORY

The Institute wishes to thank Clem Scott VK4DW for his generous donation of an article from TECHNICS magazine.

Following is Clem's covering letter.

This Historical Article is from an old TECHNICS magazine published in 1905 which I have had in my possession for some forty years.

On reading the Paper we find that Prof. Fleming first demonstrated and described the vacuum valve later called a diode in an article to the Royal Society in 1889.

The author then goes on telling of the consequences of the fact that incandescent carbon and metals send out vast numbers of electrons. Then with circuits relevant to the occasion explains in a very clear manner the results of same.

If you don't already have this article then I hope it can be of some enjoyment to those who go to your library for a quiet read of some of the history of those experimenters who paved the way for us fellows who are now enjoying amateur radio.

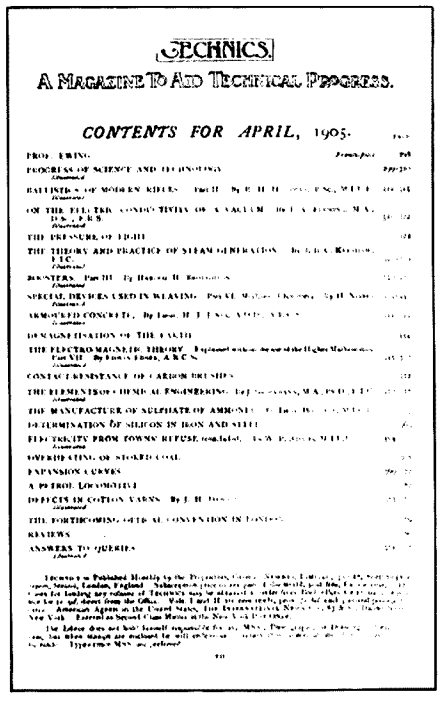
Thank you for a first class magazine in AR.

Vy 73,

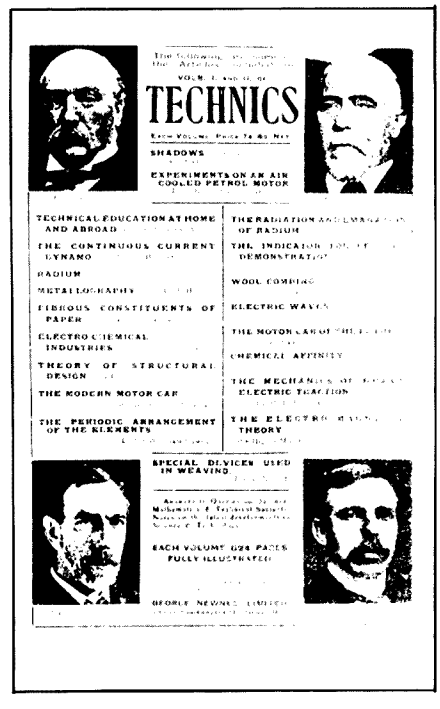
Yours sincerely,

Clem Scott VK4DW,
18 Cullen Street,
Bundamba, Qld, 4304.

AR


TECHNICS
A MAGAZINE TO AID TECHNICAL PROGRESS.

CONTENTS FOR APRIL, 1905.



THE TCA 1675/1677, A CHEAP LINEAR AMP

Lloyd Butler VK5BR
18 Ottawa Avenue, Panorama, SA 5041.

If you have a spare 1675 or 1677 in the shack, the final stage of the transmitter can easily be utilised as a linear amplifier to boost the power of your low power 2 metre or 6 metre equipment. There are quite a few units about for sale, at low prices, if you wish to acquire one for the job.

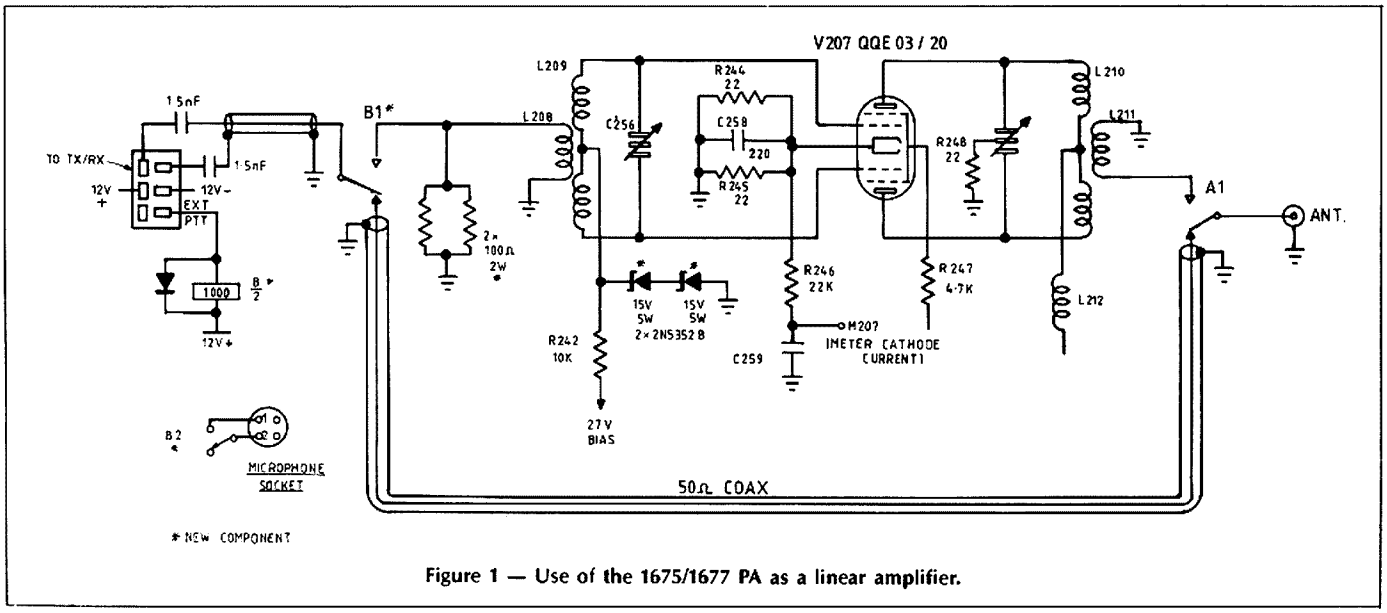


Figure 1 — Use of the 1675/1677 PA as a linear amplifier.

To operate an RF power amplifier valve in a linear mode, the following must be satisfied:

Grid bias must be set, approaching plate current cut-off, so that the stage is operated in class AB2 or class B.

The grid bias supply voltage must be stabilised so that it does not rise when the signal voltage swings positive and causes grid current to flow. Loading of the RF drive source with a low resistance is required to stabilise the grid load and prevent grid current flow from flattening the signal peaks.

In the case of the 1675/1677, the transistor power supply provides high tension of about 250V and 550V and a bias supply of around 26 to 28V. The bias voltage works out nicely to operate the QQE 03/20 amplifier in class AB_2 and this bias is stabilised by series connecting two 15V, 3 watt zener diodes at the grid feed point, centre tap of L209.

Two parallel connected 100 ohm 2 watt composition resistors are connected across the primary of the grid coil L208. This correctly terminates the 50 ohm coax link from the transmitter driving source and loads the grid circuit to prevent clipping during positive signal peaks due to grid current flow.

The modified final amplifier stage is shown in figure 1. The existing relay A provides transmit/receive switching for the amplifier RF output but an additional 12V relay B must be added to also switch the amplifier input. Coil L208 is disconnected from the previous stage and connected to contacts B1 to provide input switching. Normal contacts of A1 and B1 link the antenna circuit for receiving. A further set of contacts, B2, connect to the 1675/77 PTT circuit at the microphone socket to turn on the power supply when switched to transmit.

The frequency multiplier stage valves, 12AT7 and QQE02/5, are withdrawn from their sockets. The 12V supply to the transistor stages in the remainder of the transceiver can be disconnected, if desired, but it doesn't really matter as they consume little current.

If the 1675/1677 has not been previously modified for amateur band use, some changes might have to be made to the tuning range of L209-C256 and L210-C261. If a harmonic filter (L217, L218, C278-280) is fitted, this should be disconnected, (Modifications to the tuned circuits are well described in Amateur Radio, July 1975).

The circuit has worked well on 6 metres using an IC502 as the driving source. With one watt of peak envelope driving power, the amplifier delivers about 20 to 30 watts PEP to the antenna. Equal performance is anticipated on 2 metres.

AR

TRY THIS

ETCHING CIRCUIT BOARDS

Bevan Hay VK4ABV,
MS 346, Nanango, Qld. 4315.

Reading Roy Hartkopf's article about circuit board etching I thought it worth mentioning an alternative type of etchant for circuit boards. It seems most people use Ferric Chloride, as have I. This solution suffers from one drawback, namely, you can't see what's going on. There is a solution, if you'll pardon the pun. Use a solution of Hydrogen Peroxide and Hydrochloric Acid, about equal parts of equal concentration.

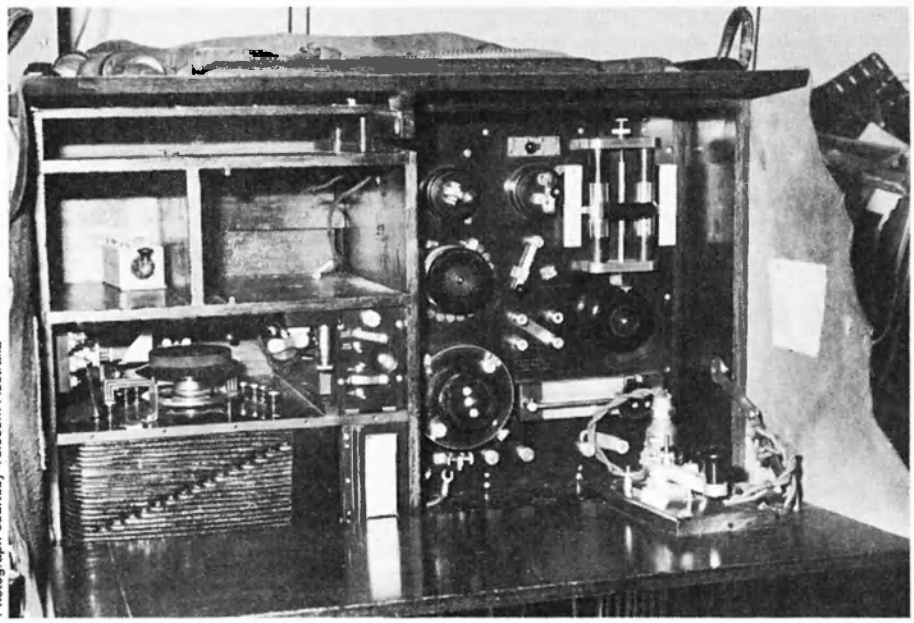
The chemistry is quite simple, the Hydrogen Peroxide reacts with the copper producing Copper Oxide, which is then dissolved by the Hydrochloric Acid producing a pale green solution of Copper Chloride, through which the progress of the etching can easily be seen. I usually do it with a fairly concentrated acid and peroxide for fast results, though this is not necessary and good results can be obtained from dilute solutions.

If you use concentrated Hydrochloric Acid I strongly recommend that the job be done out-of-doors as the fumes from concentrated Hydrochloric Acid are dangerous.

AR

A LITTLE ABOUT WIRELESS IN THE FIRST WORLD WAR

The particular spark transmitter and receiver, photographed and described on this page, was one of six built by Marconi of London in 1915 and sent to Australia for use in the first world war. This unit was used in 1916 by signallers at the Mitcham Army Camp in South Australia before being sent to Melbourne to be packed for despatch overseas.



Photograph courtesy Telecom Australia

The transmitter and receiver ready for operation.

The 'portable wireless sets' were considered marvels of their time, for their compactness and lightness. They weighed about 330 lb (150kg) each. A unit could be set up ready for operation within ten minutes by five or six men and once set up required two men to operate it. It had a guaranteed daylight range of 35 miles (56km) but in daylight it could work two to three times that distance and at night up to 200 or 300 miles (322-483km).

The transmitter was a 0.5kW rotary spark set driven by a Douglas air-cooled petrol engine with a solid flywheel. It was the same engine Douglas used in their motor bikes at that time. It ran at 1800 rpm.

The receiver employed a carborundum crystal detector with bias provided by a couple of dry cells through a potentiometer and was designed to operate from 300-1300 metres by the operation of a band change switch. It was fitted with two galena crystal detectors.

The transmitter unit was located in the bottom section of the equipment case and contained an iron core transformer connected to the alternator by a flexible cable, tubular Leyland jar type condensers. RF chokes and the HF closed circuit. The receiver, operating controls and key were contained in the top section. To quieten the spark in operation, a metal cover was fitted over the rotary gap section.

In December 1915, urgent cables were received in Australia and New Zealand from India, asking for the loan of men to help out the scanty communications of India's Expeditionary Force "D" which was operating in Mesopotamia.

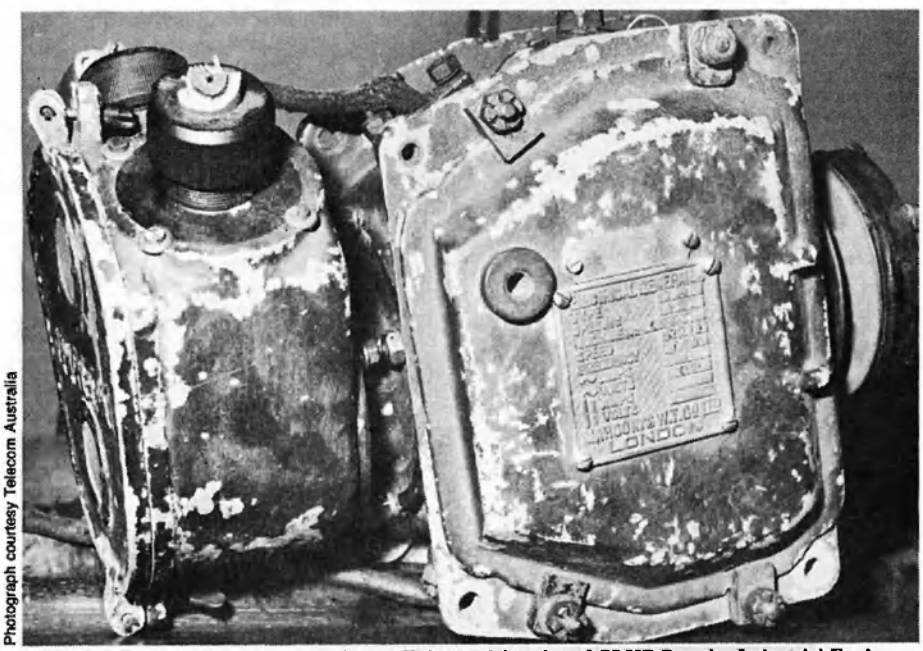
Both countries responded and offered to supply and maintain complete wireless units in the field.

So the 1st Pack Wireless Signal Troop was formed with one officer and 54 other ranks from NSW and Victoria. This Troop arrived in Mesopotamia on 19th March 1916 and on 18th April a New Zealand troop arrived. Both troops were camped at Makina a short distance from Basra. Each troop supplied four pack wireless stations.

On 25th April, the first Australian station went up river and attached itself to the 15th Division at Khamisayah, on the Euphrates.

In March 1916, the Imperial Authorities asked the Commonwealth to increase the wireless establishment at Mesopotamia, which resulted in the 1st Australian Wireless Signal Squadron being formed. It arrived in Mesopotamia on 6th July 1916. The Australian and NZ troops already there were absorbed into this Squadron and they soon became known as "The Anzac Wireless".

As the army moved up the Tigris and the Euphrates, so too did the wireless. The Cavalry



Photograph courtesy Telecom Australia

The AC Generator used to power the set. This was driven by a 2.75 HP Douglas Industrial Engine.

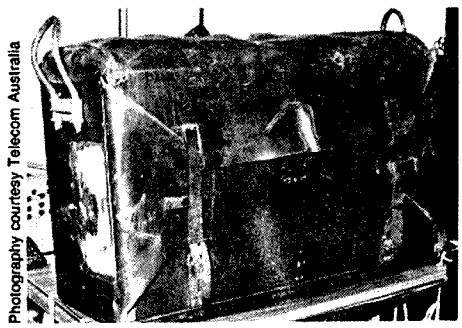
Division had three pack sets and maintained continuous contact with headquarters whilst the cavalry was on the move. This meant that one station at a time halted, erected its two masts, cleared its traffic, dismantled, packed up and galloped with the cavalry rear-guard, who had waited for it, to catch up with the main body of the Division.

So as the army advanced into Baghdad and beyond into Persia, so too did the wireless stations. All messages were in five letter cypher, no plain English and the letter 'V' was used for 'from', not 'DE' as is used today.

As well as the unit described above another unit, a 1.5kW Wagon set was used. This receiver was similar to the one above but the transmitter had a 7 HP water cooled engine, also made by Douglas. The alternator and components were larger, also.

Throughout the service of the wireless operators in Mesopotamia and Persia thousands of messages were transmitted and received, which were of vital importance to the Army operations, without delay or error.

A large portion of the operators were ex Post Office or Railway Telegraph operators but quite a few were "Wireless Hams" or in todays language radio amateurs.



Photography courtesy Telecom Australia

A very portable transceiver? The spark transmitter and receiver in its carry case.

References: "Wireless in the 1914/18 War" by the late Arnold Holst VK3OH. "The History of Radio in South Australia" by John F. Ross.

Compiled by Bett McLachlan from material submitted by Jim Davies VK7OW.

Photographs courtesy Jim Davies VK7OW. **AR**

TRY THIS

Sam Pascoe VK6KSP,
45 Nicholson Road, Subiaco, WA. 6008

YAESU FT-480R TWO METRE TRANSCEIVER — A simple modification

I was discussing the various pros and cons of the FT-480R on air recently and mentioned my disappointment at the lack of a 'reverse' switch. This switch provides the ability to listen to the repeater input frequency as an alternative to the output. Jack VK6BU mentioned that on all FT-480R units that he was aware of, the careful and SLOW movement of the satellite switch achieves this.

After a lot of jiggling of the switch, I found that my rig was an exception to this rule. So, out came the circuit diagrams and a short time later I was able to make a reasonable guess as to what was happening.

The following diagrams show the modifications that have been made.

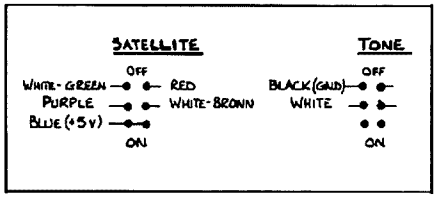


Figure 1: The Original.

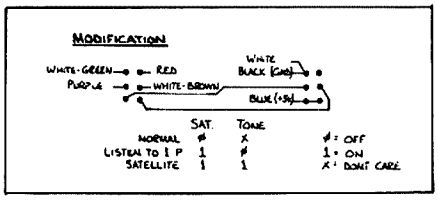


Figure 2: Modification. With this modification transmission is disabled while listening.

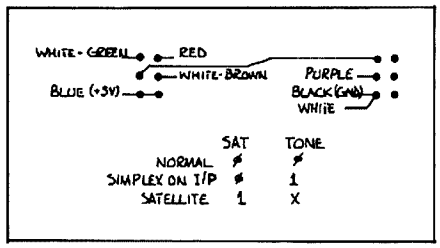


Figure 3: Alternative. (Possibly a better one). With this modification transmission is enabled in simplex on the I/P frequency when the TONE switch is in the ON position.

Underneath the rig is a small panel supporting three switches, labelled Satellite, Scan and Tone. All mods are made directly on two of these switches. The only disadvantage (possibly) is that the tone burst on/off function is lost. In the diagrams it is shown permanently wired to the OFF position. To make it permanently ON just disconnect and tape-up the white lead to the tone switch.

Note: All diagrams are viewed from the solder lug side.

AR

LOW COST SIGNALLING SYSTEM FOR LITTLE USED RAILWAYS

An electronic token signalling system to be installed on British Rail's East Suffolk line between Ipswich and Lowestoft in eastern England could also be ideal for lightly used railway lines throughout the world.

For railways with only a few trains in each direction per day, replacement of old or obsolete signalling may be out of the question, but an electronic token system could be installed to keep these lines open and improve their operating efficiency.

The system is operated from one signal box which is in contact by radio with each train under its area of control. The line is divided into sections with "Stop and exchange token" boards to mark the end of each section. Before a train is authorised to proceed into a particular section it must have received the electronic token for that stretch of line.

Such tokens can only be transferred following a co-operative procedure between signalmen and driver. Each train is fitted with a cab unit which has a unique identity number. The electronic tokens are transmitted by radio in the form of coded data messages and on receipt are displayed by suitable messages on the visual display unit in the train drivers cab.

A computer-controlled solid-state interlocking (SSI) ensures that only one electronic token can be issued to each unique train unit. Before an electronic token is issued the SSI also ensure that the particular token has not already been issued to another train and also that no token for a conflicting movement has been issued to any train.

With passenger safety always of paramount importance, the computer installation is triplicated to guard against malfunctions. At least two out of the three computers must output identical information before an electronic token can be issued.

The equipment to be supplied to British Rail by GEC-General Signal Limited comprises the main signal box equipment (including the SSI cubicle) plus 24 train cab units. It is also planned to equip Chief Civil Engineers' vehicles with electronic token equipment for authorisation of track maintenance possessions.

from Information Technology from Britain
AR

75th Nostalgia

The following article is from the VK2 Divisional Archives and is contributed by Tim Mills VK2ZTM. Written by the then President of VK2, Charles Maclurcan A2CM, it looks towards the future for wireless and the WIA from the 1920s era, possibly written around 1923. Much of the article still applies today, particularly the reference to amateurs "uniting in the Wireless Institute." It is also interesting to note the Patron at this time.

The Wireless Institute of Australia

(NSW DIVISION)
Charles D Maclurcan (President)

Wireless development needs as its strongest factor every encouragement given to experimenting and in this repect the Australian system covering broadcasting is practically the most liberal in the world, in as much as it gives a free hand to broadcasters, provided of course, they do not encroach upon the regulations under which broadcasting is carried out.

It, however behoves all Australian experimenters to work together, not only in experimental work and so improve the utilisation of wireless, but also in order to see that every encouragement is given to the public to partake of the advantages of wireless as offered them by legitimate broadcasting concerns; hence experimenters, by having such a great trust placed in them by the Government authorities, will return the compliment by doing all in their power to see that the arrangements are given best test.

With the remarkable development of wireless in the last decade we can look for still further developments in the near future, hence the broadcasters must ever be on the alert to peer into future developments and so put on record the advantages won in their experimental work.

There are many problems that they must face, for instance the overcoming of the weakening of wave power by statics, and also solving the problem regarding the one way inefficiency of messages between two certain points, particularly where equatorial districts have to be covered.

By being classed as an experimenter in wireless no mean privilege is given to such, because such are really on the verge of a future which practically lifts humanity into the etherial and is really man's first touch with the infinite given in practice instead of theory.

We, as experimenters in this great science, feel we are specially privileged and we trust that while we enjoy same it shall have something placed on record to merit the honor that has been given us.

The direction of the future developments of wireless will cover such problems as the direction of aerial traffic, the transmission of natural colored photography, and practically the solving of that glorious forecast, the speaking with one voice that can reverberate round the earth.

Experimenters, therefore, have a great responsibility and they can best protect that responsibility by uniting in the Wireless Institute.

It has been said that "There's many a slip 'twist the cup and the lip." How truly applicable is that old quotation to the many vicissitudes which have beset the Institute during the fourteen years of its existence.

Inaugurated in 1910, March of that year to be exact, the then Wireless Institute of New South Wales was the first Technical Radio Association to be formed within the British Empire, and the ambitions of the enthusiastic though small band of original experimenters in this wonderful science have been more than realised by the position of the Institute to-day in the very front rank of Scientific Societies.

If only that small band of originals had been able to lift the veil of the future when they took the initial step of forming this Society, they would have been amazed by the intricate tangles in store for their successors in the years to follow. In this regard it is most gratifying that a round dozen of them are still actively associated with what has now become the New South Wales Division of the Wireless Institute of Australia.

Courage, determination and sincerity are the three outstanding qualifications of the Institute to-day as in the past, and recent events have proved that the faith of the Institute's founders in the righteousness of their cause, has been retained as one of the most precious possessions throughout the Institute's existence.

The principal objects underlying the formation and administration of the Institute may be briefly summed up as follows:—

(a) For the Association interested in the encouragement and scientific development of radio communication in all its branches.

(b) To provide a centre of information, instruction and advice on all matters pertaining to radio communication.

(c) To consider, originate and promote reform and improvements in the law; to consider proposed alterations and oppose or support same; to effect improvement in the administration of the law, and for the said purposes to petition Parliament or take such other proceedings as may be deemed expedient.

In regard to (a) and (b) the results so far achieved speak for themselves. In regard to (c) the Institute has always played its part fairly and has been responsible in very great measure for the development that has taken place in Australia.

Earlier in this year the Institute conducted a series of tests receiving signals transmitted from experimenters in the United States, the power used at the transmitting end being only 100 watts. The great success obtained prompted the Institute to go further, and a series of tests has just been concluded wherein American experimenters again transmitted to Australians, and the local experimenters transmitted back on the same low power, 100 watts. Although the results of this latter test are not yet definite from the point of view of Americans receiving the Australians, still it is gratifying to know that 88 stations in the States have been logged in Sydney and Melbourne.

When broadcasting was first seriously, considered in Australia, the Institute took a prominent part in the compilation of the regulations to suit local conditions, and it is felt that the best possible steps have been taken in Australia to place this wonderful feature of radio on a comprehensive basis to suit local conditions and avoid the many complications which have occurred in other countries.

The severe test came when war broke out in 1914. The shortage of wireless operators for military and transport purposes was acute, and it is a matter of history that seventy-five percent of the then Institute members were immediately absorbed on emergency active service. There were but few of the Institute's members who, on account of age, were not absorbed in war service, and the value of such men in time of national crisis was and ever will be invaluable.

Charles D Maclurcan.

Patriotism is very dear to the Wireless Institute and one of the principal requirements before admission to membership is that candidates must be of British nationality. Other qualifications and conditions of membership, as well as annual subscriptions are compatible with the standard to which the Institute has attained.

There is a distinct division of the Institute in each State of the Commonwealth with headquarters in all the capital cities, and with the incidence of the Australasian Radio Relay League, it is anticipated that the co-operation between Divisions will be greatly enhanced. The keen co-operation between interstate divisions in the past has been of the greatest possible advantage to experimental work and the projected activities of the immediate future will require complete unison and much hard work on the part of all concerned.

Of the Executive of the Institute to-day, of which I have the honour to be president, I cannot say too much in praise of their self-sacrifice in doing all in their power to help the cause of wireless to still better opportunities, and in justice to them, it is only fair that their names be put on record:—

Vice-presidents: F Basil Cooke, FRAS, E B Crocker; Councillors: Major W H Newman, H Rigby Gregory, S V Colville, H A Stowe; Publicity Officer: A H Perrett; Honorary Treasurer: O F Mingay, Honorary Secretary: Phil Renshaw, AMIEA.

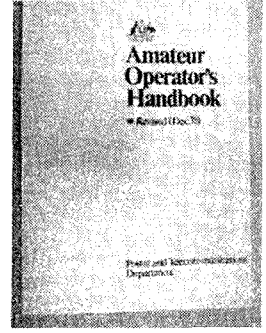
Charles D Maclurcan.

Senatore Marconi, Patron, President.

AR

DE-REGULATION AND SELF-REGULATION: WHAT DOES IT MEAN?

Allan Foxcroft, VK3AE.
FEDERAL COUNCILLOR



Nowadays "de-regulation" has become almost a "catch cry" in Government administration — for example, the de-regulation of the Australian Banking System and proposals for similar action in the Dairy Industry have brought the subject to the public notice. It may come as a surprise to some readers that the WIA has had de-regulation and self-regulation as an endorsed forward planning objective since 1981 when the Federal Convention decided officially to *"aim for de-regulation and self-regulation in negotiations"* (with DOC). Unfortunately, the two terms sometimes tend to be regarded as interchangeable and some misunderstanding can result if one does not clearly differentiate between the two.

EASING OF FORMAL REGULATION

The term de-regulation implies the easing of the formal regulation of amateur radio — the streamlining of regulations and the elimination of all that are unnecessarily restrictive or no longer applicable to present-day conditions. This can be a useful and productive exercise, but to my mind it does not get at the major question *ie how, the service should be regulated after the dead wood has been removed.*

We should be concentrating most attention on the transfer of much of the responsibility for the orderly conduct of our hobby from the licensing authority to the amateur himself, *ie self-regulation more than de-regulation.* Of course a basic framework of regulations must continue to be applied by the DOC — the formal licensing of operators in the service, the allocation of frequency bands and co-ordination with other services are activities which appear more appropriate to the licensing authority. Nevertheless, there are a number of "regulations" dealing with conduct and procedures which could be self-administered, more in the form of guidelines than as conventional regulations.

WE SHOULD BE GETTING TOUGHER

Naturally there are opponents to the easing of formal control of the service, in fact some with rather extreme views would no doubt prefer to see a tightening-up of the regulations. *"We should be getting tougher on offensive behaviour of all kinds". "We should be making the observance of WIA Band Plans obligatory rather than gentlemen's agreements, as at present". "We should increase control on the use of repeaters"* and so on. Yes — by all means let us campaign strongly against undesirable features of amateur conduct, but NOT by the introduction of increasingly formal regulations by the DOC. Instead we should be building up the self-discipline of the Amateur Service by education and by improving, in a friendly, co-operative manner, the operating conditions of our service.

ONLY TAKE PLACE BY GOODWILL

First and foremost, the process of self-regulation can only take place and be sustained by continuing goodwill and mutual confidence between DOC and the amateur body as a whole. It must be engendered by clear demonstration of a highly responsible attitude and a willingness and ability of the amateur fraternity to control its own affairs in a competent and effective manner. We are fortunate that currently this most important ingredient for change is present. There is a tremendous goodwill between the DOC and the WIA — backed by a very genuine and sympathetic desire on the part of the DOC Radio Frequency Management Division to regulate in the best interests of amateur radio.

SHIFT THE BLAME

An example of this attitude can be found in the DOC approach to the solution of Electromagnetic Compatibility and immunity problems. Not so long ago, when interference (other than harmonics and spurious emissions) was "caused" by a licensed amateur station to domestic electronic equipment, the onus for clearance of the problem was almost automatically placed on the amateur station rather than on the recipient of the interference. The present and commendable attitude of the DOC is to shift the "blame" to where it should generally reside — with the electrical equipment manufacturer or the installer who has failed to provide adequate immunity to high RF fields.

The changes which we envisage cannot take place without added responsibility being placed on the amateur bodies — particularly the WIA. They must become even more responsive to the needs of all amateurs — to represent overall amateur views more accurately and to take all views into account when speaking and acting as the amateur representative. An increase in the percentage amateur membership of the WIA is most desirable — but more importantly the organisation and administration of the WIA must be tightened up to meet these needs.

CENTRAL CO-ORDINATOR

I must respond to those who express concern that the WIA does not adequately recognise the rights of non-members to their independent views and should not seek to act on behalf of all amateurs. It is a fact of life that an organisation such as the WIA, able to claim better than fifty percent representation of Australian amateurs and able to speak with one voice will be heeded more than individuals. If the democratic process of consensus is to be pursued, there must always exist some central co-ordinating body. Moreover, if a greater degree of self-regulation is to be applied in the Amateur Service, there will be even greater pressure for that co-ordinating body to possess the strength and ability to represent a majority view of amateurs, of which only the WIA is capable.

The concern of non-members can be eased by a concerted effort to improve the representation and responsiveness of the WIA to overall amateur needs as mentioned previously. This is no mean task when one recognises the great diversity and even conflict of interests to be represented. Amateur radio is, in fact, many hobbies within a hobby and all should be considered and given their appropriate weighting. We should continue to prepare and administer band plans for the amateur frequency allocations, with perhaps greater firmness than heretofore — we should be co-ordinating the use of bands above 30 MHz to ensure that the most effective use is made of all the techniques at present available (here let me stress the word "co-ordinate" in contrast with controlling or directing, which should be resorted to only where absolutely necessary). We should be fostering and again "co-ordinating" the introduction of new techniques — ensuring that flexible procedural guidelines are available where required and that they are directed to the greatest possible benefit for the majority of experiments.

GREATER DISCIPLINE

So, to conclude, let's summarise what self-regulation should mean to the Amateur Service. It is not an easy road to follow. It calls for greater self-discipline by all active amateurs. It calls for a greater awareness of the objectives and values of the amateur service by its members as a whole and a tolerance for "the other fellow" who may wish to pursue a facet of the hobby totally different from one's own inclination.

If the WIA is to spearhead the trend, (as it should), then it must receive greater support by amateurs in terms of membership numbers. Its organisation and lines of communication should be improved to ensure that it is always able to speak with authority for the whole of the amateur population. We must always act in a responsible, tolerant and professional manner in all forums at which the amateur interests are to be represented and by clearly demonstrated competence, foster the wholehearted support of the licensing authority, the amateur and the industry as a whole, *What do you think?*

AR

SKY HIGH PIRATES CONVICTED

A plumbing company has been convicted for illegally using amateur hand held two metre transceivers.

In the Melbourne Magistrate's Court on 13 June J L Williams Pty Ltd pleaded guilty to six identical charges.

The Department of Communications prosecuted the firm under the Wireless Telegraphy Act for using an appliance without authorisation for the purpose of transmitting messages.

The court case followed a visit by DOC officers to the tallest building in the southern hemisphere — the Rialto in Collins Street.

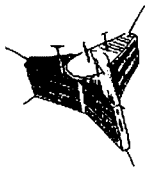
In the raid on 1 February, DOC seized six transceivers which were operating on 144.495 MHz.

They were being used for communication by workers installing air-conditioning.

The company was fined a total of $110 and the units were forfeited.

AR

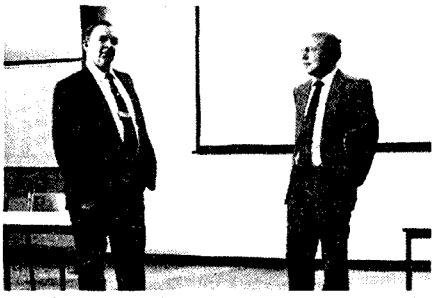
THE STORY OF OSCAR 10



Visit by Dr Karl Meinzer DJ4ZC to Australia

Bill Rice VK3ABP
54 Maidstone Street, Altona, Vic. 3018

The WIA was notified in April 1985 that one of the leading participants in the development of the Phase 3 amateur satellite, which is now operational as OSCAR 10, was to visit Australia during May. Dr Karl Meinzer DJ4ZC had been invited to address the ZL Convention in Christchurch over the weekend of 1-2 June, during a round-the-world trip, and was invited by Graham Ratcliff VK5AGR (our AMSAT Co-ordinator) to add Australia to his itinerary. In a very busy week at the end of May DJ4ZC addressed meetings of amateur satellite enthusiasts in Adelaide, Melbourne and Sydney. The Melbourne meeting was held on 28th May at the Box Hill College of TAFE, the venue being arranged at rather short notice by the Eastern and Mountain Districts Radio Club in conjunction with the VK3 Division and the Federal Office.



David VK3ADW introduced Karl DJ4ZC to the audience.

Karl was introduced to the audience of about 55 people by the Federal President, David Wardlaw VK3ADW, and Jack O'Shannassy VK3SP, representing EMDRC. He then outlined the history of the Phase 3 project from its beginning as a joint concept by himself and Jan King W3GEY in 1973. It was intented to go into a high-level sub-synchronous orbit at an inclination of 57 degrees, with 50 watt transponders enabling good coverage of a large part of the world at any one time, the actual region changing slowly as the earth rotated within the orbit. Transponders were proposed for Mode B (70 cm up, 2 m down), with an onboard computer controlling a built-in propulsion system for optimising the orbit, as well as housekeeping functions (transponder scheduling, solar power budget, engineering telemetry, etc).

GLOOM!

After years of hard work, mostly by the AMSAT-DL organisation, but also involving AMSAT-USA, NASA and ESA, the satellite, plus commercial payloads, lifted off in 1980 from Kourou in French Guiana aboard the second of the Ariane series of rockets. A faulty fuel-valve caused premature first stage shutdown, and many millions of dollars worth of hardware plunged into the South Atlantic!

The West German Government was then persuaded to grant sufficient funds to AMSAT to build a replacement satellite. Karl appears to be not only a technical genius but also a political and financial wizard! The new satellite, improved by the addition of a Mode L transponder (23 cm up, 70 cm down) was launched in June 1983 by a more successful Ariane. However a bump just after separation upset the attitude, bent an antenna, and restricted the supply of fuel for manoeuvring. The inclination eventually achieved was only 26 degrees rather than the wanted 57, and the orbit was more elliptical than desired.

INSURANCE

Learning from the disastrous first attempt, the second satellite was covered by very comprehensive insurance, one clause of which defined the mission as unsuccessful if the inclination was less than 30 degrees. The payout from this has permitted construction of a further Phase 3 satellite to proceed. In the meantime it has been possible to manoeuvre OSCAR 10 into the best possible attitude consistent with its low inclination angle, and communication through it has been readily possible for over a year. However, its sensitivity is about 20 dB down on specification for the Mode L transponder and power will be restricted by frequent long eclipses later this year as the orbit causes the satellite to be in the earth's shadow for up to 3 hours at a time. The attitude needs to be changed twice a year to minimise its effect on solar illumination; and the elliptic orbit involves passage through the earth's radiation belts twice a year, which will shorten the useful life of much of the electronics, particularly the computer memories.

VIDEO

Karl's presentation was supported by a 45 minute video-cassette of the OSCAR 10 story. This was mainly produced by Werner Haas DJ5KQ, and covered all aspects from concept to launch in a most informative style. Several interesting items were gleaned here; OSCAR 10 is spin-stabilised at 35 RPM; its development and testing involved the University of Marburg, the Max Planck Institute, NASA and the ESA Kourou complex; the Ariane take-off thrust is 2445 kilonewtons and its mass 207 tonnes (from which may be deduced an initial acceleration of 1.2 G, less the earth's 1.0 G, so only 0.2 G or 2 metres per second at lift-off); the payload is 2 tonnes and the vehicle takes 14 minutes to reach the altitude where the payloads separate and are left to their own devices. Video coverage of the *Kourou* installation and of the actual lift-off was especially interesting.

FUTURE

An improved version of the present satellite is intended, hopefully with an overall 10 dB improvement in transponder gain, so that the necessary ground ERP will be possible from mobile antennas. There will also be a digital communication experimental system for the packet radio buffs.

The next generation (Phase 4) will involve higher gain antennas, 250 watt transponders, and larger solar cell panels to provide the DC power. One most intriguing suggestion is the use of electrically heated water vapour jets for manoeuvring. Water is of course much cheaper than hydrazine and

Photographs courtesy Gil Sones VK3AUI.

Karl explains the operations of a pocket computer to gain OSCAR 10 information.

other exotic fuels, and can be carried on a manned craft such as the Shuttle. One might envisage a low-level Shuttle launch, the satellite then propelling itself into a much higher orbit, taking weeks if necessary, steaming outwards into space!

QUESTIONS

At the conclusion of Karl's address there were several questions from the floor. These involved the expected life of OSCAR 10, access by mobile stations, commercial support, launch vehicles other than Ariane, possibility of amateur geostationary orbits, ease of access, polarisation, and launch timing for the 10 dB improved version.

In replying, Karl said that at least 3 years was expected of OSCAR 10 (in spite of some experts who said it would not last 2 days, and have already been proved completely wrong!). Access might be possible to later satellites by hand-held SSB sets. Even now many signals into OSCAR 10 are 20 dB stronger than needed, and users must be educated to use the minimum necessary power.

Commercial support is not great, as there is little commonality of aims between the professionals, who require high reliability no matter what it costs, and amateurs, who require a limited capability on a shoestring budget. Ariane remains the most appropriate launch vehicle, but the proposed water vapour propulsion may make a low-level Shuttle launch possible, although expensive. The Amateur Service could perhaps afford one geostationary satellite, but the three or four necessary to cover the whole world would probably be beyond our means.

It was agreed that a satellite system easily accessible even to hand-helds might raise serious problems, although the American philosophy is towards this aim. No change is proposed to the present circular polarisation sense; and the next improved OSCAR may be launched in 1989 or 1990.

In conclusion, VK3ADW thanked DJ4ZC for his notable contributions to the amateur satellite service and his willingness to address us, and presented him with several appropriate momentos of his visit, including an embossed leather binder containing some recent issues of AR.

AR

EXPANSION OF SBS TV INTO UHF

As previously announced the channel 0 transmissions for SBS TV will terminate on 5th January 1986. All future expansion of this service will be on UHF. The use of channel 0 however remains for other TV services.

The UHF SBS channels to be used include:

Ch 28	*Sydney — Canberra and Melbourne and planned for Adelaide and Brisbane July 1985 Perth and Hobart in January 1986 and Darwin late 1986*
Ch 43	*Adelaide foothills*
Ch 44	*North Wollongong in August 1985*
Ch 45	*Newcastle in July 1985*
Ch 58	*Kings Cross — Goulburn — Cooma — Tuggerong in VK1 and Warburton and Marysville in VK3*
Ch 59	*Wollongong in July 1985*
Ch 61	*Gold Coast.*

Contributed by Tim Mills VK2ZTM.

AR

Andrews Communications Systems

KENWOOD TS-430S

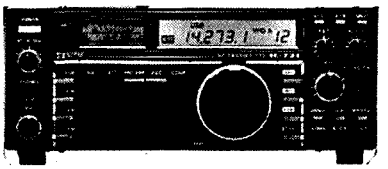
HF SSB/CW/AM transceiver with 100W RF o/p. 160-10m tx, 150kHz-30MHz rx. 8ch memory with memory scan and programme scan functions. IF shift and notch rejection tuning, NB. Inc mic.

Why pay more?

$1245

Full 12 months warranty.

PS-430 AC supply $260. AT-250 $485.



ICOM IC-731

HF SSB/CW/AM transceiver with 100W RF o/p. 160-10m tx, 100kHz-30MHz rx. 12ch memory with mode scan, memory scan and programme scan functions. PBT and notch tuning, NB, etc. Inc. mic.

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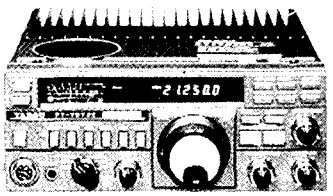
Full 12 months warranty.

PS-55 $279. AT-150 $399. All due soon.



YAESU FT-757GX

HF SSB/CW/AM/FM transceiver with 100W RF o/p. 160-10m tx, 0.5-30MHz rx. 8ch memory with memory scan and PMS. Selectivity width and shift controls. AM filter included. Speech processor. Effective N.B.

$1145

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FP-700 $239. FC-757AT $425. Inc mic.

AOR AR-2002

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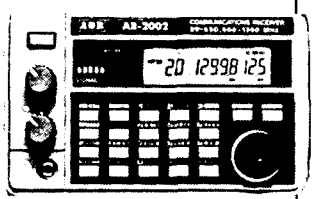

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Full duplex 70cm & 2m 25/3W FM mobile, 10ch mem.

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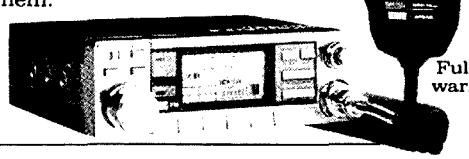
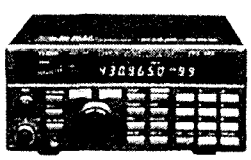


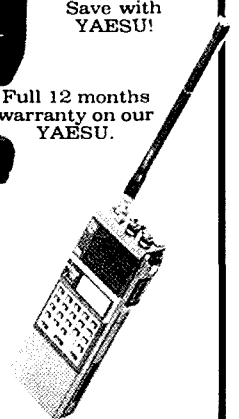
Full 12 months warranty on our YAESU.



YAESU FRG-965....$679

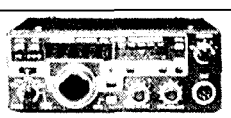
All-mode scanner receives 60-905MHz. USB/LSB/CW/FMN/FMW/AMN/AMW. Sensitivity 0.5μV FMN 12dB SINAD. 100ch memory with scan, search, delay, lockout etc.

YAESU FT-208R 2m prog. h/h.....$299
YAESU FT-209R 2m
with FNB-4 .....$399 (illus.)
YAESU FT-209RH 5W.
Inc. FNB-4 .....$429
YAESU FT-726(R) 2m
all-mode t'cvr $1299
Modules for above, 70cm $399, 6m $299, Sat $169.
YAESU FRG-8800 2-30MHz
comms rx $799



ICOM IC-390 (IC-490A eq.) $679

All-mode 430-440MHz 10W mobile UHF transceiver.



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YAESU FT-709R 70cm h/h, available on order, $449 w/FNB-4.
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RF AEROSPACE, 3el. 10m $89, 4el. 10m $129, 5el. 10m $149, 208GR 2m $129, 208 $79, 205 $55, 7018GR $129.
CHIRNSIDE CA-33 $309, CA-35DX $389, Helicals $30/$35.
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- ★ HL-160V 3/10W-160W, FET pre-amp, 2 mtrs.....$479
- ★ HL-160V25 25W-160W, FET pre-amp, 2 mtrs.....$419
- ★ HL-110V 3/10W-120W, FET pre-amp, 2 mtrs.....$339
- ★ HL-85V 10W-80W, GaAsFET rx, 2m Linear.....$249
- ★ HL-62V 10W-60W, GaAsFET rx, 2m Linear.....$179
- ★ HL-35V 3W-30W, GaAsFET rx, 2m Linear.....$119
- ★ HL-86V 10W-80W, FET pre-amp, 6m Linear.....$229
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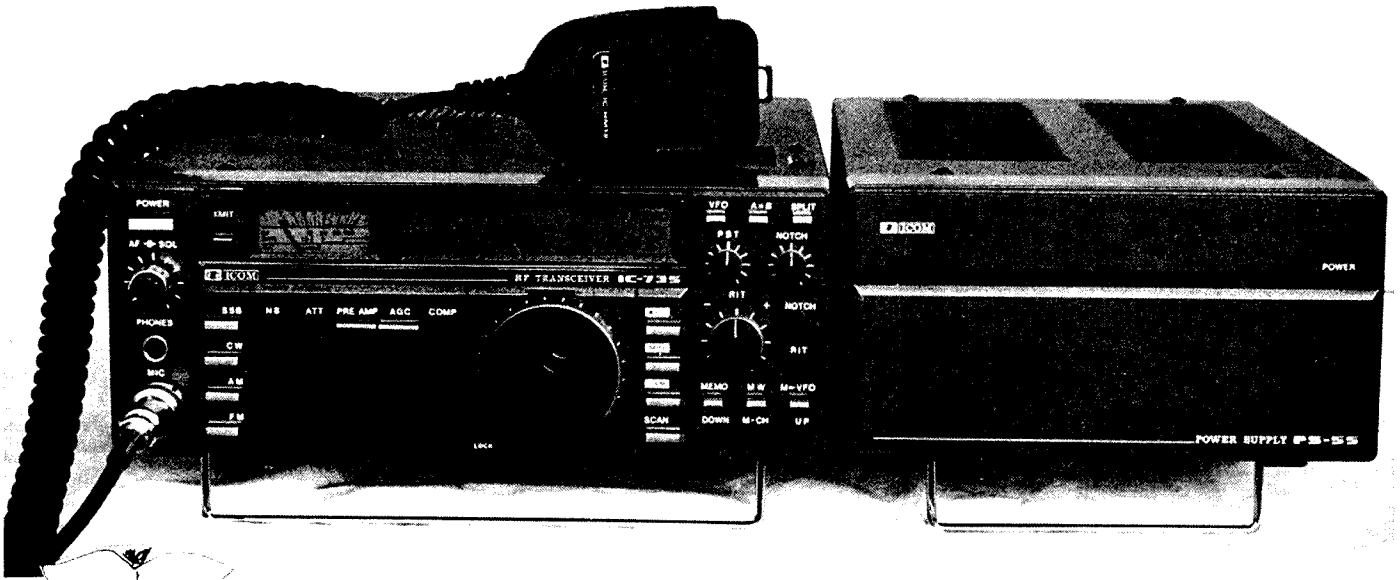
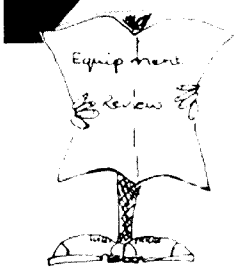




EQUIPMENT REVIEW

Ron Cook VK3AFW
TECHNICAL EDITOR

ICOM IC-735 ALL MODE HF TRANSCEIVER

The IC-735 replaces the well known Icom IC-730. It seems that the days of transceivers that only cover the amateur bands on receive have long gone and the 735 therefore has a general coverage receiver. The 730 appeared on the Australian market in early 1982 and was reviewed in the April 1982 issue of Amateur Radio. It has continued in production ever since and I believe that there has been a steady demand for it. It has been regularly advertised in American magazines but it is quite a while since I have seen a local advertisement for it.

In its basic concept, the 735 fills the same role as the 730 with a compact transceiver for portable or mobile operation, fully solid state no tune up design with amateur band coverage from 160 to 10 metres and operates from a 13.8 V DC source. It is packaged in a cabinet of identical dimensions to the 730, 94mm high, 241mm wide and 239mm deep (less projections) but weighs less, 5.05kg as against 6.4kg for the older model.

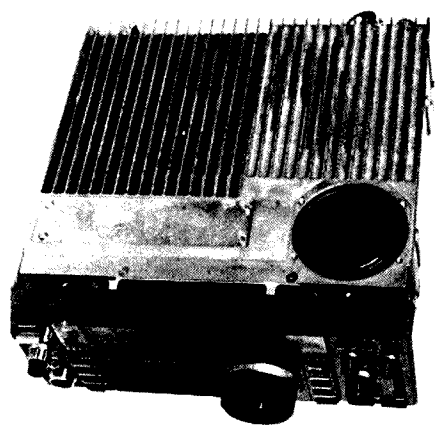
The big difference is what is inside the cabinet. First is the general coverage receiver. This covers from 100kHz to 30 MHz. Tuning is continuous over this range with the choice of stepping in 1 MHz segments or in amateur band segments. Add to this an all mode capability for AM, FM, SSB and CW and you can see we have a very complete package. All controls are on the front panel.

If you refer to the review of the 730, you will see there were a few complaints about the accessibility of controls under the top hatch. This hatch has disappeared and all of the lesser used controls are on the front panel behind a drop down semi-transparent plastic panel. Very neat. Also commented on was the matching AC power supply in fact did not match. Instead of presenting a smooth line up, it looked more like the side elevation of a camel train. But no more, Icom have produced a power supply, the PS-55, which matches the IC-735 in both size and colour. An automatic antenna tuner is also available in matching format.

Frequency, mode, VFO and memory information are presented by means of a large LCD display. To my knowledge, this is a first on an HF transceiver, but several excellent LCD displays have been used on VHF FM transceivers. In more detail, the display shows the following: *frequency display to 100Hz resolution, VFO A or B, mode of operation AM, FM, USB, LSB or FM, transmit or receive status, scan mode, memory channel selected and split frequency operation.* It is illuminated in a soft translucent green. The 'S' meter is also illuminated in a soft green but I found it lacking in contrast. Twelve memory channels are provided. Both mode and frequency information can be stored and each can be individually tuned across the full 30 MHz tuning range. In effect this gives 14 independant VFOs. All VFO and memory information is retained when the power supply is removed by use of an internal lithium battery.

The 735 has an excellent notch filter that can be used with any mode, including AM, and is quite capable of taking out the carrier on a local broadcast station. Other performance information is included in the test section of this review.

As mentioned earlier, the 735 is housed in much the same cabinet as the 730, however removing the top half of the cabinet reveals that the appearance is only skin deep. Underneath is a cast heat sink that takes up the entire depth of the transceiver. A miniature centrifugal fan mounted towards the front of the heat sink draws air in from the rear. The fan operates as soon as the transmitter is keyed and shifts to a higher speed after a few minutes operation. It is fairly quiet but to my ear operates at an annoying pitch.



The IC-735 with the top cover removed to reveal the heatsink and speaker.

Icom have sped up the tuning rate slightly from previous models as the 735 covers 2.5kHz per tuning knob revolution as against 2kHz on the older models. Turning the knob faster than about one revolution per second increases this to 5kHz per turn. One kHz stepping can be switch selected which gives a rate of 100kHz per knob revolution. An input to enable the 735 to be remote controlled by a computer is included called the 'Advanced Remote Control System'.

It is claimed that frequency, mode, VFO A/B selection and memory selection can be controlled by the computer when an appropriate interface is used. There is no information on what this is. It is also stated that the serial port uses a standard 1200 Baud data rate.

Let's look a little closer at the scanning and memory system. The 735 has twelve memories which store both frequency and mode. The memories are fully tunable, it is not necessary to transfer them to one of the VFOs, just select the required memory and tune up or down in the usual way. The memories are selected by first pushing the 'MEMO' button and then selecting the required channel with the memory up/down buttons. Unfortunately memories cannot be changed by using the up/down buttons on the microphone. This only causes the frequency of the memory to change. Pushing the scan button starts the memory scan with a hold time on each of about two seconds. It is possible to scan the complete memories or scan in any selected mode. Memories 11 and 12 can be used to set the limits of a programmed band scan. In general the scanning works quite well and certainly very much better than the scanning in the IC-745.

The CW operator has been given quite a bit of thought by the designers. Provision has been made

Front panel of the unit with the 'hatch' open to display all the controls.

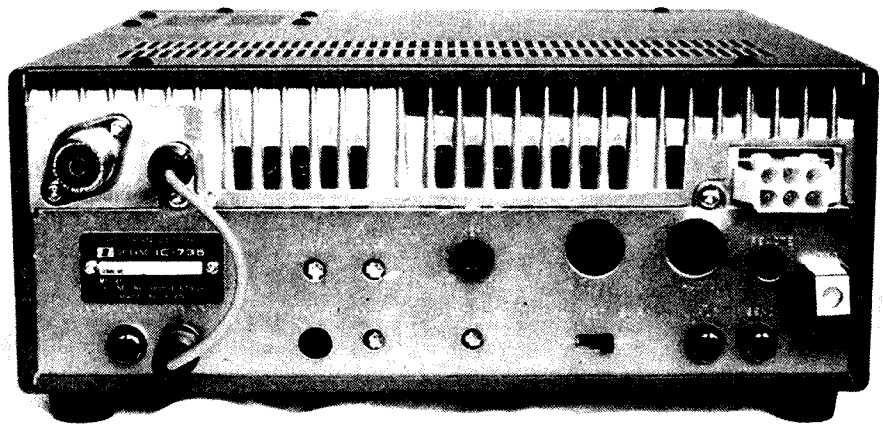
for the optional inclusion of an electronic keyer unit and full break-in keying is built-in. There are no relays, all switching being solid state. This makes full QSK possible and also gives smooth and silent VOX operation on SSB.

A sharp CW filter is a standard fitting with switching to use either this or the normal SSB filter for CW operation. Squelch is useable with all modes although its main purpose is with the FM mode. I feel that one of the few mistakes Icom made was to gang this control with the audio gain. The more logical RF gain is hidden with the lesser used set and forget controls behind the flip down plastic panel. These two should be reversed.

Some of the other handy additional features include: *receiver tone control, adjustment for dial light brilliance, power output switch to give either the normal 100 watts or 50 watts (a handy feature for novice operators), CW side tone volume control, 25kHz marker, scan timer switch and scan speed selector.* All of these controls are not available from the front panel, some like the tone and sidetone adjustments are accessible through holes in the cabinet while others require the top or bottom of the cabinet to be removed.

However I am leaving the best (I think) to last. For the first time since the IC-701, the 735 stays on the same frequency when modes are changed. This is something that I have commented on in each of my Icom reviews over the years. Now if only the R-71 had this same feature.

Well, with all of that, what should the 735 have? Only one thing that I can see; a handle! Here it is, a perfect portable transceiver that just invites you to pick it up and travel, but it takes two hands. The 751 and 745 both have a handle, the 735 should have one as well.



TECHNICAL DETAILS

Unfortunately the only technical information supplied with the review transceiver was a rather hard-to-read photo copy of a block diagram. With the aid of a new pair of bi-focals, the following was discerned. Antenna input to the receiver is via the attenuator and a high pass filter to the eight band pass filters. The high pass filter is by-passed for broadcast and long wave reception. The preamp is now diode switched. The 730 preamp was relay switched and was inclined to trouble with intermittent contacts. Push/pull 2SK125s are used in both the preamp and the first mixer. The conversion set up is 70.45 MHz first IF to 9.01 MHz where the main filters are located. The notch filter is also at this frequency. Third IF is at 455 kHz with an additional limiter and detector for FM reception. Band pass tuning is at 9.01 MHz and uses a VXO to shift this IF frequency in relation to the 455kHz IF.

For transmit, carrier generation is at 9.01 MHz. Two carrier oscillator crystals are employed, one for AM, FM and USB, the other for LSB, CW receive and CW transmit. The actual frequencies being slightly shifted to suit.

The PLL unit supplies all of the conversion heterodyne frequencies and is controlled by the CPU. This is powered by a lithium battery which has an estimated life of five years, therefore all memories and VFO frequencies are retained when all DC has been removed from the transceiver.

Transmitter output is via six relay switched low pass filters.

THE IC-745 ON TEST

The following test equipment was used to produce our figures on the IC-745. Yaesu YP-150 terminating RF watt meter, Drake W-4 through-line watt meter, Kenwood SM-220 monitor scope, AWA F242A noise and distortion meter, Daven terminating audio output meter and a Marconi TF995A/5 RF signal generator.

Frequency Stability

In common with most modern equipment, the IC-745 is very stable. With synthesised VFOs drift that would have passed as acceptable a few years ago is now non-existent. Tested several times over three days, drift did not exceed 50Hz on the several frequencies checked.

Power Output

Power output was measured with the transceiver running from the matching PS-55 power supply. Under full CW output this was able to supply 13.8 volts to the 745. Power was measured under CW conditions, the PEP output was measured on the monitor scope and two tone audio was fed into the microphone socket with the resultant RF out measured on the watt meter and then multiplied by two to give PEP. The results were as follows:

BAND	CW OUTPUT	PEP OUTPUT From Scope	Two tone output by 2 to give PEP
1.8MHz	124 W	130 W	120 W
3.5MHz	124 W	130 W	120 W
7.0MHz	124 W	130 W	120 W
10.0MHz	124 W	130 W	120 W
14.0MHz	123 W	130 W	118 W
18.0MHz	123 W	130 W	118 W
21.0MHz	124 W	130 W	120 W
24.5MHz	124 W	130 W	122 W
28.5MHz	124 W	130 W	122 W

The response from band to band is excellent. The transceiver ran reasonably cool during these tests. Like its predecessor the IC-730, the cooling fan comes on as soon as the transmitter is keyed and stays on for a short time after transmission has stopped.

The scope pattern was clean even with the audio well up. The power control behind the transparent panel allowed the power to be varied from full output down to about six watts. Handy for QRP operation. Subjective tests of the transmitted audio quality was carried out in the three modes. SSB was rated as good. The review transceiver was supplied with an HM-12 hand microphone. An SM6 desk microphone was also tried. Opinion was that the SM6 had a more balanced response but both microphones sounded rather restricted. Transmitted quality in the AM and FM modes was rated as fair. Both had a slightly edgey quality and were not comparable to other equipment tested recently. At this time, there is no way of knowing if this is peculiar to this particular transceiver.

Receiver Tests

The extention speaker output was connected to the terminating audio power meter and the noise and distortion meter. The power meter was set to 8 ohms. Residual noise with the audio gain set at zero was −58.5dBm. This is quite a reasonable figure and somewhat better than previous Icom transceivers tested. Audio power output and distortion were next checked.

Output power	Distortion
.5 watts	1%
1.5 watts	1.1%
2.0 watts	2.5%
3.8 watts	40%

These figures show the combined distortion from the product detector and the audio amplifier is very low up to the overload point. As a point of interest, I did this same test on an old FT-101 and found that the distortion was around 10 percent at less than 1 watt output. There is no doubt that modern transceivers sound very much better than their older relatives.

The received audio response in LSB mode was checked by tuning across the output of a crystal calibrator. The results were as follows:

100	200	300	400	1k	1.5k
−10	−3	−1	0	0	−1
2.0k	2.2k	2.5k	2.7k	3.0k	
−2.5	−3.5	−5	−7	−26dB	

This is very smooth but could be shifted a bit further away from the filter to give a slightly better high frequency.

The AM receive frequency response was checked with the following results:

40	50	75	100	200	400
−9	−6	−4	−3	−1	0
1kHz	1.5	2.0	2.5	3.0	3.5
0	−1	−1	−2	−2.5	−5
4.0					
−8dB					

These are excellent figures for any AM receiver. Feeding a good quality external speaker the results are very pleasing. Add to this the excellent tuning characteristics and relative lack of clicking as the synthesiser changes frequency produces very good AM results. The SSB filter can be selected for AM reception if required by depressing the narrow button.

The CW filter is included as standard in the 735. The response was checked with the following results:

200	300	400	600	800	1k
−20	−15	−10	0	−10	−20dB

The band pass tuning was next measured. With the control central, the SSB response is normal. In the USB mode turning the control to the left reduced the high frequency response while turning right reduces the low frequency response. At 1.5k the selectivity could be adjusted to give −25dB. The same −25dB response could be obtained at 800Hz. It should be noted that you can have either one or the other, not both together. The action of this control is quite useful but not as effective as the Kenwood system that allows independant adjustment of both high and low frequencies.

Receiver sensitivity and 'S' meter calibration were then checked. Signal to noise ratio was tested at 14.2 MHz. At 1uV input the preamp switched out the S/N was 18.5dB. With the preamp in, it was 23dB. At 28.5 MHz 1uV S/N was 11dB preamp out and 16dB preamp in.

'S' meter calibration was measured with the preamp in, and even then it took a signal of 2uV to reach S1. From there up the following results were obtained:

S Meter Reading	Signal input	dB increase
1	2uV	
2	2.5uV	2dB
3	3.1uV	2dB
4	4uV	2dB
5	5uV	2dB
6	8uV	4dB
7	10uV	2dB
8	10.6uV	4dB
9	30uV	6dB
9+10dB	80uV	8dB
9+20dB	300uV	10dB
9+30dB	600uV	10dB

The meter actually reads to S9+60dB but signal input readings were not measured up to this level, but for interest a 10kW broadcast four kilometres away reaches this (preamp out).

With the preamp out, the S meter was very sluggish but the receiver performance was quite acceptable. The preamp has a measured gain of 10dB at 14.2 MHz and the 20dB attenuator was checked at exactly that figure.

The AGC performance was next to be measured. With the preamp in, an increase of signal input from 1uV to 10uV resulted in a 2dB audio output increase and then from there up to the limit of the RF generator, no further increase in audio resulted. With the preamp out, the 1uV to 10uV increase was 14dB, then no further increase in output level from there.

AGC decay time from an S9 signal was 5 seconds with AGC slow and 1 second with AGC fast.

Receiver front end performance was checked for adjacent strong signal handling. A signal was injected into the antenna socket 3kHz off frequency and noise increase measured. With 100uV (equal to about S9+10dB) there was 0dB, with 1mV 1.5dB and with 10mV 15dB. An excellent result.

The antenna input was terminated with a 50 ohm resistive load and the receiver tuned over its entire range. All spurious signals were noted. There were twenty eight but of these only three were of any consequence. These were 23.039 MHz which reached S4, 14.471 MHz, S1 and 9.011 MHz, S1. All others were below an equivalent level of .25uV.

To conclude our tests, the FM receive performance was checked. The tests were conducted on 28.5 MHz. At 1uV input, modulated at 1kHz to give 4kHz deviation, the signal to noise ratio was 6dB. It took a signal input of 4uV to open the squelch. As the specified squelch sensitivity is .3uV something seems to have gone wrong here.

INSTRUCTION MANUAL

Our review transceiver was supplied with a draft copy only. It did appear complete but only time will tell what appears in the manual supplied with equipment sold locally.

CONCLUSIONS

It is interesting to look at the 735 in relation to the older 745. In many ways, it out performs the 745. Broadcast band and long wave reception is vastly better, both from a quality and sensitivity point of view. Memory scan now works in a logical way (see comments on memory scan in the 745 review). There are very few points of criticism with the 735. It is a very versatile little transceiver. If only it had a handle! Perhaps a few comments about the matching PS-55 power supply might be of interest. This worked well throughout the tests with the exception of a slight amount of mechanical hum. But perhaps Icom might consider a few improvements. Firstly, there is no provision to supply DC to anything other than the 735 transceiver. Once you have invested in a good regulated supply it is handy to use it to supply a two metre FM transceiver or some other piece of station equipment. I use a PS-15 which I have modified to give auxiliary DC output and front panel AC switching so that it can be used with all units in the shack. Last point, what about a speaker in the front panel of the PS-55. There is room for one.

Thanks to Icom Australia who kindly supplied this review transceiver.

EVALUATION AND ON AIR TEST OF THE ICOM IC-735 HF TRANSCEIVER — Serial No 0021

APPEARANCE

Packaging
*** Carton with foam inserts, but not up to other Icom equipment.*
Size
*** About as small as they come.*
Weight
*** Slightly less than its predecessor.*
External finish
*** Clean appearance and well finished.*
Construction quality
** Good quality boards and wiring. Reasonable accessibility.*

FRONT PANEL

Location of controls
*** Top marks. Some are hard to get at but excellent layout for front panel size.*
Size of knobs
** Small front panel means small controls, but mostly satisfactory.*
Labelling
*** Very clear.*
Status Indicators
*** New LCD display very comprehensive, but no indicators for many functions.*

VFO ACTION
Tuning Knob
**** Smooth action. Adjustable drag.*
Tuning Rate
*** Better than previous Icoms, but still a bit slow.*
Digital readout
**** New LCD display very good. 100Hz resolution spot on frequency.*
VFO stability
**** Less than 100Hz total drift.*

RECEIVER OPERATION
Memories
**** 12 tunable memories. Very useable memory scan also select ed mode memory scan.*
Band pass tune
*** Quite useful.*
Notch Filter
**** Works well for all modes.*
Spurious responses
**** Quite a few, but mostly very low level (see test section).*
'S' meter
*** OK with preamp in, sluggish with it out.*
AGC performance
**** Good action. No pumping detected.*
Signal handling
***** No cross mod heard except when noise blanker selected with maximum blanking.*
RIT
*** +/- 900Hz. No XIT. No frequency indication. Leaves you in the dark.*
Sensitivity
***** Excellent. See test section.*
Preamp/attenuator
***** Independently controlled. Gives good choice.*
RF gain
** Works well. Difficult to get at.*

NOISE BLANKER
Woodpecker
**** Excellent blanking, but introduces cross modulation.*
Ignition and general electrical noise
*** Works well, but level adjustment critical to avoid cross modulation.*

QUALITY OF RECEIVED AUDIO
Internal speaker
*** Very small speaker but well baffled giving quite fair quality.*
External speaker
NA Appears that no matching speaker available. Very good on my usual station speaker.
AM received quality
***** Special mention, it's excellent.*
Headphone output
**** Stereo phones compatible. Good level.*
Cooling fan noise
***** Does not operate in receive mode except after long transmission.*

TRANSMIT OPERATION
CW and PEP output
***** Excellent — See test section.*
Audio response
*** Good on SSB, fair on AM and FM.*
ALC action
**** Very good, no flat topping.*
Compressor
*** Audio processor only but quite effective if not pushed too hard.*
Metering
*** ALC, relative output and SWR.*
Relay noise
***** None. Solid state switching.*
VOX operation
***** Excellent and no clattering relays. Use it you will like it.*
CW operation
**** Full QSK. CW filter good sidetone.*
Cooling
*** Runs quite cool. Fan operates continuously in transmit mode with audible sound.*

MANUAL
Owners Handbook
NA Only rough copy available at time of review.

Rating Code: Poor * Satisfactory ** Very Good *** Excellent ****

AR

75th Nostalgia

"THE NIGHTINGALE SINGS"

A TRIBUTE TO THE LATE BILL MOORE VK2HZ

Ted Gabriel VK4YG
PO Box 245, Ravenshoe Qld. 4872

I first met Bill Moore in a Japanese Prisoner of War camp in Batavia (Djakarta) in 1942, when thousands of Australians from the three services laid down their arms after fighting a bitter rearguard action to defend their country against the tide of war which had engulfed Malaya, Singapore and the Dutch East Indies.

Bill was a quiet, friendly man who had a cheery smile for everyone who met him.

What has this to do with nightingales you may ask? relax and I will explain.

Bill was an RAAF radar officer serving in Malaya and when Singapore fell he was evacuated to Java.

After the capitulation and while allied servicemen were being rounded up he quietly collected radio components from wrecked aircraft and other equipment and smuggled the parts into the camp in Batavia.

From these components, with typical amateur ingenuity, he constructed a receiver powered by torch batteries which could be easily dismantled for shifting from one camp to another.

It was this receiver that brought the war news to Australian POWs working on the notorious Burma-Thailand Railway of Death, it gave hope in the days of gloomy despair, and lifted the morale of those cut off from their homeland and loved ones.

Without doubt this man's skill and concern for his fellow man gave many the will to survive this terrible ordeal.

"A Nightingale Sang in Berkeley Square" was a wartime tune made popular by Glenn Miller and his orchestra and the phrase; the "Nightingale Sings" was chosen as a code name for the extremely dangerous task of receiving the news from the BBC in India or Radio Australia and passing it on to the troops.

Since the Japanese use the word "newsu" to mean news this word was strictly taboo as were 'radio' or 'wireless'.

Accordingly the code word; "The Nightingale Sings" meant that there would be news before 'lights out' that evening.

The operator, Corporal Arch Caswell, RAAF, who was later awarded the British Empire Medal for his work, would retire under his mosquito net, produce the earphone from its hiding place, switch on the receiver and listen to the news.

While he was doing this there would be several unobtrusive "cockatoos" on watch to see that no guards approached the hut undetected.

Nothing was ever written down, the operator memorised what he heard and then sought out a certain officer who also memorised what he heard and then informed the Australian Senior Officer.

After the evening meal all officers in charge of working parties were called to the CO's quarters to receive orders for the next day and were then told the news.

The officers then went to their groups to prepare work lists for the next day and passed on the "Nightingale's Song" to their men.

Very strict discipline was necessary to protect the lives of those engaged in this dangerous operation, all men were to hear the news and then "forget it," anyone heard discussing it later would be immediately put on a charge and denied access for a long time.

No Australians were caught but an English officer found with a secret radio in one camp was beaten to death — those responsible were later executed after a War Crimes Trial.

Moving from one camp to another meant that the receiver had to be dismantled and the parts distributed amongst several people and concealed in such a way as to evade searches by the Japanese.

Some very ingenious methods were used, parts were concealed in musical instruments, in bags of rice, in hollowed out timber of boxes, in shoes or boots, while the torch batteries were concealed in bamboo carrying poles.

One particularly crafty move was made by concealing parts in the Japanese officer's telephone equipment which was not searched and which was maintained by Australian signals men since neither the officers' staff or the Japanese Military Police, the "Kempei Tai", understood much about this gear.

Considerable discretion had to be exercised when some Japanese, trying to improve their knowledge of English, would discuss items of news published in their propaganda newspaper with the prisoners.

After the midget submarine raid in Sydney Harbour several of us were accosted by a Japanese triumphantly waving his newspaper and saying; *"Nippon submarine torpedo centre pylon of Sydney Harbour Bridge!"*

After several minutes of feigned amazement and careful discussion one of our group produced an old postcard of the famous bridge and showing it to the guard said, *But as you can see there is no centre pylon under the Sydney Harbour Bridge".*

"Ah so", he replied, *"Nippon Submarine captain No 1 shot!"* (you could not win!)

Farewell Bill Moore VK2HZ, the man who made it possible, the Australian Servicemen who heard the "Nightingale's Song" — salute you.

AR

PHOTOGRAPHIC WINNER 1984-85

The winner of the $100 worth of Agfa film and/or video tapes was Sam Voron VK2BV8 for his collection of photographs on page 21, April AR.

NEW LITERATURE

CMOS DAC APPLICATIONS GUIDE—Free—64 Pages, is a guide to explain the use of CMOS D/A converters. The applications guide thoroughly covers theory, operation, and applications in greater detail than manufacturers' data sheets. The guide discusses basic CMOS DAC circuit design and function, as well as many of their specification such as output leakage current, digital-to-analog switching glitches, power supply rejection, and more.

The guide outlines considerations for using the devices in the conventional current-steering mode, in unipolar and bipolar modes, and how the correct voltage reference and precision output amplifier should be selected. Single-supply operation in the voltage-swtiching mode is also discussed. Following a chapter discussing the logic interface, twenty-five applications are described, from the most basic multiplier/divider to microprocessor interfaces with a 12-bit buffered multiplying DAC, and a microcontroller-to-12-bit DAC interface.

For further information contact Parameters Pty Ltd, Sydney: 41 Herbert St., Artarmon 2064 Phone (02) 439 3288. Melbourne: 53 Governor Rd., Mordialloc 3195 Phone (03) 580 7444.

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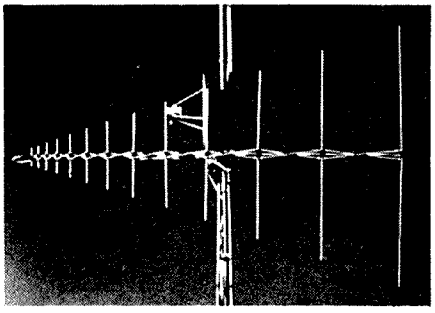

BROADBAND DIRECTIONAL VHF-UHF BEAMS

GFS Electronic Imports have on the market a range of high gain broadband VHF/UHF beam antennas designed to suit the requirements of a number of different applications where broadband operation and gain is required.

Known as the LOG-SP and LOG-S respectively, the two antennas in the range cover the needs of most users. The LOG-SP is a 13 element Log Periodic type beam with a gain of 11.5 dBi and a bandwidth of 65 to 520 MHz. Its power holding capability is 200 watts RMS over that bandwidth. Length of the LOG-SP's boom is 3.03 metres.

The smaller LOG-S is designed to cover the frequency range of 100 to 520 MHz and has just 9 elements. It is designed primarily for receive only applications although, with a different balun fitted, it can be made to handle 200 watts RMS on transmit. Gain of the LOG-S is 9.5 dBi and its boom length is 1.02 metres.

One very common application for the LOG-S is its use in conjunction with programmable scanning receivers to provide these units with greater overall performance.

Price of the LOG-SP is $194 plus $14 freight while the LOG-S is $136 plus $14 freight.

For further information on these antennas contact the distributors: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic, 3132, Phone: (03) 873 3777.

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NOW USED BY RESCUE SQUAD

Microcomm's model SX-155 programmable 160 memory HF/VHF/UHF scanner is now in use by one of Southern Victoria's busiest rescue organisations, the Southern Peninsula Rescue Squad, located at Sorrento, 60 kilometres south of Melbourne, on the Mornington Peninsula.

From December through to February the Mornington Peninsula's population is multiplied many times by the influx of summer holiday makers. It offers both the relatively peaceful waters of Port Phillip Bay as well as the somewhat more turbulent surf beaches of Bass Strait.

AR SHOWCASE

During the summer holiday period the squad, operated entirely by volunteers, is kept continuously busy by incidents which range from boating mishaps, car accidents, swimmers caught in trouble to rescueing people trapped on cliffs. The squads 25 members average a total of around 130 rescues each year. Their equipment includes a Bell 206 Helicopter, 2 boats, a four wheel drive vehicle as well as other pieces of ancillary equipment such as the jaws of life.

The squad must liaise with many other services including the Police, SES, Coast guards, Fire Brigade and Surf Lifesaving clubs.

This is particularly the case while they are on the move. Consequently they found themselves with the requirement for a programmable pocket scanning receiver with both a large frequency range and high number of memory channels. The Microcomm SX-155 fitted this area quite well, particularly because of its 160 memories and HF/VHF/UHF frequency coverage. It also offered rechargable batteries, high sensitivity and heavy duty extruded aluminium construction.

Shown in the Squad's Bell 206 Jetranger Helicopter, VH-BLD, are the pilot Bruce Taylor, and communications officer Darrell Williams. Both Bruce and Darrell have been with the squad since it started in 1970 when it operated an old Bell 47J Helicopter.

For further details on the Microcomm SX-155 Pocket scanning receiver contact: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic, 3132, Phone (03) 873 3777.

AR

Photograph by Ken McLachlan VK3AH

Andy VK3DPJ at work in the Am-Comm workshop, 69 Canterbury Road, East Camberwell.

EXTRA SERVICE FACILITIES

Am-Comm has expanded its service facilities. Andy Chan VK3DPJ has been appointed Service Manager. His experience spans over 20 years, dealing with all facets of radio communications equipment, including repeaters and marine radars. Andy has held positions extensively in the Pacific region.

The current service facilities at Am-Comm Electronics is fully equipped to cover all Icom, Kenwood and Yaesu customer needs. AR

ITU AND IARU

THE INTERNATIONAL TELECOMMUNICATIONS UNION

The ITU is an international organization, and is a specialised agency of the United Nations. It is, however, far older than the United Nations.

The Convention establishing the ITU defines its purposes as:

- to maintain and extend international co-operation for the improvement and rational use of telecommunication of all kinds;
- to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunications services, increasing their usefulness and making them, so far as possible, generally available to the public;
- to harmonise the actions of nations in the attainment of those common ends.

Much of the work of the ITU is undertaken through international conferences and meetings. The members of the Union meet at intervals of normally not less than five years at a Plenipotentiary Conference. This is the supreme authority of the ITU and lays down general policy. The Plenipotentiary Conference reviews the Union's work since the last conference and revises the Convention if this is considered necessary. It elects the members of the Union who are to serve on the Administrative Council, the Secretary-General and the Deputy Secretary-General as well as the members of the International Frequency Registration Board (IFRB).

The detailed regulatory work is carried out by administrative conferences. These may be either world administrative conferences or regional administrative conferences. The conferences review the Administrative Regulations which are the Telegraph Regulations, the Telephone Regulations and the Radio Regulations. These are the regulations which govern the international operation of the three modes of communication.

The Administrative Council is composed of 36 members of the Union (presently including Australia). The Council normally meets for about a month once a year at the ITU Headquarters in Geneva and at these formal sessions the Administrative Council acts for the Plenipotentiary Conference and generally supervises the administrative functions and co-ordinates the activities of the four permanent organs of the ITU and examines and approves the annual budget.

The four permanent organs are the General Secretariat, the IFRB and the two Consultative Committees, the CCIR (the International Radio Consultative Committee) and the CCITT (the International Telegraph and Telephone Consultative Committee). The two CCIs are the technical committees that issue recommendations for the guidance of the Union. The General Secretariat is responsible for the administrative arrangements at all conferences.

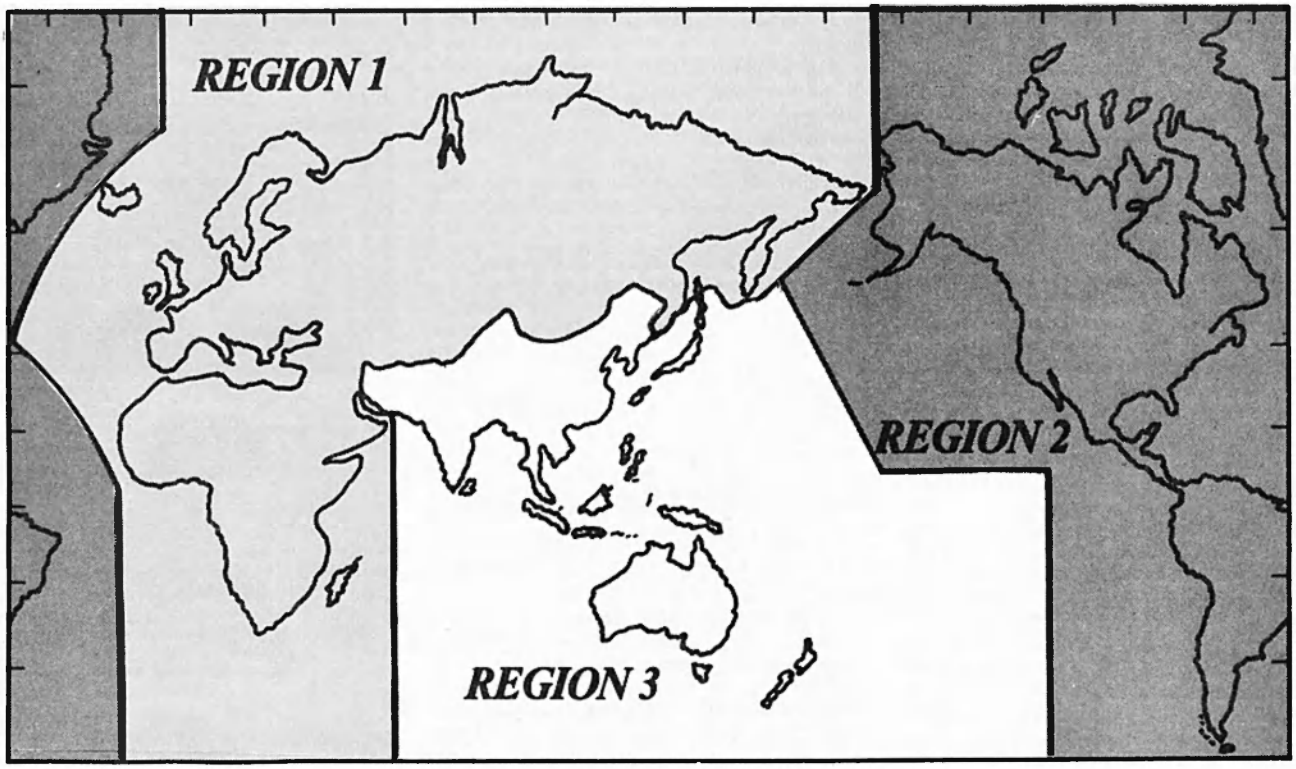
From September to December 1979 a World Administrative Radio Conference was held in Geneva. This conference made a general revision of the Radio Regulations including the International Frequency Table.

This was the first general revision in 20 years, though specialised Administrative Radio Conferences had been held in the intervening period.

INTERNATIONAL AMATEUR RADIO UNION

The amateur service has its own international organization to promote its worldwide growth and to represent its interests at the ITU if this should be necessary. This is the International Amateur Radio Union (IARU) which was founded in 1925. Its headquarters are located in the U.S.A. but it has separate representation in each ITU region (3). Its membership is made up of national societies rather than individuals, just as the members of the ITU are national administrations, not radio services or individuals.

In a similar way to that in which the ITU regulates and co-ordinates frequency allocations as a whole, the IARU regulates and co-ordinates amateur activities within individual amateur bands, albeit on a voluntary basis, so as to cater for the many interests within amateur radio.



EDUCATION

People wishing to enrol in Morse code or theory instruction classes are advised to check with their division of the WIA (see WIA directory in this book for addresses).

Each WIA division should be able to also recommend theory books helpful to those studying either for a Novice licence or the AOCP theory.

The Federal WIA Education Co-ordinator, Brenda Edmonds VK3KT handles national matters relating to the education field. Her role includes education policy matters in connection with DOC examination syllabuses and overall examination problems.

Other services provided include liaison with DOC on matters raised by WIA divisions and members, preparation of Trial Examination papers (Novice and AOCP), and distribution of sample CW examination tapes provided by DOC.

Mrs Edmonds can be reached via the WIA Executive Office, PO Box 300, Caulfield South Vic., 3162, direct via her callbook address, or on the Education Net each Thursday evening, 3.685MHz at 1130 UTC.

She would urgently like to hear from clubs and schools starting theory classes.

Brief History of the R

Maxwell Hull VK3ZS,

They shall grow not old
Age shall not weary th
At the going down of
We will re


Courtesy Herald & Weekly Times Pty Ltd
1981


Courtesy Victoria Police
1964


Courtesy Herald & Weekly Times Pty Ltd
1963


Courtesy Herald & Weekly Times Pty Ltd
1976


Courtesy Herald & Weekly Times Pty Ltd
1969


Courtesy Ken McLachlan VK3AH


Courtesy Broadcast Station 3AW
1973


Courtesy Herald & Weekly Times Pty Ltd
195


Courtesy RAAF
1971


Courtesy Herald & Weekly Times Pty Ltd
198


Courtesy Telecommunications Journal
1979

These words were written by Robert Laurence Binyon, and would be known to most Australians from the Boar War to the present time. Born in England on the 10th August 1869, he was a poet, art critic and literary contributor to the "New York Times". He was the author of 20 books of poetry. In 1940 he held the position of Byron Professor of the University of Athens. He died on the 10th March 1943, at the age of 72 years.

The Second World War had come to an end in 1945 and the Federal Headquarters of the WIA, located in NSW from 1935 to 1938, had re-commenced operation in Victoria. Its post-war officers were R Marriott VK3SL (President), Alec H Clyne VK3VX (Federal Secretary) Tom D Hogan VK3HX (Treasurer), Charles Quin VK3WQ and A R Williams VK3WE.

The Executive's immediate objectives was to reorganise the Divisions of the Institute in each State, procure the release of all pre-war amateur frequency assignments and organise band-planning for future radio amateur operations in Australia.

The amateurs pre-war equipment had been sealed and lodged in local Post Office Stores (and other Government storage areas) for the duration. Under pressure from the Wireless Institute of Australia frequencies used by amateurs pre-war were slowly relinquished by the defence and maritime services and re-allocated by the Post Master General's Department for use by radio amateurs. The 'imprisoned' equipment was released for return to the owners and feverish activity ensued to 'get back on the air'.

The first post-war Federal Convention was held in Melbourne in 1946. At this Convention the NSW Division proposed that the Executive be authorised to organise a contest to perpetuate the names of those of the amateur ranks who had lost their lives in the service of their country, and that a trophy be provided bearing the names of these amateurs. Needless to say, the proposition gained the full support of all the divisions. The Federal Council approved of the name — Remembrance Day — for the contest as being most suitable.

It was to be two years before the project 'got off the ground' during which time the Federal Council agreed to the contest being a competition between States, the winning State to hold a perpetual trophy for a year, and to receive a special Remembrance Day Certificate. The basic rules were drawn up by the late Major W (Bill) Mitchell VK3UM, with the assistance of the then Federal Contest Manager, E H Jenkins VK3QK. The trophy was designed and constructed by the late George Glover VK3AG, QM, (honorary Life Member of WIA) with some assistance from George Manning VK3XJ. The certificate was designed by the late Mr Frank Manly, a British engraver with the Commonwealth note printing branch.

The weekend nearest to the 15th August (D-Day in the south west Pacific area of World War II) was selected as the most appropriate time to hold the Remembrance Day Contest and the first event was held in August 1948. It was an immediate success and has remained Australia's most popular contest. It has perpetuated the memory of the following radio amateurs —

VK2BQ F W S Easton RAAF VK2JV C D Roberts AMF VK2VJ V J E Jarvis RAAF VK2YK W Abbott RAAF VK2AJB G C Curle RAAF VK3DQ J D Morris AMF VK3GO T Stephens RAAF VK3HN J McCandlish AMF VK3IE J E Mann RAN VK3NG N E Gunter AMM VK3OR M D Orr RAAF VK3PL J F Colthrop RAAF VK3PV R P Veall AMF VK3SF S W Jones AMF VK3UW J A Burrage RAAF VK3VE J E Snadden RAAF VK4DR D A Laws AMF VK4FS F J Starr RAAF VK4PR R Allen RAAF VK5AF C A Ives RAAF VK5BL B James RAAF VK5BW J G Phillips AMF VK6GR A H G Rippin RAN VK6JG J E Goddard RAAF VK6KS K S Anderson AMF VK6PP P P Paterson RAAF.

Being such a popular Contest has not been without its traumas. Many debates over the years have taken place within the WIA Federal Council about the rules. Claims have been made that they favour one division in respect to another, or the larger with respect to the smaller ones. Many variations to the rules have been implemented and additional sections included over the years to encourage participation and interest. The various Contest Committees played an important part in this, and continue to do so.

The Contest's popularity has never really waned although percentage of operation has varied. A summary of the annual winners follows —

Australian Capital Territory (VK1) 1977 — 1978: New South Wales (VK2) 1948: Victoria (VK3) 1967: Queensland (VK4) 1963, 1970, 1971: South Australia (VK5) 1954, 1955, 1964, 1965, 1972, 1974, 1975, 1976, 1979, 1980,

Remembrance Day Contest

ZS, WIA Federal Historian

ld as we that are left grow old
y them nor the years condemn
of the sun and in the morning
l remember them.

1957

1984

Courtesy Herald & Weekly Times Pty Ltd

1961

Courtesy Bud Pounsett VK4QY

1982

Courtesy Herald & Weekly Times Pty Ltd

1975

Courtesy Ken McLachlan VK3AH

1983

Courtesy Ken McLachlan VK3AH

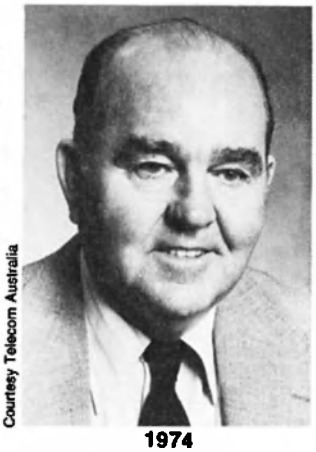
1972

Courtesy Herald & Weekly Times Pty Ltd

1980

Courtesy Herald & Weekly Times Pty Ltd

1958



Courtesy Telecom Australia

1974

1981, 1982, 1983, 1984: Western Australia (VK6): 1952, 1953, 1956, 1957, 1958, 1961, 1962, 1966: Tasmania (VK7) 1949, 1950, 1951, 1959, 1960, 1968, 1969.

In 1957 the Federal Executive inaugurated the idea of 'going to air' prior to the Contest with an official opening address given by some notable person, firstly to add prestige to the event and secondly as a means of keeping the name of amateur radio in the news. In the early years the address was preceded by the National Athem and the introduction of the speaker by the Federal President or another official of the WIA. The information was given to the press. These arrangements do not appear to have been continued in more recent years. The following distinguished people have willingly given of their time to open the Remembrance Day Contests since 1957 —

1957 — His Excellency the Lieutenant Governor of Victoria, Lieutenant General The Honorable Sir Edmund Herring, KCMG, KBE, DSO, MC, ED.

1958 — The Right Honorable Robert G Menzies, Prime Minister of Australia.

1959 — His Excellency, Colonel Sir Henry Abel Smith, KCBO, DSO, Governor of Queensland.

1960 — The Right Honorable, The Lord Rowallan, KT, KBE, MC, Governor of Tasmania.

1961 — His Excellency, Lieutenant General, the Honorable Sir Eric Woodward, KCMG, Governor of NSW.

1962 — His Excellency, Sir Charles Gairdner, KBE, CBE, KCMG, KCVO, Governor of Western Australia.

1963 — His Excellency, Sir Rohan Delacombe, KBE, CB, DSO, Governor of Victoria.

1964 — Rupert H Arnold, QPM, Chief Commissioner of Police in Victoria.

1965 — Major General Ivan N Dougherty, CBE, DSO & Bar, ED, B. Economics, Director of Civil Defence in New South Wales.

1966 — Brigadier A E Brown, CMG, OBE, Director of the Pacific Region of the Commonwealth War Graves Commission.

1967 — The Honorable Allen Fairhall, MHR, Minister for Defence.

1968 — The Honorable Sir Paul Hasluck, MHR, Minister for External Affairs.

1969 — The Honorable Phillip Lynch, MHR, Minister for the Army.

1970 — Horrace S Young, Controller Radio Branch, Central Administration, Post-Master General's Department.

1971 — Air Vice Marshall Sir Richard Williams, KBE, CB, DSO.

1972 — G Maxwell Hull VK3ZS, Federal President and Honorary Life Member of the Wireless Institute of Australia.

1973 — Myles F E Wright, Chairman, Australian Broadcasting Control Board.

1974 — Senator Reginald Bishop, Postmaster-General of the Commonwealth of Australia.

1975 — The Right Honorable E G Whitlam, Prime Minister.

1976 — The Right Honorable Malcolm Fraser, Prime Minister.

1977 — Horrace S Young, Assistant Secretary, Radio Frequency Management Branch, Department of Posts & Telegraph.

1978 — His Excellency, Air Marshall Sir Wallace Kyle, GCB, KCVO, CBE, DSO, DFC, Governor of Western Australia.

1979 — Richard E Butler, Deputy Secretary General of the International Telecommunications Union (ITU).

1980 — The Honorable Anthony A Staley, MHR, Minister for Posts & Telegraph.

1981 — The Right Honorable Ian Sinclair, MHR, Minister for Communications.

1982 — David Jull, MHR, Member for Bowman, Chairman of the Federal Government Communications Committee.

1983 — Bruce Bathols VK3UV, Federal President, Wireless Institute of Australia.

1984 — The Honorable Michael Duffy, MHR, Minister for Communications.

The opening address for the 1985 Remembrance Day Contest will be presented by Richard L Baldwin W1RU, President of the International Amateur Radio Union (IARU). Mr Baldwin will also be visiting Australia during the WIA's 75th Celebrations this year.

The 75th Anniversary Year of the WIA records the thirty-seventh Remembrance Day Contest. On this occasion the Institute looks forward to a high percentage of participation.

WE WILL REMEMBER THEM

AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

As announced at the bottom of last month's notes, I will be continuing to write this segment of the magazine and look forward to the future and the assistance that has been received from so many.

Entering into the fifth year of gathering, writing and correlating information is not getting easier in lieu of the band conditions which, to the newcomer and old timer alike, are not very lively, but there is DX there and it is going to seem a lifetime before an amateur, who is newly licensed, or someone who has recently been bitten by the DX "bug", will notch up their first 100 countries.

It will seem an eternity before you will receive confirmations, but take heart, as the majority will come. Remember that many countries have only access to their QSL bureau for inward and outward cards and all packaged cards are sent by surface mail.

If you are a real DXer you will acquire lots of patience and suffer many frustrations before you gain your DXCC but don't give up as you will make many life long friendships along the way. Good luck!

DESPERATION

Greg Wilson N4CC, is offering one year's subscription to QRZ DX for the first person to supply him with information leading to a QSL confirmation from Hal VS9PJV, for 1971. Readers dig deep and think hard, as QRZ DX is an excellent weekly publication. Greg would also appreciate to know if anyone was a recipient of a VS9PJV card. His QTH is Route 2, Box 553-A, Yulee, FL 32097 USA.

GOUGH ISLAND

A diary note for October. Art VK3UX, reports that Sam ZS2SI, has indicated that Gough Island 40 10 Sand 9 45 W may be activated sometime in October and the call will be ZD9GI. QSLs to ZS2SI.

MANY CALLS — MANY LOCATIONS

Many VKs have worked Jose Ahumada, however many may not recognise the name but surely LU2ZY from the South Sandwich Islands, will ring a belli

Born in 1926, Jose lived all over Europe with his family in the 1930s. He obtained his law degree in Argentina then entered the Argentina Diplomatic Corps in 1951. He has held a licence for forty years and been the IARU Liaison Officer for thirty years as well as serving as the General Secretary of the Radio Club of Argentina.

Jose has operated as LU2ZY (1955), LU3ZY (1977) and LU5ZI (1981 and 1983) from the South Shetland Islands, LU8DX and LU1ZE from Staten Island and the Antarctic respectively, LU5ZA, LU1ZA (1983) and AZ5ZA in 1984 from the South Orkney Islands. Other calls he has held include LU0CQ/MM, LU2ZA, LU2ZC and LU2ZS. His first call was LU8CW, with which he made DXCC number 252 in 1951. No mean effort!

He is now retired and lives at either his Buenos Aires or Springfield QTH with his XYL Patricia LU3YL, sometimes heard LU3YL/W4. Patricia has beaten Jose to the DXCC Honour Roll with a score of 311; Jose is six behind her but is sure to make it up from the Buenos Aires QTH with equipment such as a TR7, TS930, Alpha Linear and a TH7DXX at a height of fifty-five metres.

Jose has given many a new country and I am sure all DXers wish him a very healthy and happy retirement. Also a few more DXCC countries to bring him on the Honour Roll with Patricia.

The above was adapted from the Carolina DX Association Bulletin and QRZ DX, for the benefit of those that may possess cards from this amateur duo.

DAMAGED CARDS

All cards for NG84O have been mailed to those who supplied envelopes and IRCs. All others are en route to the bureaus. Inadvertently some printer damaged cards got into the mails, these can be replaced by either returning the card or providing log data to K6LAE with an envelope and IRCs. Please do not hassle Dick NG6GO about this matter.

ZC4 AGAIN

Don Search W3AZD, in charge of the ARRL DXCC Desk, has nominated the following ZC4 calls that are definitely valid for DXCC purposes as a Sovereign Area Base.

The calls that will count for a new country include ZC4AB, AK, AKR, AM, ASG, AU, BI, BSG, CB, CI, CN, CS, CT, CW, CZ, DA, DY, EPI, ES, ESB, ESG, FE, GB, GM, HC, HMS, HS, ID, IK, IO, JB, JE, JH, JU, JV, KF, LC, MR, MT, NL, PC, PM, RB, RM, RP, SC, SJ, SS, TEN, TI, TX, UHF, VHF, WD and WW.

Yours truly hasn't had time as yet to seek out the ZC4 cards, or seek out the current active stations.

SATELLITE DXCC

The ARRL have announced that "Contacts made via AMSAT and OSCAR 10 will be now accepted for the Satellite DXCC Award. Credit is retrospective to the date OSCAR 10 first became available for contacts". The report on W1AWs ARRL DX Bulletin remarks that the certificate is a non-endorsable, one time only award and applicants must submit forms CD164 and CD253, which are obtainable from Newington by supplying a 190 x 100mm self addressed envelope and adequate postage.

BEEN THERE, BUT COULDN'T TRANSMIT

All DXers hearts went out to Erik SM0AGD, and crew over the St Brandon effort that was a non event, even though they had received provisional permission from the Mauritius Department of Telecommunications with the promise of a licence on their arrival.

On arrival in Mauritius, a 3B8 licence was issued but they were told that St Brandon and Agalega were "out of bounds" to visitors, hence no licence. Every effort was made through diplomatic channels to "officialdom" but no definite answer was given.

They met the skipper of an Australian boat, the AURA II, who was tripping to and from St Brandon with scuba divers and with the Immigration Officer's approval, they went along with the hope of permission being granted and that if Jacky 3B7CF came along, his call could be used. Jacky, the day prior to departure, was alerted of the fact that he too was not permitted to operate from the area.

Erik and Thor LA7XB, made the 77 hour trip and even went ashore and erected a vertical in case permission was granted. Permission was never granted and the people that pirated 3B7 during the period never went through the trauma and frustration that Erik and Thor endured.

It is a pity that Erik, one of the world's best DX operators and QSLers, who has given so much to the hobby from various parts of the globe, was "conned" into making a fruitless and expensive trip to give someone a new country. Thank you Erik and congratulations on your integrity not to transmit and hope you get accreditation at a later date, as has been done so often, in similar situations in the past.

It is hoped that your faith in the hobby has not been destroyed by "officialdom and red tape" but being aware of your tenacious and determined character I am sure you will be heard from another prime location in the near future.

KE5KK is not the Manager of 3B7CD that was a pirate station.

ENTERPRISING

It was interesting to see an article entitled "Recycling Amateur Radio QTHs" in the May edition of World Radio where Mary N6KLM, has set herself up in the business of becoming a broker for the buying and selling of amateur QTHs.

Mary, who is becoming an avid DXer and is well on the way to acquiring her Extra Class licence, is working on the theory that it is a waste to remove an antenna installation and then go through the trauma of getting new permits etc. So amateurs sell to amateurs and buy from amateurs. It is a brilliant idea but not a first though Mary!

Many years ago, Keith VK3ANI and his XYL Pam, now VK6KN, had difficulties selling their QTH. No better place than Hamads in this news magazine, he thought. A evening city paper columnist, with a prime position in the paper that money couldn't buy, picked it up and reported it. The phone ran hot and the property was quickly sold with no agent's fees!

POLICE/FIRE GAMES

The San Jose (California) State University Amateur Radio Club will be on the air this month under the call W6YL as a special event station for the 1985 World Police/Fire Games. These games have attracted some 10,000 athletic participants from around the world.

Main operation of the station will be from 1900 UTC on the 4th August to 0700 UTC the next day. This pattern will continue until the 7th, then limited operation until the close of the event on the 11th. Frequencies to watch are 7.240 and 14.270 MHz for SSB. CW is catered for on 7.125 and 14.040 MHz.

To gain a commemorative certificate, send your QSL and a large self-addressed envelope with two IRCs to SJSU ARC, c/- Student Programmes and Services, PO Box 2, San Jose State University, San Jose, California, CA 95192 USA.

DILEMMA?

Have you received your CE0AA card yet? Mickey CE3ESS, has a hunch that mail to PO Box 700 is being "lost" and suggests either of these addresses. Radio Club de Chile, PO Box 13630, Santiago, Chile or Mickey Gelderstein, PO Box 9834, Santiago, Chile. This column recommends that it be sent Registered Mail. The expense is high, but San Felix will not be heard again for a long time.

TEN METRES NOT DEAD

Ian ZD8LJ, made 436 contacts in five hours of operating. Not bad operating and just under 10 percent were on 10 metres. He hopes to return later this year and stay for one week. It pays to listen and scan the bands.

RUGGED UP — NOT REALLY

The latest edition of Weather News, the house journal of the Bureau of Meteorology has a photo of the Macquarie Island Bureau's staff. Included are Denise VK0YL and Graham VK0GC, looking very fit in casual dress. The rubber boots really don't suit Denise but I am sure they would keep the feet dry. It is hoped she can appear as soon as duties permit.

MONACO

Valid licences are only issued to residents of Monaco. Due to the operations of some operators of late purporting to be licenced, the Monaco Amateur Radio Society will be making representations to the ARRL. This of course refers to the cards being sent out by EA5AGY for an operation by EA5FDO, who was signing 3A2TO. The endorsement of 103/3A means nothing to the authorities and the latest issues are in the 3A2T-series.

ENTHUSIASTS OF 160 METRES

One for the diary. Manfred DK9CG/TK, will return to activate Corsica next month with the accent being on 160 metres. Write and set up a sched now!

PITCAIRN ISLAND

Jim G3OKQ/VR6JR will be active on the bands as time permits. Jim is on the island, in a voluntary capacity, to assist in repairing the wharf. QSLs to his home call will be attended to when he returns.

GUAM/KH2

A note has been received from Ed KB6DAW/KH2, Secretary of the Mariannas Amateur Radio Club (MARC), which supports the island communications system for many diverse activites.

Some of the active amateurs on the island include WH2ACV, KG6RN, KG6JJH, AH2AN, KS0C and KB6DAW/KH2 on SSB. CW is not forgotten as K0AX, KS0C and AH2G are exponents of that art with W1YRM and KG6DX concentrating on OSCAR.

Ed notes that being in the Pacific directly north of Melbourne has a few advantages, as in the two years he has been an amateur, he has notched up Worked All States (WAS) and some 205 countries.

Confirmations are low, as only 124 (60 percent) have come to light so far.

All of the operations like to have a "rag chew", so if you hear a Guam station, give them a call and have a chat. Of course Ed notes that anyone who has the opportunity of visiting the island would have a lot of fun on the radio as DX is usually open to some part of the globe.

MAIDENHEAD SQUARES

This has taken on and of the 324 "Fields" some SM stations have really got amongst it. SM3CWE has 42 on 1.8, 122 on 3.5, 139 on 7.0, 220 on 14, 158 on 21 and 128 on 28 MHz. Not a bad effort!

So if you hear an SM know your Maidenhead reference to save embarrassment.

BITS AND PIECES

Doug J6LDB was formerly T30DB. ** II2ARI was celebrating the 111th anniversary of the birth of Marconi. ** KG4DX is now QRT. ** Don W6AM, the Gentleman Dxer sadly became a Silent Key in May at the age of 86. ** UA3SYC/1 is another Franz Josef Island Station. ** All NCDXF beacon reports go to W6RQ. ** 4X85WSE was active from Tel Aviv for the World Stamp Exhibition. ** Ross WB6GFJ/VK4BZZ/FO0FB, a WIA member will be visiting VK this month. ** Francis FW8AF, is due to go QRT shortly leaving no activity from Wallis Island. He can be heard daily around 14.275 MHz working F8RV. QSL to PO Box 92, Matautu, Wallis Island, via Noumea, South Pacific. ** More TA and BY stations appearing on the bands. ** 3X0HAB, generally above 14.300 MHz, will be QRV until December, then home to DL before embarking to ZL. ** Listen for AH3AC/TF who hopes to activate Jan Mayen this month. Call unknown. ** Another to listen for over the next few months is G4RWJ/SU. ** XZ2HN is quite active?? ** 9X5WP gives his QSL info as WB6VKD.

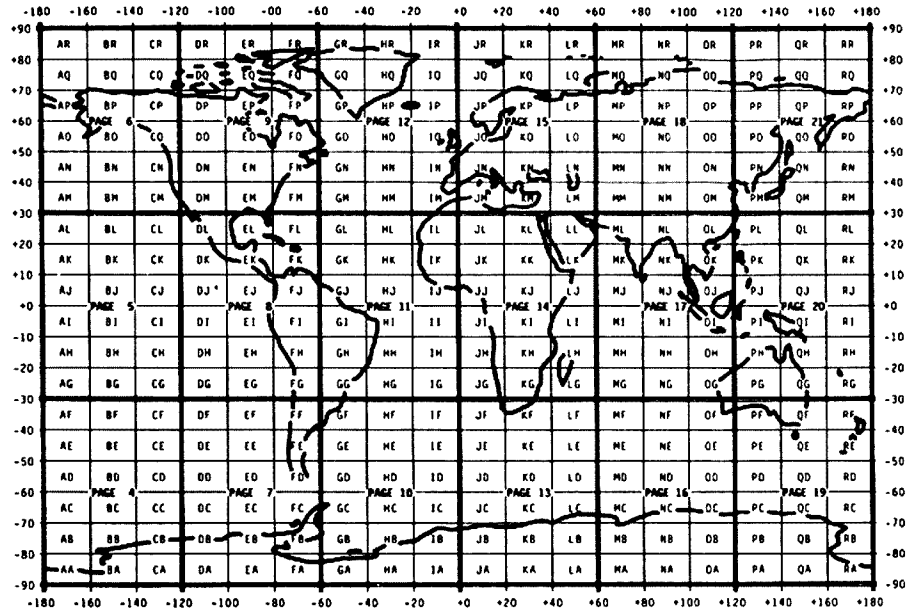
QUIET BANDS

According to Steve VK2PS, WIA Federal Councillor for the VK2 Division, the band conditions have been very poor. Steve busy as he always is with Institute affairs, managed to work a few interesting stations such as GW2SB, HG19HB*, JW6VDA — QSL via LA5NM, KL7JA, NA6T/KH4 (Midway Island) QSL to KD7P, SP6HEK and YO2BEH on twenty metres. Forty metre contacts included CE0ZIG*, CT3DZ, FM5CD* and YV4DJZ. Down on 160 metres 3D2RN* was the only station logged. *(* donotes CW).*

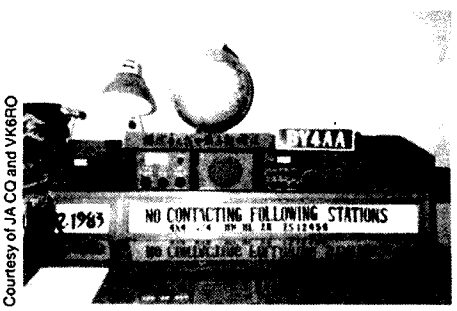
Steve had time to browse through some of the cards he received such as AH8/DL1VU, GB2FAS (Farnborough Air Show Special Station), HA5TL, HL9TA, IT9AUA, LZ1BC, SP40LWP (Commemorating 40 years of the Polish Army) and VK9LH.

Joy VK2EBX, has a few snippets of interest that are worth passing on including the correct address for FG7CBS, QSL Manager for FG4CB/FS which is Adolph Brin, Route de Colombier, F-97133, St Barthelemy, French St Martin. Another QTH of interest Joy has sent is that of OX3KM. QSL to PO Box 103, Godhavn, Greenland 3953.

Our YL poet has been getting some rare ones such as Nanda 4S7YLR, 9M2MM, DJ0CP (YL), HH7PV, PA0QX and Chitra VU2CVP on 20 metres. Forty has yielded A35PP QSL via ZL4QS, CE0AE — WA3HUP, C6ANU, Barbara CP5LE, EA8ANT, HC5EA, VY1CW, XF4MDX — XE1MDX and Peter ZK2IK, whose QSL arrangement is 16 Jessie Street, Petone. NZ.



Maidenhead Field Map — The Radio Amateur's World Atlas containing 32400 Maidenhead Locator Squares is available from WIA Divisional Offices.



Courtesy of JA CQ and VK6RO

The operating console of BY1PK.

SILENT KEY

All DXers will be shocked to learn of the sudden death of Father Dave Reddy CE0AE. Dave suffered a massive heart attack on the 4th June and passed away two days later.

Dave was an avid and meticulous DXer, as well as a thorough gentleman at all times, that experimented on bands from 160 to 6 metres. He gave most VKs and Pacific stations, in the last decade, Easter Island as a new DXCC Country and was willing to make scheds at any hour of the day or night to accommodate a new country for anyone that requested it. This was no mean feat, as the hours of his occupation were very demanding.

His QSLing was ably carried out by his dear friend, Mary Ann WA3HUP, with whom he had regular scheds to transfer his logs, so there would be no holdups in his cards being returned to the recipient.

A sad loss to the fraternity and the populace of Easter Island, Dave's cheery voice will be missed by all amateurs worldwide.

HEARD ISLAND AGAIN

According to reports, the Nella Dan is departing from Hobart on the 16th September, enroute on a Marine Scientific Cruise. Heard Island will be the first port of call, with an expected arrival time of the 29th September, departing next day, after a meteorologist, glacierologist and others in the group have been put ashore, possibly by helicopter, to conduct short scientific studies.

This vessel is scheduled to rendezvous with another Antarctic tripper, the Ice Bird, prior to its return to Heard Island on the 29th October. It is scheduled to leave again on the 5th November, call in at Kerguelen Island next day and return to Hobart on the 22nd of November.

At this juncture, it is unknown if any amateur activity will be involved during the cruise.

VIARC

The Vienna International Amateur Radio Club's first Newsletter and an accompanying letter from the Station Manager, John NK4N/OE3ZOC, who also doubles as the Newsletter's Editor, provides some interesting reading.

John notes that it would help them considerably if members requesting cards from 4U1VIC, send them to the Austrian Bureau and not the operator. If sent direct, please two IRCs, not Austrian stamps, as amateurs and SWLs generally send stamps to the value of seven schillings, which isn't adequate for air mail postage and secondly they cannot be posted at the United Nations Post Office in the Vienna International Centre. With two IRCs, the club will post air mail with UN Vienna stamps.

John mentions that the club appreciates the service provided by the Austrian Radio Club, in assisting, as being the pick-up point for their cards and it really speeds cards up if the operator's name is on the QSL.

Some good news is that they are proposing to erect a three band beam in lieu of the vertical, that has done such a sterling job. This however will take time and it may be some time before it appears and the signal is more easily heard in the Pacific.

THANKS

Sincere thanks are extended to the following that have allowed these notes to be written. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including WEATHER NEWS, CQ, cqDX, QST, RADCOM, JARL NEWS, JA CQ, 73 for Radio Amateurs, BREAK IN and VERON.

Members who have contributed include VKs 2PS, EBX, 3FR, YJ,YL, WB6GFJ/VK4BZZ/FO0FB and G3NBC. Overseas amateurs include KB6DAW/KH2, G1EOD, ON7WW and ZLIAMM. Sincere thanks to one and all.

AR

VHF UHF - an expanding world

Eric Jamieson, VK5LP
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All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	Call Sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland
144.480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.000	VK6RVF	Roleystone

A note in the "West Australian VHF Group Bulletin" for me drew my attention to the wrong frequency for VK6RPH and this has been corrected in this issue to 52.460. It was also mentioned the 6 and 2 metre beacons VK6RPH are only at Nedlands CAE temporarily, and expected to be back at Bickley in two months, so this could be achieved by September.

SIX METRES

Nev VK2QF, in sending in his corrected six metre standings, wrote a short note to say there had been no current six metre activity. However, the note bears a PS which said the six metre band opened on 9/6 at 0629 when he worked VK3XQ at 5 x 2 , at 0632 VK3YDE 5 x 9, VK3DUT weak, and at 0641 VK3ZYN at Geelong 5 x 9 but with heavy QSB. The VK7RST and VK7RNT beacons had been heard at S1 prior to working the VK3s. Nev's comment "six metres never dies, it just fades away at times!"

From Japan comes a short letter from JA1VOK, which says that XX9UT followed by JA1UT worked about 360 JAs with all areas on 28/4, 1/5, 2/5, and 5/5. The DX-pedition to XX9 (Macao) was the first for the six metre band. JA1VOK worked XX9UT at 1026 on 28/4 at 5 x 9.

JA1VOK on 28/4 also worked VK4JXZ at 0953 and VK8VV at 1155. VK8GB was worked at 0852 on 13/4. Also George DU1GF in Manila who has been active on six metres since Cycle 19, and is 73 years of age, 5 x 9 signals about 4 weeks apart on 2/3, 6/4 and 5/5.

David VK2BA sends his Six Metres Standings List, and mentions on a recent tour of the east coast of Queensland he met many six metre operators, including John VK4TL, Ross VK4RO, Harold VK4ANR, Lloyd VK4FXX, Lyn VK4ALM, Ron VK4FTJ and Dave VK4TUA. He spoke to a number of others after fossicking them out on two metres and then going to six!

During the last few days of April David heard the following on his mobile rig: JA2DDN, JA4MBM, plenty of JA5s, H44HIR and P29BPL beacon, and worked P29PL and P29ZFX. Looks like he had a rather busy trip.

David included a couple of pages from the April 1985 Solar Geophysical Summary from the Ionospheric Prediction Service, which in general comments on Solar Activity states: *"Solar activity was low until 21 April when a region began to grow rapidly producing an M class flare on 22 April and an X class flare on 24 April. The region appeared to be capable of producing further events for much of the remainder of the month but did not do so.*

"An interesting feature during the month was a region of reversed polarity to that normally observed for similar regions during the solar cycle. The polarity of sunspot regions reverse from one solar cycle to the next and so the region observed this month can be regarded as one of the first regions of the next solar cycle." David comments: *"Anyway, it is nice to know that the sun is at least thinking about the new cycle!"*

Under the heading of "Geomagnetic Disturbances" the notes said on 23 to 25 April the magnetic field was at unsettled to active levels, and 26 to 30 April the magnetic field at active to storm levels particularly on 28 April when major storm levels were reached. There was also an intense magnetic disturbance on 20/21 April, the A index for 21 April was 77 which makes this day one of the most disturbed days since 16 November last year.

September and October of course are the equinoxial periods when there is a greater possibility of extended DX including trans-equatorial. It is noted in QST's "World above 50 MHz" that Europeans have been worked from the US east coast every summer for the past four or five years, and Japan was worked from the west coast in June 1977 which was well before the peak of Cycle 21, so it will be the vigilant operators who grab the occasional DX which could appear and usually for very short periods. Suggest you keep the antenna looking out across the Pacific for the next few months at least.

50 — 54 MHZ DX STANDINGS

DXCC Countries based on information received up to 15th June 1985. Crossband totals are those not duplicated by 6 metre two-way contacts. Credit has not been given for contacts made with stations when 50 MHz operation was not authorised.

Column 1: 6 metre two-way confirmed
2: 6 metre two-way worked
3: Crossband (6 to 10) confirmed
4: Crossband (6 to 10) worked
5: Countries heard on 50 MHz
6: Countries heard on 52 MHz

CALL SIGN	1	2	3	4	5	6
VK2BA	28	28				
VK2DDG	25	26		2	12	3
VK3OT	25	25			10	
VK4ZJB	23	24				4
VK2QF	23	23				
VK2VC	22	22				
VK3XQ	20	19			1	1
VK5LP	18	18			6	3
VK3AMK	17	17				
VK4TL	17	17				
VK3NM	16	17				
VK7JG	16	17			2	
VK4ALM	15	16				
VK4ZSH	15	16				
VK3AUI	14	15				
VK6OX	10	10	1	1		
VK6RO	9	9	3	3	2	3

The minimum number of countries confirmed for an operator to commence being listed is five, including VK.

The next list is due to appear in February 1986 and entries will need to be on my desk no later than 15th December 1985. Claimants are reminded full details of all contacts are required, they being the date of the contact, time in UTC, call sign of station worked, country, mode, report sent and received, QSL sent and whether received. Split frequency contacts should be indicated, and please add YOUR call sign and signature, plus the date of your claim.

Most of the submissions sent to me so far have been very neat and precise and are a great help in determining eligibility. Computer printouts and updates are quite acceptable!

The accuracy and eligibility is as correct as I can determine. I have been told some contacts by certain operators were concluded on 28 MHz after 50 or 52 MHz faded out, but in the absence of any proof of these other than what I hear there is really nothing I can do. Obviously I cannot hear everything that goes on the VHF bands! DX standings are obviously at the mercy of the honesty of the claimants and I believe in general they are honest claims.

There are quite a few operators around Australia who have worked a considerable number of countries and who are not included on this list and it would be great to have them included — *what about it chaps?*

EME ACTIVITY

Chris VK5MC has advised me that during November the ARRL EME Contests are to be held on 2nd and 3rd and 23rd and 24th. This is a very interesting period as there will be many EME stations operating on 144 MHz and some of these stations are capable of being heard by ordinary operators with reasonably established 144 MHz stations.

Whilst you may think this could not interest you, however, you many recall I mentioned in these notes last year that as a result of my listening I was able to identify no less than 14 EME stations from all over the globe. My antenna system does help of course, being a stacked pair of 13 elements with a masthead preamplifier, but there are many stations now working through OSCAR who should be capable of hearing some signals, particularly as they have the capability of elevating their antenna system whereas I cannot, being tied to the rising and setting moon only.

Last year Chris VK5MC gave me a computer printout for my location and this included azimuth and elevation bearings plus GHA and declination for the moon. I have a similar printout for this November and Chris has indicated he is willing to provide a printout for any operator who is serious about giving it a try based upon having a system with a reasonable chance of hearing something.

If you would like to give it a go, please contact Chris Skeer VK5MC, Hatherleigh, SA. 5280, giving details of your latitude and longitude, enclosing a large stamped self addressed envelope *(repeat . . . I mean quite a large envelope)* plus three 33c stamps. Contact should be made with Chris as soon as possible as he does not have unlimited spare time, and some effort is needed to make these printouts so be fair and give him as much time as possible. Good luck with your efforts, but you are advised you may need to get out of bed early a couple of times to do it properly!

Further on the EME scene, Doug VK3UM sends

information of his 432 MHz EME activity during May. ON 25/5 contacts were made at random with the following: 0332 K5JL 449 received, 449 sent; 0355 ZL3AAD 449/439; 0410 JA4BLC 559/559 on CW, also worked on SSB at 3 x 3 and 3 x 3; 0511 W7GBI 449/0; 0835 a CQ resulted in YU1AW 549/559 on CW and 5 x 5/5 x 5 on SSB; 0855 I5MSH 549/549; 0915 DK1UV 439/449; 0930 SM1BSA 0/0; 1000 SM6EUP 0/0; 1035 OK1KIR 449/449 and 1055 DF3RU 449/0.

On 26/5 there was bad libration fading which made contacts difficult but the echoes were good. 1005 DK1UV 0/0 and 1027 G4NQC 0/0. These contacts have now given Doug five new stations, one new country for a total tally of 37 initial contacts in 16 countries. This is rather a good effort when one considers most of the contacts have been random. Good to hear from you again Doug.

The Illawarra Radio Group via "The Propagator" and Lyle VK2ALU did not make any contacts since the last report but upgrading of the equipment continues. It was pleasing to note that Lyle VK2ALU has been awarded a Life Membership of the Illawarra Amateur Radio Society. He was a foundation member in 1962 when the club was reformed, and President during 1967/68 and other administrative posts since then.

Eventually the Club acquired the use of the CSIRO radio telescope dish at Dapto and Lyle became involved in its rejuvenation and the first EME contact by VK2AMW, the Club station, was on 10/3/73 on 432 MHz. Vandalism at Dapto eventually caused the dish to be moved to a safer location and further work saw the dish being used on 1296 MHz, much of this work being performed by Lyle. His efforts had not gone unheeded though, as he was presented with the Ron Wilkinson Award by the Federal Executive of the WIA recently.

We congratulate you Lyle on receiving both your Life Membership and the Ron Wilkinson Award, and now that you have retired from the Electricity Commission of NSW hope that you will have even more time to pursue your hobbies and other pursuits, particularly, of course, EME.

CONTACTS FROM SYDNEY

Gordon VK2ZAB has again written in a different vein this time, and believes it would be of interest to others to know what it has been possible to work from his location at Berowra Heights in Sydney on 144 MHz SSB during the period 16th April 1985 to 31st May 1985, listing contacts over 200km only.

STATION	Number of times contacted	Location	Approx distance from VK2ZAB
VK2MQ	11	Moree	474 km
VK1RK	10	Canberra	262
VK2EVB	8	Coffs Harbour	412
VK4LC	3	Eagle Heights	644
VK4AGQ	8	Brisbane	700
VK2DGT	1	Coffs Harbour	412
VK2DDG	2	Byron Bay	596
VK2ZRE	12	Adaminaby	342
VK3UM	4	Melbourne	696
VK2EKT	7	Queenbeyan	260
VK3ZBJ	3	Melbourne	740
VK1BJ	20	Canberra	262
VK4KJL	6	Brisbane	700
VK3TV	1	Strathbogie	620
VK3KEG	10	Melbourne	740
VK1GL	14	Canberra	262
VK3AUG	2	Melbourne	740
VK3NM	1	Melbourne	735
VK1AU	3	Canberra	262
VK2ZJK	16	Tamworth	280
VK4AUR	4	Brisbane	700
VK4BAT	1	Brisbane	700
VK2CTB	1	Tamworth	280
VK2AKU	3	Narrabri	384
VK2DVZ	4	Taree	228
VK2YEZ	2	Griffith	476
VK2EJJ	1	Wagga Wagga	384
VK3AZY	1	Melbourne	735
VK1ZEI	1	Canberra	262
VK1BUC	2	Canberra	262
VK1KRS	1	Canberra	262
VK1ZQS	1	Canberra	262
VK1BX	1	Canberra	262
VK1VP	1	Canberra	262
VK1CJ	2	Canberra	262
TOTAL	**168**		

Contacts over 200 km on 70 cm SSB from VK2ZAB 16th April 1985 to 31st May 1985.

VK1ZQS	1	Canberra	262 km
VK1CJ	1	Canberra	262
VK1GL	1	Canberra	262
VK1VP	2	Canberra	262
VK1BG	2	Canberra	262
VK3UM	3	Melbourne	696
TOTAL	**10**		

The VK2ZAB 144 MHz station runs a TS700A with 400 watt PEP linear and BF981 preamp to four 9 element horizontally polarised Yagis. On 70cm the station runs 10 watts from an IC490A and four 11 element Yagis.

The one thing that continues to upset Gordon is the action of some selfish or uninformed people insisting on conducting local QSOs on the calling frequencies on both bands. One such case occurred as Gordon was compiling the above list, when 144.1 was occupied for two solid hours by local QSOs without a break! Anyone wanting to use the calling frequency or even just monitor it for possible DX had no show whatsoever. *(Fair go chaps, those concerned are hardly playing the game . . . 5LP).*

Gordon concludes his letter by saying *"The only comment I would make is 'Who says there is little activity on 2 metres SSB?'"* It certainly is to be found in the three eastern States by looking at the above lists, perhaps VK5 misses out through lack of interest or through our lack of activity the antennas are not turned this way very often!

IN GENERAL

It's fairly obvious it has been rather quiet during the cold months when many operators migrate to the fire inside the house. There are the occasional contacts across the border to VK3 by the dedicated.

The 21st anniversary of the South East Radio Group Convention went off rather well on the holiday weekend in June. VK3 won the coveted SERG Trophy this year. There was a good attendance despite the rather wintery conditions, but this did not seem to deter the participants in the various fox hunts and hidden transmitter hunts. The usual Grand Tea completed the proceedings on the Sunday.

From "Break-In" — *"Those who think the standard metre is a length of metal enshrined somewhere in France must think again. Things have changed. From being defined in terms of the wavelength of orange light emitted by atoms of krypton the standard metre is now "the length of the path travelled by light in a vacuum during a time of interval of 1/299792458th of a second.' ZL1HV."* Now don't say you didn't know!

From the Antarctic at Mawson Base Mark VK0AQ has been having quite a deal of fun working through OSCAR. It takes a bit of effort however, as the day temperatures at the moment there are around — 26°C and the shack does not boast of too much heating. He has overhauled the VKOMA beacon on six metres and has had it running, but due to a shortage of power it will not be turned on constantly until more towards the warmer months, so we might hear him yet via Es.

Closing with the thought for the month: *"Happiness is having friends who laugh at your stories when they're not so good and sympathise with you in your troubles even when they're not so bad."* 73. The Voice in the Hills.

AR

EDUCATION NOTES

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Work has now began on preparing study guides to complement the revised syllabuses. Discussion with other past and present lecturers tends to confirm my view that we all set our own study limits according to our own ideas and that we are prepared to defend our opinions, sometimes quite fiercely.

The study guides are intended to provide common standards for lecturers, students and DOC. They should be especially helpful to students trying to work on their own. No guide will satisfy everyone, but the required depth of study will be set out and we hope to present statements of our expectations of student capability at the end of each section.

It is not possible to reconcile the different attitudes of various lecturers — from a simple wish to get as many passes as possible to attempts to present a high level course with exam passes of less importance. A good study guide should help the student to cope with the lecturer.

As I have said previously, lecturers fall into two groups — those who see the aim as to help the students pass the exam which gives them a 'licence to start learning' and those who see the theory and truth as the important factor that the new licensee should be fully qualified before he begins to operate.

Most lecturers consciously try to achieve a balance, but it is difficult to completely suppress all bias. Perhaps the emphasis should change as the students progress from Novice to Full Licence.

No amount of discussion will completely eliminate some points of argument about particular questions or exam papers. The February Novice Exam seems to have been the "hardest" for some time, but, strangely, I had very little criticism of it. The results were the worst for which I have records — an overall pass percentage of 22.9 percent compared with figures between 40.5 percent and 54.4 percent from May 1981 to May 1984.

There have been apparently unreasonable variations before — eg. VK2 pass rates have ranged between 23.4 and 61.6 percent in samples of about 200 candidates. There are many possible reasons for this range apart from exam standard, but the February 1984 results were bad in all states except VK6.

I do feel that this exam was more difficult than previous novice theory exams, but surely not enough to have such a marked effect.

Perhaps it is a more realistic paper of a more appropriate standard — many amateurs would be pleased to see the standard raised. But it must have been disappointing for those who have expected a pass rate of about 45 percent.

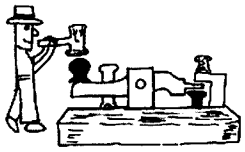
Statisticians please note that I am not attempting a statistical treatment of data, although I do intend to tackle something in that line soon. It should prove interesting.

To all those sitting for the August exam, please do not let the above discourse cause extra stress and worry. Remember — READ THE QUESTIONS — there is only one question difference between 68 and 70 percent.

Best of luck to all candidates. I'm sure your exam will be the easiest for years.

Comments on education matters are welcomed on the Education Net — Thursday, 1130 UTC 3.680 MHz or thereabouts. The lack of response to my CQs in the Novice band suggests that it is not worthwhile continuing the exercise. 73 Brenda VK3KT

AR



POUNDING BRASS

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LEARNING THE MORSE CODE (REPRISE)

Happy birthday Pounding Brass! It's hard to believe it, but this issue marks the commencement of the fourth year of the column's publication. Since an intention of the column from the very start has been to assist newcomers it is perhaps appropriate to review a subject originally dealt with in the October 1983 issue — how to go about learning the Morse code.

What made me think of it now, of all times, is that I received a letter from Gordon VK3BGB, the Secretary of the Frankston and Mornington Peninsula Amateur Radio Club, back in February (not long before this was written). The letter said that the Club's Vice-President, Graham VK3BL had read my article on CW instruction and the Club had adopted the method for their 1984 Novice Class. Of thirteen students who started the course, three dropped out and ten sat the exam. Of those ten, **nine were successful.**

I hope they won't mind my publicly congratulating the new Novices and more particularly the instructor(s). I appreciate the compliment regarding the method, but a method is only a tool. A good carpenter can do good work with poor tools; a poor carpenter will do a poor job with the best of tools. All the credit for the success of those students belongs to their instructors, but I am delighted to think I may have played a small part by making a useful tool available to them. I doubt very much if it is original to the extent that I could lay claim to the method but it is reprinted here in the hope that it may be of benefit to potential brass pounders. . .

There are no magic recipes which will qualify you as a brass-pounder overnight. There are a number of tips and techniques which can make the job easier, but ultimately it's up to you.

When Mr Samuel Morse invented his code, he had no idea anyone would ever be trying to copy dits and dahs from wireless transmission. In the first place, the code was devised for use on the land-line telegraph. In the second place, the intention was for the signals to be transcribed onto a paper tape by a swinging pen, and then read by sight. Once operators learned the code they quickly found that they could recognise incoming characters by the clicks the pen made, and it wasn't long before they realised that it was actually easier. The pen gave way to the sounder.

The Morse code consists of patterns of short sounds and long sounds, interspersed with spaces. Forget you ever heard of dots and dashes (at least till you've learned the code) and think of the short sounds as "dits" and the long sounds as "dahs". This gives you a useful way to represent the sound of the code any time you want — your own voice.

And here, already, is your first secret technique to help make the job easier — now that you know how to say a Morse code letter by using dits and dahs, forget you ever heard of dits and dahs! What you are really interested in is the **sound of a letter.**

For example, when you hear the sound "di-di-dit" you should recognise the sound as representing the letter S. You should not count the dits. Take a more difficult one now. "di-di-dah-dit". Say it over and over to yourself until you recognise the sound of an F without having to think of it in terms of a bunch of dits with a dah toward the end.

The sound of the dits is written without the T (except for the last one) for a very good reason — they have to be said quickly, and you can't manage that if you say "dit-dit-dah-dit". Try it — "dit-dit-dah-dit . . . di-di-dah-dit".

You should now be ready to learn another secret technique, which is related to speed. You should learn the characters at a speed high enough that they sound like Morse characters, not individual dits and dahs. While you are learning the code, the character speed should be at least eight to ten words per minute (I'm not kidding!) with extra space in between the characters to slow the message speed down to something you can handle. This is called proportional spacing.

An exercise which I use when introducing someone to the code for the first time is to send the letter S at a speed of fifty words per minute. Just once, all by itself. Most people can recognise it without difficulty. This proves that there is no problem in **hearing** code characters and remembering them — the problem is in converting them into letters!

You should by now be ready to start learning the code — you've had all the tools you need since the day you were born; it is simply a matter of applying them (or applying youself) to the task at hand.

Ideally you should listen to pure audio tones, such as those sent over the air or by a good practice oscillator driven by a competent operator. You certainly can learn the code characters by saying them to yourself all day long, without benefit of an instructor or tapes, but there are easier ways.

If you can get someone to send to you, have them send at a character speed of 8-10 WPM, spaced out so they send a character every three or four seconds. This gives you plenty of time to recognise the character, but not enough time to mentally go through the whole alphabet until you locate it.

You need a programme for learning the characters. I often hear of people suggesting that the student should learn the "dit" letters (EISH) followed by the "dah" letters (TMO) followed by the combination letters. That method makes it very easy to start, but very hard to finish. I would suggest the following groups, which give you easy letters mixed with hard ones so you don't get discouraged up by Qs, Js, Xs and Zs coming all at once.

AXSET HBDIJ OPORM ZCGNV UYLKWF 12390 67845

Learn each group thoroughly on its own, then add it to the letters already learned, then make up words using the letters learned. Leave the numbers until you have mastered the letters, and you will find them a lot easier.

DO NOT GO ON TO A NEW GROUP UNTIL YOU HAVE MASTERED ALL OF THE LETTERS LEARNED SO FAR.

You can get a lot of practice in by writing the group you are studying on a piece of paper (writing dits and dahs, of course, not dots and dashes!) and glancing at it while on the bus, or at work, or whenever you have two minutes to yourself.

Once you have learned the first group you can start listening to practice tapes and the Slow Morse Broadcasts (VK2BWI, 0930 UTC, 3.550 MHz and VK5AWI, 1030 UTC, same frequency). Just worry about picking out the letters you recognise, and form a good habit now — if you miss a letter forget it and concentrate on the next one. If you strain too hard to remember a letter, you will miss the next several letters and that's a circumstance which could cost you a pass on the exam.

Once you've learned the code, it's just a matter of getting your speed up to the required level (or the level you desire, which should be higher than the required level). The only way to get your speed up is to practice, whether it's listening to tapes or live code on air, having a friend send to you, or calling out license plates from passing cars. Practice, Practice, Practice, and you will find that your speed comes up very quickly. Then all you have to do is learn the commencing and finishing signals and you are ready for the exam. Learn a bit of procedure and you are ready for the air, and that's where we want you to be.

AR

AMSAT AUSTRALIA

Colin Hurst VK5HI
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NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and Randy VE1SAT/6 through the AMSAT-OSCAR 10 Telementry.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR, the National Co-ordinator of AMSAT Australia is now producing a monthly newsletter containing updated satellite news, orbital predictions, keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to realise funds for the funding of projects or the purchase of an item (items) of hardware for a future amateur satellie project, eg. Phase-3C, Phase 4 or whatever. The cost of the Newsletter is $15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR, QTHR.

DJ4ZC VISIT TO AUSTRALIA

Dr Karl Meinzer DJ4ZC, who is referred to as "the father of Phase 3", recently had the opportunity to stop-over in VK on his way to ZL to lecture at the NZART Annual Conference. Albeit only for three days Karl and his XYL Karin visited Adelaide, Melbourne and Sydney on the 27th, 28th and 29th May respectively, and presented excellent illustrated and informative lectures to well attended and appreciative audiences.

For those who were unable to attend any of the lectures the Adelaide presentation was videotaped by John VK5KG the Federal WIA Videotape Co-ordinator and copies can be obtained from John in the normal manner.

To all those people who assisted with Karl's visit and especially to Graham VK5AGR who orchestrated the visit, the Satellite Community of Australia is extremely grateful.

OSCAR-10 ATTITUDE AND ECLIPSES

The following N block was recently received from the OSCAR-10 PSK Telementry. It highlights the repositioning required for OSCAR-10 due to the eclipses it has had to endure due to the final orbit it achieved as against the designed orbit. However, having read the bulletin you may well ask many questions. Therefore this month I am going to present a tutorial to explain the somewhat confusing terminology.

N BLOCK AS RECEIVED

N de VE1SAT/VE6:1459/50. QST: This is planned s/c positions and transponder ON/OFF times for the coming eclipse. (length = 4 wks) Starting 6/7 July till 1 August s/c will be moved from 190 lon to approx 230 lon with a 15 deg or more Lat movement. This remains constant until the first week in September when s/c is moved to 140/150 lon. Commencing 1 August both xponders OFF from MA 30 to 189. Mode L from MA 190 to 206. Mode B from MA 207 to 29. Logic for above is: *30 to 70 = recharge. 70 to 130 = eclipse. 130 to 189 = recharge. 73 Randy.*

POINTS TO NOTE FROM N BLOCK

Spacecraft Lon and Lat.

The term MA (Mean Anomaly).

The revised schedule as from 1st August, which you may note is a RADICAL departure from past schedules, however the inconvenience to the communicator in the short term must be tempered with the life of the spacecraft in the long term.

SPACECRAFT LON AND LAT

OSCAR-10 is a spin stabilised satellite with the spin axis about the Z-Axis of the Spacecraft. The Z-Axis is parallel to the plane of the solar-cell arrays and passes through the geometric centre of the arrays. Put in a very simplistic manner the Z-Axis is also the "boom" of the antennas onboard OSCAR-10, and to get the strongest signals to and from OSCAR-10 the tip of the Z-Axis must be pointed directly at you.

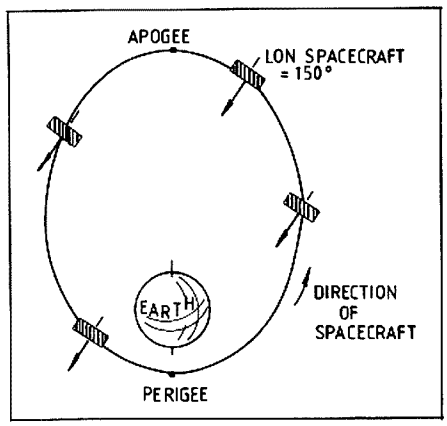


Figure 1 — Attitude of OSCAR-10 through Orbit.

Consequently because OSCAR-10 is spin stabilised at about 25 RPM, its attitude remains fixed in space. Its action is identical to the earth, which is also spin stabilised about the axis through the North and South Poles at one revolution per day. Therefore you must imagine OSCAR-10 at all times in a fixed attitude in space, (refer Figure 1). The complexity comes about when you have to define it to a point on the earth's surface, your QTH. The attitude of OSCAR-10 is expressed in BAHN (Celestial Navigation) Co-ordinates and is best illustrated in Figure 2. When Lon = 180 the Z-Axis of the s/c points at the Centre of Mass of the Earth along the Line of Apsides. Lat refers to inclination of the Z-Axis to the orbital plane of the spacecraft. Positive Lat is upwards from the orbital plane and Negative Lat is downwards from the orbital plane. Introduction of Lat into the attitude of the s/c produces a very complex scenario, as the orbital plane is inclined 26 degrees to the earth's equator. Hence it would be best left at this stage. The terms Lon and Lat referred to in the N-Block are BAHN co-ords and are not to be read as Geographic co-ordinates.

THAT WORD ANOMALY

In order to clear up the problem that many people are having and have had in the past (including myself) in respect to the variant ANOMALY, I have written a small basic programme to produce the data in Figure 3 to allow you to draw Figure 4 to scale using the values of True Anomaly in degrees and range in kilometres. The orbit is symmetrical about the semi-major axis should you wish to draw the whole orbit.

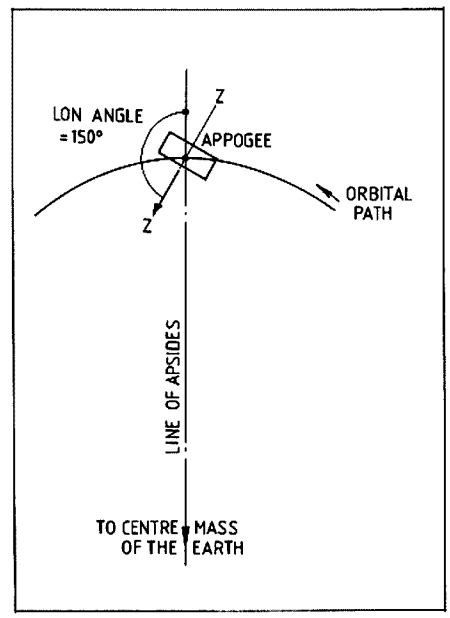


Figure 2 — Bahn Co-ordinates.

With the diagram in view let us now re-define the various terms.

MEAN ANOMALY: *"An angle that increases uniformly with TIME used to indicate where a satellite is along its orbit."*

The thing to remember is the operative UNIFORM TIME.

ECCENTRIC ANOMALY: *"Is an angle that is iteratively derived on a computer to solve Keplers equations for an ellipse".*

On Figure 4 the Eccentric Anomaly is conspicuous by its absence. However, draw a circle to encompass the ellipse, ie. diameter is semi-major axis. Now draw an angle equal to Eccentric Anomaly from the ellipse centre (with perigee being reference 0 Deg), to cut the circle. From that intersection draw a line perpendicular to the semi-major axis. It should pass through the corresponding data point on the ellipse. You can now sigh "thank heaven for computers!".

TRUE ANOMALY: "The polar angle that locates a satellite in the orbital plane drawn between the perigee, geocentre of earth and current satellite position and measured from the perigee in direction of satellite motion."

This should now be self-explanatory having used it to draw your ellipse.

Whereas in a circular orbit these three terms are one and the same, when it comes to an elliptical orbit they take on different values. Practically we continually encounter the term MEAN ANOMALY as this is the term that the ground controllers reference all operations to. This is the term used on telemetry blocks and bulletins. However the MA value disseminated is not an angle referenced in DEGREES, but an angle referenced to a base of 256. This reference is used because of the on board computer and direct linking to groundstations. Consequently the following applies:

Point	*MA (Degrees)*	*MA [256]*
Perigee	*0*	*0*
	90	*64*
Apogee	*180*	*128*
	270	*192*
Perigee	*360*	*256*

Time from Perigee in Mins T	Mean Anomaly Degrees MA°	Mean Anomaly [256] MA [256]	Eccentric Anomaly Degrees E	True Anomaly Degrees θ	Range from Geocentre km r
0.0	0.0	0.0	0.0	0.0	10516
30.0	15.4	11.0	35.1	64.4	13354
60.0	30.9	22.0	60.7	98.8	18480
90.0	46.3	32.9	80.0	118.2	23399
120.0	61.8	43.9	95.8	131.2	27677
150.0	77.2	54.9	109.5	140.9	31294
180.0	92.6	65.9	121.7	148.7	34301
210.0	108.1	76.9	133.1	155.4	36746
240.0	123.5	87.8	143.7	161.3	38672
270.0	139.0	98.8	154.0	166.8	40108
300.0	154.4	109.8	163.9	171.9	41077
330.0	169.8	120.8	173.6	176.8	41593
349.8	180.0	128.0	180.0	180.0	41689

Figure 3

Spacecraft Attitude LON	MA [256] at which antennae Earth Pointing
90	18
100	22
110	27
120	34
130	42
140	53
150	68
160	85
170	106
180	128
190	150
200	171
210	188
220	203
230	214
240	222
250	229
260	234
270	238

Figure 5: S/C LON vs MA [256]

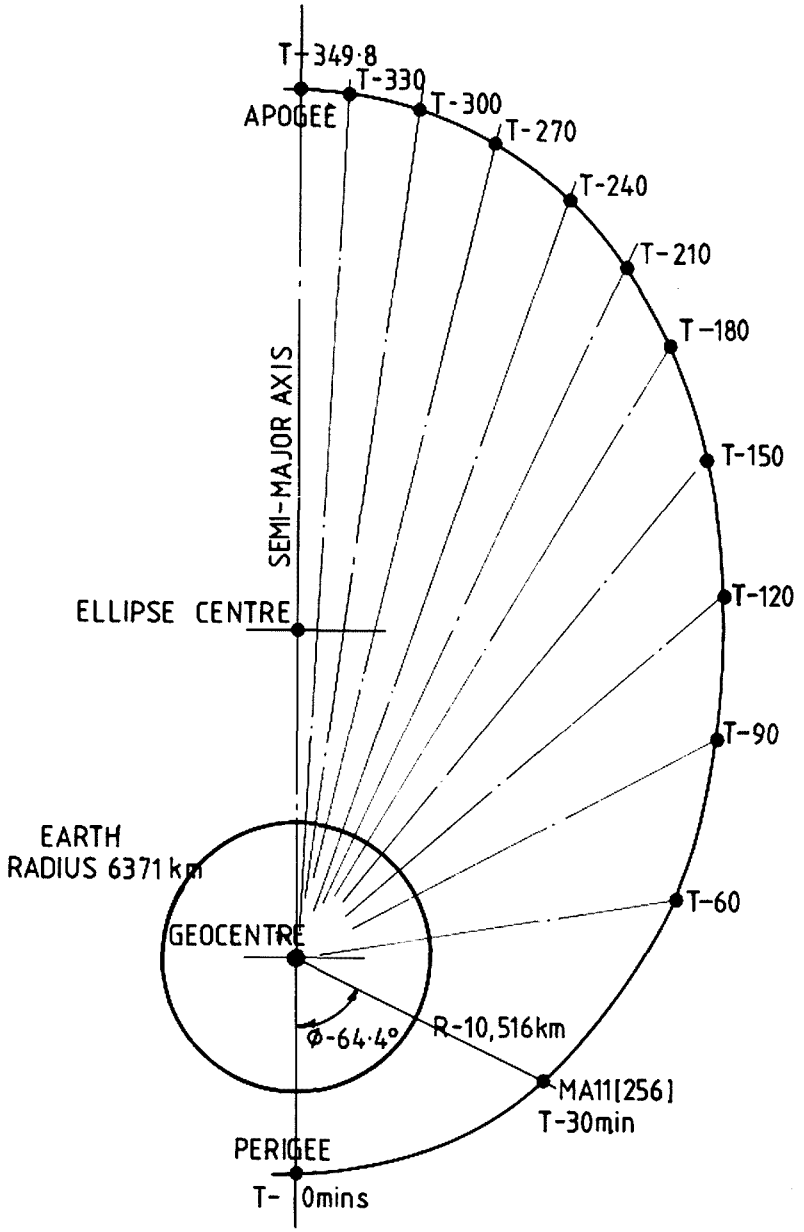


Figure 4 — OSCAR-10 Orbit to Scale.

Because the Mean Anomaly by definition refers to uniform increments of TIME, a useful tool to remember with OSCAR-10 is that 30 minutes equates to approximately 11 counts of MA [256], (actual value is 10.979).

REVISED SCHEDULE

Having digested all the above it is apparent that the ideal situation is to have the s/c at an attitude of 180 Lon. Thus at Apogee the antennae are pointing at the centre of the earth. However we have those eclipses to cope with and thus in the future considerable re-orientation in attitude will take place. Consquently it would be opportune to know when the antennae are earth pointing for the different values of Lon. This is made simpler when it is appreciated that the values of Lon equate to the True Anomaly, consequently the data in Figure 5 derived from another computer programme equates the earth pointing time of the orbit to the Mean Anomaly [256].

From Figure 5 we can see that from the 1st August the best operating times will be based around Mean Anomaly [256] – 214, and then from 1st September this will change to MA [256] – 60. It will certainly pay to listen to the AMSAT Australia nets, monitor the CW or RTTY Bulletins on OSCAR-10 for the latest attitude orientation to optimise your operating schedules. Regular communicators on OSCAR-10 will fully appreciate how signals are degraded when the antennae are off-pointed.

I trust that this tutorial has corrected all the anomalies in your thinking on elliptical orbits, if not drop me a letter with your specific problem.

de Colin VK5HI

AR

WIA's 75th Anniversary Fox Hunting Championship
26th & 27th October

OSCAR-10 APOGEES
AUG / SEPT 1985

DAY	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
0th August										
212	1605	2304:18	-14	319					266	12
1st August										
213	1606	1043:49	-14	134	94	12	100	1		
213	1607	2223:21	-14	309			259	1	271	20
2nd August										
214	1608	1002:51	-14	125	99	4				
214	1609	2142:22	-14	300	258	-2	264	9	276	28
3rd August										
215	1611	2101:23	-14	291	262	6	270	16	282	37
4th August										
216	1613	2020:24	-14	281	267	14	275	25	289	46
5th August										
217	1615	1939:26	-14	272	272	22	281	33	298	54
6th August										
218	1617	1858:27	-14	263	278	30	288	41	312	62
7th August										
219	1619	1817:28	-15	253	285	39	297	49	333	67
8th August										
220	1621	1736:29	-15	244	293	47	309	57	1	70
9th August										
221	1623	1655:32	-15	234	303	55	326	65	29	67
10th August										
222	1625	1614:33	-15	225	318	62	350	66	50	61
11th August										
223	1627	1533:34	-15	216	340	67	16	66	63	54
12th August										
224	1629	1452:36	-15	206			66	38	62	73	46
13th August										
225	1631	1411:37	-15	197	32	65	54	56	80	37
14th August										
226	1633	1330:38	-15	188	51	59	66	48	86	28
15th August										
227	1635	1251:07	-15	178	63	51	74	40	91	20
16th August										
228	1637	1210:08	-15	169	73	43	81	32	96	12
17th August										
229	1639	1129:09	-16	160	80	35	87	24	101	4
229	1640	2308:40	-16	335					256	-1
18th August										
230	1641	1048:12	-16	150	86	27	93	16		
230	1642	2227:42	-16	326					261	7
19th August										
231	1643	1007:13	-16	141	91	19	98	8		
231	1644	2146:43	-16	316					265	15
20th August										
232	1645	0926:14	-16	132	9[illegible]	11	103	0		
232	1646	2105:44	-16	307			259	4	270	23
21st August										
233	1647	0845:15	-16	122	102	3				
233	1648	2024:47	-16	297	257	1	264	12	275	32
22nd August										
234	1650	1943:48	-16	288	262	9	269	20	281	40
23rd August										
235	1652	1902:49	-16	279	267	17	275	28	289	49
24th August										
236	1654	1821:50	-16	269	272	25	281	36	299	58
25th August										
237	1656	1740:52	-16	260	278	34	288	45	314	65
26th August										
238	1658	1659:53	-16	251	284	42	298	53	338	70
27th August										
239	1660	1618:54	-16	241	293	50	311	60	10	71
28th August										
240	1662	1537:55	-17	232	304	58	330	66	39	68
29th August										
241	1664	1456:57	-17	223	321	65	357	69	57	61
30th August										
242	1666	1415:59	-17	213	346	69	24	67	69	53
31st August										
243	1668	1335:01	-17	204	16	69	46	62	77	44
1st September										
244	1670	1254:02	-17	194	41	65	60	55	84	36
2nd September										
245	1672	1214:30	-17	185	57	58	71	47	89	27
3rd September										
246	1674	1133:31	-17	176	69	50	79	39	94	19
4th September										
247	1676	1052:33	-17	166	77	42	85	31	99	11
5th September										
248	1678	1011:34	-17	157	84	34	91	22	103	3
248	1679	2151:05	-17	332					256	2
6th September										
249	1680	0930:35	-17	148	89	25	96	14		
249	1681	2110:06	-17	323					261	10
7th September										
250	1682	0849:38	-17	138	95	17	101	7		
250	1683	2029:08	-18	314			254	-1	265	18
8th September										
251	1684	0808:39	-18	129	99	9	106	-1		
251	1685	1948:09	-18	304			259	7	270	26
9th September										
252	1686	0727:40	-18	120	104	2				
252	1687	1907:10	-18	295	257	4	264	15	275	35
10th September										
253	1688	1826:11	-18	286	262	12	269	25	281	44
11th September										
254	1691	1745:14	-18	276	268	20	275	31	288	53
12th September										
255	1693	1704:15	-18	267	272	28	281	40	299	61
13th September										
256	1695	1623:17	-18	257	278	37	288	48	316	68
14th September										
257	1697	1542:17	-18	248	284	46	298	56	345	73

SATELLITE ACTIVITY FOR PERIOD 30 MARCH TO 26 APRIL 1985

LAUNCHES

Number	Name	Nation	Date of Launch	Period mins	Apog km	Perig km	Incn deg	Initial Data Remarks
1985-								
027A	Cosmos 1644	USSR	Apr 3	92.2	415	349	70.4	
028A	STS 51-D	USA	Apr 12	92.4	464	319	28.5	See below
028B	Telesat 1	Canada	Apr 13	1432.3	35770	35653	2.9	From STS 51D
028C	Syncom IV-3	USA	Apr 12	92.4	464	319	28.5	From STS 51D
029A	Cosmos 1645	USSR	Apr 16	90.5	388	213	62.8	
030A	Cosmos 1646	USSR	Apr 18	93.3	441	426	65.1	
031A	Cosmos 1647	USSR	Apr 19	89.5	326	169	67.1	
032A	Cosmos 1648	USSR	Apr 25					
033A	Prognoz X	USSR	Apr 26					

On board STS mission 51-D, spacecraft 'Discovery', were crew members K Bobko, J Garn, M Seddon, J Hoffman, D Williams, S Griggs and C Walker. The payload included Telesat 1 and Syncom IV 3.

RETURNS

During the period 24 objects decayed including the following satellites:

1979-014B Corsa-B	*Apr 15*
1985-017A Cosmos 1630	*Apr 23*
1985-027A Cosmos 1644	*Apr 17*
1985-028A STS 51D	*Apr 19*

LISTENING AROUND

Joe Baker VK2BJX
Box 2121, Mildura, Vic 3500

I'm writing this in the pre-dawn hours of a late Autumn morning. I've already had a long sleep, and missed the Cocktail Net, and night-owls like Leo VK5GJ, Bronte VK5KV and Gordon VK5HM, all of whom live in what Gordon refers to as the "Perfect State of South Australia" — which never has floods or industrial disputes — where the weather is always perfect and where everyone lives in a state of eternal bliss. Gordon will have gone QRT by this time.

As I listen while typing, the long skip is on and at one end of "80" there are some Asians, the loudest being a hard-working and fast talking JA who keeps saying his call sign like an LP record, or an endless tape over and over again. My puny 18 watts from my standby gear (as the SB102 is out of operation) fails to "break" him so I leave him to it, and confine myself to the typewriter.

So let's have an update on what's been happening recently here. Living in this part of NSW — a long way from anywhere of note — and being an ex-serviceman, I was told of NSW transport concessions which entitled me to reduced fares on most Sydney transport — even the Harbour ferries — and one free annual journey by rail within any two places in NSW — but there was only one snag — I'm about 1046km (650 miles) from Sydney and almost 322km (200 miles) from any NSW railway station.

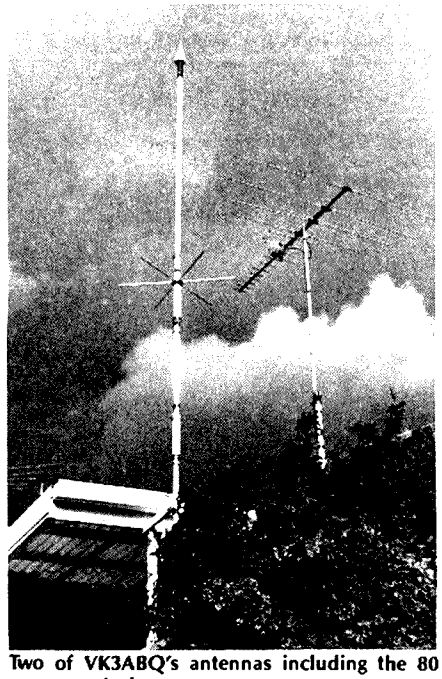
As I live at Buronga, in NSW, just across the river Murray and about 3.2km (two miles) from Mildura in Victoria, I was not too enthusiastic about what the NSW authorities had given me, and thus began a long battle lasting many years in which I badgered all kinds of people to have matters altered. Appeals to local politicians, and even the State Parliament of NSW were fruitless. Even the Victorian transport authorities to whom I also appealed gave me the same answer as their NSW mates — "Sorry, no can do because there's no reciprocal agreements between States" so I was getting nowhere fast. Eventually I got the concessions I was after. Now, I can occasionally get away from Buronga (NSW) by taking an occasional trip down to Melbourne.

That's what I did early in April. Because finances were tight (they always are with me) the plan was to spend two nights only in Melbourne — Monday night and Tuesday night, leaving Melbourne Wednesday night to arrive back to Mildura Thursday morning. The journey from Mildura is long and tiresome. I left by train at 9.25 pm Sunday night, arriving at Spencer Street Station about 6.30 Monday morning — after getting little or no sleep. Of course I had brought my FT208R with me.

Soon after booking into a private motel near the station, I was on the air from my room on the third floor, making good use of the Geelong, Macedon and Mt. Dandenong repeaters.

John VK3ABQ of Surrey Hills and I have had many contacts on my earlier visits to Melbourne, but something always prevented me from seeing John. So, almost as soon as I hit Melbourne this time, I phoned John, who then picked me up took me to his home where I spent a pleasant several hours, sharing a beer with him, inspecting his well-apportioned "shack", and photographing himself and his gear. It was an excellent day — thank you John for your hospitality which more than made up for the earlier times when we were unable to meet.

Another friend I have often wished to meet is Bob, who holds two call signs, VK3CCH ("Chicken, Chips and Hamburgers") and VK3BRW. John decided to drive me to Bob's work QTH. On arrival near the work QTH, John stopped his car in a short side-street off the main road, and decided to walk in one direction to find a street number, while I went in another direction. I got confused with the numbering system and walked about a kilometre in one direction, while John had not far to go before he found the place. I was completely lost, and although I had my FT208R with me, couldn't call John because he didn't have two metres with him. (John meanwhile, having found Bob's workplace, was told that Bob was unavailable because he was out on a job). John then returned to his car, to wait for me.

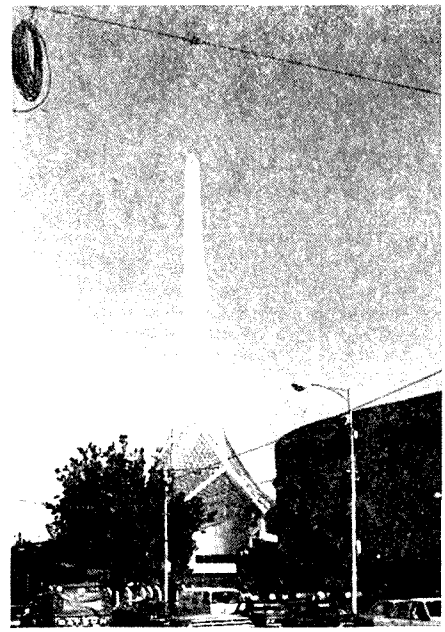


Two of VK3ABQ's antennas including the 80 metre vertical.

I seemed to be walking for an eternity up hill and down dale before calling into a place, where I saw a welder at work, to ask directions. The welder took off his mask and said *"you're going in the wrong direction mate — it's back up that way"* indicating the direction from which I had, so laboriously and with much perspiration, come. So I hi-tailed it back up a hill where I found John waiting for me. *"If Bob wants to see me the next time I am in Melbourne"* I said solemnly to John, *"he had better come and fetch me."* John's good driving got me back to my motel without incident, and after tea, I decided to go back to my room and see who I could catch on two metres. I found myself talking with VK3EW (VK3 "Electric Wireless") on simplex. We had a good old chin-wag, and made arrangements to meet the next day at what I thought was to be 10.30am.

As it so happened, apparently I mistook the time, which should have been dinner time outside the Melbourne Stock Exchange. I arrived about 10.35am and waited till just after 11.15am, and not meeting "Electric Wireless" thought that, being five minutes late, I had missed him and decided to give it away. I went back to my room, had a rest, went for dinner and decided to go and spend a few hours in the Botanical Gardens, by the side of the Yarra.

After taking some good pictures of the "BI-CENTENNIAL ARCH" near the Arts Centre and the lovely vertical tower above the Centre (is that tower just an ornament, or is it somebody's private antenna?) and armed with some cartons of milk, some potato cakes and fish, I decided to park myself and my FT208R on the lovely lawns. I put the FT208R in the



"That Tower" — maybe it is a radio antenna in disguise!! (and who owns the coil of wire in the top left corner?)

scanning mode. Eventually I settled on the Mt Dandenong repeater and spoke with a chap who said that he knew "Electric Wireless" personally and that if I would stay on the repeater, he would contact him as soon as "EW" finished work and let him know that I was listening. I maintained a listening watch and after a while heard "Electric Wireless" call me.

Now here's where I introduce Mr Murphy and his law which says that *"if anything is going to happen, it will"*. Murphy had decided to flatten my battery — so flat indeed that when I tried to respond to "Electric Wireless", the red indicator light on my rig lit about as dim as a candle on Mars as it would appear seen through the Mt Palomar telescope. What maddened me was that I could hear the other chap telling "Electric Wireless" that perhaps I had gone and got lost again.

There was nothing I could do, but to return to the motel (where I still had my luggage, having formally booked out earlier the same day), and ask the booking clerk if I could retrieve my luggage from the baggage room to get my home brew charger — "borrow" an office power point and put some fresh juice into my FT208R. Permission was given, but Murphy was still with me. In the claustrophobia and confusion of that office, I could not remember how to correctly connect up the charger, so it wouldn't work.

Well, having a flat battery, I couldn't even try to disrupt the train communications by operating rail mobile, as I did on a previous occasion. But who can tell what might happen when I again visit Melbourne, perhaps before the winter sets in?

Cheers to all and thanks for all the nice things you've said about "Listening Around" when I've spoken to you on the air.

AR

Share your story in AR ...

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

AUGUST
10-11 European CW Contest (Rules July AR)
17-18 Remembrance Day Contest (Rules July AR)
17-18 SARTG RTTY Contest
17-18 KCJ CW Contest (Rules this issue)
24-25 All Asian CW Contest (Rules July AR)
24-25 GARTG RTTY Contest

SEPTEMBER
14-15 VK Novice Contest (Rules this issue)
14-15 European Phone Contest (Rules July AR)
28-29 YLRC Italiano 'Elettra Marconi' Contest (Rules this issue)

OCTOBER
5-6 VK/ZL Oceania Phone Contest (Not yet confirmed)
12-13 VK/ZL Oceania CW Contest (Not yet confirmed)
26-27 CQ WW DX Phone Contest

NOVEMBER
23-24 CQ WW DX CW Contest

ALL CONTESTERS PLEASE NOTE THE FOLLOWING . . . .

CONTEST DISQUALIFICATION CRITERIA

A standardised approach is taken to the disqualification of logs entered in all of the contests which come under the direct control of the Federal Contest Manager appointed by the Federal Executive.

A perusal of these criteria will show them to be quite fair and well thought out. They are based on those used by the ARRL in administering their contests. It is suggested that you take note of this particular issue of the magazine for reference to these general rules in the case of all contests for the ensuing year. Details are as follows:

DISQUALIFICATION: An entry in WIA conducted contests may be disqualified if, upon checking of logs, it is necessary that the overall score be reduced by more than two percent. Score reduction does not include correction of arithmetic errors. Reductions may be made of unconfirmed QSOs or multipliers, duplicate QSOs or other scoring discrepancies. An entry will be disqualified if more than two percent duplicate QSOs are detected as being claimed for credit. For each duplicate or miscopied call sign removed from the log by the Contest Manager a penalty of deletion of three additional QSOs of equivalent value to the offending claim may be applied. The penalty will not be considered as part of the two percent disqualification criterion. If a participant is disqualified under these aforementioned provisions that operator will be barred from entering the contest for that particular mode on the ensuing year. eg. Disqualification from the 1985 RD Phone will prohibit an entry for the 1986 RD Phone, however participation in the 1986 RD CW would be allowed.

Logs which are very untidy, illegible or incorrect in layout to a major degree may also be disqualified. The call signs of disqualified participants may be listed in Amateur Radio magazine together with the contest results.

At the time of writing these notes I am visiting the country town of Ceduna in the far west of South Australia. Whilst on the way here I could not help but consider the benefits of being an amateur radio operator living in the country. So much more space is available for the erection of antennas. I had visions of large arrays, tall towers, vee beams and rhombics running in every direction. This surely would be great for both DX and international contest working. I do remember though one year, when I top scored in VK5 in the Remembrance Day Contest, my equipment set up comprised a 40/80 inverted vee and a dipole for 20 metres both supported by the ventilation pipe at the back of the house and fed by a Collins KWM2A and operating without any linear amplifier. It is certainly possible to achieve excellent results with a simple installation and no doubt operating technique must play a very large part in this. Still, large antenna installations and the often nice low local noise level conditions, often found in the country, would be very nice not to mention the lack of high level local QRM with the nearest amateur being well over 322 km (200 miles) away. Coming to the country does not mean that one necessarily leaves behind the benefits of modern life. These notes are being prepared on a computer controlled word processor owned by my daughter and son-in-law. Such modern magic means that I can correct all my typing mistakes before printing out the result, (well that is in theory anyway) and thus the typesetters will not have to put up with all the corrections made using white out and my rather old typewriter can stay in the car where it was stowed just in case I couldn't cope.

As this is my first visit to Ceduna I will be taking the opportunity to have a look at the Overseas Telecommunications Commission Satellite Earth Station. Perhaps this may whet my appetite again to do some amateur satellite operation. Incidentally, such a thought takes me back to somewhere about 1962 when I recorded signals from the first OSCAR satellite using a 16 Yagi steerable array at the NASA Satellite Tracking and Data Acquisition Network Station at Island Lagoon near Woomera. It was most exciting to hear the 'HI' being transmitted by this forerunner of the much more useful amateur satellites and I feel sure that not very many of us foresaw just what great marvels were in store.

The previous comments may seem not connected with the subject of contesting, however my belief is that all our experiences can benefit us in many ways should we but take the opportunity to use them and apply them in the right manner.

As you read this column you will probably be close to preparing your station for the 1985 Remembrance Day Contest. I hope that you will approve of the latest changes to the rules and also that you have studied them carefully. I would also strongly recommend that you look at the matter of preparing your paper work in advance, particularly the 'check' sheets for each band. I suggest that you look back at the Example Contest Check Sheet published in this column in the December 1984 issue of "Amateur Radio".

I have been provided with a copy of rules for the 'Keymen's Club of Japan' (KCJ) Single Operator CW Contest and also the YLRC Italiano 'Elettra Marconi' Contest. You will notice that the KCJ Contest clashes with our Remembrance Day Contest. Perhaps this will mean somewhat more QRM in the CW portions of our bands. Whilst these contests would probably not be considered as being major events on the calendar I have provided the rules for your interest.

Our major Australian event for next month is the VK NOVICE CONTEST as indicated in the calendar on 14th and 15th of September. The rules for this contest are basically unchanged from last year. I would anticipate that, as usual, there will not be very many entries in this contest coming, as it does, right on top of the Remembrance Day Contest. If my intentions come to fruition the 1986 Novice Contest will probably be held in the month of June. It is somewhat unfortunate that it was not possible, despite my efforts to achieve change in this way, to have the date of this contest moved for 1985.

With the Novice Contest comes the end of the major contests organised by me on behalf of the Wireless Institute of Australia for the year. The only other major contest remaining for the year is the VK/ZL Contest which is separately organised. I hope that you have enjoyed the contests provided for your benefit this year and that you will continue to support these contests next year. In the intervening period I will be kept quite busy checking logs, preparing certificates and carrying out the various other tasks required of the Federal Contest Manager as well as preparing the notes for this column. I will certainly be interested in hearing more comment and opinion from you should you feel inclined to write and express your ideas on the contest scene.

VK NOVICE CONTEST, 1985 — RULES

CONTEST PERIOD:- From 0800 UTC 14th September 1985 to 0759 UTC 15th September 1985.

OBJECTS OF THE CONTEST:- To encourage contest operation of amateur radio stations in Australia, New Zealand and Papua-New Guinea with special emphasis on contacts with novice and radio club stations.

STATIONS ELIGIBLE:- Only stations in VK, ZL and P2 call areas may enter. No stations outside these areas are permitted to be worked or entered in a log for the purposes of this contest. Except for radio clubs, no multi-operator working is allowed. Stations in the same call area may contact each other as well as contacting stations in other call areas.

CONTEST BANDS:- All operation must be confined to within the novice frequency sub-band allocations in the 10, 15 and 80 metre bands. No crossband operation is permitted.

MODES OF OPERATION:- Only phone or CW may be used. In the CW mode operation must not exceed a speed of TEN WORDS PER MINUTE. This is to encourage the use of CW by all operators and to allow improvement in this mode by those operators who do not usually practice same.

CONTEST SECTIONS:- (a) Phone — Novice / Full Call. (b) CW — Novice / Full Call. (c) Listeners.

SCORING:- Transmitting Entrants: For contacts with a novice station — five points. For contacts with a club station — ten points. For contacts with a full call station — two points.

Listener Entrants: For novice / novice contact — five points. Novice / full call contacts — two points. Full call / full call contacts — two points. Any contact with a club station — ten points.

CALL PROCEDURE: For phone operation call 'CQ Novice Contest' and for CW operation call 'CQ N'.

CONTACTS: Any station may be contacted only once per mode per band.

NUMBER EXCHANGE:- On phone, stations must exchange a serial number comprising an RS report followed by three figures. These figures must commence with 001 and increase sequentially by 'one' for each contact up to 999. If 999 is reached the serial number is to revert back to 001 and the sequence recommenced. For CW, stations must exchange a serial number comprising an RST report followed by three figures on the same basis as described above for a phone contact serial number. Radio club stations must ADD THE LETTER 'C' following the serial number.

LOG ENTRIES:- Each log sheet should be laid out such as to provide columns in the order given as follows: Date / UTC Time. Band. Mode. Station Contacted. Serial Number Sent. Serial Number Received. Claimed Score. Total Claimed Score should be shown at the bottom of the Claimed Score column for each page. Each log sheet must also be endorsed at the top 'VK NOVICE CONTEST, 1985'.

FRONT SHEET:- A FRONT SHEET must be attached to each log entered and must carry the following information: Name of Operator. Address. Call Sign. Section Entered. Claimed Score.

DECLARATION:- The front sheet must also carry a declaration which states that "I hereby certify that I have operated within the rules and spirit of the Contest". Each entry must carry the signature of the licensed operator of the station and be dated accordingly. In the case of club stations the entry must

be signed by a responsible officer of the club committee or a licensed operator delegated by the committee to do so. In the case of multi-operator stations the call signs of participating operators must also be shown on the front sheet.

REGULATIONS:- All stations participating in the contest must be operated within the terms of the station licence and applicable regulations.

SUBMISSION OF ENTRIES:- Logs are to be forwarded to the Federal Contest Manager, Box 1234, GPO, Adelaide, SA. 5001. Envelopes are to be endorsed 'Novice Contest' on the front outside. Entries must be posted so as to reach the box number no later than 28th October 1985. Any entries received later than this date may be used as Check Logs only.

CERTIFICATES:- Certificates will be awarded to the top scoring entries in each section at the discretion of the Federal Contest Manager and to any other entrant where meritorious operation has been carried out in the opinion of the Contest Manager.

TROPHY:- The "Keith Howard VK2AKX Trophy" will be awarded to the Novice entrant with the highest aggregate score from both the phone and CW sections of the contest. This trophy is a perpetual trophy and will be held by the winner until such time as it is awarded to a winner of a subsequent Novice Contest. Should two or more aggregate scores be equal a decision will be based on a count back as to the greater number of novice stations listed in each log entry. Should such a count also be equal the log containing the greatest number of CW contacts will be preferred. In the event of a further tie under these rules the logs will be placed before a committee which will exercise a vote as to the neatest and most meritorious entry.

DISQUALIFICATION:- The Contest Disqualification Criteria as published in this issue of "Amateur Radio" shall apply. Any station observed during the contest as constantly departing from the generally accepted code of operating ethics may also be disqualified.

KEYMEN'S CLUB OF JAPAN (KCJ) SINGLE OPERATOR CW CONTEST

Object	To work as many amateur stations in as many Japanese prefectures as possible using Japanese CW bands.
Eligibility	Single operator amateur stations worldwide.
Period	Starts 1200 UTC Saturday followed by the third Sunday in August; ends 1200 UTC the Sunday 17-18th August 1985.
Categories	Single operator, CW only: a. All Bands, b. Single Band.
Contest Exchange	JAs — RST plus Prefecture Code. Others — RST plus Continent Code.
Invalid Contact	Contact with a multioperator station, crossmode or not CW, crossband, via repeater or satellite, out of Japanese CW bands (by JAs only).
Scoring	POINTS: One point for the complete contact with a station in Japan on each band. MULTIPLIERS: JAs — Forty-seven Japanese prefectures and six continents on each band. Others — Forty-seven Japanese prefectures on each band. FINAL SCORE: Multiply points by sum of multipliers.
Log Instruction	Log should indicate time in UTC, call sign and exchange. Multipliers should be clearly marked in the log only the first time it is worked on each band. Use a separate sheet for each band. The call sign of the entrant should be indicated in every sheet of the log. Each entry must be accompanied by a Summary Sheet.
Awards	Certificates will be awarded to the top through the third scorer in each entry category and the top scorers in each continent and Japanese prefecture who are ranked in the higher half of the whole entrants in each category. All scores will be published. It is available by 1 IRC (surface mail) or 7 IRCs (air mail) enclosed with the log.
Disqualification	An entry with more than two percent duplicate and/or invalid contacts left on the log will be disqualified. Violation of amateur radio regulations and/or the rules of the contest will cause disqualification. Decisions of The KCJ Contest Committee are official and final.
Deadline	All entries must be postmarked no later than the 31st October 1985 and mailed to: Nagashima Takayoshi JA7GAX 20-6, Kabasawayama, Imozawa, Miyagi-town Miyagi-gun, Miyagi-Pref. 989-32 JAPAN

REFERENCES

Japanese CW Bands

1.907.5 - 1.912.5	MHz	28.000 - 28.200	MHz
3.500 - 3.525	MHz	50.010 - 50.100	MHz
7.000 - 7.030	MHz	144.000 - 144.100	MHz
14.000 - 14.100	MHz	430.000 - 430.100	MHz
21.000 - 21.150	MHz	1.296.100 - 1.296.500	MHz

Japanese Prefecture Codes

AC Aichi	HS Hiroshima	MZ Miyazaki	SO Shizuoka
AM Aomori	IB Ibaraki	NG Niigata	ST Saitama
At Akita	IK Ishikawa	NN Nagano	TG Tochigi
CB Chiba	IT Iwate	NR Nara	TK Tokyo
EH Ehime	KA Kagawa	NS Nagasaki	TO Tokushima
FK Fukui	KG Kagoshima	ON Okinawa	TT Tottori
FO Fukuoka	KM Kumamoto	OS Osaka	TY Toyama
FS Fukushima	KN Kanagawa	OT Oita	WK Wakayama
GF Gifu	KO Kochi	OY Okayama	YC Yamaguchi
GM Gunma	KT Kyoto	SA Saga	YM Yamagata
HG Hyogo	ME Mie	SG Shiga	YN Yamanashi
HK Hokkaido	MG Miyagi	SN Shimane	

Continent Codes

AF Africa	NA North America
AS Asia	OC Oceania
EU Europe	SA South America

Japanese multioperator stations can be identified by their call sign.

Prefix 8J1 through 8J0 and 7J1	(ex 8J1ITU)
Suffix RL	(ex JA2RL)
Suffix of 3 letters originated by Y or Z	(ex JE3YAA, JH4ZBC)

THE ITALIAN YL RC "ELETTRA MARCONI" PROMOTES THE VIIIth INTERNATIONAL CONTEST 1985 TO CELEBRATE THE ETRUSCAN YEAR

AIM: To further activity between Italian YL stations and the rest of the world. QSO must be between Italian YL stations and Italian or Foreign YL or OM stations.

CATEGORIES: Single YL operator, single OM operator, SWL.

BANDS: All bands: 1.8, 3.5, 7, 14, 21 and 28 MHz on the usual YL contest frequencies.

PERIOD: From 1300 UTC Saturday 28th September 1985 to 1300 UTC Sunday 29th September 1985.

CALL: CQ YL/OM CONTEST for PHONE. CQ YL/OM TEST for CW.

REPORTS: RST with progressive numbers (start 001). Italian or Foreign members of RC will add RC to their reports to indicate they are club members.

SCORE: One point for each contact between Italian and ISO stations; Two points for each contact between Italian and European stations; Three points for each contact between Italian stations outside Europe. Each station may be worked only once each band. QSO must be phone/phone or CW/CW. The score is the same for phone and CW.

MULTIPLIERS: a) A multiplier of one for each DXCC country and call area of USA, Canada, Japan, and Australia on each band. b) A multiplier of FIVE each member of YL RC contacted on each single band. This multiplier is not valid for QSO between YLs of RC. For the SWL, one point for each Italian, ISO, or Foreign YL heard on each band.

FINAL SCORE: This is obtained by multiplying the sum of the QSO points by the sum of the multipliers (a) and (b) obtained on all bands.

LOGS: Logs must be sent no later than 31 October 1985, to the YL RC Award Manager I0VOK Olga Scolari, Via Conte Verde No 50, 00185 ROMA, ITALY. Separate logs must be used for phone and CW, and for each band, and a summary sheet must be added. Forwarding of the log means the acceptance of the present rules and the decisions of the Manager which are to be considered final.

PRIZES: There are plaques, medals and diplomas for the first classied in CW and phone in the following categories: YL members of YL RC, Italian and Foreign YL OM and SWL.

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MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice. ( ) Computer programme.

QST. March 1985. 200 watt 23cm Linear. (C) Field Strength Meters. (N) International EME Competition. (G) DX Contest Awards Programme. (G)

RADIO COMMUNICATION. April 1985. RSGB National Convention. (G)

QST. May 1985. 435 MHz Solid State Transmitter. (C)

AMSAT-OSCAR NEWS. June 1985. AGM News. (G) High Level Transverter Output from the FT102. (P) Sattellite News etc. (G).

73 MAGAZINE. June 1985. RTTY Terminal Unit. (C) EM Exposure Dangers. (G.N.) Special RTTY Issue.

AMATEUR TELEVISION HANDBOOK. Revised edition (Nov 1984) General information, Circuits, SSTV, UHF Transmitters, Receivers Aerials etc. British Amateur Television Club.

PRACTICAL WIRELESS. March 1985. 430 MHz Yagi. (C) Practical ATV Techniques. (G) Radio Wave Propagation. (G.N.) Old Type Receivers, the R1155. (G)

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ARE YOU COMING . . . ?

The Wagga Amateur Radio Club is again hosting the Annual Convention of the Year, in a typical style that only Wagga can do.

Highlights include: Foxhunts with great prizes (possibly the National Foxhunt Championship), Trade displays, Vintage Engine displays, Astronomy displays, Vintage Radio display, Model Aero displays, Auction and Trading table and of course time for rag chewing along with conducted car tours for the sightseers.

The Dinner will be held at the Riverina Australian Rules Football Club with a sit-down three-course meal and entertainment.

We have three motels booked for the occasion plus accommodation at the site for a nominal charge. Caravanners welcome also with on-site power and amenities.

This Premium event is being held on Saturday 26th and Sunday 27th October 1985 at the Curra-jong Scout Camp, approx 9 km S/E of Wagga.

Please watch for the insert in AR August for full details de Jeff VK2KCL.

AR

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

The '75' and '150' awards have certainly stirred up some interest in awards amongst amateurs and SWLs.

It is hoped that this interest will continue as many clubs have awards available. Club nets assist greatly in obtaining these awards.

Costs of awards vary greatly and for those interested there are awards for which no fee is required.

Bermuda — WA8 Award
Chile — CE 25-P Award
Finland — OH 500 Award
ARRL — A1-OP Certificate of Merit
White Rose Award
Canada — Vernon Winter Carnival Certificate of Merit
Canada — CW Operators of the British Commonwealth.

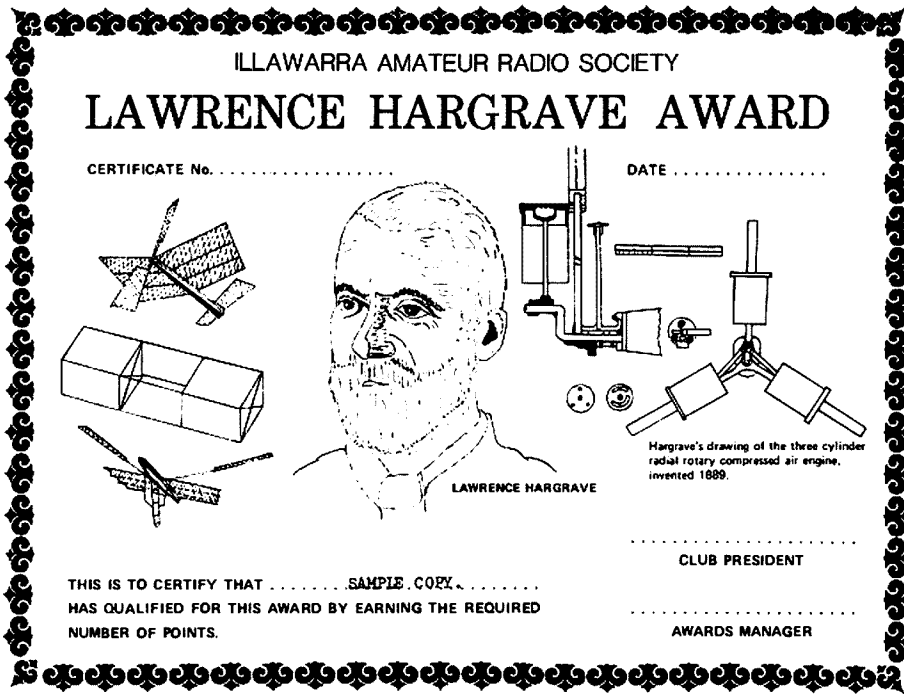
THE LAWRENCE HARGRAVE AWARD

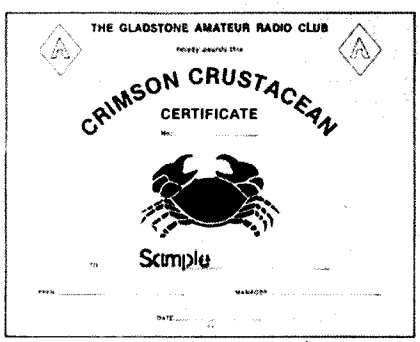
This new award, sponsored by the Illawarra Amateur Radio Society measures 27 x 20cm. The background is light blue with the printing in royal blue. Also depicted are some of the inventions of Lawrence Hargrave, who was one of Australia's earliest pioneers in aviation.

The conditions for obtaining the award are: *VK stations require 10 contacts with IARS members. Overseas stations require 5 contacts with IARS members. Contact with the Club station VK2AMW is sufficient in itself for the award.*

A Club net is held each Sunday night at 1000 UTC on 3.560MHz +/−.

Applications must show: date, time, frequency, station worked and be forwarded to: *The Awards Manager, Illawarra Amateur Radio Society, PO Box 1838, Wollongong, NSW 2500.*





THE CRIMSON CRUSTACEAN CERTIFICATE

This is a new award printed on a yellow background, the centre piece depicting a crustacean in crimson with details also printed in crimson. The design is a joint effort by the members of the Gladstone Amateur Radio Club who must feel satisfaction with their endeavours.

The conditions for the GARC award are:

All contacts after 11/3/85 will count for the award.

1. *All contacts must be on the same band and in the same mode.*
2. *To qualify, a transmitting amateur must show evidence of a contact with:*
   a The Club Station VK4BPA.
   b 5 different member base stations.
   c 1 member station, portable or mobile.
3. *A SWL must show evidence of hearing the Club station as well as 5 members all on the same band and same mode.*
4. *Evidence in the case of clauses 2 and 3 will be certified copy of the log, stating call signs, times, dates, modes and frequencies.*

To assist amateurs and SWLs in obtaining the award a Club net is held each Thursday night on 80 metres at 0900 UTC.

The cost of the award is $2.50 or 4 IRCs.

Applications to be sent to: *The Awards Manager, Gladstone Amateur Radio Club, PO Box 1030, Gladstone, Qld. 4680.*

DIPLOMA JA 35.20

This award is sponsored by the Sakura Amateur Radio Club and requires contacts with amateur radio stations on the 35.20N parallel in Japan.

It is issued in three classes:

Class AA. all 13 prefectures
Class A. 10 prefectures
Class B. 5 prefectures

Prefectures are: Chiba, Kanagawa, Shizuoka, Yamanashi, Nagano, Aichi, Gifu, Shiga, Kyoto, Hyogo, Okayama, Tottori and Shimane.

QSLs are not required only GRC and the fee is 7 IRCs.

Applications to be sent to: *Tuyoshi Chashi, 62, Sakurai, Yoro-Cho, Yoro-gun, Gifu 503-12 Japan.*

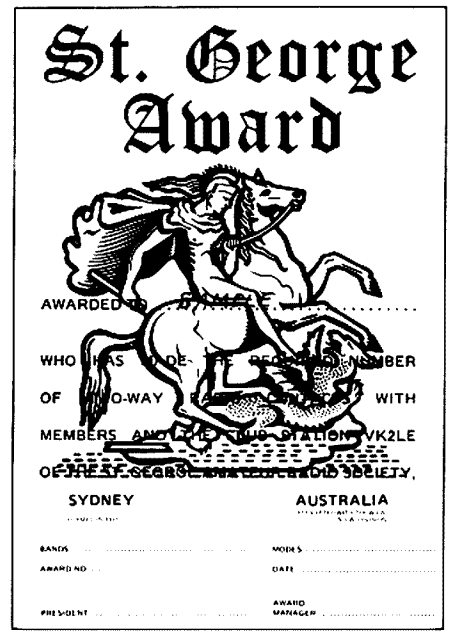
ST GEORGE AWARD

Overseas stations require five points which can be attained by the Club Station VK2LE being worth two points, SGARS member is worth one point on any band or mode.

Australian stations require ten points. Club Station VK2LE is worth two points, excluding via all repeaters. SGARS members worth one point. Any band or mode.

If all contacts are made on CW or RTTY modes, a special silver sticker will be attached to the Award Certificate.

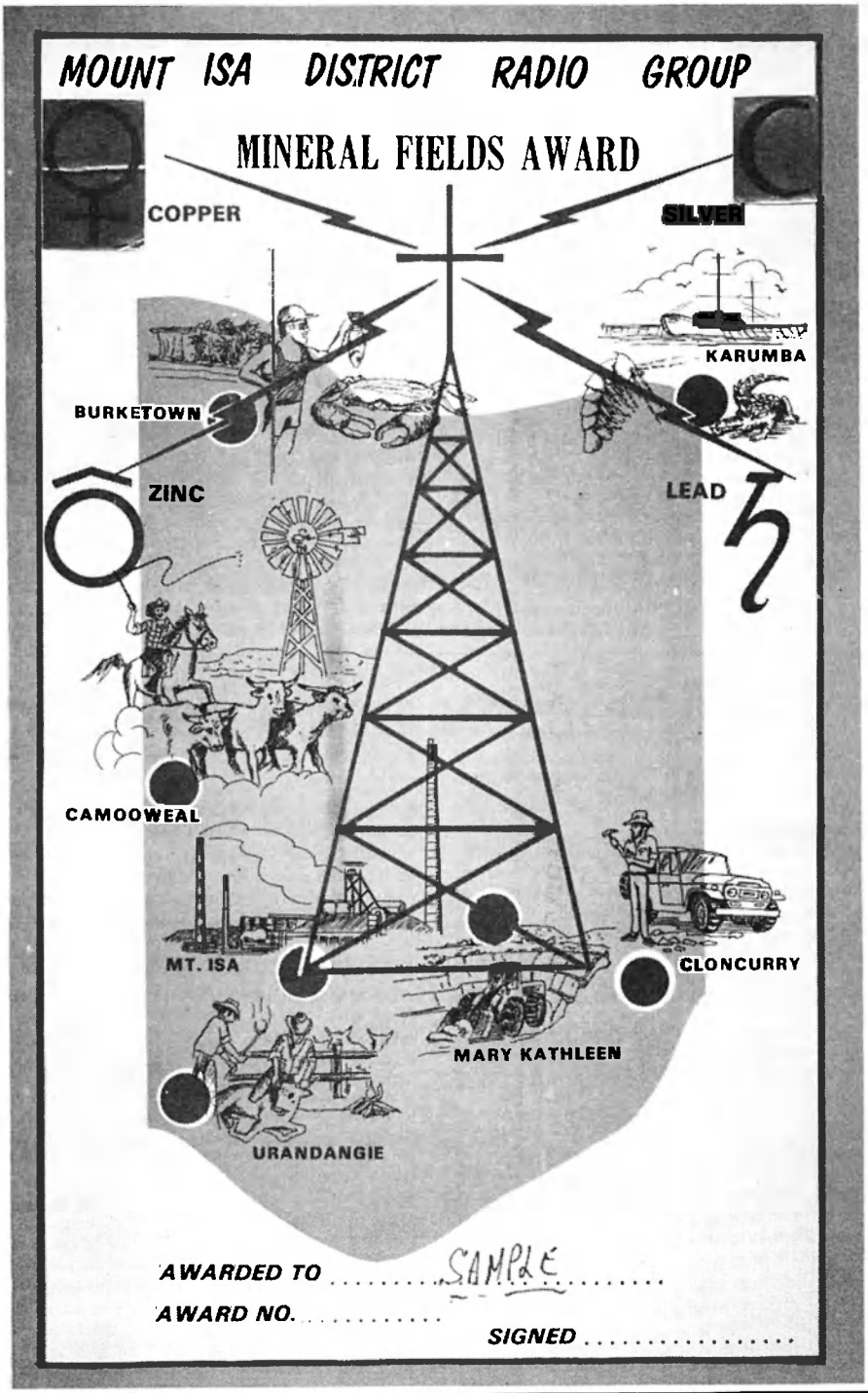
Copies of log entries signed by the applicant and countersigned by an independant fully licenced amateur operator are to be forwarded to: The Awards Manager, St George Amateur Radio Society, PO Box 77, Penshurst, NSW. 2222, together with a remittance of $2 or equivalent made payable to The St Georges Amateur Radio Society.



QSL cards are not needed and the Award is available to all licenced amateurs and SWLs who have made the required contacts, or monitored as in the case of SWLs, on or after 1st January 1985.

LA BALSA AWARD

All the necessary arrangements have now been completed by the committee of the Summerland Radio Club for the La Balsa Award to be available shortly.



See page 49, June AR for details of the Mineral Fields Award.

Australian amateurs and SWLs are required to gain 15 points, DX stations require seven points.

The Club Station VK2AGH counts as five points, member stations count for one point.

A Club net is held each Friday night on 3.605 MHz at 2130 UTC.

Cost is $2.

Complete rules and requirements plus a sample copy of the Award will be published as soon as they are to hand.

AR

QSP

SUBTITLES ON ABC TV

Almost all ABC TV transmitters and translator stations will have supertext subtitles for the hearing-impaired.

Viewers with sets which have text decoders will see a number of programmes such as Minder, Palace of Dreams, Life on Earth, One by One and some children's series subtitled.

The service has been telecast in every capital city for some time and the ABC, after tests, is to extend it to rural areas.

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Opening the column for this month once again with thanks to the following people who have supported the Intruder Watch with reports of intruders heard on the bands during April 1985.
VK2BQS, VK2DEJ, VK2EYI, VK2PS, VK2QL, P Boskos, VK3BPB, VK3XB, VK3XU, VK4ADB, VK4AFO, VK4AHO, VK4AKX, VK4BG, VK4BHJ, VK4KHZ, VK4KZX, VK5BJF, VK5GZ, VK5TL, VK6AR, VK6JQ, VK6XZ, VK7RH. Many thanks for continuing support from these amateurs and SWLs.

SOME FAMILIAR — SOME NEW

April saw a large number of intruders reported, with broadcast stations accounting for 402 intrusions; CW stations accounting for 146 intrusions; RTTY stations accounting for 261 intrusions, and 20 using other modes, eg: R7B, etc. 114 identifications were heard, some familiar call signs, and some new. The harmonic of Radio 5AN, Adelaide, is still being heard on 3.565 MHz at the time of the April reports, and the woodpecker was reported on 7, 10, 14, 18 and 21 MHz. The infamous UMS (USSR origin) has vacated the 15 metre band, but, unfortunately, this is probably only his seasonal change, and if he sticks to past habits, will show-up back on 21.032 MHz at the start of our summer, **UNLESS he has vacated the amateur bands, as the USSR Administration has promised he would.** Very much activity with CW on 20 metres for April, with many call signs being copied.

TRAFFIC CEASED?

Last month I mentioned the commercial traffic being passed in the AMTOR mode on 14.069 MHz from a vessel which was currently in the Marshall Islands. W7JIE, the IARU Region 2 Amateur Interference Reporting System (AIRS) Director, writes that the FCC has monitoring stations on the frequency, and has opened a case against the persons responsible, and at the time of writing this column, I understand that the traffic has ceased.

This unauthorised use of the 20 metre amateur band was first detected by Syd VK2SG, and is a good demonstration of the help which can be given to the Intruder Watch by amateurs who use specialised forms of communication.

If you have facilities for RTTY, AMTOR, etc, and you come across like transmissions, please pass on the information to the Intruder Watch, who can try and do something about it. We need the help of all amateurs in this regard, as we don't all have the specialised facilities. More on this particular case later, when I receive more information from Washington.

LET'S GO TO IT!

Looking forward to the warmer weather, and hope to spend more time in the shack, as no doubt others will. Don't forget to make a note of the intruders you hear, and send it to your Divisional IW Co-Ordinator, who comprise: VK1ZJR, VK2COP, VK3JY, VK4KAL, VK5GZ, VK6XZ (find Bruce under VK6KVV), VK7RH, and VK8HA, all QTHR. See you next month, and I wish you all the best of DX.

AR

ALARA

Australian Ladies Amateur Radio Association

Jennifer Warrington VK5ANW
SECRETARY/VICE-PRESIDENT
AUSTRALIAN LADIES AMATEUR
RADIO ASSOCIATION

As you will have read last month Margaret VK3DML has written her last column for ALARA, at least for the time being. Margaret has done a magnificent job of writing this column over the past few years and I know that the Executive Committee of Alara would want me to say a very big thankyou to her. She will be a hard act to follow, but to soften the blow, before our new Publicity Officer is appointed, it is proposed that we shall have two or three "Guest" writers (after which — with apologies to the others — anyone will look good!)

By the time you read this the AGM will be imminent. The following have been nominated and have accepted (if elected) the positions indicated, so unless we receive two nominations for any of the positions the following will be finalised.

President	*Helene Dowd VK7HD*
Immediate Past President	*Geraldine Plant VK2NQI*
Vice President	*Marilyn Syme VK3DMS*
Vice President	*Jennifer Warrington VK5ANW*
Secretary	*" " "*
Publicity Officer	*Joy Collis VK2EBX*
Contest Manager	*Marlene Perry VK2KFQ*
Treasurer	*Valda Trenberth VK3DVT*
Minute Secretary	*Marilyn Syme VK3DMS*
Awards Custodian and Historian	*Mavis Stafford VK3KS*
Librarian	*Bev Hebiton VK6DE*
Souvenir Custodian	*Joyce Aldridge VK3VBK*
Sponsorship Secretary	*Jessie Buchanan VK3VAN*

State Representatives
VK3 Bron Brown VK3NTD
VK4 Margaret Schwerin VK4AOE
VK6 Poppy Bradshaw VK6YF

At the time of going to press VKs 5/8 and 7 were hopefully filled but unconfirmed. We are still looking for a State Representative for VK2 and would be pleased to hear from anyone who could take on this position. It is not an arduous job.

We were delighted to be the first association to be affiliated, Federally, with the WIA and look forward to a long and happy association. We were also pleased to participate in the Book Pack donation scheme (see June AR) and since then Margaret VK4AOE has presented a second pack to an Agricultural College near Dalby. Marlene and I really felt that we had got off lightly with the Regency Park presentation when we heard that Margaret had to present hers in front of the whole College! One of the questions that Margaret was asked, was, *"are there any amateur operators in the Somali Republic, as a couple of the students at the College come from there and find it hard to get news of home"* If there are any of you reading this who know of any amateurs in the Somali Republic would you please let Margaret or myself know.

Like Australia, many countries have a YL group. We know of groups in Italy, USA, Japan, Germany, Brazil, New Zealand, Great Britain, South Africa Netherlands, Canada and Austria. We have a very popular sponsorship scheme whereby an ALARA member (YL or OM) can pay to sponsor an overseas (usually) YL into ALARA. You specify a preferred country, if you have one, to Jessie VK3VAN and she does her best to match you with somebody on her files. In turn, the overseas YL generally then sponsors you into her local association. It is certainly an excellent way of making friends and learning more about the other girl and her country.

And my final word is actually our "Commercial" for the week. As Father's Day is only a month away, what about buying him one of our new sugar spoons with a fluted bowl and the ALARA emblem of course, so that he can sugar his own cup of coffee/tea while you work the DX! (and as they are only $4.50 you can buy yourself a keyring charm or teaspoon with the money you saved!).

AR

HALLEY'S COMET

It is probably the best known of all the comets and is due to return to visibility in 1986 for the first time in 75 years. Below is a diary of the comet from late 1982 to the end of 1986, as printed in The Propagator, June 1985 issue.

16th October 1982 — The comet detected for the first time since 1911 using the Mt Palomar Telescope at mag 24.2 and beyond the orbit of Saturn.

1984 — Halley moves inside Jupiter's orbit, spending most of the year between stars Orionis and Gemini.

January-March 1985 — Moving through Orion slowly, reaches mag 16 and becomes within photographic reach of large amateur telescopes. Evening object in the low NW sky.

April-August 1985 — Magnitude 15, moving slowly in Taurus, evening object low in the N sky.

September-October 1985 — Brightens to mag 12 in October, moves back into Orion and then Taurus. Remains low in the evening sky, above the northern horizon, heading west.

November 1985 — On 12th November it passes between a close pair of stars. At mag 8 it should be visible in small telescopes and powerful binoculars. On 16/17th it passes 2 degrees south of Pleiades and on 28th passes M74, on 10 mag spiral galaxy. It remains low in the northern sky each evening, reaching an altitude of 35 degrees and mag 7 at the end of the month and should be clearly visible in binoculars. On 27th it passes Earth, 91 million km away.

December 1985 — Moves through Pisces and on 22nd into Aquarius. On 26/27th it passes 1 degree south of Aquarii and should be visible to the naked eye, mag 5, to country viewers. Will not be visible in the city. Moves to NW evening sky and will be highest (50 degrees) above the horizon around 10th December.

January 1986 — Heading towards the sun rapidly, becoming lower in the evening sky. Hard to find after the 20th.

February 1986 — Halley passes the sun 86 million km on the other side of the 9th. Not visible until 15th and is low in the eastern morning sky. Bright with a good tail, reaches 30 degrees altitude on the 28th.

March 1986 — Halley is at its best this month with a bright long tail, visible in the city. Visible in the eastern morning sky, higher each day until nearly overhead at the end of the month. Moonlight will detract from its splendour during the first half of the month.

April 1986 — Moving rapidly, becoming low in the SW morning sky. After 2nd, visible in the low SE sky. Total lunar eclipse on 24th gives the last good viewing opportunity. Rises 50 degrees above the eastern horizon in the evening sky late in the month, fading rapidly.

June-December 1986 — Remains in Sextans, Crater and Hydra. Fades to mag 10-12 in June requiring a telescope to observe it.

AR

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

August has come around again and that means that it is time for the annual Remembrance Day Contest. This year it will be held on the 17th and 18th. SWLs are welcome to participate in the receiving section. Some even assist amateurs by acting as logkeepers. For further details and full rules, I would refer you to the July issue of this magazine. I wish you all the best.

XPO REPORT

Over the Queen's Birthday weekend, I was very privileged to attend the "DXPO", sponsored by the Australian Radio DX Club. It was held in Melbourne and provided unique opportunity for fellow DXers to meet and informally share their experiences within the hobby. It was, for me, an occasion where I was able to meet many of those who have been names on pieces of paper or spoken to on the air.

There were some talks on various aspects of the hobby, paying particular emphasis to antennas. There was also a talk on clandestine broadcasts from Central America by Bob Padula. As he said, the number of these stations seems to be variable, depending on the international situation. There was also a test for those keen DXers to identify station interval signals and/or foreign languages. I must state that I was somewhat surprised to be one of the winners of the competition. I would have expected others to fare well. Perhaps DXers are not paying enough attention to the identification of foreign languages.

These days, information is readily available on international stations with the times and frequencies of their foreign language output. By tuning into these regular transmissions, you will acquire the sound and feel of these languages. Then you will be able to identify a language from other broadcasters. As well, SWLs in Sydney, Melbourne, Brisbane, Wollongong and Newcastle have another aid in foreign languages. The Special Broadcasting Services air programmes in forty or so languages over MW. Also most international stations employ an interval signal prior to the commencement of their transmissions, so when you hear that signal or jingle, you will be able to identify the station although you do not know the language.

RADIO AUSTRALIA

As part of the "DXPO", we inspected the Radio Australia complex at Burwood. Located at the corner of Highbury and Springvale Roads, the complex is on an 18 hectare site, where it is proposed to have the domestic radio and TV studios plus an administrative centre for the ABC. Radio Australia was formally located in the central business district of Melbourne in an old biscuit factory. The modern building was finished in late 1982 and is on three levels with a gross floor area of 6800 square metres.

It is air-conditioned and has its own 650 kVA supply to ensure continuity of operations. The studios are on the upper levels with each section having studios conveniently close by. Most studios have an external view out on to Burwood. Visitors can look into the studio through a view window without entering the technical areas. The lower level is for amenities and plant.

It was interesting to observe the programmes going to air live and see many being pre-recorded for later broadcast. It was a personal highlight to meet with Keith Glover as he operated from Studio Nine with the English programming. I well remember hearing him compere the "Mailbag" programme when I first commenced listening on shortwave some 30 years ago. In all, there are 18 studios and control booths plus line switching rooms, cartridge preparation and tape duplicating rooms, all designed to meet the rigid regulations set out for broadcasting equipment.

While I was in Melbourne, there was concern about staff reductions within the ABC, including Radio Australia. Programmes were disrupted on both MW and Radio Australia while stop work meetings were held. Further programme cutbacks can be expected with possible further industrial action in the future.

FOLLOW-UP INFORMATION

A couple of months ago, I happened to mention the existence of a Racal User Group. I note in the March 1985 edition of "Practical Wireless" there is a new address for the group. It is now as follows:

Peter Barker G8BBZ,
15 Epping Green,
Woodhall Farm,
Hemel Hempstead, Herts. HP27JP.

Incidentally there have been some alterations to the DX programme information in the June issue. Swiss Radio International now broadcasts to Australia in English on 9.560, 15.305, 15.570 and 17.830 MHz. It is on at 0830 UTC and repeated at 1000. "The Swiss Shortwave Merry-Go-Round" is now aired weekly with the "Two Bobs" on Saturdays. Judy Cooper has replaced Barry Seeber on Radio Australia's "Talkback".

The Voice of America publishes a bi-monthly magazine called "Voice". It contains articles about life within the USA as well as details of upcoming VOA programmes. "Voice" also lists details of their foreign language broadcasts, which I find very useful. It is free for the asking from the VOA, Washington DC USA 20547.

Incidentally the VOA have two releases for this area. The first one is from 2200 until 0100 UTC on 17.820, 17.740, 15.290 or 15.305 (till 2400) MHz. The evening release is from 1100 to 1500 UTC on a variety of channels, but the best are 6.110 (till 1400), 9.770, 11.715 (till 1330), 15.160 MHz, all from their Phillipines site. You can easily hear their transmissions directed to the Middle East and Africa from 0600 UTC on 7.320 MHz.

While we are on schedules, here are the frequencies and times for several major international stations beaming to Australasia. Radio Sweden Int'l in English is on 15.115 MHz daily. Radio Japan in Tokyo, currently celebrating it's 50th anniversary, has announced it's programme schedules until March 1986. To Australasia it is on from 0845 till 0945 UTC in English. Radio Norway Int'l normally broadcasts in Norwegian, but it has a weekly English and Spanish programme on 17.740 with English at 1000 and Spanish at 1040 UTC. The rest of the week, Oslo broadcasts in Norwegian on that channel at that time. Radio Budapest has re-scheduled their DX programme to Mondays as from April. The times for their English programmes to Australasia are from 0930 till 1000 UTC on 17.710, 15.220 or 9.835 MHz. The Austrian Radio from Vienna beam to Australia at 0700 on 11.840 and at 1000 on 15.270 MHz. English programmes are in a thirty minute block.

IMPROVEMENT??

Conditions of late have been extremely poor to say the least. I have never heard such poor propagation in my life. The maximum usable frequency (MUF) has been as low as 6 MHz in our evening hours. In the daylight hours, it rarely goes above 17 MHz. With spring coming up next month, I expect some slight improvement in the evening hours.

While we are on amateur radio scheds, I am prepared to have chats on-air with those interested in SWLing. I would suggest Wednesdays on or about 3.595 MHz plus or minus QRM after the Intruder Watch Net concludes around 1100 UTC. Please feel free to join in.

Well, that is all for this month. All the best in the "RD". Good listening and the best of 73! Robin.

AR

WICEN NEWS

Ron Henderson VK1RH,
FEDERAL WICEN CO-ORDINATOR,
171 Kingsford-Smith Drive,
Melba, ACT, 2615

WICEN CALLING FREQUENCIES

As a result of a motion passed at the recent Annual Convention the following HF WICEN calling frequencies have been adopted.

3.600 MHz	*18.150 MHz*
7.075 MHz	*21.190 MHz*
10.115 MHz	*24.950 MHz*
14.125 MHz	*28.450 MHz*

It is only necessary to keep these frequencies clear when there is a WICEN net operating on them, at all other times they are available for general amateur usage.

Calling frequencies are frequencies on which communications will originate; once established, nets may change frequency due to local conditions or practice, interference and other factors. Also it is not expected every division will adhere rigidly to these frequencies for training and liaison nets as local conditions may make them unsuitable in some parts of Australia.

WICEN MANAGEMENT

WICEN, by its very title, implies an affiliation with the WIA and in most divisions WICEN is managed by a sub-committee of the divisional council. Matters such as whether all WICEN members must be members of the WIA (perhaps for insurance cover?), the chain of command for WICEN, funding of WICEN and its level of representation and autonomy are all divisional matters. If your WICEN group has not got a clear statement of its status, responsibilities and conditions under which it functions I recommend you obtain this information through the divisional co-ordinator. Some useful guidelines were provided in the AR September 1981 WICEN column. Divisional councils, working through their divisional co-ordinators, must establish clear, sensible, yet not overly constraining conditions under which WICEN can operate. The dichotomy between bureaucratic control by council and a wish to 'get on with the job of communicating' unfettered by unnecessary constraints must be recognised and a healthy working balance struck. Council must realise WICEN operators wish to communicate for their clients, and WICEN personnel must acknowledge that they are involved in only one facet of our extensive hobby.

In summary if you do not have terms of reference, such as divisional rules or by-laws or a written statement of authority negotiate one and work within its conditions.

LAST SUMMER'S ACTIVITIES

Now that the busy season of last summer is behind us what about a few short reports on WICEN activations? By sharing your experiences and perhaps lessons learned with others we can all become better emergency communicators. What about it? Let's hear from you.

AR

PAKENHAM SHIRE WICEN GROUP

Don Jackson VK3DBB
3 Gardenia Street, Pakenham, Vic. 3810

On the 23rd May, the Group assisted the Narre Warren Rotary Club in the running of its annual TWO IN ONE SCENIC STAMPEDE FUN RUN, which followed similar runs in 1981, 1982, 1983 and 1984. So far the Club has raised over $10,000 for the Anti Cancer Council of Victoria by these runs.

The WICEN operators provided mobile communications facilities at nine different points around the 20 km course, with some hand-held units being used around the start finish area. Whilst a great deal of routine traffic was passed, fortunately no emergencies or problems occurred with the runners. The exercise proved very useful and successful, with all stations being able to contact each other clearly. The frequency used was 146.500 simplex, and the Group would like to thank other amateurs for keeping clear of the frequency whilst the exercise was on.

The amateurs who took part in the exercise were: *VK3s: AX, DGS, TX, NNU, ZFT, DBB, BGY, YFC, ZYK, ATQ, KDS, BVA, YPK and BAF.*

Any amateur operator in the area who would like to assist in this valuable community service could contact Don Jackson at the Shire Offices at Pakenham, phone (059) 411 011, and would be made very welcome.

The value of WICEN has been recognised by all disaster combatting authorities, and the Shire of Pakenham is one municipality which has made specific provision in its DISPLAN for WICEN to be called in if and when a disaster occurs. **AR**

MIDLAND ZONE WICEN

Don Hogg VK3XBL
WICEN CO-ORDINATOR MIDLAND ZONE.
Box 155, Kangaroo Flat, Vic 3555.

Unfortunately it is always the lot of the busy people that are supposed to contribute to various activities. My arm is currently being twisted up my back at a great rate of knots to contribute to this column after repeated requests have not produced any results. So here are some of the experiences of the Midland Zone WICEN group.

Our activities started last November with data transmission tests for the CFA continued on to the Great Victorian Bike Ride, revisited Maryborough for the aftermath of the bush fires and found a fowl plague on our back doorstep at the same time we were involved with the Lusty Mallee Rally. So from all this what have we learnt and what can be shared through this medium.

Our first lesson came from an unexpected area (as they all do) but certainly changed our attitude of complacency. The Bendigo repeater has a good coverage and it was anticipated it would be very useful for our two days of the Bike Ride communications. This was fine for day one but we were shocked to find that Maryborough was a dead spot for the control location for the second day. We believe possibly because of the shadow of the tower the repeater aerial is on (not confirmed yet). Naturally we were ready for this situation when, with Ballarat, we revisited Maryborough for the fires and we set up a relay point at a high spot in the town.

Lesson two is a result of the Maryborough fires and the Mallee Rally where in both situations we were operating portable in other vehicles using magnetic base aerials and some handhelds. Unless there is absolute saturation coverage of the area you need at least ten watts output to work effectively as a mobile where the distances are beyond about 15 km radius. Our experience is that handhelds are not always effective to ensure good communications when used as mobile portable sets.

One lesson that follows on from the last is that there is a need to check the power source in any vehicle you may be going portable in. Recently in the fowl plague exercise one of our operators plugged into the cigarette lighter socket for power to his power pack for the handheld. He decided something was wrong when the power pack became very warm and strong odours were also evident. The vehicle was a diesel van with 24 volt supply. Fortunately the regulator in the power pack tolerated the 24 to 9 volt difference long enough for him to unplug and no damage was apparent.

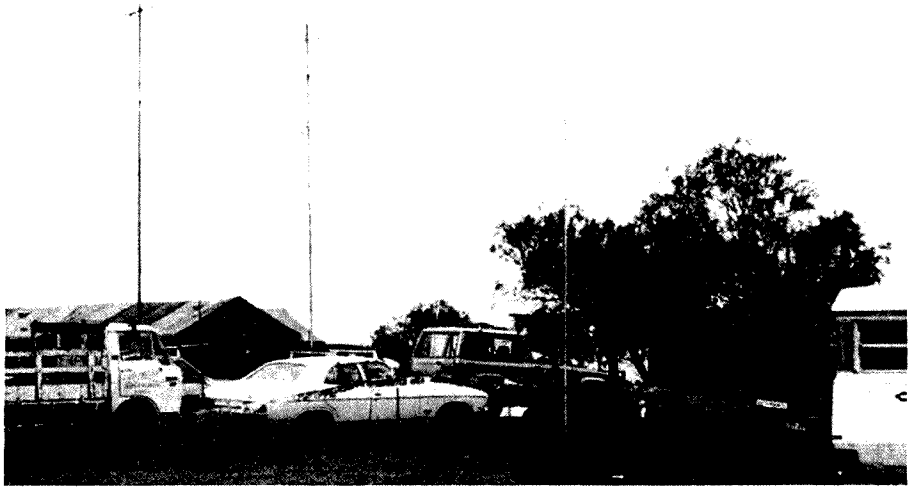
So much for the handy hints the real lessons came when the Midland Zone were landed with simultaneous exercises at the beginning of June. We had a request for assistance from the Department of Agriculture in combatting the outbreak of fowl plague in the Bendigo area which continued over the long weekend in June when we were committed to running the communications for the Mallee Rally. A protracted exercise going more than two or three days needs a lot of preplanning and clear guidelines if effective communications are to be provided and the tolerance of friendships and relationships is not to be taken to breaking point. As Co-ordinator I am certainly the wiser from this bizarre happening and the need for all members of the team to communicate with one another about their feelings and the sharing of the tasks of planning. No one or two persons can effectively run protracted exercises without continual debriefing meetings — unfortunately one of our downfalls on this occasion.

The Mallee Rally was a different experience and one of enjoyment even though there was much fear and trepidation when organising it (albeit with good liaison) from a great distance without having previously been involved or having seen the location. From comments from previous people involved it was evident that there were some dead spots. To overcome this we planned to use our repeater to saturate the general area but this fell through owing to the Department of Agriculture disaster. With 24 hours notice George VK3AGM was set the task of coming up with an alternative. We discussed the principle of a 10 metre link to the dipole we already had installed 42 metres (140 feet) up on a local tower. The result from George was a 6 metre link with the squelch operating a relay to turn the two metre transmitter on for transmission of the audio on to 2 metres.

It worked well with minor difficulties but we believe it would be a better system placed half way into the area of operation. The command centre was some 7 to 10 km from Sea Lake where we had our aerial and the terrain seemed to impede the link without 3 element beams. Our area of operation was in the opposite direction to Sea Lake for some 30 km. This system also gives the opportunity to operate two channels on the same frequency if the link is remote from the base and the other transmitter is located, say at the base station. In fact at times we were operating direct on 2 metres when the link misbehaved for some unknown reason.

The success of the Mallee Rally was due, in part, to the many operators who had been there previously and this made the allocation of duties an easier task than if we had a large number of newcomers. The social gathering around the barbeque each evening was beneficial to the operation and gave the opportunity to discuss problems and share those rare experiences that only happened in front of your check point. We were mystified for quite some time about a dune buggy resting in the lake and the bogged brand new 4WD trying to recover it. We have a sneaking suspicion that both vehicles may belong to a Collins Street farmer type.

As I was on the last sweep vehicle to return at the end of the Rally and did not get the opportunity to say farewell to many of the team I would like to express my sincere thanks to all who were part of the team and to say I enjoyed the new friendships that were made at the Mallee Rally.



This article about all the problems we experienced may give the connotation that the communications were not all that crash hot but the reverse is the case. In all the exercises we have been on in spite of the above problems we have been able to provide good communications and have won some commendation for our services. The problems experienced only served to make us more aware of the problems for the next task and to learn from our mistakes.

The Zone has acquired four computers for mobile use to transmit information in WICEN operations. As some would know we developed a tone board based on the Kansas City Standard for the transmission of data and Ron VK3YHV the designer will use this board in the computers with software control of the facilities. We already have software design of the WICEN message format and have used this in the tests with the CFA. We believe much more effectiveness will be achieved in the future if this medium of message handling is used.

AR

Left: Aerial array at the command centre. Left — 6m beam for the link to the remote 2m transceiver. Centre — 27MHz for listening to the recovery vehicles. Right — Mast with 80m dipole and direct 2m Slim Jim.

REGION 7 EXERCISE . . . OTWAY SURVIVAL

Barry Abley VK3YXK
Exercise Co-ordinator.

Upper Kalimna Falls.

The SES has called for WICEN support, to provide portable (pedestrian) communications at the scene of an accident.

A child has fallen from the Upper Kalimna Falls, in the Lorne Forest Park, in the Otway Ranges.

The child must be diagnosed by a doctor because of possible spinal injuries sustained in the fall. The patient is then to be carried out to a convenient location, to be picked up by helicopter for transportation to hospital.

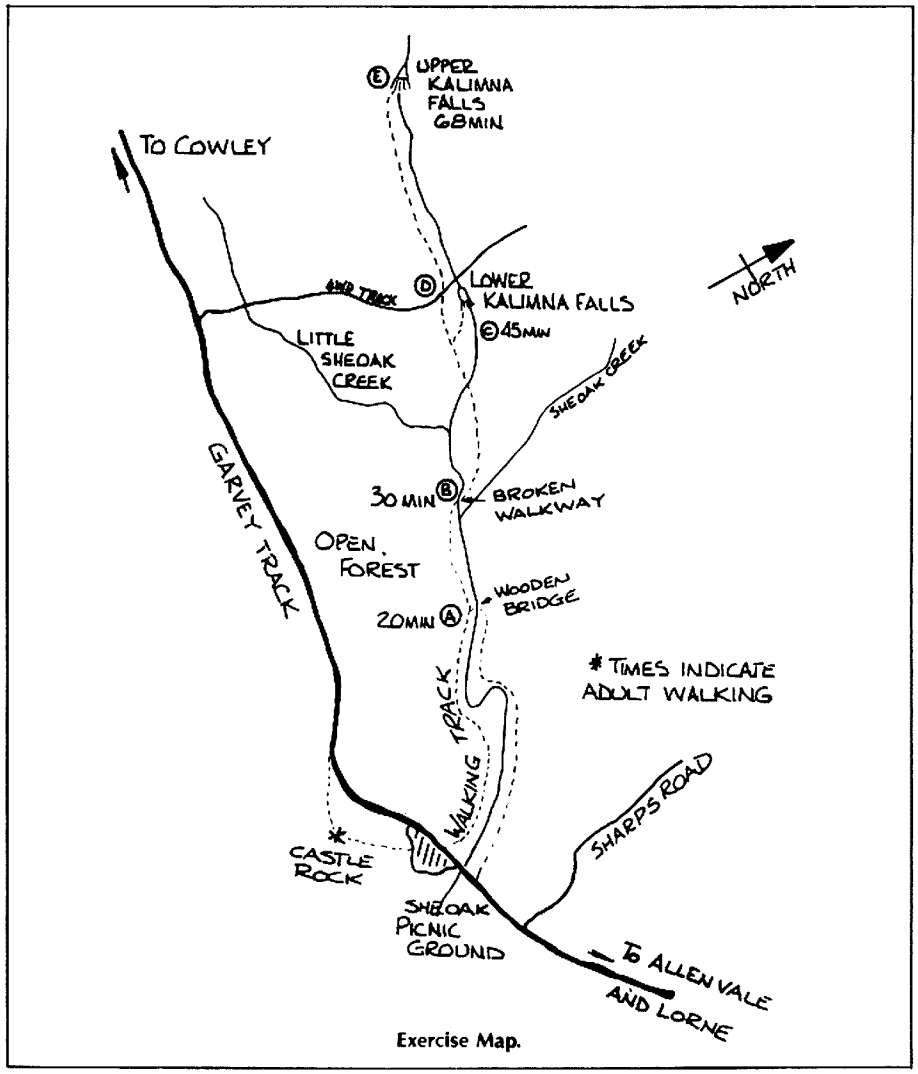
This is the scenario which confronted Zone 7 WICEN operators during exercise "Otway Survival", which took place on Sunday 9th June, in the forest behind Lorne. Twelve operators aged from 16 to 60 were divided into four groups, each with an important task if the victim was to be safely brought out of this rugged location.

The groups were required to undertake a variety of tasks including, moving to the accident site to relay the doctors diagnosis, setting the tapes and fire a smoke flare to assist the helicopter. A helicopter group was required to deliver a Bradford Frame stretcher to the accident site. A net control and support group were also required.

A cool overcast day and the Otway Ranges setting lent authenticity to this most successful exercise. Communications were achieved using hand-held 2m transceivers with each group, an FT480R as net control, and Group 1 carried an IC22S, battery and antenna to the scene of the accident to ensure reliable signal strength.

This exercise has ensured that the operators in Zone 7 are able to confidently work in the Otways, which constitute a large portion of their zone.

AR



Exercise Map.

ORGANISING FIELD EXERCISES

A Discussion paper (WICEN)

Mark J Stephenson VK3PI
VK3 REGIONAL CO-ORDINATOR
46 Fore Street, Whittlesea, Vic. 3757

OBJECTIVES: At the completion of this session, participants should be able to:

Plan, co-ordinate and implement training exercises;

Effectively respond to a request for communications support in a fast, efficient and confident manner, based on proper planning practices.

INTRODUCTION

There are a number of factors to consider in planning field exercises, and in this session I will attempt to present and discuss the more important issues.

The implementation of a field exercise can be broken into three finite stages of planning:

(a) *PRE-EXERCISE — involving liaison with services involved in the exercise, public relations, administrative preparation to determine manpower requirements, equipment requirements etc.*

(b) *EXERCISE — administration and organisation of networks, liaison with all services, rostering etc.*

(c) *DEBRIEFING — analysis of effect of exercise, report on ability of WICEN to handle specific tasks.*

WHAT IS COMMUNICATIONS?

It has been said that there are very few human activities we:

* *value more*
* *understand less*
* *perform worse*

than person to person communication.

Definition:

"WHERE A MESSAGE FROM ONE PERSON TO ANOTHER IS RECEIVED AND UNDERSTOOD BY THE SECOND PERSON EXACTLY AS THE FIRST PERSON INTENDED IT TO BE."

Communications can be divided into three broad categories:

1 *Telephone, telex, radio or any other form of communication relevant to field operations. Also includes communication by members of WICEN with members of the public, or members of other services, administrators and the public;*

2 *Non-emergency communications involving spoken, written or machine communications in support of administration or operations;*

3 *Informal communications between members of WICEN, mostly in spoken form.*

It must be remembered that the most expensive and complex piece of equipment is useless unless users are adept in a technical and communications sense. A member of WICEN who does not communicate adequately fails to gain comparable communication in return, and risks alienating people with whom he is liaising.

RESPONSIBILITIES OF WICEN PERSONNEL

Each member of WICEN, regardless of position within the structure of the system, has responsibilities. All members of WICEN have important roles to play in counter disaster operations, and of particular importance are the roles of Local and Regional Co-ordinators.

Before planning any exercises, one must be aware of the responsibilities as a Co-ordinator, be it Local or Regional.

REGIONAL WICEN CO-ORDINATORS

To promote an awareness of WICEN within their region among amateur radio operators, clubs and counter disaster authorities.

To establish a good liaison with the regional operations officers of the State Emergency Service, and/or relevant regional officers of other authorities. To ensure that each Local WICEN Co-ordinator in the region has good liaison with the local SES controller, local Police Inspector, and/or other counter disaster organisation staff.

To liaise with the Local WICEN Co-ordinators within the region and to ensure that each is active and constructive in their approach to emergency situations.

To maintain records of Local WICEN Co-ordinators and operators within the region, with all relevant details.

To ensure all WICEN operators are trained and exercises in emergency procedures under the guidance of their Local WICEN Co-ordinator.

To maintain amicable relations with counter disaster organisations, and in doing so inform them of the existence and capabilities of the Local WICEN groups.

To monitor WICEN operations in an emergency and assist where necessary.

To be conversant with regulations pertaining to emergency communications as per the DOC handbook.

To ensure that the State Co-ordinator is informed of any changes in regional organisation of the network.

LOCAL WICEN CO-ORDINATORS

To promote an awareness of WICEN within their area amongst amateur radio operators and counter disaster agencies.

To organise, if warranted, a local emergency network to meet any requirements of an area. To organise regular practice exercises using correct WICEN procedures as laid down. To supervise the running of any such network.

To act as liaison officer with the State Emergency Service in an area, and/or any other authorities as necessary.

To maintain a close liaison with the WICEN Regional Co-ordinator and to act on such policies or suggestions issued periodically.

To maintain a list of WICEN operators in an area together with all relevant details. Such information is to be lodged with the Regional Co-ordinator together with a plan for the local network and frequencies used locally.

To be conversant with regulations relating to emergency communications as per the DOC handbook.

ORGANISING A CALLOUT LIST

There are four levels of activity for amateurs:

Member of WICEN
Member of SES
Member of Third Party Traffic Net
Operator

It is important when compiling a list of those anticipating activity in WICEN to bear in mind that many WICEN operators, particularly in small communities, may belong to multiple organisations. This is a good thing provided there is not a conflict of interest.

It may be pointed out that if on a WICEN callout things are going slowly, members should not change allegiance midstream. This only makes it difficult for all.

KEEPING RECORDS — Suggested approach

Each WICEN Co-ordinator should endeavour to maintain an up-to-date list of all volunteers available for callouts or exercises.

The following information may be useful:

IDENTIFICATION — Name, address and call sign
CONTACT DETAILS — Home and work phone numbers
AVAILABILITY — How long can the member afford to be on duty
RESPONSE TIME — How much time does the member need to respond to a callout
VEHICLE — Type — is it able to go cross country
EQUIPMENT — Transceivers, bands, modes
POWER SUPPLIES — Generators, mains supplies, batteries

ACCEPTABILITY OF WICEN — PUBLIC RELATIONS

Liaison must be made with the public, and relevant counter disaster agencies, capabilities established and mutual trust and respect achieved before embarking on practice or operational exercises.

WICEN has suffered in the past with an identity problem in achieving acceptability by counter disaster agencies. Rather than tell authorities what we can do and leave them to fit us into their plan, perhaps we can be progressive and see if we can solve their communication problems. If a disaster plan for the region exists, analyse it. If one does not, carry out a threat analysis (See Appendix One).

Public relations and liaison with all other services is of primary importance and aids your ability to:

Plan your own exercises
Plan co-operative exercises

Be able to be recognised as a viable service when giving or requesting assistance.

Having ascertained the likelihood of any particular disaster in your area, make certain you know and are known by your local co-ordinators. This may include CFA Local Captains and Regional Officers, SES Local and Regional Officers, Telecom Australia District Co-ordinators, and Disaster Welfare Plan Regional Co-ordinators.

When dealing with personnel of other services and/or the public, be extremely conscious of the image you are projecting as an individual, and as a representative of WICEN. Of particular importance is your appearance when meeting people. Poor appearance in the form of untidiness or carelessness, arising from perhaps well meant informality, fails to impress. Adopt an attitude which will reflect the professionalism of the organisation you represent and act accordingly in your manner and dress.

GUIDELINES FOR EXERCISES

INTRODUCTION WICEN exercises should be conducted regularly to train people in message handling, and to test field equipment. One of WICEN's and amateurs strengths is flexibility in the type of equipment we use and the range of frequencies available to us.

In conducting exercises objectives must include matching current communications capabilities moulded around disaster plan needs, and testing/proving new communication techniques such as RTTY, portable repeaters etc. Training in the past has been dominated by practice in voice procedure and message handling. Organisers of exercises must also incorporate testing of frequency and equipment flexibility in their planning.

POINTS TO CONSIDER

Simulated disaster exercises are of limited value unless organised in conjunction with other counter disaster agencies and on a large scale.

For general purpose training and testing, community support exercises are useful. These provide assistance to the community and "real" traffic is passed.

WHO DO WE SELECT TO SUPPORT IN THE COMMUNITY??

(a) *The Community aid exercise should have training value for WICEN operators and involve personnel in tasks similar to emergency situations:*

(b) *It must be within the local groups capabilities and should demonstrate WICEN to local authorities.*

DO WE REPEAT COMMUNITY AID EXERCISES YEAR AFTER YEAR??

All exercises should be debriefed thoroughly to

guage their worth. WICEN may be hooked into a support situation each year and drift away from the general training and exercise aims. Where little exercise traffic is passed and the community event is adequately covered by other services, WICEN should not consider participating. Bear in mind that some exercises may be useful to both parties by strengthening ties and create support for our role.

Larger exercises, including all night and extended period of operation are also good training and may include car rallies, canoe marathons, etc.

EXERCISES AND THE DEPARTMENT OF COMMUNICATIONS

The Department of Communications is the regulatory authority governing amateur radio in Australia, and as such concerns itself with all aspects of the Amateur Radio Service. With regard to WICEN and exercises:

DOC must be convinced that personal safety would be at risk without WICEN involvement, and that WICEN receives valuable exposure.

Permission for exercises must be obtained from DOC. Details of proposed exercises are to be conveyed to the WICEN State Co-ordinator as he is generally in close liaison with officers of the Department.

Regulations regarding exercises are listed in the Handbook for Operators of Amateur Stations. A request in writing must be received at least ten working days before the proposed exercise. The request should contain the following information

- *frequencies to be used*
- *area of operation*
- *organisations operating during exercise*
- *declaration that amateurs receive no gain*
- *details of proposed types of messages (personal safety, accident reports etc)*

All logs must be kept for 12 months.

SUMMARY

Remember the word "PLEDGE" as it will remind you of those points to remember when organising field exercises.

Plan — your involvement and identify what communications you will be expecting or expected to supply

Liaison — good early liaison with those groups you will be working with is a must

Effort — put considerable effort into planning your exercises

Determine — your groups capabilities, strengths and weaknesses

Guide — members participating in exercises or as a support group should be treated no worse than the organisations helpers. This could include free entrance tickets, lunch facilities, car parking, use of clubrooms etc. You are providing a free service which would be quite costly if hired commercially.

Ensure — all WICEN members know their duties and limits of responsibility.

CONDUCTION OF THE EXERCISE

Some tips on Communications

* BE CLEAR	always use words and language the other person will understand
* BE CONCISE	too many words confuse people
* BE COMPREHENSIVE	cover all major and important points
* BE POSITIVE	positivity helps to give confidence and helps to get the message across
* BE COURTEOUS	courtesy is not a sign of weakness but gives the other person the right to be considered as a human being
* REQUEST, DON'T ORDER	where possible use the "we" approach
* BE PATIENT	as this will help those lacking confidence or who may be shy
* LISTEN	thoughtfully to each question giving it careful consideration
* DO NOT	take an aggressive question personally — treat it as evidence of concern and answer it fairly and calmly.

Frequencies

There are no dedicated WICEN frequencies, only band plans. The authorised emergency network operations are accorded a clear frequency by regulation (See Handbook section 6.32). However recommended frequencies for operational use are the following:

***HF** — 3.600 7.050 14.100 21.190 28.450 MHz*
Secondary frequencies are +25kHz for SSB and −25kHz for CW
***VHF** — Simplex Channel 6500 146.500*

Band sharing

The key to good operating is courtesy, tolerance and consideration on both sides. A short identified request along the lines of:

"..... Victorian WICEN is conducting a WICEN exercise in support of the local SES. A clear frequency would be appreciated. This is VK...."

Public relations

Frequently members of the public ask questions which appear on the surface to be shallow or stupid. Try not to assume this as questions may be asked out of ignorance or stoked by a situation or personal anxiety. They may be conversation openers with the real question to follow. Where the person appears under stress, the question in reality may be a form of seeking reassurance as well as guidance. A brusque or contemptuous reaction to the initial question gives no feeling of support or reassurance to comfort the questionner.

Administrative procedures

In the past there has been a fallacy that the most important job one can do during an exercise is operate communications gear. True, it is an important job but one which ranks equal to that of administering an operation. The astute organiser knows that the running of an exercise requires operators, logkeepers, rostering staff etc. Guidelines for procedures and duties to be performed in an exercise are adequately covered in the publication "WICEN OPERATING PROCEDURES LEVEL 1".

Reference should also be made regarding the establishment of a communications network in an operation. Varying factors will determine the size and requirements of a network, perhaps the most important being the area of operation and availability of members with suitable gear.

CONCLUSION

The preceding notes are by no means exhaustive and have been compiled in the hope that they form the basic building blocks for WICEN members to plan and co-ordinate their own exercises.

When planning exercises remember we are all communications orientated, and as such their will be no excuses for not communicating with those directly involved in an exercise, the public, WICEN members, or members of other authorities.

COMMUNICATION means CO-OPERATION, and CO-OPERATION means CONSOLIDATION.

APPENDIX ONE

THREAT ANALYSIS — SUGGESTED GUIDELINES

This involves grouping threats in your local area into probabilities of occurrences and seriousness of disaster. You should aim to satisfy the most likely occurrence in your area.

When planning involvement in countering disasters, and the training leading up to it, you should examine the relevance of the table entries to your local area.

CONSIDER: What are the most likely threats?

What can WICEN do to counter them at various levels of severity?

How does this influence training?

SCALE OF DISASTER

RISK	MAJOR	MODERATE	MINOR
High	Erosion Flood Drought Cyclone Wildfire Storms	Flood (Flash)	
Med.		Plagues	Landslide Temperature extremes
Low	Epidemic .	Tornado Salinisation Tsunami Earthquake	Frost

APPENDIX TWO

HOW DO YOU RATE AS A WICEN OFFICER?

Do most of the local amateurs know you as a WICEN officer?

Have you given a talk at your local radio club on WICEN?

Have you organised a local WICEN net in your area?

Do you know the name of your local SES Group leader?

Do you know the name of the SES Area Controller?

Can you recite the phonetic alphabet?

Are you familiar with WICEN prowords?

Do you know how to give and take a map reference?

Have you emergency power and can get on the air without mains?

Have you a telephone?

Are you emergency minded and a survivalist?

Could you erect an emergency antenna within half an hour?

Have you a fully stocked first aid kit?

Have you a survival kit or emergency rations?

Have you a fire extinguisher in the house or car?

ACKNOWLEDGEMENTS

The following references have been useful in compiling this paper:—

1. WICEN News series of articles 1979-1983 — Ron Henderson VK1RH.
2. Portable Station Instructions — Colin Pomroy VK3BLE
3. Introduction to Police Administration, Communications and Communicating — Mr V M Barlow QPM, AFAIF and Mr C Proctor, BA (Hons Psych) MA PsS, MACE, FAIM.
4. Victoria Police Manual and Standing Orders
5. WICEN Notes — Peter Mitchell VK3ANX.

AR

MAN IN MOTION

The British Columbia PEP Amateur Radio Service is seeking support and amateur radio communication help for Rick Hansen — wheelchair marathoner, who will wheel 25,000 miles around the world. Rick will be in Australia during December 1985 and January 1986 and will wheel between Sydney and Townsville.

Are any members prepared to help by providing communications during the trip? If so, please contact the VK2 and VK4 Divisions, who will have more details.

AR

CLUB CORNER

SEQTG & SEQATVG — A WORLD FIRST?

The South East Queensland Teletype Group and the South East Queensland ATV Group are co-operating to transmit the RTTY news from VK4TTY live on the ATV repeater on UHF channel 34.

It is now possible to watch the RTTY broadcast on UHF TV similar to a 'glass' RTTY terminal on the Mt Cotton repeater, 3.630 MHz and UHF TV ch 34 every Monday evening at 1000 UTC.

from QTC June 1985 **AR**

DEVIL NEWS FROM THE NW BRANCH

There was a good gathering at the last Branch Meeting when one considered the poor, wintery weather.

The lease for the ATV repeater site has been renewed so it looks like the repeater will be on top of the mountain for a few more years.

A new antenna has been purchased by the Branch. This will save the beam being pulled down and moved for use at outside broadcasts, such as JOTA. The new antenna is a five band, trapped vertical.

The Branch also hopes to become the proud owners of a new HF set in the near future. Donations have been forthcoming from many members of the Branch, many thanks to them. The Branch has many good hearted people and it is a great feeling to be part of the people who give so much in so many ways.

RTTY is not yet operational as there is still much work to be done on the terminal, however Jack VK7WJ has much of the work in hand, so hopefully it should not be too long before something is happening.

Two metre repeaters 2, 3 and 8 will be set for remote linking by the end of the year.

Florian Biner, the activities officer, has many projects planned for the future including the conversion of the Siemans printer to 45 Baud.

About 250 QSL cards were despatched but not many incoming ones, due to the condition of the bands.

The Clanger Award was received by Tony VK7AX for purchasing raffle ticket books and not taking them to the meeting.

The meeting concluded with an interesting talk on SSTV by Tony VK7AX, which was enjoyed by all in attendance.

Thanks to Greg VK7ZBT for his assistance with these notes.

Contributed by Max Hardstaff VK7KY. **AR**

MOOMBA RADIO CLUB

The Moomba RC have an award called the "Minnet The Mining Net) Award".

For further information about this award contact the club call sign VK5GAS or write to the Secretary, PJ Blades VK5APB, Moomba RC, Moomba Camp, FC47, GPO Box 563, Adelaide, SA, 5001.

AR

WESTERN SUBURBS RADIO CLUB HONOURS MEMBERS

Recently the Western Suburbs Radio Club Committee and members paid tribute to five of their esteemed colleagues, whose efforts in supporting the Club since its inception have been extraordinary.

Preliminary discussions on forming a club were held on the old 2 metre Channel "A" on 19 September 1969. This on-air discussion was convened to determine the possibility of forming a radio club to serve the north and west of Melbourne. Those present in the net included Ian VK3ANZ, Ian VK3ZFH, Ted VK3ZZO, Ted VK3ZKP, John VK3ZWL and Les VK3ZPB.

A meeting was then arranged in the You Yangs on Sunday 21st September 1969. The meeting was arranged to discuss the formation of the club. As a result of discussions, and combined with the comments and thoughts of many XYLs attending, a formation committee meeting was planned. Three meetings took place on 21-11-69, 18-12-69 and 30-1-70.

The inaugural meeting of the club took place on the 20th February 1970, and for many years the Club convened each month at the Melbourne Caravan Park in Elizabeth Street, Coburg. Since 1983 the Club have occupied the Ern Rose Memorial Pavilion, Edwardes Lake, Reservoir, where the recent presentations took place.

Muriel May received a Service Certificate for her excellent efforts in performing duties as Secretary of the Club during 1982 and 1983. Muriel is the XYL of Neil VK3KNM, himself a hard worker for the Club. Muriel is the first ever recipient of a Service Certificate, and deservedly so.

Les Johnson VK3ZPB, the oldest founding member of the Club, was presented with a Life Membership Certificate. Les was the first Secretary of the Club in 1970, and performed this task also in 1971, 1972, 1973 and 1974. Les was Member of the Year in 1975, and magazine Editor for several years.

Ted Howell VK3ZKP was presented with a Life Membership Certificate for his untiring services to the Club. As a foundation member Ted has consistently contributed his services for the benefit of others, and continues to do so.

Below:
Les Johnson VK3ZPB, (left) oldest founding member of the Western Suburbs Radio Club receiving his Life Membership Certificate from Club President, Mark Stephenson VK3PI.

Photograph by Luigi Diamante VK3ZLD

Photograph by Luigi Diamante VK3ZLD

Proud recipients of awards, from left Tom Page VK3AGH, Les Johnson VK3ZPB, Muriel May, David Hunt VK3DMH and Ted Howell VK3ZKP.

Tom Page VK3AGH was presented with a Life Membership Certificate for his unselfish contribution. Tom has held the position of President (1978, 1979, 1980, 1981 and 1982), Vice President (1973, 1976, 1977, 1983), and Secretary (1984) and again this year Tom was Member of the Year in 1980, and remains as one of the more dedicated of our members.

David Hunt VK3DMH is known by many amateurs, and was presented with a Life Membership Certificate prior to his departure to reside in Canberra. David held the position of President in 1973, 1974 and 1975, Vice President in 1979 and 1980, and was Member of the Year in 1972. David used his extensive experience to run radio theory classes for aspiring radio amateurs over many years. David's efforts have been successful in assisting many members of the Club to gain their Certificates of Proficiency. His QSY to VK1 is our loss, their gain.

The Western Suburbs Radio Club continues to grow. Providing the Club attracts people of the calibre of those in the past, the Clubs attractiveness in providing companionship in an intimate small club atmosphere is assured.

Some readers may be interested to know of the whereabouts of the foundation members of the Club? Les VK3ZPB and Ted VK3ZKP are still staunch supporters of the Club. Ted VK3ZZO is also active, although he has had to restrict his club activities due to other commitments. Ian VK3ANZ now resides in VK2, and John VK3ZWL resides in VK4.

Contributed by Mark Stephenson VK3PI

AR

STOLEN EQUIPMENT REGISTER

In accordance with the 1984 convention motion 84:17:01 the Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them may write or telephone to the Federal Office their enquiries.

To update the list published in the last issue:

MODEL	SERIAL NUMBER	STOLEN FROM
Icom IC25A	*03831*	*VK2DPM*
Icom IC45A	*01876*	*VK2DPM*
Icom IC211	*6804309*	*VK3BRV*
Kyouto FM144/10 DS Explorer 70cm Transceiver (has extensive internal mods)	*5027*	*VK2KUR*
Icom IC215	*05156*	*VK2AMX*
Yaesu FT209RH	*4K050838 (BLUE VINYL CASE)*	*VK3CE*
Icom IC-2A	*04484*	*VK1MX*
Yaesu FT207R	*10132725*	*VK2EMC*
Kenwood TS120V	*0081224600*	*VK2VWN*
Icom IC22	*12266*	*VK3BLC*
Kenwood TR2400	*0061926 (Call sign engraved on case)*	*VK2PJ*
Yaesu FT708R	*1H01948 (Call sign engraved on case)*	*VK2PJ*
Yaesu FT203	*4H081794 Electronics (Box Hill, Vic)*	*Dick Smith*
Yaesu FT209R	*4L06245 HX 2000 Regency hand-held (Box Hill, Vic)*	*Dick Smith Electronics Dick Smith Electronics*
Yaesu Y-901-P	*9-L-030072 (with all extra modules & cables).*	*VK1ZVR*
Thorn B&W TV	*107512 Modified for computer use **	*VK2XJC*
Yaesu FT780R	*3F07521*	*VK2XJC **
Yaesu FT680R	*3H080202*	*VK2XJC **
Tokyo HL90U	*8304246 70cm Hi Power Amp **	*VK2XJC*
Tokyo HL160V	*829331 2m Hi Power Amp **	*VK2XJC*
Tokyo HL86V	*819595 6m Hi Power Amp **	*VK2XJC*
Kenwood TS430S	*4010322 includes, PM board, AM, CW, SSB filters. * (has clip soldered to finals cage.)*	*VK2XJC*
Dick Smith Audio Generator		*VK2XJC*
Dressler EVV2000	*1027 2m pre-amp **	*VK2XJC*
Welz SP200	*600384 SWR/PWR meter **	*VK2XJC*
Saiko SC7000	*Scanner has BNC connector for antenna socket **	*VK2XJC*
Sharp VCR	*922270*	*VK2XJC*
Rank Arena CTV	*2017322*	*VK2XJC*
National Panasonic	*Tape Recorder*	*VK2XJC*
** indicates complete with manuals.*		
Kenwood TR2500	*3040009*	*VK2ZQC*
Yaesu FT290R	*4E360554*	*VK3KGH*

If you are offered second-hand equipment, please check with the stolen equipment register before purchase.

AR

HISTORY ON HOBART'S AIRWAVES

The Tasmanian Hamfest, held on 8th and 9th June was a great success. During the weekend a historic re-enactment of the first ship-to-shore wireless signals in Tasmania in 1901, took place.

The Hamfest was a dual celebration, the 60th Anniversary of the incorporation of the Tasmanian Division of the WIA and the 75th Anniversary of the Institute.

The 1901 experiments were conducted by 'Pop' Medhurst, situated at the Blinking Billy Lighthouse to a British warship, the HMS St George, a naval escort vessel. These experiments took place only four years after Marconi made similar experiments in Wales, in 1897.

For the re-enactment, special permission had to be received from DOC to use a WWI spark transmitter. A message was transmitted from the same lighthouse to a vessel, the Marie Francis, then back to a receiver at the Hamfest. It was then transmitted to Cardiff in Wales. DOC's Senior Radio Inspector, Dave VK7MR, was the operator of the spark transmitter.

Contributed by Jim Davis VK7OW.

AR

THE STATELY MORSE OLD TIMERS

(Apologies to Noel Coward.)

Here you see the pick of us,
You may be heartily sick of us,
Still with sense we're all imbued . . .
Although we sometimes keep aloof at amateur conventions
Our good intentions
Musn't be misconstrued . . .
The stately Morse Old Timers how stolidly we stand,
To prove the nineteen twenties have still the upper hand.
Though Grandfather used a microphone.
And Uncle Tom sent a sideband tone.
We are trying to live it down — we don't mention them,
We're making up for their fall
By using no speech at all.
The copper in our spark coil is getting rather green,
We bought it at disposals in nineteen seventeen.
But if circumstances force us to —
And sometimes we fear they might —
We'll move on to Ancient Modulation.

Roy Harlkopf. VK3AOH.

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

MEETINGS

The VK1 Division's general meeting for this month is on Monday 26th August in the studio room, Griffin Centre, Civic. Doors open around 7.45 p.m., with the QSL Bureau and Bookstall available before and after the meeting. This months' topic is Test Equipment and its uses. Visitors and non-members are most welcome, so come along and meet old friends, or make new ones.

RD CONTEST

While on the subject of diary reminders, don't forget the Rememberance Day contest on the weekend of the 17th and 18th of this month. Let's all try to return the trophy to its rightful place (in VK1 of course). If all VK Is who enter the contest submit their logs, we should have a good chance. By the way, you can hand in your completed log sheets at the August meeting, to save postage. The important thing is, though, to enjoy yourself and have a good time.

UHF BEACONS

Two UHF beacons have been constructed by Dick VK1ZAH, and at the time of writing, were under test at a location on the south side of Canberra. No technical details are available yet, but the frequencies are:

70cm 432.410 MHz
23cm 1295.410 MHz (I think)

A final location has not yet been determined, as there is insufficient room at the Mt Majura site for any more equipment. More details on these when they come to hand.

IOTA

Don't forget that the 19th to 20th of October is JOTA weekend. If you can help, contact Alan VK1KAL. JOTA is an excellent opportunity to show to others the fascinating hobby of amateur radio, so if you can spare some time, let Alan know when you will be available.

If you are not able to help operate one of the VK1 JOTA stations, you may be on the receiving end of a QSO with a Scout or Guide group. If so, have patience, and encourage the young operators. Remember back to you first on — air QSO — they may be as nervous and as "mic shy" as you were — your understanding and encouragement will make it an enjoyable experience for them. **AR**

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

WILL THE RD TROPHY REMAIN IN VK2?

This is an important month for the amateurs in VK2. Last year for the first time since the year the event was introduced (1948), that the amateurs in VK2 were the winners. We won it last in the first year. It has been too long between visits and would be nice if it remained here for a while. For it to do so however requires the annual contest, which is occurring this month — see rules in the Contest section in July AR.

The Remembrance Day Contest — long billed as the frienly contest — is worked on a ratio multiplier of the number of logs received against the number of licences issued in the State. For a State to do well requires first the operation by as many stations as possible and second the return of the logs. *Will you set aside some time during the RD weekend to enter the 'Friendly Contest'?*

WICEN.

WICEN exercises being held during the remainder of this year include — Sun City to Surf 4th August. Car rally at Batemans Bay 21/22 September, contact Peter VK2PJ for details. Outward Bound Hawkesbury Canoe Classic 26/27 October, contact Tim VK2ZTM. Schofields Air Display 9/10 November, contact Syd VK2AHF. WICEN members should advise early which events they are in a position to assist with and any other amateurs may also register their interest. In many cases your assistance would be welcome which would enable you to take part in the training the event provides and obtain an understanding the role that WICEN operation provides.

RECENT HAPPENINGS

While reports are still coming in from the groups who took part in the 'Envelope' release on 22nd May, it appears to have been a most successful day and in some cases a week. Many groups in the country centres were able to have a poster and static display for the whole week.

The Oxley Region conducted a most successful field day over the June holiday weekend at Port Macquarie. Part of the prize presentation included handing over the trophy to Peter Alexander VK2PA, who was the winner of the 75th Anniversary CW Contest held on the 11th March.

A reminder that the South West Zone Convention will be hosted by the Wagga ARC at Wagga over the weekend 26/27 October.

The next Conference of Clubs will be held Sunday 3rd November at Teralba and hosted by Westlakes ARC. Agenda items should be considered now and should reach the Divisional Office by 10th September.

LECTURE BY KARL MEINZER DJ4ZC.

During Karl's visit to Australia it was Sydney's turn to hear his lecture on OSCAR 10 at the VK2 Division Parramatta Headquarters on Wednesday 29th May. Over 80 people attended. Karl's talk in Adelaide on the previous Monday was video taped and a copy is available for borrowing from the VK2 office. One sour note to the evening was that some cars were broken into and equipment stolen from them.

REPEATERS ETC.

A meeting was held in Newcastle on 15th June to discuss a variety of repeater matters. The Central Coast ARC are carrying out site tests west of Newcastle for a wide coverage 2 metre system. They are developing a 23 cm beacon. The Newcastle ATV and UHF group have submitted an application for an ATV repeater. They have also lodged a request to establish a 6 metre repeater. Packet Radio was discussed and it is expected that a repeating system will be developed for the region. Westlakes repeater VK2RTZ 7100 has been overhauled and relocated to a good site in the region of the TV services for Newcastle. The meeting then discussed the proposals from both Westlakes and Hunter-branch for RTTY repeaters. It was decided to accept both proposals. The system proposed by the Hunter-branch Radio Group would be a dual RTTY/Voice system with coverage towards the north and along the Hunter Valley. The proposal from Westlakes would be a RTTY only one from a site towards the south of Newcastle providing coverage over Lake Macquarie and the Central Coast.

There has been a lot of interest recently in new systems for VK2. A report on these proposals will be given next month.

Next month — the start of Spring — will feature another VK2 Division Special within the pages of AR.

A reminder that the Divisional office is open Monday to Friday 11 am to 2 pm., and on Wednesday nights 7 to 9 pm. Phone 02 689 2417 during these times. At other times the 'message only' answering machine will advise you of the office hours.

The office has a full range of the 75th clothing, together with the range of publications from various amateur radio publication sources. **AR**

SIGHTLESS AMATEUR ON PACKET RADIO

25 April 1985 marked an important event for the Rochester packet radio fraternity. 1985 has seen rapid growth of packet in the Rochester area, but the highlight has to be the appearance on packet of Walter Keleher KA2ASL. What's so unusual? Walt is blind.

Operating on voice or CW without sight presents some challenge, but think about operating on packet radio without your sight. Sending is not a big problem, since Walt can touch type, but receiving is another story. Walt has an Apple IIe computer, an Echo voice synthesiser and a specially developed terminal programme. This terminal programme unites the computer/terminal and the text-to-speech functions of the synthesiser or "talker". Whatever appears on the screen of the computer is "read" by the talker, in nearly perfect speech. If pronunciation errors are made, Walt can back up to get a repeat or to have the unit spell out the unknown word or phrase.

On the evening of 25 April, Dave Denz N2DWL, and Mark Winrock both members of the Rochester Packet Group, went to Walt's home and set up his TNC and radio. After a short period of instruction and coaching the big moment arrived. The equipment worked perfectly. Walt worked WB2NBU, K2YNW and W2DUC in rapid succession. While Walt was taking his time learning about packet operation, the rest of the gang was taking turns sending to him. Walt reports that they are perfect copy, but all seem to have a Swedish accent (a common trait of text-to-voice processors).

It was an exciting evening, introducing Walt to packet radio and helping willpower overcome a great barrier.

From W2DUC

From the ARRL Packet-Radio Newletter "Gateway" May 21, 1985.

Contributed by David Pilley VK2AYD. **AR**

HF PACKET RADIO

David VK2AYD is interested in conducting HF tests using 1200BPS with other amateurs interested in Packet Radio. As a tentative start he will be on 14.103 MHz (circa QRM) every Sunday at 0100 UTC. David is also prepared to try any other amateur band at any time outside of working hours. Interested amateurs may contact David on (02) 452 5441.

AR

VK3 WIA NOTES

VICTORIA 150

THE 1985/86 COUNCIL FIRST MEETING

Flection of officebearers has resulted in no change to the major positions.

Re-elected were Jim Linton VK3PC President, Des Clarke VK3DES Secretary, Bill Wilson VK3DXE Vice President and Council Chairman — with Lindsay Rohrlach VK3KAF, the Treasurer, an office filled at the end of each divisional financial year on 31 December.

The President is now in his third term, and the Secretary has held that office for most of the past five years.

Other councillors were John Adcock VK3ACA, Andy Chan VK3DPJ, Alan Heath VK3KZ, and Barry Wilton VK3XV.

Among the first business of the new Council was a review of Vic Div General Meetings. It was resolved to accept the invitation of member clubs to use their venues.

Quarterly meetings were to be arranged at club venues with meetings on other months to become natter nights at the Wireless Institute Centre.

Full details of the new arrangements, including publicity about the location of quarterly meetings and guest speakers, will be published most likely as an insert in AR, and on the Sunday Broadcast.

CLASSES AND REVISION WEEKENDS

The next theory and Morse classes run by the Vic Div begin soon and prior enrolment is advisable.

Novice theory and Morse classes begin Tuesday, 27 August, AOCP theory starts Monday 26 August, with AOCP Morse on Tuesday 27 August.

Anyone can also take the theory and Morse classes separately.

Theory revision weekends will be held very soon for those intending to sit the next DOC exams.

The Novice weekend is on 3/4 August and AOCP theory being covered on 10/11 August — book yourself in now to avoid disappointment.

To secure a place in either the regular theory and Morse classes, or the special theory revision weekends, write to the Education Officer, Wireless Institute, 412 Bruswick Street, Fitzroy Vic. 3065, or telephone (03) 417 3535.

Two members proudly show their LETTER OF APPRECIATION issued by the President for service to the division.

This new form of recognition was launched at the 1985 AGM.

The first ever "LETTER" went to Norm Dench VK3DNE in appreciation of the role he played in ensuring WICEN and our hobby were prominent at the Melbourne Airport open weekend last February.

WICEN provided ground communications and a comprehensive display station situated in a hangar was provided by members of the Western Suburbs Radio Club.

Retiring Disposals Officer, Fred McConnell VK3BOU (pictured right) has made a truly commendable contribution to Vic Div in the past two years.

Hard dedicated work by Fred resulted in $8,000 income from the sale of disposals equipment.

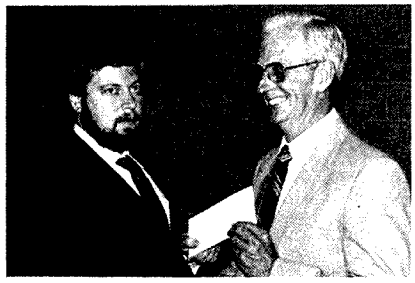
Not only did the division benefit from the income, but members (including some in other divisions) had access to cheap equipment.

A third "LETTER" was presented to the RTTY Fixers Group which turned incomplete and damaged Siemens teleprinters into clean, working and reliable machines.

The group even provides a back-up self-help service for anyone who strikes a difficulty with their teleprinters.

The many manhours volunteered by group members greatly contributed to the disposals service and the RTTY scene generally in Victoria.

Arthur Fraser VK3BII accepted the "LETTER" on behalf of his fellow RTTY fixers.



First prize winner in the annual Kinnear Trophy for contributions by Vic Div members to AR magazine, was Ken McLachlan VK3AH. The President caught him by surprise when he announced the prizes at the 1985 Annual General Meeting. Ken was chosen first by the judges for his sustained effort as DX notes editor and photographic contributions. Second prize went to Lindsay Lawless VK3ANJ and third placegetter was Des Grenham VK3CO — both had a series of articles published during 1984.

REMEMBRANCE DAY CONTEST — 17 & 18 AUGUST 1985

Victoria has won this, the major WIA contest, only once, and that was many years ago.

Last year it was encouraging to have an increased number of VK3s submit logs.

This year, with just a little more effort, the RD Trophy will be Victoria's.

It would be appreciated if all WIA zones and member clubs help encourage participation by their respective members.

The message is simple:—

* *Maximum participation is needed — a minimum valid log needs 25 contacts.*
* *As many Victorian call signs as possible should be put on air — dual call sign holders and zone/club call signs included.*
* *A free RD Contest Kit is available. Send a self-addressed A4 size envelope, plus 3 x 33 cent stamps to:- RD Contest Kit, PO Box 270, Greensborough, Vic. 3088.*

As further encouragement, each Victorian radio amateur, zone or club submitting a log with more than 100 contracts will get an RD contest participation certificate.

There will be endorsement for each hundred, from 200 upwards.

A zone and club competition will be held again this year based on maximum percentage participation. For registration in this competition, a list of zone/club members must be with the VK3 RD Contest Co-ordinator before 17th August.

AR

NEW MEMBERS

A warm welcome is extended to the following:

Mark Anderson, John Antonello VK3ZAF, Reg Bagwell VK3VRB, William Bibby VK3KWB, Michael Boord, Sergio Bughi VK3XAR, Allan Clark VK3CAC, Kazimierz Gretschel VK3CKG, Evan Matthews, Ronald Raworth VK3CRR, Ian Rochester VK3VIR.

Leon Reichelt VK3NLR, T R Smith VK3NTS, J H Struckeh VK3PSJ and John Svendsen VK3NJS.

Judith Atkins VK3NYL, Ronald Atkins VK3NYM, A Baker VK3YWR, R Berger, Ashley Bolton VK3NAB, Paul Casbolt VK3ZAD, Peter Crawford, Frederick Dierck VK3KTC, Mark Fairbairn VK3XVC, Ian Fitzpatrick VK3BV, Robert Habel VK3KCH, Christopher Kayler-Thomson VK3CKT.

William Land, Robertson Milne VK3KEL, Peter Wajngarten VK3NAD, Russell Walker VK6CV and I Westerland.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Which VK5 old-Timer holds the record for having held a licence the longest? — and is he still on air? (I say he because I know that there are no ladies eligible!) I don't know the answer to these questions, but perhaps YOU do, if so I should be very interested to hear from you. I do know of a couple who must be near the top of the list. I heard this week that John Bulling VK5KX "chalks up" 50 years in August, so congratulations John; but one better than that is Keith Ring VK5KH who notched-up his 50 more than 2 years ago, a great achievement indeed.

There must be many things about those early days which would make very interesting reading or listening. The only trouble is, how to get it. One suggestion being "tossed around" at present is that we could get some of the old timers to put their early recollections and anecdotes about amateur radio on to audio tapes. These could possibly be used as a regular Historical Segment for the Sunday Morning Broadcast. Peter Barlow VK5NPC, our distinguished Broadcast Producer, is quite enthusiastic about the idea, so if you would like to be involved, please contact Peter direct. We would also like to hear from anyone who made copies of the Historical Segments that Les Diener VK5NJ made several years ago. Unfortunately, the originals were not kept, so we should be delighted to hear of any copies. Needless to say, we shall try to ensure that the same fate does not befall anything which is taped in the future which might have some historical significance. It is good that our 75th Anniversary has made us aware of our early beginnings — but let us make sure that nothing which we have now, be it a person's memories, a tape, photographs, or anything else, gets lost. Think how much more important it will have become by our 100th Anniversary!

At the first Federal Convention that I attended I was told that if I didn't bring back the RD Trophy I wouldn't be allowed back into the State. So for four years (with your help!) I continued to bring back the trophy — and what happens — the first year that I'm not there to keep an eye on things they let the VK2s take it home! Joking aside, this is RD month once again, and as they say *"you have to be in it, to win it"* so come-on VK5 LET'S BRING THAT TROPHY BACK WHERE IT BELONGS!

Diary Dates

17 AUGUST — 18th Remembrance Day Contest.
27th AUGUST — General Meeting.

AR

WA BULLETIN

Bruce Hedland-Thomas VK6OO
VK6 PRESIDENT
Box 10, West Perth, WA. 6005

COUNCIL REPORT FOR THE YEAR APRIL 1984 TO MARCH 1985

One of the few things not to suffer from inflation is these council reports. I have noticed that they have become steadily shorter since 1981 and I hope this year continues the trend.

MEMBERSHIP

We normally compare membership figures from one January to the next. We are not able to do this due to problems with the Federal Office computer, which have resulted in our not having received any EDP sheets since last November. However, on 17th November 1984 we had 744 members, exactly the same number as at the same time the previous year. This is the first year since the CB boom that we have not experienced a nett growth.

These are difficult times financially and when the figures come through with the unfinancials deleted, we expect to find we have lost a good many members. We lost 70 last year, we believe mainly attributable to subscription increases. For this reason, although the Federal portion of the subscription has had to be increased, we have held the divisional portion constant and even subsidised the Federal portion by 50c in the case of pensioners.

It is implicit in the two previous paragraphs that we must have elected 70 new members in the course of the year, some being new licencees and some previous members re-joining. We are glad to welcome them.

MEETINGS

We have enjoyed at least three excellent lecture/presentations at general meetings during the year. But these have all been arranged by one or other of the councillors, its having been impossible, either by threats or entreaty, to obtain a volunteer for Programmes Organiser.

Don Lorimer, assisted by Mark Bastin has continued to cater well for the needs of the 'inner man' (do we have to say 'inner person') at meetings.

The Christmas meeting was arguably the best of recent years and they have all been very good since we decided to move out of Science House on the third Tuesday of December. It was organised almost unaided by the redoubtable Bastin family — Cliff VK6LZ, Christine VK6ZLZ and Mark — at the Westrail Centre. The DOC manager remarked that it was the most enjoyable he had attended.

DEPARTMENT OF COMMUNICATIONS

We have continued to have excellent relations and receive cheerful co-operation from the Department.

WICEN

This group, which is still ably led by Don VK6DY and Syd Jenkins, will no doubt, report separately but they appear to have had a quieter year than usual. Perhaps a time for consolidation of their growth. It is a pity that their work and dedication is insufficiently recognised by the authorities. Council voted $400 to assist them with the construction of their own repeater.

SLOW MORSE

This most useful service has been maintained but with the minimum number of volunteer operators.

QSL BUREAU

From being in the red a couple of years ago, the bureau has traded itself back to a positive balance and still runs efficiently under the management of Jim VK6RU. It is interesting to note that the cost to users has been constant since September 1976 during which time postage must have increased by at least 50 percent.

BOOK SALES

In the book shop Christine VK6ZLZ has shown herself a worthy successor to Chris VK6DV with a few special touches of her own. Book sales are almost our only source of income outside subscriptions. At Radio Rally she sold $680 worth of books.

JOTA

This year JOTA was a mixture of inflation and deflation. There was an increase in the number of operators but fewer scouts and guides participated. As usual, the bands went dead but JOTA always has a special meaning, perhaps because it bridges the generation gap.

INTRUDER WATCH

Bruce VK6XZ is handsomely filling Dave VK6WT's shoes. There was an extra flurry of activity (and telexes) protesting about the use of amateur frequencies by contestants in the Hong Kong to Manila Yacht Race. We did not get much feed-back but no-one could have been in any doubt about our feelings. Subsequently, one of the offenders had his equipment confiscated when he put into a NW port.

NEWS BROADCAST

Under Douglas VK6ZMG, assisted by Alyn VK6ZGA, Chris VK6FC and Phil VK6AO, the broadcast is still very much our shop window to Australian amateurs, and a well dressed one too. We added an 80m evening relay to our list of times and frequencies.

A thoughtful and thought provoking submission on broadcast matters was received from the Southern Electronics Group, supported by other country clubs. We appreciate their interest and goodwill.

RADIO RALLY

This event was the highest of the year and even more successful than last year. Reading the description of the long established and respected Gosford Field Day in AR, Radio Rally seems to compare very favourably. If it could be said to suffer any faults, they would be due to too few people trying to do too much.

As a result of their dedication in masterminding and bringing the rally to fruition, Chris VK6AUX and his long-suffering XYL Robyn were made Co-Amateurs of the Year.

REMARKS

As we all know, committees do not design very good horses (the usual result being a camel) and councils do not write good reports. It therefore falls to the President to do the actual writing. Because of this I feel free to say that the councils members have been loyal, hardworking and shown quite exemplary co-operation and dedication. The division has been indeed fortunate to have such councillors.

There are undoubtedly other members who deserve to be singled out for thanks and I ask them not to feel slighted, but to give themselves the pat on the back they know they deserve.

If I had to sum up the year in a few words I would say it was very much "the mixture as before", but we still managed to go forward in some areas. The phenomenon which I feel is evident throughout this report is the marked reluctance of amateurs to offer themselves for the many jobs which need to be done if our hobby is to survive and prosper. When there is some special project, usually the bare minimum of people come forward at the last minute but it is

FINANCIAL REPORT OF THE WIA (WA DIVISION) 1984
BALANCE SHEET AS AT 31.12.84

1983		LIABILITIES		1984	
16,551-15		1 Accumulated Fund b/fwd.	20,152-08		
1,942-41		2 SURPLUS (Trading Account)	1,023-81		
1,658-52		3 Contingency Fund Interest	1,582-72		
NET WORTH +	20,152-08	4 ACCUMULATED FUND c/fwd			22,758-61
	662-37	5 Subscriptions in Advance		951-30	
1,069-00		6 WARC-99 Fund b/fwd	1,409-00		
340-00	1,409-00	plus this year	362-50	1,771-50	
	1,892-24	7 Sundry Creditors		364-22	
		8 Deceased Estate Suspence		2,969-00	6,056-02
	24,115-69				28,814-63

1983		ASSETS		1984	
		1 CASH			
		— Contingency Fund			
9,240-00		— TCU Cert. 10447	10,533-60		
1,293-60		— TCU Cert. 10983	1,474-70		
437-62		— TCU Cert. 11557 part	498-89		
576-55	11,547-77	— Accrued Interest	623-30	13,130-49	
		— Trading Account			
2,608-75		— R&I Cheque Account	5,548-23		
3,929-71		— R&I Golden Account	3,996-81		
137-23		— TCPBS	137-23		
2,562-38		— TCU Cert. 11557 part	2,921-11		
309-63		— Accrued Interest	717-55		
nil		— Bookshop Float	nil		
123-77	9,671-47	— Secretaries Float	nil	13,320-93	26,451-42
1,888-31		2 Trading Account Stock	1,295-02		
34-20	1,854-11	less Written Off	211-10	1,083-92	
		3 Equipment			
2,242-91		— Brought Forward	989-34		
596-60		— Purchases	44-00		
-1,498-37					
351-80	989-34	— less Depreciation	333-40	699-94	
	53-00	4 Sundry Debtors		579-35	2,363-21
	24,115-69				28,814-63

Signed C A Bastin VK6LZ Hon Treasurer
14.4.85

We certify that we have examined the books and vouchers of the WIA (WA Division) and have found them to be kept in a business like manner and to record the true financial position of the Division at the close of the period. We have received every assistance in the Auditing of the Accounts, and compliment Mr Bastin on the informative manner in which the Books have been kept and the final accounts presented.

Signed F E Taylor VK6JK — *A H Van Den Avoort VK6HA*

Honorary Auditors 30th May 1985

impossible to get anyone to commit himself in advance to a pre-arranged task or roster. I can understand people having to drop their membership in times of financial stringency, but not people spending tens of hours per week operating and exercising the ever-increasing privileges which are gained for them by the dedicated few without being prepared to put anything back into the hobby which gives them so much pleasure and interest. We on the council don't want just an audience. We want co-workers. If many people were prepared to spend just one hour a month helping the Institute we could have an organisation which would be the envy of all others.

Think about it. Please!

AR

QSP

THREE MAJOR EXHIBITS DEBUT AT EXPO 86 CENTRE

2 May, 1985 was a crucial date for watchers of Vancouver's 1986 World Exposition. It marked the opening of the Expo Centre, a unique prelude to EXPO 86. For the first time in the history of World Expositions, the public will experience a major pavilion a year before the official launch of the main event.

Within the Expo Centre's 17 storey geodesic dome three major exhibits present the future. The most prominent exhibit is the 500 seat Omnimax Theatre with its 27 metre wide domed screen, a screen which surrounds its audience with images nine times larger than a conventional movie screen.

Called the world's most breathtaking medium, the Omnimax Theatre will feature the film **A Freedom to Move.** By turns philosophical, humorous, informative — and, above all, exciting — this movie puts the audience inside a speeding train, a hang glider and other fascinating means of travel.

Another exhibit inside the Expo Centre is the 323 seat Futures Theatre, where members of the audience have the final word on the future. Visitors are first introduced to a show of dazzling computer graphics and laser illusions dealing with topics ranging from extraterrestial intelligence to brain implants. Fifteen screens, a 16 millimetre projector and 12 speakers heighten the drama of the presentation.

The audience is then introduced to a series of future possibilities and asked to choose from these options. They vote through computer buttons set in the arm of each seat. The vote is then computed and the consequence of the majority vote is revealed through a second audio-visual show.

The third exhibit is **Design 2000,** an exhibition of future technology. On display will be high-tech holography and space gear, a strap-on jet plane and "alternative technology" creations such as human-powered aircraft and a three-wheeled cycle that will do more than 80 kph on the freeway.

Restaurants, shops and a gallery of windows with a stunning view of the city and the EXPO 86 site are also a part of the Expo Centre.

AR

WIA VIDEOTAPE PROGRAMME TITLE LISTING

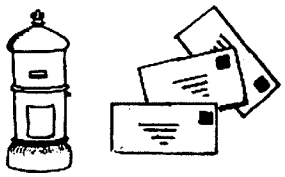
See Note	TITLE (in chronological order within each subject grouping)	Lecturer	Prod.	Approx. Dur.	Col./ B&W	Year Prod.	Description and Other Information
	GENERAL PROMOTIONAL FILMS						
–	The Ham's Wide World		ARRL	30 mins	Colour	1969	Superceded by "The World of Amateur Radio"
–	This is Amateur Radio		ARRL	15 mins	Colour	1970	Pitched at teenagers
–	Moving Up to Amateur Radio		ARRL	15 mins	Colour	1975	Pitched at CBers
©	7J1RL DXpedition		JARL	60 mins	Colour	1976	General amateur radio interest, *Loan Only*
–	This Week has 7 Days looks into Amateur Radio		HSV7	25 mins	Colour	1978	Pitched at teens; includes some ARRL footage
–	Amateur Radio—The National Resource of Every Nation		VK5KG	6 mins	Colour	1979	Encapsulates AR; good for public exhibitions
–	The World of Amateur Radio		ARRL	30 mins	Colour	1982	Pitched at adult level
–	What to Expect when the Rl Calls	Geoff Carter		34 mins	Colour	1984	General interest
	HISTORIC INTEREST						
©	Wireless Telegraphy—circa 1910		?	10 mins	B&W	1910	Archive material courtesy David Wardlaw, VK3ADW
–	Opening of Burley Griffen Bldg—SA HQ		VK5KG	50 mins	Colour	1977	Archive material
–	History of ATV in South Australia		VK5KG	30 mins	Colour	1980	Archive material, still building
–	ATV in Australia 1978—made for British ATV Club		VK5KG	30 mins	Colour	1978	Archive material
–	ATV in United Kingdom 1978—reply from BATC		G8CJS	30 mins	Colour	1976	Archive material
©	Heard Island Expeditions	ch	2,7,9,10	20 mins	Colour	1964	Archive material, *No Loan of Copy Available*
	ANTENNAS & PROPAGATION						
©	G6CJ's Aerial Circus	G6CJ	WIA	90 mins	B&W	1977	The Definitive Antenna Lecture, *Loan Only*
–	Wire Antennas	VK5RG	VK5KG	40 mins	B&W	1978	Antennas for HF and Antenna Tuners
–	Loaded Wire Antennas	VK5NN	VK5KG	50 mins	Colour	1980	Using Inductive and Capacity loaded Antennas
–	Getting Started in Understanding the Ionosphere	VK5HX	VK5ZBD	50 mins	Colour	1963	How the Ionosphere aids HF communication
	SPACE—GENERAL INTEREST						
–	Apollo 13 Disaster	VK5JM	VK5KG	90 mins	Colour	1980	Australian tracking procedure saved Apollo 13
–	SSTV Pictures from Space—Voyager		VK5KG	15 mins	Colour	1983	SSTV pix converted from Saturn fly-past
*	Amateur Radio's Newest Frontier		ARRL	24 mins	Colour	1963	Shows "Ham in Space"—Shuttle STS-9
–	Aussat—Australia's Domestic Comms. Satellite	VK5JM	VK5KG	?	Colour	1984	In Production
	AMATEUR SATELLITES						
–	Lecture—Tracking Oscar	VK5HI	VK5KG	40 mins	B&W	1978	Superceded (see below)
–	Getting Started in Amateur Satellites	VK5HI & VK5AGR	VK5KG	60 mins	Colour	1983	Superceded (see below)
–	An Introduction to Amateur Satellites (Pt 1)	VK5AGR	VK5KG	60 mins	Colour	1984	An overview of Amateur Satellite working
–	Micro-Computer Aids to Satellite Tracking (Pt 2)	VK5AGR	VK5KG	30 mins	Colour	1984	Programmes for tracking & decoding telemetry
–	Using Phase III Amateur Satellites	VK5HI	VK5KG	90 mins	Colour	1984	History, construction & use of high orbit sats.
	DATA TRANSMISSION						
–	Lecture—RTTY	VK5QX	VK5KG	40 mins	B&W	1978	Superceded (see below)
–	Getting Started in Amateur RTTY	VK5JM	VK5KG	85 mins	Colour	1983	RTTY using Teleprinters and Micro-Computers
–	Amateur Packet Radio	VK5AGR	VK5KG	60 mins	Colour	1984	Theory and Demonstration
	AMATEUR COMPUTERS						
–	Demo of VK5RTV's Micro-Computer Controller #1	VK5KG	VK5KG	10 mins	Colour	1979	First u-Computer controlled repeater in VK
–	Lecture—History of Micro-Processors	Rick Matthews	VK5KG	60 mins	Colour	1979	Now somewhat dated, but still sound
–	Understanding Micro-Processors	VK5PE	VK5KG	60 mins	Colour	1980	A somewhat dated technical description
–	An ATV Hamshack Micro-Computer	VK3AHJ	VK3AHJ	10 mins	Colour	1981	Describes now unavailable Micro-Computer kit
–	Getting Started in Amateur Micro-Computers	VK5IF	VK5KG	33 mins	Colour	1983	Demo of hard & software for amateur radio
	AMATEUR TELEVISION—TECHNICAL						
–	The Signal to Noise Story	VK3ATY	VK3AHJ	45 mins	Colour	1982	Superceded by "UHF Pre-amplifiers" (see below)
–	UHF Preamplifiers	VK3ATY	VK3AHJ	45 mins	Colour	1983	Explanation and demo. of low noise preamps
–	Getting Started in Amateur Television	VK5KTV	VK5KG	55 mins	Colour	1983	How to set up an ATV station
–	Testing ATV Transmitters	VK5KG	VK5KG	50 mins	Colour	1983	How to correctly measure ATV systems
*	High Definition TV Tutorial	Don Fink	WB2LLB	60 mins	B&W	1983	A look at what is to come in broadcast TV
*	ATV Hamfest, York, Pennsylvania, Sept. '83	Various	WB2LLB	6 hrs	Colour	1983	Various ATV technical lectures from USA
	AMATEUR TELEVISION—ACTIVITY						
–	ATV in Australia 1960/81—Made for British ATV CLUB		VK5KG	60 mins	Colour	1980	Clips from ATV Groups in VKs 2,3,4,5&7
–	ATV in United Kingdom 1978/81		G8CJS	30 mins	Colour	1981	Remake of their previous effort
*	CQ ATV DX International 1983		WB2LLB	60 mins	Colour	1983	ATV in USA and Europe
–	ATV in Victoria, 1984		VK3AHJ	54 mins	Colour	1984	Courtesy of "The Roadshow Gang"
	AMATEUR TELEVISION—GENERAL INTEREST						
–	Low Definition Television	Chris Long	VK5KG	25 mins	Colour	1982	Re-creation of TV as transmitted by Baird
*	Overseas TV Clips about ATV, etc.		WB2LLB	60 mins	Colour	1983	Broadcast TV clips from USA and Europe
–	Model Aero-Nautical Mobile ATV	VK5GO	VK5KG	6 mins	Colour	1983	ATV camera & Tx mounted in a model aeroplane
	MISCELLANEOUS						
–	An Auxiliary Battery Charger	VK5NX	VK5KG	30 mins	Colour	1981	Charging a second mobile battery
–	Lecture—Winning Foxhunts	VK5TV	VK5KG	45 mins	Colour	1981	How to do it from one who has!
–	Getting Started in Amateur Construction	VK5AIM	VK5KG	50 mins	Colour	1983	Mechanical hints for novice constructors
–	Comms. Consequences of Nuclear War	Dr. John Coulter	VK5ZBD	60 mins	Colour	1983	Why your gear may not survive even if you do!
–	The Far Eastern Broadcasting Company		VK5KG	60 mins	Colour	1984	How a Short Wave Broadcaster operates
–	The Australian "Over the Horizon Radar"		VK5KG	60 mins	Colour	1984	How the "Australian Woodpecker" works

*NOTE: © = Copyright; no copy service is available. * = Optically Converted to PAL from NTSC by WB2LLB; some flicker evident.*

WIA VIDEO TAPE LIBRARY

John Ingham VK5KG, Federal Video Tape Co-Ordinator, now has some new equipment which will enable him to provide a much improved quality service, so all are urged to make use of this excellent facility.

Remember BETA format is available as well as VHS.



OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

WE USE THEM

Without wishing to take sides in the current debate regarding polarity standards for Clipsal 495 plugs and sockets, I would like to advise that these fittings are used by the West Australian State Emergency Service for the connection of transceivers in their vehicles. The standard used by this Authority is POSITIVE on the vertical pin of the 'T'.

E F Davies VK6ED
32 Dorset Street
Busselton, WA. 6280
AR

FUSING ERROR

I am referring to the generally excellent article "Electrical Safety in the Amateur Shack" by Fred McConnell VK3BOU, published in the May issue of "Amateur Radio".

Unfortunately there is a potentially quite dangerous error in the reference to fusing, Par 6(b).

The SAA Wiring Rules explicitly prohibit fusing of the neutral. The wording of Rule 2.16.2, in my 1976 edition of AS 3000, reads: "No fuse or unlinked switch shall be inserted in the neutral conductor."

The reason for this provision is clear. If a neutral fuse should happen to blow before the active fuse the equipment concerned will remain active to earth while probably not working and appearing safe.

The only way in which the neutral may be opened by a protective device is the use of a linked switch or thermal device which opens both the neutral and active connection simultaneously.

Obviously, any circuit installed by a licensed electrician will never have a fused neutral.

With best 73

George Cranby VK3GI,
PO Box 22,
Woodend, Vic. 3442
AR

FURTHER TO METRICS

Further to the footnote to P D Thomas' letter 'No Metrics', June AR, page 60, prompts me to write about the touchy subject.

To say that 'our grandchildren will know nothing else' is a bit wrong as I am sure any grandchildren involved in aviation engineering and any engineering units originating from the USA will be very much involved in Imperial measurements.

I doubt very much whether Imperial measurements will ever be displaced in manufacturing. Machinery lasts a long, long time, particularly in smaller workshops.

Many letters were written to the magazine 'Model Engineer', 15 March 1985 issue, also on this matter.

Yours faithfully,

R M Foreman VK2DKG,
42 Cambridge Avenue,
Vaucluse, NSW. 2030.
AR

METRICS-YES!

I totally disagree with VK5ZPT (AR June 1985 page 60) where he complains about the use of metric units in amateur radio measurements. The real issue is resistance to change, but I will first comment on his reference to The Metric Conversion Act.

I have not seen that Act, but I have a copy of the Australian Government Style Manual (whose authors must have knowledge of that Act), and I quote it in part at page 73:

All references to physical quantities and measurements in Commonwealth government publications should be in terms of the metric system as defined above. Only in special circumstances (for example, direct quotations from historical documents) should other units be used.

Non-government publications need not follow the above guidelines, and individuals should do what they must.

I was born in VU2, which adopted metrics and decimal coinage in 1957. I was only 5 then, so my education to university level in 1973 was based on metrics and decimal currency. For many years to this day, my elders expressed coinage in Annas, weight in pounds, and distance in miles. Our automobile was calibrated in miles, so I found it easier to estimate miles than kilometres, but felt comfortable with metrics for scholastic exercises. In 1973 I migrated to ZL, where I had a brief encounter with pre-metric days and had to learn all about pints, stones, pebbles, rocks etc. Then ZL and VK went metric, and the old timers have not yet stopped whingeing. Resistance to change is visible in the form of emotive letters to editors, absurd metric abbreviation eg MTRS, KPH, KLMS per LTR etc.

I get emotional when I see a British Dominion and supposedly English-speaking country (Australia) where North American influence (imitation) is stronger than is admitted. I cringe when I hear words like "dance", "chance" etc pronounced the American way. I have not discovered why some Australian publications use American spellings some of the time eg "Labor" and "Color" but not "Tire" (car tyre) or "Aluminum". The Americans do not use metrics, but we seem to like their pronunciation of "kilometre"! I am fussy about correct spelling (the British way), and my blood pressure goes up when editors and proof-readers cannot spell, and when newsreaders disregard grammar. People tell me that language is dynamic, and cannot be bound by rigid rules, whereas I prefer consistency. I too like to believe that I am "sensible and practical". Why do people complain that many to today's youth and even some teachers often cannot spell?

So dear Mr Thomas, many non-English-speaking nations have survived quite nicely without the advantage of Imperial units. Why not imitate them for a change? The Americans are slowly making compulsory the wearing of seat belts and motorcycle helmets, and one day they may change to metrics. The editor has already explained to you that metrics are easy to manipulate. Don't confuse our kids further, and perhaps direct your energies towards an Australian language that does not change with the tide. Then when you are on the air on six and a half feet, I'll come up on two metres, and we can have a good blue.

73,

Ash Nallawalla ZL4LM/VK3CIT
PO Box 539
Werribee, Vic. 3030
AR

THANKS . . .

I would sincerely like to thank fellow amateurs who eventually managed, via the Australian Traffic and Travellers Nets, to contact me on a recent camping trip in VK2 and VK4, with urgent family information.

I am particularly indebted to Kevin Gill and VK3BBM for initiating the message, to VK3YH for drawing my attention to it being on the ATN, VK3VUZ for making vital telephone calls and to VK7RH and VK6BO for efficient handling of the matter on the nets.

Many thanks,

Hartmut Budde VK3DYD,
22 Clonmult Avenue,
Highett, Vic. 3190
AR

SATISFY AN EGO!

I am sick and tired of reading and listening to people who can't get assistance for their own projects ie public exhibitions, rallys, exercises etc etc.

Surely these people usually put on a show to satisfy their own ego or their own group's ego. So why complain when nobody else wants to help!

The real secret is to find out how it will be accepted by the people they are going to ask to assist. If the response is zero, and they still want to go ahead, then cut it down to an event that they or their group can handle. This seems to me to be fairly logical. I know most of the replies will be *"If we don't put these shows on, who will know about amateur radio?"* My reply would be, *"If a person really wants to know about amateur radio he will find out, come hell or high water"*. When it comes to the recruitment of new amateurs the legalisation of CB was probably the biggest and best boost amateur radio has ever had and will ever get.

Yours sincerely,

John C Eastaugh VK5GY,
77 Grenfell Road,
Modbury Heights, SA 5092
AR

MAKE MORE USE OF AR

I wish to thank the Victorian Division for the second prize award in the annual Kinnear trophy prizes and I congratulate the other prizewinners.

My thanks also to the editor of AR for his encouragement and acceptance of my contributions for publication.

The two main subjects I chose for my papers — amateur satellites and helical aerials, were new to me and I wanted to learn about them. I believe the best way to learn and understand a subject is to discuss it with others, experiment and then write about it.

The AR magazine is an excellent vehicle for papers from amateur radio experimenters and we should make more use of it for that purpose. Contributing a paper improves our own understanding of the art and helps others.

My thanks also to Rex VK3YN for triggering the interest in helicals and to Maurie VK5ZU for useful information about plotting satellite orbits and great circle tracks.

Yours sincerely

Lindsay Lawless VK3ANJ
Box 112,
Lakes Entrance, Vic. 3909
AR

HISTORY!

Congratulations to the WIA on completing 75 years of valuable service to amateur radio in Australia.

Although I have only been a member since retiring from a working lifetime in telecommunications, I have had an interest in amateur radio since the mid 1920s and, like Edgar VK7RY (AR June), reached 75 years this year on 5 July.

Since becoming involved in telecommunications in 1928 I have been privileged to see, and be involved in, many of the advances and changing techniques in the art and it has been evident that amateurs have been in the forefront of change, bringing about many improvements — the use of HF, early DX working with the UK and USA, the use of VHF etc, etc, all encouraged by the WIA.

Many thanks WIA, for your co-ordination of amateur radio affairs, through the enthusiasm and hard work of members, and for the camaraderie of amateurs which the WIA has fostered so successfully.

73 and long life to the WIA.

John Weir, VK4KJW,
100 Wrigley Street,
Maroochydore, Qld. 4558
AR

"ATV SHOP WINDOW"

Congratulations to the Western Suburbs Radio Club (Vic) for making such excellent use of one of amateur radio's best public relations and technical training machines . . . the 50cm ATV Repeater.

The recent televising of a lecture on Packet Radio,

and the announcement of further programming, indicates this is one club which is really looking to the future.

Melbourne's excellent 50cm ATV repeater, which is accessible on any commercial UHF television receiver (Ch 34), is without doubt one of our best shop windows. Unlike in-band ATV, one needs no special gear, everyone can view this full and comprehensive system on a regular lounge TV or VCR.

Technological change is fast, the Amateur Service must keep up. We must make full and efficient use of such excellent educational facilities as 50cm ATV . . . We have the technology — programme production and promotion is all that is required — *"Go to it Western Suburbs!"*

Best Wishes.

Tony Tregale VK3QQ,
38 Wattle Drive,
Watsonia Vic 3087

AR

THANKS FOR AMATEUR RADIO DISPLAY

Thanks to the fine effort of Des VK3DES for the display in the Philatelic Sales Room of the Elizabeth Street Post Office during the sales of the First Day Cover celebrating the 75th Anniversary of amateur radio.

We are grateful also to Mr Ray Bolitho, manager of that section, for his kind assistance.

Yours faithfully,

C J Pope, VK3DPO,
23 Ayr Street,
Doncaster, Vic.

AR

TECHNICAL CORRESPONDENCE

In the April issue of 'Amateur Radio' there was an article written by me dealing with Over-The-Horizon HF Radar. This article was written and published with the approval of the Director, Electronics Research Laboratory, Defence Research Centre, Salisbury, South Australia.

Since the publication of that article another magazine has attempted to provide information on the Jindalee OTHR system as well as present some associated theory.

I am concerned that a number of incorrect statements have been made in this later article and that these may be misleading to some readers. My comment on these mistakes are as follows:

1 Sections from the paper 'HF Skywave Radar — Current Progress' by Soden and Anderson have been used liberally throughout the article. Unfortunately in trying to rearrange this paper to suit the article the meanings of portions of the paper seem to have become either lost, distorted or stated incorrectly. eg the description of the effects of galactic noise.

2 The Doppler Resolution as shown in Table 1 of the article is incorrect by the loss of a decimal place. This is probably just a typesetter's error.

3 The photograph of the Hart's Range transmitting antennas is JUST THAT and NOT 'a small section of them' as suggested in the caption.

4 The 'Cable Connection Room' photo caption says 'Note earth straps'. What is pictured are not earth straps but rather multi-conductor plaited 'ribbon type' cables. I would hate to think that anybody would suggest that the engineers concerned would be so inept as to attempt to run earth braiding in the manner depicted.

One reason for the publication of my original article was to try and allay unnecessary fear which may exist within the Amateur Service that interference of a 'Woodpecker' type could be suffered as a result of operation of the Jindalee system.

The author of the article in the other magazine appears to be making an attempt to stir up concern when he intimates that after the radar leaves DSTO control and comes under RAAF control things may change as far as interference potential is concerned.

I would maintain that such statements smack of irresponsible journalism and that such an approach by the author should be soundly condemned. There is no reason at all to suppose that what he suggests is likely to occur. Both DSTO and the RAAF are parts of the Department of Defence.

Furthermore, the Department as a whole could be expected to consistently implement the policies laid down by the Federal Government. I can see no reason why this situation should change. To suggest otherwise would be considered to be alarmist and constitutes what I believe to be a most dishonest attempt to create sensationalism.

Naturally one would expect the situation to be totally different in the event of an outbreak of war of a general nature which included our country and we could expect that our amateur stations would be closed down as has happened in the past.

Finally, I would like to make it quite clear that this letter is written by me as both an amateur radio operator and an individual and private citizen and should not in any way be construed as an offical comment from an officer of the Commonwealth.

Ian J Hunt VK5QX
8 Dexter Drive,
Salisbury East, SA. 5109

AR

ELECTRICAL SAFETY

I read, with interest, the article in AR, May 85, page 31 "Electrical Safety in the Amateur Shack" and believe that an important factor has been omitted from the article.

Firstly let me state that I am no expert in these matters, just a simple hobbyist, however this is what I understand.

The core balance earth leakage protection is OK when in the main switchboard or the sub-mains to the shack, providing the appliance being used is transformerless, eg electric irons, toasters, etc. but when the appliance has a transformer (as suggested in 6(c)) the CBEL provides protection only on the primary side of the system and NO PROTECTION AT ALL on the secondary side of the transformer — and it is in this area that many radio amateurs will be probing.

If the above very brief explanation is sufficient to outline the point I am trying to make and which I

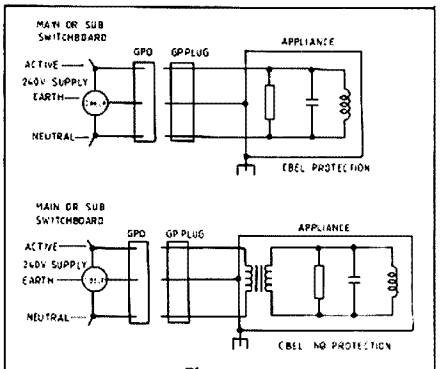


Figure 1

believe is important in the context of safety, then a clear warning to this effect should be included in any discription of CBEL.

73,

Colin Heath, VK5FX,
33 Braund Road,
Prospect, SA 5082

AR

QSL BUREAU

Please note that I am handing over control of the VK5 QSL Bureau to John Gough VK5QD with effect from 1st June 1985.

The Bureau will continue to operate as it has done in the past and provide the usual service for WIA members at the monthly meetings.

The new address of the Bureau will be: *VK5 QSL Bureau, John Gough VK5QD, Post Office, Williamstown, S.A. 5351.*

I wish to thank my fellow amateurs for their help and co-operation during the last five years and assure them that, family matters permitting, I will still be available to ensure the smooth change over to the new QSL manager.

Ray Dobson VK5DI,
16 Howden Road,
Fulham, S.A. 5024

AR

CORRECTION

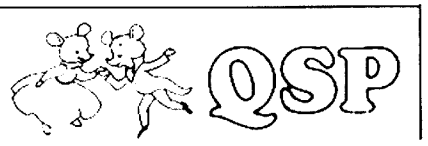
The caption to the photograph at the foot of page 30 — July AR was incorrect.

The operator on duty at the Melbourne All Models Exhibition in 1955 was Graham Sutherland VK3ZAA. He was in contact with David Rankin VK3ZAQ (now VK3QV), when I took the photo.

73,

Alan Elliott VK3AL (ex VK3ZBE),
334 Dorcas Street,
South Melbourne, Vic. 3205.

AR



The Southern Ontario Repeater Team, Inc. presents The Radio Society of Ontario/Canadian Radio Relay League Joint Annual Convention 27-29 September, 1985 Holiday Inn — City Centre.

The following programme outline gives a taste for what to expect at RSO/CRRL '85 in London, Ontario this September.

Giant Product Show, "Early Bird Eyeball" Wine & Cheese Party, Top Flight Speakers on every subject imaginable, Contests & Prizes, Partners' Progamme, Gala RSO/CRRL '85 Banquet, Entertainment, and Induction Ceremony into the Royal Order of the Wouff Hong.

Further information write to: Box 73, Hyde Park, Ont, N0M1Z0.

LOW-COST SYSTEM LETS MICROCOMPUTERS SEE

Image analysis is now available for use with any microcomputer which has high resolution graphics and an 8 bit parallel port at no more than the cost of the microcomputer itself, thanks to a vision system developed by a British manufacturer.

The basic system, called Microsight 1, uses a standard closed circuit television camera to capture images, passing them through a special interface and transferring the data as 8 bit digitised video signals. The microcomputer's RAM stores the captured image in monochrome and the software can be used for simple mapping and object recognition.

With addition of Microsight II, it is possible to input pictures of television quality and store them on disk. The further addition of Microscale software allows enhancement of picture detail measurement of defined areas of the picture, thus providing CAD type facilities.

The software is available for BBC, Apple, Commodore, Sirius and other popular microcomputers.

From New Technology in Britain

AR

ADDENDUM to May AR . . .

Page 18, col 3, line 13 says "narrow band width . . ." should read "narrow beam widths".

Same col and page, 16 lines from the bottom "distance EC more . . ." should read "distance BC more".

Whenever a √ sign appears it applies to the whole line not just the first term.

Silent Keys

It is with deep regret we record the passing of —

MR ALFRED JOSEPH BARNES	VK2CE
04.06.85	
MR C FORDHAM	VK5JQ
MR D GRIFFIN-WARWICKE	L10002
MR R J SCOTT	VK5RU
MR F J STEPHENS	VK1FS
MR MILES UPTON	VK3AMU
26.05.85	
MR M VAN DYKE	VK5NVQ

Obituaries

ALFRED JOSEPH BARNES VK2CE

Alf, formerly of Eastern Suburbs, for the last 30 years in Telopea, passed away at "Lottie Stewart Hospital" on Tuesday 4th June 1985.

Alf who was in his 77th year first became interested in amateur radio at the early age of 16. After getting his amateur licence he experimented on many projects, and one project that had many people thinking was one called "The Barnes Mystery Circuit".

Over the years Alf has aided and assisted a great number of people that are interested in amateur radio, both in getting their licence, and building projects. He was always there when someone wanted assistance. The hand of friendship was always extended to assist his fellow man.

Alf VK2CE, "Charlie Echo" — That call will be missed by a great number of people throughout the world, especially by his close mates and friends.

Alf is survived by his loving wife Kath and family, to whom we offer condolences.

Ron Jones VK2VND.
AR

PETER COHN VK1KPC

Monday the 6th of May marked a sad day for many amateurs, friends and associates of Peter Cohn VK1KPC, who passed away suddenly.

Peter will be missed by those who knew him at the Honeysuckle Creek Tracking Station, the computer section of the Government Printer's Office, the ANU School Computer Unit of the Research School of Physical Sciences, and by those who knew him as a hobbyist on the VHF bands, with WICEN, or in foxhunts on 2 metres.

But Peter was more than that. His friends and interests spanned the technical, the bushwalking groups, the mountaineers, and the performing arts.

A service in his memory in Canberra brought together a truly large gathering of those people whose ambassador Peter was. We knew of the diversity of his life, although few of us had any inkling of those that were his confreres in other fields. He promoted each of his dedications. He always spoke well of his fellows, and he joined us all with his sense of humour and his warm and gregarious nature.

What we did not realise, is that there was one more diversity to his life. It was a sadness which he did not share, for he held no brief in such matters.

Farewell young and dear friend.

George Brzostowski (VK1GB) and Dick Elliott (VK1ZAH) for the VK1 Division.
AR

GEOFFREY SAINT COOMBE VK5ML
5 April 1985

Radio was Geoffrey's hobby, and had been so, since his early teens.

Of his school friends with the same inclinations, he was the first to obtain his operators licence, his call sign was VK5ML.

During his time, he contacted most countries of the world, both on phone and Morse code, the Morse being a great love, and one in which he was particularly proficient.

He was not only an operator, but also a practical constructor, and one of his early home made transmitters is a heritage item preserved in the museum of the Wireless Institute of Australia.

Over the years, there developed a group with which he regularly spoke, but of late, could only listen.

Geoffrey will be sadly missed by his many friends.

In amateur radio language, Geoffrey is QRT, which simply means, he has closed his station down.

Basil Rogers VK3ABJ
AR

MILES UPTON VK3AMU

It is sad to report the passing of Miles, in Box Hill Hospital on 26th May 1985.

Miles moved to Queensland approximately seven years ago and held the call sign VK4AMU, but he returned to Melbourne three months prior to his death.

Miles is survived by his wife Jo, to whom we extend our deepest sympathy.

Ron Higginhotham VK3RN
AR

QSP

SILENT KEYS: LEUKAEMIA MORTALITY IN AMATEUR RADIO OPERATORS

Sir — In 1982 I reported increased mortality due to leukaemia in men whose death-certificate occupation suggested exposure to electrical and/or magnetic fields.[1] Similar findings have been reported by others.[2-4] An amateur radio operator (Andrew R Sabol W2EVE) wrote to me suggesting that I study mortality in members of the American Radio Relay League, a group of amateur radio operators exposed during their hobby to electromagnetic fields.

Recent deaths of members, with City and State, are reported in the "silent keys" section of QST, the league's monthly magazine. For 1971-83, there were 296 male deaths listed for Washington State and 1642 listed for California. Death certificates were obtained for 280 (95%) of the Washington State deaths and age, date, and cause of death information was obtained for 1411 (86%) of the California deaths. A proportionate mortality ratio (PMR) programme[5] was used to analyse the 1691 male deaths in the two States.

The table shows an increased PMR for the leukaemias, limited to myeloid (8th ICD 205) and unspecified (ICD 207) leukaemia. Lymphatic (ICD 204) and monocytic (ICD 206) leukaemias show no excess. This difference by cell type may have happened by chance, but it is unlikely to have resulted from any bias inherent in proportionate mortality analysis. Studies in the USA[2] and UK[3,4] also revealed a tendency toward a relative increase in the acute myelogenous type of leukaemia in electrical workers.

There is a strong association between employment in occupations with exposure to electromagnetic fields and membership in the American Radio Relay League. 97 of the 280 (35%) Washington State "silent key" death records listed occupations such as electronics technician, electrician and radio operator, while these occupations account for only 3% of male deaths in the Washington State death file.[6] The PMR due to leukaemia (ICD 204-207) in Washington State amateur radio operators was 264 (2 deaths observed, 0.76 expected) in those who worked in electrical-exposure occupations and 210 (3 deaths observed, 1.4 expected) in those who worked in all other occupations. Occupational exposure alone, therefore, probably does not explain the leukaemia excess in these men.

These findings offer some further support for the hypothesis that electromagnetic fields are carcinogenic.

ANALYSIS OF LEUKAEMIA DEATHS IN MALE MEMBERS OF THE AMERICAN RADIO RELAY LEAGUE RESIDENT IN WASHINGTON AND CALIFORNIA, 1971-83

Cause of death (ICD 8)	*Deaths*		
	Observed	*Expected**	*PMR*
All causes	1691	1691	100
All leukaemias (204-07)	24	12.6	191 ($p<0.01$)
Lymphatic (204)	3	3.9	77
Chronic (204.1)	3	2.1	143
Myeloid (205)	16	5.7	281 ($p<0.01$)
Acute (205.0)	11	3.8	289 ($p<0.01$)
Chronic (205.1)	4	1.5	267 ($p<0.05$)
Unspecified (205.9)	1	0.4	250
Monocytic (206)	0	0.4	0
Unspecified (207)	5	2.7	185

*Expected deaths for leukaemias generated using 1976 US age-specific white male death frequencies by detailed ICD number and a simple proportional model.

Supported in part by the National Institute of Occupational Safety and Health.

Epidemiology Section,
Division of Health,
Department of Social and Health Services,
Washington 98504, USA **SAMUEL MILHAM JR**

1. *Milham S Jr. Mortality from leukemia in workers exposed to electrical and magnetic fields. N Engl J Med 1982; 307: 249.*
2. *Wright WE, Peters JM, Mack TM. Leukaemia in workers exposed to electrical and magnetic fields. Lancet 1982; ii: 1160-61.*
3. *McDowall ME. Leukaemia mortality in electrical workers in England and Wales. Lancet 1983; i; 246.*
4. *Coleman M, Bell J, Skeet R. Leukaemia incidence in electrical workers. Lancet 1983, i: 982-83.*
5. *Monson RR. Analysis of relative survival and proportionate mortality. Comput Biomed Res 1977; 7: 325-32.*
6. *Milham S Jr. Occupational mortality in Washington State, 1950-1979. DHHS, National Institute for Occupational Safety and Health (NIOSH), publication no. 83-116 (October, 1983)*

Contributed by Rob Nash VK2ZZX from the Lancet — 6 April 1985

GET ON THE BANDWAGON?

When Jakarta police swooped on a group of smugglers off-loading a plane from Singapore in the wee small hours recently, they received quite a shock. Instead of finding quantities of electronic goods, probably videos, they found a large number of walkie-talkies and amateur radios to feed the city's latest whim.

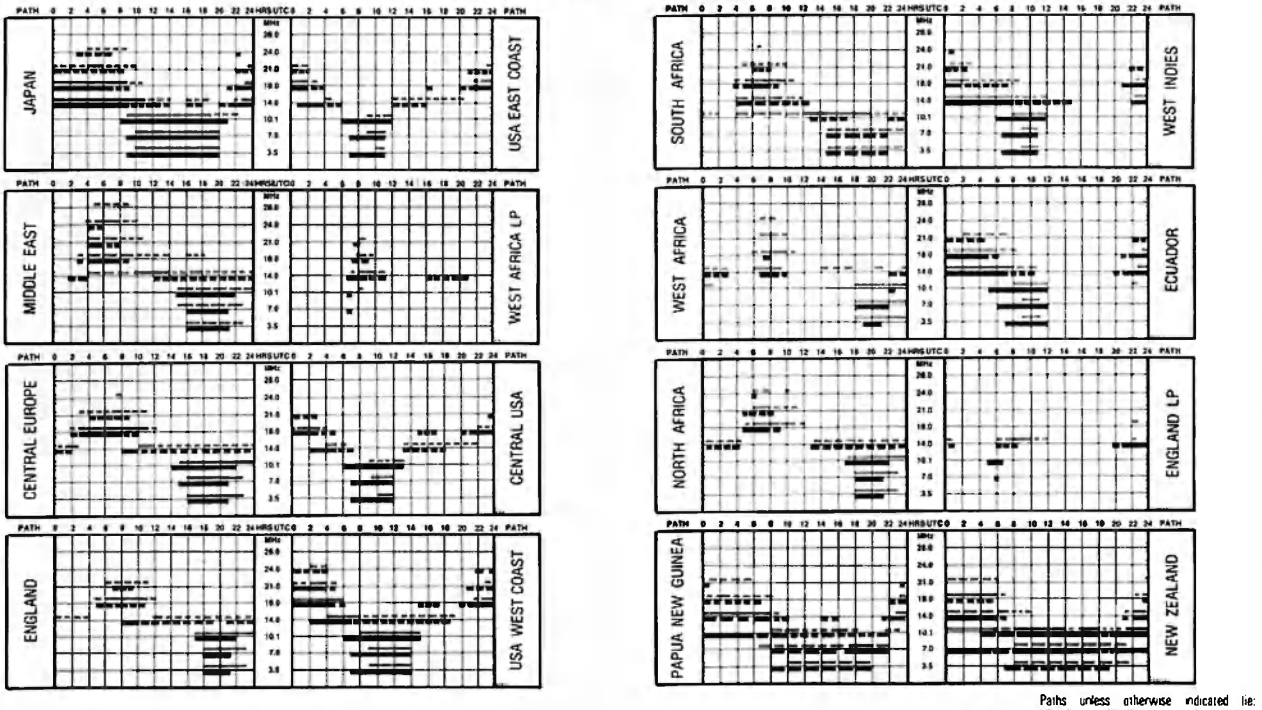
As most are unlicensed, it is difficult to tell how many operators there are in Indonesia but it is believed to be around one million. It is a status symbol to be able to operate with a proper call sign in Jakarta but many are too busy to sit for the ITU exams so they PAY for their licenses instead, whilst others just go without completely.

Amateur radio was granted by Government Regulations in 1967, however a boom started in 1981 with many using smuggled base stations and hand-helds. At first many were happy to use the CB channels, however these soon became overcrowded and any clear wavelengths are now used including amateur frequencies and sea and air navigation bands.

from information supplied by Neville Luey VK6ZNI. **AR**

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)

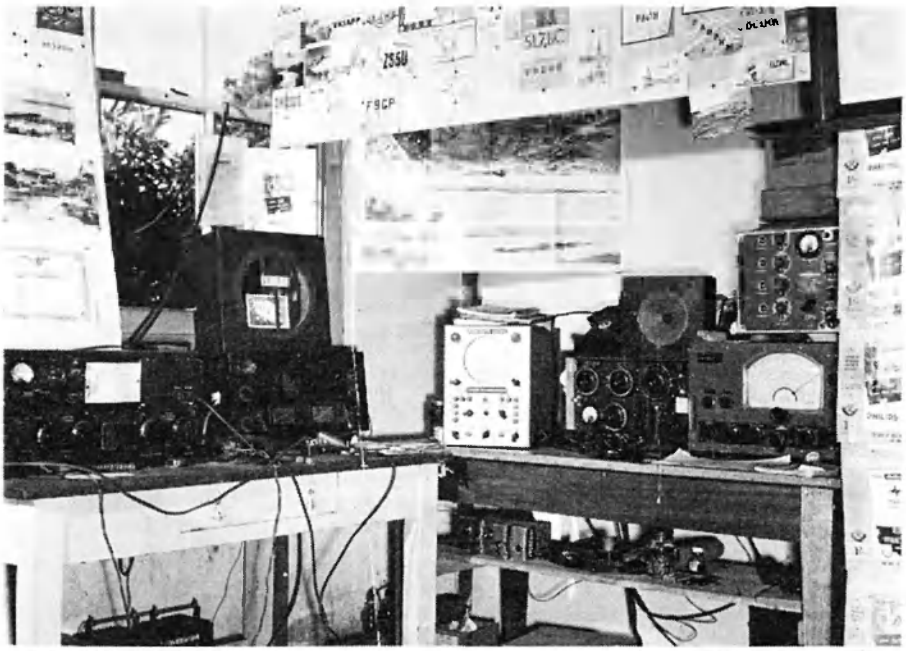
Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated lie: LP = long path) all paths are short path

Predictions reproduced courtesy of the Department of Science and Technology Ionospheric Prediction Service, Sydney

All times in UTC

75th Nostalgia:



This equipment was set up as part of the Port Macquarie 'Carnival of Pines' in 1954. On the left is the station of Ted VK2AVG (now VK4YG). The transmitter is an ART13 with an American National HRO receiver. Under the bench are large power supplies needed to drive the equipment. To the right is the equipment of Peter VK2PA (the winner of the WIA's 75th CW Contest). This equipment consists of a Homecraft test kit CRO, an A2RTB and an STC AMR-300 communications receiver. Above the AMR-300 is a converted Bendix transmitter. Amateur Radios line the extreme right-hand side of the photo.

Photograph published in 'Oxtales', May 1985. Courtesy Peter Alexander VK2PA and R O'Connell VK2BFP.

NOTICE

ALL copy for inclusion in October 1985 Amateur Radio must arrive at Box 300, Caulfield South, Vic. 3162 no later than midday 21st August.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

☐ TRADE ☐

"FROM PASTURES GREEN TO THE SILVER SCREEN" by the late John W Gerard VK2ADN, is a 20th century autobiography comprising 156 episodes and 273 illustrations. The author's memories of remarkable events, exciting experiences and achievements were transferred to paper during a period of five years and make interesting reading for people of all ages. The price is $14.95 plus $2.50 postage and packing. Available from Mrs Marie Gerard, East Bonville Road, Bonville, NSW. 2441.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle. NSW. Truscott Electronics, Croydon. VIC. Willis Trading Co., Perth. WA.

☐ WANTED – NSW ☐

AMATEURS WANTED . . . VK2AYD is interested in conducting HF tests using 1200 BPS with other amateurs interested in Packet Radio. As a tentative start he will be on 14.103 (circa QRM) every Sunday at 0100 UTC. He is also prepared to try any other amateur band at any time, after working hours. VK2AYD, QTHR. Tel: (02) 452 5441.

BEAM . . . Small triband Mosley, TA33-Jnr or similar. Turning radius around 10-12'. In good order. Bert VK2OW, QTHR. Tel: (02) 76 5730.

CHEAP VIC-20. Not necessarily working. VK2ZQD. Tel: (046) 25 7746 AH.

PARABOLIC MICROWAVE DISHES. Any size up to 2m diameter. Buy, long or short term loan. Peter VK2JJJ. Tel: (02) 57 1426 AH.

YAESU FL-110. 100W amp for Yaesu FT-7 tcvr. Cress VK2AYB, QTHR. Tel: (02) 631 3186.

☐ WANTED – VIC ☐

HY-QUAD HY-GAIN HQ-2. Graeme VK3BGH. Tel: (03) 735 7300 BH or (03) 870 4371 AH.

ROTATOR HAM M in working order or alternatively a defective unit with good upper casing. Required to replace unit with fractured upper casing. H G Tribe VK3AVH. Tel: (059) 88 8797.

WORKSHOP MANUAL for Comtronix FM-80 or any info relating to known faults in tx section. All costs re-imbursed. Any info welcome. Murray VK3CGC. Tel: (03) 306 5430.

☐ WANTED – QLD ☐

CRYSTAL for 435 kHz. Any size or shape. Fred VK4RF, QTHR. Tel: (07) 200 7916.

EARLY MORSE KEYS for private collection. Please contact Fred L 40855, QTHR. Tel: (07) 396 3521.

SWAN EXTERNAL VFO. Model 508 in GC. Jim VK4AJG, QTHR. Tel: (075) 38 0270.

☐ WANTED – WA ☐

MOBILE ANTENNA for 20 & 80m. VK6LT, QTHR. Tel: (09) 457 1080.

☐ WANTED – TAS ☐

ASSEMBLY MANUAL for Chirnside 4 el HF Yagi. All costs reimbursed. Tom VK7NBE. Tel: (004) 24 5122 or 27 8318 AH.

☐ FOR SALE – ACT ☐

DC-200 . . . 12V power supply for FT-200, as new. $80. Ten Tec 'Power Mite' tcvr. 12V 5W tx VFO, synchro rx. 40/20m, CW. Wt 1.5kg, + AC5 ATU & phones. $100. VK1BE, QTHR. Tel: (062) 81 3301.

FT-7 TCVR. 28.1-28.6 MHz xtal fitted. EC. Ideal novice rig. $350. FRG-7 rx. As new. $250. Richard VK1UE. Tel: (062) 58 1228 AH.

KENWOOD TS-820 with CW filter, mic, hbk. $500 ONO. Realistic PRO-2020 scanner $250 ONO. Consider exchange for Dual trace CRO or VHF multimode rig. Andrew VK1DA, QTHR: Tel: (062) 81 4209 AH or (062) 84 4620 BH.

YAESU FP-707 POWER SUPPLY. $120. Frank VK1ZL, QTHR. Tel: (062) 81 3956.

☐ FOR SALE – NSW ☐

DECEASED ESTATE of VK2BHI. Yaesu FT-107 DMS, with scan mic. In immac cond. $850. Hidaka VS-80KR vert aerial with radial kit. $140. This unit is 4 yrs old but had little use. Jack Flynn VK2AY, QTHR.

DECEASED ESTATE of VK8NE. Kenwood TS-930S $1650. Kenwood RD-300 dummy load $80. Yaesu FC-707 ant coupler $160. Yaesu FV-707 DM digi VFO $195. Datong speech processor MDL ASP $175. Daiwa speech processor MDL RF-550 $90. Shure 444D mic $85. Kenwood MC-35S mic $20. Scalar mobile ant set MDL SC-00-R $100. ONO on above prices. VK2VVO, QTHR. Tel: (02) 630 2437.

FDK MULTI-QUARTZ 16 2m FM tcvr with mic & manual, xtals fitted for repeaters 1-8, + 40 & 50, 1/10W output. VGC. $170. Bob VK2ENU, QTHR. Tel: (046) 26 4776 AH or (02) 925 8109 BH.

FT-227R 2m FM 10W mobile tcvr $150. FT-620 6m SSB/AM/CW base tcvr $150. FT-7 HF SSB mobile tcvr + FL-110 100W amp. $400 the two. 25W FM 6m tcvr $40. All in GC. Tel: (069) 31 1490.

ICOM HP-1 HEADPHONES, new $30. Icom SM-6 desk mic. New $45. Icom AG-1 70cm masthead GaAsFET pre-amp. New $60. Texas Instr TI-55 professional advanced calc $40. VK2AS, QTHR. Tel: (02) 467 1784.

KENWOOD TR-2400 2m h/h complete with all manuals, spare nicad batt, fast & slow chargers & speaker mic. $260. Packet Radio software approach for TRS-80, complete with all manuals & built-up interface. $80. VK2HL. Tel: (02) 981 4762.

KENWOOD TR-7625 2m FM tcvr $300. **TR-3200** 70cm tcvr $100. AT-200 ant tuner $100. Yaesu FTDX-400 HF tcvr $200. KR-400 ant rotator $120. TET HB-34D 4el tri-band beam $300. Prices negotiable. All in VGC. Peter VK2EPJ. Tel: (02) 524 7387.

KENWOOD TS-120S, mic MC-10, new 20A power supply, ant tuner AT-120, mobile bracket, mobile ant mnt & 10 + 80 whips. $795 ONO. Cartons & handbooks. Yaesu 101ZD (WARC bands) with fan, 2 mics, ext VFO FV101DM, top gear, ctns & handbooks. $695 ONO. Tom VK2PDT, QTHR. Tel: (02) 807 3974.

KENWOOD TS-820S tcvr with 520S VFO. $650. PC. Kenwood TS-130S tcvr with 240V power supply & ext spkr $500. PC. Yaesu FRG-7700 rx with memory. $500. PC. VK2MW. Tel: 449 2439.

KENWOOD TS-830S in EC, very little use. Incl 12V inverter, orig manual & packing. Also workshop manual. $850. John VK2DFC, QTHR. Tel: (069) 62 5547 AH.

MARCONI SIG GEN TF-801D/1. 10-470 MHz. 1uV to 600mV. $150. VK2ZHM. Tel: (02) 663 0197 BH or (02) 406 5338 AH.

OSCAR 10 ORBITAL DATA – SASE for sample printout. FT-243 xtals, 3.720-5.995 MHz. SASE for list. Quantity of ex-military equipment components. Meters (55mm round mount) 180uA, 200uA & 1mA FSD. $5 ea. 100kHz xtals – octal $6.50, 7 pin $8.50. Polar variable caps 100pF, 50pF, 20pF – shaft length 8mm, dia 5mm $2 ea or 6 for $10. Stepped attenuators (10k) 0-40dB in 20 steps $4 ea. P&P $1. Ian VK2ZIO, QTHR. Tel: (02) 680 2112.

TOWER (CRANK-UP) 43' Purchaser to remove. $250. Bruce VK2YU, QTHR. Tel: (02) 869 1125 AH.

YAESU FL-2100B HF linear amp. Mechanically A1 cond but not operational. Offers invited from tech-minded amateurs who would like the challenge. Full details, Laurie VK2AQW, QTHR. Tel: (02) 969 2160.

YAESU FT-101 tcvr. 160/10m, WWV, the complete HF station. On air demonstration if required. $300, worth much more. VK2ALV, QTHR. Tel: (042) 29 6858 AH.

☐ FOR SALE – VIC ☐

CH1BA CB 40 ch, audio test equipment, expertly assembled. All valves, CRO, oscillator output meter, dist volt meter. Decade box, ohm meter, no paper work. Will swap for 2m h/h or UHF Tiger. VK3DIO, QTHR.

ICOM 251A. 2m tcvr. 12 or 240V, built-in SWR meter, in top cond. $500. David VK3XPO, QTHR. Tel: (03) 848 6819.

ICOM STATION. IC-701 HF tcvr, IC-701PS power supply, IC-SM2 desk mic, IC-RM3 remote controller, IC-EX2 marker/ext terminal. All in PC. Plus spare SS finals, instr manual, orig cartons. $800 the lot. Rob VK3BVW. Tel: (03) 876 1665.

KENWOOD TS-520S tcvr in EC. New 6146 finals fitted, mic & op manual supplied. Good reliable radio for 160/10m. $400. Bert VK3ZZX. Tel: (052) 26 5033 BH or (052) 78 2374 AH.

KENWOOD TS-820S tcvr. Digi readout, CW filter, noise canc mic. As new cond. $500 ONO. Stan VK3AGT. Tel: (058) 58 2426.

TONO 7000 with cables, instr book & circuit. $325 ONO. John. Tel: (055) 23 1025.

SHACK CLEARANCE – Swiss Quad for 10 & 15m & inverted V for 80m, coax cable incl. 4 yrs old. Asking $225 ONO. VK3NAJ. Tel: (051) 74 6559.

TRAP VERTICAL, 5 band, Chirnside CE-5SS, 4.7m high, self-supporting. As new in orig carton with instr. $80. Kevin VK2ASM. Tel: (03) 874 2046.

VINTAGE MANTLE RADIOS, wooden cases, (need servicing). Tubes OK. AWA radiolette 1932 BC rx & STC C1938 BC-SW. $40 ea. VK3CD, QTHR. Tel: (03) 842 1374.

WERNER WULF 10/15 beam. Daiwa DR-7500X rotator with preset controller. 21ft plumbers pipe, welded guy rings, coax $230 or exchange good Eddystone comm rx. VK3VXY. Tel: (059) 74 2053.

YAESU FRG-7700 comm rx with FRT-7700 tuner and FRV-7700 VHF converter. All VGC $550. Yaesu FT-620 6m SSB/AM tcvr. 50-54 MHz. $260. Standard T-1200 2m H/H, new nicads & accs $190. Peter VK3PM. Tel: (050) 24 5814 or PO Box 30, Mildura, Vic. 3500.

☐ FOR SALE – QLD ☐

HEATHKIT 'Q MULTIPLYER' with handbook. Was used in KWM 2 tcvr. $30. Fred VK4RF, QTHR. Tel: (07) 200 7916.

KENWOOD TS-120V 80-10m tcvr. PC, little use, no mods. $450. Scalar 5 band trap vert ant. 80-10m. PC, little use. $60. Steve. Tel: (07) 284 1127 after 6.00 p.m.

TOWER . . . 48' free standing. All steel, bolt together. $300. Fred L 40855, QTHR. Tel: (07) 396 3521.

YAESU FT-101E HF TCVR, AC-DC 100W output. Top cond. Fitted with 30m, new finals. $400. Joe VK4AGL, QTHR. Tel: (071) 41 2315.

YAESU FT-902D HF TCVR. WARC bands, hand mic, all modes, instr manual. Reasonable cond, $670 or best offer. Yaesu FV-101DM ext VFO. Instr manual, without patch leads, 1 yr old. $45. Steve Hyland. Tel: (077) 79 5388 from 8.00 to 9.00 a.m., Mon-Thurs.

☐ FOR SALE – SA ☐

YAESU FT-707, FV-707, MMB-2 (mobile mount brack for FT-707 & FV-707), FT707 service man, spare IF & AF boards (complete), ATU-120. $750 ONO. Prefer not to separate. Siemens model 100 teleprinter, $80 ONO. PRC-10, $10. Trevor VK5ATB, QTHR. Tel: (085) 62 2886 AH.

☐ FOR SALE – WA ☐

ICOM IC-740. VGC. 1.8-30MHz & manual $750 ONO. Icom IC-730 with SSB filter, from Heard Island Expedition 1983 incl mic, manual $700 ONO. 8el ATN log periodic ant. 13-30 MHz $400 ONO. 2 section Hill's winch-up mast 12m complete. Make an offer. Contact Emanuel VK6NEB for inspection. Tel: (09) 276 2207.

R-2000 COMM RX, 10kHz-30MHz. Near new cond. No faults. Complete with orig carton, manuals & necessary patch connectors for remote control of tape recorder. Will send anywhere in Australia at buyers cost by post. $450. VK6HT, 4 Quandong Place, North Pinjarra, WA. 6208.

☐ FOR SALE – TAS ☐

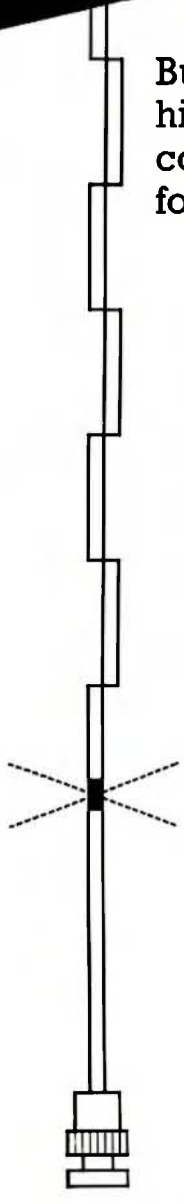
YAESU FT-200 HF TCVR. Orig cartons with power supply $170. Paddle keyer with mem $90. Yaesu desk mic $25. Will trade. Tbm VK7NBE. Tel: (004) 24 5122 BH or (044) 27 8318 AH.

ADVERTISERS' INDEX

THE AUSTRALIAN ELECTRONICS Monthly

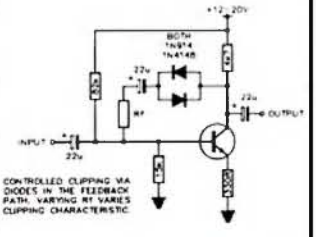
AUGUST ISSUE — OUT NOW!

Build a high gain collinear for 70 cm



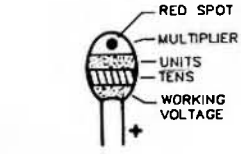
Projects
Technical Articles
Reviews

Limiters, clippers, compressors and other non-linear amplifiers.

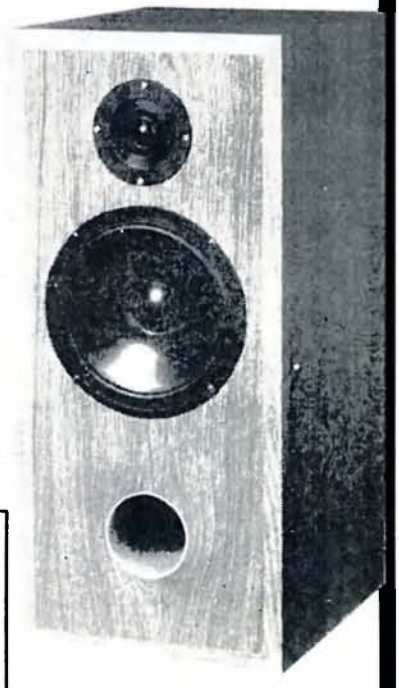


Computing
Communications
News

How to read the capacitor marking codes.



Twin-range mains power meter project.



Build our SPEAKERS for the DIGITAL ERA

EXCITEMENT: ELECTRONICS

$2.60 at your local newsagent or favourite electronics retailer.

AR85

Announcing the new IC-735.

You have been waiting a long time for a compact (94mmH * 241mmW * 239mm) HF rig with performance you would expect only from the Icom stable. 100 Watts output, and Icom's direct fed input mixer will provide you with competition winning performance.

It's beyond comparison.

The IC-735 has many features and options to provide you with hours of radio enjoyment. Because the Icom engineers dispensed with the normal power cage at the back, you will be able to fit the IC-735 into ... just about anywhere.

TUNING

Single control triple speed tuning allows frequency resolution to 10 Hz. The processor provides 3 scanning modes which includes mode scan, memory scan and program scan. The memory channel (there are 12), operating frequency, VFO, mode and RX/TX are all displayed on the illuminated LCD.

RECEIVING

Icom's direct fed mixer helps to provide outstanding performance in receive, for example Image response of 80dB. Input attenuation, pre-amp and RF gain control combine with notch filtering and pass band tuning to provide the most comprehensive tuning system. Naturally Icom have included the general coverage facility.

TRANSMITTING

100 Watts of clean power (Spurious emission <–50dB) is available on all the amateur bands. The controls not often used, VOX, mic gain and RF power controls are tucked away in the Kangaroo pouch. An optional electronic keyer (EX243) with full break-in facilities are also available if you enjoy CW.

ASK FOR MORE DETAILS FROM YOUR AUTHORISED DEALER

ICOM

Simply the best.

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ALL SPECIFICATIONS ARE TYPICAL ONLY

ICO 018

AMATEUR RADIO

VOL.53, No 9, September 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

Special VK2 75th Anniversary Special

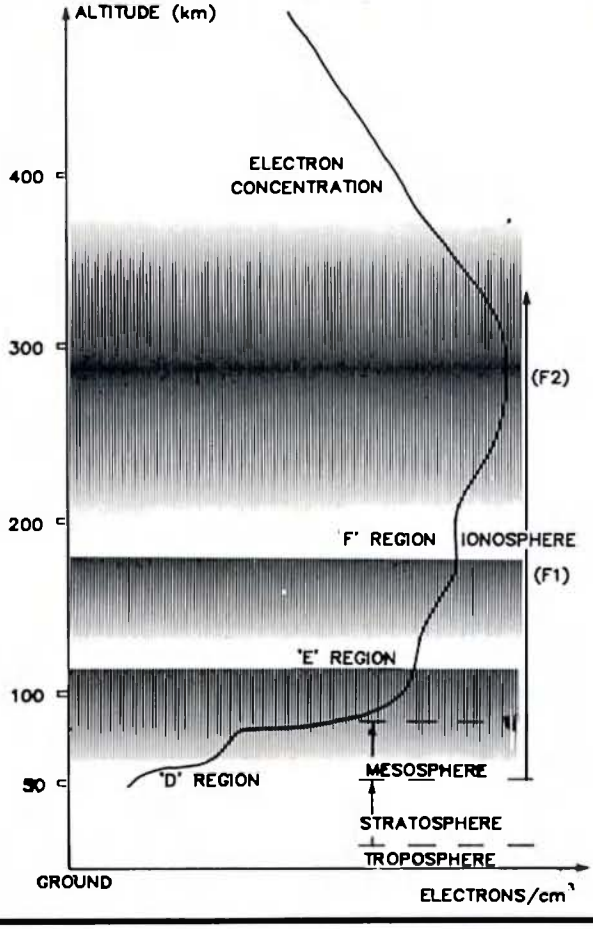
VZ200 RTTY System
Construct A Roll-up Antenna
Birthday Honour for Columnist

Calculate Beam Headings & Great Circle Distances with a Computer
1985 VK ZL O Contest Rules

The Australian Electronics Monthly

.....in our September issue:

Introducing a major new series....



RADIO COMMUNICATORS' GUIDE TO THE IONOSPHERE

The September issue features Part 1 of this major new series written by Leo McNamara (IPS Radio & Space Services, Dept. of Science) and Roger Harrison (VK2ZTB, Editor of Australian Electronics Monthly). It is a practical, clearly written guide, by experts for non-experts. Don't miss Part 1!

Also in September:

***'RF-MUFFLE' YOUR MICROBEE!**
— a simple way to virtually eliminate the 'hash' transmitted by the 'Bee'.

***Build our 'Microtrainer'** and ease into microprocessors with our teach-yourself project.

ON-SALE NOW AT YOUR LOCAL NEWSAGENT OR FAVOURITE ELECTRONICS RETAILER — ONLY $2.60.

AMATEUR RADIO

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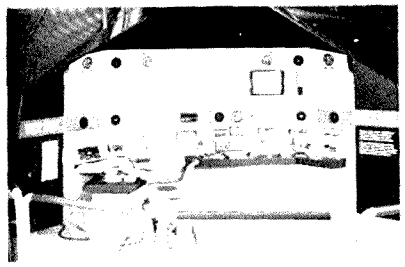


Photograph courtesy the Museum PR Department.

Pierce Healy VK2APQ at the Power House Museum Amateur Radio Station — VK2BQK.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

In this year's Queen's Birthday Honours, another amateur was honoured with the Order of Australia. This was none other than our stalwart columnist, Eric VK5LP. Eric has been an amateur and member of the WIA for twenty-three years and 'ye olde faithful' VHF UHF editor for over fourteen years. Listed on page 43 are some of Eric's achievements in over forty-six years of community service.

This month Tim VK2ZTM, has been busy co-ordinating another VK2 Special in honour of the 75th Anniversary. This special feature begins on page 29 with a special story of the VK2 Museum amateur station written by Pierce VK2APQ.

We all know there is usually plenty of 'hot air' around amateurs and their shacks, but Gil VK3AUI has taken to this air in another way. On page 15 Gil tells of his experiences with Hot Air Ballooning and 2 metres.

Beginning this month, for the guidance of the new amateur, is a series 'Know Your Second Hand Equipment', p.13. Ron VK3OM has delved into his archives to find some general information of some of the early 'black boxes' which are still available today through the 'used and loved' channels. Ron hopes to continue this series for some time, as he has plenty of information hoarded away, if there is enough interest from members. Drop him a line so he may know what you think and what equipment you would like to see written up.

For VHF enthusiasts, don't miss some more thoughts on the phenomena of 'Aircraft Enhancement', to be published next month.

Also, VK5 will be presenting a special section for the 75th Anniversary, and from the copy, which is already received, this will be a must for those interested in the early days of radio in South Australia.

DEADLINE

All copy for inclusion in the November 1985 issue of AR, including regular copy of columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162 at the latest by midday 23rd September 1985.

WARNING!

Worldradio
Year 14, Issue 10 April 1986 • 95c

Beware of bogus Yaesu 757 GX radios

Yaesu 757 GX radios, considerably different than those being advertised nationally, are showing up in the Midwest. A serial number check with Yaesu Headquarters in Paramount, California confirmed these radios are illegal. They are not made for export. Apparently, someone has imported the sets illegally and is passing them off on unsuspecting amateurs. Radios can be purchased cheaper in Japan, and stripped down models even cheaper.

The radios are identical in appearance externally but do not have the CW filter, won't work on the WARC bands, have no warranty and *will not* be serviced by Yaesu repair centers in the USA. The manuals are also different than those with the "Made for sale in USA models". The shipping containers indicate the radios must be returned to Japan for servicing; however, this marking could be easily removed or covered.

The Yaesu Headquarters people estimated it would cost about $150 to bring the illegal radios up to specifications. It is unknown how many of these radios have been brought into the country, but three showed up in the Dayton area during January. These were not purchased from legitimate Yaesu dealers.

So, know your dealer and beware of guys who may have a "real deal" for you.
— *Robert McKay, N8ADA*

You can get caught here too!

It doesn't just happen in the USA . . . you can get caught here right here in Australia.

Like the USA, some unscrupulous traders are passing off Japanese domestic models as the same as export models intended for Australia.

Don't fall for it: you can easily spot the frauds by checking the box: Japanese domestic models have this sticker on them:

国内向仕様品
WARRANTY POLICY IS
VALID IN JAPAN ONLY

If they have such a sticker (or if there is evidence of removal or cover up) don't be conned. The set is not covered by Yaesu warranty in Australia and may also be quite different internally. You probably won't even get a proper instruction manual — often a photostat copy of a few pages!

Buy your Yaesu with confidence from the Yaesu factory authorised importers. You'll receive a genuine Australian model, genuine Australian warranty, genuine Australian back-up, genuine English language manual. . . and a genuine deal.

There are 55 Dick Smith Electronics stores across Australia. . . there's one near you.

YAESU

Factory Authorised Australian Importers

DICK SMITH ELECTRONICS

B009

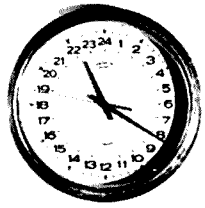
RADIO EXPERIMENTER'S HANDBOOK

This first volume is 132 pages chock-full of circuits, projects to build, antennas to erect, hints and tips. It covers the field from DX listening to building radio-teletype gear, from 'twilight zone' DX to VHF power amplifiers, from building a radio FAX picture decoder to designing loaded and trap dipoles. This book carries a wealth of practical, down-to-earth information useful to anyone interested in the art and science of radio. Your copy is available by mail order for $7.95 plus $1 to cover postage and handling (add $5 to these charges for air mail postage outside Australia) from:

Federal Marketing
P.O. Box 227
Waterloo, N.S.W. 2017

AR85

Give your office, shack or computer room that professional touch with this handsome 24 HOUR CLOCK.



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AR85

Travelaw's Electronics Tours

TRAVELAW

Following the highly successful Electronics Tours of Japan in October 1984 and May 1985, Paul Rodenhuis VK2AHB announces the new **EUROPEAN ELECTRONICS TOUR!**

Departing 21 June 1986 for a four-week tour of France, Italy, Switzerland, Germany, Holland, and UK with the following highlights:—

1. Visit the DARC Ham Fair in Friedrichshafen.
2. Factory visits to Siemens, Blaupunkt, Marconi Plessy and BBC.
3. Touring in air-conditioned coach, staying in First Class, centrally located hotels.
4. All breakfasts and some dinners included.

The cost of this fantastic, specially planned tour is a very reasonable $4995 per person.

For more information write NOW to:—

Paul Rodenhuis VK2AHB,
Travelaw,
7th Fl, 130 Phillip St, Sydney 2000.
Phone (02) 233 8442, 231 2214.
TARB B1154.

EDITOR'S COMMENT

WHAT IS OUR FUTURE?

In a recent VK3 Division Sunday morning broadcast these questions were asked;

"Have you a personal view on the future direction of amateur radio? Do you believe the hobby is being adequately promoted to all age groups? What role will computer technology play in amateur radio in years to come? Has amateur radio in fact got a future? If you would like to comment on these matters write to the WIA Public Relations Officer, Jim Linton VK3PC".

We feel that these questions are of such importance to amateur radio, not only in VK3, but in Australia as a whole, and throughout the world, that they need to be placed before us all for our deepest consideration in this, our 75th Anniversary Year.

There is much in amateur radio in Australia at present which should cause us all to think very seriously about the future of our hobby. I think myself that "hobby" is inadequate. "Part-time way of life" might describe better for many of us how we feel about our activities.

One of the first disturbing facts is that we are becoming an older segment of society. A recent ARRL poll revealed that the largest ten year age group among radio amateurs is that from 51 to 60 years old. Our own recent questionnaire tallies almost exactly with the US distribution. There are amateurs under 20, but far fewer in number than corresponds to their share of the population. Certainly, few people can be expected to become amateurs at less than about 15, but the 21 to 30 group is not much better in its representation. How can we make known to all the potential young amateurs the existence of this magificent arena for their talents?

Computer technology, with the introduction of packet radio, is bringing in younger people, some returning after a period devoted entirely to computers. This is an important trend but the numbers are still small. We have gained many younger amateurs from those who began with CB, but after an initial meteoric boom CB is now contracting as it matures. Where is the next infusion of new people to come from?

And what of the Institute? Is out time-honoured programme of club and Divisional meetings, conventions and field days, contests and DX the only way to continue? Why are so many amateurs not WIA members? What must be done to convince them that we, the Institute, need them, and they need us?

If you have any answers, please let's hear them. Write to VK3PC, or to your own Division, or to us here at the Federal Office. If you can, introduce newcomers to amateur radio, and introduce new amateurs to the WIA. We all need each other.

Bill Rice VK3ABP
Editor.

AR

WIA Seventy Fifth Anniversary

75th AWARD

Members are advised that they have only three months left in which to satisfy the requirements of this award.

Remember that in the years to come, the certificates for this award will be a collectors item.

75th ANNIVERSARY DINNER

If you have not sent in your registration form by the due date, ie 30th August and you now wish to attend, contact the Federal Office to enquire as to whether there are any vacancies or cancellations. A "reserve" list will be maintained in the event of cancellations.

PROPOSERS OF NEW MEMBERS

As promised in the August issue of AR, below are listed the proposers of new members that the Federal Office are aware of. These and all those that we have not been notified of, are to be congratulated. Small gifts will be despatched during the next weeks to the following:

VK3BER(3), VK3WZ, VK9ND, VK2YE, VK2BQS, VK2JGK, VK2PTL, VK3XR, VK2DAF, VK2EMC, VK2KFV, VK2EDQ, VK2EJW, VK2AKX, VK2AIT, VK2DYW, VK2KGO, VK3VU, VK2AKY, VK4NUU, VK2BXT, VK2BTD, VK5AMI, VK4VRS, VK4FOX, VK4AAE(2), VK4UG, VK5MC, VK2CRR, VK2AYB, VK2ETS, VK2VA, VK2AZS, and VK2EZZ.

Membership is the life blood of your Institute. It is not only a matter of statistics, but it affects all aspects. Our budget is set by the subscription income. The more members there are, the cheaper becomes the unit cost. New members this year receive a special, 75th Anniversary membership certificate, along with the opportunity to be the "75th Member Scheme" for a quartz multi function clock and there are the small gifts available for those members who propose new members.

TAPE RECORDINGS OF OLD AMATEUR RADIO SOUNDS.

The 75th Anniversary Sub Committee are proceeding with this project — we again appeal to any member who has in their possession any recordings of a historical nature, to loan them to the subcommittee for transcription. You can rest assured that any item loaned will be treated with the utmost care — please despatch by certified mail, well packaged to the Federal Office.

Recently, at an Eastern and Mountain District Radio Club meeting, held at the Nunawading Civic Centre, a demonstration of the sub-committees work in this area, was given by Peter Wolfenden VK3KAU, and all who heard the segments were impressed. It was of special interest to hear the voice of one of the founders of Long Distance Radio Communications, Gugliemo Marconi amongst those that Peter demonstrated.

We appeal to any amateur who has access to historical recordings of any kind to come forward.

BOOK PACKS, THE 75th ANNIVERSARY AND THE YEAR OF YOUTH

The June issue on this item has generated a great deal of interest and mail to the Federal Office. In order to satisfy many of the questions being asked, listed below are the contents of each book pack. (Items may change subject to availability).

$15 pack. P&P Paid.

Into Electronics (NSW Education Service)
Novice Electronics
100 Basic Projects
Guide to Amateur Radio (RSGB)
WIA Book 1
WIA Call Book
Radio Amateurs World Atlas

$30 pack. P&P Paid.
The following plus the $15 pack:
Basic Training Manual (NZART)
Hints and Kinks (ARRL)
Weekend Project (ARRL)
$50 pack. P&P Paid.
The following plus $30 pack:
ARRL Handbook (ARRL)
Maidenhead Locator World Atlas
Each pack will contain information on amateur radio in the form of letters, leaflets and posters.

When applying for a book pack please ensure that you enclose, in your request to the Federal Secretary, details of the Club/Group making the presentation and the recipients. It must be stressed that the value of these packs bears no resemblance to retail prices.

WIA 75TH AWARD

Following is a list of recipients of the WIA 75th Award — Certificate numbers 76-200.

NAME & CALL SIGN	CERTIFICATE No.
Chris Bell VK3DGN	76
W E Washbourn VK4VJO	77
John Bearsby VK6ZVA	78
Rodger Bingham VK4KCM	79
M V Miller VK5MX	80
D Cross VK2EYI	81
J G Wallace VK4BJE	82
W A Wallace VK4KHZ	83
Elizabeth Anderson VE7YL	84
D I Richards VK4UG	85
G B Moody VK2PQI	86
J E Brown VK3KJB	87
L S Dixon VK3TE	88
Ron Johnson VK4FTJ	89
Eddie Jennings L50126	90
Gavin Parker VK7DU	91
M T Deakin VK4DV	92
Brian Major VK2JBM	93
Fred Freemantle SWL L40855	94
Max Willis VK4BMW	95
Les McIntyre VK3XF	96
D Sellars VK2AZS	97
Robert Park ZL2259	98
Peter Johnston VK2NPJ	99
Alan McLauchlan ZL2AVA	100
T Delandre VK2PDT	101
Steve Jenkinson VK3YH	102
Peninsula School AR Group	103
Dieter Rausch VK2DOC	104
William C Hall VK2XT	105
Peter E O'Connell VK2JJI	106
Greg Sargeant VK2MUE	107
M P Brockway VK2KSY	108
Gordon Pope, NZ	109
Allen Crewther VK3SM	110
Jim Bryce Z21BP	111
Tom Berezowski JE2ZXX	112
Josie Gleadhill VK4AN	113
John Hannan KA6RAQ	114
Mary J Matheny KB6CLL	115
Robert D Townsend K6OHE	116
Ken D Walston Sr WA6ZEF	117
Ralph Parton VK2PEJ	118
S C Jensen W7HLJ	119
Timothy R Fanus WB3DNA	120
Lois Gutshall WB3EFQ	121
Bert Foster ZL1DD	122
K Olsen SM7KTG	123
Kjell Sanden SM7DRQ	124
Hank Zaal VK1HZ	125
Tom Dowling VK4NUN	126
Lower Eyre Peninsula ARC Inc	127
Ron Mallinson VK2EUI	128
Hungarian AR Station HA5DW	129
Geoff Bursill VK2DYS	130
Bill Bond VK3BWS	131
Roy Swanson W6CZY	132
Harold Moss VK2CHM	133
Dennis Davies VK4NDB	134
Ken Watson VK2CKW	135
Lonnie Roberts KD0MC	136
Richard Schmidt N0DTT	137
Harry Capsey VK2OQ	138
Frank Smith C21FS	139
John Lunn G3BRD	140
Poppy Bradshaw VK6YF	141
Colin Christie VK2PLV	142
Grahame Parsons VK1GP	143
Chris Chapman VK3VCC	144
K Aumann VK4NKR	145
Kevin Maroney VK3IR	146
B L Mills	147
Martin Suter VK6NMS	148
Harry Garratt ZL2BDF	149
Norman V Hart VK4KO	150
Dusty Smith KB6FIW	151
Adrian Amato VK1NYA	152
KH6JJC Hawaii	153
W N Smith L20326	154
Chris Christiansen KD7PL	155
L F Foulds ZL3JI	156
Leon Fletcher N6HYK	157
Lewis W Smith VK2LS	158
I C Allen VK3KNJ	159
Rollin Robb K9LMJ	160
Ken Lauridsen W0LEC	161
V Moore NH6DQ	162
C J Burns VK3CQL	163
Tony Hunt VK5AH	164
Colin Parkinson VK2PC	165
Kenneth Kimberley VK2PY	166
Howard Miller W4KXE	167
F E Leaver VK2SU	168
Martin H Walton KD0AE	169
Richard W Nagel W60GS	170
E G Loats VK3KKG	171
Jerry Healy KE6SC	172
Kevin May YB9ARZ	173
Ken Pyett VK1NDK	174
Warren Edmanson VK3NVM	175
Peter McDonald VK3PTE	176
Alf Chandler VK3LC	177
J J Kleinrahm VK5AJK	178
Dave Green VE7FLA	179
D Vaughan VK2AVZ	180
Howard Williams VK4BHW	181
G W W Boucher VK2POA	182
Ivanhoe Grammar ARC VK3IE	183
George W (Bill) Brown N4AQA	184
Ivan Huser VK5QV	185
B Hallam VK3DBH	186
Elfy Griffiths N6DOC	187
Ed Tynan W7HRD	188
Harold M Kenny Z21AO	189
Corwin A "Bud" Roberts N6FPI	190
Terence G Langdon G3MHV/W6	191
Mady M Langdon KA6ZYF	192
George F Levingston WA4NBE	193
Bill Henderson WW4Q	194
Ross Farrar VK3KVC	195
D C Inall VK4VLJ	196
Ivor Stafford VK3XB (Endorsed All 2 x CW)	197
Brian Major VK2JBM	198
David Edwards VK5FF	199
K Stunden VE7CDK	200

WIA NEWS

IMPORT DUTY

As members are aware, in 1983 a by-law was implemented to allow the import of amateur transceivers at the 2 percent levy, subject to these transceivers being certified by the Federal body of the Institute "as not capable of transmitting outside of the amateur allocated frequencies".

This by-law has recently been consolidated and is now a permanent by-law of the Customs Department and will remain effective until the Radio Communications Act and its subsequent regulations are enforced. This by-law, does allow the purchase of amateur transceivers at retail outlets at a much lower cost than otherwise would be the case.

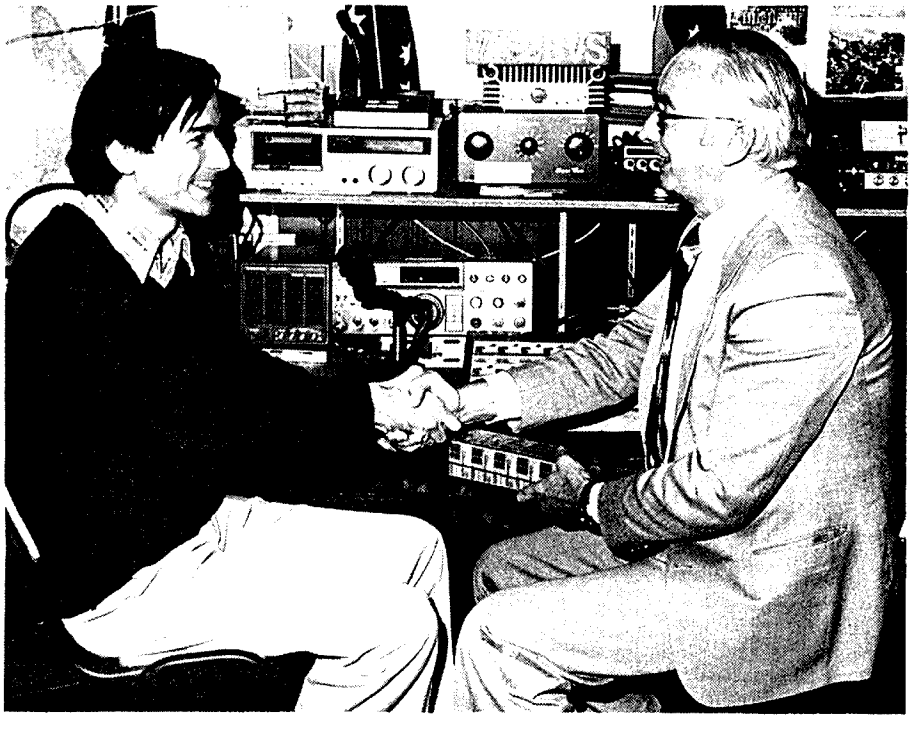
Amateurs travelling overseas and wishing to bring accompanied equipment back to Australia with them, should not experience any difficulties. You are advised to consult with the Customs Department in your home State and certainly to obtain a copy of the Australian Customs Information leaflet for tourist — this is available from the Australian Government Printers and is form No R83/160.

SEPTEMBER 1985

SUN	MON	TUE	WED	THU	FRI	SAT
1 Fathers Day S-85 Period Starts WA 3.5 SSB Contest	2 Labour Day USA	3	4	5	6	7
8 Grandparents Day-USA	School Resumes-ACT School Resumes-NSW School Resumes-VIC School Resumes-WA	10	11	12	13	14 European Phone Test VK Novice Test
15 European Phone Test VK Novice Test	Jewish New Year Muslim New Year Papua New Guinea Indep Day Rosh Hashanah School Resumes-SA School Resumes-Tas	17	18	19	20 Qld School Break-up	21
22	23 AR Deadline-all copy Spring Equinox VK1 Division Meet	24 VK5 Division Meet	13 weeks to Christmas Jewish Day of Atonement Yom Kippur	26 Melbourne Show Day	27 Final Day to Book for VK2 Ann Dinner	28 WA 3.5 CW Contest YLRC Italiano Test
29 Daylight Saving Stops Europe WA 3.5 CW Contest YLRC Italiano Test	30					

PHOTO WINNER 1985

Agfa-Gevaert's Sydney Manager, Mr John Schrauwen, presents Sam Voron VK2BVS with his prize for the 1984-85 Photographic competition. No doubt Sam, a great exponent of amateur radio, attempted to get John interested in the hobby. Congratulations Sam and thank you Agfa for your continued support of our magazine.



1985 NZART CONFERENCE

David Wardlaw VK3ADW, and Michael Owen VK3KI, attended the NZART Conference in Christchurch as representatives of the WIA.

During the Conference a resolution of congratulations to the WIA on their 75th Anniversary was carried with acclamation. As you know, the WIA has considerable reservations about certain sections of the new IARU Constitution. We now know that these same reservations are held by the NZART. As a consequence, working with the NZART overseas Liaison Officers, David and Michael, both WIA IARU Liaison Officers, started preparing a joint paper on suggested amendments to the IARU Constitution. This paper is to be presented at the Region 3 Conference at Auckland in November this year.

The proposed new New Zealand goods and services tax is causing considerable concern as it will be applied to subscriptions. As the level has not been announced, it makes budgeting for the next financial year difficult.

Many of the matters raised by the branches at the Conference are very similar to those raised in Australia, for example, an asterisk beside call signs in the Call book to indicate membership of the NZART, and the matter of introducing cyclic billing.

With the continuation of these exchange visits to each other's Conferences the relationship between the two societies has grown very close. Which must be to the advantage of amateur radio in both countries.

AR

75th Nostalgia

A MODEL T POWER SUPPLY

Has there been another?

Herb Unger VK2UJ
"The Ranch", Alectown, via Parkes, NSW. 2870.

It was in 1924, that I listened to the first wireless set, about the time I left school. I was in my home-town, Alectown, and I listened to a weak station in Sydney, some 200 miles (322km) away.

There were loud crashes of static, interspersed with faint notes of music. From this first experience of radio, I became fascinated with it.

The receiver had four valves, with a rheostat for each valve and honeycomb coils, mounted on the front panel. To be able to hear the sound of music and voices through the air, over such a long distance, through the air without wire, seemed like magic.

How could it happen? How could a wireless set work? How did a transmitter work? Information on this subject in outback areas, in those early days, was not readily available.

It took years to fathom it out and eventually I heard about AMATEUR RADIO. Now that was something and I dreamed, that in years to come, I may be able to become an amateur, and have my own transmitter and communicate with others all over the world.

There were no amateurs or potential amateurs in my area, so it required an abundance of enthusiasm to pass the Morse code exam at 12 WPM, with no assistance, was a major stumbling block. I decided to thoroughly learn one letter a day, as I sat on a five furrow plough pulled by eight horses, and each succeeding day repeat all the letters learned the days previously.

In a little over a month, the alphabet was memorised and the next hurdle was to learn to copy and gain speed. The only Morse available was on 600 metres on the family broadcast set. It consisted mostly of a series of Vs followed by a three or four letter call sign, depending on whether it was a land or ship station. Progress was slow, but after several years of patience and determination I could copy most of the messages I heard.

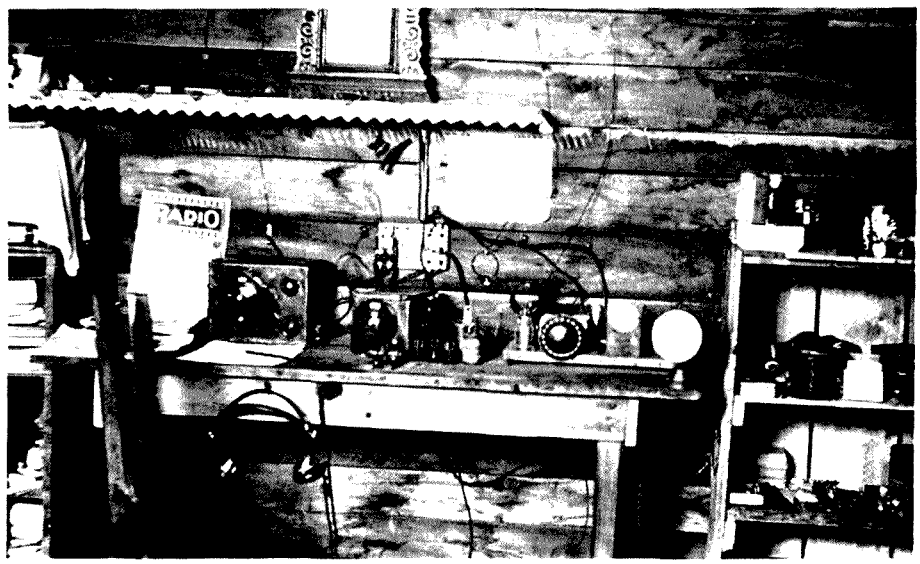
One night I had a great thrill-an SOS! I was able to copy most of the message. A ship, I copied the name of it and its position, was in trouble with a broken screw, off the Queensland coast. Next morning the news broadcast gave a full account of what I had heard the previous night.

In 1933, with much trepidation, I sat for and passed the AOCP exam. My dreams had at last come true.

The first thing I did was to print my call sign on a large piece of cardboard and hang it on the wall of what was to become my shack.

Now to build a transmitter and receiver. There were many problems as this was the Depression and finance was not plentiful, there was no mains power so all gear had to be battery operated. A small soldering iron had to be heated on a few coals in the wood-fire stove and only one joint could be soldered at one time as the heat would only be retained for a few seconds.

A two valve SW receiver was eventually constructed, for use with headphones. The transmitter was a TPTG using a single UX199 valve. A 4 volt accumulator was used with a rheostat to reduce the voltage for the filament. HT supply was provided by two 45V (B) batteries, which had been discarded from the BC receiver and had only 70 volts left in them.



Herb's equipment in February 1934.

The transmitter drew 10mA, so the input was .7 of a watt.

What a thrill the first QSO was on CW with a VK4, early one morning before breakfast. All VKs and ZLs were worked with 1 watt or less. Supplying HT voltage was the greatest problem. What a boon transistors would have been in those days of low voltages.

In an endeavour to improve the HT supply, I experimented with a modified Ford vibrator coil, which gave out a few more watts and made it possible to use phone with a grid modulator and a PMG microphone but the trembler points were not very reliable and would occasionally need a kick to keep them going.

Something more efficent was urgently needed and, after many sleepless nights, I was suddenly struck with a brainwave. I wondered if it would be possible to use a Model T Ford magneto as a power supply as it had 16 V shaped, permanent magnets bolted on the circumference of the flywheel and 16 coils of narrow copper strips, arranged on a stationary ring, with a spacing of about 1/32 – (.9mm).

The output was about 25V AC and by means of a transformer, could be stepped up to whatever voltage is required. No one was able to tell me if this would be practicable, so the only thing to do was to try it. I mounted the magneto assembly on a wooden frame and drove it at about 2000RPM with a 2.5HP engine. The 16 magnetos and 16 coils would cause a reversal of current 16 times every revolution, which meant 32,000 cycles per minute or a little over 500 cycles per second. A special transformer, with turns per volt to match was built up. Very little inductance and capacity were needed to smooth the current at such a high frequency. The tranny was wound for 350V and the current was about 100mA or 35W - not very efficient considering the 2.5HP engine was fully loaded, driving the magneto.

A two valve MOPA transmitter was built up and used quite successfully for many years with the above power supply and with grid modulation, the input power was about 25W.

I have made many enquiries, both locally and overseas, regarding the use of a Model T magneto, as a power supply for an amateur transmitter and as far as I know I am the only one to achieve this.

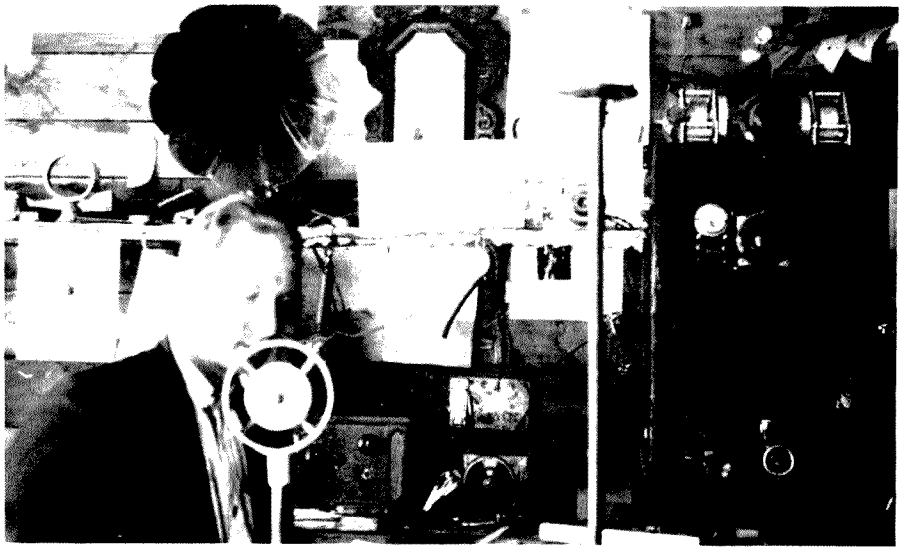
Just prior to WWII, I acquired a Carter Gennymotor. It was 350V at 100mA, driven from a 6V car battery. For me, this was the ultimate of the time.

I delayed returning to the air after the war until 1955, when 240V AC mains reached the shack. After all the pre-war years, with limitations and unreliability of battery power supplies, it was thoroughly appreciated to be able to build high power transmitters and just plug them in.

The availability of cheap disposals equipment as a source of components, was also a big help.

After a few years on AM, the SSB transceivers came along with much higher efficiency and convenience.

What great changes we have seen during the last 50 years or so. In the early days we used to make many of our components. Fixed capacitors



Herb VK2UJ — 1937.

were made by overlapping .5 square inch (about 1 sqcm) of tinfoil separated by a piece of waxed paper from a breakfast food packet and bolted between two pieces of bakelite. That gave a capacity of approximately .0001mF or 100pF. To increase the capacity you increased the number of square inches of overlap or layers. Grid leaks were made with Indian ink.

Highly efficient insulators were made from small tomato sauce bottles or anchovy jars, sometimes a hole would be drilled in one end by means of a three-cornered file with turpentine as a lubricant.

Spacers for open wire feeders were made by oven baking strips of wood in bees wax. now there is an abundance of good quality insulation material for this purpose such as plastics, etc.

Homebrewing, ingenuity and resourcefulness of the pre-war amateurs was a necessity and they got a great deal of enjoyment and satisfaction from it, but how things have changed!

The manager of a well-known electronics retailer told me recently, some of his clients order a dipole antenna, cut to size with insulators and guys attached, ready to string up. **AR**

75th Nostalgia

From The Listener In - 8th August 1925. Contributed by Roy Hankopf VK3AOH

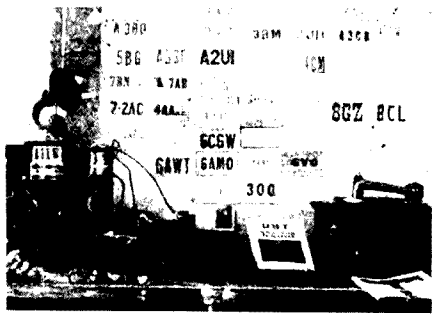
A photograph of the annual dinner of the Victorian Branch of the WIA, which was held in mid-1925.

NOSTALGIA

In 1925, C A Cullinan 3XW of Diggers Rest, operated a unique, but efficient experimental station. He used a Amplion 'dragon-fly' speaker as a microphone and one of the first 5 metre outfits in Australia. A special receiver operated between 5 and 25,000 metres, with batteries. A gramophone was used as a loud speaker, using the reproducer of the dragon-fly.

The station, using 1.1 and 2 watts, was heard in the USA. The antenna was a three wire cage, 10 feet (3m) long by 30 feet (9m) high.

Adapted from The Listener In - 11th July 1925
AR



STATION 3XW

WIA 75 AWARD GUARANTEE

The Wireless Institute of Australia is happy to be celebrating its 75th anniversary, and wants everyone to feel the same way.

Recently a couple of WIA 75 Award recipients have written to say they were not completely happy with their award.

In two cases a wrong call sign was written on the certificate, due to an error in reading the call sign on their handwritten award claim.

Another person found the award certificate arrived in the letterbox damaged and not suitable for display.

In these cases a new certificate is issued free of charge — satisfaction with this award is guaranteed.

WIA 75 Award Manager Jim Linton VK3PC **AR**

Another VZ200 RTTY System

Lloyd Butler VK5BR
18 Ottawa Avenue, Panorama, S.A. 5041.

Generation of RTTY tones and BAUD rate clock can be controlled from the keyboard using a programmable interval timer. Experimental hardware and associated computer programme have been developed incorporating such a system for RTTY on the VZ200.

Armed with no previous expeience in RTTY, the writer set out to adapt a VZ200 computer for the purpose. Had the ETI-Dick Smith kit been available at the time, the project might never have been started and purchase of a kit might have been the way to go. Notwithstanding this, the project was proceeded with, to an operational state, using a number of different ideas which could well be of interest to others experimenting with the VZ200.

THE HAREWARE

The circuit of additional hardware, plugged into the VZ200 memory expansion socket, is shown in figure 1. Serial encoding and decoding of the teletype signal is carried out by a communications interface (8251 USART). The teletype programme is stored in a 2732 4 K Byte EPROM.

An important difference, to that of the ETI system, is the inclusion of an 8253 interval timer which contains three independant programmable 16 bit counters. Two of these counters are used to generate the two teletype tones divided down from the computer clock. The third counter is used to feed the USART and determine the BAUD rate. The advantage of this system is that there are no oscillators to adjust for correct frequency and tones and BAUD rate are set to an accuracy, determined by crystal control in the computer. Furthermore, the tones and the BAUD rate are under the control of software and can be changed for the computer keyboard.

The USART BAUD rate control clock is fed at sixteen times the BAUD rate. (Note: Although one times the BAUD rate can be used, errors result in decoding if the BAUD rate is not exactly synchronous to that used on the signal being received.)

Output tones are square wave and these are shaped to reduce harmonics by an RC filter network.

THE PROGRAMME

The programme developed by the writer provides selection of the following modes of operation from the keyboard —

1 ASCII or BAUDOT codes

2 BAUD rates — 45.45, 50, 56.92, 74.2, 100, 110, 150, 300, and 600 Hz.

3 Tone pairs —

Mark-Hz	SPACE-Hz
1275	1445
1275	1700
1275	2125
2125	2295
2125	2550
2125	2975

4 Two buffer stores, 1000 Bytes each.

5 Message resident in programme.

CQ de VK5BR
RYRYRY.....etc
The quick brown fox.....etc 1234567890
de VK5BR Lloyd

6 Selection of split screen or normal screen. (Split screen is used to load the buffer at the same time as receiving. Normal screen allows full use of the screen for receive only).

7 Clear screen control.

8 Reverse receive BAUDOT letters/figures. (This is useful if a letter/figure switch character is lost or one is interpreted when it shouldn't be. Sometimes a whole line can be lost when this happens unless reverse is operated).

Included in the programme is automatic insertion of carriage return and line feed at the first space after each and every 50 characters. This is a good feature to prevent printers running over the end stop and over-riding the necessity to put in CRLF when required. Sending BAUDOT, letter/figure control is also initiated on the character after each space, independant of any control put in because of a letter/figure change. This reduces the error to one word in the event of a wrong change in decoding at the receive end.

The programme resides in an EPROM at memory locations COO3H to CDOAH. RAM space utilised in 8000H to 8900H. The RTTY programme is initiated from the basic monitor with two POKE statements and an X= USR (x). Return to basic monitor can be carried out at any time with simple commands from the keyboard.

The programme is written in instructions suitable for 8080/8085 or Z80 processors, but is dedicated to the VZ200 in that it calls in the resident VZ200 keyboard, character print and beep routines.

DECODING

From the point of view of reducing component parts, a phase locked loop system (such as the XR 2211 circuit) is the simplest way to go. On the other hand, all the experts say, that in the presence of noise, better performance is achieved with a filter type system and essential for reception on the HF bands.

Many circuits have been published for both types of decoders and since the decoder design has no bearing on the computer hardware and software design, further comment will be avoided on design. At this point it must be pointed out that it would be a fairly complex decoder which could cope with all the BAUD rates and tone combinations available for transmission from this computer system. These were selected from standards recommended in Amateur Radio last year, and were all included just in case they were required. It is unlikely that other than 45 or 50 BAUDS and 2kHz tones will get used on the experimental unit assembled and at present it is being operated with a 2kHz type filter system which will accept up to 100 BAUDS.

ASSEMBLY

The VZ200 attachment was made up using a general purpose printed circuit card, suitable socket fitted and hard wired. For the present, the attachment is unshielded and causes some interference to radio receivers. Fitting of a metal enclosure is a job still to be tackled. What is really needed is some industrious person to layout the printed circuit card and design an appropriate housing.

SUMMARY

A RTTY system for the VZ200 computer has been developed as an experimental exercise. Transmission tones and BAUD rate clock are generated from the computer clock. The programme is operational but no action has been taken to lay out an easily assembled printed circuit card and shielded enclosure.

The programme has not been included as it is 3338 Bytes of machine language. Those who contemplate construction many consult the writer about copying the programme. **AR**

I LIKE AMATEUR RADIO

I like amateur radio;
I really think it's fine
That I'll still be a "YL"
If I live to ninety-nine.

I like amateur radio,
And getting on the air,
Making friends around the world
And contacts everywhere.

You can talk to Lapps in Lapland,
Nepalese in Katmandu,
Malays in Kuala Lumpar,
Or Peruvians in Peru.

You can talk to dukes and dustmen,
Or communicate in Morse,
Experiment with A T V,
And RTTY of course.

Put together bits and pieces,
(Though at first the prospect balks;)
A diode here, condenser there,
And — listen to that — it talks;

Experiment with aerials,
It looks real good on paper;
But getting that lot in the air
Is quite another caper;

You can enter in a contest,
Gather points for an award,
Join a DX net, or "ragchew",
One thing's sure, you're never bored.

Yes, I like amateur radio,
And all the friendly sounds,
Removed from all the trouble and strife
With which this world abounds.

It's a satisfying hobby,
It will certainly do me;
Til they write beside my name the words
"Became a silent key." **JOY COLLIS.VK2EBX**

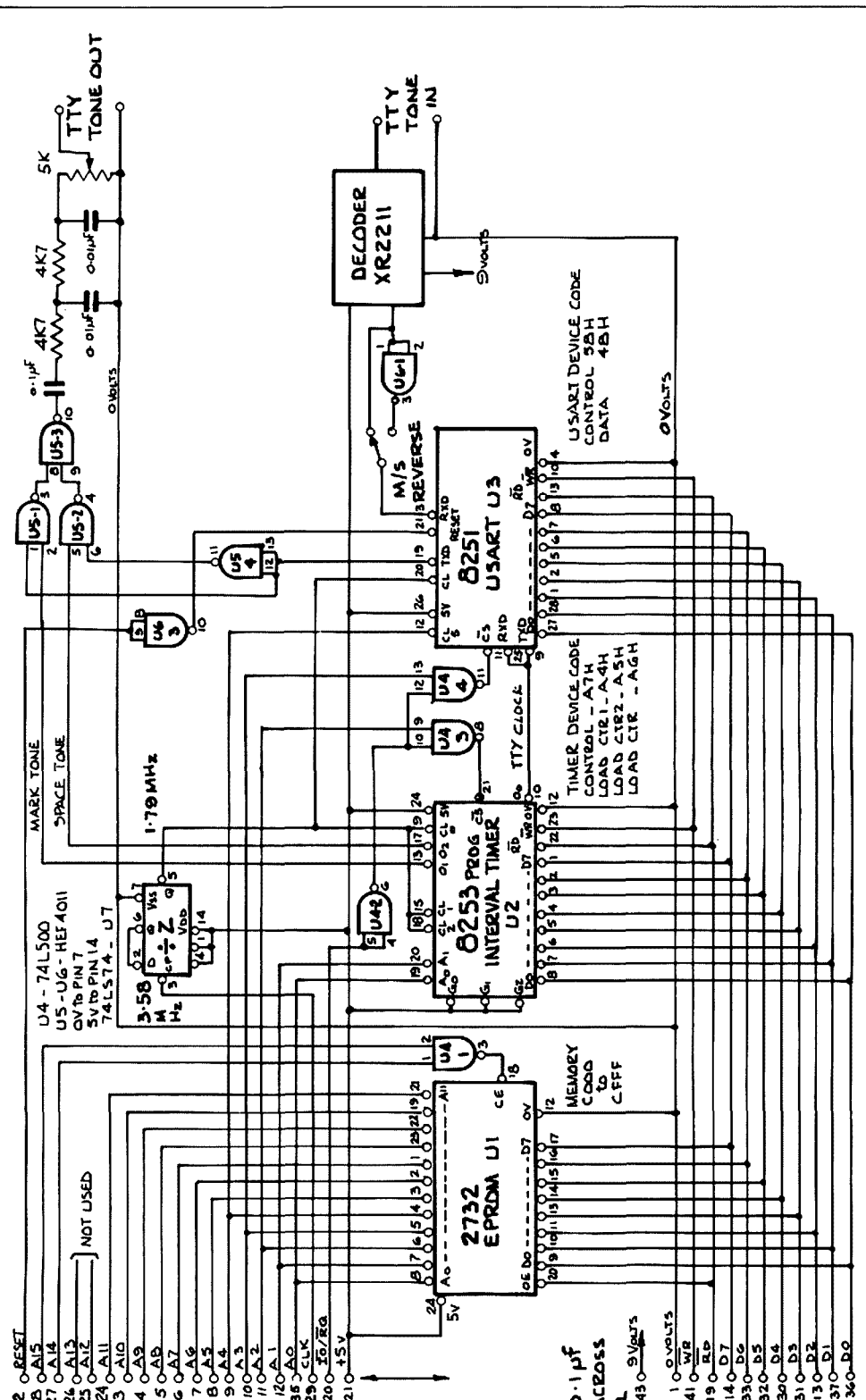


Figure 1 — VZ200 RTTY Attachment.

ADD ON MODIFICATIONS FOR THE SIEMENS TELEPRINTER

This is the second in a series of projects.
It's a power supply (5 volts) to power the other projects in this series.

Peter Fraser VK3ZPF
52 Heathfield Rise, Box Hill North, Vic. 3129

AN INBUILT POWER SUPPLY

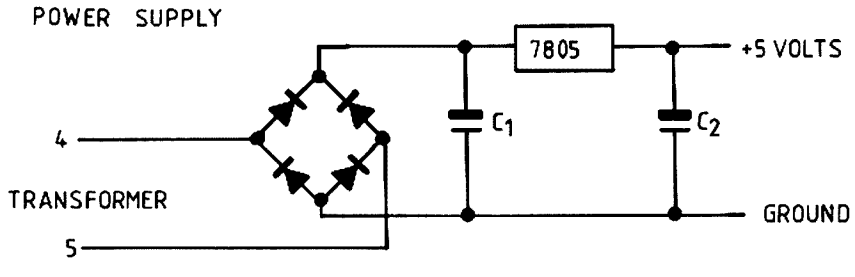


Figure 1 — Power Supply Circuit.

DESCRIPTION

The power supply delivers 5 volts DC at a maximum of around 500 milliamps: this can be constructed small enough to fit in the same case as the teleprinter's transformer.

PARTS LIST

C1, C2 — 100 UF 25 volt electrolytic capacitors.
7805 — 5 volt three terminal voltage regulator.
Bridge rectifier — type 'MB 1' or 4 1N4002 diodes.

CONSTRUCTION

The power supply can be built on to a small piece of matrix board small enough to be screwed inside the transformer case. *"Where is the transformer?"* you ask. Well, looking from the front of the machine, it's on the right hand side, towards the back. It has a red 'spark' on the cover. **Unplug your machine before removing the cover.** The AC side of the bridge rectifier is connected to the winding marked '4' and '5'. These are the top two connections on the left hand side of the transformer.

HOW IT WORKS

The AC from the transformer is rectified (made into pulsating DC) by the bridge rectifier. This pulsating DC is filtered by C1 to give a smooth DC voltage. The 7805 regulator reduces the DC voltage to 5 volts while C2 acts as a final filter capacitor. The 5 volts output is used to run the 'shift indicator' and a 'counter' to be described later.

AR

KNOW YOUR SECOND HAND EQUIPMENT

A Series to Help You Identify Amateur Equipment

Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150

Over the years, I have collected much information on a lot of amateur gear. It seems that perhaps the time is right to share it with you, the readers. It will, I am sure, be of use to buyers and sellers of second hand equipment and hopefully a source of information to newcomers to the hobby, who must be very confused with the various equipment types they hear quoted.

It is expected that this series will continue over many months and will be , more or less, random in the selection of gear to be covered. It will, in general, date from around 1960, but in some cases, may cover gear produced prior to this. I will also concentrate on gear that was sold here in Australia through normal retail outlets.

If any members have any thoughts on equipment they would like to see featured, please write to the above address.

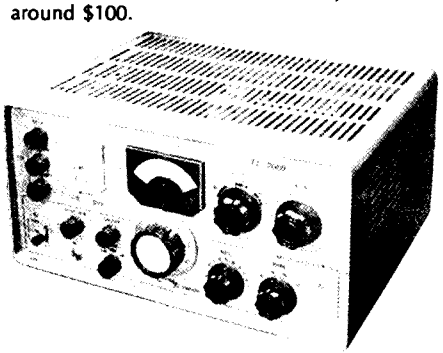
Due to space limitations, descriptions will only cover the major aspects of any particular piece of gear. In many cases, I may be able to provide more detail upon request.

What better place to start this series, than with the early Yaesu transmitters and receivers. Second hand values should be taken as a general guide only and can be subject to wide variation, especially with older units. Prices quoted assume the gear to be clean, working well and unmodified.

YAESU FL-100B TRANSMITTER

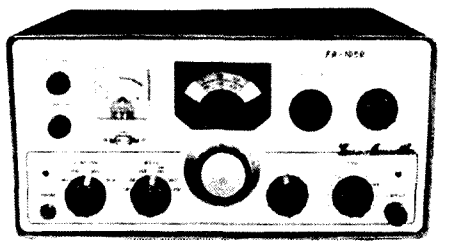
The first piece of Yaesu gear to be imported by Bail Radio and TV Service, was initially advertised in the March 1964 issue of Amateur Radio. It was a self-contained SSB/CW transmitter covering the 80 to 10 metre amateur bands. It used an all tube line up, with a single 6DQ5 in the final with around 60 watts PEP output.

The SSB signal was generated by means of a 455kHz mechanical filter. Both transmitter and power supply were contained in the one cabinet measuring 15x7x11.75 inches and weighed 35 pounds. The original price was $454 and estimated second hand value today would be around $100.



YAESU FL-200B TRANSMITTER

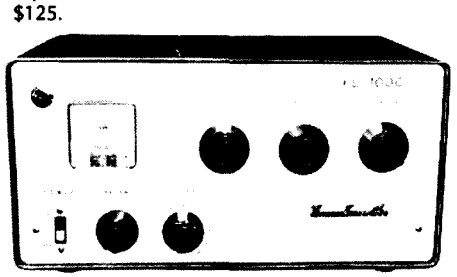
First announced in January 1966. The appearance is the same as the FL-100B but power output was increased to about 120 watts PEP, with the use of two 6JS6 tubes in the final. Second hand value is around $120.



YAESU FR-100B RECEIVER

Announced at the same time as the FL-200B, the FR-100B receiver covered the 80 to 10 metres amateur bands only.

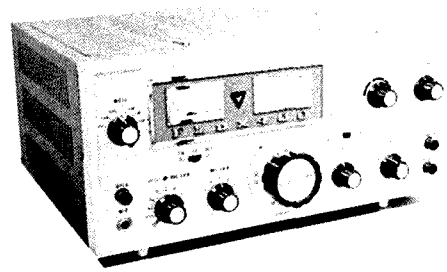
It was an all tube design and, like the transmitter, used a 455kHz mechanical filter. A single crystal filter was used in conjunction with the mechanical filter for sharpér CW reception. Seventeen tubes and several diodes were used in a double conversion setup with the first IF being tunable and the front end crystal controlled. Crystals were supplied for all bands but coverage on 10 metres was limited to 28 to 29.200MHz. Coverage was in 600kHz segments. Performance was quite good, with excellent stability after a warm-up period. Provision was made to feed the VFO to the FL-200B transmitter for transceiving, but this didn't always work out very well due to variations in the heterodyning and BFO/carrier crystals in each set. Second hand value is around $125.



YAESU FL-1000 LINEAR AMPLIFIER

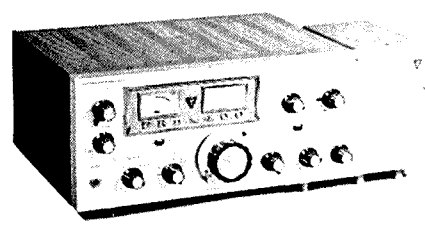
Again announced at the same time as the FL-200B transmitter. Housed in a matching cabinet and of similar size to the other units, the amplifier used four 6JS6 tubes in parallel, in a grounded grid circuit. With a plate voltage of 850 volts, the PEP input was claimed as 950 watts. Output would possibly reach 400 watts. As the cathode input was untuned, it would not be recommended to use it with a modern solid state output transceiver. Metering included plate and grid current, plate voltage and relative power output but no SWR meter was included.

A cooling fan was built in. Second hand value is around $150.



YAESU FLDX-400 TRANSMITTER

The new DX series equipment was introduced in early 1968. The styling was modernised to include a smarter cabinet with a rectangular brushed aluminium front panel surround and an illuminated meter. In general, the circuit was the same as the older FL-200, but improvements were made in the transceive ability with the matching receiver. The transmitter was self contained with in-built power supply, etc. 6JS6 tubes were again used in the final with around 120 watts output.



YAESU FRDX-400 AMATEUR BAND RECEIVER

Similar in appearance to the FLDX-400 and similar in design to the older FR-100, but up-dated in several aspects. Band coverage now included 160 metres. 6 and 2 metres could be included with optional converters installed in the cabinet. Another option was an FM detector.

By now a few transistors had crept into the circuit. Two were used in the tunable VFO, no doubt to improve stability. The two optional converters were also solid state and even ran to a FET in the RF stages. Provision was also made to crystal lock the receiver on a fixed channel. Quite a good receiver, with very reasonable performance. Stability was good after warm up, but not much better than the older model.

Second hand value, around $135.

Watch for the FLDX-2000 Linear Amplifier and others next month.

KENWOOD

TS-940S

HF TRANSCEIVER

The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 meter Amateur bands, including the new WARC bands. It incorporates an outstanding 150 kHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 meters, 50 kHz spacing, 500 Hz CW bandwidth).

Engineered with the serious DX'er/contest operator in mind, the TS-940S features a wide range of innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT. The use of a new microprocessor with advanced digital technology controlled operating features, plus two VFO's, 40 memory channels, programmable memory and band scans, a large fluorescent tube digital display with analog-type sub-scale for frequency indication, and a new dot-matrix LCD sub-display for showing graphic characteristics and messages, all serve to provide maximum flexibility and ease of operation. In addition, a CW full break-in circuit, switchable to semi break-in, a built-in automatic antenna tuner, a solid-state final amplifier that is powered from a higher voltage source, a speech processor, all-mode squelch, and a host of other convenience features all add up to even greater versatility of use in fast-paced DX operations. With its power supply and antenna tuner built-in, and with its new whisper-quiet cooling system, the TS-940S is a complete, all-in-one type transceiver that brings tomorrow's sophistication to today's serious enthusiast.

Sold and supported by **PARAMETERS PTY LTD**
(Incorporated in Victoria)

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Melbourne Office: 1064 Centre Road, Oakleigh South, Vic, 3167. Phone: (03) 575 0222
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UP UP AND AWAY!!

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic. 3128

Hot Air Ballooning is becoming an increasingly popular sporting interest. A number of balloon operators offer 'ballooning weekends'. One such operator is Balloon Rise, operated by Tony and Annette Norton in Stawell, Vic. Tony has been ballooning for many years and presently flies a balloon made by Kavanagh Balloons in Sydney.

Balloon flying starts early in the day. This is to take advantage of the cold morning air and the generally still conditions first thing in the morning. Cool conditions are needed to get the best lift from the balloon.

Inflating the Balloon in preparation for 'take-off'.

Soaring aloft.

During the Queen's Birthday Weekend the writer was at Balloon Rise for some flying and discovered another amateur, Ian VK3KCM, was there with the same intent. On this weekend Tony had enlisted the help of Chris Tuttle with his balloon and crew, due to the large numbers interested in flying.

As it happened, Ian and I both had two metre equipment with us and several contacts were made. These were both on simplex and through the Mt William and Mt Macedon repeaters.

The link between balloon and ground proved useful on occasions as the balloons go where the wind carries them. The recovery crew must chase them to refuel, recover and change passengers at intermediate landings. Radio contact was useful on these occasions.

Gil VK3AUI and two metres. Note the gloves, beanie and coat, necessary equipment for the chill frosty early morning flight.

Ballooning is a great experience, soaring aloft with only the occasional roar of the burner breaking the tranquility. You drift with the wind. At times the balloon skims the tree-tops whilst at other times considerable heights are reached.

The balloons are approximately 25 metres high and 16 metres in diameter or about the size of an eight storey building. The take-off and flight are very smooth but a few bumps can occur on landing. They make a pretty good sail if a breeze springs up.

For mobile operation they offer freedom from ignition noise and an excellent antenna sight, however burner operation can be a problem – the noise from the burner blots everything out.

If any members would like to try ballooning there are several operators around Australia. Tony Norton of Balloon Rise, 19 Seaby Street, Stawell, Vic. 3380 can be phoned on (053) 58 3086. I am sure he would be delighted to send details to you.

AR

Ian, at the front of the basket, operating two metres.

The roar of the burner blots out two metre operation.

THE AR STORY

Ken McLachlan VK3AH,
PO Box 39,
Mooroolbark Vic 3138

Many members are curious how a monthly magazine containing up to 80,000 words, such as Amateur Radio, is brought together from contributions of technical articles, general interest stories, photographs and the regular column sub editors.

Photographs courtesy York Press Pty Ltd, Graeme Hattwell VK3NGH & Ken McLachlan VK3AH

It is hoped to give you an insight in what transpires from when an article to an advertisement is received in the Federal Office, until the issue is placed in your letter box, by your trusty postal officer.

A full schedule for the year, after consultation with the companies involved is made up. This schedule comprises all deadlines, from the latest acceptable time copy can be received, which is noted in each AR near the index, to delivery is made to the typesetters, received back, proof read, pasted up continuing through until it is delivered to Australia Post.

All contributions received are pre-read, where spelling and grammatical errors are corrected. If photographs are included these are marked and filed. Technical articles are handed to the Technical Editors at a Publication Committee meeting, held each month to be technically edited and corrected if necessary, and returned to the Production Company, if not before, for processing at the next meeting. Each technical article is acknowledged and drawings if necessary are sent to the drafting crew.

It is necessary to retype some articles in double spaced type, if they are presented in difficult to read, close spaced handwriting. As an example, most "HAMADS" are sorted into alphabetical order and typed, due to the variance of presentation by the advertiser. (A minority of members send their "HAMAD" in on the back of a bus ticket written with a "thumbnail dipped in tar"). This is necessary so that scraps of paper are not lost or mislaid and copy is easy to read for the typesetter. The article is re-read and "marked up" to recognised Australian Standards, which is the means of instructing as to the type to be used, Size, width and justification. Each article is the numbered and entered in a master log book. When an adequate amount of work has accumulated it is delivered to one of the companies for typesetting.It must be remembered that typesetters work at high speed and must be able to read copy at a glance. AR language is foreign to them and whilst amateurs can read between the lines and guess a word, they can't. The ideal copy is double spaced upper and lower case copy with a 35mm margin on the left hand side, but budding authors who have not got the facilities of a typewriter, don't be deterred. Neat double spaced handwriting or printing with a 35mm left hand margin is acceptable. The space allows for clarification of a word and the insertion of instructions.

TYPESETTING

Every newspaper and magazine, before printing, has to be typeset. In 400 years, between the invention of the printing press and until recently, type was produced as indentations in metal. This was a primitive, arduous and time consuming operation in comparison with modern computerised typesetting methods employed in the industry today.

Our main typesetters, chosen by tender, are York Press Pty. Ltd, a business that was first

A Hot Metal Typesetter.

established in 1933 as a weekly newspaper and now have a staff of 100 employees. In addition to modern typesetting equipment, York Press operates Art and Film Departments, servicing a range of printing presses suitable for both multi-colour and newspaper work. A large Bindery department is also included in the factory equipment, which allows the company to produce a variety of promotional material and magazines similar to Amateur Radio.

They were one of the first companies in Australia to see the advantages of modern technology and make the change over from metal composition to computerised typesetting. The computer, a Compugraphic MCS8400 typesetter with six terminal keyboards can output any number or character, except mathematical symbols, in a variety of sizes and styles. These styles are referred to as fonts and separate fonts may be *light type, *bold type, *italic type, *bold italics, *condensed types etc as designated by the producers. Serif typefaces have little edges on the letters which make for easier readability.

Computer Typesetter.

THE TYPE

The above sub heading, as an illustration, is in a Sans Serif heading set in 10 Point Bold. The balance of the article is set in 8 Point Oracle. Printers have their own measure based on a Point and there are 12 points to an em and 6 ems to one inch. The Typesetting Department is able to produce from 6 point to 72 point characters with a choice from sixty four different fonts. These columns are set at 14 ems wide.

A trained operator starts with the copy to be typeset. It is essential that this copy is legible, preferably double spaced typed in upper and lower case and on one side of the paper with a margin of 35mm on the left hand side. This margin space allows the producers to correct spelling or grammatical errors, prepare a design and designate instructions to the operator. The data is then keyed in with the necessary commands from a conventional keyboard with extra keys for entering commands. The input is viewed on a Visual Display Unit (VDU). Some operators can type up to and in excess of 60 words per minute (WPM), when reading from first class, marked up, copy.

The computer contains an in-built programme for hyphenation, spacing and justification. When the end of one line is reached, the computer ensures it aligns with the other lines (justification). If a word break is necessary, the computer knows to place the hyphen in the correct spot. This information is stored on disc and fed to the electronic photographic typesetter which operates as a high speed, high resolution computer printer.

The printed output is on galleys, with left and right margins aligned, on special paper (Bromides). These are then photostated and proof read for errors against the original copy, alterations are marked and sent back to the typesetter for corrections. After correction another bromide is produced and read. If correct, it is again photocopied and two copies are sent to the producers for any missed errors or literal corrections. The producers "proof read" all type setting against the original copy. If any errors are found, they are marked and returned to the typesetters for correction. The corrections are made, checked and a bromide is then produced with photocopies, which becomes the basis of the magazine article.

Whilst copy is being set, the colour cover is being separated as outlined in the article on p20 of September 1984 Amateur Radio.

Two other typesetting companies, with different equipment but working on similiar lines also do work on the magazine, generally to a much lesser degree. The basic reason for this is that in the case of equipment breakdowns, which are very infrequent, staff sicknesses and when peak loading occurs, the producers have the option of delegating the work to a supplier for the quickest turnover, to keep within the scheduled printing dates.

A "Dummy" of how the magazine is to be laid down by the printers is produced, to the last detail, which includes the positioning and sizing of photographs, diagrams, cartoons, captions, logos, rules and borders etc.

The "Dummy" is checked as to continuity as it is laid down. Not in the sequence of the pages that you read (ie page 1, 2, 3, etc) but 1 and 64, 2 and 63 etc. The reason for this is the way that they are made up and laid on the printing plates.

Making-up a 'Dummy'.

The next process is to index the magazine, which is done by a home computer, and note all captions for photographs, fillers etc which are used. This again is rechecked and sent to be typeset. The producers place all artwork into numbered envelopes for each appropriate page. The photographs, artwork and advertising are noted as Photo 1, Cartoon 1, Circuit 1, 2, 3, etc as required to correspond to the "DUMMY" and page of the magazine. Separately, all the typesetting bromides are numbered to the page that they appear on. It is then delivered to the printers for make up with the proof read index and captions, which have been collected from the typesetter in a separate part of the premises.

The Index is Generated on a Home Computer.

THE PRINTING PROCESS

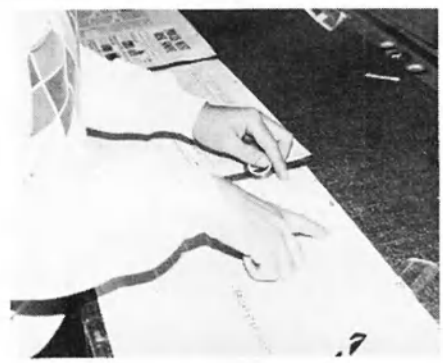
The magazine is printed by the Waverley Offset Publishing Group on a yearly contract, won on tender, for the last five years. This company has grown from a small business established in 1964, to a company with multi-associations in the printing industry, and prints magazines such as this, newspapers and advertising material. They employ a staff of thirty two, with expertise in various printing techniques to cater for their needs.

The producers layout (the "dummy"), is delivered to the printers by a scheduled date arranged for the whole tender period, in page numbered form, as described above, with the accompanying envelopes of artwork.

The "dummy" pages are sequentially pegged up at the back of a work bench on which is laid the correct number of blank "make up" sheets (pages) with printed guidelines in faint blue, termed "dropout blue" which the camera does not reproduce. The compositor, positions any advertising material first by passing it through a waxing machine, causing it to be pressure sensitive and by the use of a small roller allows it to adhere to the make up sheets, as per the "dummy" and then proceeds to lay in the editorial material in the same manner.

Photographs to be used are then screened by a computer controlled camera that segregates the picture or transparency into thousands of tiny dots so that it does not print as a solid black, onto bromide paper at the appropriate enlargement or reduction required to suit the pre-determined space that has been allowed on the page and any line illustrations or circuit diagrams are also bromided to the correct size prior to waxing.

The Compositor making-up the Page Artwork.



Border Tape being applied to the Artwork.

The Camera Operator applies the grey screen to the Bromide Negative.

When all copy is in position, any borders, boxes or rules are made according to the producers instructions, with a large variety of adhesive border tapes that are available to complete the art work.

After completion, final proofs are thoroughly checked by the producers, last minute corrections made if necessary, the page is evaluated for aesthetics, initialled as approved and sent to camera, to have negatives made prior to plate making. Occasionally, human error or Mr Murphy intervenes and mistakes are missed.

The negative and Receiver Papers are prepared to reveal the finished Screen Bromide.

Page Negatives being prepared for Plate Making.

Setting up the Process Camera to make a Screened Bromide.

AR Cover Negatives in the final stages of preparation for Plate Making.

The Offset Printing Plate being applied to the Plate Cylinder prior to printing.

Text Sections being printed on the Web Offset.

Feeding the Exposed Plate into the Automatic Plate Processor.

Checking the Web Section of the Text.

Colour Covers are printed two-up.

The Developed Plate emerges from the Processing Machine.

The film after development, is opaqued to remove any unwanted spots, shadows and cut lines and then imposed into eight page flats in printing sequence prior to plate making. These are then laid in position on a light sensitive anodised aluminium plate which is 0.3 millimetres thick. These are placed on a burning down frame which creates a partial vacuum, to ensure good contact, between the film and plate and exposed to a 8kW pulsed Zenon lamp for approximately one and a quarter minutes. The plate is removed, then automatically processed to remove the unexposed areas, leaving an ink receptive image on its printing surface.

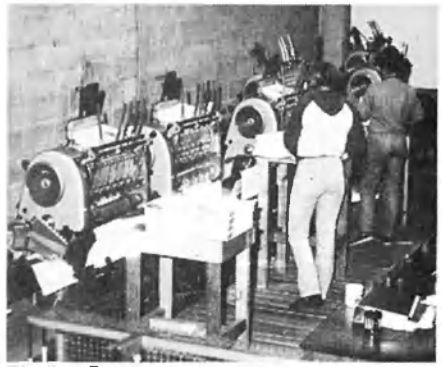
THE PRINTING PRESS

The finished plates, containing the page contents, are printed on a Web-offset press which prints the magazine in 64 page sections and folds them to 16 page segments, in one operation, from large reels of Australian made paper, each weighing approximately half a tonne.

The ink content and quality control is continuously monitored and the processed product is placed on pallets ready for the next operation.

The covers, which are printed in a similar manner are done on smaller two colour sheet-fed presses, from pre-cut sheets, in full colour by two passes through the machine, on gloss art paper. These are printed two up and guillotined prior to binding.

Printed and Folded Sections being delivered from the Press Folder.



Binding Process.

Finished magazines are packaged for Despatch to the Mail Service.

BINDING

When all the magazines and covers have been printed and dried, they are transported within the factory, to the bindery to be collated, stapled inserts placed in position (if any), stapled and trimmed to size.

This operation is performed by a high speed automatic collator/stitcher/trimmer from which the finished magazines emerge to be placed in cartons ready to be despatched to the mailing company.

THE MAILING PROCESS

Mailing of the magazine is done through Automail Pty. Ltd., a direct mailing company that has processed Amateur Radio for over a decade. This company has grown with the demands of their clientele, investing in modern mail processing equipment as their business expanded.

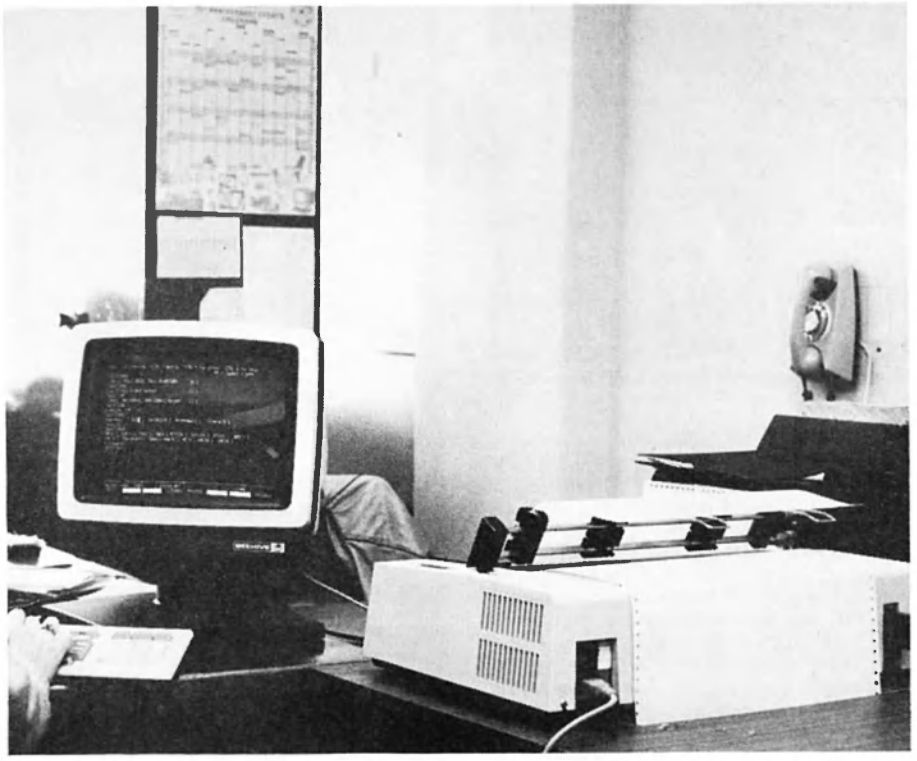
Each monthly magazine is scheduled up to twelve months ahead, to arrive at their premises at a particular time on a certain day, from the printing and binding process, as are the labels and any inserts that may be required to be enclosed in the magazine. This is important, as the company does handle anything from 100 to 150 thousand units to be mailed per day and tight scheduling is vital to ensure that the magazine arrives in the recipients mail box on time.

Amateur Radio up until August, before mailing, went through several processes. The first, involved the listing containing the names and addresses which were generated from the members list, by the computer in the Federal Office. This list, when received two days prior to the magazine, was fed through a Cheshire machine which automatically cut the multi printed addresses to label size and adhered them to the envelopes. These were then held in stock until the magazine arrived. The automatic Cheshire machine has a capacity of 8000 units per hour when running at full speed.

Manual Sorting Area at Automail.

At the completion of this process the envelopes were progressed to the Sorting Area, where they were manually sorted into their postcode groups, to obtain concessional Registered Publication mailing rates, prior to the insertion of the magazine.

The magazines, on their arrival were channelled either to the manual area, if inserts were to be collated into the magazine, or direct to the mechanical insertion machine where the magazine was automatically inserted into the envelope and sealed at speeds of up to 2500 units per hour. Magazines with inserts were then handled in the same manner.



WIA Computer generates the Address Labels.

Inserts being Automatically Folded.

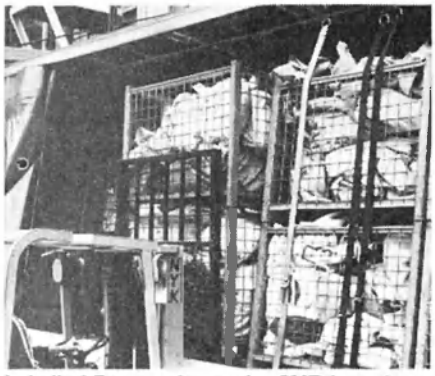
Inserts being Collated into Magazines.

The new method, quite modern in mail processing, is plastic wrapping, as you have received this issue of Amateur Radio. This machine can adhere address labels from the Cheshire machine that have been generated on the WIA's computer, collate up to six pieces inside each issue, heat seal, and operate up to 7,000 units an hour. This form of processing, includes a significant saving in cost and time.

The finished product is segregated into Australia Post preferred post code listings, placed in mail bags, appropriately labelled and are then ready for despatch to Australia Post.

The management of the Company stress the importance of co-ordination of the mail processing, as it is the vital factor in the scheduling of all material, arriving prior to or at the appointed time to obtain a fast, efficient and cost-effective result to you, the member receiving your magazine on time.

Bagged Magazines despatched from Automail.



Labelled Bags arrive at the CME from Automail.

AUSTRALIA POST

The bagged magazines are picked up from Automail with other publications for posting and taken to the unloading bays at the State Mail Centre (SMC) formerly known as the Central Mail Exchange (CME), located at the corner of Bourke and Spencer Streets in the city of Melbourne. This building has quite a history, having been built in 1916/1917 and became the Melbourne General Post Office (GPO) in the latter years. The cost of construction is reported to have been $250,000.

The building was also occupied in June 1917 by the Deputy Postmaster General (later Director General), and most other administrative staff. In the 1960s it lost its status as the Melbourne GPO and became known as the CME, being the clearing house for 90 percent of Victoria's mail until 1975 when the regional mail centres commenced to operate.

Sorting into Mail Areas.

The labelled bags, not exceeding 16 kilogrammes in weight, designated by Post Codes on attached labels and contained in large metal baskets, are off loaded with a fork lift, stacked and sorted into different mail areas according to their designation, interstate, intrastate and overseas. The interstate are forwarded direct to their respective SMEs. The intrastate are forwarded to the appropriate City Delivery Centre, seven metropolitan and five country Mail Centres.

The magazines at the respective Mail Centres are again segregated into preferred Post Code areas and sorted to be forwarded to their destination Post Office, with other mail.

On arrival at the destination Post Office, they are again sorted to respective postal delivery rounds by the Postmen and women, responsible for that particular area.

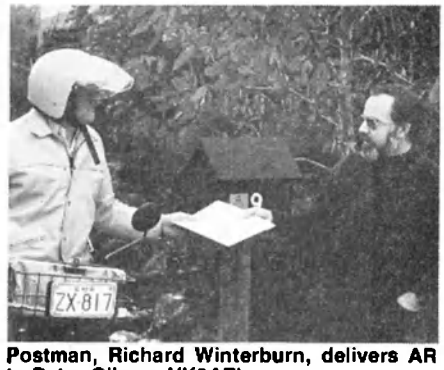
From the arrival in each state the delay to the recipient is minimal, considering the handling involved, and happy WIA members have considerable reading ahead of them, until looking forward to the next issue.

Sorting at the CME.

Sorting Mail Bags.

Despatch to Mail Centres throughout Australia and Overseas from the CME.

Sorting at the Destination Post offices.



Postman, Richard Winterburn, delivers AR to Peter Gibson VK3AZL.

After reading this, it is hoped you will have a better understanding of the production of your Society's monthly magazine and may be enthused into writing a technical or general interest article for publication and introducing one new member at least to the oldest Radio Society in the world.

ACKNOWLEDGEMENTS

The following have assisted with their technical expertise, time and advice on the preparation of this article.

Mr Simon Rubenstein, Director, York Press Pty Ltd.
Mr David Burns, Director, BP Typesetting Pty Ltd.
Mrs Rosemary Davis, Quadricolor Industries Pty Ltd.
Mr Graeme Hattwell VK3NGH, Production Manager, Waverley Offset Publishing Group.
Ms Elsebeth Donnerborg, Account Manager, Automail Pty Ltd.
Mr Peter Hayes, Sales Manager, Automail Pty Ltd.
Mr Jim Foley, Manager, Public Relations, Australia Post.
Mr Mike Chandler, Public Relations Officer for Victoria, Australia Post.
The Management and Staff of the Central Mail Exchange, Melbourne.
Mr Don Peake, Postmaster, Mooroolbark Post Office and Staff.
The Management and Staff of Companies connected with the production of Amateur Radio.

CALCULATE BEAM HEADINGS AND GREAT CIRCLE DISTANCES

Fred Robertson — Mudie VK1MM
Box E46, Queen Victoria Terrace, ACT, 2600

```
10 REM ******************
20 REM * BEAM HEADINGS *
30 REM ******************
40 CLS
50 D=1:K=111.12:M=57.2957795:N=60:S=69.06
60 PRINT"GREAT CIRCLE DISTANCE & BEARING"
70 LOCATE 1,4:PRINT"Enter values in whole degrees and decimals. Use -ve Prefix f
or South Latitudes and East Longitudes"
80 IF D<>1 THEN 130
90 A=-35.3:A=A/M
100 L1=-149.133
110 LOCATE 1,5:PRINT "ENTER DX QTH"
120 INPUT A$
130 INPUT "LATITUDE";B:B=B/M
140 INPUT "LONGITUDE";L2
150 L=(L1-L2)/M
160 E=SIN(A)*SIN(B)+COS(A)*COS(B)*COS(L)
170 D=-ATN(E/SQR(1-E*E))+1.57079
180 C=(SIN(B)-SIN(A)*E)/(COS(A)*SIN(D))
190 IF C>=1 THEN C=0:GOTO 210 ELSE IF C<=-1 THEN C=180/M:GOTO 210
200 C=-ATN(C/SQR(1-C*C))+1.57079
210 C=INT(C*M)
220 IF SIN(L)<0 THEN C=360-C
230 R=180+C
240 IF R>=360 THEN R=R-360
250 R=INT(R)
260 CLS
270 LOCATE 4,1:PRINT"GREAT CIRCLE BEARING & DISTANCE"
280 LOCATE 8,8:PRINT A$
290 LOCATE 8,10:PRINT"Bearing"C"Degrees (Short Path)"
300 LOCATE 8,12:PRINT"       "R"Degrees (Long Path)"
310 LOCATE 8,14:PRINT"Distance" INT(N*D*M)"NM"
320 LOCATE 8,16:PRINT"         "INT(S*D*M)"Miles"
330 LOCATE 8,18:PRINT"         "INT(K*D*M)"Km"
340 LOCATE 4,22:PRINT"Press any key to continue..."
350 IF INKEY$="" THEN 350
360 CLS
370 GOTO 40
380 END
```

This is a programme for calculating beam headings and great circle distances. It is intended for the AMSTRAD CPC 464, but can be easily modified for any of the System 80 or Commodore variety computers.

To modify the programme for individual locations, it is only necessary to change lines 90 and 100, eg in the copy Canberra is listed as (line 90) — 35.3, and (line 100) as — 149.133.

Southern latitudes for the DX station should be entered as negative values, and eastern longitudes should also be entered as negative values. The programme will give both short path and long path bearings and the distances in nautical miles, statute miles and kilometres.

It is a fairly simple programme. Given it ease of modification to the more common computers, it could be useful.

AR

TRY THIS

240 VOLTS 50Hz METER

Stan Widgery VK3SE
8 York Street, Ballarat, Vic. 3350

Portable AC generating units can have wide variations in the frequency of their outputs due to load condintions affecting the alternator speed. The frequency meter shown in this article can be used to indicate 50Hz operation.

The zeners can be any voltage between 6V and 12V. The 25k ohm resistors may have to be adjusted to suit the zeners.

The meter is calibrated for 50Hz by using mains power as a reference.

A variable voltage AC supply can be used to ensure the zeners are working, as there should be no variation in the meter reading with different voltages.

Other frequencies can be calibrated with a good quality audio oscillator.

AR

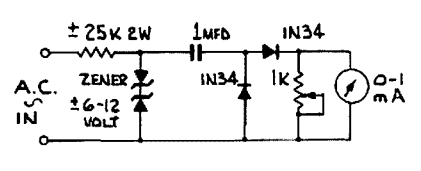


Figure 1

1985 VK/ZL/OCEANIA Contest

Announcing the 1985 VK/ZL/O Contest to be held on the first two weekends in October.

SSB for 24 hours from 1000Z 5th October 1985
CW for 24 hours from 1000Z 12th October 1985

This is a special contest for it commemorates the 75th anniversary of the Wireless Institute of Australia and is the 50th VK/ZL contest.

There will be awards for the top scorer on each continent, these will take the form of leather bound log books, and medallions will be awarded to top scorers in countries that have more than 10 logs submitted. Further certificate awards will be made at the discretion of the contest manager.

For the top scorer in VK, AMCOM of Melbourne have donated a prize valued at $350. TRICITY HOUSE in New Zealand have donated a triband beam to the top scorer in that country. So the contest is well worth entering this year. These prizes will be awarded to the top scorer in each country including both phone and CW, get that key out NOW and start practising.

RULES — Overseas Entrants

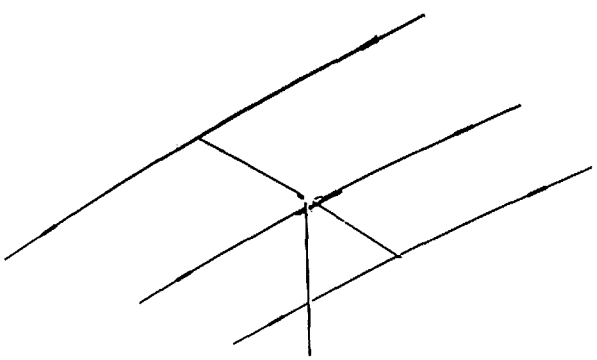
1. There are the following sections in the contest
   (a) Transmitting Phone
   (b) Transmitting CW
   (c) Receiving Phone and CW combined
2. Only one contact per mode per band is permitted. All bands are permitted except WARC bands.
3. Scoring
   For stations operating outside OCEANIA score two points for each contact with a VK/ZL or OCEANIA station. OCEANIA stations score two points for all contacts.
4. Final Score
   Multiply total QSO points by the sum of all VK/ZL/O prefixes on ALL bands. (The same VK/ZL/O prefix worked on a different band counts as a separate unit).
5. Exchange
   Five or six digit numbers composed of the RS(T) report plus a three digit sequence number beginning at 001 and increase by 1 for each QSO on that band.
6. Logs
   A separate log is required for each band and mode (Different people will be checking different bands). It must show — Date, Time (Z), Callsign of station. Exchange sent and received. Underline or highlight each new VK/ZL/O prefix.
   Summary sheet to show CALLSIGN, NAME AND ADDRESS Equipment Details, QSO points for that band, Total VK/ZL/O prefixes worked on that band.
   Signed declaration that all rules and regulations were observed.
   Send logs to:—
   W.I.A. VK/ZL/O Contest Manager
   1 Noorabil Court
   Greensborough
   Vic 3088
   Australia
   Logs to arrive by 31 January 1986
7. SWL Section
   A VK/ZL/O station must be heard in a contest QSO, log the following *information. Date,* Time (Z), Callsign of VK/ZL/O station, Callsign of the other station and the Exchange, scoring and summary sheets as detailed above.
   Phone and CW scores will be combined for SWL section.

NOTE: OCEANIA stations are those which qualify as Oceania for WAC.

RULES for VK/ZL STATIONS

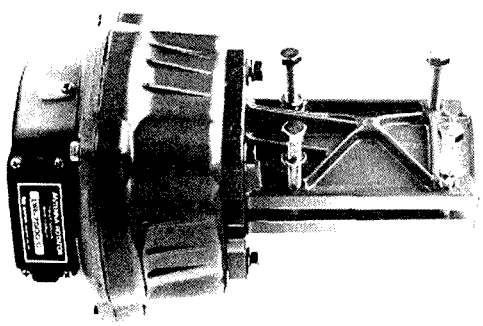
1. There will be five sections for VK/ZL these are:-
   (a) Transmitting Phone — 24 Hours
   (b) Transmitting CW — 24 Hours
   (c) Transmitting Phone — 8 Hours
   (d) Transmitting CW — 8 Hours
   (e) Receiving CW + Phone Combined
   2. Only one contact per mode per band is permitted. All bands are permitted except WARC bands.
3. VK/ZL Stations are permitted to contact each other only on 160 and 80 metres. VK/VK, ZL/ZL, and ZL/VK contacts are all permitted.
4. SCORING
   Different points are allocated for contacts on different bands these are 160m — 20, 80m — 10, 40m — 5, 20m — 1, 15m — 2, 10m — 3. Total score will be total QSO points multiplied by total number of prefixes worked. The same prefix on a different band is counted. Note K1, W1, WA1, AA1, N1 are all different prefixes, W1AAA/6 would count as W6 not W1.
5. Exchange
   Five or six digit numbers composed of the RS(T) report plus a three digit sequence number beginning at 001 and increase by 1 for each QSO on that band.
6. Logs
   A separate log is required for each band and mode (Different people will be checking different bands). It must show — Date, Time (Z), Callsign of station, Exchange sent and received. Underline or highlight each new prefix.
   Summary sheet to show CALLSIGN, NAME AND ADDRESS Equipment Details, QSO points for that band, Total prefixes worked on that band.
   Signed declaration that all rules and regulations were observed.
   Send logs to:—
   W.I.A VK/ZL/O Contest Manager
   1 Noorabil Court
   Greensborough
   Vic 3088
   Australia
   Logs to arive by 30 November 1986
7. SWL Section
   A VK/ZL/O station must be heard in a contest QSO, log the following information. Date, Time (Z), Callsign of VK/ZL/O station, Callsign of the other station and the Exchange, scoring and summary sheets as detailed above.
   Phone and CW scores will be combined for SWL section.
8. Awards
   Awards will be made to the top scorer in each section from each country. Awards for top scorers in each call area or on a single band may be given at the contest manager's discretion (determined by the number of entrants). The prizes which have been donated will be awarded to the top scorer in each country determined by adding the Phone and CW scores.

SUPPORTED BY TRICITY HOUSE



The WIA 75th Anniversary Committee thanks Don McKay and Tricity House for their support of the VK/ZL/O Contest in this, the WIA's Anniversary Year.

SUPPORTED BY AM-COMM ELECTRONICS



The WIA 75th Anniversary Committee thanks Fred Mackiewicz and Am-Comm Electronics for their support of the VK/ZL/O Contest in this, the WIA's Anniversary Year.

THE ROLL-UP

A portable antenna for 2m.

Chris Carter VK6FC
37 Ashfield Parade, Ashfield, WA 6054

Users of handheld transceivers will know how often the "rubber ducky" antenna is just not good enough. With this antenna you will gain three or four S-points over your usual signal. You can roll it up, take it with you and have it ready in seconds whenever you want to operate portable handheld. It's so cheap and easy to make, you can leave several around the place ready for immediate use. All you need is a few metres of RG-58 or equivalent coax, a plug, a few odds and ends and an SWR meter for tuning. To use, simply unroll, hang it from a convenient twig or nail and start talking.

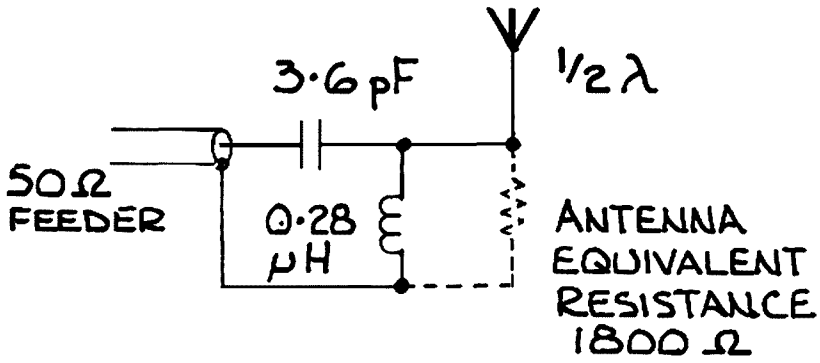


Figure 1 — The Roll-up Equivalent Circuit.

DESIGN

The antenna is an end fed half wave radiator made from RG-58 coax. Its feed point impedance of about 1800 ohms is matched to 50 ohms by an L-network. See figure 1.

The capacitor and inductor are stubs, also made from RG-58 coax. If you use coax with characteristics significantly different from RG-58 then you will have to adjust the dimensions.

CONSTRUCTION:

Make the radiator and inductive stub first. See Figure 2. Make the capacitive stub by removing exactly 10mm of jacket and braid from the feedline, about 50mm from the end. Connect the braids and stubs as shown.

Hang the assembly in the clear and carefully trim the open stub while checking the SWR across the band. Keep the inner 1 or 2 mm longer than the braid to prevent accidental short circuits. When the SWR begins to fall proceed very carefully because 2mm changes the resonance by about 500 kHz.

Finish by attaching a nylon loop and covering the join with tape or heatshrink tubing. If you fill the gap with silicone it will lower the resonance by a few hundred kHz so allow it to cure before tuning. The gap and top are high impedance points so keep them clear of conductors during use.

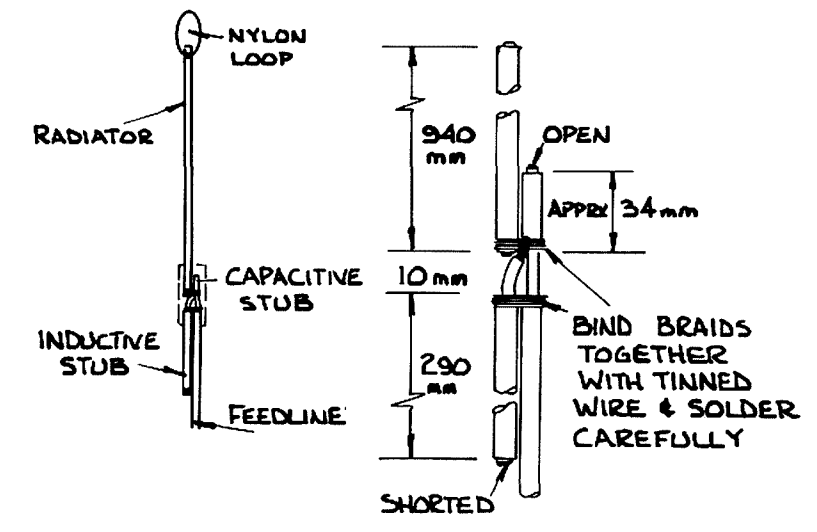


Figure 2 — Construction Details.

PERFORMANCE:

I have consistently obtained between 15 and 25 dB gain over a "rubber ducky" in simplex QSOs. The SWR is better than 1.1 : 1 from 146 to 147 MHz, and 1.5 : 1 at 145 and 148 MHz.

Note: Chris is editor of the WA VHF Group Bulletin. This article first appeared in the Bulletin in September 1982 and was recently revised and re-published by popular request in March 1985.

AR

WHAT IS THE INTRUDER WATCH?

The purpose of the Intruder Watch is to monitor the amateur bands for unauthorised transmissions and work towards the removal of the offending stations. It should be established that the intruding station is appearing on a more or less regular basis. It is pointless to report a signal, eg a carrier, heard once only, as it may never be heard again.

If you hear a station you suspect to be an intruder, make a note of the details and listen again the next day, or on the same day the next week. It may be a regular sched he is keeping or he may have scheds at appointed times at several times each day.

If you are satisfied that he is a regular, and IS, IN FACT AN INTRUDER, then go ahead and send in a report. The Intruder Watch is only concerned with intrusions into the amateur bands of frequencies, by governmental, military and commercial stations. Pirate operators and the like should be reported to the DOC.

You should look for the date, time (UTC), mode, signal strength, frequency of operation, and his identifying call sign, if heard.

Many intruders do give call signs, but this does not mean that it is then any easy task to have them removed from the amateur bands. But it is a starting point, and simplifies things somewhat. You will find that a great many intruder stations do come up on a regular basis, and they can be monitored at will.

Special intruder log sheets, or further information, may be obtained from the Divisional Intruder Watch Co-ordinators or from the Federal Intruder Watch Co-ordinator, Bill Martin VK2COP, ex VK2EBM QTHR. Send your report this month and share the load....

from BARG News, July 1985

160 METRES IN THE USSR

Summary translation by Dex Anderson W4KM
From Radio #1 of 1985.

Effective from the 1st January 1985 the 160 metre band in the USSR is as follows:

1.830 to 1.860 MHz	*— CW.*
1.860+ to 1.900 MHz	*— CW, & SSB (LSB)*
1.900+ to 1.930 MHz	*— CW, & LSB & AM*

As before the band is allocated to the Amateur Service on a secondary basis.

Contributed by David Rankin 9V1RH/VK3QV

SHOOT YOUR SIGNAL OUT OF THIS WORLD

SCAN THE BANDS WITH OUR NEW SX-155

PROGRAMMABLE POCKET SCANNER

This new unique scanner provides coverage of 26-32, 68-88, 138-176 and 380-514 MHz with a sensitivity of less than 0.5 uV. Four banks of 40 memory channels, total of 160 memories. High scan speed of 16 CH/SEC. Auto search and store mode. Priority channel. 4 hour life on supplied Nicad batteries. 24 Hour clock. Selectable Scan/Search delay of 0.1 or 2 seconds. Includes Nicads, charger, carrying-case & antenna.

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AR-2001 CONTINUOUS COVERAGE 25-550 MHz SCANNER

If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2001 from GFS.

$619 +$14 P&P

LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

LOSS IN DB/30 METRES

TYPE	100 MHz	200 MHz	400 MHz	900 MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8/U	1.95	N/A	N/A	7.44
RG-213	1.74	N/A	N/A	7.20

FB SERIES CABLE & N CONNECTORS

CABLE		N-CONNECTORS	
5D-FB	$2.60 m	NP-5DFB	$10.90
3D-FB	$3.80 m	NP-8DFB	$11.30
10D-FB	$5.80 m	NP-10DFB	$11.60
12D-FB	$7.90 m	NP-12DFB	$12.50

$49 + $8 P&P

BUMPER HOOK MOBILE MOUNT

HS-FB is a heavy duty antenna mount designed to fit on your car's tow hook or tow bar.

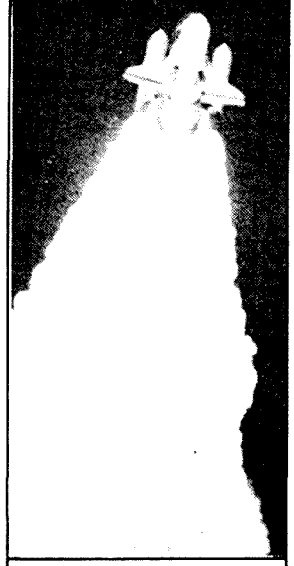
NO HOLE MOUNT

$11 + $6 P&P

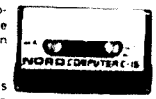
The HS-25 is a "No Hole" boot lip mobile antenna mount designed for Scalar type bases.

Our fully equipped service department services a range of communications equipment. Hourly rate $37.

WITH COMMUNICATIONS ACCESSORIES FROM GFS



RTTY/SITOR & FAX FOR TRS-80C



DCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR.

RBA provides transceive on RTTY (BAUDOT) – ASCII

(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programs.)

DCM $75 + $5 p&p
RBA $55 + $5 p&p

FAX is a high resolution weather facsimile programe for displaying weather maps etc. received on shortwave. It does not need a modem.

Morse $55 + $5 p&p
FAX $75 + $5 p&p

MORSE is a unique program for sending & receiving Morse code. 1-99WPM

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LOG SP – 65 to 520 MHz
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LOG-S 100 to 520 MHz
$125 + $14 p&p

HF BROADBAND DIPOLES

New T2-FD series provides continuous HF coverage

200 WATT MODELS

3.5-30-T2-FD-200 is 25m long, 3.5-30 MHz.
1.8-30-T2-FD-200 is 30m long, 1.8-30 MHz. **both priced at $149 + $14 p&p.**

2KW MODELS

3.5-30-T2-FD-2KW is 40m long, 3.5-30 MHz.
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These individually calibrated noise bridges read both inductive & capacitive reactance over a much wider range than the others. Simple to use and covers 1 to 100 MHz.

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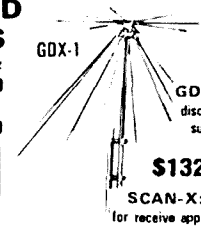

GDX-1: 16 element discone 80-480 MHz suits transmitters and receivers

$132 + $14 p&p

SCAN-X: 6 element discone for receive applications 65-520 MHz

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2 metre RINGO

The antenna for 2 mx FM work. 9dBi gain, omnidirectional

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GIVE YOUR RINGO ANOTHER 1.5dB

with our RK-1 decoupling radial kit.

$23 + P&P

FOR THE RTTY OPERATOR

MDK-17 (KIT) MOD-DEMOD

A high performance RTTY/CW modem kit for use on a computer or teletype. Offers high noise immunity on receive **$129 + $6 p&p (kit) or $199 $8 p&p, (assembled).**

MFJ-1224

Versatile RTTY/CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64. **$345 + $14 p&p**

Great Circle Map

Now point your beam in the correct direction using this Great circle Map! centred on Melbourne **$2** + $3 P&P

What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

	DB-4 (4mm)			DB-5 (5mm)		
	Current Rating (amps)	Wt of 200m (kgs)	Tensile Str (kg)	Current Rating (amps)	Wt of 200m (kgs)	Tensile Str (kg)
Debeglass	25	5.9	430	30	[illegible]	[illegible]
Stainless	25	5.6	370	[illegible]	[illegible]	[illegible]

DB-4 (4mm) $0.51m DB-6 (5mm) $0.71m
We also have DB-6 (6mm) available on special order.

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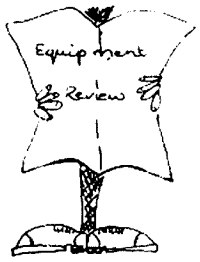


EQUIPMENT REVIEW

TEST REPORT ON AN ELECTRONIC VOLTAGE REDUCER

Ron Cook VK3AFW
TECHNICAL EDITOR

TABLE 2
Output Voltage Versus Output Current.
(Vin = 24 V)

Iout	Vout
0.0	14.11
3.0	14.10
6.0	11.7

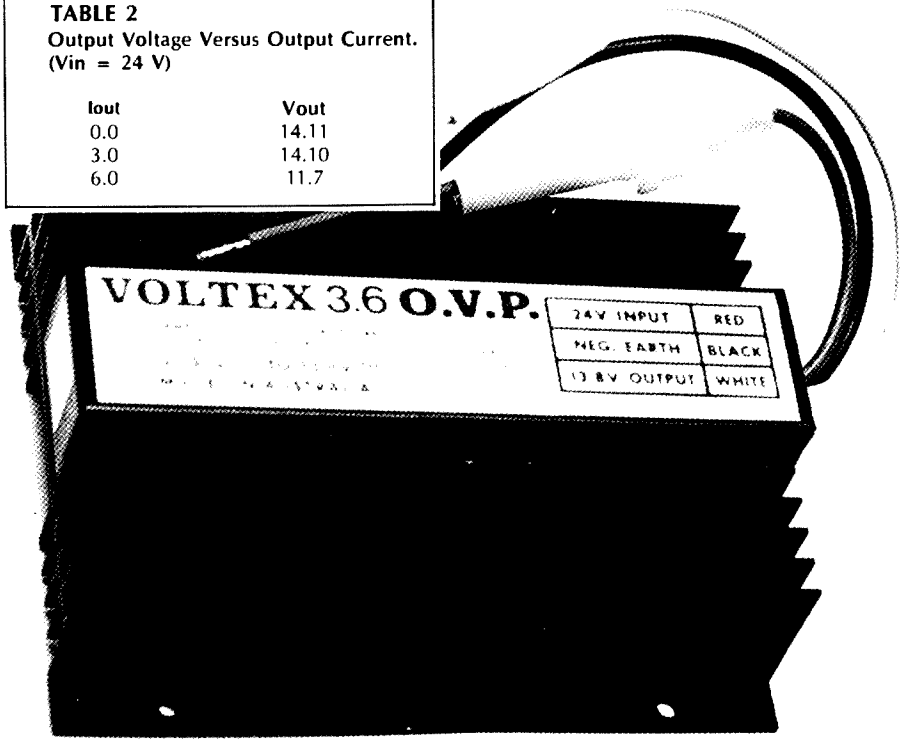


TABLE 1
Output Voltage versus input Voltage.
(load current = 3 A)

Vin (V)	Vout (V)
18.21	13.95
20.00	14.00
22.00	14.00
24.00	14.00
26.00	14.00
28.00	14.00
30.00	14.00

WHAT IS IT AND WHAT DOES IT DO?

If you have ever contemplated operating from a primary power source, such as a windmill, you will have encountered the problem of achieving a stable 12 volt (nominal) supply. A similar problem will confront you if you operate a truck with a 24 volt system and you want to run a radio transceiver or tow a trailer with 12 volt lights. *What do you do?* Well, you could use a series dropping resistor but this would only be satisfactory for a fixed lamp load. Putting on the brakes would dim all the trailer lights! And if you tried to use your transceiver rig your signal would probably be unintelligible because of the poor regulation. To solve such problems you would buy an electronic voltage reducer. Most readers will be more familiar with the term voltage regulator an electronic voltage reducer is really a regulator designed for voltage reduction first and regulation second.

The VOLTEX 3.6 O.V.P. is an electronic voltage reducer designed for use with any **DC** supply in the range 20-30V. It is rated at 3 amps (continuous) at 13.8 volts output. It has a peak output rating of 6 amps. It is one of a family of reducers manufactured by Atron Products in Ballarat. Ballarat has a reputation for excellence in engineering (stationary engines, mining machinery, etc) and has produced many fine electronic engineers; are we seeing the beginning of a new centre of excellence?

As can be seen from the photograph, the reducer is built on a 12.5cm long heatsink. It is provided with an inlet lead, an outlet lead and a common (-Ve) lead. The input lead is fitted with a 5 amp in-line fuse.

The manufacturer provides an installation sheet with easy-to-follow instructions. A ventilated position protected from wet weather is recommended.

ON TEST

The reducer was connected to a regulated 10 amp supply and a bank of lamps used for the load. The 5 amp fuse was left in line.

The input voltage was varied over the rated range with the rated load. The results are given in Table 1. It can be seen that the output remains constant at 14.00 volts to better than 10 mV when the input drops to 20 volts or rises up to 30 volts. To get a 0.1 volt drop in output, the input had to be reduced to 17.55 volts. This is a performance in excess of what would be required in its intended service.

The input voltage was set to 24 volts and the load varied. The unit managed to achieve 6 amps out in spite of the 5 amp rating of the fuse, although the output voltage had fallen considerably.

The reducer was then run at 3 amps for one hour at the conclusion of which the output voltage had risen to 14.18 volts.

An attempt was then made to obtain 6 amps output but only 5 amps could be obtained on short circuit. The manufacturer states that this is normal as the unit is designed to be safe against thermal run-away, thus as the unit becomes hot the maximum output current is reduced. In normal commercial use a transceiver would be limited to one minute transmissions and hence the test performed was very severe. If higher currents are required at higher duty cycles, then one of the other model Voltex reducers should be used. Models up to 20 amps continuous rating are available.

The heat sink becomes quite hot after 15 minutes or so of continuous operation so the unit should be mounted in a well ventilated area if it is intended to use the unit at full rating.

INSIDE THE VOLTEX

The cover was rivetted on so no attempt was made to remove it. No manual was supplied so it is not possible to give an accurate circuit description. It appears that the reducer is a series pass regulator employing two 3055 type transistors as the series element. This would give an adequate capability and the limiting factors would be the main regulator and the heatsink as the transistors would each be capable of carrying the load current.

The Installation Instructions also include a specification statement. This states that the output is factory set to 13.6 volts and that the units will current limit in the event of overload. Voltage spike and surge protection is incorporated as is an over voltage protection. If the output voltage rises to 16 volts, the unit will shut down by blowing the fuse fitted in the input line.

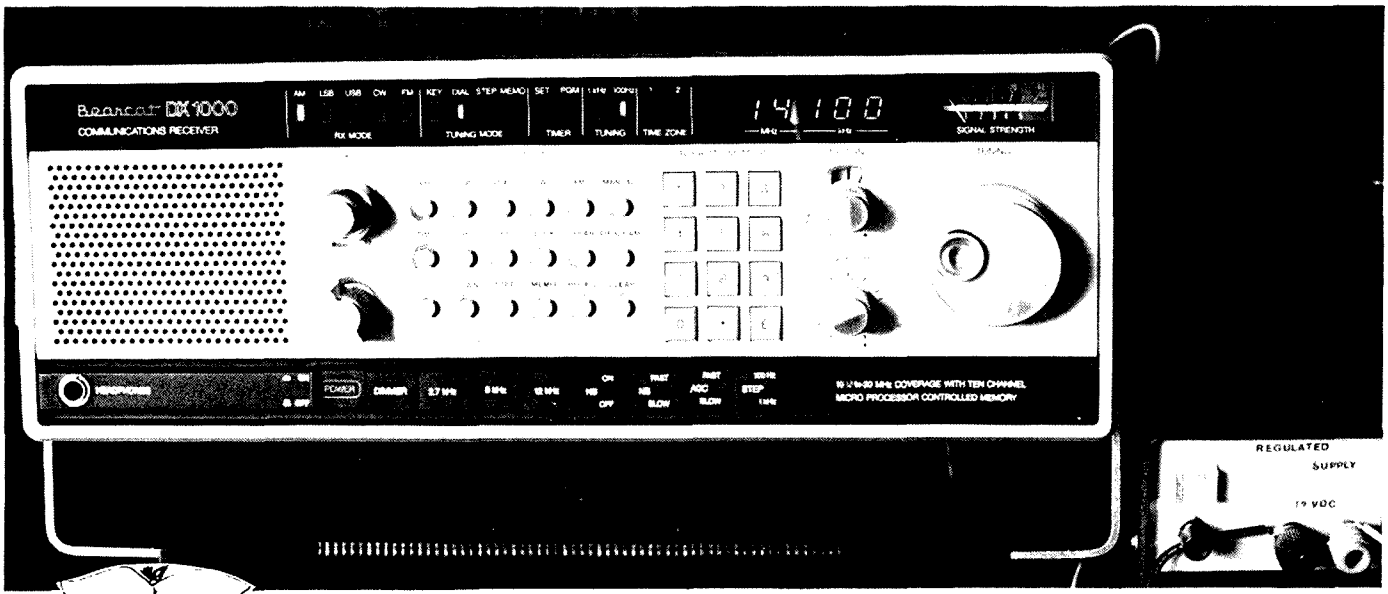
CONCLUSIONS

The Voltex 3.6 O.V.P. would enable operation of 25 watts and lower power level transceivers from 24 volt vehicles or from any DC source between 20 and 30 volts. It should provide a considerable degree of isolation from ripple and alternator whine, providing proper earthing is employed. Indeed lamps and any 12 volt appliance could be safely run from 24 volt sources providing the 3 amp average rating is not exceeded.

If you own a vehicle with a 24 volt system or use a 'home lighting plant' with a windmill charging system, then you need a Voltex.

Thanks to WECAM for supplying our review unit. All enquiries should be direct to them at 11 Malmesbury Street, Wendouree, Vic. 3355.

AR



EQUIPMENT REVIEW

Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150

BEARCAT DX-1000 DIRECT ACCESS COMMUNICATIONS RECEIVER

Until the introduction of the DX-1000 receiver, the Bearcat brand had been associated with VHF-UHF scanning receivers. Bearcat equipment is manufactured in Japan for the Electra Company, a division of Masco Corporation of Indiana USA.

The DX-1000 is imported into Australia and distributed by Dick Smith Electronics, who kindly supplied our review receiver.

This unit is a full featured, desk top, communication receiver. It measures 370W x 130H x 240D mm and weighs 6.5kg. The receiver requires a power source of 12 volts DC, either from an external power supply or from internal batteries. With the batteries installed, the total weight increases to 8kg.

Coverage is from 10kHz to 30MHz, with either continuous tuning or key board entry. The receiver has ten frequency and mode memories and two 24 hour clocks. It is supplied with a telescopic antenna, so that with the internal batteries installed it becomes a completely portable receiver. Frequency and time readout is by a five digit, red LED display plus an imposing array of 15 LED status indicators. All mode reception includes AM, USB, LSB, CW and FM, for which three selectivity positions of 2.7, 6 and 12kHz are provided.

A dual speed noise blanker, which is claimed to be effective against the Woodpecker, fast and slow AGC selection and two speed tuning round out the impressive list of features.

With all of that, you might well ask what DOESN'T the DX-1000 have. Incredible as it might seem, the DX-1000 does not have an AC power supply. At a price of $699, the power supply is an optional extra. It seems that when the receiver is sold in the USA, a wall type power pack is included as a standard feature, but the Australian purchaser is not quite so lucky.

DX-1000 IN OPERATION

The first requirement is to find a suitable AC power supply. The rated current drain is 450mA peaking to 700mA at full audio output. At this rate, the 8 internal D cells would not last too long. I happened to have a home-built, 1A, 12V regulated supply, which did the job very well. In addition three AA cells are required for memory retention when the external power supply is removed. With a total of 39 push buttons and six rotary controls, the DX-1000 takes a bit of getting used to. Many of the controls interact in some strange and unexpected ways. On initial switch-on, the receiver starts on 10kHz in the (KEY) mode. This means that you can now enter any required frequency via the key pad to the nearest 1kHz. At the same time, these can be entered into memory if required at this time.

To manually tune the receiver it is necessary to push the 'MANUAL' button, the 'DIAL' LED will light and the tuning knob becomes operative. Two tuning rates are selectable, 100Hz which gives a rate of 2.5kHz per tuning revolution or 1kHz, which gives 25kHz per knob revolution. It is at this point that some of the unexpected funnies become evident. Tuning across a SSB signal, for instance, steps in 100Hz increments, but every so often, the tuning goes backwards for an instant. However, let us say you now have your SSB signal tuned and you decide to check the time. Push the 'CLOCK' button and, low and behold, the SSB signal disappears off frequency. To retrieve the lost signal it is necessary to step through the two clock modes, back to the frequency readout, hit the 'MANUAL' button and retune. The problem appears to be that, on selection of the clock mode, the tuning system returns to the 'KEY' mode and so resets the tuning to the nearest 1kHz point. A strange idea, to say the least.

The two tuning rates are well chosen, however the synthesiser is rather clicky in operation and the digital display does not have a 100Hz digit. The tuning knob is a good size, but it does not spin. The knob seems to be made from a light grade of plastic, so perhaps the old trick of filling it with a mixture of shot and glue may help.

In addition to the keyboard frequency entry and the normal tuning, the DX-1000 also has a stepping facility. Steps of from 1kHz to 100kHz can be programmed so that it would, for instance, be possible to tune across a short wave broadcast band in 5kHz steps. However, you must keep your finger on the 'UP' or 'DOWN' button, there is no automatic scanning.

One interesting feature is the ability of the clock to switch the receiver on, a tape recorder on and select a memorised frequency on five separate occasions. Very handy to check the twenty metre beacon frequency at three in the morning.

The DX-1000 has provision for different antennas. A 1.2 metre long telescopic whip is supplied and can be attached to the rear, via the HI-Z terminal. A low Z (50 ohm) antenna can be connected via an SO-239 connector or a screw terminal. A rear switch selects either the HI or LO impedance connections. Results with the telescopic antenna were not good. Compared with a small, all wave receiver I keep for travelling, the DX-1000 was well behind.

A squelch control is provided for use with all modes. I have yet to find a satisfactory squelch system for a HF receiver and this one is no better or worse than the others. You might find it useful. Construction of the DX-1000 is fairly basic. Most of the components are mounted on one large circuit board with a separate assembly for the receiver front end. The cabinet is of steel with a black crackle paint finish, while the plastic front panel is backed with a metal shielding panel.

The large carry handle, which is very reminiscent of the one used on the Kenwood R-1000 receiver, allows the set to be tilted up at any re-

quired angle, a very useful feature.

In general, the DX-1000 is a fairly pleasant receiver to operate and once the complexities of the control panel have been mastered, it is capable of turning in good results.

THE DC-1000 ON TEST

The following equipment was used to produce the test figures: a Marconi TF995/5 signal generator, AWA F242A noise and distortion meter, Daven terminating audio power meter and a Heath AV-3 audio VTVM.

The extension speaker output was connected to the audio power meter and noise and distortion meter. An 8 ohm load was selected. The residual noise output with the audio gain at zero was measured. This was -71dBm unweighted and -59dBm weighted. These are excellent figures and certainly indicate, at least that my home made power supply is clean.

Audio power output and distortion was:

OUTPUT POWER	DISTORTION
.5 watt	1.4%
1.0 watt	2.2%
1.5 watts	13.0%
2.0 watts	32.0%

Clearly, something is wrong here, so the load impedance was changed to 4 ohms with the following results.

OUTPUT POWER	DISTORTION
.5 watt	1.6%
1.0 watt	1.7%
1.5 watts	1.8%
2.0 watts	8.0%

This now meets the specification but at 4 ohms load, not at the specified 8 ohms.

Received audio response was checked in the LSB mode, 2.7kHz selectivity, by tuning the receiver across an external crystal calibrator.

100Hz	200Hz	300Hz	1kHz	3kHz	3.3kHz
-8	-4	-3	0	-6	-10dB

Next, the response was checked in the AM mode with 6kHz selectivity.

80Hz	100Hz	200Hz	300Hz	1kHz	2kHz
-15	-12	-5	-4	0	-1
3kHz	4kHz				
-4	-8				

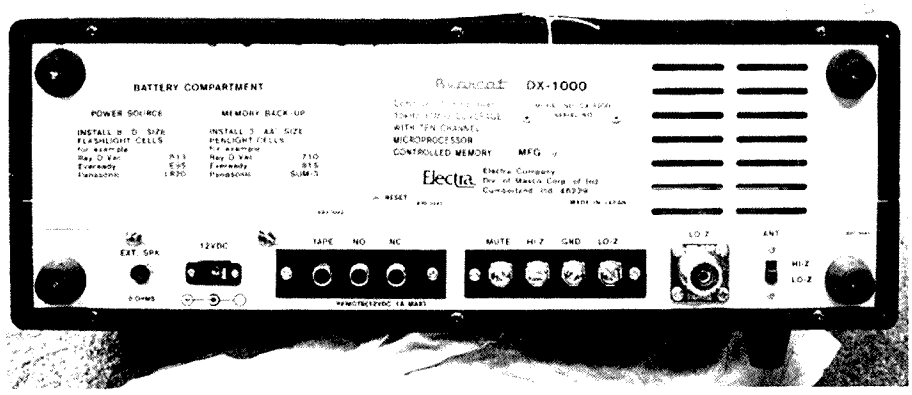
The above figures were taken with the tone control set to the centre position. The action of the tone control is such that, at one extreme it produces a top cut and at the other, a bass cut. It was noted that the 1kHz responce varied by 5dB from one end to the other and the 100Hz response by 25dB and the 2.5kHz response by 15dB. Sensitivity was checked at 14.100MHz USB with 2.700kHz selectivity. At 14.100MHz AM with 6kHz selectivity, the 1uV S½N ratio was 12dB which is a little better than the specified 10dB.

The S meter calibration was measured and found to be very miserly. It took 25uV to move the meter up to S2. The full calibration results are as follows:

S2'25uV, S4'50uV, S6'100uV, S8'125uV, S9'160uV, 9+10'250uV, 9+20'500uV, 9+30uV'2.5mV and 9+40'10mV.

With the way 20 metres is these days, you will not see much action from the S meter.

The AGC action was also checked at 14.100MHz. The audio output level was monitored as the signal generator level was slowly increased. From .1uV to 1uV, the increase was 12dB. From 1uV to 10uV-15dB, from 10uV to 100uV-2dB and then no change from there upwards.



The overall frequency stability of the DX-1000 is very good over a one hour period. The total drift in the SSB mode did not exceed 100Hz. This meets the specification.

Strong signal handling was checked subjectively and found to be quite fair from 2MHz to 30MHz. Below 2MHz it was poor. Using a long wire antenna for broadcast and long wave reception produced severe cross modulation. The use of the 20dB RF attenuator was needed most of the time and the 40dB position for the rest of the time.

Sensitivity of the low bands was not checked but appeared to be reasonable down to 150kHz, but poor from 150 to 10kHz. No signals were heard in this region, at all.

The receiver current drain was measured. No signal drain was 420mA. At 1 watt audio output: 600mA. Power switched off, but clock still indicating: 100mA. Power switched off, clock display off: 20mA.

It appears from this that the battery back up for the memory and clock is for short term backup only. In other words, the main DC power supply must be left switched on all the time and the batteries are for short term power failures only.

Lastly, the accuracy of the digital display was checked. On AM it was accurate to within the 1kHz resolution and on SSB to within +-/1.5kHz. The BFO offset is not taken into account with the display reading.

INSTRUCTION MANUAL

The 18 page instruction manual covers: Introduction, Technical Specifications, Preparation for Use, General Operating Instructions, Some Basic Information on Antennas, UTC and a World Time Chart the Morse Code and the Frequencies of some International Broadcast Stations.

The operating instructions are reasonably well written, but the new owner will need quite a bit of time to get used to the rather complicated operation. Technical information is very sparse. Apart from the specifications, there is no other information, nor even a circuit diagram.

The manual is also written on the assumption that an AC power supply is included, which of course it is not. Perhaps it is not asking too much for the local distributor to add some supplementary notes to help the Australian purchaser in this regard.

THE BEARCAT DX-1000 SUMMARY

Unfortunately, the DX-1000 falls short in many aspects of its design. Perhaps the designers have tried to provide too many facilities and have lost sight of good basic receiver performance.

Having said that, the DX-1000 does perform reasonably well for many applications, although it is up against many better receivers at an only slight increase in price. If you are considering the purchase of one, could I suggest that you try it and determine if it meets your requirements. But then, of course, this applies to any purchase. I look forward to seeing the DX-1001.

Our thanks to Dick Smith Electronics for the loan of our review receiver and all enquiries should be directed to them.

EVALUATION AND ON-AIR TEST OF THE BEARCAT DX-1000 RECEIVER.....Serial No 003746

APPEARANCE

Packaging
*** Colourful, strong carton with foam inserts.
Size
** *Rather large, considering no inbuilt P/S.*
Weight
** *Reasonable at 6.5kg.*
External Finish
** *Very basic finish.*
Constructional Quality
** *Reasonable quality circuit boards and construction.*

FRONT PANEL

Location of Controls
** *Generally well laid out.*
Size of Controls
** *Knobs OK, but mode selection buttons poor.*
Labelling
** *Generally OK but mode selection buttons confusing.*
S Meter
** *Not easy to read.*

RECEIVER OPERATION

VFO Knob Action
** Rather stiff - should spin.
Digital Readout
* To 1kHz only. Red LED display rather outmoded.
Receiver Stability
*** Quite OK for general use.
Memories
** Ten with required mode but, awkward to use.
S Meter
* Very sluggish.
AGC Performance
* See test section.
Sensitivity
** Quite OK for general use. See test section.
Signal Handling
** OK on short wave. Poor on medium and long wave.
Selectivity
** A bit broad.
RF Attenuator
** 20 and 40dB. Might be better with 10, 20 and 40dB.
Noise Blanker
** Not over effective.

QUALITY OF RECEIVED AUDIO

Internal Speaker
** *Front mounted speaker. Reasonable quality.*
Headphone Output
* *Not compatible with stereo phones.*
Tone Control
** *Gives a wide choice.*
Audio Output
** *Plenty for most applications.*
Instruction Manual
** *Operational instructions fairly good, but no technical information.*
Over-all-Rating
** *At the price, it should be much better.*

RATING CODE...* Poor ** Satisfactory ***Very good **** Excellent

AR

Remembrance Day, 1985

Remembrance Day, and the Remembrance Day contest, are always special occasions in Australia, but this year they are even more special than usual, because 1985 marks the 75th anniversary of the Wireless Institute of Australia!

What a wonderful and noteworthy event! The WIA is the oldest amateur radio society in the world, and it has a marvellous record of leadership throughout the years. Your longevity and your 75-year record of achievement set a standard by which other amateur radio societies can measure themselves.

In 1979 amateur radio was especially successful at the World Administrative Radio Conference in Geneva. We were successful at that conference because of our excellent preparation for and our participation in the work of the conference. In those efforts, Australia was a leader and a significant factor in our success. Australian amateur radio leaders played a dominant role in the preparation, which extended over a period of several years. Australian Radio amateurs played a leading role in the deliberations of the conference itself, and were influential in many of the important decisions of the conference.

We look to continued leadership by Australia especially in amateur radio affairs but also in the overall conduct of telecommunications in its many facets.

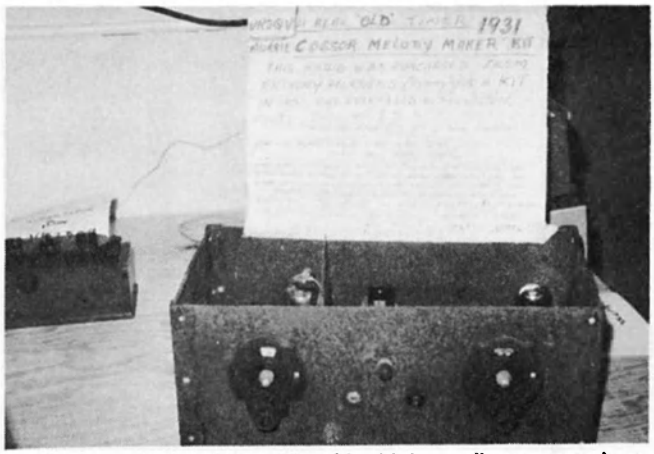
The International Amateur Radio Union has recently been restructured in order that it can better meet the challenges of the future, and the Wireless Institute of Australia played an important part in the restructuring process. Those of us most intimately involved in the work of the IARU are indeed grateful for the support of and the participation by the WIA.

Amateur radio has demonstrated that it is a radio service which deserves the support of administrations at and between international telecommunications conferences. We of IARU intend to concentrate on making sure that all administrations recognise the value of the amateur radio service and that at the next General World Administrative Radio Conference we are once again successful.

With your help, my Australian friends, we shall succeed.

Richard L. Baldwin W1RU
President, IARU
AR

75th Nostalgia



Morrie Cossor Melody Maker Kit...This old time radio was recently on display at the 1985 Oxley Radio Club Field Day. Part of the sign with the unit states 'This radio was purchased from Anthony Hordens (Sydney) as a kit in 1931 and assembled by Dan Willett. Cost - Radio Kit three pounds five shillings. Stations heard: Night time 4BC, 2BL,2FC, and in Day time 2NR Grafton
This was the second radio at (downtown Brierfield), the first radio on the river (South arm of the Bellinger) was an AWA Radiola 5 valve owned by the Spillett family, about 1930. People would crowd around the speaker to hear the cricket by Alan McGilvray from England, via Sydney'.

Photos by Pete Alexander VK2PA

Photo right:
This transmitter was also on display at the Oxley Field Day. Jack Hill VK2ADT, who constructed the transmitter, is still very active on the bands. It used a valve type 42 oscillator and a type 46 amplifier with an output of 10 watts on CW.

Special 75th Anniversary

VK2 MINI BULLETIN

Photograph courtesy the Museum PR Department.

Official opening of the Power House Museum Amateur Radio Station, VK2BQK. Rear-Peter Root, Acting Director of the Power House Museum, centre Pierce Healy VK2APQ, Station Custodian, front, Alan Jones, Broadcaster and Sportsman.

VK2BQK

Pierce Healy VK2APQ
69 Taylor Street, Bankstown, NSW 2200

AMATEUR RADIO — PUBLIC DEMONSTRATIONS

VK2BQK was first established in 1979 on the first floor of the old Museum of Applied Arts and Sciences, at Harris and Mary Ann Street, Ultimo in Sydney. A modest station housed behind sliding glass panels, it shared a display alcove with a reconstructed 1924 amateur station and feature panels on the past to present communication themes. VK2BQK provided many museum visitors with their first insight of working amateur radio, and was a very popular display. When the decision to develop the new Power House Museum and close the original building was made, the popularity of the amateur radio exhibit placed it high on the priority for the new displays. The station has been constructed so that it can be transferred from State one to the stage of the Power House Museum, where it is planned to be a major exhibit, together with a tower and beam system outside, which will become a land mark.

Tim Mills VK2ZTM

The Power House Museum Amateur Radio Station VK2BQK was officially opened on 14th May 1985 by Mr Alan Jones well known Sydney broadcaster and sportsman. The function was attended by representatives of the Department of Communications, Electronic media, Radio equipment distributors, Museum staff and associates, and a number of Sydney amateurs and friends. The station was also featured in a live morning telecast and a recorded interview news feature on channel TEN television. Publicity was also given in Sydney and suburban newspapers.

The completely rebuilt station has been established as a major communications exhibit for the Power House Museum Stage Two due to be opened in 1988 to where it will be re-located. At present it is located in Stage One, Mary Ann Street, Ultimo, just off Broadway, Railway Square, Sydney.

The geometrical styled externally mirror clad shell enclosing a panelled console was designed and built by the Museum staff. All the equipment is panel mounted giving a functional, attractive and colourful appearance.

The operating position at the console is surmounted by a large backlit coloured world map flanked by a large screen monitor and a great circle map which, in conjunction with the beam rotator controller, indicates the part of the world to which the beam is pointing. Also above are clocks showing time in Sydney, Bombay, London and Vancouver, plus two speakers for higher levels of audio output.

Set in the mid section are five speakers, operators time clocks, the audio and unit switching panel and antenna switching panel. The audio and unit switch panel allows speakers to be switched to each of the high frequency transceivers, an all band receiver and the cassette recorder. Also reception of radioteletype and Morse code signals from an all band receiver, high frequency, very high and ultra high frequency transceivers may be switched for decoding through the 7000E communication computer. Likewise, FSK and AFSK or Morse code output from the Tono may be switched to the HF, VHF and UHF transceivers.

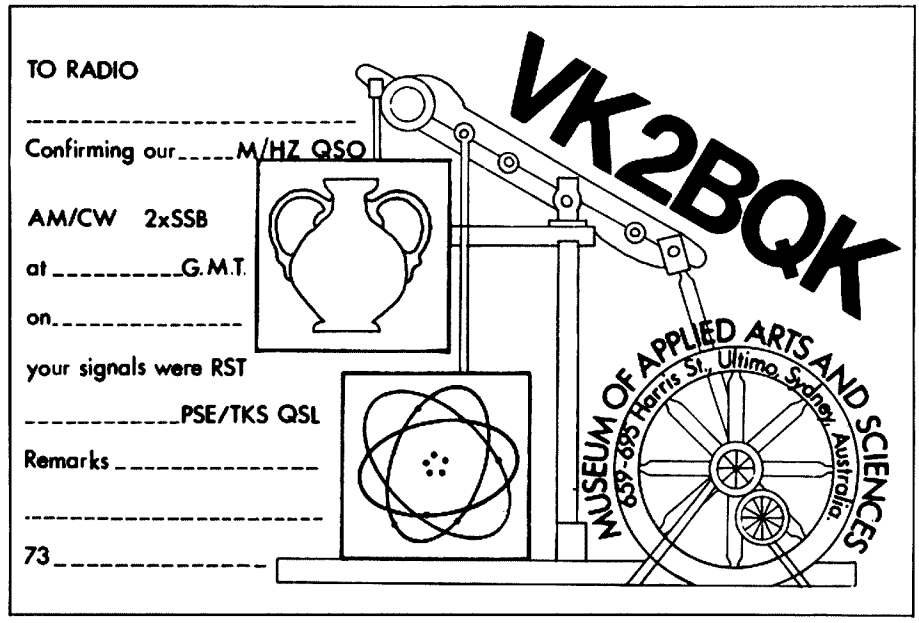
The antenna switch panel is the distribution point for the antenna system located in the forecourt area of the Museum and allows switching of HF antennas to HF receivers and transceivers, also vertical and horizontal antennas to VHF and UHF transceivers. It also allows the 3.5MHz dipole to be available for the all band receivers except when required for the HF transceivers, or, isolating the HF transceivers if the other HF antennas are required for the all band receivers.

The 7000E communication computer set into the desk top is linked to the video monitors and the Alpha 80 dot matrix printer mounted on a mobile pedestal which houses the paper bale.

Provision is provided for the use of a Morse key or the keyboard for CW operation.

Storage drawers and cupboard are located under the desk top as is the master keyed power switch.

The lower backward sloping panels house the all band receivers, cassette tape recorder, V-212 CRO, operators video monitor, SWR/Power meter, antenna tuning unit, beam rotator controller, TS 93X, FT 101E and FT 7 HF transceivers, TR 9500 UHF and TR 9130 VHF transceivers, Function Generator and EA Large Screen Storage CRO. Separate microphones are provided for each transceiver.



Modulation patterns from the CRO and wave form patterns from the function generator can be displayed on the video monitors through the Large Screen Storage CRO.

Two comfortable adjustable swivel chairs are provided for the operators.

A five sectioned transparent panelled surround protects the console from direct access by visitors to the station. Adequate security surveillance is maintained at all times.

The antenna system located in the forecourt of the Museum is a 15 metre high, two section triangular telescopic tower with a special section on top to house the rotator and shaft support. The guy wires are anchored to 3.5 metre high steel pillars. On the rotating shaft are mounted a HB34D four element tri-band beam for 14, 21 and 28MHz. A LOG-SP thirteen element log periodic horizontally polarised for VHF and UHF, with a 2 metre cross arm at the top carrying vertical co-linear ground planes for 144MHz and 432MHz.

In addition to the work of the several specialist trades staff of the Museum, amateurs interested in the project carried out various aspects of the work involved. The station custodian is Pierce Healy VK2APQ, who collaborating with Museum administrative officers, their staff and amateurs, co-ordinated the installation of equipment and brought the station into operation. All work by amateurs has been carried out on a volunteer basis.

For the 3.5 and 7MHz bands insulators have been inserted in the guy wires which are used as inverted "V" antennas. Baluns are used at apex feed point.

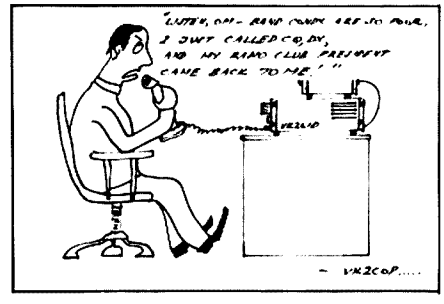
An operators guide has been compiled detailing switching procedures, extracts from manuals for each piece of equipment and other appropiate information.

In addition to equipment purchased by the Museum the following organisations have generously made equipment available: Dick Smith Electronics; Trio Kenwood Australia; GEC Electronics: Electronics Australia; Emtronics.

Future plans are to incorporate — Colour ATV, Slow Scan TV, Facsimile, and Amateur Satellite Communication.

Prior to the official opening the station had limited public exposure. There were several demonstrations to High School and College groups, participation by Scouts in the 1984 Jamboree-on-the-Air and later over the Easter 1985 holiday period.

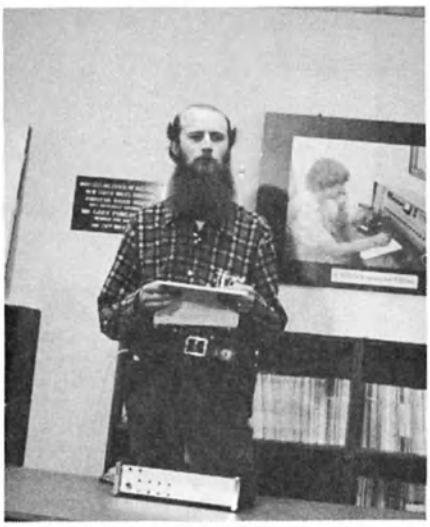
The station is now manned each weekend by volunteer amateur operators and is proving to be a very popular attraction to visitors. Demonstrations are also given to groups during week days when requested. **AR**



1985 VK2 SEMINAR.

Peter VK2PJ, VK2 President welcomes all to the 1985 VK2 Seminar.

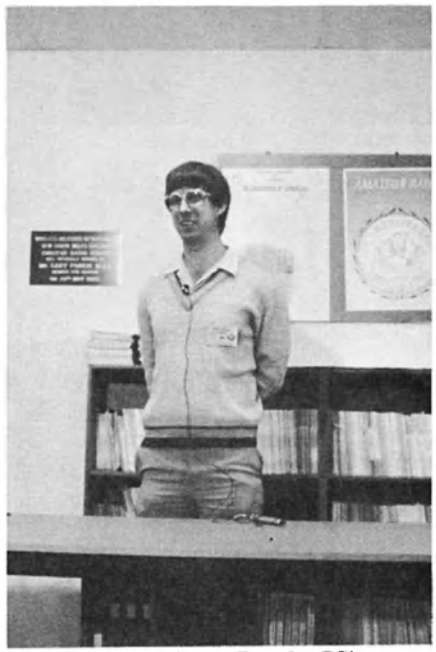
The seminar was held on Saturday the 20th July at Amateur Radio House. It was during a period of influenza in Sydney, which resulted in a smaller attendance than last year. Those who were able to attend had an enjoyable and informative day. Illness and personal reasons also prevented two of the lecturer's from attending and they will be held over to the next Seminar planned for early 1986.



Les VK2KYJ (above) and Barry VK2AAB (below), presented talks on Packet Radio.

Photographs courtesy of Henry Lundell VK2ZHE

The first lecture was a report on the developments in Packet Radio since the last seminar, when Jim VK2BVD presented his talk. The updated report was presented by Les Grant VK2KYJ from the Sydney Amateur Digital Communications Group and Barry White VK2AAB from the TARP Users Group.



Jeff VK2BYY spoke on Doppler DFing.

The next lecture was given by Jeff Pages VK2BYY on Doppler DF'ing. This talk was illustrated with diagrams and a working model.

David VK3ADW, Federal President, discussed the history of radio and the WIA with the gathering.

Following the lunch break Federal President, David Wardlaw VK3ADW, discussed the history and development of amateur radio and the Wireless Institute of Australia.

A presentation was made to Peter Stuart VK2BEU who was the winner of the VK2 Divisions 1984 Home Brew Contest.

The final speaker was John Milton, State Manager of the Department of Communications, who discussed the operation of the Radio Frequency Management Division, with particular reference to the amateur service.

A lively question and answer session followed each talk. The proceedings were recorded on video tape and are available through the Division's video tape library. Copies will also be available from the Federal video library.

AR

DOPPLER DF ing

Peter VK2BEU, right, was the winner of the 1984 Home Brew Contest.

John Milton, State Manager of DOC.

David VK3ADW and Tim VK2ZTM relax after the Seminar.

SOME OF THE VOICES BEHIND

Peter VK2BPN, Announcer.

Bob VK2YVO, VK2WI Announcer.

Jeff VK2BYY at the Announcer's Console.

Peter VK2PJ, Announcer.

Tim VK2ZTM, Announcer.

Transmitters and Power Supplies at Dural.

Brad VK2YEW/NEO, Announcer.

David VK2ZMZ, VK2 WICEN Co-ordinator and News Contributor to VK2WI.

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FURTH
May 198

THE VK2WI MICROPHONE

Photographs courtesy VK2KCP

Dave VK2KFU, Announcer.

Peter VK2CZX, Announcer.

Stan VK2KSD, Announcer.

Jeff VK2BYY, Officer in Charge.

Steve VK2PS, Announcer.

Les VK2KCP, Announcer.

wice each Sunday, at least two amateurs make a journey VK2WI to read and engineer the Divisional weekly broadt. The first session is in the morning at 11am and the gramme is repeated in the evening at 7.30pm.

K2WI transmits on 160, 80, 40 and 10 metres in the HF specn and on 6, 2 and 70cm in the VHF/UHF spectrum. It proes a direct relay to 2 metre repeaters in Newcastle, Central ast Western Blue Mountains and Wollongong.

ch month, on the first Sunday, a barbeque is held at Dural er the broadcast and an invitation is extended to all to at. Last June, several of the announcers and engineers attendand were persuaded to appear before the camera. It is hoped capture the remaining team and present their likeness in a ure issue.

ny members who would like to assist in either an announc or engineering capacity is invited to notify Jeff BK2BYY or tact the Divisional Office.

URTHER READING: A full story of Dural appeared in Amateur Radio, page 28, 1982.

EIGHTY METRE OUTLET ADDED TO VK2RCW

Tim Mills VK2ZTM
STATE REPEATER CO-ORDINATOR
PO Box 1066, Parramatta, NSW. 2150

Photograph courtesy VK2KCP

Barry VK2AAB, the developer of the VK2RCW Morse machine.

VK2RCW is the Sydney based, continuous Morse transmission on the two metre band. Often wrongly assumed to be a beacon, because of its call sign, that is not its prime purpose.

It consists of a transmitter fed from a memory store with about an hour of text. The text is changed at intervals, by typing the new text into a personal computer, transferring it to tape, taking the tape to the VK2RCW site and loading it into the memory. A wide selection of text is used and can include foreign languages. Sometimes, the text is sent backwards or similar, to prevent the listener from journalising.

VK2RCW has three transmission speeds. There are about 5, 8 and 12WPM. It transmits for approximately five minutes and looks for a full stop in the text. When one is found, it stops the programme and sends station identification at 20WPM. After four periods of identification, it increases its sending speed to the next range. After a further four periods, it goes to the highest speed and at the end of that block, it reverts back to its slow speed.

As the cycle period and the store capacity have different time intervals, the whole text ends up over a period of a few days, being sent at all speed ranges. With its 24 hour operation, it has enabled listeners in Sydney, access to Morse practice whenever they like.

VK2RCW has been operational from late 1976 on 147.400MHz using (mostly) a MR3 carphone, 5 watts, into a five-eighth whip on the top of the tin roof of its host building, on the upper North Shore in Sydney. It has a good view of the city and southern and south western suburbs. It is now in the process of a frequency change to 144.950MHz, (one of the band plan frequencies for such systems), and a power increase to about 25 watts. The antenna has been replaced, affording some further gain.

The old channel 147.400 (7400) will then become available for use with the proposed Newcastle, Sydney and Canberra ATV repeaters.

For some time it was felt that the service should be expanded to enable more listeners (future amateurs) access to its facilities. It was considered that an outlet on HF would provide this, but where? The higher frequencies, eg 10 metres, have limited groundwave local coverage and then skips into the DX world. This narrowed the choice to either 160 or 80 metres. It was felt that less newcomers to the hobby of amateur radio would have 160 metre access, so the choice became 80 metres. Since 80 is a popular and crowded band, the choice of frequency became important. It appeared that the top end of the Australian allocation offered the best choice and the frequency of 3.699 MHz was suggested.

About two years ago the application was submitted. Since then, there has been considerable debate and investigation about an 80 metre outlet for VK2RCW. It has been decided that it should operate for a trial period and the Department of Communications has granted a permit for it to operate for six months, until early 1986 when it will be reviewed. The VK2RCW system is intended only to supplement the various existing sources of Morse practice sessions.

VK2RCW went to air on Thursday 18th July, on 3.699MHz, using a crystal locked FT7 with 15 watts into a simple long wire antenna. While indicated earlier, it is not intended to be a beacon, its continuous CW operation on 80 metres will show some of the propagation characteristics of this band, with Australian, New Zealand and Pacific coverage.

It is planned later to change the antenna and the transmitter.

During this trial period, listener reaction is sought as to whether it is providing them with any benefit. VK2RCW is sponsored by the Hornsby and District Amateur Radio Club, PO Box 362, Hornsby, NSW. 2077. It is under the development, care and control of Barry White VK2AAB. You are all invited to have a listen to the transmissions and sometime, would you then put your thoughts in writing and send them to HADARC.

It is not known if similar systems exist elsewhere in the world, but since VK2RCW is almost ten years old, I am sure it could have been a world first.

It is hoped that a technical article on VK2RCW will follow in the near future.

AR

JOTA 1985

John Bunn VK2NDJ
VK2 JOTA CO-ORDINATOR
PO Box 1066, Parramalta, NSW. 2150

To the date of writing, being the new JOTA Co-ordinator has enabled me to meet various people interested in this project. I wish to thank them and hope to continue in this theme.

As we all know by now, the plans for a JOTA station should be well beyond the planning stage. Namely, a positive venue, a positive contact or two in the scout/guide area, plus our own technical plans.

Mind you, I am quite sure that many good stations in the past have set-up and operated, after a very late kick-off.

As always, there are the lucky ones who have a regular amateur and scouts station each year.

Recently the OZ for Africa telethon was doing its inspired and wonderful fund raising effort. The Universal bond was an intangible thing . . Music . . beamed to all people by satellite. A similar bond of CW or words is easily accepted as normal by amateur operators. These words, sometimes only a few beating the QRM, are understood by our unseen friends.

Once yearly, with special co-operation with the scout/guide organisations, we again have a good opportunity to extend our contacts. The JOTA experience to one group is really a multi-contact as it goes to all young people interested and listening.

By helping them, we are eventually helping ourselves and the WIA, for future amateurs are made, not born.

Most communication will again, probably be regional, owing to present conditions. However, this is generally only a worry to the operator. Except for a possible extrovert in a group, the intelligibility of a contact is the most important factor. QRM is not easily accepted unless one is used to it.

The NSW scout/guide movement are very interested in improving the efficiency of their network and will, where possible, personally telephone or contact the operators. I am led to believe, they hope for many more radio stations than last year, when they could not get enough volunteer amateurs.

Should they ask you..try it..even if you haven't before.

If you have been waiting to be asked, don't waste anymore time. Phone your local scout/guide leader and ask if you are needed in that area. Second choice, although time is running short, phone me on (02) 772 3437, and I will check via the system and notify the NSW Scout Liaison Officer.

Wishing all old timers, full call, limited and novice operators good DX for JOTA '85.

AR

LAUNCHING OF THE VK2 TIME CAPSULE

As advised in the March issue of Amateur Radio, VK2 has opened a (Time Capsule), which will be closed in March, next year.

A small group of stalwart amateurs and their families attended the launch in March this year.

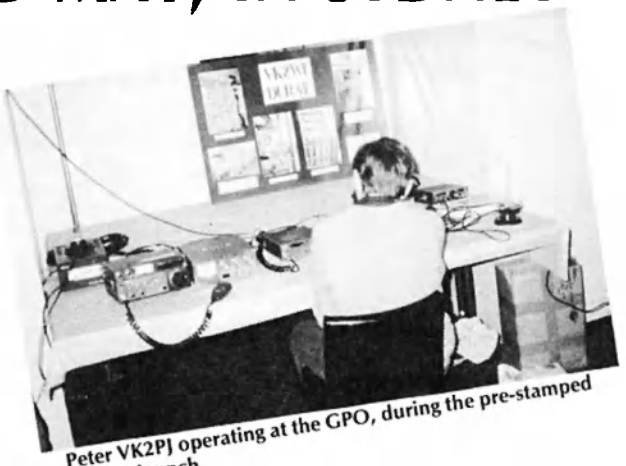
Launching the VK2 Division's Time Capsule at VK2WI on the 10th March 1985 are Jeff VK2BYY, Divisional Secretary and Tim VK2ZTM, Divisional President. Tim is behind the 75th Anniversary cake.

Jeff VK2BYY cutting the anniversary cake.

STAMP LAUNCH, 22ND MAY, IN SYDNEY

Photograph courtesy Australia Post

Everyone into the action . . . L to R: Peter VK2PJ, Tim VK2ZTM and Steve VK2PS.



Peter VK2PJ operating at the GPO, during the pre-stamped envelope launch.

Peter operating, carefully watched by (from left), Tom VK2PDT, Tim VK2ZTM and VK2EW.

The VK2 Division provided a small display at the GPO, in Martin Place for the launching of the WIA 75th Anniversary pre-stamped envelope, on 22nd May 1985.

Several clubs provided displays at their local post offices. It is hoped we may be able to include a report on their activities, when they submit copy to the Divisional Offices.

HISTORY & DEVELOPMENT OF OSCAR 10

Pictorial look at the lecture given by Karl Meinzer DJ4ZC in Sydney in late May 1985. See also page 22, August AR.

Photographs courtesy VK2ZHE and VK2KCP

Tim VK2ZTM, Karin Meinzer, Peter VK2PJ and Karl DJ4ZC following the Lecture.

Karl DJ4ZC.

Peter VK2PJ presenting Karl DJ4ZC with a 75th pennant at Amateur Radio House.

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

It had been planned that this issue would be another special for the VK2 Division but the deadline came up too fast. Instead it will be a smaller input with further material in a later issue.

YOUR RD LOGS

I am sure that most VK2s would have a few entries during the weekend, but have you posted your log? The RD Trophy is in VK2 at the moment but we need your log to help keep it here. If you still have to post your log, please do so today.

HOME BREW CONTEST

Peter VK2BEU was the winner of the 1984 contest. Now is the time to be looking over your project collection and seeing if there is anything that you have under construction which you can enter. Application forms are available from the Divisional office during the normal hours of 11am to 2pm each weekday or 7 to 9pm each Wednesday night.

WICEN EXERCISES

Coming up in the near future is the Car Rally at Batemans Bay this month. The outward Bound Hawkesbury Canoe Classic is at the end of October and the Schofields Air Show in November. Further details will be on the weekly nets on VK2RWS 7.150 or 3.600 MHz. Note that there has been a time change to 8.30pm Thursday for this net.

CONFERENCE OF CLUBS

This will be hosted by Westlakes ARC on the first Sunday in November at Teralba. A reminder to clubs that agenda items close at the Divisional office early this month. If you have an item which, if passed, needs to be passed on to the 1986 Federal Convention, submit it now for consideration at the November C of C so that it has time for interstate circulation.

VK2 ANNIVERSARY DINNER

The date has been set for Saturday the 12th October. Planning has been difficult, as no indication of possible attendance can be gauged. As these notes were being prepared, the final details were still to be worked out, so most information will be given via the broadcasts. Bookings are to be made by contacting the Divisional office, before the 27th September.

TECHNICAL ARTICLES

Do you have a short article suitable for inclusion in Amateur Radio? If so, send it direct to the Editor.

DOC MEETING

In July, a meeting took place between representatives of the WIA and the Department of Communications in Sydney. Representing the WIA were Jeff Pages, Divisional Secretary, and Tim Mills, Repeater Co-ordinator. The Divisional President, Peter Jeremy, was unable to attend due to work commitments and tendered his apology. Also present was Bob VK2YRX.

The repeater abuse problem was discussed at length, and the Department advised that further investigations were underway. For obvious reasons, no further details can be given at this stage. Again the Department stressed that amateurs should not respond to, or acknowledge, the presence of offenders. The Department requested that anyone having information which may be of use in locating the offenders should forward it in writing via the Divisional Office rather than directly to the Department. Jeff Pages reported on the transmitter location system being developed at Sydney University as a long-term aid in dealing with this problem.

A suggestion that equipment seized by the Department be cross-checked against the WIA stolen equipment register was discussed, and both the Department and the Divisional Council are to look at ways of overcoming some of the administrative problems involved in implementing such a scheme.

The Department accepted an invitation from the Divisional Council to address the WIA seminar held on the 20th July.

A question arising out of the last Conference of Clubs, relating to interference to amateurs from commercial services was discussed. The Department advised that the term "protected service" applied to services operating from a fixed and accurately known location and related to efforts made to ensure freedom from intermodulation and harmonic interference from other nearby services. Because of the frequency agility and portability of an amateur station this type, of protection is impractical, however if the interfering service does not meet specifications then action will be taken regardless of whether the station being interfered with is protected or not. Before lodging a complaint, amateurs should ensure that the interference is, in fact a transmitted spurious and not a receiver deficiency.

It was agreed that the next meeting would take place in October on a date to be determined. Members who wish matters to be raised at this meeting should place the item in writing and foward it to the Divisional office before the end of September.

REPEATERS

Mention has been made elsewhere in this issue about the changes to the VK2RCW Morse machine. It should be remembered, it is only for a trial period and comment is required from all amateurs so that its future operation can be determined. The interest for new Repeater systems continues and this generates a constant workload, together with matters pertaining to existing repeaters. Many repeaters operating in the top MHz are finding that the expansion of the paging network on frequencies between 148 and 150 Mhz is increasing the inter and cross modulation problems.

Packet Radio is continuing to grow and, with it the interest in repeating or range extending systems. During July applications were being processed for systems at Newcastle, Hornsby, Terry Hills and Dural. The frequency requirements for these systems in the two metre band have still to be addressed at a national level.

Interest is also being expressed to develop an ATV repeater for the Sydney region, together with the possible addition of a 70cm repeater for the Sydney city region. A Sydney club has expressed interest in a 6 metre repeater but this presents a problem as this State has already assigned its two allocations, one to cover Newcastle in the north and the other for the Sydney region. Southern coverage, if required, will be provided by one of the VK1 allocations, perhaps from Mt Ginini — It looks like the Ch 0 SBS service may be around a little longer. Ads in local newspapers, when the service extended its coverage to Newcastle and Wollongong in July, carried a statement in small print that it would be operational on 0 until the end of June 86. This is being checked since the previous close date had been set as 5 January 86.

A two metre repeater has been developed for Goulburn. It is on channel 7325 with the call VK2RGN. It has been established at a test site near the city and it is planned to later relocate it to the local RF hill above the city. This frequency may present a problem should a future 148 MHz pager be installed on the same hill, which already has one just below 150 MHz.

The ATV repeater planned for the Sydney region, is expected to have its input on ATV 1, (426/431) and its output at 50cm. It is likely to include the ATV liaison 2 metre voice repeater of ch 7300 and the simplex channel of 7400. Location is likely to be in the Blue Mountains. An application for a similar ATV repeater in Newcastle is currently in the processing stages.

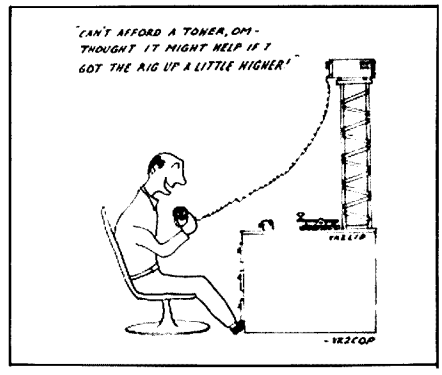
Not everyone agrees with repeaters and, in the limited spectrum space at 70 and 50 cm, consideration has to be given for those who wish to carry out simplex operation. The Sydney region, with its terrain, will be difficult to cover from any single site.

AR

Jeff VK2BYY, Divisional Secretary and Dural Officer talking to Jim VK2BVD, Chairman SADCG, at Amateur Radio House.

David Mackay VK2ZMZ, State WICEN Co-ordinator (left) talks to Barry White VK2AAB, Sydney North Regional WICEN Co-ordinator at Amateur Radio House.

Photographs courtesy VK2ZHE



THE 'BITS AND PIECES' OF PACKET RADIO

The average Packet Radio station consists of three major parts which must be interconnected. These are the two metre rig, the TNC (Packet Controller) and the computer. Many questions have been asked about these parts and their interconnections in conversations on Melbourne (and other) repeaters.

The two metre rig most often used is the IC22, though many other rigs are just as suitable. The main requirement of the rig is that it should have solid state transmit/receive switching to enable it to keep up with the fast turn around times involved in alternately sending and receiving packets. It is also an advantage if the rig can be permanently set to one channel so that if the power should go down it will power up on the same frequency again.

There are several connections between the rig and the TNC. Audio from the TNC to the rig is usually fed into the mic circuit. The audio from the rig to the TNC is normally tapped off at the discriminator to avoid the distortion of the audio amp. These two connections allow the TNC to send and receive information from the rig. Of course the TNC has to be able to 'drop the button' so a connection is made to the 'press to talk' line. The last connection made is to the squelch line in the rig so that the TNC can know when the channel is being used and not interfere with any other transmission.

Packet Radio is a simplex mode, even when using a Packet Repeater (Digipeater). As such, all activity is on one frequency and there are no repeater offsets, etc. Packet is not generally sent over voice repeaters as these have phase distortion and long turn around times which upsets packet rigs — quite apart from the upset it would cause other users of the voice repeater.

The TNC (or packet controller) has two basic parts. The one connected to the rig is a modem. This converts the 'ones and zeros' of digital communications into upper and lower tones which are more suited to transmission. It also contains the converse function of turning the received tones back into ones and zeros to feed into the other part of the TNC which is a dedicated microcomputer. The modem is integral to the TNC and is not suitable for use on the phone system as it does not have line matching and isolation circuits, is not full duplex and does not operate on audio frequencies which are commonly used on the phone network.

The dedicated micro in the TNC accepts commands from the computer, responds to them and assembles and disassembles packets. Packet is a 'high tech' mode and requires a certain degree of intelligence in the controller — hence the dedicated micro.

The commands used to command this controller are not overly complicated. To establish a connection with another station (which is like beginning a contact) the instruction 'ESC CO VK3XYZ' will do the trick. The escape character is to say that this is the beginning of the instruction, the 'CO' is a connect instruction and the call sign of the station to connect to. To finish a connection one simply types 'ESC DI'. It is not necessary to tell the TNC who to disconnect from as it already knows. There are many other commands of varying complexity but fortunately the more complex the command, the less likely they are to be needed. For those who wish to get into the 'nitty grittys' the complete command summaries, protocol specifications, circuits and programmes, which run the TNC, are all readily available.

There has been far too much hooey said and written about which TNC and system to go with. The American TNC will not handle any protocol other than AX.25. The present Canadian TNC and the new Australian designed TNC (which will be available in a few months) will handle the Canadian V2 protocol and the American AX.25 protocol. It will also cost about half. (Roughly $200 for a kit.)

There is no specific computer required to connect to a TNC. In fact a 'dumb terminal' is quite sufficient. The normal computer has a keyboard and screen. A small programme is needed to take the output from the keyboard and send it out the serial port to the TNC. This programme must also be able to take the output from the TNC which arrives at the serial port and feed it to the screen. No great intelligence is required of the computer as the TNC does most of the work. This is done by programmes built into the TNC. They are stored in EPROMS and may be upgraded easily.

One of the great advantages of Packet Radio is that advances in the technology won't require you to buy new gear, merely upgrade the programmes stored in the EPROMS.

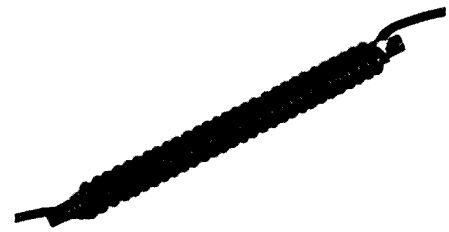
The TNC has auto sensing, which allows almost any baud rate to be used between the computer and the TNC although it is recommended that a baud rate of at least 1200 be used. By typing a series of commas and full stops the TNC will decide for itself what baud rate, parity, number of stop bits and number of data bits are being used and it will automatically adjust itself to suit. The normal connection between the TNC and the computer is simply joining wires 2, 3 and 7 of the DB25 connectors together.

Should you have any enquiries please feel free to contact the Sydney Amateur Digital Communications Group at P.O. Box 231, French's Forest N.S.W. 2086 or the Melbourne Packet Radio Group at 57 Laity Street, Richmond, Vic. 3121.

TRY THIS

Geoff Griffiths VK6YR
9 Hicks Street, Leeming, WA. 6155

T.V.I.?



If TVI or RFI is still a problem at your station perhaps the use of ferrite RF chokes will provide a suitable solution.

This method serves to isolate the offending unit from RF energy entering via the mains power cable and TV antenna coax outer braid.

Construction is straightforward, as may be observed in the photograph and consists of winding as many turns as possible of both the mains power cable and TV 75 ohm cable around separate 194 mm ferrite rods. The windings are secured using nylon wire ties and a layer of insulation tape.

Both chokes should be installed as close as possible to the TV set.

An additional high pass filter may also be required as in my case to eliminate the last trace of interference.

Audio systems with a breakthrough problem could also benefit from a power line choke and separate speaker line chokes made in a similar way.

AR

QSP

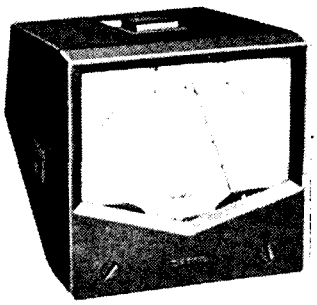
COMPUTERISED COMMUNICATION

A new type of computerised communication, termed Teladex, that provides a less expensive way of sending telex messages to any part of the world,will be introduced to Australia by a mission led by Mr Norman Frampton, Chairman of Framptons UK, this month.

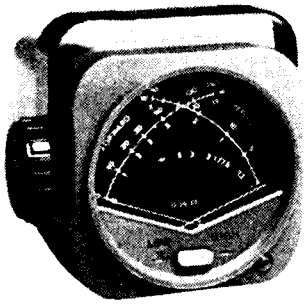
The system is claimed to be more modern and cheaper than telex, even though it involves higher technology equipment and a reasonable degree of computer skills. Teladex transmits commercial messages by computer using national packet switched networks, which are themselves connected through a teladex host computer located at the company's headquarters in England, which acts as a sorting "office".

It is stated, that Australian users could save up to half their cost of telexes to Europe, if their usage is at least eight minutes per day.

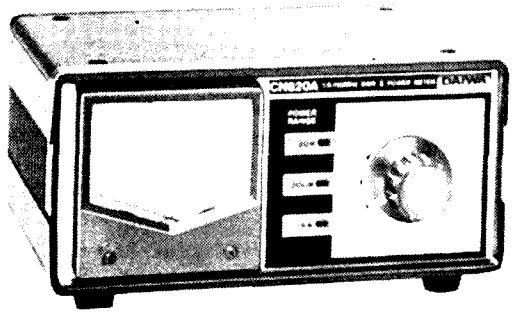
DAIWA UNIQUE CROSS NEEDLE SWR & POWER METERS



CN-520, 1.6 MHz-60MHz, 200W-2kW $89
CN-540, 50-150 MHz, 20-200W..... $99

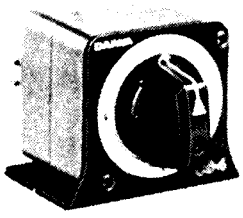


CN-410M, 3.5-150MHz, 15-150W.....$95
CN-460M, 140-450MHz, 15-150W... $99

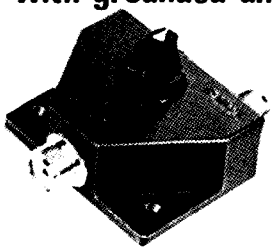


CN-620A, 1.8-150M, 20-200-1KW... $149

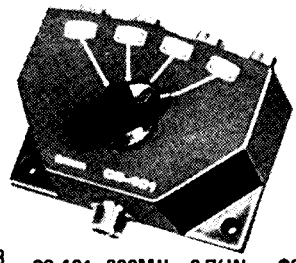
COAXIAL SWITCHES with grounded unused terminals



CS-4, 1.5GHz, 500W..... $49



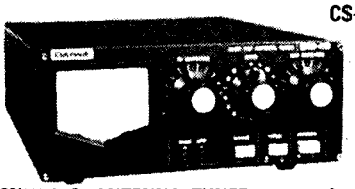
CS-201, 600MHz, 2.5KW... $33
CS-201G, 1.3GHz, 2.5kW... $55



CS-401, 800MHz, 2.5KW... $99
CS-401G, 1.3GHz, 2.5KW $129

POWER SUPPLIES

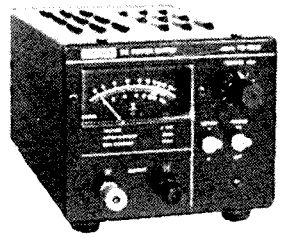
PS-310M, 13.8V 31A DC..... $395



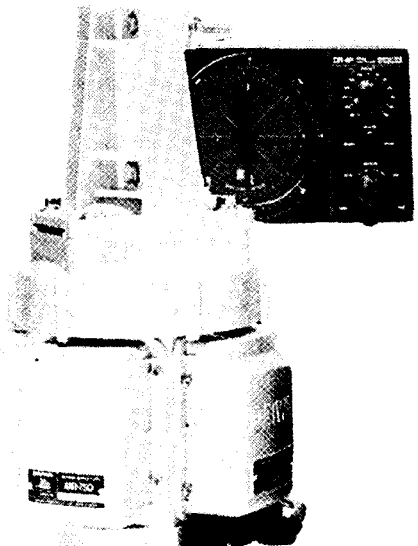
CNW-419, ANTENNA TUNER.....$387

DK-210
ELECTRONIC
KEYER
$199

AF-606K ACTIVE
FILTER
$159



PS-120M, 13.8V, 12ADC..... $219



DAIWA'S NEW MULTI TORQUE ROTATOR Model MR-750E

$360 incl. motor

Check These Features:

1. The rotator frame can house up to 4 motors to increase the torque and load capacity of your antenna system.
2. Each motor is equipped with a Super Wedge and Clutch brake system which works independently from the main frame gear train.
3. Maximum brake power is 18,300 lbs/in when 4 motors are installed. The main frame and reduction gear train have been designed to withstand maximum wind loading.
4. The motor unit can be dismantled easily for maintenance if required.
5. A 1½" to 2½" diameter can be installed and aligned easily with the rotator center.
6. Low voltage (24VAC) motors are used to ensure safety during installation work on the antenna tower.
7. Low cost 6-wire control cable can be used for the low voltage motors.
8. The control panel can be removed easily for calibrating the direction indicator.
9. Balanced type control knobs have quick lock mechanisms on both sides.
10. The advanced Super Wedge and Clutch brake system (Slip clutch type) provides exceptional holding power and protects the rotator mechanism from excessive torque.
11. Lower mast bracket MS-1 is available (optional).

		MR-750E PE
Rotation time	50 Hz	70 seconds (50 Hz input)
Output torque		700 kg·cm (608 lbs·inch)
Brake power	1 motor	6,000 kg·cm (5,215 lbs·inch)
	2 motors	11,400 kg·cm (11,217 lbs·inch)
	3 motors	13,000 kg·cm (13,906 lbs·inch)
	4 motors	21,000 kg·cm (18,251 lbs·inch)
Rotation angle		375 degrees
Permissible mast size		38 mm – 63 mm (3-diameter)
Control cable		6 wire cable 0.5sq 1.25sq (AWG16,18,20 etc.)
Continuous rotating		5 minutes Max. permissible
Unit weight		7.5 kg (with 1 motor unit fitted)

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

While the bands are a "little" on the dead side, of what we are used to, and whilst tuning around for the elusive DX, which is *around if you are in* the right place at the right time, have a listen for some of the intruders that are taking advantage of our non-activity, to "move in". Remember that these intruders, once in, will want to stay and when the bands improve as propagation increases one will find that they will have to contend with QRM emanating from outside the amateur service, whilst trying to renew old acquaintances as well as make new friendships. Your Divisional Intruder Watch Co-ordinator or the Federal Co-ordinator, Bill VK2COP, will welcome your contributions and you will be assisting the hobby, not only on a national basis but for amateurs worldwide.

Another very worthwhile activity, whilst the sunspot minama is present, is to join a WICEN group. I would be prepared to say that all WICEN groups need volunteers and again this is one way of keeping your operating skills honed to the sharpness you will need when that DX does return. Of course, you will be assisting in exposing the hobby to the public, whilst preparing for disasters if they should unfortunately occur.

WICEN operations have provided very necessary communications, particularly in the last decade and no one knows when your skills, gained through a hobby interest, may be needed in an emergency, no matter where you reside. Contact your WICEN co-ordinator now and register your interest, it is a facet of our hobby that will assist the community at large as well as you becoming the member of a very efficient organisation under the banner of the Wireless Institute of Australia.

ZM PREFIX

All ZL operators have the optional choice of using the ZM prefix from the 1st of October to the 31st December. This prefix has been allowed by the authorities to celebrate the Sixth Conference of the IARU Region 3 Association, to be held at the Rose Park Hotel in Auckland between the 13th and 17th of November, 1985.

PITCAIRN ISLAND

DXing from this exotic island may be easier in the near future. It is believed that there are plans afoot to build a five unit motel and there is now a yacht running out of Tahiti that services the island at intervals. So DXers, there is something of a difference, if not to do, then dream about!

WANTED COUNTRIES SURVEY

Gerben PA0GAM, DX Editor of Electron, is compiling a list of the 100 most wanted DXCC countries in the world. He feels that this will be a guide to DXpeditioners of the future. Readers are requested to nominate the 100 most wanted countries that they require, preferably in the following form, as it is easier to transfer into the computer.

No	PREFIX	SSB	CW	BAND IN METRES					
				160	80	40	20	15	10
001	ZA	✓			✓	✓	✓	✓	✓
002	VK9L		✓				✓	✓	

The two examples are given as a guide. It is important to designate the prefix that indicates a country. Most do, except Chile is one exception that comes to mind. Gerben would like to print this survey and receipt of your wanted list marked "Survey" and posted to PO Box 39, Mooroolbark, Victoria, 3138 by the 27th September, would be appreciated. It will then be computerised and printed in this column. A copy will be forwarded to Gerben, who will correlate this survey with other magazines' reports. This, it is hoped, will give a world wide picture and these too will be reprinted in this column.

All amateurs and SWLs are urged to assist in this project, as Dxpeditions are becoming more costly and it will give the adventurous an indication where to proceed to for maximum satisfaction of the dedicated DXer.

To carry the project a little further, an indication of the WIA member's interest in the WARC bands, Maidenhead System, IOTA and Oblast hunting by a simple yes or no would be appreciated. It is not mandatory to indicate a call sign or identification on any submission. Your assistance will be greatly appreciated.

BURMA SOON????

Mike JH1KRC, Editor of The DX Family Newsletter, is of the opinion that a legitimate Burmese station under Governmental control may appear in the not so distant future. Let us hope that he is correct, as apart from being a much wanted country there are many of the OTs, who I am sure would like to get back on the airwaves and rekindle friendships of many years ago.

8J9IYY

This station will be active this month to commemorate "International Youth Year 1985". QSL to the JARL Bureau. Other stations that have been active throughout the year for the same commemoration, such as 8J6IYY and 8J8IYY are also to be QSLed via JARL.

COMPLAINTS

VKs are not the only ones to be awaiting cards from Roly ZL8BQD/ZL0AJW. Two "G" stations have at last received their cards from ZL1BQD. The "mail gone astray" ploy was again used but numerous letters, including one to NZART brought results. The question now is what about the FK0RR cards? Incidentally the FO0XX cards should have been mailed by now.

The whole scenario is reminiscent of the plight of Chris ZL4OY/A, before Bill VK3DWJ, stepped in and promptly put things straight.

SAILING AROUND THE WORLD

Max PA3DBB, and his XYL Yvonne, have commenced a trip that will take three years in a 13.5 metre yacht named the "En Passant". Max will be QRV on all amateur bands using an IC720A. The rough itinerary is for visits to Portugal, Gibraltar, Caribbean Islands, Panama Canal Zone, Galapagos, French Polynesia, Tonga, New Zealand, Bali, Mauritius, South Africa, Brazil, Venezuela, Bermuda and the Azores before returning to Europe. A nice trip Max and Yvonne but why is VK not included? You would be made very welcome, I can assure you!

CARDS AVAILABLE

Ron ZL1AMO, well known for his expeditions, still has logs for the following which you may need.

5W1CW — August/September 1980. A35EA — August/September 1980 and March/April 1985. FW0BX — October 1984, H44RW — April/May 1981. VK4ANS/LH — July 1981. VR6HI — March/April 1979. YJ8RW — November/December 1981. ZK1CO — August 1979/April 1982. ZK1MB — August 1979. ZK2EA — August/September 1980. ZK9RW — October 1983. ZL1AMO/C — November 1980 and March/April 1983. ZL7AMO — May/June 1984 and ZL8AMO for October 1983.

Another source for cards you may have missed is Dieter OE2DYL. Dieter has logs for the following operations.

5W1DE/DO February 1981, A22EL — September/October 1982, A35EL/A35XX — February 1981, C21NI — September 1981, CR9EL — February/March 1981, OE1ETA/KH6/KH8 — September 1981, OE2VEL/KH6/KH8 — September 1981, OE2VEL/ZS3/3D6 — September/October 1982, OE2VEL/ZS6 — September 1982, T2VEL/T2ETA — October 1981, T30BG/T30BF — September 1981 and ZK2EL/ZK2TA — September 1981.

Well known DXer Saty NH6J/NH8, with the "rig" on his last expedition.

A self addressed envelope and 2 IRCs, plus your cards sent to Ron or Dieter's QTH should result in a prompt return of QSLs via Air Mail.

HELP WANTED

For the past fourteen years, George Hicken W4GH and Tom Carten K1PZU have been recording each monthly edition of Worldradio, a publication that is brimming with interest with all facets of the hobby.

They have been sending out about 300 tapes monthly, to the less fortunate amateurs and SWLs who are blind. This excellent service is open to all and they are asking for donations so that they may be able to purchase a high speed copier. It is known, but not publicised, that the costs so far have been borne out of their own pockets. If you know of someone who would like to receive this excellent magazine on tape or you feel that you may be able to financially assist, please contact them, by writing to George Hicken W4GH, PO Box 7497, Macon, GA 31209 USA.

ISOLATED

Dan 5H3FG and Doreen 5H3DG (who also hold the calls VE7AHV/EP2QM and VE7CYY respectively) are operating from the vicinity of a small paper mill about 640km from Dar es Salaam. QSL to Mr and Mrs D Giles, C/- Stohert Group, PO Box 6306, Dar es Salaam, Tanzania.

SOUTH PACIFIC MAP

The State of Hawaii has published a map of the South Pacific. It is believed to be free by a request to the Hawaii Information Office, PO Box 2359, Honolulu. It is felt a couple of IRCs or one "green stamp" would defray postage charges.

MAPS AGAIN

It appears that Geoff Watts, well known in DX circles, has come across a National Geographic Map of the USSR showing all the Oblasts (Map No 02396) and may be obtained from National Geographic Services, PO Box 19, Gullford, England for approximately six pounds which includes packing and postage. A bit pricey, but good value for Oblast hunters.

SUNSPOTS

Lee KH6BZF, reports in a recent issue of his Newsletter that the Sunspot Index Data Centre in Brussels has given the following Definitive Sunspot Numbers for the first quarter of the year. If you feel like being despondent, then read on.

The Mean Numbers for January, February and March were 16.5, 15.9 and 17.2 respectively. The day by day figures show many zeros but 59 was recorded on the 21st of January. What will the next report indicate? It really is a lottery at the moment.

Lee, quite a humourist, ends each Newsletter with a quote. The latest printable quote says "Science is truth . . . don't be misled by the facts"!

UGANDA AND SAO TOME

It appears that the ARRL DXCC Desk will accept cards for OSOs held after the 28th August 1984, for stations signing 5X5XB and 5X5WR. Don Search, the administrator of the ARRL DXCC, says that he must see documentation to validate Luis S92LB's operation, before any credits can be given. By the time the VKs and Pacific area get a chance, let's hope the documentation has been received. It could be a long time before many VKs make a contact, compounded by propagation, low power and the great demand for Luis in Europe. The frequency band to watch is 14.180 to 14.190 MHz for SSB and 14.005 MHz for CW if it is genuinely Luis???

MT ATHOS AGAIN

Apparently DL7FT was heard signing DL7FT/SV/A recently and expounding the fact that he had no written permission but to deluge the DX-CC Desk with the cards. It is hoped this is myth rather than truth, as I am astounded that a well known DXer would try this approach to get "accreditation" from the ARRL, through intimidation, with its impeccable record and secondly further jeopardise any glimmer of hope of getting the authorities at Mt Athos to reverse their stand, as regards the hobby.

BITS AND PIECES

Masao JY9MG is quite active from Jordan. Another active station is JY9RL. QSL to WA6POZ ** ZV2ADV was a Brazilian station using the call for the annual Fire Prevention Week. ** The Pribilof Islands may yet become a new country, hold onto those cards. ** Tom K0VZR, was not successful in receiving the logs of the late TL8TX and is returning the cards. ** All XF4MDX cards have been mailed, have you received yours? ** 5A1AB has been heard and quotes G4UZO as the QSL route. If you have the chance work him and wait for further advice. It may save some IRCs and postage! ** George VE3FXT is operational in Europe with an itinerary of operating as G3WNE, GD3WNE, GW3WNE, EI9TVF, 9H1CR, ZB2HF, 4U1ITU, GU and GJ. ** The Egyptian authorities may be reticent to license visitors working or having extended holidays in that country, ** Y40TOR was QRV from Torgau, situated on the River Elbe, where the US and Soviet Armies met. Y40BUC was QRV from the site of the former Concentration Camp at Buchenwald. Both stations were active during VE Day Week. ** IS0CPU/IM0 was operational from Serpentara Island by IS0AEQ, IS0CPU and IS0XDB. ** A browse through overseas Newssheets shows that quite a number of well known overseas DXers, from many call areas, are being heard on the WARC bands. ** ZC4 operations in the future can only be from personnel located there for a period in excess of six months. Apparently it is because a European operator offended someone and had his licence rescinded! ** The T4 prefix appears to be coming out of Cubal ** The prefix VX6 was to celebrate the 100th anniversary of the City of Lethbridge, Canada ** Vlad J5WAD, has returned his transceiver to UA4RO, for repairs to the final "chips" and is restricted to the original transmitter on 14.158 MHz. Another additional hassle is a limited fuel supply for the generator. ** UA1OT is operating out of Franz Josef Land. BY0AA and BT0MMN are reported to be in CQ Zone 23.

THE SECRET OF L30042

A couple of issue ago, I intimated that Eric L30042 had an impending change of lifestyle. Well the accompanying picture tells all. Eric received another "ticket" in the form of a marriage certificate at St Matthew's Church, Marryatville, SA on the 25th May. Congratulations and much happiness to you both for a long and happy future.

Aline and Eric signing the register.

KERMADEC

As predicted in this column, many issues ago, the much wanted DXCC Country Kermadec, will be activated for a one year period. Chris ex-ZL7OY has been selected to join the meteorological party on Raoul Island commencing next month.

From October until the 31st December he will sign ZM8OY, to commemorate the Sixth IARU Region 3 Conference being held in New Zealand. From the 1st January until he leaves the island he will revert to the call of ZL8OY. Chris intends to operate all bands on CW and SSB as off-time duties from his work permit.

QSL arrangements are with his XYL, Mrs C Hannigan, The Terrace, Warrington, Otago, New Zealand who will receive the logs from amateurs in contact with Chris. Good luck with the pile-ups Chris.

SPECIAL CALL SIGN

ZL is in the news again, this time with a special event call sign ZM6ARU, that will be operational on the HF bands, around the clock from the 9th to the 18th of November.

This call sign will be used on a roster system by the ZLs to commemorate the Region 3 Conference. In addition an Oscar 10 station is to operate from the site of the Conference, the Auckland Rose Park Hotel, from the 13th to the 17th of November.

To further commemorate the event, the NZART have made available to amateurs and SWLs, a special award called the IARU Region 3 Conference Award which may be obtained by contacting ZM6ARU and two other ZM stations or alternatively five other ZM stations in lieu of missing ZM6ARU. (Seven ZM stations in all.)

Send log details (no QSLs) with 3 IRCs or A$1.00 for surface mail, 6 IRCs or A$2.00 for air mail return to the NZART Awards Manager ZL2GX, 152 Lytton Road, Gisborne, New Zealand.

RADIO CLUB de CHILE

This society transmits an international Bulletin in English and Spanish on 7.085 MHz each Saturday at 1000 UTC, directed towards the Pacific area. News of forthcoming events are welcomed and may be sent to RCCH International Bulletin, PO Box 13630, Santiago, Chile.

160 METRE ENTHUSIASTS

According to a translation by Dex W4KM, from Radio No 1 of 1985, a USSR publication and kindly forwarded by David 9V1RH/VK3QV, the 160 metre band in the USSR, as from the 1st January 1985, is as follows.

As previously, the following frequencies are allocated to the Amateur Service on a secondary basis.

1.830 to 1.860 MHz CW.
1.860+ to 1.900 MHz CW and LSB-SSB
1.900+ to 1.930 MHz CW, LSB-SSB and AM.

HEARD ON THE EAST COAST

14 MHz: 3D6BD, 3B8CA, 3B8LA, 4X4YM, 5X5GK, 5Z4EG, 7Q7LW, 7P8AF, 7S7SSA, 8Q7AB, 9J2BO, 9M2EE, A22DP, AH9AC, AL7FG, BT4RUU, BV2B, CT3BM, CT2FN, EA6BH, EA8AKH, EA8AUS, FH4AA, FH8CB, FO8IW, FR4DN, FT8XA, FT8XB, GJ2LU, GW4BLE, HL9AA, JW1FM, JW5NM, KC6HA, KL7KU, LA7HJ*, OH8DX, ON5IG*, OZ1JLX*, OZ5DL/OY, T30AT, T31AT, T32AF, TI2ANL (YL), TF5TP, UA1OT, UZ0SWW/JT, VE5ADA, VE6PW, VE7CYW, VK0GC, VK9ZB, VR6JR, XE1ALT, XX9UT, Y32OC, YZ1FW and ZS1OU.
NOTE: * denotes CW.

INTERESTING QSLs RECEIVED

CE1CQZ, CE4BQO, GD4XCY, GI4NDX, HA4ZZ, HA5LZ, HA7PF, HH2VP, KL7AF, Y22WF.

QSL INFORMATION

3D6BD PO Box 254, Mbabne, Swaziland
5H3DG and 5H3FG see notes.
5T5MS PO Box 17, CH-2500 Bienne 4, Switzerland.
5Z4EG PO Box 46508, Nairobi, Kenya.
6W1NN PO Box 664, Dakar, Senegal.
7X2CE PO Box 54, Bordjmenaiel, Algeria.
9X5BJ PO Box 626, Kigali, Rwanda.
A92DU PO Box 20712, Manama, Bahrein.
A92DZ C/- 35 Brookside, Wokingham, RG11 2ST England.
A92EM C/- 30 Oban Dr, Blackburn, Lancs. BB1 2HY. England.
BY0AA PO Box 202, Wulumuqi, People's Rep. of China.
BY5RA PO Box 730, Fuzhou, People's Rep. of China.
C21BD PO Box 507, N. Sioux City, SD56049, USA.
C21DX PO Box 225, Republic of Nauru.
CO7FM PO Box 247, Avila, Cuba.
D44BS C/- 132 Chestnul St, New Bedford, MA 02740 USA.
EH9IA PO Box 262, Malaga, Spain.
EL2P PO Box 1929, Monrovia, Liberia.
FH4AA PO Box 4, F-97600, Mamotzou, Mayotte.
FH8CB PO Box 50, F-97610, Mayotte.
HS0A PO Box 2008, Bangkok, Thailand.

QSL MANAGERS

3B6BD:N3DLO, 3C1BC:K4PHE, 3C1YL:N4NX, 4N7A:YU7AJH, 4U0ITU:F6EYS, 5H3QM:VE7QM, 5J0LR:HK1QQ, 5N6CJR:K6EDV, 5N9GM:I8XIU, 5T5CJ:W4BAA, 5V7NG:WB4LFM, 5V8WS:DJ6QT, 5X5GK:DJ5RT, 7S2SSA-SK4AU/SM6CVE, 9J2JN:KB2ZP, 9Q5MA:K1VSK, 9U5JB:ON5NT, 9X5AL:SM5IR, 9X5WP:WB6UKD, 9Y4F:VE7DRW, A22ME:AK1E, A22TE:AK1E, A35PP:ZL4QS, BT4RJU:JA1RJU, BV0AC:JA9AG, C6ABA:G3AMR, C31MD:FE6AJA, C50RCL:CT1ASY, CN8EL:W2PD, CT0BI:CT4UW, CX9AU:CX2SA, D68AM:WB2OHD, D68AR:F6ACB, EA9KF:WA6OTU, EC9FS:EA9IB, EL1G:WD9IDS, EL8E:GM4LDU, EL2FJ:JF2QHC, EM3W:UZ3AXJ, EM5BYY:UB4YZZ, EO1AOK:UZ1OWA, EO1AZK:UZ1ZWX, EP2SV:K6KM, FE5RV/TK:F5RV, FM7CT:N7RO, FT8XA:F6FYD, FT8YY:F2MO, GB1BOY/GB2BRC/GB2GG/GB2RUB/GB3WED:G4IVJ, GB4LI:G4NWZ, GB8WED/GE3VGG:G4IVJ, GV4BVE/GV4OVE:G4AAL, HH2CQ:WD4IKI, J73LC:KF4IL, J73RM:VE3DFD, J87J:K4UEE, J87JCG:KA9JCG, JV2HG:JT1BS, JW5NM/JW6VDA:LA5NM, JY8AD:A71AD, JY9CL:G3MUL, K8CRM/KH3:K8CRM, KP4USN:KA4YUX, ON5OS/4S7/VS6:ON5OS, OX3BJ:OZ7BW, OX3OA:OZ1FAO, OX3CX:SM6HCX, P29RS:W2IVY, SJ9WL:SM4FTF, SV0DV:WB4TDB, TF5BW/TF5EP:W3HNK, UA1OT:UB5KW, VK0DJ:VK3DYL, VK9ZB:VK6YL, VP8PU:WA4JQS, VP5GEX:K0GVB, VP8BDC:G4NKO, VR6AB:ZL4DW, VS6DQ:HB9AQZ, XF4MDX:XE1MDX, XX9UT:JA1UT, ZC4ZN:PA0GMM, ZD8AL:W2AL.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including, INTRODUCING NAURU, DECADE, CQ, cqDX, QST, RADCOM, JARL NEWS, JA CQ, 73 for Radio Amateurs, BREAK IN and VERON.

Members who have contributed include VKs 2PS,EBX, 3FR, YJ, YL, 4AIX and G3NBC. Overseas amateurs include G1EOD and ZL1AMM. Sincere thanks to one and all and good DXing.

AR

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	Call Sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland
144.480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.000	VK6RVF	Roleystone

According to the "West Australian VHF Group Bulletin" for July, the Kalgoorlie Beacon is still off the air, so this has been removed from the listing for the time being. Also from the same bulletin came a report that the Perth beacons were off the air during June due to spurious emissions 900kHz either side of the carrier, being traced to a leaking electrolytic capacitor in the power supply, causing instability. The permanent location of the beacons on the Channel 7 TV tower is not expected to be available for a couple of months, so the beacons are to be re-installed at Nedlands.

ON SIX METRES

Although somewhat quiet from the VK5 viewpoint, nevertheless, there have been a number of six metre openings to the eastern states possibly the best being on 9/6 with contacts to VK2, 3 and 4 over the period 0400 to 0700. Roger VK2XJ seems to have been particularly active. He was also noted again on 22/6 and 23/6 along with others. Locals involved included VK5s ZDR, ZBU, ZTJ and RO. VK4RO was heard on 13/6 working into VK3 but faded out before I could catch him.

A letter from Jim VK2IS, at Coffs Harbour says he and Bruce VK2DDU had a QSO with Tony ZL1BHX on 52.050 at 0142 on 23/6. Signals were 3x5 to Jim and 5x5 to Bruce. ZL1BHX continued to call CQ until 0200 without success. Thanks Jim.

According to Graham VK6RO, the 6 metre operators in Japan have been finding conditions rather quiet. At the time of writing in June, according to "CQ ham radio" from Japan, the last notable contacts were in March with contacts to VK4s FXX, JH, JXZ, ALM, AJL, DV and DU1GF. Even beacon reports are missing.

I received a report that Kim VK9ZB, is now on six metres from Willis Island and would like contacts with VK stations.

TWO METRES REPORT

Received a nice letter from Bruce VK4KIT, from Mount Isa, a place we occasionally hear on six metres but not on two metres. Bruce says two metre repeater operation on VK4RMI channel 6700 predominates due to their somewhat isolated location. The repeater is 200 metres above the surrounding country side and gives reliable coverage up to 60km in all directions with contact points up to 120km being available to well equipped mobiles. About nine stations are operational on the repeater including VK4ZDQ, recently operational from Cloncurry. Little monitoring is available to passing mobiles during working hours, as nearly all operators are wage earners, giving the appearance of a deserted band.

Two metre simplex activity except for cross town contacts is generally intermittent, due to lack of stations at the distances required to enable contacts to be made. However, the following are some interesting contacts: VK4BMW Hughenden to VK4YLG/FNQ at Mattaburra, a distance of 204km, a total of 269 contacts between 21/9/83 and 6/4/85 with signals Q2 to 5x9+, of these 220 contacts have been on FM and 49 on SSB or CW.

VK4BMW to VK4KIT/P at Cloncurry 340km 5x1 on SSB but with FM poor. Time 2015. Contact made on first and only attempt! VK4BMW to VK4KIT/P at Boulia 460km 5x1 SSB at 2005, again contact made on first and only attempt.

Two metre SSB signals from VK4ZDQ have been heard in Mt Isa over the extremely obstructed path from Cloncurry 100km distant.

TWO METRES UNDERGROUND MOBILE

The heading is correct. Steve VK4KHQ has written to say that recent experiments between VK4s KHQ, KIT and ARZ have led to what could be a record for amateur two metre communications.

On 4/6/85 contact was made from 1050 metres underground to Bruce VK4KIT and Roger VK4ARZ who were both more than five kilometres from the main shaft at the Mount Isa mine. The local repeater, over 10km away, was just accessible from 20 level, which is 1022 metres down. Future attempts will be made to extend this distance to the bottom of the mine at 1197 metres! Equipment used was an IC2A handheld feeding a quarter wave vertical whip.

Congratulations to all concerned. The mind boggles at the possibilities of these experiments if more power could be used to a small beam antenna. I would have thought the attenuation through so much earth would have made such contacts impossible, but it seems you never know until you try. Thanks for writing Steve and please keep me informed of your future experiments.

THE SYDNEY PATH

Doug VK3UM, reports briefly on the continuing experiments via aircraft enhancement on the path between Melbourne and Sydney. On the way of course is Canberra and the operators there have been getting in on the act.

On 1/6: VK1s VP, BG and BUC. 8/6 VK1s BG, GL, AU, VP, BUC and VK2DZV heard. 9/6: VK1s BG, AU, BUC, VP, GL and VK2s BE and BDN heard. 15/6: VK1s BG, VP, AU, GL, with VK2s BDN and DVZ heard. 16/6: VK1s BG, AU, GL, BUC. On 22/6 and 23/6 the same stations were worked. During this time Gordon VK2ZAB was absent on leave.

EME ACTIVITY

Doug VK3UM, found conditions on 22/6 and 23/6 reasonable and some quite good contacts emanated. 22/6: 0148 K1FO 439/M; 0756 DF3RU 449/449; 0900 SM0PYP 0/0 to 439. On 23/6: 0225 KU4F 449/339; 0830 JA4BLC 449/449; 0923 SM3AKW 449/449; 0940 G3SEK 439/439 (he was using a six bay antenna system); 1024 DF3RU 449/549 peaking to S6. Doug tried SSB but the DF3 was called by other stations. 1050 G3LTF 4x3 and 4x2 SSB. Thanks Doug for your continued support of the column and congratulations on your efforts largely from random calls.

There has been nothing to report from Lyle VK2ALU, lately as he has been on a seven weeks holiday overseas, meeting up with EME operators there, but eventually there should be something to report on his findings.

AIRCRAFT ENHANCEMENT OF SIGNALS

The article in July 1985 – Amateur Radio – entitled "Aircraft Enhancement of VHF/UHF Signals" by Doug McArthur VK3UM is already causing a few ripples amongst the knowledgable VHF fraternity, and as I have been mentioning this phenomena from time to time in my notes when relating to contacts between VK3UM and Gordon VK2ZAB in Sydney, the article is very timely.

Some comment is already to hand and there may be more before long. I have decided to leave the comments until next month because I will be away on holiday in August when the usual time for preparation of the October notes occurs; as there will be only a fortnight between the preparation of these notes and those for October, I will probably be scratching for something to fill the columns, so the enhancement comments will be held over together with another report I have on interference problems occuring on 432MHz in Western Australia.

FORECASTING SPORADIC E

I received an interesting letter from Roger Harrison VK2ZTB, plus a copy of a short article written by him and published in the August 1985 edition of "Australian Electronics Monthly" entitled "Forecasting for Sporadic-E propagation" and is the result of him having talked with Mr Roy Piggott, an ionospheric physics pioneer from the UK, recently. A somewhat longer report is to appear in the next issue of "6 UP".

"Spectacular propagation over distances of 1000-2500km at VHF frequencies, arising from clouds of intense ionisation that form from time to time in the E layer of the ionosphere — for TV broadcasters, a nuisance, for radio amateurs, a boon, this has long eluded efforts aimed at prediction or forecasting.

"Recent work by UK ionospherics physics pioneer, W R Piggott, shows promise that forecasting 'Sporadic-E, as it is called, may well be within reach.

"I was privileged to attend several talks Piggott gave at the Ionospheric Prediction Service while in Sydney during last April, and to talk with him afterwards.

"Previous work on 'Sporadic E (Es), amongst other characteristics, examined the Es maximum frequency. Piggott however, employed a means of measuring the excess ionisation, which provided a more useful parameter. (Actually, two parameters were used).

"Using this measure, Piggott was able to classify Es into three types: weak, strong and intense. From a communications, or propagation, viewpoint, the strong and intense types are the ones of interest.

"Piggott's study found that there are a number of observation techniques for Es activity which show promise for predicting or forecasting the behaviour of strong Es. It seems that, beyond a predetermined threshold of the excess ionisation, the chance of finding exceptionally intense Es increases significantly.

"Also, days of strong Es activity tend to be preceded by no Es activity, strong Es occurring over a 'cluster' of two or three days. Likewise, with no Es, Piggott

found that the peaks of strong Es activity get later in the day the more intense the Es gets.

"Strong and intense Es is predominantly an evening phenomenon showing up after 1800 local mean time (LMT), while weak Es is a daytime phenomena occurring between 0600 and 1400 (LMT), while weak Es is a daytime phenomena occurring between 0600 and 1400 LMT. Weak Es has a negative correlaton with strong Es.

Sporadic-E is largely a summertime phenomena, with lower activity during the winter. Summer Es is predominantly a night time phenomena, while winter Es is a daytime phenomena, Piggott found.

"He also found that there is considerable geomagnetic control over the occurrence of Es, which decreases as much as five to ten times the closer you approach the auroral zone.

"There is some 'tidal' control of Es height, which has distinct peaks and troughs at roughly 12 hourly intervals. Piggott also examined solar cycle control of Es. He found little solar cycle variation of Es heights, but from plotting 144MHz amateur band activity, Piggott found a distinct positive correlation with the solar cycle, the incidence of 144MHz propagation in Western Europe increasing markedly during solar maximum years.

"The study was done over 1983-84 for the UK Departmental Users Radio Propagation Programme. A report has been published, titled 'Problems Associated with the Forecasting of Sporadic E over Western Europe' by W R Piggott OBE, D.Sc, F.Inst.P., RAL project No N2A 3R 1477.

"Piggott concludes that Sporadic-E is much more regular in its behaviour than expected from the literature and is probably worth at least, limited study".

For those of us who have shown an interest in Es propagation over many years, we will certainly be looking forward to any other results which may come from further studies . . . . .VK5LP.

THE PROBLEMS WITH REPEATERS

From "The Propagator", the monthly newsletter of the Illawarra Amateur Radio Society, comes a report of damage incurred to the repeater installations at Sublime Point and Hill 60, when a storm hit Wollongong on the night of 6/6/85.

At Hill 60, a piece of roofing iron came adrift from the coastguard building and cut through the transmit antenna of UHF channel 8225. The innards of the coaxial collinear remained intact and the outer fibreglass sheath broke, causing the antenna to lay horizontally with its edge wedged firmly in the gutter of the building. The broken antenna has been removed for repairs and temporarily replaced with a two stack five-eighths wave vertical, on loan from Ian VK2EXN.

At Sublime Point, the mast was bent over by the wind, and is at present leaning at 45 degrees to the north west. Both 2 metre and 70 cm repeaters are functioning, but their range is reduced because of the attitude of the antennas. One of the commercial base stations at the same site was damaged by lightning also, so the Illawarra Group came out of it fairly well. However, it may be sometime before the mast is repaired as a crane will have to be used to lower the tilt-over section and the ground will have to dry out properly to enable safe access for a crane.

Those of you who have not suffered this type of damage from the wind should count yourselves very lucky. Repeaters and beacons are usually on the tops of hills, so are more likely to be affected, and the damage can be considerable.

Some years ago, I had the mast holding my eight over eight, 6 metre assembly bent to an angle of 30 degrees, as the result of one gust of wind, estimated at more than 120kmh. The bending occurred despite the mast being 50mm in diameter, with another close fitting tube inside. When the mast was brought down for straightening, it took an enormous amount of effort to straighten it, despite the fact that more than 5 metres of purchase was available and you can put a lot of pressure on a length like that!

CLOSURE

Before closing I would like to mention a paragraph from the Geelong Amateur Radio Club newsletter for June 1985, which mentioned the Club visited the Moorabool Terminal Power Station of the SEC on 23/6. The station is only two years old and has state of the art electronic control and protection equipment. That station receives power at 500kV and transforms to 220kV, to supply western Victoria. The station is also controlling the largest capacitor in Victoria, which also operates at 500kV and is 75 metres high, costing one million dollars to construct! . . . some capacitor.

Don't forget September and October are periods for possible long distance DX particularly on 6 metres, to places out in the Pacific area, in particular. I have already mentioned VK9ZB on Willis Island and there are plenty of others. These could include FK8, YJ8 etc.

Closing with the thought for the month: "The trouble with doing nothing is that it's too difficult to tell when you're finished".

73 The Voice in the Hills.

BIRTHDAY HONOUR

It is pleasing to announce that your VHF UHF editor was awarded the Order of Australia in the Queen's Birthday Honours list, last June.

Eric VK5LP has been writing the Amateur Radio column for over 14 years, a very time consuming job when one presents their notes in such a professional manner, as Eric does every month, without fail.

Eric's award was for community service spread over more than 46 years. A fitting tribute for a hard working, civic minded gentleman.

A short resume of the life and times of one Eric Jamieson follows. This information was used by the Forreston Community Centre Incorporated, who sought the award for Eric.

A member for 39 years of the RSL, including 23 years as President of the Gumeracha Sub-Branch. Providing an amplifier service for a multitude of functions in the district, for 39 years. This includes street music at Christmas.

Assistant Returning Officer for State and Federal Electoral Departments over a 34 year period.
34 years a member of the Gumeracha Agricultural Bureau and now a Life Member.
Secretary of the Forreston Community Centre Inc for 31 years.
Member of the Gumeracha Bushfires advisory Committee for 27 years.
22 years as a member of the Gumeracha Hospital Board including six years as Deputy Chairman.
A member of the Gumeracha Camera Club for 29 years, including 17 years as Secretary.
Member of the South Australian Division of the WIA for 23 years.
A licenced amateur radio operator for 23 years.
Secretary of the former Gumeracha A H & F Society for 19 years.
Justice of the Peace for 20 years.
17 years as Secretary of the former Forreston Tennis Club.
Editor of the VHF UHF column in Amateur Radio for 14 years.
Editor of 'Community Capers', a local monthly news bulletin, for 12 years.
12 years member of the Parish Council of the Uniting Church, with six years as Treasurer of the Gumeracha Parish.
Vice-President and electrician for ten years to the former Gumeracha Social Club.
Five years as Chairman of the Torrens Valley Historical Society.
Gumeracha Country Fair Inc Secretary for four years.
Wireless Maintenance Mechanic in the RAAF from 1942-1946.
Secretary of the local SA150 Jubilee Committee for eighteen months.
Member of the Gumeracha District Local History Centre for three years.
Editor of the Forreston History Book in 1951.
Editor of 'Forreston - Its Pioneers and People' 1960.
Assistant Editor of 'History of Gumeracha Hospital' in 1982.
Winner of two Australia-wide awards for electrical articles in 'Australasian Radio World' in 1941 and 1942.
In 1938, at the age of 14, Eric was running dances for the Red Cross using records and his own home-built amplifier. At the same time he wrote a weekly column in Adelaide's newspaper, 'The Advertiser' for short wave listeners and also for the 'Listener In' in Melbourne.
In 1984, Eric received the 'Citizen of the Year' award from the Australia Day Council.

Congratulations Eric, from all your friends within the amateur radio fraternity.

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

SEPTEMBER
14-15 VK Novice Contest (Rules August AR)
14-15 European Phone Contest (Rules July AR)
28-29 YLRC Italiano 'Elettra Marconi' Contest (Rules August AR)

OCTOBER
05-06 VK/ZL Oceania Phone Contest (Rules this issue)
12-13 VK/ZL Oceania CW Contest (Rules this issue)
13 RSGB 21/28MHz SSB Contest (Rules this issue)
20 RSGB 21MHz CW Contest (Rules this issue)
26-27 CQ WW DX Phone Contest

NOVEMBER
9-10 European DX Contest - RTTY Section (Rules July AR)
23-24 CQ WW DX CW Contest

It is a little too early to list in the calendar the series of World Championship SSB contests run by CQ magazine, to be held in January 1986. The following extract from the rules may however be of use to intending participants.

CONTEST RULES AND FORMS: Contestants are encouraged to use official contest forms. To obtain your own copy of the rules and each contest form, send a SASE to: Contest Rules and Forms, Billy Maddox KA6JJK/3, 1162 Bayview Vista Drive, Annapolis, MD 21401, USA'.

You might note that there are five separate contests to take place on the 40, 75, 160, 15 and 20 metre bands. Full details of the rules will appear in the December issue of Amateur Radio.

CONTEST CHAMPION TROPHY

The July issue of Amateur Radio carried the details of the Contest Championship Trophy points for 1984. I would like to apologise for the omission of figures for VK3DNC, who finished with a total tally of 26 points in this competition and was thus placed fifth in the listing.

Whilst on the subject of this competition, some comment is certainly in order. I have had a certain amount of discussion in connection with the rules for the Championship and also some quite interesting correspondence, including a very comprehensive letter from Jim VK2BQS. Up until now the rules seem to have been very simple and have left a great deal to be desired, as well as open to all kinds of interpretation. The rules have been:

The entrants must operate in at least three out of the four selected contests. The contests for the competition will be John Moyle Memorial Field Day, Novice, Remembrance Day and the VK/ZL. Points will be allocated on the basis of 10 points for first, nine points for second, etc, down to one point for tenth place in each contest. The trophy winner must be a member of the WIA.

It has become obvious to me that the rules for this event need to be spelled out to a far greater degree. I would be very interested in your comments and to this end I will make a few preliminary comments myself. Firstly, the VK/ZL comprises, in fact, two separate contests, namely phone and CW with each held on different weekends. There is no way in the world that one could score the results of the VK/ZL contest on a band by band basis for quite a number of reasons. Should this approach be taken it could be feasible for an operator to win the trophy merely by entering this contest, making a handful of contacts, say 10, on each of six bands and with this meagre effort, win the trophy by simply submitting a minimum log for two of the other contests and perhaps even picking additional points for these last two, as well. If you don't believe me, just think about it just a little more, I am sure that you can work this out for yourself. Should such an operation confer 'Contest Champion' recognition?

This year, for the Remembrance Day Contest, I scored on the basis of the highest points in each call area, regardless of modes used. Should this really be the approach used? Would it be fair to allocate points along the following lines scoring for each section on a separate basis, eg VK1QQQ scored 800 points. (800 phone QSOs). VK1PPP scored 250 oints. (250 CW QSOs). VK1LLL scored 160 points (170 phone QSOs and 10 CW QSOs). With each of these operators being the top scorer in their individual sections should they deserve ten Championship Trophy points for their efforts? If VK9GGG enters the only log for his call area with a total of ten contacts in the same contest, should he also receive ten Championship points? Should there be two separate Championship competitions for phone and CW? Where an operator can enter either the phone and CW sections or both in a contest, such as the VK Novice Contest, should he be allocated points for each mode even if he may gain perhaps nine points for being second in his call area with five CW contacts? Should points be allocated on a call district basis or should they be worked out on a national basis only? Would the latter approach always favour particular call areas, thus making it pretty well impossible for operators in some areas to have a proper chance of winning? *(I believe that it would...FCM).*

So, perhaps you can see that the present rules are definitely very much lacking and also that it is not necessarily a simple matter to come up with a satisfactory set of rules. I hope that having addressed this problem, which has been apparent for some time, I might be able, with your help, to come up with a worthwhile method of determining who should receive the trophy.

CONTEST CALENDAR

The sharp sighted and contest aware persons may have noticed the misprint in the July Contest Calendar where it appeared that the SARTG RTTY Contest was on two different weekends. I hope that the error will have been corrected in the August issue, where you should see that the GARTG RTTY Contest is on the 24-25th August.

CERTIFICATES

The backlog of certificates is slowly still being overcome, with the help of a lovely lady named Florence, who is most adept with the pen. Florence is very neatly hand lettering all the certificates, rather than have me use the more mechanical method I had intended to employ. The hand lettered approach does however, take a great deal more time when the task is fitted in between other work, which has priority. I have received letters from VK2PMX and P29ZL on the subject of certificates, so this comment should suffice to show that you are not being ignored. The letter from P29 certainly went the rounds due, for some reason, to the postman not looking closely at the name, and other indications as to the correct destination for the original letter.

ROSS HULL CONTEST

My report to the 1985 Federal Convention asked the question as to whether or not this contest should be continued in view of the constant lack of support over the years. My question seemed not to have been addressed by the convention and I am at a loss as to just what the true opinion of our fraternity is on this subject with very little feedback available from members. No more than a couple of operators present at the Federal Convention seem to have ever operated in this contest. Peter VK3YRP has provided me with some interesting statistics. These show that over a period of seven years only 21 VK operators have entered the contest on more than one occasion and over the last three years, only 12 of these have been in the contest more than once, with only seven entries in the latest effort. Now, come on chaps. Surely you don't expect me to believe that there really is any interest in this contest with results like that or that the Federal Convention can make a proper decision, with such a lack of support evident!! Over to all the real VHF types out there.

*SECRETARY'S NOTE....*At the 1985 Federal Convention, the future of the Ross Hull contest was discussed and the majority of delegates were in favour of keeping this contest 'alive and kicking' by improving the publicity given it. All VHF enthusiasts should enter the Ross Hull Contest and send in their logs to the FCM and in so doing, give this contest a boost.

FIELD DAY CONTEST

Some recent research came up with the following: 'In this contest VK4 made the second highest contribution to contest logs with 15 logs submitted, as against 17 for VK3, 10-VK2, 9-VK5, 6-VK6 5-VK1, 3-VK7 and 1-VK9.

What is just a little disappointing though is to see, as I went through the logs checking several aspects, that in fact there were at least 46 VK4 stations alone, giving out numbers in the contest, so what happened to the other 31 logs, which could have been sent in from that state? Even more to the point is the question, as to just how many more logs could have been sent in by all the other states to show support in this contest? I would perhaps hope, that the change of date for the Field Day Contest next year might spark a little more interest in what I believe to be a very good and most enjoyable event.

In late June, the ARRL held their Field Day Contest and I very much enjoyed a contact with an operator assisting in setting up one of the stations in that event. It was a contact with Carl WB6TDE/6, who is a member of the TRW Radio Club, who were entering the contest using their club call sign, W6TRW. The station, when set up would comprise seven separate operating units. For the sake of brevity, here follows a direct extract from my notes for the contact. *"Location... 1200 feet (365m) ASL, near LA Harbour. 40-15 metre bands inclusive, 2 metres, OSCAR, Packet Radio, for 24 hours. About 30 to 40 club members to operate over the period in eight hour shifts. Nine on SSB. XYLs cooking dinner, but OMs to make their own lunch. Located in a public County park. Generators for power. Natural power...solar panel for mainly VHF. Antennas - 20m monobander, three quads, 15m CW and phone, long wire for 80 and 75 m, special long antenna called Ollies Folly for 40m and a vertical for 6m. 30 feet (9m) crank-up towers for supports. Novice station, the XYL works at TRW, hence the association with the club, got the amateur ticket through the club, first field day was 13 years ago and he has missed only one since. Doesn't chase DX in FD but will work anything. A dipole for 40m CW. Last year 1055 contacts were made on 20m. Operate from travel trailer, tents, motor home and trucks. Uses TS-830S with TR4 on standby. 150 watts downwards gives extra points. Stations within a 300 metre diameter circle. Some beer and a LOT of coffee. No linears!!! 1kW generator for 20m SSB. 5.5kW generator for several of the stations'.*

I wonder if any of the above sounds slightly familiar to our local club operators here. I would think it most likely that many of us, familiar with field day operations, could appear at W6TRW/P and feel very much at home. Amateur radio certainly is the same in my experience, all over the world.

Whilst still on the subject of field days, I make mention of further communications with Jock ZL2GX, who is the Contest Manager for the NZART. The boys over the pond, are most keen to have their field day coincide with ours, thus it means that I have to make an almost immediate decision as to the date for same. I am also aware that there is a need for all the dates for the 1986 contests to be determined within the next few weeks. It would be my intention to try and choose dates which will not cause a clash with major overseas events, however, it will not always be

possible to do this, or to spread our contests as much as I would like, as well as steer clear of successive weekends with popular contests, both local and overseas. It would certainly appear that there are just too many contests.

My annual report to the Federal Convention recommended that the CW 75th Anniversary Contest should be a 'one-off' effort.

A look at this year's calendar would indicate the following CW contests are available. The French CW, ARRL DX CW, RSGB 40m CW Field Day, CQ WW 160m CW, Polish CW, CQ WW WPX CW, Venezuela CW, Europe CW, All Asian CW, Remembrance Day, VK Novice, WA 80m CW, VK/ZL CW, County Hunters CW, CQ WW DX CW, CQ-M CW, YL ISSB CW, DX YL CW, QCWA CW QSO Party, Commonwealth Contest and CLARA AC/DC.

That is at least 22 contests which the CW operator may enter and you will find that this list is not exhaustive, as there are many other events which occur throughout the year. So, who says the art of CW is dead? I hasten to add that these comments are not intended as a slap at CW operation. I indeed enjoy CW contest operation, although I would hardly ever touch a key at other times and I always use a straight hand key. Much the same kind of list and comments could be made with respect to phone contests.

My point is that contests should not be inaugurated without there being a close and proper look at what it is all about, and these comments came from one who is keen on contest operation.

I quote from a letter from ZL2GX, NZART Contest Manager, dated 21st March 1985.

"You might be interested to know that I am sick and tired of moaning and groaning from all and sundry about all the contests on the bands. I've suggested that this should be investigated. I do think there are too many....and some that are added from time to time are a lot of nonsense"

I also quote from the VK4 Division notes from Amateur Radio for March 1985...*"For some time now radio amateurs throughout the world have been requesting some contest-free operating spectrum space"* ...

So, just what is your opinion? I will be only too pleased to hear from you as the only way there is to judge just what is wanted by you, the amateur operator in general, is for us to have your comments in writing and on record.

Well. I feel I have posed more than enough questions for this month. By the time you read this I will no doubt be all geared up to deal with the inrush of logs from the Remembrance Day Contest and will have little time available for cogitation on such subjects, as aired in this issue of the contest column. Meantime, I wish all readers great success in their amateur radio activities, whatever aspects happen to be encompassed by same.

RSGB 21/28MHz SSB CONTEST RULES FOR 1985

TRANSMITTING SECTION

Eligible entrants...Overseas...All licensed amateurs.

Period...0700 to 1900UTC, Sunday 13th October 1985.

Sections...i British Isles single operator, ii British Isles multi-operator, multi-band, iii Overseas single operator, iiii Overseas multi-operator.

Frequencies and mode...21 and 28MHz, telephony only. Entrants are requested not to operate in the bands 21.400-21.450MHz, 28.200-28.400MHz and 29.100-29.700MHz.

Exchange...RS report and serial number starting at 001.

Scoring...Overseas: Three points for each completed contact with a station in the British Isles. Multipliers are G2, G3, G4, G5, G6, G8, G0, GD2, GD3, GD4, GD5, GD6, GD8, GD0, GI2, GI3, GI4, GI5, GI6, GI8, GI0, GJ2, GJ3, GJ4, GJ5, GJ6, GJ8, GJ0, GM2, GM3, GM4, GM5, GM6, GM8, GM0, GU2, GU3, GU4, GU5, GU6, GU8, GU0, GW2, GW3, GW4, GW5, GW6, GW8 and GW0. Contacts with GB stations will not count for points. For all entrants the total score will be the number of points on each band added together, times the number of multipliers on each band added together. Unmarked duplicate contacts will be penalised at the rate of ten times the claimed points. Entries with more than five unmarked duplicates will be disqualified.

Logs...Log sheets are to be headed date, time UTC, station worked, RS and serial number sent, RS and serial number received, multiplier, points claimed.

Declaration...With each entry there must be a declaration, signed and dated, that the station was operated within the rules and the decision of the council of the RSGB shall be final.

Address...Overseas entrants should send their entries to PO Box 73, Lichfield, Staffs, WS13 6UJ, England. These entries must be received by 9th December 1985.

Awards...Overseas. Certificates will be awarded to the leading station in each country and to the leading station in the multi-operator section.

RECEIVING SECTION

Rules as for the transmitting section except as varied below.

Eligible entrants...Overseas. All SWLs. Note that holders of transmitting licences for frequencies above 30MHz may enter the receiving section.

Scoring...Overseas SWLs should only log British Isles stations in contact with overseas stations taking part in the contest. Scoring and multipliers as the transmitting section.

Logs...Logs to be headed date, time UTC, call sign of station heard, RS and serial number sent by station heard, call sign of station being worked, multiplier, points claimed. A summary sheet showing multipliers heard on each band must be included. Note: In the column headed station being worked, the same call sign may only appear once in every three contacts logged except when the logged station is a new multiplier for the receiving station. Also the station heard may only be logged once on each band for the purposes of scoring.

Declaration...Each log must be accompanied by the following declaration: 'I declare that this station was operated within the rules of the contest and I do not hold a transmitting licence for the frequencies below 30MHz'.

Awards...Certificates of merit will be awarded to the leading entrant in each overseas country.

21MHz CW CONTEST RULES FOR 1985

TRANSMITTING SECTION

Eligible entrants...Overseas (including Eire) All licenced amateurs.

Period...0700 to 1900UTC, Sunday 20th October 1985.

Sections...i British Isles section, ii QRP British Isles section. British Isles station using less than 10W input, iii Overseas section (including Eire), iiii QRP Overseas section. Overseas stations using less than 10W input.

Frequency and mode...21MHz only. CW only. Entrants are requested not to operate in the band 21.075-21.125MHz.

Exchange...RST report and serial number starting at 001.

Scoring...Overseas stations: Three points for each completed contact with a station in the British Isles. The final score is the number of British Isle prefixes multiplied by the total number of points. British Isle prefixes are the same as for the 21/28MHz SSB Contest, listed above.

Duplicate contacts, Logs, and Declaration as per the rules for the 21/28MHz Contest.

Logs to be received at PO Box 73, Lichfield, Staffs, WS13 6UJ, England by 31st December 1985.

Awards...Certificates of merit will be awarded to the leading station in each overseas country.

RECEIVING SECTION...Rules as per the 21/28MHz SSB Contest.

THE 9TH WEST AUSTRALIAN ANNUAL 3.5MHz CW & SSB CONTESTS TRANSMITTING & RECEIVING

1 — DURATION: SSB Saturday 31st August and Sunday 1st September CW Saturday 28th and Sunday 29th September. On both days between the hours of 1100 and 1330 UTC. i.e. 5 operating hours in all for each contest.

2 — FREQUENCIES: All contacts to be made in the 3.5/3.7MHz band using frequency allocation applicable to your licence conditions.

3 — CALLING: Stations will call CQ WAA using the three times three technique, infringement of this rule by the use of long CQ calls may entail disqualification as will pre-arranging of a QSO.

4 — SCORING: Points for contacts are as follows:—

Within Western Australia	*5 points per contact.*
WA to all Mainland Eastern States.	*2 points per contact.*
WA to VK7	*4 points per contact.*
WA to VK0 & Overseas	*8 points per contact.*

Stations other than WA 3 points per contact with WA Stations only.

5 — MULTIPLIERS: A multiplier of 2 per WA Shire worked will apply to the final score. For WA Stations north of the 26th Parallel a multiplier of 1.4 per contact confirmed.

6 — CONTACTS: Stations may be worked twice on each night ie once between 1100 and 1300 UTC and again between 1300 to 1330 UTC these contacts will count for points. Each time the contact for WA stations will take the form of an exchange of 5 characters comprising RST/RS and Shire letters. eg a station in NORTHAM sends 579NM or if in HARVEY 579HY, this helps towards the Worked All Shires Award. Eastern States and Overseas stations will send RST/RS plus a running number starting at 001.

7 — LOGS: Contest logs to be set out on one side of a quarto or foolscap sheet with columns headed as below.

DATE:		CALL:		OPERATOR:
TIME UTC	CALL WKD		RST OUT	RST IN
	SHIRE LETTERS	SHIRE MULTIPLIER		POINTS CLAIMED

Column 7 to be totalled at the foot of each page and the running totals brought forward. The last page to contain the following summary: Total number of points scored, Input power, Equipment and antennas used, along with comments on the contest in general. SWL participants score as above using the outgoing Tx score.

All logs to be addressed to WAA Contest Committee, PO Box 6250, Hay Street East, Perth, WA. 6000 and posted so as to reach us not later than 14th October for both contests. The results for all contests will be published in the December issue of AR.

SHIRE LETTERS

1 — ALBANY TOWN	AT
2 — ALBANY	AL
3 — ARMADALE	AK
4 — AUGUSTA — MARGARET RIVER	AM
5 — BASSENDEAN	BA
6 — BAYSWATER	BW
7 — BEVERLEY	BV
8 — BODDINGTON	BO
9 — BOULDER	BD
10 — BOYUP BROOK	BB
11 — BRIDGETOWN GREENBUSHES	BG
12 — BROOKTON	BK
13 — BROOME	BE
14 — BROOMEHILL	BH
15 — BELMONT	BL
16 — BRUCE ROCK	BR
17 — BUNBURY	BY
18 — BUSSELTON	BN
19 — CANNING	CA
20 — CAPEL	CL
21 — CARNAMAH	CH
22 — CARNARVON	CN
23 — CHAPMAN VALLEY	CV
24 — CHITTERING	CI
25 — CLAREMONT	CT
26 — COCKBURN	CR
27 — COLLIE	CE
28 — COOLGARDIE	CG
29 — COOROW	CW
30 — CORRIGIN	CS
31 — COTTESLOE	CO
32 — CRANBROOK	CK
33 — CUBALLING	CB
34 — CUE	CU
35 — CUDNERDIN	CD

36 — DALWALLINU ..... DU
37 — DANDARAGAN ..... DN
38 — DARDANUP ..... DP
39 — DENMARK ..... DK
40 — DONNYBROOK-BALINGUP ..... DB
41 — DOWERIN ..... DR
42 — DUMBLEYUNG ..... DG
43 — DUNDAS ..... DS
44 — EAST FREMANTLE ..... EF
45 — EAST PILBARA ..... EP
46 — ESPERANCE ..... ES
47 — EXMOUTH ..... EH
48 — FREMANTLE ..... FM
49 — GINGIN ..... GG
50 — GNOWANGERUP ..... GP
51 — GERALDTON ..... GN
52 — GOOMALLING ..... GM
53 — GOSNELLS ..... GS
54 — GREENOUGH ..... GR
55 — HALLS CREEK ..... HC
56 — HARVEY ..... HY
57 — IRWIN ..... IN
58 — KALAMUNDA ..... KA
59 — KALGOORLIE ..... KL
60 — KATANNING ..... KG
61 — KELLERBERRIN ..... KN
62 — KENT ..... KT
63 — KOIONUP ..... KP
64 — KONDININ ..... KD
65 — KOORDA ..... KO
66 — KULIN ..... KU
67 — KWINANA ..... KW
68 — LAKE GRACE ..... LG
69 — LAVERTON LV
70 — LEONORA ..... LA
71 — MANDURAH ..... M.
72 — MANJIMUP ..... MP
73 — MEEKATHARRA ..... MK
74 — MELVILLE ..... MV
75 — MENZIES ..... MZ
76 — MERREDIN ..... MD
77 — MINGENEW ..... MW
78 — MOORA ..... MA
79 — MOROWA ..... MR
80 — MOSMAN ..... MS
81 — MUKINBUDIN ..... MU
82 — MULLEWA ..... ME
83 — MUNDARING ..... MG
84 — MURCHISON ..... MH
85 — MURRAY ..... MY
86 — MT. MAGNET ..... MM
87 — MT. MARSHALL ..... ML
88 — NANNUP ..... NP
89 — NAREMBEEN ..... NN
90 — NARROGIN ..... NG
91 — NARROGIN TOWN ..... NT
92 — NEDLANDS ..... NL
93 — NORTHAM ..... NM
94 — NORTHAM TOWN ..... NO
95 — NORTHAMPTON ..... NH
96 — NUNGADIN ..... NG
97 — PEPPERMINT GROVE ..... PG
98 — PERENJORI ..... PJ
99 — PERTH ..... PH
100 — PINGELLY ..... PY
101 — PLANTAGENET ..... PT
102 — PORT HEDLAND ..... PD
103 — QUAIRADING ..... QG
104 — RAVENSTHORPE ..... RT
105 — ROCKINGHAM ..... RM
106 — ROEBOURNE ..... RB
107 — SANDSTONE ..... SS
108 — SEPENTINE-IARRAHDALE ..... SI
109 — SHARK BAY ..... SB
110 — SOUTH PERTH ..... SP
111 — STIRLING ..... ST
112 — SUBIACO ..... SU
113 — SWAN ..... SW
114 — TAMBELLUP ..... TP
115 — TAMMIN ..... TM
116 — THREE SPRINGS ..... TS
117 — TOODYAY ..... TY
118 — TRAYNING ..... TG
119 — UPPER GASCOYNE ..... UG
120 — VICTORIA PLAINS ..... VP
121 — WAGIN ..... WN
122 — WANDERING ..... WD
123 — WANNEROO ..... WO
124 — WAROONA ..... WR
125 — WEST ARTHUR ..... WA
126 — WESTONIA ..... WS
127 — WEST PILBARA ..... WP
128 — WICKEPIN ..... WI
129 — WILUNA ..... WU
130 — WILLIAMS ..... WL
131 — WONGAN-BALLIDU ..... WB
132 — WOODANILLING ..... WG
133 — WYALKATCHEM ..... WY
134 — WYNDHAM EAST-KIMBERLEY ..... WE
135 — WEST KIMBERLEY ..... WE
136 — YALGOO ..... YO
137 — YILGARN ..... YN
138 — YORK ..... YK

AR

75th Nostalgia

MORE FORGOTTEN PIONEERS OF RADIO

Norm Melford VK3ZTN
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Following recent articles [1,2] about Nicola Tesla, it is fitting to remember others who were engaged in similar pioneering work at much the same time but in different places.

In 1871, Elihu Thompson, apprentice teacher at what became the Benjamin Franklin High School in Philadelphia USA, with Professor Edwin Houston, noticed an interesting phenomenon. They could draw sparks from various metal objects up to 30 feet (10 metres) from a Ruhmkorff (spark) coil to which they had connected a gas pipe and a wire resting on the bench.

Four years later, possibly prompted by reports of similar experiments by Edison, Thompson and Houston extended their work and used a "lead" pencil to draw sparks from door knobs throughout the building — perhaps up to 100 feet (30 metres) from the "transmitter". [3]

This work seemingly was not developed further at that stage, but preceded by over a decade the famous experiments of Hertz, and later still, of Marconi.

Thompson, then 22 years old, was a very active inventor. He later went on to hold over 700 patents and to found the Thompson-Houston Electric Company which, in 1892, merged with Edison's company to become General Electric.

In 1895, the famous Bengali, Jagadis Chandra Bose, transmitted radio waves from a lecture hall in the Calcutta Town Hall for a distance of some 80 feet (25 metres). At the "receiver", the signal tripped a relay, fired a pistol, and blew up a small mine.[4]

This was in the year before the issue of Marconi's patent, and three years before Tesla's radio powered and controlled model boat demonstration.[1]

While Marconi, Thompson and Edison tended to concentrate on inorganic science, Tesla, and even more, Bose, seemed drawn to the study of the earth itself and of living things. This, indeed, became one of Bose's biggest difficulties. British academia, as tightly compartmentalised as Indian castes; was ill disposed to tolerate anyone brash enough to straddle the boundaries between physics, physiology, and botany (with perhaps an undercurrent of Indian mysticism lurking in the background).

A further problem was that British-ruled India was unable to accept readily a native Indian pre-eminent in science.

As his work with electromagnetic waves began, despite these obstacles, to win him recognition, Bose was becoming less and less certain about the traditional distinctions between living and inorganic matter. Moving into physiology, he noted striking similarities between metals and living tissue in their responses to various stimuli. He found 'fatigue" effects in his metal coherer radio detector which he had invented. Its sensitivity, depressed after heavy use, returned to normal after a rest period! He studied the stimulating effects of Hertzian waves on living tissue (which perhaps we are only now re-discovering in our concern about human exposure to strong RF fields). In botany, he pioneered study of the effects of sound on plants and his instruments revealed many other hitherto unknown aspects of plant life, reaffirming his conviction of the basic unity of all things.

It is interesting to reflect that all of their radio-pioneering work was going on along substantially similar lines in widely separated parts of the world, at much the same time. This, without the experimenters keeping in touch via the computer based library services, telecommunications and mail services which we take for granted today.

Amateurs of today interested in carrying on our pioneering tradition may do well to investigate the work of Bose and other, more recent work on biological (wireless) communication. Reference 4 gives an overview of these fields which, if further developed, might eclipse even radio in their importance to mankind. Way out? Of course. But so was radio at the time of Tesla, Thompson, and Bose. Now, as I check my audio, I wonder what a little more clipping might do to the plants around my antenna . . . . . .

REFERENCES

1 AR March '85, p. 22
2 AR June '85, p. 20
3 Radio & Hobbies, March 1951, p. 7
4 P Tompkins, "The Secret Life of Plants", Harper, 1984

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LIONS CLUB CERTIFICATE

A certificate of appreciation has been received by the Westlakes Amateur Radio Club from the Lions Club of Newcastle for a *'very worthwhile exhibit'* which was prepared by the Club for a recent Toys and Hobbies exhibition. The certificate will be displayed in the Club's library.

From Westlakes ARC Monthly Newsletter

PACKET RADIO

David Furst VK3YDF.
Chairman, MPRG.

REINTRODUCTION

In Amateur Radio of May 1984 an introductory article to Packet Radio was published. Since that time, many people have asked questions about Packet Radio which were covered in that article. We take this opportunity to re-print parts of it.

Packet Radio is a method of transmitting data, without errors, from one amateur station to another across a radio network.

This new technology will be a very natural marriage of two related disciplines and groups of people, amateurs and computer hackers. It should be noted at this point that no great knowledge of computers is required to run a Packet Radio station. The packet controller may be used as a black box by those who do not wish to get too deeply involved in its inner workings.

It's all done by packaging the information into 'packets' (a packet is usually one ASCII line of text). A Packet consists of three primary parts. The first part is an address. In this case usually the call sign of the station the information is being sent to or a station identification number. The next part is the actual data to be sent. The final part is error checking information.

All the above is done by a smart box called a Terminal Node Controller (TNC) hooked up between your computer and your two way radio.

The actual workings happen a little like this: You decide to talk to station VK3XYZ and ask your TNC to arrange this. Your TNC waits until no one else is using the frequency for a couple of microseconds then sends out a packet to the effect (VK3XYZ, are you free?). If the other party is indeed free his TNC sends back another packet replying that he is free. Both TNCs then consider themselves connected to one another and will ignore any other packets floating down the ether but will send addressed packets to each other and respond only to packets from the other.

Just to be certain there are no misunderstandings, each TNC will always acknowledge that it did, in fact, hear what the other said. From this you will see that each station only needs the radio channel for the few milliseconds it takes to send a line of ASCII text, and that the channel can be used by many stations effectively simultaneously. Naturally all the TNCs are well mannered enough to understand the social niceties of getting along together and should clashes occur, they will settle their differences amicably.

As there is error checking information built into each packet it is easy for the receiving station to check if an error has occurred and request the other station to re-send the packet.

So that's it the machines consider themselves to be connected and act like they're connected even though they aren't. This is referred to as a virtual connection. A 'Claytons' connection?

Apart from all this whiz-bang stuff, what's so great about packet radio? Well, it gives you data integrity, virtual connections, can route messages, act as a gateway to other systems and get heaps of information from lots of people across just one radio channel. Pretty neat,huh?

It can be used for 'chatting', interchange of programmes, dissemination of information, a gateway onto amateur radio satellites and other packet systems (amateur and professional), playing games such as Space Empires, access to computers that people may choose to put 'on line' and bulletin boards.

The whole area is so new that we really don't have much idea of what the full possibilities of the system are.

Cost? Well the packet controller '(TNC) costs about $200 to build up and hopefully you already have a two metre rig and a computer with a serial port.

The chosen frequencies are 147.600 MHz, for the main channel and 147.575 for a sort of 'chat' channel. Others are under consideration.

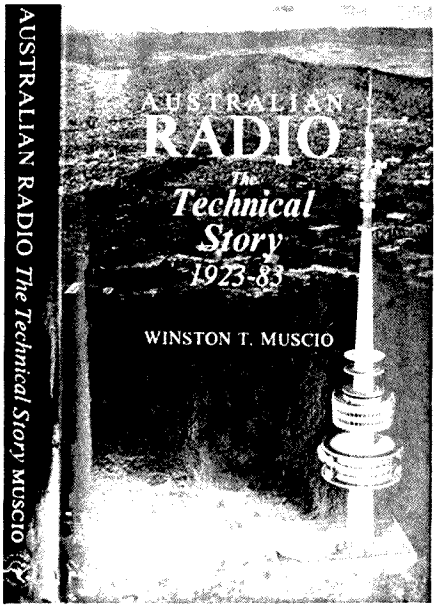
The protocol most Australian Packeteers have settled for is the V2 protocol. We have standardised on this same protocol as the Canadians who invented Packet Radio. It should be pointed out that protocols are NOT based on the circuitry, but on the programmes which run it, so if protocols should ever need to be changed, this is a blessedly simple thing to do. The radios most used are IC22s because of the fast turnaround time from transmit to receive. The baud rate will be 1200 initially.

AR

BOOK REVIEW

Jim Linton VK3PC
4 Ansett Cresent, Forest Hill, Vic. 3121

AUSTRALIAN RADIO — THE TECHNICAL STORY 1923-83



As its title suggests, this publication sets out to be the first to give a detailed account of the fascinating technical developments which have occurred in Australia over the past 60 years.

The book describes in detail, the development of broadcasting transmitters and receivers, then goes on to cover other interesting technical advances in many other branches of radio.

Some areas covered include the Beam Wireless Telegraph Service through to modern high speed data transmissions, and mobile radio, starting with the earliest Victorian Police Wireless Patrol to the microprocessor-controlled Telecom services.

Some other aspects documented are the evolution of telephone systems, sound record playing equipment from electric pickup to digitally-recorded compact discs, the development of audio frequency amplifiers and loudspeakers, and the chequered history of FM broadcasting.

This excellent publication was written by Winston Thomas Muscio, a chartered engineer, who retired in 1980 after a lifetime in radio engineering starting with STC in the design and manufacture of radio receivers for domestic, commercial and military use.

AR

CLEAR ACROSS AUSTRALIA

The book covers Australian telecommunications from when the first telegraph line was erected between Melbourne and Williamstown in 1854.

It is written in an entertaining style and is excellently illustrated.

Most stages of telecommunications appear to have been covered, from the post, to telegraph, telephone, wireless telegraphy, picturegrams, radio, telex, co-axial cable, satellites and optic fibre cables.

The human contribution to telecommunication development in Australia is well covered and research from archival material is obvious in the early sections of the book.

The author, Ann Moyal, where possible had interviews with many of the former administrators and staff in the PMG and Telecom, and several Ministers who held the portfolio.

AR

Share your story in AR ...

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-OROINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and UoSAT Bulletin Number 135.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR the National Co-Ordinator of AMSAT-Australia is now producing a monthly newsletter containing updated satellite news, orbital predictions, keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to realise funds for the funding of projects or the purchase of an item (items) of hardware for a future amateur satellite project, eg. Phase-3C, Phase 4 or whatever. The cost of the Newsletter is $15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR QTHR.

COMPUTER SOFTWARE

As mentioned previously in this column there are a dearth of satellite programmes available for the mumerous home computing systems currently in use by satellite communicators. Those newcomers not aware of what is available should drop a line to Graham VK5AGR (QTHR) the AMSAT-Australia National Co-ordinator, enclosing a stamped self-addressed envelope requesting details of what is available and from whom it is available.

Past practice has been that, provided the requestor supplied the media (tape or disk) and return pack and postage, the copies of the relevant software has been provided WITHOUT charge. The majority of persons availing themselves of this service have been most appreciative, however it is disturbing to hear that some individuals have had the audacity to write back and complain bitterly that the software was not up to their expectations. To that inconsiderate minority may I address the following comments . . . . The AMSAT-Australia software service is being provided by a group of fellow amateurs to assist YOU as a fellow satellite communicator. Next time think twice about knocking a gratis service.

UoSAT-OSCAR-9 Bulletin-135 19 July 1985 (Excerpts)

PHASE-3C

The Phase IIIC spacecraft is now scheduled for launch less than 11 months hence — Mid-June 86 is ESA's schedule on the Ariane 4 launcher. Four transponders will be aboard: B, JL, L Rudak (digital) and S.

AMSAT is about to sign a contract with the Solar Energy Research Institute, SERI, in Golden Colorado for a facility in which to integrate Phase IIIC. A strong team is now functioning in the Boulder area under W3GEY. The Phase IIIC spaceframe recently arrived in Boulder having been shipped from W4PUJ in Washington.

JAS-1 SPACECRAFT

The JAS-1 launch has slipped 6 months until August 86.

RS SOVIET SPACECRAFT

After the recent scare, RS-8 seems to have returned to normal operation. It may have recovered or it may be a last gasp. Better watch this spacecraft closely for signs.

Rumors in Europe say the birth of ISKRA-3 is near. Prior ISKRAs, built by the Moscow Aviation Institute, were manually launched by ejection out the hatch of a Salyut space station. Sources indicate a 15 to 10 metre narrowband transponder is likely. RS-9 and RS-10 are due for launch late this year or early next year.

AMSAT-OSCAR-10 SPACECRAFT

The 2 metre omni antenna is on from MA 35 to MA 80 for a trial period. Comments on reception would be appreciated. An attitude manoeuvre is taking place at the moment. The target attitude is LON 230, LAT -10 degrees. This will require 6 to 7 days at least of magnetorquing. The change is taking place now as it will be difficult to check the S/C attitude when the sun gets too close to the orbital plane. (ZL1AOX)

AO-10 spacecraft controllers have determined an operating schedule for the critical eclipse period which begins in August, as follows:

Off 030 — 189
L 190 — 206
B 207 — 029

UoSAT-OSCAR-11 OPERATIONS

UO-11 dropped out of gravity lock last week during some attitude experiments but was recaptured by OBC auto-magnetorquing routines on Wednesday. Work has been under way on up-grading the P/Wave and CCD experiment OBC software and was used for the first time on Wednesday and Thursday P/Wave surveys — the results are being analysed.

AR

MISSING PERSON??

Would anyone who knows the present whereabouts of Tom King VK2ATJ please phone the VK2 Divisional Office on (02) 689 2417, during office hours.

SATELLITE ACTIVITY FOR PERIOD APRIL 29 TO MAY 30 1985.

1. LAUNCHES.

Number	Name	Nation	Date of Launch	Initial Data Period mins	Apog km	Perig km	Incln deg	Remarks
1985-								
034A	STS 51B	USA	Apr 29	91.6	358	345	57.0	See below
034B	NUSAT-1	USA	Apr 29	91.5	354	345	57.0	
035A	GSTAR-1	ESA	May 8	634.5	36027	201	7.0	Ariene vehicle
035B	Telecom-1B	ESA	May 8	634.5	35960	201	6.9	Ariene vehicle
036A	Cosmos 1649	USSR	May 15	92.3	415	356	72.8	
037A	Cosmos 1650	USSR	May 17	675.6	19142	19110	64.8	
037B	Cosmos 1651	USSR	May 17	675.3	19132	19104	64.8	
037C	Cosmos 1652	USSR	May 17	675.8	19145	19119	64.8	
038A	Cosmos 1653	USSR	May 22					
039A	Cosmos 1654	USSR	May 23					
040A	Molniya 3-24	USSR	May 29					
041A	Cosmos 1655	USSR	May 30					

2. RETURNS.

During the period twentyfour objects decayed including the following satellites:-

1976-026A Molniya 1-34
1985-029A Cosmos 1645
1985-032A Cosmos 1648
1985-036A Cosmos 1649

3. NOTES

The crew of 'Challenger' on STS 51-B mission were R.Overmeyer, F.Gregory, D.Lind, N.Thagart, W.Thornton, L.Vandenberg and T.Wang.

On 14 May 1985 at 2113 UTC , satellite AfS 1 was located at 162.91°E. Inclination 11.728°.

OSCAR-10 APOGEES
SEPT/OCT 1985

DAY	ORBIT	APOGEE U.T.C	SATELLITE CO-ORDINATES LAT	LON	BEAM HEADINGS SYDNEY AZ	EL	ADELAIDE AZ	EL	PERTH AZ	EL
	N	HHMM:SS	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG
1st	September									
244	1670	1254:28	-17	194	41	65	61	55	84	35
2nd	September									
245	1672	1213:29	-17	185	58	58	71	47	89	27
3rd	September									
246	1674	1132:31	-17	175	69	50	79	39	94	18
4th	September									
247	1676	1051:32	-17	166	77	42	85	30	99	10
5th	September									
248	1678	1010:33	-17	157	84	33	91	22	104	2
248	1679	2150:03	-17	332					256	2
6th	September									
249	1680	0929:35	-17	147	90	25	96	14		
249	1681	2109:04	-17	323					261	10
7th	September									
250	1682	0848:36	-17	138	95	17	101	6		
250	1683	2028:06	-18	313			254	-0	265	18
8th	September									
251	1684	0807:37	-18	129	100	9	106	-1		
251	1685	1947:07	-18	304			259	7	270	27
9th	September									
252	1686	0726:38	-18	119	105	1				
252	1687	1906:08	-18	295	257	4	264	15	275	35
10th	September									
253	1689	1825:10	-18	285	262	12	269	23	281	44
11th	September									
254	1691	1744:12	-18	276	267	20	275	32	289	53
12th	September									
255	1693	1703:13	-18	266	272	29	281	40	300	61
13th	September									
256	1695	1622:13	-18	257	278	37	289	48	317	69
14th	September									
257	1697	1541:16	-18	248	285	46	299	56	346	73
15th	September									
258	1699	1501:43	-18	238	293	54	313	64	22	73
16th	September									
259	1701	1420:45	-18	229	306	62	335	69	48	67
17th	September									
260	1703	1339:45	-18	220	325	68	6	71	64	60
18th	September									
261	1705	1258:48	-18	210	354	72	34	68	74	51
19th	September									
262	1707	1217:48	-19	201	26	70	54	62	82	43
20th	September									
263	1709	1136:50	-19	192	49	65	66	54	87	34
21st	September									
264	1711	1055:50	-19	182	64	57	76	46	92	25
22nd	September									
265	1713	1014:53	-19	173	74	49	83	37	97	17
23rd	September									
266	1715	0933:53	-19	163	81	40	89	29	102	9
266	1716	2113:24	-19	339					251	-3
24th	September									
267	1717	0852:55	-19	154	87	32	94	21	106	1
267	1718	2032:27	-19	329					256	5
25th	September									
268	1719	0811:55	-19	145	93	24	99	13		
268	1720	1951:27	-19	320					260	13
26th	September									
269	1721	0730:58	-19	135	98	15	104	5		
269	1722	1910:29	-19	311			254	3	265	21
27th	September									
270	1723	0651:25	-19	126	102	8	109	-2		
270	1724	1830:56	-19	301	252	-0	259	10	269	30
28th	September									
271	1725	0610:28	-19	117	107	0				
271	1726	1749:59	-19	292	257	2	264	18	274	39
29th	September									
272	1728	1708:59	-19	283	262	15	269	26	280	47
30th	September									
273	1730	1628:01	-19	273	267	23	274	35	288	56
1st	October									
274	1732	1547:01	-20	264	272	32	281	43	300	65
2nd	October									
275	1734	1506:04	-20	255	277	40	289	52	320	72
3rd	October									
276	1736	1425:04	-20	245	284	49	299	60	355	75
4th	October									
277	1738	1344:06	-20	236	294	57	316	67	33	73
5th	October									
278	1740	1303:06	-20	226	307	65	342	72	57	67
6th	October									
279	1742	1222:09	-20	217	330	71	16	72	70	58
7th	October									
280	1744	1141:09	-20	208	4	74	43	68	79	50
8th	October									
281	1746	1101:38	-20	198	36	71	60	61	85	41
9th	October									
282	1748	1020:38	-20	189	57	64	71	53	91	32
10th	October									
283	1750	0939:41	-20	180	70	56	80	44	95	24
11th	October									
284	1752	0858:41	-20	170	78	48	86	36	100	15
12th	October									
285	1754	0817:43	-20	161	85	39	92	28	104	7
285	1755	1957:15	-20	336					251	0
13th	October									
286	1756	0736:43	-20	152	91	30	97	19	109	-0
286	1757	1916:15	-20	327					256	8
14th	October									
287	1758	0655:46	-21	142	96	22	102	12		
287	1759	1835:17	-21	318			250	-2	260	16

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

G General, C Constructional, P Practical without detailed constructional information T Theoretical, N Of particular interest to the Novice X Computer programme

HAM RADIO...June 1985 Ceramic resonator oscillators (P N) High stability BFO (P N) IF sweep generator (P N) VIC 20 Morse code generator (X)

SHORT WAVE MAGAZINE...May 1985 QRP 20 metre transceiver (C)

PRACTICAL WIRELESS...April 1985 Advanced direct conversion receiver (C)

CQ...May 1985 Dummy load antennas (G) 1984 CW contest (G)

RADIO COMMUNICATION...July 1985 Diamond Jubilee edition. Solid state SSB transceiver for 1.8MHz (C)

73 MAGAZINE...July 1985 Radio astronomy (G) Inductance meter (P)

CQ-TV...No 130...Spring issue 1985 Single chip colour encoder (P) Sync separator, genlock unit, vision mixing, etc. General ATV news and information.

AR

A news release

The Sixth Conference of the IARU Region 3 Association is being held in Auckland, New Zealand, from 13 to 17 November 1985 with the New Zealand Association of Radio Transmitters (NZART) as host society.

To mark the occasion, New Zealand radio amateurs have approval to use the prefix ZM from 1 October to 31 December inclusive.

A special station ZM6ARU will operate from the conference venue in the period 9 to 18 November.

Special approval has been given for IARU representatives and delegates to the conference to receive call signs from the special series ZL0ZAA for hand-held transceiver use during their visit to New Zealand.

IARU REGION 3 CONFERENCE AWARD

To publicise the IARU Region 3 Association Conference in Auckland, New Zealand, 13-17 November 1985 and is available world-wide to licensed amateurs for contacts made during November 1985 with ZM6ARU (Conference station) and other ZM stations.

Any band or mode may be used.

For overseas stations: Contact ZM6ARU and two other ZM stations. Note: Five other ZM stations may be substituted for ZM6ARU.

The Award is available to SWLs.

Send log details (no QSLs) and $1 (3 IRCS) for surface mail or $2 airmail to : NZART Awards Manager ZL2GX, 152 Lytton Road, Gisborne, New Zealand.

AR

RADIO CLUB DE CHILE INTERNATIONAL BULLETIN

The RCCH International Bulletin transmits every Saturday, in English and Spanish, on 40 metres, 7.085 MHz at 1000 UTC. This transmission is directed to the Pacific area.

Other transmissions to Europe are on 21.300 MHz at 1700UTC and to America on 14.200 MHz at 2300 UTC.

The call sign used is CE3AA in Santiago, Chile.

AR

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Well, Spring has hopefully arrived by now. About this time of the year, the major international broadcasting stations make their alterations to their frequencies to take account of the seasonal fluctuations in propagations. The S-85 period commences on 1st September from 0100UTC.

As well, most of Continental Europe goes off daylight saving on Sunday 29th September. This is significant because many programmes targeted for European audiences are slotted in local time in Europe and not in UTC, as is the case for other target areas. So there are going to be some changes noted on 29th September. While we are on Standard Times, I have noted that Soviet external services run on the Standard Time in Moscow, and you will note that programming will be one hour later, as from 1st October.

MONITORING THE WOODPECKER

Next month I shall be participating in a sustained monitoring effort on the 'Woodpecker'. This pulse signal has been well known to amateurs and SWLs for many years by causing severe disruption to telecommunication users. Now the American SWL Group - the Association of North American Radio Clubs (ANARC), has decided to co-ordinate the collection and analysis of data on the effects of this PON mode activity which is, unfortunately increasing.

The results of these studies will be presented to the telecommunications departments and/or ministries throughout the world, in order that a protocol statement can be drafted at the next WARC, in 1987, condemning this interference.

The monitors in Canada and the USA will monitor parts of the spectrum between 5 and 23MHz, with each monitor being assigned a 3MHz wide spectrum to scan over a 3 hour period, allocated by ANARC. The majority of the pulse rates are 10 per second, although rates of 7.5 and 17 per second have also been noted. The rate can be determined by measuring the width of the pulse signal. Eg 40kHz or 75kHz. As the 'Woodpecker' pulses seemingly gravitate in 100kHz steps, it can be easily mapped out on graphics and displayed.

CO-ORDINATORS CO-ORDINATING

Also, the committee has asked monitors to note instances where international broadcasters have been interfered with by PON pulses. Here in Australia, our Intruder Watch Co-ordinators will be co-ordinating the work of various monitors within the spectrum assigned to them by the ANARC OTHR Committee. This is not surprising as IW has noted the effects of the OTHR pulses within the exclusive amateur allocations, ever since they appeared.

CONSIDERABLE DEBATE

It is interesting to note further, that the US Air Force expects to commence operations from OTHR radar in Maine, very shortly. It is licenced to operate within the Fixed Allocations, but excludes amateur, maritime and broadcasting allocations. There has been considerable debate within American defence circles over the effectiveness of OTH radar systems. Some maintain that the Strategic Defence Initiative, commonly referred to as 'Star Wars', would be more effective, from economic and efficiency standpoints. As the SDI proposal will be probably very costly and expensive, there could be pressures to implement further OTHR sites. Already there have been suggestions that further sites, located on the American West Coast, Alaska and the Midwest could be constructed. However, the US congress is not all that keen on further costly expenditure on defence systems, wishing to trim the ever increasing US budget deficit.

OTHERS INTO OTHR

Also according to the ANARC OTHR committee, it appears as if the UK will also be experimenting with OTHR from Cricklade, near Swindon. This is also, in co-operation with the US defence scientists. Another site at Ordfordness, which has has past involvement with OTHR research in the early 70s, could be considered and would reportedly cover shipping and air movements in the Baltic and Arctic, north of the UK.

Japan is also reportedly interested in joining the OTHR club. Time will alone tell if more countries will use PON, yet it is quite clear that they will have to rapidly devise ways of minimising severe disruption to other telecommunications users/consumers.

IMPROVED SIGNALS!!

Radio HCJB in Quito, Ecuador recently completed the erection of their 49 metre antenna array, to improve their signals to Europe and the South Pacific, coupled with their 500kW transmitter. This has certainly improved the stations' audibility and signal strength on the South Pacific service on 6.130MHz from 0700UTC. Unfortunately, their transmissions on 9.745 and 11.925MHz remain useless because they are frequently drowned out by SE Asian stations, such as R Pyongyang or jammers.

LACK OF SHORT-HAUL

Recently I have been unable to maintain scheds with local stations on 80 metres because of the lack of short-haul propagation. This certainly is very unusual, as well as being very frustrating to all concerned. Now we know the reason why - the Polar Absorbtion Effect. Apparently, protons bombard the ionosphere around the Polar regions, causing the disappearance of the D layer for several hours. It is also often in tandem with a solar flare, as was the case on 9th July. Interestingly enough, it allows signals to come in on channels that are usually dominated by local stations. The RA senders were inaudible on 49 metres, allowing Asian stations to be rarely heard.

Well, that's all for September. Until next time, the very best of DXing and 73....Robin VK7RH.

AR

MEGAWATTS IN THE WIND

Electricity produced from the wind could be contributing significantly to power requirements in Victoria during the early 1990s.

This is the view of Bruce Tregaskis, an engineer in the State Electricity Commission, System Planning Department.

Fifty sites along the Victorian coast has been assessed — and ten of these were selected for the installation of wind monitoring equipment.

The recording of wind speed, direction and duration began in February and will continue for two years.

Mr Tregaskis said after the data had been analysed the SEC would be in good position to know the potential of wind generation.

Preliminary indications are that wind energy could be expected to contribute about two to three megawatts to the Victorian grid by the early 1990s.

This could need 20 or 30 generators with a capacity of about 100 kilowatts. Mr Tregaskis said in the long term wind generation was unlikely to contribute more than five to ten percent of the state's power requirement.

A 55 kilowatt aerogenerator was installed two years ago by the Mars confectionary company at Ballarat.

The SEC planned to install a 75 kilowatt version this year near Geelong.

(Source: SEC News, June 1985) AR

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

A good supply of intruder reports were received for the month of May from:

VK2BQS, VK2DEJ, VK2DUO, VK2EYI, VK2PS, VK2QL, G H A Bradford, VK3BGH, VK4AFO, VK4AHO, VK4AKX, VK4BG, VK4BHJ, VK4NUN, VK5BJF, VK5TL and VK7RH.

Many thanks to these people for their continued support of the Intruder Watch.

HARMONIC STILL HEARD

The fourth harmonic of Radio 5AN, Adelaide continues to be heard on 3.564MHz. I would be interested to hear from more VK5 amateurs on this one.

VRQ from Vietnam continues to trangress on 14.080MHz on CW. UMS is still being heard on 14.141MHz, but seems to have changed his habits somewhat, as he is using more FSK Morse than formerly. RJS has also been heard on this frequency, so call signs must be listened for, as they are necessary for identification purposes.

In the August *Intruder* Watch column, I mentioned that there was AMTOR traffic emanating from a large vessel, at the time located in the Marshall Islands, the point being that the traffic was of a commercial nature. Recently, someone blew the ship up, and she sank at her moorings. I want to make it quite clear that the Intruder Watch had nothing to do with it.

STATISTICS

Statistics for May are as follows: 350 Broadcast intruders reported, 82 CW intruders, 76 RTTY intruders, 57 other modes and 67 stations identified.

Col VK4AKX sends the following notes. Radio Tirana (Albania) continues to be the number one pest on 7MHz during our afternoons, from 0400 to 0700UTC. 99.9 percent of intruders are located in the Northern Hemisphere. Col makes a valid point, in that he says that the intruders Radio Tirana, Indonesia, Radio Peking, Voice of the Straits (China), etc are so strong, that even if they are NOT heard in some states, the result is that those states could NOT work on or near the frequencies in question because, no doubt the offenders are being heard in other parts of the globe, and as radio communication is a two-way affair, the stations at the other end would be QRMed out of the game. So it works both ways...

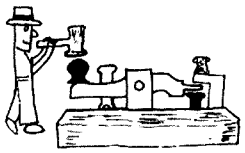
Even if we, in VK, can't hear an intruder station, it is an equally effective intrusion if it is heard elsewhere, because one end of the communication path is interfered with. So it is important that radio amateurs world-wide take part in the Intruder Watch programme, in order that we can take steps to censure the offending stations from both ends. Please report any intruders heard to your divisional Intruder Watch Co-ordinator.

73 for now, and see you next month.

AR

MAGPUBS

Please note that the UHF Communications magazine (English version) is being produced for 1985, and the first issues were sent at the end of July 1985.



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

INTRUDERS

In the May issue of this column I referred to a comment regarding the "60 day rule" by Norman VK4BHJ. Several operators have written in the meantime and the subject bears re-opening. We all have a lot at stake here (not just us brass pounders), and we would do well to remember the motto of the CIA — "Eternal Vigilance is the Price of Freedom."

First of all, my thanks to Bill Martin VK2COP, Federal Intruder Watch (IWS) Co-ordinator, who wrote to explain the 60 day rule —

AN ADMINISTRATION CAN ASSIGN ANY OF ITS STATIONS TO OPERATE ON ANY FREQUENCY AND, IF NO-ONE OBJECTS WITHIN 60 DAYS, THE STATION CAN OPERATE LEGITIMATELY ON THAT FREQUENCY.

Bill goes on to say, "This is one of the reasons why the Intruder Watch is constantly calling for reports of intruders, so that the objections may be lodged as quickly as possible. In the case of the USSR intruder "UMS" this does not apply, as objections have been lodged for years against this intruder. The Intruder Watch has recently mounted an intensive campaign against this intruder, with the result that the USSR HAS ACKNOWLEDGED that it is one of their stations, and has stated in writing to the Department of Communications that 'they will take steps to have the stations removed from the amateur allocations of 15 and 20 metres.' "

The moral of the story, obviously, is that the Intruder Watch Service is effective — but only so long as it has the support of the amateurs it is designed to protect. They need accurate, timely and **reliable** reports of harmful interference; without the reports they can do nothing. Addresses of state co-ordinators are listed frequently in "Amateur Radio." Drop yours a line and he will supply you with intruder logging sheets and some good advice.

On the subject of Japanese and Taiwanese fishing boats, their operation on 80 metres is legal so long as they are in international waters. If they are in Australian territorial waters they are intruders, and action can be taken.

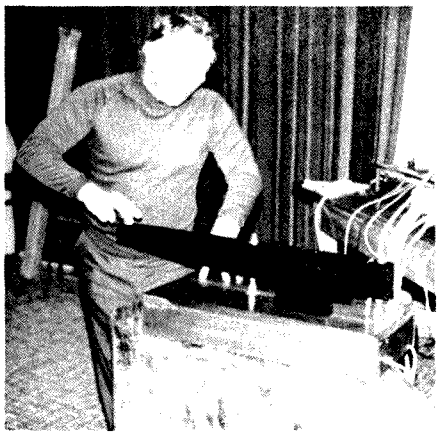
If you have reason to believe that such an intruder is in fact within Australian territorial waters, you should log the interference and report it to the Intruder Watch. David Brownsey VK4AFA, the Brisbane Secretary of the IWS has been very persistent in documenting such intrusions and has written to the Japanese Consulate-General, and the Department of Communications. He advises that the Australian Coastal Surveillance Centre can be telephoned in Canberra on (062) 47 6666, which is a free STD call (they will accept reverse-charge trunk calls).

David mentions another instance on 80 metres, fascimile transmissions on about 3.625MHz, emanating from the USSR. Unfortunately these are legal, because their orgin is in a different region. However, **any** broadcast stations, harmonics from Australian commercial broadcast stations, and transmissions from cordless telephones are intruders and should be reported to the IWS.

Norman VK4BHJ has also foreshadowed another form of intruder problem looming on (or over) the horizon — frequency-hopping stations. These stations use the latest in digital communications technology to break up transmissions into segments which are transmitted on different frequencies. A station can "hop" all over the HF spectrum, spending only milliseconds on a particular frequency. The effect is only apparent as a rise in the overall background noise, which is bound to get worse as commercial and service transmitters are seeking and using any relatively clear HF channels regardless of other users. This situation does not appear to be covered by current international regulations.

Finally, a word of caution — it is extremely unwise to deliberately "QRM" an intruder. In the first place, you are violating regulations if you transmit anything which is not a legitimate amateur pursuit. Secondly, you are only adding to the pollution of the airways. Bear in mind that you are not the judge and jury. For all you know those fishing boats are in international waters, in which case deliberate QRM is harmful interference to a legitimate (unfortunate though it be) user. Futhermore, the level of their signal in your location is no indication of your ability to cause QRM at theirs. You might be making 10-20 kHz unusable in your own neighborhood while the "intruder" can't even hear you. The best practice is to log the details and report them to the IWS, and otherwise **ignore** them.

On a lighter subject, we have another entrant for the un-offical, un-sponsored and no-prize-but-self-esteem competition to find the world's biggest key. Craig ZL3TLB, editor of "Break-in" the offical journal



of the NZART, has sent the accompanying photo of a key which was built for the 1983 VHF convention by Tony ZL3DQ. Morse operators at the convention were invited to try it out, but they were unaware that the oscillator was controlled by a remote VHF system. The 1kHz tone could be changed to a harsh "raspberry" and the tones could be delayed by half a second, which threw even the best brass pounders. The photo shows David ZL2SX "having a go."

In thinking about the "rules" for this "competition," I have had to decide that there are no rules. It's difficult enough to determine what constitutes a key, without worrying about terms like "biggest."

Any other takers??

73 till next month.

AR

MURPHY MARCHES

Mr Murphy, at a late hour, got amongst Ron VK3OM's typewriter keys — and magically got the IC-735 and 745 mixed up in last month's Equipment Review. Still marching, he attributed the review to Ron VK3AFW, who, upon reading the magazine, found that it was the best, easiest and quickest review he had ever written.

WICEN NEWS

VICTORIA'S DISPLAN OFFICER RETIRES

Many changes have occurred in the area of counter-disaster planning in Victoria since the Ash Wednesday tragedy in 1983.

One man who has played a key role was Bruce Bingham, who recently retired from the position of Displan Officer after four years.

His retirement was the result of him being promoted to rank of Chief Inspector, meaning he had to move to the next phase of his police career.

He said it had been very difficult to get others interested in disaster planning before Ash Wednesday, and there was general apathy within the police department, government and the public itself.

"When Ash Wednesday occurred people realised there was something in counter disaster planning.

"My job became very satisfying after that, and although no longer Displan Officer I still maintain an interest in that particular field," said Mr Bingham.

Commenting on WICEN, he said he knew of its potential from the time of its involvement in the Cyclone Tracy disaster, 1974.

By not being used in emergency situations interest in WICEN had dwindled over the years, said Mr Bingham.

"But since Ash Wednesday it's a very viable and important communication resource.

"That has been indicated by the number of times WICEN has been used since Ash Wednesday.

"The WICEN organisation is going to play a valuable role in Victoria in the future," he said.

With any type of disaster situation the normal emergency services "can't cope with everything and need help particularly from an organisation like WICEN that has "this communication expertise."

WICEN coordinator, Derek McNiel VK3BYA said he was very thankful for Mr Bingham who had helped bring WICEN on from where it was at Ash Wednesday.

"He helped WICEN win recognition within the police department and other emergency services.

"For example he instructed the police regional Displan coordinators to make contact with the WICEN regional coordinators and involve them in local disaster planning," said Derek.

WICEN wishes Chief Inspector Bingham all the best for the future, and looks forward to a continued close relationship with his successor, Inspector John Park.

WESTERN ZONE WICEN ACTIVITIES
Regions 4,5 & 17

After organising a training school in Hamilton earlier this year, in which Derek McNiel was the instructor, the WICEN group were keen to put their newly acquired knowledge into practice. They did not have long to wait to do so.

An off-chance comment to a member of the Hamilton Light Car Club saw an invitation forthcoming for the WICEN group to provide communications for their Yulunga all-night-car-trial during the evening of 13th April to the small hours of the 14th.

The invitation was duly accepted and the afternoon of the 13th saw Ken VK3KAV, co-ordinator, Lyle VK3DWL, controller and their group setting up stations in the Annya State Forrest and the immediate hinterland.

The trial officials were, at first, a little slow to make use of the communications facilities, however, as the event continued, the messages continued to increase, speeding up the search for lost cars, directing the recovery teams and passing safety messages and scores.

The event concluded with an early morning barbeque breakfast, where the competitors, officials and WICEN group got to know more of one another.

A weary WICEN group got to bed at a time when normal people were getting up but all agreed they would be willing to participate again next time.

Thanks go to Lyle, for his ability to supply maps, etc for the event and for his efforts as control station.

At this time, Region 17 WICEN do not have any active members. If you live in this region and would like to participate, call Ken VK3KAV, QTHR and he would be pleased to answer any queries.

Contributed by Ken Taylor VK3KAV

ALARA

Australian Ladies Amateur Radio Association

Poppy Bradshaw VK6YF
203 The Strand, Bedford, WA. 6052

I have been asked to be guest writer for the ALARA column this month, an honour I assure you as my journalistic abilities are very limited. Firstly I would like to thank Margaret VK3DML for her excellent efforts as Publicity Officer and Contest Manager and for her on air friendship and assistance.

Here in VK6 it is not practicable for our members to take a position on the executive committee because of distance, time difference and of course on-air conditions. We are always grateful to those members who fill these positions each year and for relays and QSPs passed on by other members in regard to ALARA and its members.

Locally our members are very active in WIA and local club committees. Diane VK6KYL has been re-elected secretary of the Goldfields Radio Club.

Bev VK6DE, who some of you may have met in her travels over east, is very active in the Geraldton Radio Group. Bev also does their segment for the VK6 WIA News. Gill VK6YL is secretary of the WARG and with Christine VK6ZLZ is a VK6 WIA Councillor. Christine is the WIA Book saleswoman and like Sue VK6NSU is a very active repeater group member. Trish VK6QL although fairly new to AR encourages and tutors others to join the amateur radio ranks.

Our first VK6 ALARA function was to celebrate ALARA's tenth birthday. Nine members went to lunch at the Westrail restaurant and Christine VK6ZLZ baked a delicious cake for the occasion. A week later our Radio Ladies Luncheon group held their sixth birthday at the Sheraton Hotel with 13 in attendance. These luncheons are held on the last Thursday of each month and any lady interested in radio, YL, XYL, mother or daughter of an amateur, etc is welcome. Visiting ALARA members from VK2, Canada, USA and visitors from NZ and UK have attended luncheons. I would like to take this opportunity to extend an invitation to any visitor to our beautiful state to join us.

Thank you to the new ALARA executive committee for carrying on the tradition of ALARA. Thank you for giving me this opportunity to take part in our tenth anniversary celebrations.

33

Poppy VK6YF AR

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

Statistics for the May exams have been received and are available from me or the Executive Office on request.

As usual, CW sending results are better than receiving, and the pass rate for the Regulations exam overall was 80 percent.

The main interest, however, lies in the results of the Theory exams at both levels as hereunder.

State	AOCP		Novice	
	Pass rate %	Cand#	Pass rate%	Cand#
VK1	12.5	8	20	5
VK2	38.4	99	45.2	62
VK3	46.2	156	47.8	90
VK4	25.3	91	21.5	65
VK5/8	29.8	47	43.9	41
VK6	16.7	54	27.3	33
VK7	57.1	14	44.4	9
Total	**VK 35.2**	**469**	**38.4**	**305**

Of course, the figures for the states with smaller numbers of entrants cannot be used for any statistical analysis, but overall the results are better than those for the February exams, although they are not as good as in May 1984.

I have not received information about which papers were used in each centre, but expect so fairly soon.

I have also been promised information on distribution of past exams, to complete some analyses over a longer period. Now that we have had a year of four exams at each level, it may be possible to work out if the change in exam availability has affected the pass rates. The change has been appreciated by many candidates and has made things easier for those organising classes.

The number sitting for the May exams was significantly down on that for May last year, but was up on the February figures. What I do not know is how many of those sitting were attempting both levels on the one day. I would be interested to know if class instructors are encouraging students to attempt both levels at once, or if any candidates have been debarred from attempting both by the examiners arrangements.

It will be interesting to see the effect of the proposed new scale of fees on the number of entrants, and particularly on the large group of students who enter but do not turn up for the exam.

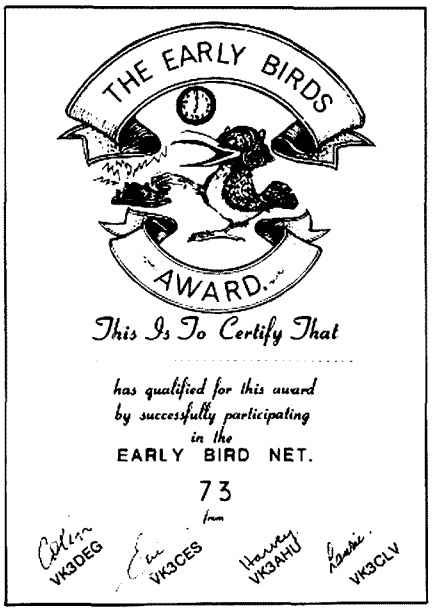
A small group of volunteers is working on producing a Study Guide to accompany the revised syllabus when it is published. Drafts of sections are being circulated as they become available, so that we can collect opinions from members who are actively involved in any classes. Any reader who is interested in assisting with this work is welcome to contact me (QTHR Call Book or any Melbourne Phone book)____I will assume that a request for a copy of the draft means that the requestor is prepared to give it serious thought and provide written comments back to the group. I would be most pleased to receive notes from members on any non-standard reference material which they have found useful, as we would like to include references with each section.

Several instructors have sent me copies of notes on sections, sets of questions, or ideas for demonstrations. These are much appreciated. I hope eventually to be able to establish a system of circulating ideas. This was what I had in mind for the Education Net (Thursdays 1130 UTC about 3.680 MHz), but the net does not draw much response. Why not drop in some evening?

73 Brenda VK3KT AR

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218



THE EARLY BIRD AWARD

This award has been organised by a group of four amateurs who at present are conducting a CW practise net each morning, Sundays excepted, at 2100 UTC on 3.547 MHz.

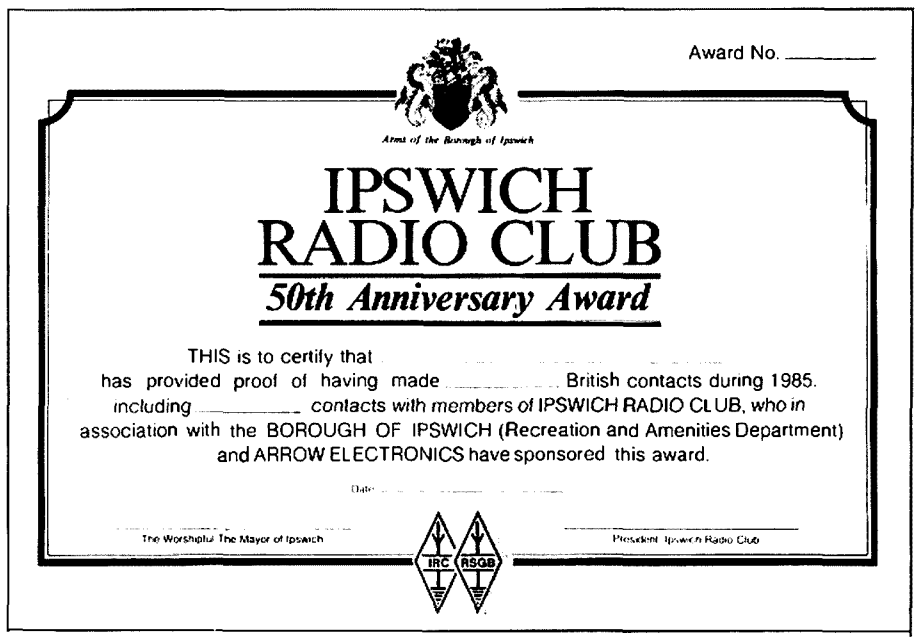
The purpose of the net is to provide encouragement and CW instruction at 10 WPM to assist Novices and Limited Call holders in their sending and receiving and to prepare them for the DOC examination.

It was considered that an award would be appropriate for those interested enough to take part in the net on a regular basis. To qualify the amateur must have participated in the net on 20 occasions and must also have reached an acceptable standard of sending and receiving. A short test passage will be transmitted at regular intervals.

Applications for the Award together with submission of the un-corrected test passage, a claim log and $1 should be sent to VK3DEG, QTHR.

Contributed by Eric Smith VK3CES

AR



IPSWICH RADIO CLUB GOLDEN JUBILEE AWARD

To celebrate its Golden Jubilee in 1985, the Ipswich Radio Club, in the UK in association with the Ipswich Borough Council and Arrow Electronics, will present a special Award Certificate signed by the President of the Club and the Mayor of Ipswich for contacts made during 1985 with Ipswich Club Members and Stations in the County of Suffolk. The rules are:—

Only contacts made during 1985 will count for the Award. The Award will be presented for 50 points, 25 of which must be for Suffolk and Ipswich Radio Club contacts. Contact with a G station will count 1 point, with a Suffolk station 2 points and with an Ipswich Radio Club Member 3 points. Each contact with the Club Station (G4IRC, G1IRC, or GB2IRC) will count as 5 points. Several special event stations using these call signs will be on the air during 1985.

Contact may be on any amateur band by any mode of transmission. The same station may count for contacts on more than one band, but only once on each band irrespective of mode. Terrestrial repeater contacts will not count for the award. If applicants so wish, Certificates will be endorsed for a single band and/or a single mode.

Contacts on bands above 1296MHz will count as double.

Applications for the Award, enclosing a list of contacts confirmed by a Club Chairman or Secretary or by a representative of a National Society (QSL cards are not required and should not be sent with the application) should be forwarded with six IRCs (or 1 pound or $2) to Alan Owen G4HMF, 102 Constable Road, Ipswich, IP4 2XA, before the 31st March 1986.

SWLs may also apply for the Award by supplying a similar list of QSOs heard between the appropriate G stations and others in their own country.

Contributed by Alan Owen G4HMF Chairman, Ipswich Radio Club.

Trivial Questions . . . ?

Q: Name the radio amateur who went mobile marine on Lake Eyre in 1975,76,77 — you see his name each month.

A: Bill Rice VK3ABP, used a trailer-sailer on the normally dry Lake Eyre during its rare but periodic filling of water.

Q: Who immortalised "The Radio Ham" by his TV portrayal and comedy record.

A: The late Tony Hancock on his comedy show "Hancock's Half Hour". The comedy sketch is also known for its phrase "It is are not raining here in Tokyo".

Q: In relation to amateur radio, what is special about Vietnam and Kampuchea.

A: The governments of these countries do not permit amateur radio.

Q: If you had an Australian callsign with /T after the suffix what did it mean.

A: The /T used to signify your station had a permit to transmit television.

Q: What did the letters ARTL stand for.

A: ARTL stood for the Australian Radio Transmitters League which was formed after the WIA and later amalgamated with the Institute.

Q: Name the four types of signals used by radio amateurs to transmit pictures.

A: Pictures are transmitted by ATV, SSTV, FAX and RTTY.

Q: Who was the man who announced the general availability of Third Party Traffic privileges for Australian radio amateurs.

A: In his opening address to the RD Contest, August 1980, the then Minister, A A Staley, announced TPT privileges would be available.

Q: Which amateur bands did the 122 set transceive on.

A: This WW2 disposals set had a frequency range of about 2 to 8 MHz and was used on 80 and 40

Q: What is a "BCL".

A: The letters BCL stood for Broadcast Listener.

Q: If you had a "split stator" it would be-

A: A split stator is a type of variable tuning capacitor arrangement with two capacitors on the one shaft.

Q: What or who are Leonids, Lyrids and Perseids.

A: Meteor showers, which occur in November, April and August respectively.

Nostalgia

STATION WITH A FUTURE!!!

Simplicity and efficiency were the slogan of the amateur transmitting station of the Federal Secretary of the WIA, B J Masters 3LM, in 1925.

Mr Masters discarded all panels and had his set laid out on a board and secured to the wall. It used a Philips Z3 in a modified Colpitt's circuit. High tension was supplied from a home-made transformer capable of delivering 3000 volts, with filaments supplied from another home-made transformer.

The receiver was a (Schnell) using a Marconi V24 as detector with 26 volts on the plate.

From The Listener In-14th November 1925

CLUB CORNER

DEVIL NEWS FROM THE NW BRANCH

At the last meeting Noel Davies VK7EG was welcomed back from South Africa and Ray MacNamara was a welcome guest.

The club now has a new rig, which is working well, so it is hoped many more stations will be worked on activities nights now.

One correction to previous notes is that the club has applied for an all mode repeater on 70cm, not that it is "an all mode repeater".

During a recent activity night much work was done on the RTTY terminal and with the help of Andrew VK7ZAP's VZ200 and portable TV, we were able to put it to air and had a very enjoyable contact with a VK3 station. It is hoped to have the RTTY broadcast operating at 1000UTC shortly, using the call sign VK7NW. It is also hoped to have a special club QSL card soon.

Thanks are extended to Rob VK7KAB and the family of the late Max Upston VK7NMU for the donation of many radio magazines to the club, from Max's estate.

It was good to see so many volunteer to man VK7NW during the RD Contest and make this a successful club exercise.

Club member Jack VK7WJ has been away for six weeks on the mainland. We all hope he has a good holiday.

Contributed by Max Hardstaff VK7KY.

LOWER EYRE PENINSULA ARC

The Lower Eyre Peninsula ARC was formed in late 1978 and over the past years has doubled in membership. Early meetings were held in members homes but with the formation of the local SES we were able to use a room in their building. We helped them erect towers for joint use and obtained our first equipment with the help of the local Lion's club.

Within a few years the SES operation became much bigger than expected and we were asked to find alternative accommodation. The local Council offered the use of land adjacent to the SES Compound and offered a loan of $1,000 to help establish our facility. We were fortunate in obtaining a Caboose for the Radio Shack and two dis-used Guards Vans for a Workshop and Storeroom.

We also "acquired" a shed — provided that we shift it from its site! In March '85 the concrete slab for the floor was laid and Easter Monday found all hands on deck to erect the "New" building. This structure has now been lined and the ceiling has been installed together with an overwhelming number of power points. This room was unofficially opened at the June meeting.

During late 1984 it was decided that, as a club, we should consider a special project for 1985, the joint celebrations of the WIA and International Youth Year. After discussion with some interested students, their schools were asked if they would like to have amateur radio as an Elective choice for 1985. Naturally we were almost killed in the rush but decided to limit the groups to 10 per class. The end result was two groups of Year 10 students at Port Lincoln High and one group of Year 9 students at St Joseph's Convent.

Term 1 was pretty solid with Video Tapes, Lectures and on air sessions during the 11 week course. Term 2 has seen workshop sessions and recognising testing and sorting components. They have also started on a construction project in two parts.

Part 1. A Two Valve Reaction Radio Receiver. Suitable for listening to Broadcast and SW Bands up to 30MHz.

Part 2. Novice Valve Transmitter. CW and AM. To be assembled as a supplement of Part 1.

A prototype to receive 80 and 40 m bands has been constructed and, although lacking in AGC, was able to resolve all signals heard on a FRG7 receiver for those bands. Students will also take part in the forthcoming contests as second ops.

Term 3 will be more Theory and after the exams in November the high spot of the year — a DXPEDITION to a nearby off-shore island. Equipment to be used will include the Rig built by the students and an early model rig built by Alf Treager. Other equipment will also be used to fill out band coverage and thus ensure plenty of contacts. The venue and dates still have to be confirmed as we are experiencing quite a number of problems. These are not new to anyone who has tried to organise a similar venture.

We have the support of the South Australian Division of the WIA and have applied to the Department of Communication for a special call sign. In between all this radio activity the students are trying to come up with a suitable QSL card and T-shirt design.

So listen out over the next few months — you may hear some of our prospective amateurs calling CQ CQ CQ VK5ALE VK5ALE VK5ALE.

Photographs courtesy the Port Lincoln Times and photographer D Freeman

Contributed by Carol McKenzie VK5PWA.

AR

From left — Paul Bascombe and Shane Phillips sorting resistors in the store room. Paul is a club member and Shane is a student at Port Lincoln High School.

From left — Robert Matulic and Damian Chambers brushing up on their soldering techniques. Both are in the St Joseph's Elective Group.

Warrnambool Amateur Radio Club

The extent to which some amateurs will go to further their experience of their hobby is ridiculous; and none more so than some of the members of the Warrnambool Amateur Radio Club, in particular Russell VK3ZQB. The Club was asked by the Port Fairy hospital whether we could supply support communications for a project they were planning. Apparently they had found another individual fanatical about his chosen hobby, in this case cycling. As a fund raising event for the hospital this cyclist, Graham Woodrup, was going to attempt the seven day distance record for a solo cyclist, a record of some 46 years standing. He planned to ride back and forth between Port Fairy and Melbourne a total of five times over the seven days and break the present record of 2680 kms.

"That shouldn't be too hard" we said to ourselves. Russell, who by the way is a lot more cautious about what he lets himself in for now, said that since he lived in Port Fairy he would be able to man the base station and provide the link to the ride co-ordinators. Terrific, now all we needed were five operators who could each make one trip to Melbourne and back. Well that wasn't as easy as it first sounded since most of the event was occurring during the working week, and each trip took 30 to 35 hours. The ride was starting at 1400 on Sunday June 9th and finishing at 1400 on Sunday June 16th. One week prior to the ride we had three of the trips covered with mobile operators. By the Wednesday before the event we had four operators and negotiations were continuing to provide an operator for the vacant spot, trip number four.

On the Friday and Saturday (7th and 8th) our man in Port Fairy, Russell, installed our 2mt and 80mt equipment into one of the support vehicles, which happened to be a van owned by the local Member of Parliament that he had converted into a mobile office. So our mobile station was very well appointed with table, chair and a great heap of spare bike frames and wheels to stretch out on when we needed a kip. Russell also installed a PA system on this vehicle and UHF CBs in all four support vehicles. Very happy to help out are these Port Fairy people.

Well the clock chimed 1400 on Sunday and we were away; well at least Harry VK3XI was. This young fellow Harry (82 years young) was to be our guinea pig. The link between mobile operator and base was to be established on the Warrnambool repeater, and when out of its range we would use 80mts. After passing through Warrnambool on this first trip Harry and Russell thought they should try the 80mt system to make sure all was in order. Enter one Mr. Murphy. The mobile 80mt rig which functioned perfectly prior to the event now produced considerable audio distortion on transmit. Luckily Harry had a spare HF rig; but it was of course in his car back in Warrnambool. So Ray VK3BOH chased up the convoy, obtained car keys from Harry and headed back to Harry's car to extract the rig. Then back on the road again to catch the rider by this time at Terang.

After all this it turned out that only the microphone was at fault, so it was swapped. The Warrnambool repearter is not up on Mt. Warrnambool yet, so it only covered to just the other side of Terang. So back onto HF again. Problem number 2; noise from the SEC power lines along much of the highway between Terang and Geelong made HF impossible for the mobile operators. Formal messages were only being exchanged every two hours, so communications vehicle would have to leave the convoy and head off the highway a kilometre or so before contact could be successfully established. Andrew VK3VDE helped Russell with the HF contacts, and when he was unavailable other local full calls provided relays.

Despite the fact that the rider, and therefore the team as well, only had about three hours sleep each night, Harry was in high spirits so during spare time and breaks in power line noise he made many contacts on HF to other VK's and ZL's. The rider was due back at Port Fairy about 1900 Monday evening. Monday afternoon we received a message that our second operator, Bill VK3XE who was to take over that night, had flown to Port Pirie for the weekend and had been weathered in and wouldn't be back that day. In fact he didn't make it back until Wednesday. None of the other operators were able to do this next shift, and remember that negotiations were still in progress for an operator for trip four. Small panic! After some desperate talking the negotiatee of the fourth trip agreed to take over this now vacant second trip, in the hope that Bill would do the fourth trip if he ever returned from VK5. So Fred VK3KFL joined the team just out of Warrnambool at about 2200 on Monday night. Another major crisis averted.

This second trip was to be the worst as far as the rider was concerned. Strong head winds, bitter cold and driving rain cut his schedule to ribbons. This caused problems for Fred also as he had to be back home Tuesday night for a sleep in order to drive back to Melbourne early Wednesday morning for a meeting. The rider was most definitely not going to be home that night. Another small panic. Remember that young 82 year old Harry, well he jumped in and said he'd finish the shift for Fred. So Ray (VK3BOH) again played taxi and ferried Harry down to Winchelsea Tuesday night and brought Fred home. Harry and the team made it back to Warrnambool about lunch time Wednesday. Harry felt he knew that little stretch of road between Warrnambool and Melbourne, having travelled most of it three times at 25 K.P.H.

The rider turned again at Port Fairy to start the third trip mid afternoon on Wednesday and our operator for this trip was Digger VK3BFF. I'm not sure whether it was his calming influence but things went unusually well on this trip. By this stage it had been found that the recently modified Ballarat repeater was usable along the highway from Terang (edge of Warrnambool repeater range) right through into Melbourne. With the help of an 80 watt amplifier Russell was able to access Ballarat almost all the time. This relieved the reliance on HF. The users of the Ballarat repeater were very courteous and were many times heard to QSY to leave the repeater free for the bike ride.

By the time Digger and the team arrived home again, at 1630 Thursday evening, Bill (VK3XE) had got the wind out of his feathers sufficiently to take on the fourth trip. Again this trip went remarkably smoothly. Because the rider was several hours behind schedule due to weather encountered on trip two, this fourth trip was shortened by turning for home at Geelong instead of Melbourne. This of course shortened his proposed distance but would still allow him to just break the record if he got back to Port Fairy for the fifth time by 1400 Sunday.

Yours truly, Colin VK3DRF, was booked for the fifth and final trip, initially timed to start at 2300 on Friday night. But even with the short fourth trip the rider was behind this time. In fact he was not yet home when I went to bed at about 2200 Friday night, and it was planned that the rider would rest at Port Fairy before commencing the last trip. I set the alarm clock for 3 a.m. Now I know what you're thinking, but it did in fact wake me as programmed. I reached out from under the blankets and grabbed the 2mt hand-held; a quiet call to Russell so as not to wake the XYL, and there he was as he had been all week, the microphone almost permanently grafted to the palm of his hand by this stage. The news was that they planned to leave Port Fairy at 0500, being in Warrnambool at 0600. So I programmed the clock for 5am and went back to sleep. A quick call to Russell when I got up at 0500 confirmed that the rider was about to leave. Radio operators were picked up in Warrnambool each time; UHF provided communications between Russell and the vehicles while on route from Port Fairy to Warrnambool. So I manned the mobile station for the final, desperate trip at 0615 Saturday morning.

For the whole of this trip the rider, Graham, was battling against time in order to be back home by 1400 the next day. He would also have to ride right to Melbourne in order to cover the required distance. As luck would have it he had a reasonable tail wind all day and made good time with no major problems. Communications were also good, with the occasional relay by other amateurs when Russell couldn't quite access the Ballarat repeater. By the time Graham turned for home at Melbourne, the wind had moderated a little and he was only facing a light breeze. It was 1900 Saturday evening and a long night ahead. Long indeed, we did not take a major stop until reaching Camperdown at 0500 Sunday morning. We slept, and I mean slept, until 0730 when we had a quick cuppa and hit the trail again. Calculating ahead it appeared that if we could keep Murphy (hallowed be his name) at bay we should make Port Fairy a little before 1400. When we reached there Graham would have exceeded the record by a margin of 4km. Tight schedule!

The closer we got to Port Fairy the more people we passed on the side of the road who were there to cheer Graham on. This public support lifted his spirits, and even though he could hardly sit on the saddle, his posterior being somewhat tender, he lifted his speed considerably. We passed through Warrnambool at 1210 and made the Port Fairy post office at 1300. He had broken the record but still had to ride for the last hour to complete the seven days. So he completed two circuits along back roads around Port Fairy to notch up a further 30 kms before his triumphant finish at 1400. The record attempt had been successful and had also raised a large amount of money for a new wing at the Port Fairy hospital.

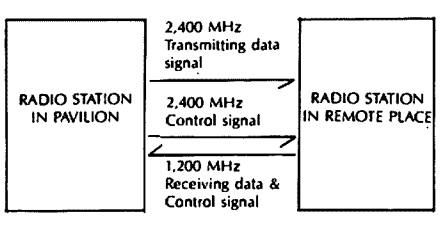
The club had also made a significant achievement. We had provided experienced operators and radio equipment, including the repeater systems, free of charge at very short notice. Despite the difficulties we had faced with the length of the event, the schedule changes and our personnel being held hostage in VK5, we had provided an invaluable communications link for the organisers and travelling team. For the entire week we left the team without communications for a total of only thirty minutes. Much of this achievement was due to the efforts of Russell VK3ZQB who was contactable nearly 24 hours a day for the entire week. He was later honoured by the Port Fairy hospital board by being presented with a life governership of the new wing. This honour is also shared by the Warrnambool club and indeed by amateur radio at large.

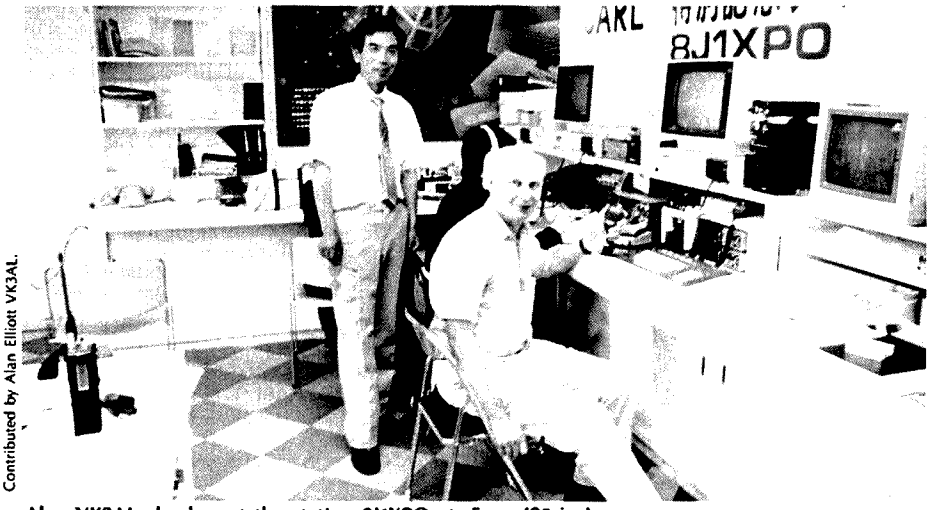
Contributed by Colin Magilton VK3DRF
AR

TSUKUBA EXPO '85

OUTLINE OF COMMEMORATIVE AMATEUR RADIO STATION 8J1XPO

For the first time in amateur radio communication, this system was designed to control an HF transceiver TS-940 from a remote place equipped also with TS-940. The Control Station transmits an analog signal for transmitting data and a control signal, both on the 2,400 MHz band. The Main Station transmits a 1,200 MHz analog signal for receiving data and a control signal whenever needed.





Contributed by Alan Elliott VK3AL.

Alan VK3AL checks out the station 8J1XPO at Expo '85 in June.

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

NEXT MEETINGS

The remaining meetings for 1985 are:
23rd September Power Supplies
28th October Packet Radio (to be confirmed)
25th November End of Year Social
Meetings are in the Griffin Centre, Civic, and doors open around 7.30 to 7.45, with the meeting starting at 8.00 pm. The bookstall and QSL bureau are available at the meeting.

VK1 AWARD

An update on the VK1 Award from the Award manager, Phil VK1PJ, listing those who have gained the award this year (to July 1985):

Call	Cerificate Number	
JA1EF	*147*	
VK2PZC	*148*	
VK1GB	*149*	*+ Gold upgrade*
VK4VAT	*150*	*+ Bronze upgrade*
VK3PXC	*151*	*+ Bronze upgrade*
VK2ERJ	*152*	*+ Gold upgrade*
VK2JBM	*153*	
VK2PKT	*154*	
VK3DYL	*155*	
VK2PZW	*156*	
VK7DS	*157*	
VK3YH	*158*	*+ Bronze upgrage*
VK1NDK		*Gold upgrade*
VK3KJI		*Silver upgrade*

For those looking for VK1 stations, the VK1 award net is run each Sunday evening on 3.570 (+/- QRM) MHz, after the VK1 Divisional broadcast, around 1030 UTC. Phil would particularly welcome those VK1 stations that rarely (or never) join the net to come up.

UHF REPEATER

The VK1 UHF repeater has been moved to a new site, on Isaacs Ridge, on the south side of Canberra. Further testing is taking place prior to its final installation on Mount Ginini.

MEMBERSHIP REPORT

As at the end of May, membership stands at 219. This is comprised of 184 full members, 9 country, 12 associate, 3 pensioner, 5 student, 3 family and 3 life members. During the 6 months January to June 1985, the Division welcomed 14 new members:-

JL Vardanega, JE Chapman, WD Fallow, RW Walker, ES Chan, DA Card, CJ Wylkes, T Van Andel, H Daniell, NGC Sutton, C Young, A Craig, HPA Van Roy, CR Bollard.

Additionally, a small number of new members have come into the ACT and have transferred to the VK1 Division. Unfortunately, the new computer system does not show up these transfers as they arrive.

That note was from Richard Jenkins VK1UE, the VK1 Divisional Secretary.

AR

VK3 WIA NOTES

VICTORIA 150

VIC DIV COUNCIL

Portfolios decided upon at the May, 85 Council Meeting were Alt. Fed. Councillor Des Clarke VK3DES. VT.A.C. Co-ordinator Peter Mill VK3ZPP. Public Relations Officer Jim Linton VK3PC. A.R. Liason Bill Wilson VK3DXE. Inwards QSL Bureau Barbara Grey VK3BYK. Outwards QSL Bureau Des Clarke VK3DES. Library & Historical John Adcock VK3ACA. Classes Organiser John Adcock VK3ACA. Intruder Watch Steve Philips VK3JY. Book Officer Barry Wilton VK3XV. Office Secretary Maxine Conheady. Education Officer Fred Swainston VK3DAC. Minute Secretary Margaret Wilson.

REPEATERS

The new site for VK3RGL at Mt. Anakie has taken more than 2 years of negotiation with various Government authorities and is now being finalised. This is a combined effort by Vic. Div. and The Geelong Amateur Radio Club and will mean a new permanent site and a rebuild of VK3RGL. Vic. Div. Council and V.T.A.C. have been engaged in a programme of upgrading existing repeaters, and the construction and installation of a number of new ones.

R.T.T.Y. FIXER'S GROUP

This group under the direction of Fred Mc CONNEL VK3BOU has been engaged in rebuilding Seimens M100 teleprinters for use by interested amateurs for some considerable time, and offer instruction on rebuilding and or repair of these units. If you are interested in joining this group then contact the divisional rooms for further details.

A warm welcome is extended to these new members of the Victorian Division.

J C Beverin VK3KAM, Rohan Bushell, Gary Carroll VK3NCG, Michael Davies, Kenton Dean NK6F, James Ferrier VK3MC, Arthur Forecast VK3AM, Mario Gallucci VK3PBB, Biron Hardinge.

J E Hunt VK3DSC, Martin Luby, Ian McDonald VK3AXH, Robert Marshall VK3DSS, W F Massey, Raymond Meany VK3HA, Frederick Messemaker, Bill Nicholls VK3WX, Hendrik Pillekers VK3CAQ.

Robert Quick, Noel Sinbeck VK3ANS, Neil Shrowder VK3KFJ, Craig Terry VK3XLI, Jos Weemaes, VK3DJO, R R Watts, Vincent Whittam, Robert Wilson and Donald Wood.

AR

VK4 WIA NOTES

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld. 4001.

A WORLD FIRST FOR QUEENSLAND

For some several years, the South East Queensland Teletype Group have been running a weekly news broadcast. This has been on the group's 2 metre repeater, VK4RBT, each Monday evening at 1000UTC. When possible the broadcast has been made on HF, first on 40 metres and then on 80 metres. Until recently, the HF broadcast was heard at irregular intervals.

Early this year, Rob Green VK4KUG took over as the groups news co-ordinator and station manager. Rob has brought a fresh approach to the RTTY broadcast. He has changed the format considerably. The news now covers international, national and local items and runs usually for some 40-45 minutes. The number of stations calling back after the news has reached an unprecedented high, proving the popularity of this weekly bulletin. Through the Queensland Division's news editor, Rob is able to select suitable items from the WIA news sources, as well as from other avenues. Often the VK4WIA Sunday Morning Broadcast contains items from VK4TTY news sources, so there is a two way flow of information.

Several members of the very progressive South East Queensland ATV Group were copying the RTTY news and their president, Arnold Youngberg VK4SU, approached Rob with a brilliant suggestion. – What about printing up the RTTY news on the ATV Groups' Vision Repeater, VK4RTV on UHF, channel 34? – Rob quickly gave his consent and so each Monday evening at 8pm, up comes the bulletin on channel 34.

The result was quite spectacular, not only were local amateurs watching it, but many others also. So much so that the ATV Group were inundated with requests for details of antennas and pre-amplifiers for better pictures. Tom Ivins VK4ABA, the groups' secretary, even had to re-write the antenna construction details in layman's language for the non-amateurs including girls from one of Brisbane's private schools.

Here in Queensland, we are claiming a world first in amateur radio, RTTY news printed up on UHF amateur television regularly, each week. VK4TTY news is now on VK4RBT, 3.630kHz and UHF channel 34, Monday, 1000UTC.

SBS, ATV AND ALL THAT

SBS television has come to Queensland, at least to Brisbane. It is transmitted from Mt Coot-tha from the ABQ2 site. Its arrival was not without drama and some gnashing of teeth amongst the ATV fraternity. The SEQ ATV Groups' repeater, VK4RTV, was operating in beacon mode to assist amateurs who had built the groups' down converters at the same time as SBS had a test transmission going on channel 28. The problem was that antenna installers were aligning UHF TV antennas on VK4RTV instead of the SBS signal.

Whilst VK4RTV had vision identification, there was none on the SBS transmission. SBS were using a test card and caption scanner from the ABC at the channel 2 site.

The crunch, for the ATV Group, came on 25th June, when a message from DOC, Canberra, ordered VK4RTV off the air. In relaying the instruction from Canberra, the Brisbane DOC office was most courteous and sympathetic and, for their part, the ATV Group complied without hesitation.

After SBS were established and programming began, the repeater was allowed back on the air. It has shown the tenuous hold that we have on the temporary allocation of 576-585MHz. The footnote in the Australian Table of Frequency Allocations (AUS30) states, "The band 576-585MHz is also allocated to the amateur service until such time as the band is required for use by the broadcasting service".

AR□

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

One of the biggest costs in our annual budget is the Journal but, whenever members complain of rising costs in the form of membership fees and it is suggested that one way to cut these costs would be to do without our bi-monthly Journal, a great wail of protest goes up. South Australia has had its own Journal for so long that most of us couldn't envisage the Division without it. But we give you fair warning here and now — you may have to!!

This year has not been an easy one for Bill Wardrop VK5AWM as Journal Editor. First our printer went out of business and there was the problem of finding another one. Recently Bill has had to give up personal study commitments in order to spend more time on the Journal and has advised Council that he will have to give up the position as Journal Editor at the end of 1985. So, we are now looking for a replacement for Bill, as Journal Editor, preferably one with a computer, but it's not mandatory! Please let us (Council) know if you are interested.

However, our Journal problems do not end with the Editor! Some months back it was decided, because of a lack of volunteer help, to have the Journal collated by the Printer, this once again comes out of your pockets! At the last Journal "collation" night (the journals still have to be put into envelopes along with ESC/Publications order forms, and address labels stuck on) only FOUR volunteers turned up! Along with myself and Bill, were Joy VK5YJ and John VK5NX. Now I don't doubt that there were some people who had legitimate excuses, but what happened to the rest of you? I have heard people say that they don't go because it goes on so late — of course it runs late if you only get four volunteers! I realise that there are many country members who can't help in this respect but I'm sure that Bill or John Butler, our technical Editor would be delighted to receive articles from you. We can all do something — with apologies to John F Kennedy — Ask not what your Division can do for you, ask what you can do for YOUR DIVISION.

Finally, a happy and a sad note for two VK5s who do work hard for all of us. To Steve VK5AIM our deepest sympathies on the death of his wife Chris, and to Eric VK5LP our congratulations on being awarded the Medal of the Order of Australia, for Services to the Community.

DIARY DATES

Tuesday 24th September — Display of members equipment, with both the ICS AWARD, and the MILLAR AWARD being donated, for the best overall piece of equipment and the most improved/best newcomer, respectively. Several ESC Vouchers will also be awarded, so bring along that homebrew gear and make it an interesting evening for all.

AR

QSP

FLINDERS ISLAND DXPEDITION

The Lower Eyre Peninsula Amateur Radio Club (LEPARC), noted for its very impressive Matthew Flinders Award, is proposing to make a substantial DXpedition to Flinders Island. This is NOT the large island at the eastern end of Bass Strait, but a sizeable island about 30 km off-shore from Elliston on the west coast of Eyre Peninsula.

The operation will involve up to 60 people, mainly students of the Club's very successful Novice certificate course which has been run in conjunction with the Port Lincoln secondary schools. They will be ferried to and from the island in three or four groups over the period 22 November to 1 December 1985, so that all may enjoy for a few days a unique "Wild Australia" experience very appropriate to International Youth Year.

Supervision of the whole expedition, including the amateur operating, will be the responsibility of LEPARC, which has been planning the activity since early this year. It is expected that the special call sign VI5IYY will be used, marking both International Youth Year and the WIA 75th Anniversary.

VK3ABP. Information from VK5PWA.

READ MACHINE

The State Library of New South Wales has become Australia's first library to own a reading machine for used by the visually handicapped.

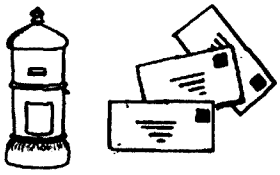
The Kurzweil machine, which cost $51,000, was said to be the most advanced system in the world which automatically read print materials aloud in a synthesised voice.

Contributed by Jim Linton VK3PC.

AR

THE ONLY EXERCISE SOME PEOPLE GET IS:

- Jumping to conclusions
- Side-stepping responsibility
- Running down friends, and
- Hopping on the bandwagon



OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

GREAT QUALITY!

The 75th Anniversary Calendar (for the whole year) is really great.

What about putting such a calendar into Amateur Radio every year? What do other members think?

Also AR is excellent. Keep up the great quality.

Best wishes

Norm Melford VK3ZTN,
Old Coonara Road,
Olinda, Vic. 3788 AR

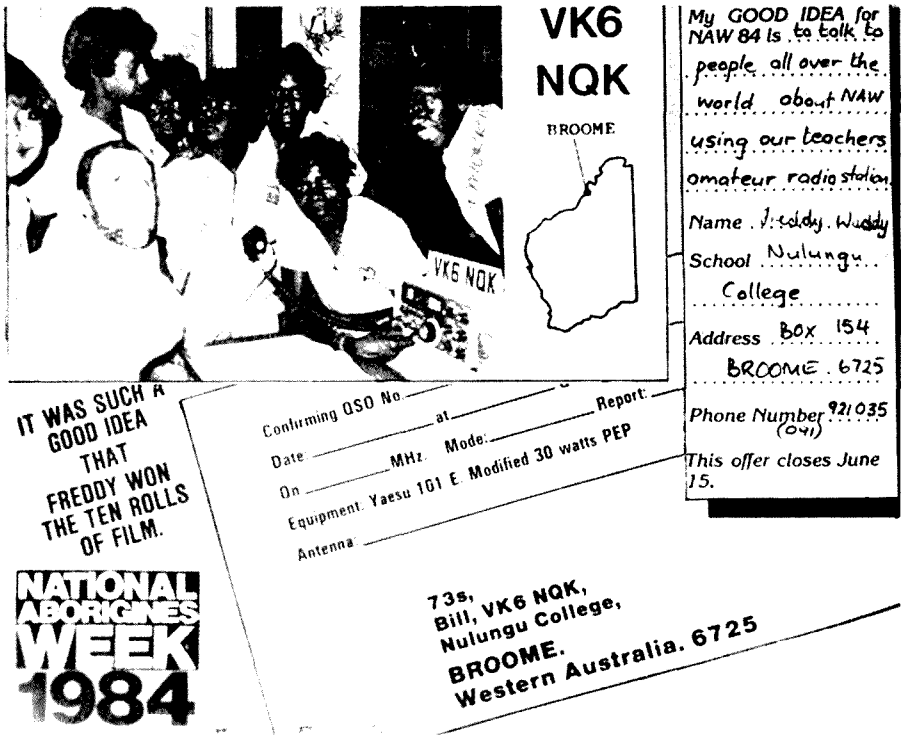
NATIONAL ABORIGINES WEEK

For the past three years our students have celebrated National Aborigines Week by helping me run my station for that week. Many contacts were made and the resulting exchange of names and other information promoted a great feeling of camaraderie.

Many thanks to all amateurs who took part and who have spoken to our students on other occasions.

Sad to say, when NAW is celebrated in September, I will be in Rome so there will be no amateur radio exercise as part of our activities — unless the Holy Father lets me loose with Vatican Radio!

Yours sincerely,
Br Bill Marchant VK6NQK,
Nulungu College,
Box 154,
Broome, WA. 6725



From Diawal-Idi Magazine - September 1984.

HAPPY 75ER!!

It is with much pleasure, I acknowledge receiving your presentation clock.

It has taken pride of place in the "shack".

Once again I thank you for your generosity. It has added a bit more enthusiasm to learning that confounded CW!

Yours gratefully,
I C Kemp L50129,
Box 578,
Millicent, SA. 5280

COME ALONG!!!

During the weekend of 26th and 27th October, the Wagga Amateur Radio Club are to hold an Amateur Radio Convention and Hamfest. This will be a continuance of the long tradition of conventions and hamfests reaching back to the origins of amateur radio in the Riverina area.

A new *dimension to* this years convention will be the inclusion of the inaugural Australian National Fox Hunting Championships. The purpose of the championship is to find the Australian champion fox and hidden transmitter hunter.

In addition to the National Championships, the convention will also conduct hunts for the beginner and more professional hunters in the local hunts. Parts of both the national and the local hunts shall be televised back to the convention site by the local ATV repeater. The local surrounds of Wagga provide a magnificent backdrop to the running of both events.

Many trade displayers will be descending on Wagga Wagga for the weekend. This will provide an excellent venue for the perusal of the most recent technological releases into the amateur radio field. Of course, all displayers will be looking to lighten the load on the return trip so bargains are sure to be the order of the day. And of course, there will be the trading tables, where someone's 'junk' is anothers goldmine.

There are many displays to be featured including a vintage steam engine display, remote controlled aircraft display, vintage radio display and many other exciting activities.

Accommodation in Wagga Wagga is first class. There will also be accommodation available at the actual convention site. To ensure your reservation, contact the Wagga ARC, Post Office Box 294, Wagga Wagga, NSW. 2650. Phone: (069) 26 1532.

Yours faithfully,
Peter Clee VK2KZZ,
Publicity Officer,
Wagga ARC,
Box 294,
Wagga Wagga, NSW. 2650.

FURTHER TO....

Consequent to my interest in statistics, the article 'Editor's Comment' page 3, AR July 1985, absorbed my attention for some time. As an experiment, I extended on Bill's figures, with a conversion to (real terms), reproduced below. Figures are approximate and are rounded off.

COMPARATIVE WORK EFFORT REQUIRED TO PURCHASE AR MAGAZINE

YEAR	APPROX TIME WORKED FOR ONE ISSUE IN MINUTES	APPROX TIME WORKED FOR ONE PAGE
1945	11.5	35 sec
1949	15.5	47 sec
1953	16.5	54 sec
1985	8.0	9 sec

Thus we see that AR *magazine has never* been better value than today. Pundits of socio-econo maths will produce variations to my figures, but they will still be comparative, with minimal influence on the results.

Bill suggests the present price of AR is about $1.00 per issue, from members subscriptions — even at $2.00, it would be the best value ever.

So Bill, your comment is valid — "Can you afford not to belong to the WIA?"

De
Reg Glanville VK2ELG,
63 Buffalo Cresent,
Thurgoona, Vic. 2640.

AMATEUR SPIRIT ALIVE AND WELL

Service to the community is part of the Amateur Code of Conduct, especially during natural disasters and emergencies. Recently I noticed an example of co-operation with the public, which should not go unnoticed by our readers.

Apparently, communication between Australia and Antarctica is difficult for VK0 operators due to the local circumstances and the many other duties they have to attend to. Also, there is a very heavy demand on the official telephone link with the main land.

I gathered that much from a very interesting QSO between VK0AJ and Stan VK3DSW, who had two members of a previous antarctic expedition with him in the shack, who were busy exchanging scientific data with VK0AJ.

The radio link was professionally conducted and maintained by Stan VK3DSW, for almost three hours, during which conditions changed, QRM had to be kept to a minimum, and equipment monitored.

Perhaps this is not a rare occurrence, except that Stan is handicapped and TPI from war service in New Guinea.

Ted Struys VK3DGC,
10 Dolphin Street,
Mt Eliza, Vic. 3930

SPIRIT OF AMATEUR RADIO

I wish to draw attention to an action by VK3CJT recently, which I consider worthy of approval and appreciation as being in the real spirit of amateur radio. We hear often with dismay about deliberate interference, bad language, unwarranted criticism on the amateur bands and it is pleasing to observe the other side of the coin!

The Early Birds Net offers Morse code practice each day and each evening at 10 and 15 WPM VK3s DEG, AHU and CLV are those I have heard in this service and I feel that the format of this net is excellent for Novices wishing to upgrade and Full Calls wishing to improve above the DOC level.

On the occasion under discussion the participants were delighted to hear that VK3VJT had passed the 10 WPM DOC test and congratulations flew thick and fast. Then VK3CJT came on and offered to relinquish his call sign so that 3VJT could apply for it now that he had upgraded. I consider this to be a very generous gesture and a complete contrast to other activities which occur from time to time. Long may this type of co-operation and kindness continue in the amateur radio fraternity. Sincere commendations to VK3CJT. May you have a long career on our bands. I know that with a kindly attitude like that you will surely make MANY friends.

Yours faithfully, Rex C Black VK2YA
562 Kooringal Road,
Wagga Wagga, NSW, 2650

TRUE SPIRIT OF AMATEUR RADIO

I would like to compliment Doug McArthur VK3UM and his group for their VHF achievements described in July Amateur Radio. I have followed VHF activities, somewhat inactively at times, since 1950 and have attended VHF group meetings from that time up until their demise a few years ago. I learned that, of all the inter capital paths, the Melbourne to Sydney path was probably the most difficult, being too mountainous for tropospheric enhancment modes and too short for sporadic E.

Tropospheric scatter was always a possibility. Not only was this mode used but a new mode of propogation has been pioneered. This type of activity is in the true spirit of the amateur radio experimenter and is therefore worthy of all encouragement. Even the effort involved in constructing the equipment is considerable and is the type of effort that results in worthwhile discoveries.

There are two questions that spring to mind from this exercise. When and by whom was tropospheric scatter first utilised between Melbourne and Sydney and, not wishing to detract from the achievement of the group, has Aircraft Enhancment of VHF/UHF signals been described previously for propogation over considerable distances? If it has not been previously described then the achievement of the group is remarkable.

Yours faithfully, J A Adcock VK3ACA,
12 Albert Street,
Oak Park, Vic. 3046

CORRESPONDENT WANTED

Recently I received a letter from Arnold Feldman WB3DAO, holder of a General Class Licence, and resident of Maryland, USA.

Arnold is keen to correspond with any Australian amateurs, SWLs or prospective amateurs, to learn more about our way of life and establish new friendships.

He is interested in stamp collecting and would be happy to exchange photos, post cards and bumper stickers.

His address is PO Box 700, Jessup, MD, 20794, USA.

Best 73,
Kevin Moore VK3ASM,
17 Haddon Court,
Mitcham, Vic. 3132.

LOCATION OF GEOSTATIONARY SATELLITES

The May 1985 issue of AR carried an excellent article on the location of geostationary satellites using a Commodore 64 home computer. Due to Murphy's Law, the accompanying "programme" had to be reproduced in the June 1985 issue. I have not tested the programme as I have a Microbee computer and have no reason to question its accuracy. I base the following comments on the assumption that the satellite position maps published each month in the US magazine Satellite World (formerly Satellite Orbit International) are accurate. I have also assumed that Degrees West greater than 180W can be expressed as Degrees East by subtracting from 360.

My first query is about the present status of ATS-1. I have an Experimenters' Guide issued by NASA in 1980. It mentions its location as being 149 degrees West Longitude, and that the preferred channel is #3 (Uplink 149.22 MHz; Downlink 135.6 MHz). This frequency pair is still allocated to several Australian educational institutions in the current public-release edited version of AMFAR (Australian Master Frequency Allocation Register). I have not heard ATS-1 in Melbourne recently, admittedly using only a vertical antenna, and I have heard that NASA handed over control to the University of Hawaii. This may explain a change of the downlink frequencies to 136.46 MHz and 137.35 MHz, as stated in the May issue. (Only the latter frequency is shown in AMFAR.) I cannot see why ATS-1 would have moved to "191.78W". There is a good article on ATS-1 in the October 1980 issue of 73 Magazine.

My second query is about the (proposed) location of AUSSAT-3 at 160E. Most published sources show the locations of AUSSATs 1, 2 and 3 as 156E, 160E and 164E respectively.

The "new Japanese weather satellite situated at 220W" (140E) would have to be touching the Russian Gorizont 6 which also shares that spot. 2280 MHz is not allocated to spacecraft in AMFAR, but the nearest locations are 2275 MHz and 2287.5 MHz.

Geostationary satellites tend to be spaced at least 1 degree apart (although I have seen nothing to suggested that they cannot be closer), so I am puzzled by the satellite named SIRO at "295.65W" (64.35E). It would be very close to the Italian SIRIO at 65E and Intelsat V F5 at 64E. The frequencies of 136.1376 MHz and 136.1381 MHz are not listed in AMFAR, but that proves nothing.

The Editor's Note left me puzzled. Even if ATS-1 is at 191.78W (168.22E), computed Azimuth of 324 degrees from 37S, 145E would be impossible. A satellite at 168.22E would be east of true north (=145E), and the azimuth would be around 35 degrees. Your calculation for AUSSAT-3 is similarly incorrect.

I have a programme adapted from one published in 73 Magazine, January 1982, page 62. I used it to locate Intelsat IVA F3 (179E or 181W) from 37:51:49S, 144:44:45E, and computed azimuth as 47.971 degrees: elevation as 33.4987 degrees. This has been confirmed by actually receiving TV signals from that bird at one of AR's advertisers' premises (GFS Electronic Imports). Their programme produced the same co-ordinates. Co-ordinates for most TV satellites visible from VK state capitals and Auckland have been published with my article on Satellite Television in Amateur Radio Action, Vol 8 No 1.

Ash Nallawalla ZL4LM/VK3CIT
PO Box 539
Werribee, Vic. 3030

TECHNICAL EDITORS COMMENT

The mistake in the test data is mine. I transposed some headings and data. The correct data, that I had intended to include is —

	AUSSAT 1	AUSSAT 2	AUSSAT 3
Location (°E)	156	164	160
Range (K)	37382	37589	37472
Elevation (°)	45	42	44
Azimuth (°)	17	29	24

Any distress that this caused is regretted.

The position of the various AUSSAT satellites was provided by AUSSAT who confirmed, after receipt of this letter. The number of the satellite gives the chronological order, based on launch dates.

Finally the position of the Applied Technology Satellite (ATS-1), according to my information, agrees with the letter writer. However, as this satellite was launched decades ago, it most probably is "dead" to general users. **AR**

HOW ABOUT SOME TRIVIA?

On the ABC broadcast station 2BL, a question was asked 'Where did SOS and Mayday originate from?'

Perhaps we could start a Trivia column! If it's not too 'heavy', I'll even volunteer to edit it.

Kind regards, sincerely,

David A. Pilley VK2AYD,
15 Forest Glen Crescent,
Belrose, NSW. 2085.

What do readers think? If enough suitable contributions are forthcoming, we may accept David's offer. Ed.

Silent Keys

It is with deep regret we record the passing of —

MR SELWOOD CHARLES (JIM) AUSTIN VK6JA
18:06:1985
MR CLAUDE D'EVELYNES VK2CD
16:06:1985
MR BERT HAY VK2AE
06:07:1985
MR MANFRED DOUGLAS (TED) HUDSON VK4MH
03:07:1985
MR H KANE VK3BFJ
15:06:1985
MR FRANCIS MICHAEL NOLAN VK4FN
31:05:1985
MRS VALERIE NORTON VK4FKL
19:05:1985
MR JIM POWELL VK2CK
08:07:1985
MR RONALD NEWTON RIDE VK2BQF
30:06:1985
MR HARRY SIMMONS VK6KX
MR FRED SIZEMORE VK2ARU
29:05:1985

Obituaries

JIM POWELL VK2CK

Jim, who was generally known as 'Captain Kangaroo', was taken ill whilst on holiday with his wife and two young children, in India. He flew to Houston, Texas, where he passed away in hospital on 8th July 1985.

Jim was an American, but had lived in Australia for the past ten years and was very active on the DX circuit. He will be sadly missed by all his amateur friends.

Deepest sympathy is extended to his wife and children.

Paul Christoforidis VK2DOU

CLAUDE D'EVELYNES VK2CD

It is sad to report the passing of Claude at 2AM on 16th June 1985.

Owing to ill health, Claude has not operated his station very much in recent years, although he was still a keen radio enthusiast.

Claude was a co-founder of the Christian Radio Missionary Fellowship and his contribution to this work of radio communications in Papua-New Guinea was his principal employment until ill health forced him to retire.

To his wife Betty we extend condolences.

P J Evans VK2KEV

FRED SIZEMORE VK2ARU

It is sad to report the passing of Fred Sizemore VK2ARU on the 29th May 1985, in his 83rd year.

Fred was a real "old timer" in amateur radio and will be remembered by those active in pre-war years. He resumed activities after WW2 and a few months back changed to SSB.

He had not been enjoying good health and had a sudden fatal heart attack on the morning of 29th May.

Deepest sympathy is extended to his wife and family.

Bill Bullivant VK2BC

MANFRED (TED) DOUGLAS HUDSON VK4MH

Ted Hudson VK4MH, first became interested in radio at school in Brisbane when 4QG was the only station operating and crystal sets were all the rage.

He built his first one valve crystal set in 1926 and later experimented with musical broadcasting at Mt Isa in 1934.

During WWII he worked as a crane driver on the Cairns wharves loading vital war supplies for the Pacific campaigns.

In 1949 he became a fully licenced amateur with the call sign VK4MH and in 1967 was a foundation member of the Cairns Amateur Radio Club, he actively participated in club events and was later awarded life membership.

In March 1956, Cyclone Agnes struck Cairns and official communications were disrupted. Ted, along with other amateurs, handled all the telegram traffic between Cairns and Brisbane, until services were restored.

Ted also stood radio watches with North Queensland WICEN during Cyclone Tracy in 1974 and later during Cyclone Allen in 1976. He also participated in WICEN-SES exercises in the Cairns area.

Ted, known as 'Ted One', was a regular on the Coral Coast Net, along with his cat 'Blue', who had a good microphone voice. Ted was also a member of the RAOTC and will be missed by all in North Queensland.

All of Ted's fellow amateurs were indeed saddened by his passing and their deepest sympathy is extended to his son Doug, daughter Gloria and their families.

Ted Gabriel VK4YG (Ted Two)

RONALD NEWTON RIDE VK2BQF

Ron was born in England in 1919 of Australian parents. He passed away after a short illness on 30th June 1985 at the Woden Hospital in Canberra.

Ron's early years were spent in Tasmania. His parents were keen musicians and kindled his love of music. An uncle who had an aptitude for things mechanical and electrical stirred his interest in these fields. When the family moved to Melbourne, Ron studied at the RMIT and gained his Diploma on Chemistry and Physics. At the same time he also learned singing and developed a fine bass voice which he used on many occasions for charitable and humanitarian purposes. In 1939 he joined the Munitions Supply Laboratories and was transferred, in 1942, to the MSL Branch Laboratories at Penfield, SA.

During his stay in Adelaide he married and also studied the pipe organ. It was during this time that his interest in amateur radio crystallised and Ron began studying for the AOCP.

On returning to MSL in Melbourne after the war, he began research on corrosion. In 1946 he passed the exam for AOCP and became licenced as VK3NH.

When Ron retired from the work-force he moved to Merimbula, NSW where he became actively involved in community affairs including the local radio club.

Over the years, as a result of his outgoing personality and intense interest in many fields, he made many lasting friendships, both in the social field and that of amateur radio. For some years a member of the South East Asia Net (SEAnet) and in recent years in contact with personal friends, he led a full life, always ready to help those in need.

Ron's passing is a sad loss to the community and to amateur radio.

He is survived by his wife, Doris, sons John and Bruce and daughter Joanna, to all of whom we extend our deepest sympathy.

James Blackwood VK3ABL

SELWOOD CHARLES (JIM) AUSTIN VK6SA

Jim passed away on 18th June 1985. His death brought to a close a long career in amateur radio. He was a member of the FCO CW Club and a MIRE.

Born in 1902, Jim completed his formal education at Perth Modern School and soon became interested in radio. His introduction was via a home brew receiver, the antenna being the top strand of the home wire fence. He learned Morse code and increased his speed by copying VIP, the local coast station, and any readable ship station.

Jim's amateur activities covered many years from the 1920s until shortly before his death, the only gap being during the wartime shutdown.

Finally a change to a QTH in a block of units for the aged and risk of TVI proved too big a problem.

Early in his amateur life he was active in the old Subiaco Wireless Society and later in the WIA. Interest in VHF on the old 5 metre band resulted in many debased valves and various antenna arrays. I believe he shared an early distance record on this band.

However his main activities centred on the HF bands, where he made many thousands of contacts. VK6SA was a very familiar call sign in all parts of the world, especially the USA.

In 1921 Jim sat for and obtained a first class commercial certificate and went to sea in the old MV 'Kangaroo', an early motor ship of rather strange appearance. She had four masts but no funnel.

Various appointments followed and when I first met Jim, he was installing radio gear in an ocean going tug at Fremantle prior to a towing voyage, in the late 1920s.

Our next encounter was upon the foundation of the WA Police Radio Branch. The then Commissioner of Police, inspired by the famous Scotland Yard 'Flying Squad', decided to institute a similar patrol system in Perth. Formed in 1930, it used two Speed Six Bentleys and wireless telegraphy.

The PMG's Wireless Branch insisted upon certificated operators being employed, so four ex marine WOs were recruited. For five years rented transmitters and receivers were used, but in 1936 the system was taken over by the WA Police and Jim was appointed OIC

From then on Jim's and the WA Police's radio history ran on parallel courses.

Opposition and prejudice from senior officers in the traditional force had to be overcome and some situations were complicated by Jim, who was not renowned for his diplomacy and tact when aroused.

However his technical ability and skills in improvising resulted in much of the radio gear being built at VKI, especially during the war years, when commercial firms were too busy with war orders. Over the years the system grew until it was statewide and handling traffic from Police HQ in all states.

Many memories come to mind which demonstrate his true amateur qualities. One time, in 1932 during a police expedition to the Warburton Ranges to investigate reports of murders, Jim was taken along as communications officer. Jim's equipment was a homebrew transmitter and receiver and a camel. Not being on good terms with the camel, he

chose to walk most of the long distance. Jim kept schedules most evenings using a hand cranked HT generator and passed traffic through VIP Perth or VIO Broome radio stations. The generator he used is now preserved in the museum at Wireless Hill, WA.

After his retirement in 1962 Jim undertook some installation and relieving work for the Royal Flying Doctor Service, in the north west of WA. Typical of Jim, he undertook a solo visit to the USA at the age of 82 years to fulfil an old ambition.

Vale Jim.

W S Watson VK6WW.

HARRY SIMMONS VK6KX

One of the early pioneers, Harry was like the equipment he constructed, built to last a long time. Sadly, all good things have to end sometime and Harry died early in July aged over 80 years.

As a young man, Harry went to sea as a merchant ship radio officer at short notice. We are told that his first job on entering the radio room was to reconstruct the equipment. Harry came ashore in 1929, and joined Musgroves, Perth, in the service department, working on the new wireless receivers. One year later, in 1930, Musgroves Limited obtained the first commercial station license in Western Australia, from the PMG. This was radio 6ML.

Harry Simmons was the obvious choice to supervise the building of the transmitter and he became the station's chief engineer. (This transmitter is now in the Wireless Hill Museum in Perth).

Three years later, WA Newspapers formed radio 6IX in Perth and in 1936, 6WB Katannine and in 1941, 6MD in Merriden. Harry was, of course, the network's chief engineer.

An early member of the legendary Subiaco Radio Society, Harry helped many members with this new hobby of wireless. The walls of his shack were covered with rare QSL cards, from all over the world.

A true pioneer of Australian radio, he was a Fellow of the IREE Australia and an early member of the WIA. He is survived by his wife Elizabeth (Peta) and his daughter Helen and son Robert.

Douglas Gordon
Vice-President, VK6 WIA Division

FRANCIS MICHAEL NOLAN VK4FN

Francis Michael Nolan VK4FN was born at Coraki NSW on 5 October 1910, the son of a publican. Frank left school at the age of 14 and was apprenticed as a motor mechanic at Lismore. Whilst an apprentice Frank became interested in radio and became an early member of the thriving Queensland Radio Transmitter's League. Frank obtained an experimenter's permit and was allowed to transmit over a distance not exceeding 2 miles (3km).

Frank continued his studies by moving to Sydney where he obtained his diploma in radio engineering at the Australian School of Radio Engineers situated at the STC Laboratories, Waterloo, Sydney. Here he became a member of the Australian Radio Transmitter's League.

Always liking a warmer climate Frank returned to Brisbane as a qualified radio technician, gained the call sign VK4FN, and, after a brief period with Ben's Radio Service, became self employed.

Naturally his interest in amateur radio was strong and he became a member of the WIA on 5 March 1833.

During the Great Depression business was poor so Frank secured a permanent job with the PMG Department, initially as a telephone technician but after topping Queensland in their trade exams, as a radio technician.

In 1939 Frank started his long association with Rockhampton and was placed as OIC of the local broadcasting stating 4RK. Being in a reserved occupation Frank was unable to enlist but in 1945 spent a year in Port Moresby establishing 9PA.

Frank then returned to Brisbane in 1946 and once again VK4FN was heard on air. Frank was very active in WIA affairs when the Institute was re-established after the war and was Federal Councillor in 1947, 1948. Frank then started his long association with the Amateur Advisory Committee in which area he has assisted countless amateurs. Frank was also an enthusiastic supporter of WICEN activities.

In 1951 VK9FN was heard when Frank was promoted by the PMG Department to be in charge of broadcasting in the Territory of Pupua and New Guinea. In 1952 Frank led moves to establish the VK9 branch of the Institute and was its first President until he was retired from work early, on health grounds, in 1958.

After a spell in Brisbane, Frank returned to Rockhampton where in 1960 the WIA CQ Branch was formed with Frank as its inaugural president and the late Hal Hobler VK4DO its inaugural secretary.

After 5 years as President of the WIA CQ Branch Frank then stood down and in 1969 returned to Brisbane. Frank since then was a tower of strength at the monthly general meetings of the Institute and in his own inimitable way broadcast the weekly news broadcast on 80 metres for over 10 years.

The Institute in Queensland has honoured Frank VK4FN by awarding him Merit Badge No 3 and more recently in awarding him the Institute's highest honour — Life Membership of the Wireless Institute of Australia.

Frank became a silent key on Friday 31st May 1985 and to his XYL Helen and seven children, all members offer their condolences.

WIA QLD DIVISION.

VALERIE NORTON VK4FKL

Valerie passed away prematurely of cancer at Mackay Base Hospital on 19th May 1985.

Many will remember Val as VK4VKT, a regular on the 15 metre band and a popular contact, especially with the JA stations. It was often amusing to hear her as she helped yet another JA operator with the subtleties of the Australian language. It was wonderful that, in June 1984, Val was able to visit Japan and personally meet the many friends she made through her hobby.

As a member of the Mackay Amateur Radio Club, she was a prime mover in the operation of a slow Morse net, designed to help locals through the 10 WPM barrier. At meetings she was always vocal in promoting a responsible approach to the use of the privileges and responsibilities of amateur radio.

She was also well-known as a member of ALARA and encouraged local OMs to participate in their contests and activities.

She had a cheery, helpful voice on the air and will be missed by all who had the pleasure of a QSO with her.

Deepest sympathy is extended to her OM, Terry and their family.

Charles Ivin VK4BPI
Secretary,
Mackay ARC

APOLOGIES . . .

Are extended to the families of the late Messrs Bail and Semmens, as the photograph in the centre pages of July AR was actually Fred Bail, with the caption of Bert Semmens.

SOLAR GEOPHYSICAL REPORT

10 CM RADIO FLUX

MONTH	MEANS PREDICTED	ACTUAL	HIGHEST DAILY	LOWEST DAILY
10/84	73	73,7	77 15-18/10	69 29/10
11/84	76	76,3	86 27/11	70 2/11
12/84	76	75,8	81 11/12	72 20,21,31/12
1/85	74	74,4	91 20/1	69 5/1
2/85	74	73,8	78 19/2	70 27/2
3/85	77	72,6	80 24/3	69 5,6,7,10,12/3
4/85	83	75,2	94 25/4	69 9-13,16/4
5/85	88	80,5	93 16/5	68 31/5
6/85	89			
7/85	87			
8/85	85			
9/85	85			

A INDICES

MONTH	MEAN	HIGHEST DAILY	LOWEST DAILY	DAYS OVER 15
10/84	17,9	60 19/10	2 17/10	18
11/84	16,5	80 16/11	5 27/11	13
12/84	14,4	25 17/12	4 24/12	17
1/85	13,3	45 28/1	3 6/1	12
2/85	13,6	55 28/2	2 4/2	10
3/85	9,8	28 5/3	3 9/3	6
4/85	16,1	77 21/4	3 6/4	6
5/85	9,0	28 2/5	3 30/5	2

PROVISIONAL MONTHLY MEAN SSN		PROVISIONAL SMOOTHED SSN	
10/84	12,6	4/84	46,4
11/84	22,4	5/84	47,2
12/84	18,2	6/84	46,1
1/85	16,5	7/84	43,8
2/85	16,1	8/84	39,2
3/85	11,9	9/84	33,4
4/85	16,1	10/84	28,2
5/85	27,4	11/84	24,0

1-4 April Magnetic field unsettled to active A20,16,19,16.

9 April Magnetic field at storm levels until 1700 UTC, then quiet to unsettled A=28

19-21 April Magnetic field became active towards the end of 19 April. The field was at minor to major storm levels on 20 April and again on 21 April until 1800 UTC on 21st. The field then subsided to unsettled levels A15,44,77.

22 April 1 M class flare. Possible fadeout 1637-1651 UTC A14.

23 April Magnetic field unsettled to active A15.

24 April 1 X class flare. Possible fadeout 0845-1002 UTC. Field unsettled A15.

25 April Magnetic field unsettled to active A22.

26-30 April Magnetic field at active to storm levels particularly on 28 April when major storm levels were reach A26,28,40,15,24.

SOLAR ACTIVITY

Solar Activity was low until 21 April when a region began to grow rapidly producing an M class flare on 22 April and an X class flare on 24 April. Flux figures were 20=72 21=77 22=86 23=92 24=90 25=94. The region appeared to be capable of producing further events for much of the remainder of the month but did not do so.

An interesting feature during the month was a region of reversed magnetic polarity to that normally observed for similar regions during the solar cycle. The polarity of sunspot regions reverse from one cycle to the next and so the region observed this month can be regarded as one of the first regions of the next solar cycle.

GEOMAGNETIC ACTIVITY

The most noteable feature of the month was the intense magnetic disturbance on 20-21 April. The A index for 21 April was 77 which makes the day the most disturbed day since 16 November 1984. The period 19th to 30th April was generally disturbed with the most disturbed days being 20 April A=44, 21 April A=77 and 28th A=40.

1-2 May A magnetic disturbance began gradually around 2300 UTC on 1 May and the field was at storm levels until app. 1530 UTC on 2 May. At 0741 a M class flare occurred with effects lasting until 0753 UTC. A13,28.

13 May 1 M class flare at 0904 UTC with possible fadeout until 0948 UTC. A11.

15 May The magnetic field was at active levels from 0100-0700 UTC and from 1430-1600 UTC otherwise the field was unsettled. A16

SOLAR ACTIVITY

Solar activity was low during May with the exception of energetic flares on 2 and 13 May. The region which produced the large flare in April rotated off the visible disc of the sun on 2 May producing an M class flare when close to the western limb of the sun. Another region appeared on the eastern edge of the sun on 6 May and it was this second region which was responsible for the elevalid 10.7 cm flux in the middle of the month 8=80 9=88 10=90 11=88 12=90 13=90 14=90 15=91 16=93 17=90 18=91 19=88. This region rotated off the disc of the sun on 19 May having produced one energetic event only, the flare of 13 May. The return of the first active region on 16 May helped maintain the 10.7 cm flux at higher values. However, this region did not appear at any stage to be capable of producing energetic flares.

The monthly average 10.7 cm flux was the highest monthly value since August 1984.

GEOMAGNETIC ACTIVITY

May was a very quiet month in that there were only two days on which the field was disturbed. The most disturbed day was 2 May with an A of 28 and the field was at minor storm levels. The most notable feature of the month was the absence of activity during the period 26th to 28th May. This represented the end of a sequence of "recurrent" (ie spaced at intervals of 27 days) disturbances. This sequence began a year ago making it an unusually long sequence of disturbances.

These summaries have been extracted from the Solar-Geophysical Summary prepared by the Ionospheric Prediction Service each month which arrives during the second week of the following month. They are dated but will serve as a useful summary of events gone by. Of course the daily information is available as a recorded telephone service on (02) 269 8614 or in other forms on WWV Boulda Colorada USA on 5,10,15 MHz at 18 minutes past each hour. It is proposed to present them each month from this month onwards.

The January 85 notes made a comparison between the sunspot number and the 10.7 cm flux. Seems that the gremlins got to it no end. It should have read like this.

SSN SMOOTHED MEAN 0 7 21 34 47 71 93 115 136 157 176 195
10.7 CM FLUX SMOOTHED MEAN 60 70 80 90 100 120 140 160 180 200 220 240

There is no direct correlation between these two indices. The SSN is derived from counts of sunspots and sunspot groups made at optical observatories. The derivation of the sunspot number is difficult and is often replaced by the 10.7 cm solar radio flux which can be measured with relative ease and consistency.

THE IONOSPHERE

How come?

The sun emits electromagnetic radiation at all wavelengths, but only the optical and the shorter radio wavelengths reach the earths surface. The remaining solar radiation heats the atmosphere and also, especially the UV and EUV part of the spectrum produces some ionisation in the form of free electrons and charged ions. The ionosphere is the region of the upper atmosphere where ionisation is appreciable.

Until artificial satellites came into existence, long distance radio communication was possible only because of the presence of the ionosphere which is able to reflect certain high frequency radio waves.

The nature of the atmospheric gases varies with height, and each component is ionised by a different part of the solar radiation. Therefore, the ionosphere tends to be stratified into layers of ionisation at different heights.

In the daylight situation

The three main daytime layers, called the **E**, F1 and F2 layers are at heights of approximately 110 kms, 220 kms, and 250 to 350 kms, respectively.

In addition there is a region below the E layer which is responsible for much of the daytime absorption of HF radio waves. This is called the D region and lies at heights between 50 and 90 kms.

After dark

Following sunset, the ionisation process stops and the lower layers rapidly decay with time. The D region ionisation is absent at night. The E layer is heavily depleted. The F1 and F2 layers merge into a single night time F layer. This layer does not completely disappear because the decay process is much slower and also because very strong ionospheric winds at F layer heights blow ionisation in from the sunlit parts of the earth.

The F layer is the most important layer of HF communications because it is always present.

SOLAR GEOPHYSICAL SUMMARY — JUNE

SOLAR ACTIVITY:

The return of the active region on June 3 produced an increase in the 10cm Flux, 3=73 4=75 5=82 6=85 7=86 8=06 9=87 10=89 11=89 12=87 13=86 14=83 15=81. On its last transit this region produced one energetic flare (M flare on 13/5) but on this transit never appeared likely to produce energetic flares. The region rotated off the disc on 16th. It returned again on 30th and produced higher 10cm flux levels for the first two weeks of July. This should produce higher ionospheric critical frequencies during that period.

GEOMAGNETIC ACTIVITY

June 1 The field was active to minor storm levels to 1800ut then quiet A=16

June 6-10 Field was at active to storm levels on 6th and 7th. The field was generally active on 8th, on 9th was at minor storm levels prior to 1500ut on 10th A=26, 33, 18, 18, 22

June 26-29 The geometric field was active on 26th, 27th with periods of storm conditions on 28th A=18, 16, 21, 15

June 30 The field became disturbed after 2030ut and reached storm levels early on July 01. A=11

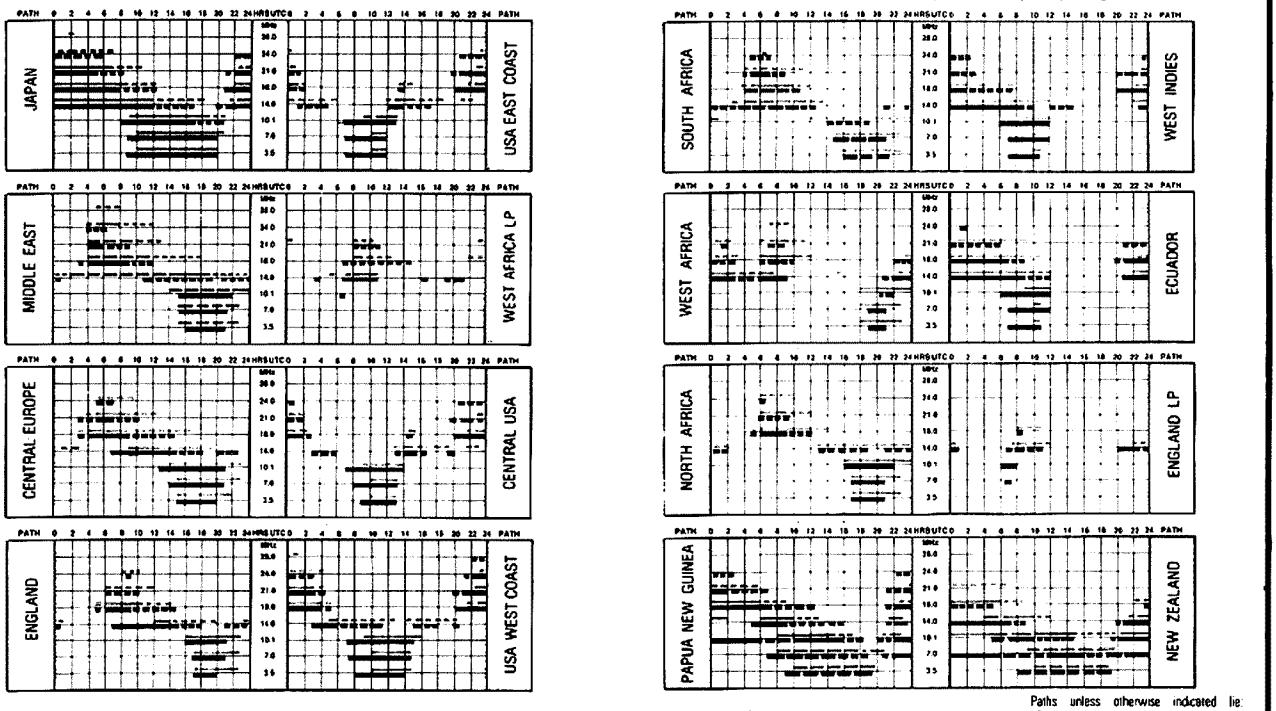
MUFS were typically 10-20% higher than anticipated particularly the period 5th-15th associated with the higher 10cm flux over this period. Ionospheric conditions during local night hours inhibited HF propagation at times.

10cm FLUX MONTHLY AVERAGE 76.2
SUNSPOT MONTHLY AVERAGE 24.2
A INDEX MONTHLY AVERAGE 11.9
RUNNING SSN 12/84 21.1

FROM DATA SUPPLIED BY
DEPT OF SCIENCE & TECHNOLOGY
IONOSPHERIC PREDICTION SERVICE
AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



TEN METRE BEACON LIST

MHz	C/S	Location
28.175	VE3TEN	Ottawa
28.200	DL0IGI	W Germany
28.2025	9J2B	Zambia
28.2025	ZS5VHF	Natal,RSA
28.205	DL0IGI	W Germany
28.2075	W4ESY/N4RD	Florida
28.209	WA1IOB	Mass,USA
28.210	3B8MS	Mauritius
28.2125	ZD9GI	Gough Island
28.217	VE2TEN	Chicoutini
28.215	GB3SX	England
28.220	5B4CY	Cyprus
28.2225	W9UXO	Chicago
28.225	HG2BHA	Hungary
28.225	EA6AU	Balearic Island
28.225	VE8AA	Yukon
28.230	ZL2MHF	New Zealand
28.235	VP9BA	Bermuda
28.2375	LA5TEN	Oslo
28.240	OA4CK	Lima
28.240	PY1CK	Rio de Janeiro
28.2425	ZS1CTB	RSA
28.2425	LU4FM	Argentina
28.245	A92C	Bahrain
28.2475	ZS1CTB	South Africa
28.2475	EA2HB/EA2OIZ	Spain
28.250	Z21ANB	Zimbabwe
28.250	PA0GG	Netherlands
28.251	ON5AV	Belgium
28.2525	VE7TEN	Vancouver
28.255	LU1UG	Argentina
28.2575	DK0TE	Germany
28.260	VK5WI	Adelaide
28.261	VK2RSY	Sydney
28.2625	VK2WI	Sydney
28.265	PY2EXD	San Paulo
28.270	ZS6PW	Pretoria
28.271	VK4RTL	Queensland
28.2725	TU2ABL	Ivory Coast
28.2725	9L1FTN	Sierra Leone
28.275	VE3TEN	Canada
28.2775	DF0AAB	W Germany
28.280	YV5AYV	Caracas
28.280	LU8EB	Argentina
28.284	VP8ADE	Falkland Is
28.284	KA1YE/B	Niantic, CT
28.286	KA1YE	Rochester
28.287	WB0MV	N Carolina
28.288	W2NZH	New Jersey
28.290	VS6TEN	Hong Kong
28.2925	LU2FFV	Argentina
28.295	VU2BCN	New Delhi
28.296	W3VD	Maryland
28.2975	ZS1LA	Stillbay
28.299	PY2AMI	San Paulo
28.315	ZS6DN	RSA
28.888	W6IRT	California
28.890	WD9GOE	USA
28.992	DL0NF	W Germany

Contributed by Bert Harmer VK5AUS
Compiled by John Mahagan WB4JHS

FLEA MARKETS

Next time you attend one of these, ask yourself the question, "How did a flea market get its name?"

Quite naturally, you might conclude it is because it deals in many small bits and pieces of little value, or that it is a trading place of minisize. Not So!

The original Flea Market was a half mile long conglomeration of stalls and selling venues, on the outskirts of Paris, whose polyglot proprietors offered everything from a needle to an anchor. It earned the description because of the vermin-ridden clothing, rags, floor mats, etc that it offered for sale.

In those days, reasonable hygiene was unattainable and the flea plague was persistent.

Fleas don't inhabit metal goods, so our Radio Flea Markets are a bit of a misnomer.

Contributed by Alan Shawsmith VK4SS

NOTICE

NOTICE

ALL copy for inclusion in the November issue of AR must arrive at the Federal Office by midday on the 23rd September 1985.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

AMIDON FERROMAGNETIC CORES: Large range for all receiver & transmitting applications. For data & price list send 105x220mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fyshwick Plaza, ACT.

ANTENNAS FOR CONFINED SPACE: Transmitting antennas for amateurs without space to erect full size HF antennas. Write for details to: FRANK HUNTER, 37 Darwin Street, Campbelltown, NSW. 2560.

PACKET RADIO THE SOFTWARE APPROACH by Robert Richardson W4UCH/2. Use your Z80 computer as a TNC. Get on Packet for well under $100. Full Z80 source code listing. Vol 1 (Vancouver Protocol) $24. Vol 2 (AX25 Protocol) $34. Disks available for TRS80 Model 1 & Model 3. $30 each. Modem & I/O circuits included. Prices include P&P Aust & NZ. A A O'BRIEN VK2BOA, Box 333, Charlestown, NSW. 2290. Tel:(049) 43 8981.

"RADIO MAN PACK". VZ200/300 or VIC 20. (Log book plus Morse code plus beam heading & typing tutor). All four programmes on one cassette for only $12. Specify computer. J HIRST, RSD 170, PO, Exeter, Tas. 7251.

WANTED — ACT

TAPR TNC KIT complete or assembled, working or not, with documentation. Keen to get started in digi comms. Bryan VK1ZBS, QTHR. Tel:(062) 86 4327.

WANTED — NSW

CHEAP VIC-20 OR COMMODORE 64, not necessarily working. VK2ZQD, QTHR. Tel:(046) 25 7746 AH.

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VHF/UHF all mode transceiver. 10 watts output, AC/DC, 0.15uV sensitivity on SSB. LSB, USB, CW, FM. Repeater reverse. IF shift & width controls. RF speech processor. 10ch memory store mode, frequency & searches. Full cross band, cross mode duplex possible with satellite unit. Supplied with 2m module & mic.

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AMATEUR RADIO

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL 53, No 10, OCTOBER 1985

AMATEUR RADIO

Talks to the World about SOUTH AUSTRALIA

PROGRAMME HIGHLIGHTS

RADIO RENTALS

- MORSE CODE IN ACTION.
- RADIO TELETYPE.
- ANTIQUE RADIOS.
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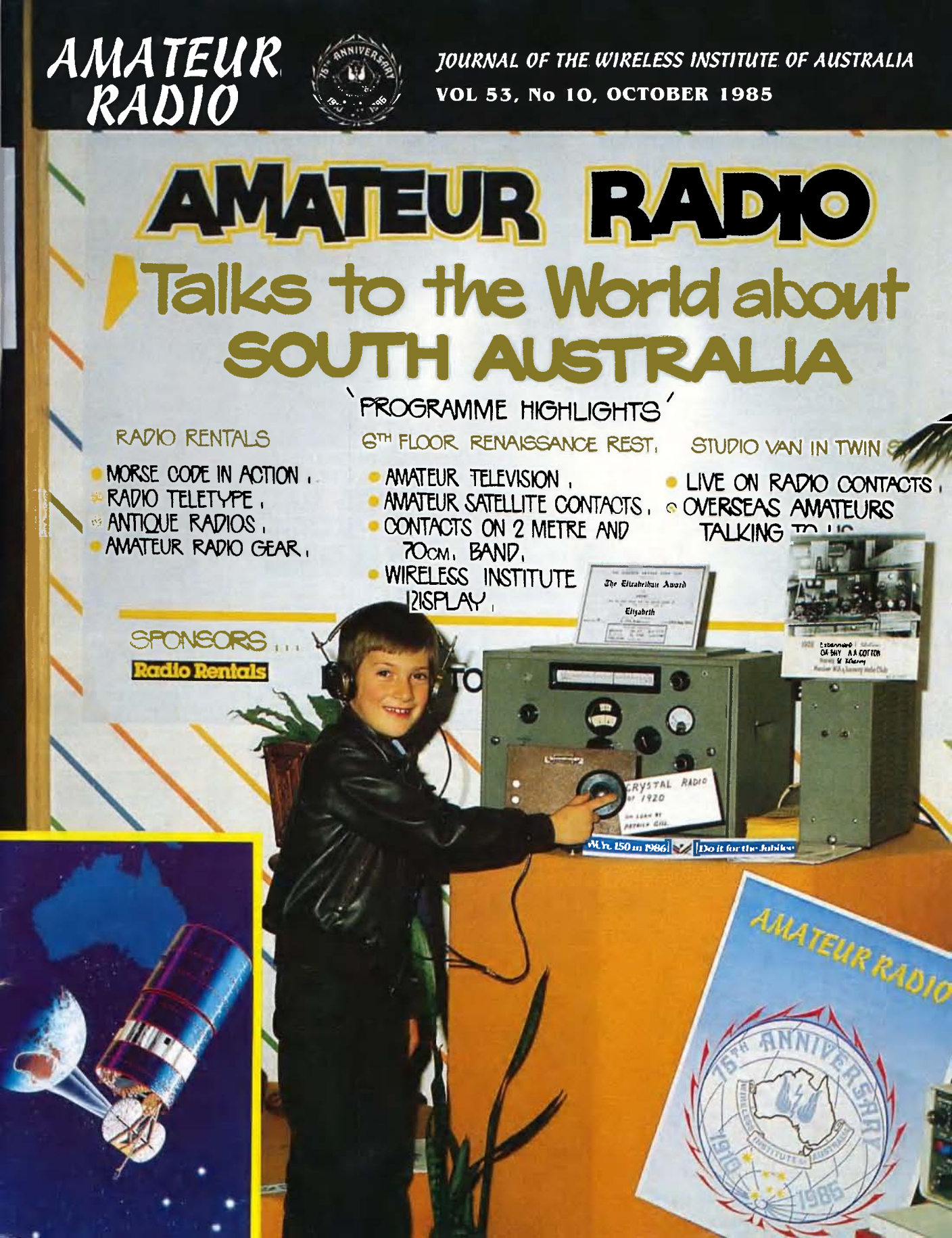

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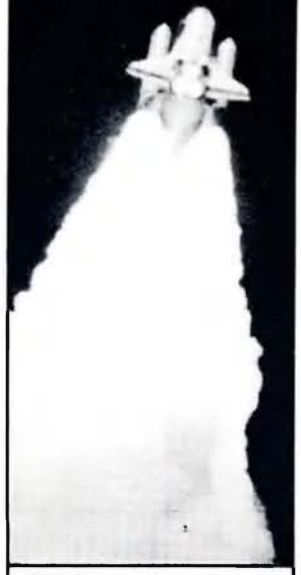

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3.5-30-T2-FD-200 is 25m long 3.5-30 MHz
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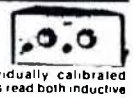

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Debeglass	2.5	3.9	480	3.0	5.5	680
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Photograph courtesy Peter Koen, Secretary of VK5BPA.

Patrick Gill, the seven year old son of Bob VK5NVM, tunes his crystal set which he loaned for display with his dad's display of valves. Other amateur gear was from the Telecom Museum courtesy of Mr Iack Ross, Peter Maddern VK5PRM, Jack Trembath VK5JT and Bob Clifton VK5QJ. The display was in the window of Radio Rentals (SA) in the Rundle Mall on Friday, 31st May 1985, during Amateur Radio Week.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

AMATEUR RADIO

Published monthly as the official journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6859. Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

October's Amateur Radio includes the VK5 Division's special contribution for the WIA's 75th Anniversary. A special story, by Marlene VK5QQ, tells of the life of the Division from its inception in November 1919, through the days of experimentation with spark transmitters, the invention of pedal radio to black boxes and repeaters, to its sixtieth year in 1980 and another milestone for the Division, the election of the first female to the VK5 Council — certainly a historic step when one considers that around 1948 ladies were not invited to attend the Christmas Social. John Flynn, the Flying Doctor, was well known for his work in outback Australia but, a fact not so well known about this man was his membership of the WIA in 1925. A historic article of the Flying Doctor, Pedal Radio and Alf Traeger is included in the VK5 contribution, page 31.

Gordon VK2ZAB expounds some other theories, and expands upon the article in July by Doug VK3UM, about Aircraft Enhancement. See page 8.

The final article of this particular series, add-ons for the Siemens Teleprinter, appears in this issue, page 10. Peter VK3ZPF, describes the use of two seven segment LED displays to show how far the typing basket has travelled.

The new Rad Comms Act has now replaced the old Wireless Telegraphy Act. A general outline of information about the new Act appears on page 5.

At the end of August, Australia moved into the Space-age of terrestrial based communication, when her own satellite was launched into space by the American spaceshuttle 'Discovery', see page 12. The inset photograph on the front cover is an artist's impression showing AUSSAT 1's coverage, depicting national and spot beam footprints over the continent. Thanks to AUSSAT Pty Ltd for supplying the picture.

This month sees the staging of the 28th JOTA. Max VK3ZS has documented, page 17, how JOTA came into being and a general history of the contribution made by the WIA.

DEADLINE

All copy for inclusion in the December 1985 issue of Amateur Radio, including regular copy of columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday 23rd October.

EDITOR'S COMMENT

ANNIVERSARIES

October is notable each year for the annual Jamboree on the Air, in which the amateur radio movement makes possible on a world-wide basis, a weekend of personal contact between Scouts, Guides, Cubs and Brownies: not to mention their leaders! But 1985 is a notable year in itself, being both the 75th Anniversary of the WIA and also the 75th Anniversary of the Girl Guide movement. Indeed, 1910 was a year of very significant innovation. So when you welcome your special visitors to your Jamboree station on the 19th and 20th of this month, the girls will have something more to talk about than in other years.

There are other more personal anniversaries which we propose to begin noting from early in 1986. The VK2 Division suggested recently that we should publish a list of all those who have reached the milestone of WIA membership for 50 years. This is not quite as easy as it might seem, involving a search of the records of each Division (which may be incomplete), and cross-checking against current membership in all Divisions. There is a high risk of errors and omissions in this procedure, so we suggest that those most interested in such a list, the 50 year members themselves, should notify their Divisional Secretary, or the Federal Office directly, of the details. The list is planned to include:

Present Call sign, Previous Call signs (if any), Name and locality, Date of joining the WIA.

We hope to publish an initial listing in February and then add to it every three months. How about it, Old Timers? Divisional Secretaries, too.

Another milestone which has been in the news recently, is that 1985 is the 40th anniversary of the nuclear bombing of Hiroshima and Nagasaki, and the end of World War 2. The fact that nuclear weapons have never been used since, even though there have been many smaller wars, is a hopeful sign that the human race is not unavoidably motivated towards global suicide. Many of us have contacted amateurs living in those two Japanese cities, and the fact that we can do so in peace and friendship in spite of the hatred and destruction of the war years should give us some hope for the future. May the international bonds of amateur radio and also Scouts and Guides help towards a world in which, not only nuclear weapons but wars themselves become outmoded relics of our barbaric past!

Bill Rice VK3ABP
Editor.
AR

QSP

RADIOCOMMUNICATIONS ACT NOW IN FORCE

The long-awaited Radiocommunications Act has now replaced the 80 year old Wireless Telegraphy Act. Its broad range covers, particularly those areas in which the WT Act was ineffective.

Working on replacing the old Act began about 15 years ago, when its inadequacy to deal with modern and developing communication technologies had become apparent. When the WT Act was introduced, wireless telegraphy was in its infancy. Today, the many uses of the radio spectrum affect everyone.

The Department of Communications (DOC) sees the Act, which came into force on 20th August 1985, as vitally important for the efficient management of the radio-frequency spectrum. It gives DOC the necessary powers to cope with the vast range of uses now being made of the spectrum, and recognises the modern electronic environment and the issue of electromagnetic compatibility (EMC).

The formulation of the Act, and the Regulations, has involved the slow process of extensive consultation with the users of the spectrum, manufacturers, importers and others affected by the new laws.

The Wireless Institute of Australia, with its CASPAR Committee, has been involved in the consulation process for many years. This will continue as regulations and standards are evolved.

DOC will have new powers to deal with all forms of radio frequency interference (RFI), from ali sources, not just from radio equipment. Common interference sources to radio receivers include electric motors, welders, thermostats and power lines.

Users of electronic home entertainment equipment will also benefit. TV sets, VCRs, stereo units, electronic organs and intercoms sold in Australia will be required to comply with standards of immunity to RFI. In time, less and less equipment with inadequate immunity against RFI will be used by the community. DOC intends to make standards for all radio communications and other equipment likely to be affected by RFI.

It will be an offence to supply, possess or use equipment which does not meet a standard or to modify it in such a way that it ceases to comply with the standard. Equipment made before the introduction of a standard will not be affected.

The Act creates a number of new offences, in addition to the obvious offence of unlicenced operators of a transmitter. These include using a transmitter causing interference to safety communications, using a transmitter to harass another person, or to transmit hoax calls.

Overall, the new Act will achieve two major improvements in the regulation of the spectrum. The first is the establishment of a regime that will, in time, control the causes of interference, and the susceptibility of equipment to interference. The second is the creation of offences, coupled with powers to achieve compliance, that will hopefully facilitate the role of the law enforcement agencies.

Copies of the Act can be bought from the Australian Government Publishing Service Bookshops, in all capital cities.

AR

WIA NEWS

UHF ATV — 50cm

Members of the Federal Executive have again met with the Department of Communications, Broadcasting Division, to discuss the progress of the Departments UHF ATV planning and the amateurs place in that plan.

These discussions are the result of a discussion paper on the future of 50cm ATV in the UHF band, put to the Department of Communications by the Institute at the beginning of this year.

The Department advised that progress was being made on a Channel Equalisation Plan for Commercial TV channel coverage. Policy on equalisation and the associated detailed planning still remain to be developed but, an announcement on the options will be made shortly by the Minister of Communications, Mr Duffy.

As a direct result of the meeting, the following points were advised by the Department of Communications:

a) the DOC Broadcasting Services Division accepted the principle of

continuing future co-existance of commercial and amateur TV in the 50cm band.

b) the present amateur allocation of 576-585MHz can remain for approximately another three years.

c) as detailed planning of the UHF translator services takes place, alignment of the amateur allocation with the UHF channelling plans may be required, at least in the Melbourne and Sydney areas. The present amateur allocation straddles channels 35 and 36.

d) if pressure for additional translator channels, beyond those presently envisaged, becomes apparent, WIA/DOC will examine the band plans to accommodate, if practicable, alternate 50cm amateur allocation/s in specific geographical areas.

AGE LIMITS FOR AMATEUR RADIO LICENCES TO BE REMOVED

Since 1982, il has been Wireless Institute of Australia policy to seek a reduction of the age limit, required for limited and full call amateur licences. At the Federal Convention in 1985, the Federal Executive of the Institute was asked to negotiate with the Department of Communications, for the complete removal of any age restriction for amateur licences.

The Executive, recognising that this is the International Year of Youth, made strong representations to the Department of Communications, that all age restrictions be removed. This was proposed at the WIA/DOC meeting of May 1985.

The Department of Communications, after consideration of this matter, have advised the Institute by letter, in August 1985, that the inconsistencies in the application of age restrictions in the various categories of amateur certificates and licences had arisen over the past years, due to 'patchwork' amendments to the regulations. In the new Radio Communications Act and its Regulations, there will be no reference to age limits for amateur licences/certificates. Therefore, from the proclamation date of the new Act, the only requirement to hold any grade of amateur licence, will be a pass in an amateur radio examination.

FEE INCREASES

The Radiocommunications Act 1983, came into effect in two stages . . . the Act as of midnight on 19th August 1985 and, then certain provisions in the ACT pertaining to 'offences' followed on 27th August 1985. During the period between these dates, offences will be dealt with under the old Wireless and Telegraphy provisions.

As a result of the Radio Communications Act being proclaimed on the 20th August, certain fees were increased.

EXAMINATION	FEE
Amateur Operator	
A Regulations	*5*
B Theory	*10*
C Telegraphy (sending)	*5*
D Telegraphy (receiving) 10	
	TOTAL 30
Limited Amateur Operator	
A Theory	*10*
B Regulations	*5*
	TOTAL 15
Novice Amateur Operator	
A Regulations	*5*
B Theory	*10*
C Telegraphy (sending)	*5*
D Telegraphy (receiving) 10	
	TOTAL 30

CERTIFICATES OF PROFICIENCY — all successful candidates will be charged $5.00 for each certificate.

The Department have advised the Institute that, the new charges relate to the costs of providing the examinations for candidates. Naturally, the Institute's officers have registered with the Department, their strong dissatisfaction at the lack of prior adequate discussion on the subject of licence and examination fees.

PHONE PATCH

On the question of phone patch, a WIA delegation from the Federal Office and the Victorian Division, met with Telecom Headquarters recently. The WIA pressed for improved conditions for amateur phone patch but, Telecom continued to take a firm stand against any improvement in conditions of phone patch for the amateur service. The WIA stressed the major differences between the amateur service and commercial users, particularly stressing the non-profit nature of our activities.

Telecom refused to accept this argument as a reason for any further improvement, in what they consider, to be generous conditions compared with those applying to commercial users. The WIA gave notice that they were not prepared to accept these views as final, and would wish to continue to discuss them. Telecom representatives agreed to meet with the Institute at any time it wished, in the future.

Telecom, however, did agree to discuss with the Institute, the design of a simplified interface unit for the amateur service, which could lead to a significant price reduction, compared to existing commercial units.

OCTOBER 1985

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5 5 VK ZL O Phone Test
6 6 VK ZL O Phone Test	7 7 School Resumes-Qld Labour Day-NSW Labour Day-ACT	8	9	10 10 Launceston Show Day	11	12 12 Spanish Nat Day VK2 75th Dinner VK ZL O CW Test
13 13 VK ZL O CW Test RSGB 21/28MHz SSB Test	14 14 Labour Day-SA Queen's Birthday-WA Columbus Day-USA	15	16	17	18	19 19 JOTA
20 20 JOTA RSGB 21MHz CW Test	21 21 Labour Day-NZ	22 22 Gen Meet-VK5	23	24 24 Hobart Show Day United Nations Day	25	26 26 Austrian Nat Day Wagga Conv & Nat Fox Hunt VK2 Canoe WICEN CQ WW DX Phone
27 27 Daylight Saving Begins Wagga Conv & Nat Fox Hunt VK2 Canoe WICEN CQ WW DX Phone	28	29 29 Buy & Sell-VK5	30 30 8 wks to Christmas	31 31 Halloween		

HAZARDS OF RF RADIATION: NEW STANDARD

Allan Foxcroft VK3AE
Federal Standards Co-ordinator

Early this year, the Standards Association of Australia (SAA) issued Australian Standard 2772 — *"Maximum Exposure Levels — Radio Frequency Radiation — 300 kHz to 300 GHz"*. This represented over five years of work by the SAA's Committee TE/7 on Hazards of Non-ionising Radiation assisted by many others, with expertise in medicine, physics, engineering, commerce and trade union matters. The Wireless Institute of Australia was represented on the Committee by Rear Admiral Jim Lloyd VK1JL.

During the 1960s and 70s there was growing recognition, world-wide, that our knowledge and understanding of the biological effects of human exposure to electromagnetic fields was inadequate to meet the growing use of EM energy in industry, science, medicine, telecommunications, domestic and other applications. Research and study in this field was accelerated and the present Standard has been based on consideration of the mass of world literature and reports issued mainly in the period 1960-1985.

BIOLOGICAL EFFECTS

The foremost thing to remember about the new Standard is that it deals primarily with the safety of people — those who operate RF equipment as part of their occupation and those who may be exposed to RF by chance. Any regulatory or technical recommendations stemming from it are based on present biological/medical knowledge.

RF energy can have deleterious effects on the human body. RF burns and shocks are clear and immediate examples of this. However, sustained exposure to high level RF fields can also result in the formation of cataracts of the eyes and can affect the nervous system in a number of ways. The neural effects are not clearly demonstrated and usually relate to such vague features as fatigue, irritability, depression, loss of appetite and lowered physical and mental performance.

EXPOSURE LEVELS

The new Australian Standard specifies maximum exposure levels in terms of the acceptable power flux density (milliwatts per square centimetre or watts per square metre) which, for far-field conditions may be readily expressed in electric field strength or magnetic field strength. Two categories of maximum exposure levels are laid down: namely non-occupational levels applying to (a) the general public and (b) occupational, where a person is required to work in higher electromagnetic fields. Persons in the latter group are defined as radiation workers. It is recommended that the general public be protected to a level of one fifth that of radiation workers and typical acceptable maximum levels for continuous radiation are 2 mW/sq cm at 3MHz, dropping to 0.2mW/sq cm at 30 MHz and above. Compared with levels generally specified during the 1970s these represent a considerable tightening-up of the protection required by 5 to 50 times and reflect the greater current awareness of the possible hazards of non-ionising radiation.

EXCLUSIONS AND CONDITIONS

One of the most significant exclusions from this Standard, from the amateur point of view, is the hand-held portable transceiver running power output of not greater than 7W at frequencies lower than 1GHz. It has been accepted that these may produce localised fields in excess of the values prescribed for the general public. However, it is unlikely that the total amount of energy coupled into the whole of the human body would be significant.

There are a number of special "relaxation" clauses, some of which are confusing in their applicability, which relate to industrial exposure periods of less than 30 minutes. These are included to accommodate special maintenance situations or abnormal, one-off exposures of relatively short duration in which the actual period may be monitored and readily determined. There are no equivalent provisions for non-occupational exposure. Anyone wishing to make assessments of the acceptability of specific conditions should refer to the Standard itself.

PRACTICAL IMPLICATIONS

Probably the greatest impact will be found in the area of industrial radio frequency heating and welding where often many kilowatts of power are used and where workers are in close proximity to the source for significant periods. Surveys conducted within Australia and overseas of typical industrial RF heaters show that a substantial proportion of them could be regarded as unacceptable under the Australian Standard.

Insofar as communications services as a whole are concerned, excessive field strengths, if any, are likely to be confined to the immediate vicinity of antennas associated with high-powered equipments and certainly where normal current practices and precautions apply, the general public is not likely to be subjected to unacceptable RF levels.

AMATEUR ASPECTS

Looking particularly to the personal safety of amateurs as a group, only a few situations are likely to require special care and attention, provided occupational RF levels and short term exposures are assumed. These will be confined to near-field situations (for example within half a wavelength of a half-wave dipole). Within such volumes, practical measurements at any point must include values of electric and magnetic fields — requiring sophisticated equipment and measurement techniques. Furthermore, the space impedance cannot be assumed constant and therefore simple mathematical conversion from power density to equivalent electric field strength to equivalent magnetic field strength are not valid. However when at least semi-quantitative allowances are applied it can be shown that only a few amateur situations require special attention.

Despite the fact that the typical hand-held equipments have been excluded from this standard, commonsense precautions should always be taken to minimise irradiation of the head and particularly the eyes. Care should be taken with mobile equipment antennas, which should not be approached or handled when radiating. Where there is no alternative to the adjustment of live antennas of any type, use the absolute minimum power input to them. Do not drape wire antennas along dividing fences even if it is only to guard against RF burns to the unwary.

LIFE OF THE STANDARD

It should be reiterated that medical knowledge of the effects of RF radiation on the human body is still incomplete. Even though this Standard is based on the very best information at present available, it is intended that it should have a limited life and will be reviewed within three years *"on the basis of evidence gained during its application and from research on the subject which is now world-wide"*.

THE "ALARA" PRINCIPLE

There is of course no guarantee that the levels set at present are **absolutely** safe in all situations. As a consequence the ALARA, principle, (As Low As Reasonably Achievable) should always apply in exposure to RF fields. Discussing this situation at the recent SAA Symposium on RF Hazards, Dr D Hollway, Honorary Research Fellow of CSIRO quoted a most appropriate analogy used by a US expert working in this area. When criticising the present ANSI (US) standard on RF Safety Levels, Professor N H Steneck, stated: *"The assumption is made that when one is walking along the edge of a potentially dangerous cliff, the best way to keep from falling is to know exactly where the edge is. Theoretically, if all the twists and turns were properly plotted one would not fall. (It is difficult not to point out in this regard that one could also avoid falling by not walking so close to the edge)"*.

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MAKE THIS JOTA SPECIAL!!!

1985 has been declared International Youth Year by the United Nations. Scouts and Guides have been involved in many special activities related to the Year's theme of "Participation, Development, Peace". Yet every year is a youth year for Scouting and Guiding. There are more than 25 million Scouts and Guides in over 150 countries.

JOTA is the largest gathering of Scouts and Guides and also amateur radio. Each year some 300,000 participate in more than 100 countries.

Let us make 1985 extra special and involve age (the WIA's 75th Anniversary) with youth (the International Youth Year) to make this year's JOTA bigger and better than ever. Participation is the answer on 19-20th October 1985.

This year the Institute is providing the QSL cards for JOTA and the 75th Sub-Committee have settled on a design that incorporates the Boomerang gate at Clifford Park, Wonga Park, Victoria.

The reason for this choice was, in 1955 the Institute's Official Station, VK3WIA operated 24 hours a day for the duration of the Pan-Pacific Jamboree - the forerunner of JOTA in Australia and perhaps the world.

From information from the Official World Scout Bureau and the Federal Office of the WIA.

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ENHANCED VHF/UHF SIGNAL LEVELS DUE TO AIRCRAFT

Gordon McDonald VK2ZAB,
59 Wideview Road, Berowra Heights, NSW. 2082

The anomalous propagation frequently observed on 2 metres and 70 centimetres during Sydney to Melbourne and Canberra to Melbourne contacts was comprehensively described by Doug VK3UM in his article "Aircraft Enhancement of VHF/UHF Signals" in July AR. The fact that enhancement does occur and that it is caused by aircraft is beyond dispute. This article is concerned with how the aircraft does it.

SPECULATION

When strange phenomena are first observed, logical observers will seek to determine whether or not their observations can be adequately explained by known facts.

In the case of Aircraft Enhancement this process was started but received an early setback coincident with an on-air remark (by me I think) to the effect that the levels of signals received could not be accounted for by known radar echoes from the aircraft involved. This either triggered or at least marked the start of a period of speculation about what might cause the signals to be so strong if it wasn't reflections from the aircraft itself.

Hypotheses concerned with possible refraction or scattering from gases ionised by the jet's exhaust or from turbulence in the aircraft's wake or from mini temperature inversions caused by the heat of the exhaust have all been heard. Some of these speculations have been accepted as facts by some amateurs.

The possibility that some truth might lie in some of these ideas cannot be discounted but nevertheless this article shows that the fundamental mechanism of aircraft enhancement lies in reflections from the aircraft itself.

THE AIRCRAFT AS A REFLECTOR

Radar echo calculations are based on an isotropic reflecting sphere of that size which gives the same signal at the radar receiver as the target being considered. An isotropic reflecting sphere scatters an oncoming beam uniformly in all directions and therefore calculations based on this model will result in the erroneous conclusion that the signal level at a distant receiver is the same as that of the back-scattered signal at the radar receiver.

An aircraft is not an isotropic sphere. The large, substantially flat surfaces under the wings and tailplane reflect radio signals in a beam. The reflection efficiency is virtually 100 percent because of the low losses in the aluminium skin of the aircraft and the beam width is inversely proportional to the ratio of the flat area to the wavelength of the incident signal.

When the aircraft is in flight the flat undersides are parallel to the ground and so are in the right position to reflect our signals and thus provide enhanced levels at the receiver by reducing the path loss.

However, Figure 1 illustrates that the whole of the flat area cannot be seen from transmitting or receiving sites in general because of the angle of incidence, which will change as the aircraft's position changes relative to the sites. Furthermore, the undersides of the wings and tailplane are not entirely flat so a more accurate model will be realised if we delete the contribution of the tailplane and any other flat area. The effective area of our reflector will be given by:—

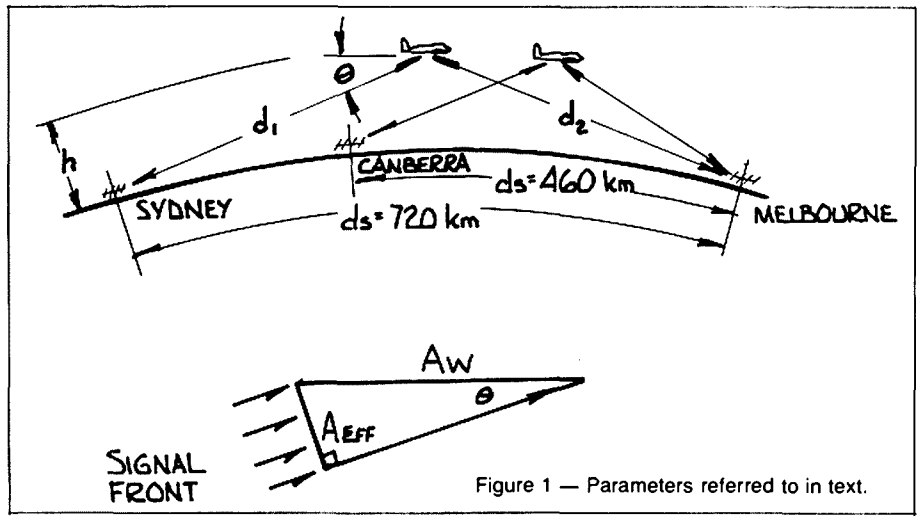

Figure 1 — Parameters referred to in text.

$$Aeff = Aw \sin \theta \quad (1)$$

Where:
Aw = *Area of Wings in square metres*
θ = *Angle of incidence*

The effective area has been calculated for various aircraft operating between Sydney and Melbourne assuming that the aircraft is stationary at its nominal operating altitude half way between Sydney and Melbourne and again half way between Canberra and Melbourne. In this case the angle of incidence is given by:—

$$\theta = 90\text{-}Tan^{-1}\left[\frac{r \times \sin(4.5ds \times 10^{-3})}{h}\right] \quad (2)$$

Where:
r = *Radius of Earth in km*
ds = *Distance between sites in km*
h = *Operating Altitude in km*

The distance from Melbourne to Sydney is taken as 720 km and from Melbourne to Canberra as 460 km for these calculations. Note that the angle of incidence is small, being less than 2° for all Sydney to Melbourne paths considered and from 2.5° to just over 3° for all Canberra to Melbourne paths.

The results are given in Table 1:

GAIN OF AIRCRAFT AS A REFLECTOR

As a reflector the aircraft behaves in the same way as two identical, back to back, antennas. Its gain, as an antenna, can be defined in the same way as the gain of any other antenna:—

$$G = \frac{4\pi A}{\lambda^2} \quad (3)$$

Where:
A = *The effective area*
λ = *Wavelengths in the same units*

Converting λ to frequency and expressing G in decibels we get:—

$$G_a = 20 \log f + 10 \log A - 38.55 \quad (4)$$

Where:
f = *Frequency in MHz*
A = *Effective Area in square metres*

This gain is realised when the reflecting aircraft receives the incident signal and when it retransmits it so that the total reflector gain is twice that given in equation 4. ie:—

$$Gr = 40 \log f + 20 \log A - 77.1 \quad (5)$$

Using this formula and the effective area from Table 1 the reflector gain on 432.2MHz of a 747 at 37,000 ft. half way between Canberra and Melbourne is 56.58dBi!

SPACE LOSS WITH AIRCRAFT AS REFLECTOR

Free space loss between isotropic antennas is:

$$Ls = \left[\frac{4\pi d}{\lambda}\right]^2 \quad (6)$$

Aircraft Type	Altitude (ft)	Wing Area (m^2)	Aeff (m^2) Syd/Melb	Aeff (m^2) Can/Melb
Airbus A310.200	33,000	219	6.116	9.565
Boeing 727.200	35,000	144.92	4.292	6.712
Boeing 747.200B	37,000	528.15	16.54	25.86
Mcd/D DC10	35,000	364.3	10.79	16.87
Boeing 767.200	40,000	283.3	9.59	14.99

TABLE 1 — See Text.

Aircraft Type	Lar (dB) Syd/Melb	Lar (dB) Can/Melb	SR (dBm) Syd/Melb 2 Metres	SR (dBm) Can/Melb 70 cm
Airbus A310.200	228.5	216.8	– 132.5 (S2)	– 113.1 (S5)
Boeing 727.200	231.6	219.9	– 135.6 (S1)	– 116.2 (S5)
Boeing 747.200B	219.9	208.2	– 123.9 (S3)	– 104.5 (S7)
Mcd/D DC10	223.6	211.9	– 127.6 (S3)	– 108.2 (S6)
Boeing 767.200	224.6	212.9	– 128.6 (S3)	– 109.2 (S6)

TABLE 2 — See Text.
NOTE: "S" Units are taken to the next lower place.

Converting λ *to frequency and expressing Ls in decibels we get:*

$Ls = 32.44 + 20 \log f + 20 \log d$ (7)

Where:
f = *Frequency in MHz*
d = *Distance in km*

There are two "spaces" to be considered where we have a reflector in the middle of the path so taking the loss for each space from equation (7) and combining these with the reflector gain (5) we will get a formula for the space loss between isotropic antennas with an aircraft reflector in between. i.e.:

$Lar = 141.98 + 20 \log d_1 + 20 \log d_2 - 20 \log A$ (8)

Where:
d_1 = *Distance from site 1 to aircraft*
d_2 = *Distance from site 2 to aircraft*
A = *Aeff (Table 1)*

Note that the frequency factor has cancelled out because the increasing space loss with increasing frequency is exactly matched by the increasing gain of the reflector with frequency.

Lar's for the various aircraft considered are listed in Table 2.

SIGNAL LEVELS VIA AIRCRAFT REFLECTIONS

The signal power at the receiver in dBm is:

$S_R = P_T + G_T - L_T + G_R - L_R - Lar$ (9)

Where:
P_T = *Transmitter power output in dBm*
G_T = *Gain of transmitting aerial in dBi*
L_T = *Transmitter feeder loss in dB*
G_R = *Gain of Receiver serial in dBi*
L_R = *Receiver feeder loss in dB*
Lar = *Space loss via aircraft reflector in dB*

Examples:

1 I run 400 W PEP on 2 metres, my antenna gain is 20.65dBi, feeder loss 0.65dB and there is a clear path from me to a Boeing 747 at 37,000 ft just east of Tumbarumba. I call CQ VK3 and Melbourne stations located in an area centred roughly on Dandenong and who have similar antenna gains and feeder losses along with a clear path to the same 747 must receive my signal at a peak level of:

$S_R = 10 \log 400 \times 10^3 + 20.65 - 0.65 + 20.65 - 0.65 - 219.9$
$= -123.9$ *dBm*

which, assuming the "S" meters are calibrated according to the IARU standard for VHF/UHF is one dB short of S4.

2 Doug VK3UM runs 375 W PEP and about 28 dBi of antenna gain after deducting feeder losses on 432.2 MHz. The same 747 as in example 1 has now arrived over Mitta Mitta still at 37,000 ft. A Canberra station equipped with 20 dBi of antenna gain after feeder losses and who has a clear path to the 747, as Doug has, will receive Doug's signal at:

$S_R = 10 \log 375 \times 10^3 + 28 + 20 - 208.2$
$= -104.5$ *dBm*

which, on an IARU calibrated meter, is better than S7 peak.

3 If I had been listening on 432.2 MHz when the 747 was over Tumbarumba I would have heard Doug at – 115 dBm which is better than S5 and he would have heard my 10 Watts PEP at almost S3.

The stations used in examples 1 and 2 are used for all examples listed in Table 2.

VARIATIONS FROM EXPECTED LEVELS

Variations can and do occur for a variety of reasons, some of which could be categorised as "normal" variations. eg:

(a) The aircraft can be "seen" by the transmitting and receiving sites for periods up to several minutes either side of the time the aircraft reaches the centre of the path. However the signal level will vary over this period simply because the power density in the beam from the transmitter varies spatially, as it also does in the beam reflected by the aircraft.
This means that the length of time that the signals are enhanced will be decreased as the frequency increases even if the beam widths of the ground sites remained constant because the beam width of the reflected signal will get narrower as the ratio Aeff to λ increases.
Aircraft off to one side of the direct site to site path may expose a greater area of reflecting surface to both sites during banking turns. The signal levels will increase accordingly.

(b) Anomalous propagation other than aircraft enhancement occurs at some time almost every day. Ducting and subrefraction can trap or divert the beam from the transmitter or aircraft so that it is not intercepted by the aircraft or receiving site as "normally" expected. In Sydney, it has been observed that signals due to aircraft enhancement are either weak or not present at all during periods when signal levels are high over direct paths from Sydney to Canberra and Adaminaby indicating the presence of superrefraction.

(c) Perhaps the most obvious reason for variations lies in power outputs, antenna gains and particularly "S" meter calibrations not being what they are thought to be. It is not possible to come to any sensible assessment of path losses unless you know exactly what the fellow at the other end means when he says you are S4 or whatever.
The IARU has set a logical, absolute standard for "S" meters. It is that S9 is 5 microvolts input to the receiver at VHF/UHF. 5 microvolts equals – 93 dBm for 50 ohms input and the "S" units are 6 dB apart. S4 then is –123 dBm input to your receive system — preamp in circuit or not.

MISCELLANEOUS THOUGHTS ON REFLECTIONS

There is no doubt that this mode of propagation will be evident at 1296 MHz and above, however the length of time that the signal will be available at a given receiving site will be quite short because the beam will be very narrow.

In the unlikely event that a signal is reflected from one aircraft to another before being intercepted by the ground station the path loss will be quite different. It will also decrease with increasing frequency.

Someone might like to derive a formula for the maximum distance which can be covered by aircraft reflections from say a 747 at 40,000 ft to give an S2 signal from a 400 W PEP transmitter with 20 dBi antennas at both ends.

CONCLUSIONS

The signals received during Melbourne/Sydney and Melbourne/Canberra contacts on 2 metres and 70 cm can be accounted for by reference to the known effects of passive reflectors. The aircraft itself is a passive reflector.

Observations made by myself on 2 metre signals in Sydney correlate closely with the levels predicted in this article. My 70 cm observations did not correlate well with these predictions until the "S" meter was properly calibrated. Correlation is now close. In the case of observations made in Canberra and Melbourne any lack of correlation with the levels predicted in this article will have to be explained by the observers but I strongly recommend that they carefully consider the possibilities listed under the paragraph "Variations from Expected Levels" in this article.

Acknowledgements:

Lance May VK2ZLM who acted as a sounding board for these ideas.
Doug McArthur VK3UM who started the ball rolling.
Ian Cowan VK1BG who cleared up a doubt relating to clearance angles from Canberra.

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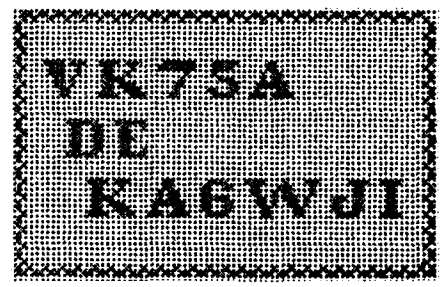
VK75A

Among the many cards received for contacts with VK75A was this one from Nancy Dietrich KA6WJI of Santa Barbara, California. The front of the QSL is stitched very decoratively with embroidery.



ADD ON MODIFICATIONS FOR THE SIEMENS TELEPRINTER

This is the third in a series. The last two were a 'shift indicator' and a 5 volt power supply. This article is about a simple counter circuit to show how far you are from the left hand margin: it's so much easier than counting in your head.

Peter Fraser VK3ZPF
52 Heathfield Rise, Box Hill North, Vic. 3129

A SPACE COUNTER

DESCRIPTION

The counter uses two seven segment LED displays to show numerically how far the typing basket has travelled. The circuit is a conventional counter which is clocked by a flip-flop de-bounce circuit. The counter is reset to zero when the carriage return is pressed or a 'CR' is received.

PARTS LIST

SW-A, SW-B	*(2) Miniature micro-switches.*
FND 500	*(2) 7 segment displays (common cathode).*
74C48	*(2)BCD decoder/driver IC.*
74C90	*(2) BCD counter IC.*
4011	*(1) Quad 2 1/P nand gate IC.*
470 ohms	*(14) Resistors (1/2 watt).*
12K ohms	*(3) Resistors (1/2 watt).*

You will also need two pieces of matrix board (one for the counter and the other for the displays), some ribbon cable and hook-up wire.

CONSTRUCTION

The parts should be put together in such a way as to take up the least amount of space. Just a word of explanation about the circuit diagram: the display shown on the left of the diagram is, in fact, the units display, while the display on the right is the tens display. The board is best mounted down on the right hand side (looking from the rear) of the machine base, under the motor. The screw hole near this location is tapped to accept 4BA screws. The board with the LED displays can be mounted on the left hand side of the platen on a strip of aluminium.

I suggest the use of IC sockets as the chips are all CMOS and don't like too much handling. When all sockets are wired together the board looks like a bird's nest, but if your nest is well kept it should work first time.

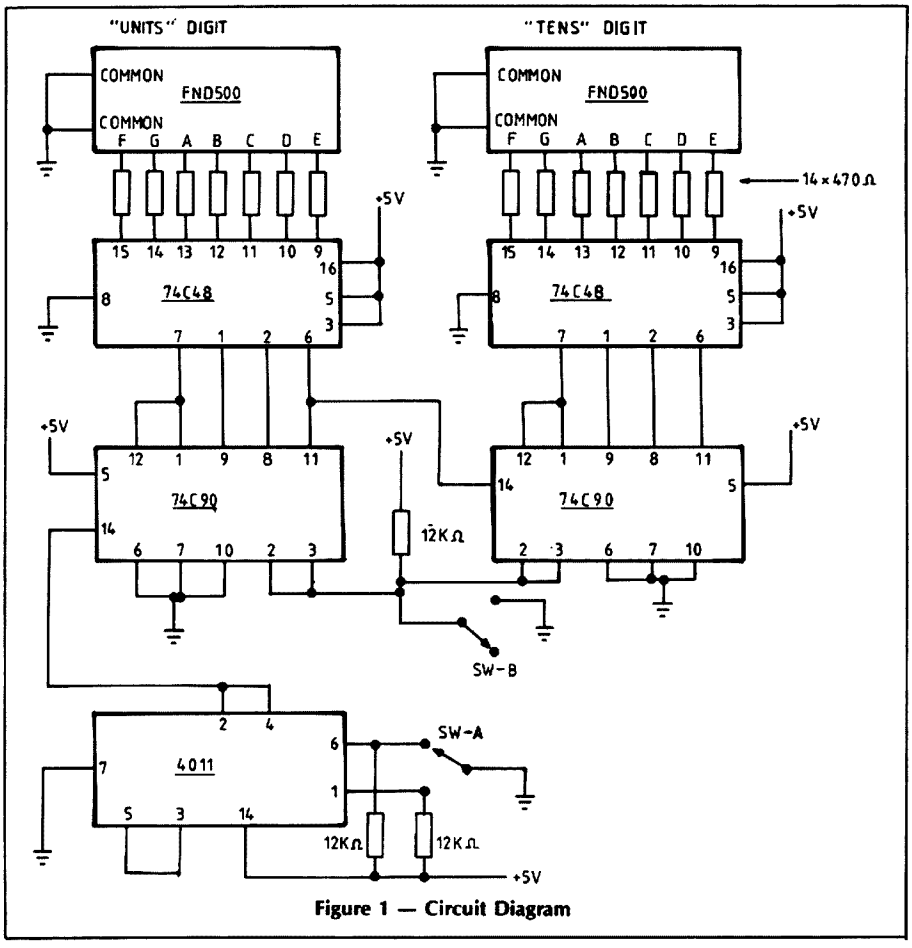


Figure 1 — Circuit Diagram

The 'count' switch (SW-A) is mounted on a right angled bracket screwed on so the switch is activated by the decagonal 'cog'. This is on the right hand side, in the middle of your machine (looking from the front), just behind the code bars. It's on the same shaft as the 'screw' which moves the typing basket along. The micro-switch is positioned so each time the carriage moves along one space, the switch closes, then re-opens ready for the next space.

Care should be taken so neither the bracket nor the switch foul the typing basket, as it means instant destruction of the switch. The two holes located near the 'cog' are tapped to 6BA and only 6BA screws should be used.

The 'reset' switch (SW-B) is located on the left hand side of the machine directly under the return spring. It's held on a 'L' shaped bracket arranged so, when a 'CR' is received, the switch opens then closes again. The hole provided is again tapped 6BA.

HOW IT WORKS

As the carriage moves along, the 'count' switch (SW-A) is switched from one state to the other. As the switch contacts come together they 'bounce'. To remove this bounce the 4011 is wired as a flip-flop. As the name implies, it 'flips' to one state (high) then 'flops' back to the other state (low). This 'pulse' is then used to 'clock' the 74C90 (units) counter. It's output is in the form of 'binary coded decimal' (BCD) and this is converted by the 74C48 to drive the seven segment displays. Each display has 7 dropping resistors (one for each segment). These resistors limit the current available to the light emitting diodes in the display.

When an '8' or '9' is displayed in the units column, pin 11 (74C90) goes high. When the 74C90 (units) is clocked over to '0', pin 11 of the 74C90 (units) goes low. This 'down going pulse' is connected to pin 14 of the second 74C90. This 'pulse' causes the 'tens' column to count 'one'.

When a 'CR' is received, pins 2 and 3 (74C90) are taken high then low again. This 'up going pulse' resets both counters to '00'. *Note: When installed 'SW-B' (reset) is held in its depressed position until a 'CR' is received; hence pins 2 and 3 (74C90) are normally low and go high on reset only.*

So that's the counter project and, although it seems complex, it is quite simple and any RTTY'er should have no trouble at all. This brings us to the end of the current series of projects, but don't put the soldering iron away yet, as the new year

may see some more interesting projects for you to have a go at.

EDITOR'S NOTE

The transformer winding mentioned is used to provide power for a two colour option. Teleprinters with this option (very scarce) already have a bridge rectifier so will only require the voltage regulation. Small capacitors (0.1/UF) between ground and the regulator terminals, soldered to the regulator are advisable, to prevent oscillation.

NB: Other windings on the transformer are not suitable for this power supply. **AR**

POSTAL SERVICE

Did you know that the first recorded Postal Service was in operation in the Chou Dynasty, China in 1100BC.

The Romans in BC and AD had a highly developed Postal Service (presumably by speed chariot). This was made possible by their penchant for building excellent metallised roads and having plenty of military manpower to deliver the mail and parcel bags.

Greece, Egypt and Persia also had planned mail services.

However, during the reign of King Richard II, the English developed the most highly efficient system of all, using couriers and messengers. In 1839, a competition was held to design an embossed envelope with an adhesive flap.

Contributed by Alan Shawsmith VK4SS **AR**

VK3WK AERONAUTICAL MOBILE FIGHTS OFF SHARK

Jim Linton VK3PC
VK3 DIVISIONAL PRESIDENT

A regular aircraft ferrying flight for Bill Bell VK3WK, nearly ended in tragedy when he struck fuel problems, forcing him to ditch a single engine plane, 300 nautical miles from Hawaii.

The 50 year old pilot made front page news when plucked from the ocean, by helicopter, 11 hours and 40 minutes after the plane went down on 16th August.

Bill said he became separated from the aircraft's liferaft and distress radio beacon and was left floating in a lifejacket

A shark about 2.5 metres long encircled him for at least three hours.

"I saw the shadow of the shark circling and the thing made a run at me.

"It was getting fairly excited about me and leapt out of the water. I kicked and slashed like crazy and it went away for a time," Bill said.

He had to keep alert and splashing, so the shark didn't get too close. Bill said after describing the shark's colouring and the way it jumped, a shark expert confirmed the species to be Blue Fin.

A distress radio call was made by Bill before ditching the plane but, it was not picked up. The rescue authorities received a report of an emergency distress beacon and assuming it came from Bill's overdue plane, started a search.

An aircraft located the downed plane and two helicopters with para-jumpers arrived, thinking the pilot was trapped dead in the cockpit. Bill said the Coast Guard decided he was still alive and five aircraft started searching but, in the wrong area because the distress beacon had drifted.

He said searchers later tried a different grid and spotted him waving.

A 'Jolly Green Giant' helicopter plucked him from the ocean and Bill was back on land three hours later.

Bill, who makes regular trips across the Pacific for his company, said he would continue the trips, because it was like being thrown from a horse, you have to get back on.

Lost with the plane was an IC-720 HF transceiver, home brew power supply, antenna coupler and an IC2A, two metre hand held.

Bill can be heard signing VK3WK/aeronautical mobile on 20 and 40 metres during his trans-Pacific treks. **AR**

RICE COULD BE FUTURE SILICON SOURCE

Researchers in the US and Norway think rice husks may be a good material from which to make pure silicon, for chips and solar cells.

Rice husks are a by-product of rice refining ...the average cost is about $US20 per tonne.

Dr James Amick of Exxon in the USA says that although the process has not yet been perfected, it looks promising.

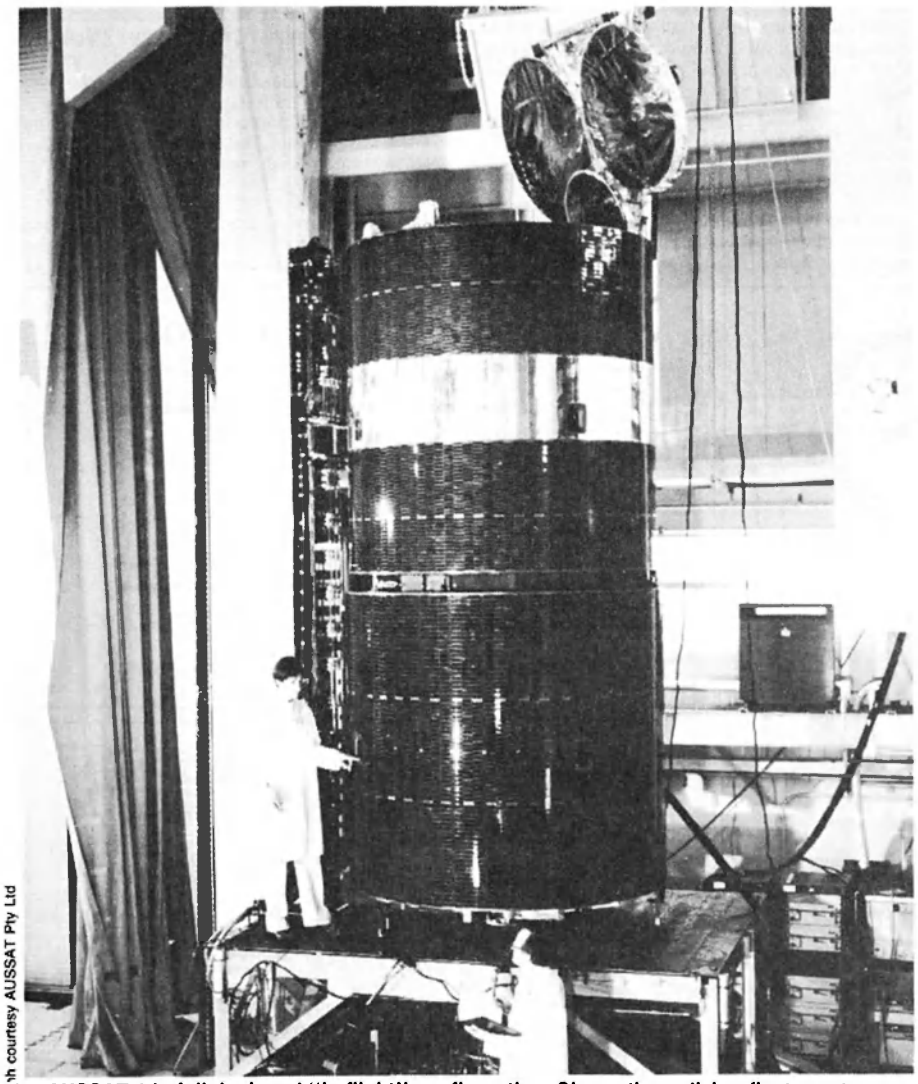
The husks contain carbon and silica and when heated in the correct proportions, they react to give silicon and carbon dioxide. **AR**

AUSSAT: An event in Australia's History

Ken McLachlan VK3AH
Box 39, Mooroolbark, Vic. 3138

More than a quarter of a century after the first satellite, Sputnik 1, was propelled into orbit by the USSR, followed by endless others including space missions, Australia now has its own telecommunications satellite.

Australia, a country with a land area of 7,830,000 square kilometres and a transcontintental distance approaching 4,000 kilometres, with a population exceeding 15.6 million, has successfully launched the AUSSAT satellite, K1. Due to be launched on 24th August, the launch was aborted due to a thunderstorm in the vicinity of the Cape Canaveral launch site, when the countdown was within five, tantilising minutes of lift-off. This caused much nail-biting to the management and staff of the mission, including the General Manager of AUSSAT Pty Ltd, Mr Graham Gosewinckel, who imperturbably stated on a direct television report of the launch, 'that it was a milestone in Australia's history and a delay of 24 hours for a successful launch was infinitesimal to the period of, in excess of the seven years it would be in orbit and the service to the community it would bring'. Graham, and his staff, were overwhelmed by the number of telegrams bestowing good wishes, that had been received, including one from the former Minister of Communications, Mr Tony Staley, in whose government it had been inaugurated, to those from the Prime Minister of Australia, Mr Bob Hawke, Mr Michael Duffy, present Minister for Communications, and the general public.



Photograph courtesy AUSSAT Pty Ltd

AUSSAT 1 in full deployed "in flight" configuration. Shows three dish reflector antenna systems. It measures 6.6 metres in height and 2.2 metres in diameter. in orbit mass is 650kg.

Unfortunately, the second attempt, on 25th, was not without tribulation, as again, this time at nine minutes before scheduled lift-off, in a very 'narrow window' of time, a back-up flight computer fault developed and it was impracticable to repair or reprogramme another back-up computer. This history making event, for Australia, had to await yet another day.

On 26th August, weather conditions again were to haunt a successful launch and with the 'window' narrowing, tomorrow was to be another day. AUSSAT was now programmed for lift-off at 1055UTC on the 27th, with weather forecasts being less than optimistic.

K1 was sent into space, five minutes late, after a near copybook countdown, from Cape Canaveral, 50 km north of Melbourne, Florida. At last, AIRBORNE!

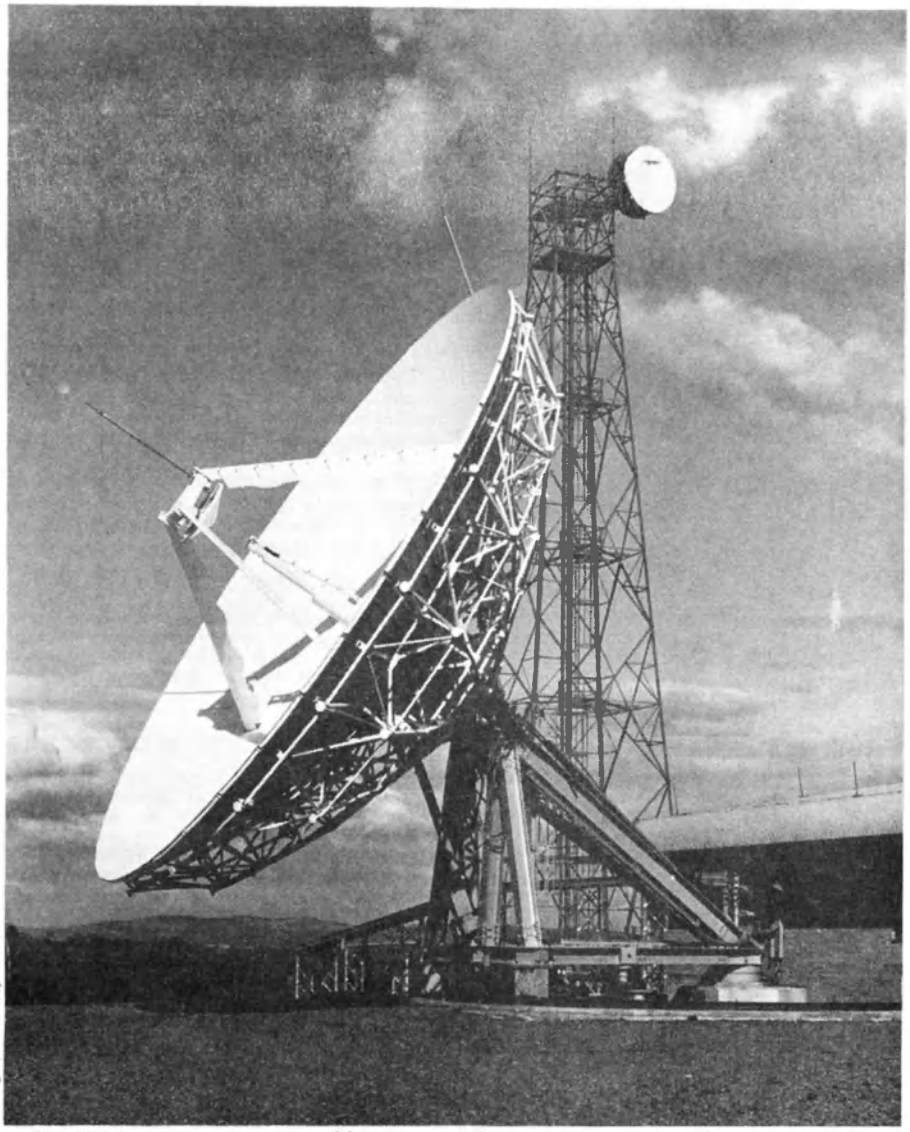
After discharge, with two other satellites from 'Discovery', that had to be propelled into space enroute, and a specific trajectory, due to its main purpose of making a rendezvous with the disabled satellite 'Syncon', worth, in excess of, one hundred and twenty million dollars and the duty of reclaiming it from space due to its unusual orbit, hence the 'narrow window'. Within hours of lift-off, K1 was ejected into space.

Deploying K1 into its 'resting place' above the Equator was in the hands of the control station, in Sydney, for manoeuvreing it into position. No mean task, but the small close knit group of some 268 AUSSAT employees, comprising scientists, engineers and administration staff, scattered across Australia, had the know-how and back-up assistance from previous launches, in other countries, and their experiences, to put it in the correct location.

AUSSAT K1, next month will be joined by a companion, K2, and a third in June or July, next year, which will be launched by the European Space Agency launcher, Ariane. K1, 6 6 metres long and 2.2 metres in diameter, with an all up weight of 655 kilograms, was 'piggy-backed' via the American spaceshuttle,'Discovery' and manoeuvred to hover 36,000km above the Equator by commands from the Sydney control centre. By the time you read this article, AUSSAT K1 will be operational.

Australia, since the middle of the 19th century, has kept abreast of technological advancement. Alexander Graham Bell invented the telephone in 1876 and two years later it was introduced in this country.

Presently, Australia can boast of the most modern terrestrial based communication system in the world, particularly, in the urban areas and this satellite network will bring Australia into line



Photograph courtesy Ken McLachlan VK3AH

Mitsubishi 13 metre antenna, with 32 metre microwave tower for customer links in the background.

with space age technology, also increasing our communication effectiveness, through diversity.

Purported by many to have cost in excess of four hundred million dollars which has been funded by the Australian Government, Telecom and loans from private enterprise, this satellite has created a tremendous potential in communication, to cover our vast land mass.

The purposes that the satellite can be used for are endless and it is not restricted to providing a direct broadcasting and television service coverage to all states, the Northern Territory and the surrounding peripheral surrounding coastline, including such islands as Norfolk and Lord Howe.

It will provide greater access for such organisations as the 'School of the Air', presently being mainly dependant on the Royal Flying Doctor Service frequencies, provide telephone links to very remote areas that it was previously impossible to service due to economics and in the case of a failure of present terrestrial links in the unfortunate case of a natural disaster, mobile transceivers will be available to use the celestial communication link to various land stations scattered across the continent.

Provision has been made for numerous channels, which will be used by the Australian Broadcasting Corporation, commercial radio and media outlets, Telecom for updating and backing-up the present network, police and military for transfer of important data and the business community at large, such as banks, large retail stores and mining interests. A further enhancement to our already outstanding air traffic control effectiveness will be made, with the installation of 200 satellite ground stations for use in the control of flights above 3000 metres. The untapped potential of this celestial wonder, with an expected life of seven years is, as yet, to be realised.

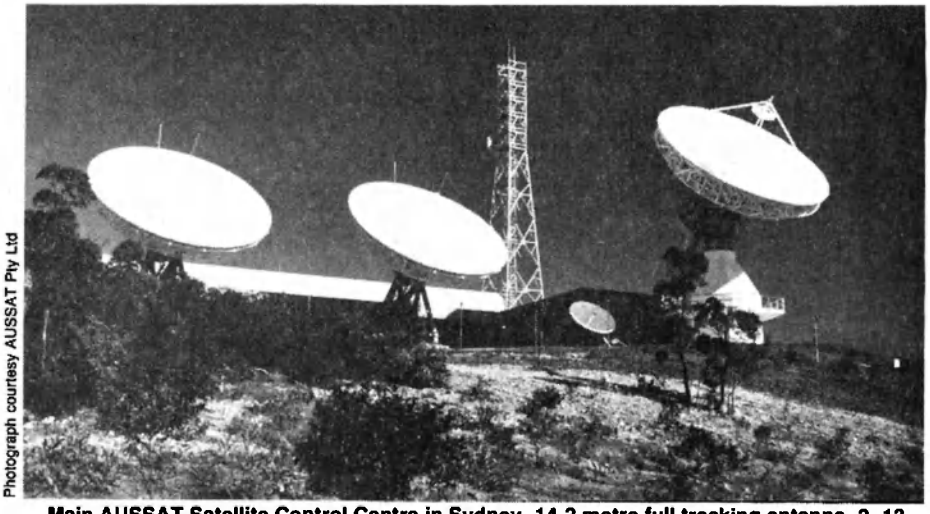
It is interesting to note that the communication licence for K1 is $62,000 and K2 and 3 will attract similar revenue to the Department of Communications. The AUSSAT account for the earth stations is expected to be in the vicinity of $125.000. Quite a licence fee per annum, when compared with the amateurs fee!

TECHNICAL DATA

Initially, the two communication satellites will be in a geostationary orbit of 156 and 164 degrees east. The third satellite, when launched next year, will be located into an orbital position of 160 degrees. The primary satellite control, monitoring and communications centre is located in Sydney, with a back-up, with similar facilities in Perth. Major earth stations are located in all state capital cities, including Canberra, Darwin and numerous smaller user-owned earth stations dotted around the continent, to cater for a wide range of communication services.

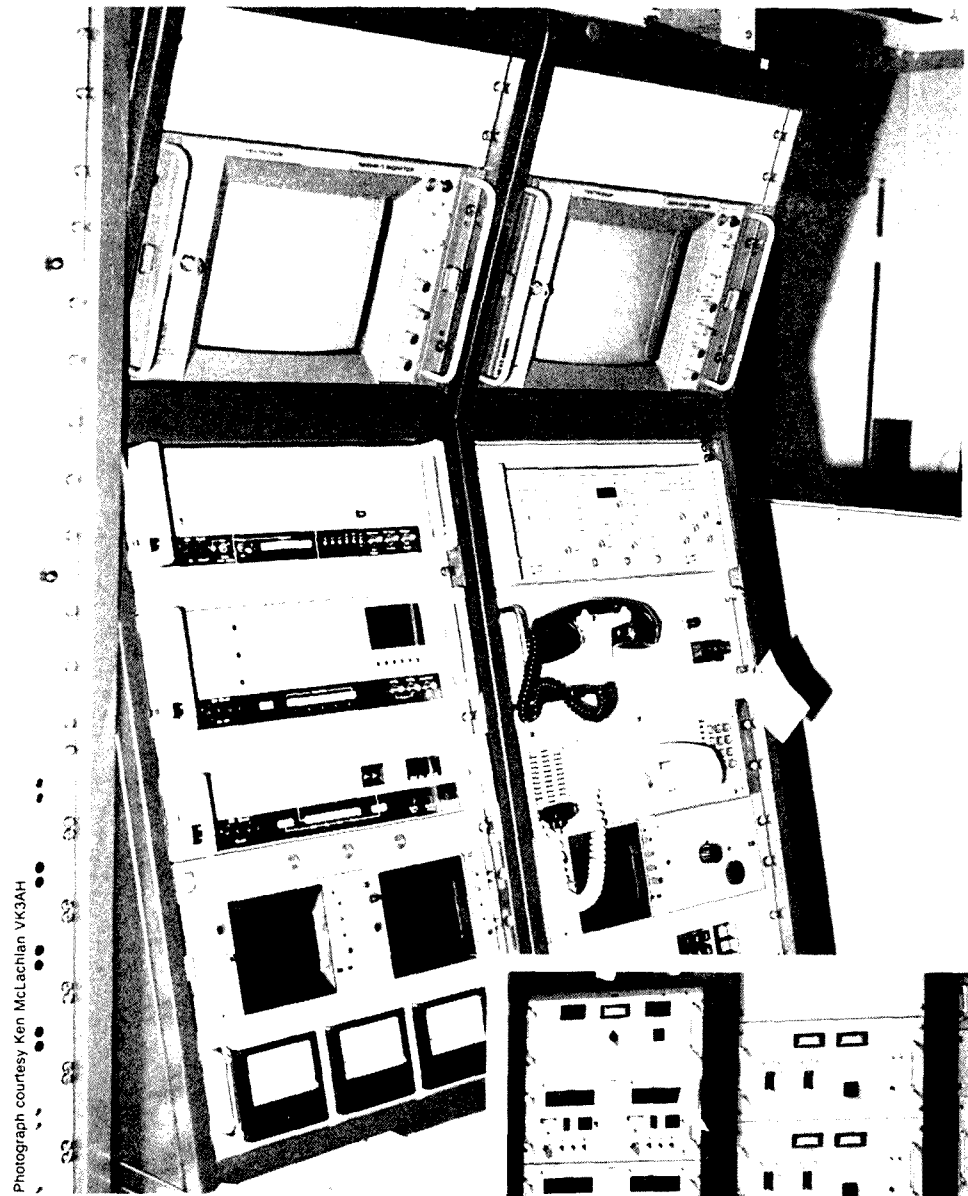
The uplink and downlink frequencies are 14 to 14.5 and 12.25 to 12.75GHz respectively with channel capacities of 11 by 12W and 4 by 30W transmitters, with a bandwidth of 45MHz. Many configurations can be used with the satellite antennas and the DCrwin and Brisbane dishes are 18 metres in diameter to the other major cities installations of 13 metre diameter antennas. The B-MAC (Multi-Plexed Analogue Component, Type B) system has been chosen because of several significant advantages, which include h-ff-gh quality television reception, six digital sound channels, a data channel and more reliable reception under adverse weather conditions.

It is interesting to note from a comprehensive table that has been published by AUSSAT Pty



Photograph courtesy AUSSAT Pty Ltd

Main AUSSAT Satellite Control Centre in Sydney. 14.2 metre full tracking antenna, 2, 13 metre communication antennas with 40 metre microwave link tower. This will provide mission control and full satellite tracking, monitoring and control facilities.



Photograph courtesy Ken McLachlan VK3AH

Above: Broadcast Performance Programme Monitoring System.
Right: From left, EIRP Control Rack, Thyrister Leonard Set, Antenna Control Rack and LNA/HPA Control Rack.

win, with Brisbane second, win the dB attenuation stakes with as, at times as much as 13dB, Hobart gaining the 'wooden spoon' with a mere maximum of 2dB. For being in the winning stakes, they have received a larger antenna.

It has been stated that it will be an easy handyman project to orientate a small homestead type dish of about one and a half metres in diameter, to receive the satellite transmissions, by the use of a magnetic compass and a data sheet which will include an azimuth chart that will be supplied, when the equipment is purchased. It only remains for fine tuning of the antenna for the best reception.

DETECTION

Under full computer control from Sydney and data collected by other stations, traffic usage will be determined and controlled. This data will be a valuable tool for determining the type of traffic

Photograph courtesy Ken McLachlan VK3AH

Ltd, of the attenuation caused by rain in the various cities at various times of the year. Dar- and effectiveness and will be used as a guide in determining the parameters of the system, when the necessity of updating occurs, on which planning has already begun. Also, it will instantly detect unauthorised use and unwanted interference and pin point its source.

To radio amateurs, satellite communication is not new, as within four years of the Sputnik launch, they built and had launched a system that has been continually updated which has allowed followers of the facet of the hobby to contact amateurs in other countries across the world. From these contacts, information has been gained that has assisted the state-of-the-art technology we are enjoying today.

Philatelic collectors will be delighted, as Australia Post are planning to release a special commemorative stamp early next year with a design based around the satellite. A must for all enthusiasts!

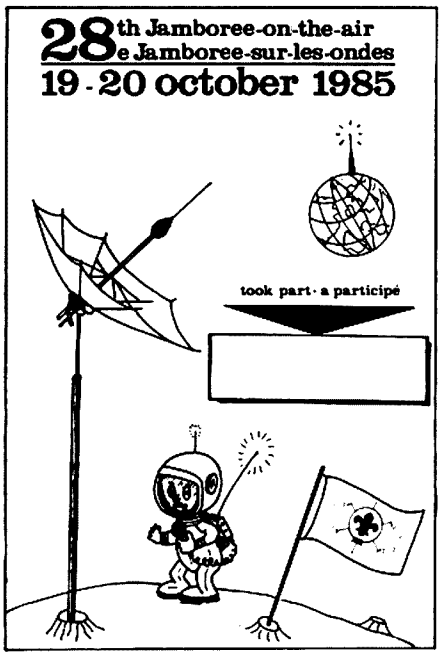
It is felt fitting that AUSSAT K1, has been launched during the 75th Anniversary of the first radio society in the world, the Wireless Institute of Australia, of which I am proud to be a member.

ACKNOWLEDGEMENTS

Sincere thanks are extended to the staff of AUSSAT Pty Ltd, particularly to Mr Robert Loane, Marketing Manager, Mrs Helen McLennan, Ms Jenny Lin, Messrs Kerry Carney and Roger Donnelly, for their co-operation. Also to the staff of the Australian Bureau of Statistics (Melbourne), in their assistance with the preparation of this article.

AR

At the time of going to press, the talented crew in Bellvue said that the deployment of the antennas and solar panels was the smoothest operation of its kind ever accomplished.
Amateurs are invited to listen to the beacon and telemetry signals on the frequencies of 12.74875 and 12.74975GHz.
Congratulations to all concerned.



WIA, 75th ANNIVERSARY AND 28th JOTA — LET'S MAKE THE BANDS ALIVE IN 1985

Peter Hughes VK6HU
NATIONAL CO-ORDINATOR FOR JOTA
58 Preston Street, Como, WA. 6152

The Wireless Institute of Ausralia will, this year, promote their seventy fifth anniversary, through QSL cards supplied for use by stations participating in Jamboree on the Air. Where-as, there has been enormous support from the Institute in 28 years of encouragement to Scouts and Guides and their Leaders and Organisers to participate and in promotion to radio amateurs to make it all possible, in this special year for the Institute, the Scout and Guide Movements are proud to assist in this promotion.

Amateurs who have not been previously involved may be interested in the following information. Even the 'old hands' may appreciate a refresher.

JOTA is not a contest but is a lot of fun, being one weekend in the year when radio amateurs world wide invite Scouts and Guides to participate with them to talk to others around the world, across the continent or just 'over the back fence'.

The third full weekend in October is fixed for JOTA by international agreement between the IARU and Scout World Bureau in Geneva. This avoids any conflict for the airways, between the eager young voices and a possible contest.

In 1985 JOTA starts at 0001 hours LOCAL TIME (EVERYWHERE) on Saturday, 19th October and continues to 2400 hours on Sunday, 20th October, with the amateur fitting in whatever time is possible and convenient.

The youngsters can be fascinated by your explanation of how JOTA starts at midnight on the dateline in places like ZL and 3D2, progressing west through VK1/2/3/4/7 to VK5/8 and VK6, then onwards through ZS, etc.

They can also be educated on Great Circle (shortest distance and Delta navigation) Beam Headings and the difference between various maps — particularly Mercator versus a Globe (try beam heading to South America).

There are no rules. Amateurs can operate within any condition of their licences — any band, any mode. Be ready for the situation wherein, unlike Australia, Scouts and Guides are not allowed to speak on the microphone in some countries. A special type of 'relayed' contact is needed for these people.

To facilitate contacts, World Scout calling frequencies are recommended, with the expectation that stations QSY after contact is established. As we know, this system can lead to disappointment through a contact being 'lost' on changing frequency so, perhaps it would be more effective to listen or call "CQ Jamboree" at the edge of the contacts near these frequencies.

Please note, VK participation is traditionally highest or second in the world and for many years we have been asked to 'leave a gap' between overs for DX stations as they tell us they can often hear us but are unable to break in. It has been agreed that, except by special arrangement, metropolitan repeaters are not used for JOTA, as they were installed for mobile communication. Two metres simplex is generally very popular because of clarity, in spite of the lack of DX.

BAND Metres	CW Frequency/MHz	SSB Frequency/MHz
80	3.530	3.590 (in VK)
40	7.030	7.090
20	14.090	14.290 (DX) 14.190 (VK)
15	21.140	21.360 (DX) 21.190 (VK)
10	28.190	28.990

Frequency Table

The Official Opening Ceremony will be broadcast, as in recent years, from Government House, Yarralumla, over VK1BP which will be operated by members of the RNARS, with VK6HU as Master of Ceremonies.

Their Excellencies, the Chief Scout and Chief Guide of Australia, will be supported by the Chief Commissioners for Scout and Guides.

This Broadcast commences at 0400UTC (or as near as possible), on 21.190, 14.190 and 7.090MHz simultaneously and will be followed by a call back, to enable the dignatories to talk with some of the participating stations.

It would be appreciated if stations could keep these frequencies clear from 0345UTC, to enable propagation checks to be made, mainly with the assistance of Branch Official Stations. If you are looking for them during JOTA, they are generally VK.SAA and VK.GGA, but VK5BP and VK6SH are still current and the Northern Territory uses VK8SBP.

Some Branches also have their own Official Broadcast:

VK5 by courtesy of the WIA in the Sunday Broadcast at 2330UTC.

VK6SAA at 1200UTC, Saturday 19th October on 3.590MHz.

VK6WV at 1130UTC, Saturday 19th October on 3.590MHz (for NW stations).

VK6SAA at 0800UTC, Saturday 19th October . . . rebroadcast of speeches from Canberra on two metres Channel 8, 7.090 and 21.190MHz.

Logs and Reports are the responsibility of the Scout and/or Guide Leaders but, help or verification of the contacts could be appreciated. These sheets are in no way intended to replace any station log.

VK5BP will be on air on the four Sundays prior to JOTA from 0130 to 0600UTC for enquiries and demonstrations and would no doubt appreciate some contacts.

VK2SAA will be active from late December to mid January 1986, from the site of the 14th Australian Jamboree at Cataract Park, near Wollongong, south of Sydney. Contacts during this time will be very important to demonstrate amateur radio in association with workshops, an AM broadcast band station and displays.

Opportunity is being taken to hold the Third National Conference of Scout JOTA Organisers and Guider Liaisons during the Jamboree.

On behalf of all Scouts and Guides, I take this opportunity to sincerely thank the WIA and all amateurs who make this exciting international event possible.

AR

QSL CARDS TO AND FROM THE USSR

It is common knowledge that cards from Russian amateurs take, very often, a long time to come through. This is not the fault of the WIA Inwards Bureaus.

The main reason is that most Russians do QSL and almost 100 percent of those cards come through the outwards bureau in Moscow.

Of late, the cards appear to be coming through reasonably quickly, only taking six months to a year or so. A few years ago, the time would have been two, three or even four years.

Has Box 88 become more efficient? No! Because of the present poor conditions due to the state of the ionosphere, there are not so many opportunities for the Russian stations to work DX, hence less QSL cards. Less cards means that the bureau people have been able to catch up on the back-log.

No doubt things have improved in the other direction too. Sorting cards sent to Box 88 would not be the mammoth task that it was when conditions were good.

Do you respond to listener reports from the USSR or do you throw them in the WPB?

Russian SWL cards probably outnumber all SWL cards received from other countries. There is a reason. Before an aspiring amateur can make application for a licence, he or she must become a SWL and collect the prescribed number of foreign QSL cards.

So, next time you receive a Russian SWL card, give a thought to Vlad or Serge or Alex, spending hours over the receiver, listening to you talking to your heart's content and wishing that he could join you. Your card may be just the one he needs.

From QTC, Aug 1985

HISTORY OF JAMBOREE ON THE AIR

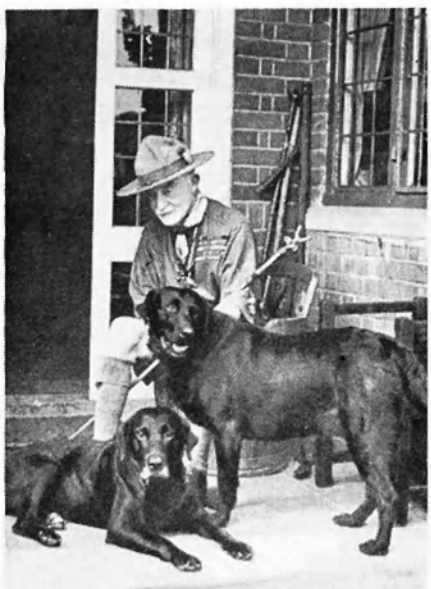
Maxwell Hull VK3ZS
FEDERAL HISTORIAN
PO Box 300, Caulfield South, Vic. 3162

Photograph courtesy 'The Story of 25 Eventful Years in Pictures'.

At the Scout Jamboree, Arrowe Park in 1929.

Lord Robert Stephenson Smyth Baden-Powell was a British General, born in 1857. He took part in the operations in Zululand in 1888, and in 1895, was sent on special service to Ashanti. In the expedition against King Prempeh, conducted by Sir Francis Scott, he was given command of the native levies, whom he turned into splendid fighting material. During 1896-7, he was Chief Staff-Officer in South Africa, and took part in the campaign against the Matabili. On the outbreak of the Boer War in 1899, he was given the command of the small force in Mafeking. Although surrounded by a greatly superior body of Boers in the very early stages of the war, 14th October 1899, he, in spite of a close investment of determined assaults, and of starvation rations, kept the flag flying until the siege was raised by Mahon and Plumer on 17th-18th May 1900. Baden-Powell then organised the South African constabulary, and from 1900-3, was Inspector of the Transvaal police.

In 1903, he became Inspector of Cavalry. He founded the organisation of Boy Scouts in 1908, to promote good citizenship in the rising generation, and to educate boys by means which really appealed to them — namely, scouting and back-woodmanship. In order to devote his time to this work, he retired from the army in 1910. In 1909, he received a knighthood. He was the author of Reconnaisance and Scouting, 1890, Cavalry Instruction, 1895, The downfall of Prempeh, 1896, The Matabele Campaign, 1896, Aids to Scouting, 1899, Sport in War, 1900, Scouting for Boys, 1908, and Sketches in Mafeking and East Africa, 1907. In 1929, he was given peerage and took the title, Lord Baden-Powell of Gilwell.



Photograph courtesy 'The Story of 25 Eventful Years in Pictures'

Lord Baden Powell, taken at his home in 1929, after he received a barony on 2nd August, for the work he had done for the youth of Great Britain and the whole world.

AMATEUR RADIO, SCOUTING AND GUIDING

Amateur radio, scouting and guiding have a similar philosophy — of spreading international friendship and goodwill throughout the world — of crossing borders of language and creed and of doing these things in a manner different to most other pursuits of mankind. It is a common link which exists between the amateur radio and scouting organisations of the world.

World scouting commenced at an experimental camp, organised by Lord Baden-Powell, on Brownsea Island, England, in August 1907. The principles of scouting, as identified by its founder were, 'that man should serve God, act in consideration of the needs of others, and to develop and use his abilities to the betterment of himself, his family and the community in which he lives'.

The 75th Anniversary of the movement was celebrated in 1982-3. This was also the 125th Anniversary of the birth of Lord Baden-Powell, fondly referred to as BP.

The word JAMBOREE means 'noisy revel, carousal or spree, especially a large gathering of Boy Scouts'. In Australia, the word CORROBOREE is often used, particularly when referring to an interstate gathering of Boy Scouts. Corroboree is an Australian aboriginal word which, by definition means 'an aboriginal assembly of sacred, festive, or warlike characters, any large or noisy gathering, a disturbance, an uproar'. From the inception of scouting, gatherings of Boy Scouts were identified by these terms.

The first world Jamboree was held at Olympia, London, in 1920. It was at this event that BP was acclaimed Chief Scout of the World. In the same year, the first International Scout Conference was held in London, from which the International Bureau, now World Bureau, was formed.

The first Australian Corroboree was held in Sydney in 1922. In the same year an International Committee was established. The largest Jamboree was held at Arrowe Park, near Birkenhead, England, on the 2nd July 1929, when 50,000 scouts from all over the world were in camp. On 1st August of the same year, Robert Baden-Powell was given a barony in recognition of 'the great work done for the youth of England and the whole world'.

The story is told how in 1910, a group of girls attended a rally at the Crystal Palace in England, dressed as Boy Scouts, demanding to be included in the activities of scouting. It seems Robert Baden-Powell was not over-impressed with this representation in those days but, nevertheless, could not see any reason why girls should not be involved in scouting. And so it was, at his instigation, that his sister, Agnes Baden-Powell, formed the Girl Guide Movement in England, which officially commenced on the 1st May 1910. In Australia, the existing Red Cross Girls Aids and Girl Aids of Australia, were willingly absorbed into the Movement.

When scouts and guides meet together nationally and internationally, the gathering is referred to as a JAMBORELLA. The first Australian Jamborella was held at Gilwell Park, Victoria, during December/January 1978-9. The first international Jamborella was an Asia-Pacific event, held at Rossmoyne Park, Dandenong, Victoria, during December/January 1984-5.

Scouting activities have always included 'signalling' but, until the postwar years of 1955-6, little interest appears to have been shown in 'wireless signalling'. The first known association of scouting and wireless was as early as 1912, when boys of the First Arundel Troop, in Sussex, England, registered the call sign XBS and, after purchasing component parts at the A W Gamage Department Store in London, constructed and operated a Spark Transmitter. It was described as a 50 watt transmitter, powered by storage batteries and operating on the 200 metre band with a sending range of five miles (8km). The station was also licenced to use portable apparatus to operate within a five mile (8km) radius of its base transmitter. The troop's receiving apparatus was said to have a range of 800 miles (1287km).

There seems to be no further evidence of the Boy Scout Movement utilising wireless in its

general activities, other than the individual operation of licensed stations, whose owners were also in scouting, until the Pan Pacific Jamboree held at Clifford Park, Wonga Park, Victoria, during December 1955 and January 1956. This was such a massive undertaking for its time and it deserves detailing for the sake of history.

VK3WIA AT WONGA PARK

In November 1955, the Federal organisation of the WIA received a request from Mr Levi Molineux, Leader of the Fraternity Group of the Pan-Pacific Scout Jamboree Camp Committee, seeking the co-operation of the amateur radio movement to provide, as an additional amenity at the Jamboree, a complete amateur radio station in full operation, to enable scouts to see it working and hear signals from all parts of the world.

The then Federal Secretary, Doug Bowie VK3DU, with the approval of the Executive, offered the use of the WIA Federal Station, VK3WIA, which was readily accepted. There was not a lot of time in which to organise such a project.

At that time, VK3WIA was operated from the home station of Major Bill Mitchell VK3UM, who was Federal President and Manager of the Federal Traffic Net. His station, like many of the postwar rigs, was substantially 'home brew' from disposals equipment. It was not exactly transportable. A decision was therefore made to seek the assistance of the defence services and the radio industry, in setting up a station. The result was beyond expectation!

First, a request was made for VK3WIA to operate at the Clifford Park camp site at Wonga Park using a power of 500 watts, and this was granted by the Wireless Branch of the Postmaster General's Department. The installation was inspected by Mr Joe Dobbyn, Superintendent of Wireless (Victoria) and Mr Alf Avard from the same office.

To operate with this power, two Type AT20 transmitters, with 50 kVA petrol driven motor alternators supplying 240 VAC, were obtained from the RAAF. The location of the station was on Headquarters Hill, the name given to a raised knob of terrain, just to the right, inside the main entrance, overlooking the Sound Shell and main amenities area. The entrance was composed of four huge boomerangs forming an arch and was featured in the design of the special QSL card, to be sent to all those operators who contacted VK3WIA.

Photograph courtesy W.L. Hull

Erected many weeks before the commencement of the campsite installations, this impressive formation of four boomerangs formed the entrance to the Clifford Park Jamboree site. VK3WIA operated from the site for the 10 days of the Jamboree.

The Jamboree Committee provided a large marquee, complete with wooden floor, in which to house the transmitters and operations area. A decent 'blow' during the early days of setting up the campsite brought the marquee to the ground. During its re-erection, the opportunity was taken to re-lay the flooring at more convenient levels. A timber and sisalkraft shelter, erected by a troop of Sea Scouts, housed the 240 VAC motor generators. Sleeping quarters were normal scouting tents, provided by the Jamboree Committee.

The two transmitters were connected for switching to any one of six directional (four wave lengths per leg) V beams, suspended from a central 75 feet (23m) metal pole. This was supplied and erected on Headquarters Hill by personnel from the Royal Army Signals Corps, at Balcombe, Victoria. Six 30 feet (9m) collapsible masts, loaned by the RAAF, were set up on the perimeter of Headquarters Hill by WIA personnel, who also completed the audio, feedline, antenna switching and power wiring, for the entire installation. The transmitters were operated on 80, 40 and 20 metres.

900 yards (823m) of 7/20 bare copper wire used in the installation, was donated by the British General Electric Company Pty Ltd, Glorad Engineering Services Pty Ltd, Johnson & Phillips Pty Ltd and O H O'Brien Pty Ltd. Several hundred insulators, of various kinds, were donated by Nilsen Porcelain Pty Ltd, Australian Electrical Industries (AEI) Pty Ltd and R H Cunningham Pty Ltd. 400 yards (366m) of steel guy wire was provided by ARC Engineering Co Pty Ltd and 150 yards (136m) of rope halyard from Glorad Engineering Services Pty Ltd, the latter company also supplied control equipment, 80 feeder spreaders, power distribution boards, relay power supply and test equipment. Antenna change over relays were supplied by Ham Supplies.

Fuel and oil, for the motor driven alternators, were delivered, on site, by the Vacuum Oil Company, paid for by donations from Ampol (Alba) Petroleum Pty Ltd, Caltex Oil (Australia) Pty Ltd, Commonwealth Oil Refineries Ltd and the Vacuum Oil Company Pty Ltd. The surplus was sold to the Jamboree Committee.

A four channel audio mixer, on loan from the Australian Broadcasting Commission, provided means by which, important addresses from the main sound shell could be mixed with local announcers' voices for transmission at appropriate times.

Despite the short notice, inclement weather part of the time and many frustrating technical problems associated with installing the equipment in difficult circumstances, the project was a success, from which many lessons were learned. VK3WIA operated for almost 24 hours per day over the 10 days of the Jamboree, logging more than 480 contacts in 38 countries.

Scouts from all over the world flocked around the operations area, many of them being able to talk on the air to local, interstate and overseas amateurs. The scouting movement in Australia and overseas had been notified of the operation of the station and were looking for signals from the Australian Jamboree on the Air. From the WIA's point of view, the Clifford Park Jamboree was the first Jamboree on the Air ever held and sparked off the enthusiasm for encouraging amateur radio operators around the world to open their shack doors to the scouting fraternity.

The entire operation was carried out by a small team, namely: M Cameron VK3AC, George Glover VK3AG, R Jones VK3BG, Doug Bowie VK3DU, Jack Elton VK3ID, Reg Jepson VK3JI, Ray Jones VK3RJ, Bill Mitchell VK3UM, Ivor Stafford VK3XB, Fred Bail VK3YS, Lance Frith VK3ZA, Max Hull VK3ZS, Ken Seddon VK3ACS, Hans Albrecht VK3AHH, R Bailey VK3ZAQ, John McKenrick and Bob Darlington.

From left: James Yapp, Karam Singh, Ashkar Hasbollah and Max Hull VK3ZS, making contact with stations in North Borneo during Clifford Park Jamboree.

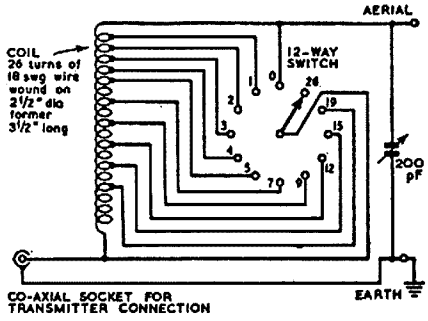


Figure 1 - Circuit Diagram of a the end fed Aerial Matching Unit.

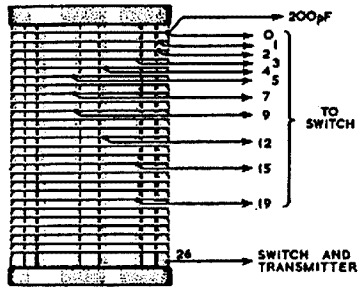


Figure 2 - Details of Coil and Tappings. The Coil is wound on an Eddystone Frequentite Former.

In August 1957, the year following the successful Australian venture, the Boy Scouts Association in England celebrated its Jubilee Jamboree. The event was the 'BP Centenary 1857-1957 Jamboree' at Sutton Park, Sutton Coldfield, celebrating 100 years since the birth of Robert Baden-Powell.

The British Postmaster General granted special facilities for the operation of an amateur radio station, using the call sign GB3SP. It was permitted to operate simultaneously on more than one band, between 3.5 and 30MHz, and to transmit a News Service as well as conducting the normal activities associated with amateur station operation. The News Bulletins were transmitted 'on the hour' for approximately five minutes, from 1000 to 2200 GMT (UTC), with special radiations beamed to suit conditions and local times around the world, where possible.

The Federal Executive received notice of this event and recirculated the information to VKs through the pages of Amateur Radio and WIA Divisional Broadcasts. It was from this event the idea was born for all scouts operating on the amateur bands to nominate one day a year on which they would get together for a Jamboree on the Air, JOTA. Les Mitchell G3BHK, who had been running scout radio camps in England since 1946, was given the job of organising JOTA. For its success, it was seen as being necessary to invite amateurs throughout the world to take part, rather than confining the event to local licensed scout stations.

In November 1957, the idea was put to the test, using a 40 watt AM transmitter, set up at a meeting held at Fielden, UK, at which local scouts attended. It was an outstanding success, with 63 contacts in some 30 countries being made in 24 hours. The rules were then drawn up for the first official JOTA in 1958 and it was officially listed as an annual scouting event. From 1959, JOTA became the responsibility of the Boy Scout World Bureau and this organisation annually circulated International Commissioners, Jamboree on the Air Organisers and Amateur Radio Organisations, with details of dates and times. The co-operation of amateur organisations was vital to ensure the continued success of JOTA.

The WIA played an important part in encouraging Australian amateurs to open their shacks for scouts to see amateur radio in operation. There was some apparent lack of interest in the early days, which has largely been overcome.

In 1963, the Australian Boy Scouts Association contacted the Federal Executive of the WIA, seeking the assistance of the Institute to again install and operate an amateur station at the forthcoming Seventh Australian Jamboree, to be held on the site of the Old Police Paddocks at Rowville, near Dandenong, Victoria, from 29th December 1964 to 11th January 1965. In making the request, the Association cited the success of the 1955-6 Jamboree and expressed the hope 'that the WIA could do it again'.

Jay Lancaster VK3JL, had taken over the office of Federal Secretary.

Almost a decade had passed since the Wonga Park operation and Jay knew little of what had gone into that event. With his typical efficiency however, he organised a committee composed of Bill Mitchell VK3UM, Max Hull VK3ZS, George Glover VK3AG and David Rankin VK3QV and advised the Scout Association that VK3WIA would operate at the Jamboree. This time the installation was a very much smaller and amateur like setup. Compact commercial rigs were appearing in the market place and the Executive had acquired a Geloso G222-TR Amplitude Modulated transmitter covering 3.5 to 30MHz in six bands, for use on its Federal Traffic Net, and this was pressed into service at the Rowville camp site. The simple antenna tuning unit, illustrated in Figure 1 and 2, coupled the transmitter to a random length end fed antenna.

A brief study was made of the sun spot cycle conditions which appeared favourable. VHF home brew equipment was therefore also installed, thus providing the scouts with a broad example of what amateur radio was all about.

Hundreds of contacts were made on all bands during the 10 days of the Jamboree, which this time enjoyed excellent weather. Due to circumstances, the bulk of the operating of the station fell in the lap of Bill Mitchell VK3UM and David Rankin VK3QV, who kept the station on air for many hours a day.

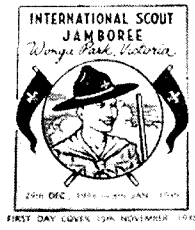
This was the last known activity of VK3WIA at Scout Jamborees. The WIA has, however, fostered the activity of JOTA and over the years, from the middle 60s until the present time, has seen a great deal of publicity and co-operation given to this event. Amateur Radio magazine has carried a number of front cover feature pictures of amateurs and scouts participating in JOTA. It has become one of the most important world wide events on the calendars of the scouting and amateur radio organisations.

Many scouts today are licensed amateurs, who first gained interest in amateur radio through participating in JOTA.

Lord Baden-Powell of Gilwell, passed away on 8th January 1941. From the humble beginnings of scouting in 1907, he saw world membership reach 1,019,205 in a 1922 census. Today the organisation of World Scouting boasts over 17 million scouts, around the world. BP visited Australia in 1912, 1931 and 1934.

Lady Olave Baden-Powell passed away on 26th June 1977, after a life of fulfilment, dedicated to her husband's cause and that of the Girl Guide Movement. She visited Australia on the occasion of the Diamond Jubilee Year of Scouting 1907-1967. A thanksgiving service was held on 30th April 1967, in Festival Hall, Melbourne, at which a gathering of more than 6000 scouts and guides were addressed by Lady Baden-Powell. This address was recorded for posterity by the writer.

This year, 1985, celebrates the 75th Anniversary of Guiding in Australia. The Girl Guide Movement has a present membership of 100,000. Australia Post issued a 33 cent Pre-Stamped Envelope celebrating the event.



Pre-Stamped Envelopes and Commemorative Postage Stamps have been issued on several occasions, celebrating scouting events, in Australia. A red 2 1/2d (3 cent) stamp depicting a scout was issued, together with a First Day Cover, to celebrate the 1948-9 Pan Pacific 'Yarra Brae' Jamboree. A similar 3 1/2d (4 cents) stamp and First Day Cover were issued for the 1952-3 Pan Pacific Jamboree at Graystanes. The scout depicted on these two issues was the son of the then, Commonwealth Note Printing Branch Engraver, Mr Frank Manly. In 1979, a 20 cent, First Day Cover was issued to celebrate the Fourth Asia Pacific (12th Australian) Scout Jamboree, in Perth. This Jamboree had a special importance, being the final event in an exciting year of sesquicentennial celebrations for Western Australia.

During the WIA's 75th Anniversary, it is again the Institute's pleasure to be associated with scouting and guiding, for the October Jamboree on the Air. It looks forward to many more years of JOTA activity, in harmony with people who have such an affiliation with it.

All VKs are cordially invited to participate in the 1985, 28th Jamboree on the Air.
JOTA is part of our history. AR

Radio Amateur Old Timers Club

QUEENSLAND'S SECOND ANNUAL LUNCHEON A SUCCESS

Bill Bentson VK4QF/W7QFY, advised that the Annual Luncheon of the Queensland RAOTC, held at the Coorparoo RSL Club on 28th April, was, again, a success, with 33 members present. Bill says they plan to have one every year, on the Sunday following ANZAC Day.

The VK4 boys donated $20 towards the cost of printing the RAOTC 'OTN Journal'. The Committee extends its thanks and appreciation. With the cheque was a photograph of the members at the luncheon.

Back row standing-Art Walz VK4AW, Malcolm Gray VK4ASU, Alan Taylor VK4BE, Keith Schleicher VK4KS, Roy Hildred VK4RE, Bill Stevens VK4YN, Bob Linsket VK4ALI, Stan West VK4RL, James Halyday VK4HZ, Stewart Smith VK4LA, John Atkinson VK4RZ, Ron Guttormsen VK4WY, Neville Jones VK4NJ, Ken Smith VK4KA, Ian Morrison VK4MO, Ernie Burnage VK4OG, Sam Weller VK4CZ, Herb Sprenger VK4ES.

Centre Row seated-Ernest Ginn VK4GE, Charlie O'Brien VK4NC, Ron Glassop VK4BG, Merv Wratten VK4MW, Norm Hart VK4KO, Al Carter VK4LT, Fred Lubach VK4RF, Eddy White VK4OW, Joe Ellis VK4AGL.

Front row-Bill Bentson VK4QF, John Pardon VK4PU, Ken Ayers VK4KD, Cress Everdell VK4ZAO, Ced Marley VK4CJ and Claud Singleton VK4UX.

Ron VK4BG, John VK4RZ, Norm VK4KO and Art VK4AW have been licensed for over 50 years. Congratulations, OMs.

HOW TO JOIN THE RAOTC

Eligibility for membership is available to amateurs who have held, or been qualified to hold an amateur licence for a period of 25 years, or more.

Its objects are to maintain interest and fellowship among the older licensed amateurs. It is affiliated with the Wireless Institute of Australia.

The joining fee is $15 ($20 overseas applicants), which should be submitted to the Secretary, Harry Cliff VK3HC, PO Box 50, Point Lonsdale, Vic. 3225, together with the date of your original licence, operator's certificate number, original call sign or qualification held and present call sign, if original not now held.

An application form is available from the Secretary at the above address. It is required to be signed by a proposer and seconder, who are already members of RAOTC.

Membership is only paid once! It entitles members to participate in all RAOTC on air nets, social functions and a copy of the Club's journal 'OTN'. Members also receive a Club badge, as part of the once only fee. Donations may be called for occasionally, to cover operating costs.

SIXTY YEARS AGO LAST MONTH

Most old timers will recall the name, Hugo Gernsback, author of many text books on radio and editor of the magazine RADIO NEWS.

Sixty years ago, in the August 1925 issue of this magazine, was a picture of a microphone, which was said to be one of the greatest advances of the year in radio.

It was called a 'Marble Block' microphone and was invented in Berlin by a German experimenter named Eugen Reiss. Marble was used, because it was said to eliminate undesirable oscillations, which were common in other microphones. Instead of the carbon powder usually used in microphones of the day, Reiss used a finely powdered crystal substance, the formula of which was a secret!

Many old timers constructed copies of the Reiss microphone, using a marble block, gold plated rods as electrodes and polished carbon granules. What then, was the secret formula, said to be used by Reiss in his original microphone? It seems the wiley German might have 'put one over', still using carbon but, is a crystal granule form. Does anyone know of any other 'secret crystal substance'?

This and many other interesting early subjects on wireless will be coming to you in future issues of the OTN journal, and the Old Timers' page in Amateur Radio.

HISTORICAL RECORDING

Our President and Editor, Max Hull VK3ZS, with Co-Editor Kevin Duff VK3CV, Peter Wolfenden VK3KAU, a member of the WIA 75th Anniversary Committee and Chris Long, Assistant Electronics Curator of the Melbourne Museum, are working on the production of a historical cassette, to be made available for sale during the WIA's 75th Anniversary Year.

There are some remarkable recordings coming to light, giving an insight into amateur radio, some decades ago. There must be some old timers who have recordings of amateurs, either on acetate disc or magnetic tape, who would like to lend them to the Institute for editing. Or perhaps you might have some Edison cylinders with amateur recordings engraved in those fine grooves!

Chris Long is an expert on retrieving this precious material from every known audio source and every care is taken to avoid any damage. Do you have anything to offer? If so, mail it to the WIA Federal Office, PO Box 300, Caulfield South, Vic. 3162 or to Max Hull, PO Box 33, Canterbury, Vic. 3126.

The completion of this recording involves a lot of work, so any material old timers can offer must be rushed to the above, if it is to be used in this First Historical Recording.

1985 VK/ZL QSO PARTY RESULTS

Logs were received from 23 of the 48 VK members, who appeared to take part in the 14MHz Party. 13 ZLs and two W6s were also active. Conditions made contacts between adjoining states rather difficult, but everyone seemed to enjoy themselves. Congratulations to VK7RF, whose 1600 points were the highest yet recorded in these parties.

CALL	MODE	QSO	MULT	TOTAL
VK7RF	SSB	32	10	1600
VK5SI	SSB	31	9	1390
VK75A*	CW/SSB	27	10	1350
VK6PM	CW/SSB	28	9	1260
VK2PU	SSB	26	9	1170
VI3LC	CW/SSB	26	9	1170
VK3ML	CW/SSB	26	9	1170
VK4AGL	SSB	21	10	1050
VK3VF	CW/SSB	24	8	960
VK3JI	CW/SSB	27	7	945
VK7BI	SSB	18	8	720
VK7AL	SSB	12	8	680
VI3XB	CW	20	6	600
VI3KS	CW	19	6	570
VK4OX	SSB	15	7	525
VK4AEM	SSB	14	7	490
VK5RK	SSB	15	6	450
VK4CI	CW	18	5	450
VK3XF	CW/SSB	14	6	420
VK2AWA	CW/SSB	12	4	240
VK7GB	CW	8	5	200
VK5KV	SSB	7	5	175
VK3ZC	CW	8	4	160

*VK75A was operated by VK3JA

The lateness in publishing these results is due to the late returns of logs. Participants are requested to please forward logs within 14 days of the conclusion of the QSO Party. It takes time to carry out the checking of logs and when received late, precludes the probability of meeting magazine copy dates, which are always (and have to be) well in advance of the publication date.

WIA ACCEPTS RAOTC AFFILIATION

After several months delay, whilst the Federal Council of the WIA considered our application under Article 103 of its constitution, the RAOTC has been advised, that affiliation with the Institute has been approved.

This means that the RAOTC, as a body, is an affiliate of the WIA and derives the benefit of all the facilities and activities the Institute offers.

Article 103 (Regulation 1) defines our affiliation -

The Federal Council may accept any duly constituted group, club or organisation (hereinafter referred to as an affiliate) which in the judgement of the Council has objects such that:

a) it allows membership not restricted to persons living in any part of Australia, and

b) it has objects not inconsistent with the objects of the Institute, and

c) it confers no voting rights or any other rights whatsoever apart from those listed herein;

d) not less than 75 percent of members shall at all times be licensed radio amateurs, and

e) that not less than 55 percent of its members at any time shall be financial members of a Division of the Institute and resident within Australia.

Under the present operation of the WIA, the membership fee is $24, being what is known as the Federal element. This has been paid by Secretary, Harry Cliff. Your Committee is now entitled to address any suggestions or complaints to the Institute through the proper channels.

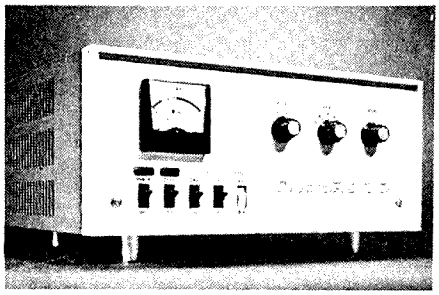
Submitted by Max Hull VK3ZS.

AR

KNOW YOUR SECOND HAND EQUIPMENT

A Series to Help You Identify Amateur Equipment

Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150



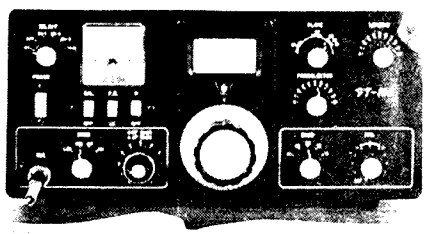
YAESU FLDX-2000 LINEAR AMPLIFIER

Styling matches the FL/FRDX-400 while the circuit is similar to the FL-1000, but much improved in many areas. 6KD6 tubes were now used, which gave a greater output of about 500 watts PEP. High voltage was now up to 1000 volts. An SWR meter was included but the input circuit was still untuned, so it is not really suitable for use with modern solid state gear.

Tune-up had to be quick or they had a nasty habit of blowing up the final tubes, often with spectacular results. Second hand value is around $175.

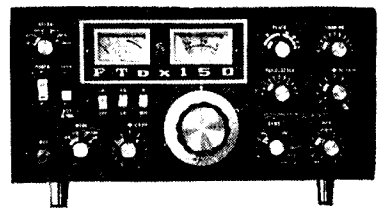
EARLY YAESU TRANSCEIVERS

By the time Yaesu released their first transceiver in late 1966, there were many other HF transceivers available. Swan, Galaxy, Hallicrafters and National were all well established. For those with plenty of money, the Collins S Line had been around since 1959. A few lesser known American brands, such as SBE, were also available. If you think gear is expensive today, a Swan or Galaxy transceiver would have cost around $600 in 1966. All of this equipment will be looked at in due course. The first Yaesu set new ground with its solid state design, which was to follow into the future.



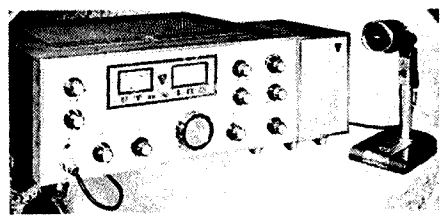
YAESU FT-100 TRANSCEIVER

The FT-100 appeared here during late 1966. By the standards of the time, it was very compact and, with its all black colour scheme, was perhaps the original 'black box'. Its advanced circuitry was almost all solid state. Three tubes were used in the transmitter final, a 12BY7 driver with two 6JM6s in the output. Power output on the 80 through 10 metre bands was about 60 watts. An inbuilt power supply provided for operation from either normal AC mains or from a 12 volt DC source. Current drain on receive was about 500mA and on transmit 10A average. The FT-100 was the direct predecessor of the famous FT-101 series. Original price of the FT-100 was $600 and second hand value today is about $200.



YAESU FTDX-100

Electrically, much the same as the FT-100, but styling has been changed to bring it into line with the other FTDX series of equipment. This model was released in late 1968. Original price was $650 and second hand value today is about $225.



YAESU FTDX-400 TRANSCEIVER

The FTDX-400 was the first of the big high power Yaesu transceivers. It arrived around April 1968. It measured in pre-metric units..15.75 x 6.25 x 13.25 inches. Weight was a hefty 40 pounds. The 400 was a tube design, with a few transistors for such things as the VFO and calibrator oscillator. The power supply was built in for AC only operation. Two 6KD6 tubes were used in the final with 800 volts on the plates. Power output in excess of 200 watts was available, however many 6KD6s 'bit the dust' when the tune-up procedure was extended a bit too long.

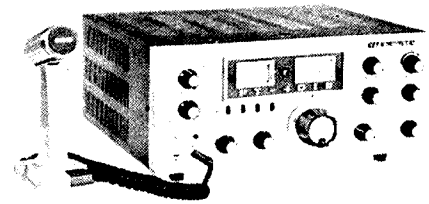
Everything was built in to the 400. VOX, calibrator, CW side tone and that wonderful gadget, the receive clarifier. General performance was very good in its day, but if you are looking at a second hand unit today, check the following points. VFO Drift — I have noted that many 400 VFOs now drift to an excessive degree and this can be hard to fix. Also check power output on each band, which should be at least 150 watts on 10 metres and increasing to about 200 watts on 80 metres. While not covering 160 metres, they can easily be modified to do so. Original price in 1968 was $690 and second hand value today is about $225.

YAESU FTDX-560

Very similar to the FTDX-400, but up-dated in some respects. Tuning rate was improved to give about 20kHz per knob revolution. A row of four slider switches under the meter replace concentric rotary switches on the FTDX-400. General performance is the same as the 400 and the same precautions should be taken if purchase is considered. Released about mid 1971 and priced down to $595. Second hand value today is around $250.

YAESU FTDX-570 TRANSCEIVER

Very similar to the FTDX-560 above, but now has a cooling fan for the final amplifier installed as standard equipment. This improved the overall reliability, somewhat. The 570 also incorporated a noise blanker in place of the audio noise limiter of the earlier model. Second hand value about $260.



YAESU FTDX-401 AND 401B TRANSCEIVERS

These were the last of the line. Similar in appearance to the 560/570 transceivers, the 401 was released in late 1971 and the 401B in early 1974. Both had a CW filter installed as standard and the 'B' model also had an AM facility. They also included an excellent noise blanker. New price was about $600 and second hand value would be about $275.

FLAT VIDEO TUBE DEVELOPMENT

Television sets and video displays are expected to become more compact following a technology breakthrough in flat screen production.

Japanese electronics giant Matsushita Electric has developed a new color screen which reproduces a distortion-free image.

It uses a matrix drive and deflection system; with a panel consisting of 3,000 picture cells arranged in a matrix — 200 horizontally and 15 vertically.

Each cell is scanned by one electron beam which excites phosphor stripes.

Matsushita believes the new flat screen technology has immediate application in office automation technology such as teletex and videotex.

AR

NOVICE NOTES

Ron Cook VK3AFW
TECHNICAL EDITOR

ARE YOU ZERO BEAT?

Zero beat is the term used to describe the condition when two single sinusoidal signals are set to the same frequency. There is no resultant beat note. If the signals are 1kHz apart then a 1kHz beat will be produced which can be heard if appropriate circuitry is used. For example, a signal at 1000kHz and another at 1001kHz will produce a 1kHz audio beat, which may be heard in a crystal set. Amateur radio operation usually requires that participants in a contact be zero beat.

Newcomers often have difficulty in achieving zero beat, so this article is intended to help them.

WHY ZERO BEAT?

In any contact, it is most desirable that all stations involved operate on the one frequency. This minimises the amount of the band space used and reduces the need to use the receiver offset tuning control (clarifier or RIT). The use of VOX, which should be used more often, is inhibited if all stations on a particular frequency are not zero beat. Further, when CW is used, because of the increasing use of narrow CW filters, incorrect zero beating (or netting as it used to be called), can mean not making the contact because you have not been heard. If you are 1kHz off frequency, you will probably be outside the pass band of the other station's receiver.

The most common error is to leave the clarifier/RIT on while tuning. Any offset in the clarifier will show up as an offset in transmitter frequency. Most clarifier controls have poor scales which are unsuitable for setting to better than 100-200Hz off centre frequency at best.

Regrettably some transceivers actually shift frequency slightly when switching from receive to transmit. This can come about because of inadequate power supply regulation, although this would normally also give FM on SSB and chirp on CW. It should not occur in a well maintained rig. Some transceivers suffer from inadequate carrier oscillator buffering so when the oscillator is switched from the product detector to the balanced modulator, a slight frequency shift occurs due to loading effects. The cure for this, when one exists, is different for each rig and not the sort of exercise I would recommend for the average novice. If you have this problem consult the local agents for your rig.

For SSB there is another common source of non zero beat transmissions. This is the different perceptions that operators have of the correct pitch of received audio. The best check of this is performed by joining in a net with a female operator. Female voices need more precise tuning than male voices to sound natural, so if all operators leave their clarifiers off and tune to the female operator's transmission then everyone should be on the same frequency. It is likely that you will prefer some transmissions when slightly mistuned. Perhaps these transmissions have their carrier crystals slightly offset or perhaps it involves the combined response of the microphone and SSB filter. Or perhaps it is all in the ear of the receiving operator.

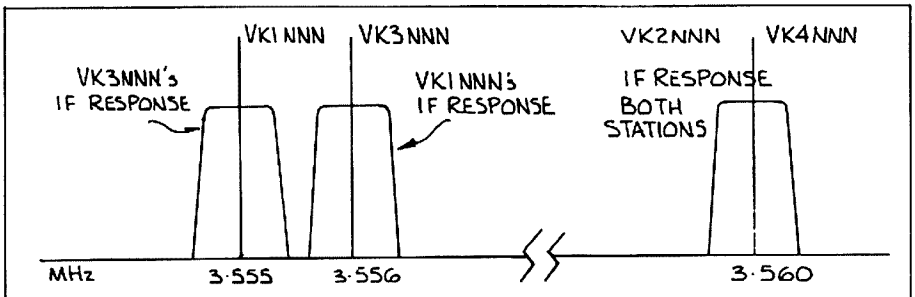


Figure 1 — Illustration of incorrect and correct zero beat operation. See text for details.

Figure 1 shows two hypothetical CW QSOs in progress on the 80 metre band. VK1NNN called CQ and VK3NNN responded. Unfortunately he offset his transmitter 1kHz high. By using their clarifiers, both stations are able to receive one another's signal at a comfortable pitch. It would be difficult for another station to join in as an inspection of the receiver bandpasses will make obvious.

By comparison, before VK4NNN called VK2NNN, she carefully set her transmitter to zero beat with VK2NNN. Both are on frequency and are using the minimum of band space. Anyone else calling on the same frequency will be easily heard, propagation permitting.

HOW OFFSETS OCCUR

In the old days, separate transmitters and receivers were the usual equipment. There was little difficulty in ensuring zero beat as both the incoming signal and the operator's own transmitter could be monitored in the station receiver. Today transceivers are the usual equipment and the operator merely tunes in the desired station and responds, the transceiver being automatically on frequency. Well, that is the theory, but a random selection of QSOs reveals that this is not so.

For CW most transceivers offset the transmit frequency by 800Hz when CW is selected so that when the incoming signal is tuned into the centre of the filter transmission takes place on the same frequency as is being received. This relies on the operator being able to match the received tone to 800Hz. Any error in setting to 800Hz will appear as a difference between operating frequencies. Figure 2 shows the shift of carrier on CW transmit and the high attenuation suffered by signals which are incorrectly set.

The sidetone is usually generated by an audio oscillator which has been factory set to 800Hz (in most rigs) so initial tuning should endeavour to match the received note to that of the sidetone. If any doubt exists, the sidetone frequency should be checked with a frequency counter.

If you do not have access to a frequency counter, then it is possible to use the inbuilt crystal calibrator to generate an 800Hz tone. Set the calibration on and tune to zero beat. The dummy load must be connected for this test. Set the dial skirt to an exact alignment with a 100kHz mark or note the reading of the digital dial. Tune 800Hz away from zero beat using the dial and note the audio pitch. Press the key and note the pitch of the sidetone. If all is well they will be almost the same. If not tune the receiver until the tones match and read the receiver frequency. The difference between this and the initial zero beat setting gives the frequency of the sidetone. There is a possible inaccuracy of 100Hz or so due to the limited resolution of the dial, so measured values in the vicinity of 650 to 950Hz are probably acceptable.

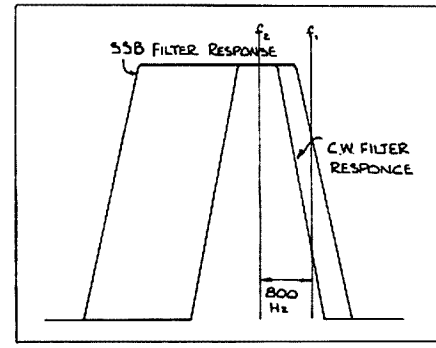


Figure 2 — Illustration of CW Transmission Offset. f1 is the BFO frequency for the product detector for reception of SSB (LSB) and CW; f2 is the frequency of a correctly tuned incoming CW signal. It is also the frequency of the CW carrier oscillator for transmission. Note that this is 800Hz lower than the analog dial indication. (Some transceivers with digital readouts adjust the indicated frequency to be correct for CW transmission). Beware of getting beyond the band edge!

THE CLARIFIER

As misuse of the clarifier is the main culprit for off frequency operation I thought it useful to review the operation of a typical circuit. Figure 3 shows a simplified circuit of the clarifier used in an FT-7. The transceiver is tuned by an L-C VFO. A varicap diode is connected across the oscillator tuned circuit. A varicap is a diode especially constructed to give a variation of capacitance with varying reverse voltage. It is a voltage controlled capacitor, having a range of a few tens of pF in most cases. When the clarifier is off the applied voltage is set by VR1 and VR2. VR1 sets the VFO to correct alignment with the dial by trimming the output from the regulated supply and hence the voltage applied to the varicap. VR2 sets the transmit and receive frequency to the same frequency as obtained with the clarifier on and the clarifier control centred. When the clarifier is off, VR2 determines the varicap voltage and hence the operating frequency.

When the clarifier is on, the voltage applied to the varicap is determined by VR2 on transmit, as before, but on receive the clarifier control VR3 determines the voltage and hence the received frequency.

The 800Hz offset on CW transmit is achieved by switching capacitance across the carrier oscillator or by using a different carrier oscillator. The FT-7 uses the latter method.

CONCLUSIONS

The basic rules for avoiding off frequency transmissions are:

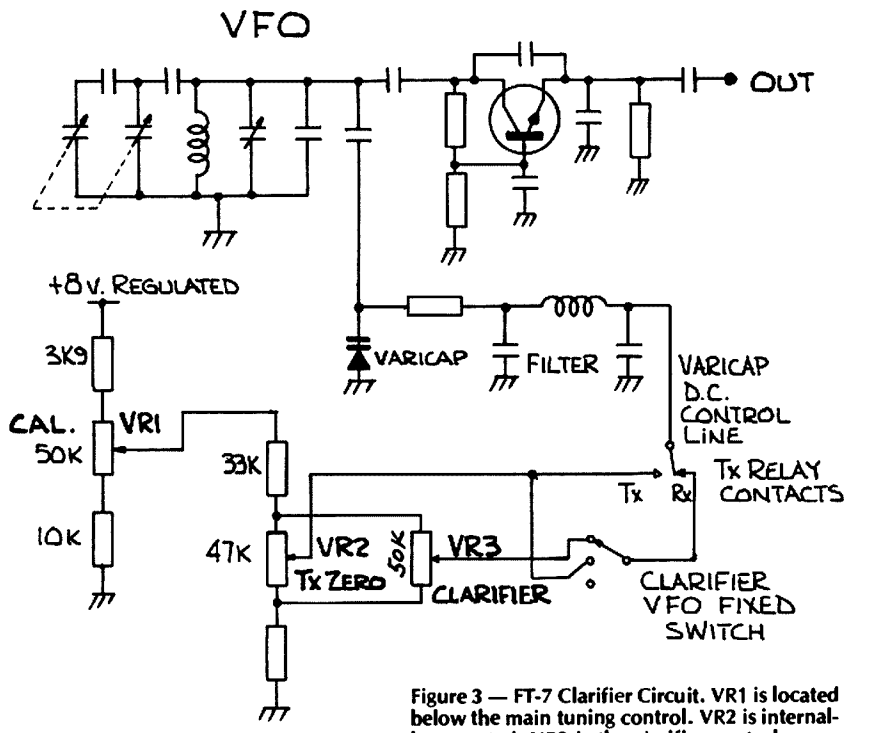


Figure 3 — FT-7 Clarifier Circuit. VR1 is located below the main tuning control. VR2 is internally mounted. VR3 is the clarifier control.

On SSB tune initially with the clarifier off.
On CW tune initially for an 800Hz tone.
To obtain audio that suits you use the clarifier - after obtaining zero beat.

73 de VK3AFW

As this is my last contribution to this column, I want to take the opportunity to thank all those who have assisted me in various ways over the past few years. It has been fun, thank you for your company.

TELEMEMO

Telecom Australia has awarded contracts totalling $1.3 million for the supply of a computer based message system to be marketed as "Telememo".

GTE Australia and Tandem NonStop have been selected as the suppliers of the system software and operating hardware, respectively.

"Telememo" will enable users with access to a personal computer or visual display terminal and modem to enter messages for other users. Users will be able to access "Telememo" from anywhere in Australia, at any time and scan, read and file their messages.

Announcing this, the General Manager of Commercial Services, Mr Ian Campbell, said that Telecom's "Telememo" service is to be installed during July and will be available for public service by the end of 1985.

From "Telememo" press release, 9th July 1985.
Submitted by Peter Gamble VK3YRP.

VANUATU

Jack Hannaford YJ8JH ex 9V1ND, advises that there are still problems with unauthorised use of YJ calls.

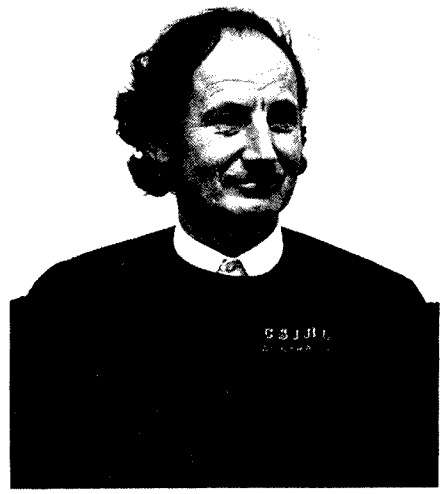
The current situation is as follows:

*YJ8** (two letter calls) are only allocated to residents — both citizens and long term expatriate workers.*

*YJ0A** (three letter calls beginning with 'A) are allocated to visitors who satisfy the authorities about their technical amateur radio qualifications.*

YJ3, YJ4, YJ6, etc are not legally allocated calls.

Submitted by David Rankin VK3QV/9V1RH



THANKS!!

Regrettably Ron Cook VK3AFW, has resigned from the Publications Committee due to pressure of business commitments.

Ron, over a thirteen year period as a committee member, has held the positions of Assistant Editor and Technical Editor and has been renowned for his segment 'Novice Notes' over the years.

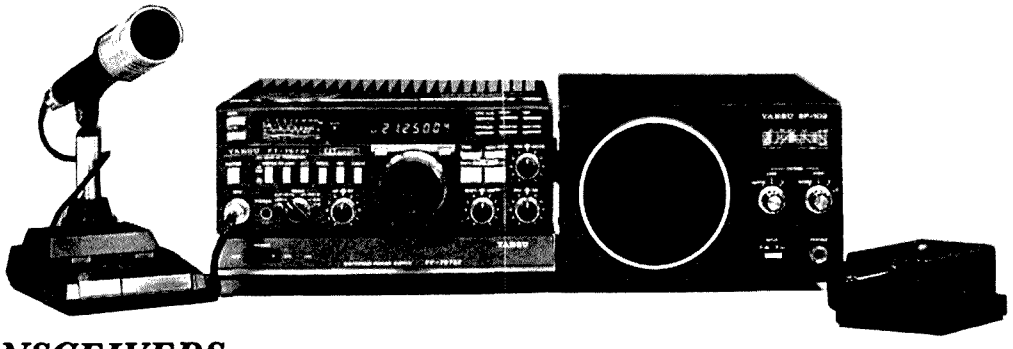
Ron, a qualified Electrical Engineer employed as an Experimental Scientist with the Commonwealth Scientific and Industrial Research Organisation, will be greatly missed for his contribution to the magazine. On behalf of all readers, sincere thanks Ron and best wishes to you and your XYL Ruth, for the future.

Bill Rice VK3ABP
Editor

BAIL ELECTRONICS

asks you to look at our range of

AMATEUR GEAR



HF TRANSCEIVERS

FT980-all mode; 12 memories; general coverage receiver

FT757GX-all mode; 8 memories; all normal options installed; general coverage receiver

FT757GX.....SPECIAL PRICE FOR OCTOBER..... $1295.00

VHF & UHF TRANSCEIVERS

FT726R-all mode; 10 memories; 10 watts output; two VFOs; can hold three modules (2m, 6m, 70cm, 21/28m modules) plus satellite IF unit; AC/DC operation

FT203R-handheld 2 metres; 2.5 watts, thumbwheel; optional headset/microphone & VOX operation
FT209-RH-handheld 2 metres; 5 watts; keypad entry; optional headset/microphone & VOX
FT290R-all mode portable 2 metres; 2.5 watts
FT270R-mobile 2 metre FM; 25 watts; 10 memories; optional voice synthesiser
FT2700R-mobile 2 metre & 70cm; 25 watts both bands; 10 memories; full duplex 2m/70cm
FT690R-all mode portable 6 metres
FT703R-70cm handheld; thumbwheel 2.5 watts
FT709R-handheld 70cm; keypad entry; 45 watts
FT730R-mobile 70cm; 10 watts; 10 memories

LINEAR AMPLIFIERS

FL2100Z-160 — 10 metres; 1200 watts maximum input
FL2010-2 metres; 10 watts out; suits FT208, FT290, etc.
FL7010-70cm; 10 watts out; suits FT708, FT790, etc.
FL110-suits FT7, etc.

ANTENNA TUNING UNITS

FC700-suits FT707/77; inbuilt 150 watts dummy load
FC757AT-automatic; suits FT757/FT980; inbuilt 150 watts dummy load
FAS-1-4R antenna selector (four-way)

EXTERNAL VFO

FV700DM-suits FT77/707; 12 memories
FV102DM-for FT102

TRANSVERTER

FTV707-suits FT707/77, takes one module
-6m, 2m, 70cm modules for FTV901, FTV107 & FTV700

POWER SUPPLIES

FP700-suits FT77, FT757; 20 amp inbuilt speaker
FP575GX-switch mode; 20 amps
FP757HD-heavy duty; inbuilt speaker fan
FP7-3 amps
FNB-2, FNB3, FNB4-NiCad packs for handhelds

CHARGERS AND DC/DC ADAPTERS

NC-8; NC-3A; PA-2; PA-3; etc

EXTERNAL SPEAKERS

SP102-suits FT102, FT726, FT757GX; has filters
SP980-suits FT980; has filters
SP55-general purpose

TRANSCEIVER ACCESSORIES

AM/FM units; keyer units; WARC bands mod kit for FT101Z, FT107, FT901; FIF-232C (RS232 interface); extender boards; mobile brackets; etc

MICROPHONES

MD-1B8-deluxe desk type with scanning
MH-1B8-hand mic with scanning
MH-12A2B-speaker/mic for FT203, 209, 703, 709
MF-A3B-boom mic for mobile or base use
YM-34-desk mic; dual impedance
YE-7A-hand mic; 4 pin; 600 ohm

We also have a range of YAESU COMMERCIAL HANDHELDS and MOBILES approved by DOC. Low and High band VHF, VHF Marine handhelds, UHF handhelds and mobiles.

TELEPHONE, TELEX OR WRITE TO BAIL ELECTRONICS FOR HELPFUL ADVICE. MAIL ORDERS ARE WELCOME.

YD846-hand mic; 50 kohm
YM36-hand mic; noise cancelling
YM-40-for FT480, 680, 780
YM47-for FT290, 690, 790, 230, 730
YM49-speaker/mic for FT290, 690, 790
YM24A-speaker/mic for handhelds
-4 pin, 6 pin, 7 & 8 pin plus and sockets for above
YH-1-headset/boom mic for handhelds and mobiles
YH-2-headset/boom mic for FT203, 209, 703, 709
-SB-1, SB-2, SB-3, SB-10 switches

HEADPHONES

YH55-with earmuffs
YH77-lightweight

RECEIVERS

FRG8800-HF communications receiver, all mode
FRV8800-VHF converter (118-174MHz) for FRG8800
FRG9600-VHF/UHF receiver; all mode; 60-905MHz; 100 memories
FRT7700-antenna tuner for FRG7700/8800
FRA7700-active antenna for FRG7700/8800
FRV7700-VHF converters for FRG7700
Memory unit option for FRG7700

HAM CLOCK

Yaesu QTR24D — quartz, shows time zones

FILTERS

CW, CW (narrow), AM, SSB (narrow) for transceivers.
- FF501DX (30MHz LP)

SERVICE MANUALS

For transceivers and receivers

VACUUM TUBES

572B, 6JS6C (NEC), 6146B, 6KD6, 6JM6, 6GK6, 12BY7-A

SEMI-CONDUCTORS & SPARE PARTS

We have a large range of Yaesu spares; if they are not in stock, we will get them from Yaesu.

EMOTATOR ROTATORS

502SAX, 1102MXX, 1102MSAX, 1103MXX, 1103MSAX
Rotator accessores-301 bearing, bottom clamps, couplings, 6 & 7 core control cable

MORSE KEYS

Hand keys, 'Bug' key, manipulator, Katsumi electronic keyer

METERS

SWR200 Oscarblock power/SWR dual meter — up to 150MHz
T435N fwd/ref power dual meter — 146 and 435MHz; 'N' connectors
FSI-5 — SWR dual meters; ideal for low power transceivers

ANTENNAS

Hidaka VS33 triband beam; VS73SR UHF 7.8dB mobile; VS73GH 70cm ground plane; VS27GR 144/435MHz mobile; LB607 6m log beam
Yaesu RSL series for HF mobiles; RSL145 2m five-eighth wave mobile; RSL145 2m ground plane; RSL435 70cm colinear; spare antennas for FT290/690; YHA-44D halfwave antenna for 70cm handhelds
DP-CP5-trapped vertical 80-10m; trap radials included

COAXIAL CABLE

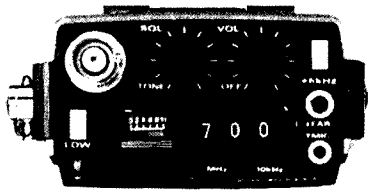
5D-FB; 8D-FB; RG58U

NEW 2 m and 70 cm FM HANDHELDS from YAESU

bail

FT203R
2.5 watts
VOX operation with optional YH-2 headset

FT703R
2.5 watts



Thumbwheel Channel Selector

PA-3 DC/DC Car Adapter/ Trickle Charger (optional)

FT709
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FT209RH
5 watts/500 mwatts

Microprocessor controlled with 10 memories, reverse repeater, power saver to extend battery life, VOX operation with optional YH-2 headset!

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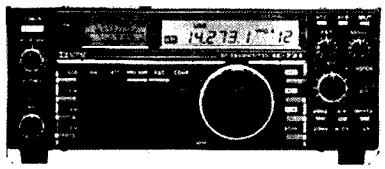
VHF/UHF all mode transceiver. 10 watts output, AC/DC, 0.15uV sensitivity on SSB, LSB, USB, CW, FM. Repeater reverse. IF shift & width controls. RF speech processor. 10 channels memory store mode, frequency & searches. Full cross band, cross mode duplex possible with satellite unit. Supplied with 2m module & mic.

Full 12 months warranty!

70cm.....~~$475~~
6m.....~~$375~~
Satellite.....~~$105~~

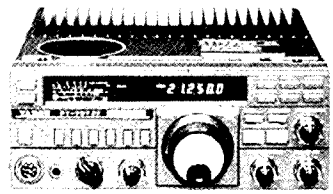


ICOM IC-731

HF SSB, CW, AM, FM transceiver with 100 watts RF o/p. 160-10m transmitter, 100kHz-30MHz receiver. 12 tunable memory channels with memory scan & programme scan functions. PBT & notch tuning. NB, etc. Inc mic. Sensitivity 0.15uV SSB. Compare to the FT-757GX and save. (Available soon will be the IC-731S 10 watts for only $975 inc mic).

$1095 Save around $200
Full 12 months warranty.

PS55.....$279
AT150.....$Call



YAESU FT-757GX

~~$1295~~

We guarantee to better any competitor's genuine advertised price on Yaesu amateur radio models we normally stock, providing the competitor has the goods available at the advertised price. SO! WHY PAY MORE?

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FP700.....~~$245~~
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FC757AT.....~~$449~~
MD1B8.....~~$109~~

AOR AR-2002

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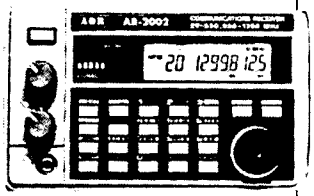

Receive to 1.3GHz!

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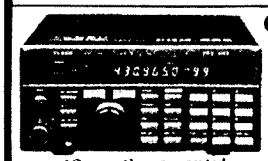
*KR-500, elevation rotator, 400kg/cm.....$229
*KR-600RC, 600kg/cm, heavy duty.....$319
*KR-2000RC, 2000kg/cm, super heavy duty.....$559
*KS-050, stay bearing for tower mounting.....$39

Top and bottom clamps included.
Control cable $1.50/m, 6 core.



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Yaesu FRG-965

YAESU

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YAESU FT-2700RH, 2m/70cm full duplex.....~~$945~~
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YAESU FT-209R, 2m with FNB-4 charger, antenna, carry case (illus).....~~$488~~
YAESU FT-209RH, 5W incl FNB-4 charger, antenna, carry case.....~~$588~~
YAESU FT-726 (R) 2m all mode transceiver.....~~$1499~~
Modules for above: 70cm~~$475~~, 6m~~$375~~, Satellite~~$105~~
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ICOM IC-390 (IC-490A eq.)

All-mode 430-440MHz 10W mobile UHF transceiver.

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Factory Authorised Importer

★ HL-120U 10W-100W, GaAsFET UHF Linear..... $579
★ HL-60U 10W-60W, GaAsFET UHF Linear..... $369
★ HL-30U 2W-30W, GaAsFET UHF Linear.....$169
★ HL-160V 3/10W-160W, FET pre-amp, 2 mtrs.....$489
★ HL-160V25 25W-160W, FET pre-amp, 2 mtrs.....$419
★ HL-110V 3/10W-120W, FET pre-amp, 2 mtrs.....$339
★ HL-85V 10W-80W, GaAsFET rx, 2m Linear.....$219
★ HL-62V 10W-60W, GaAsFET rx, 2m Linear.....$149
★ HL-35V 3W-30W, GaAsFET rx, 2m Linear.....$119
★ HL-86V 10W-80W, FET pre-amp, 6m Linear.....$229
★ HL-66V 10W-60W, GaAsFET rx, 6m Linear.....$179
★ HL-1K 1kW heavy-duty 160-10m Linear..... $950

TET HB-443DX 40-20-15-10m 4el Yagi.....Only $479·
ICOM IC-R71 Communications receiver. AC/DC $950
KENWOOD TS-430S HF SSB-CW-AM.....$1245 o/o,
.....also coming soon, AT-250 $539, PS-430 15A p/s $269
WELZ meters, SP-220 $89, SP-420 $99, SP-122 $119.
RF AEROSPACE, 3el, 10m $89, 4el, 10m $129, 5el, 10m $149, 208GR 2m $129, 208 $79, 205, $59. 7018GR $129.
CHIRNSIDE CA-33 $309, CA-35DX $389, Helicals $30 for 20, 15 or 10m. $35 for 80 or 40cm. CA-42 15/10m $179. CA-5SS 80-10m vertical $129.
ELECTROPHONE TX-474 UHF CB h/h $399. Why pay more for similar handhelds? Includes NiCad, charger, 12 months warranty. Compare to Emtron Ace and others.
STOP PRESS!! RFA 2m Yagis, 2el $25. 3el $35. 4el $45. SAVE!!

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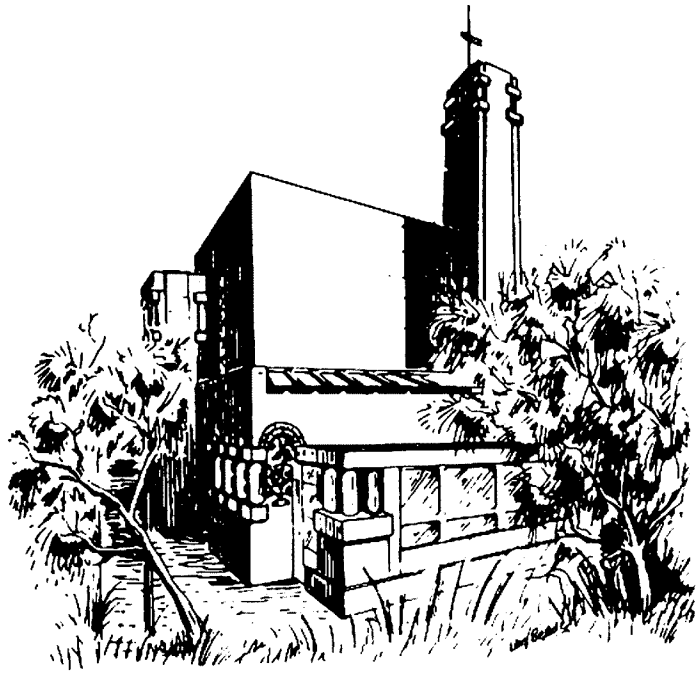
AR85

75th Anniversary Special

VK5 FIVE-EIGHTH WAVE *Edition*



BURLEY GRIFFIN BUILDING

Marlene Austin VK5QO
BOX 7A, Crafers, SA. 5152

The First Sixty Years — 1919-1980

1919 was quite a momentous year — not only was everyone settling back into normal life after the 1914-1918 "war to end all wars", but in South Australia a group amateur experimenters gathered to form a branch of the Wireless Institute of Australia. The minimum age was set at 16, and the annual subscription was 10/6d ($1.05) payable in half yearly instalments of 5/3d (.53c) at a time when the average weekly wage was 3.9.9d pounds ($6.99). However, the penalty for erecting an aerial without permission was 100 pounds ($2 00) and a 6 months imprisonment!

A provisional committee was established under Adam Mather, and eight weeks later on 5.11.1919 at the first Annual General Meeting, office bearers were elected.

President	*J W Hambly Clark XVX (later 5AA)*
Vice Presidents	*R S Lee*
	J M Heagney
Hon Secretary	*C E Ames XVG (later 5AV)*
Hon Treasurer	*R O C Matthews*
Councillors	*V R P Cook*
	D G Malpas
	D H Smith
	W Harrison
	H C Coles
	R M Dunstone

In 1919 an enquiry was received from a lady aspirant as to admittance of lady members to the Institute. Other States were consulted as to the advisability of this, and Miss Rogers was advised "This Institute at present is unable to admit lady members". No lady obtained her licence until Betty Geisel VK5YL in 1936.

Prior to WW1 the PMG had issued "X" licences (eg "XVX") in South Australia between 1911 and 1914, but during the war they were all withdrawn. During 1919 the Institute did the examining and the Navy issued "S" permits (eg "S.26") for reception only, and in 1920 the PMG took over both the examining and issuing of licences, such as J W Hambly-Clark's "5AA" licence for transmitting and receiving. By the end of 1923 the prefix was changed to "A" (A5AA), by 1926 "OA" (OA5AA), and in 1929 "VK" (VK5AA) to distinguish the various countries of the world.

Most licences were for spark receivers and transmitters, and gradually people were given permission to use valves after passing 12 wpm Morse code. However, there were many "pirates" who operated without a licence, and the penalty for this was 500 pounds ($1000) (set before the war).

During 1920 arrangements were made for the starting of a Valve Club by which members could obtain a valve or any other apparatus up to a certain value, by the payment of 1/- (10 cents) per week, ballots for the drawing of gear arranged at intervals according to the number of members.

A library was established, and a small charge made for membership. Also, a "Sale and Exchange

Department" for members with apparatus they wished to dispose of was a popular innovation, as was the weekly buzzer practice class, lectures and demonstrations.

During May 1921 several members indicated they would be pleased to arrange a test to listen to a Victorian Division news bulletin at 8 pm, transmitted on a 200 metre wavelength .5 kW spark set.

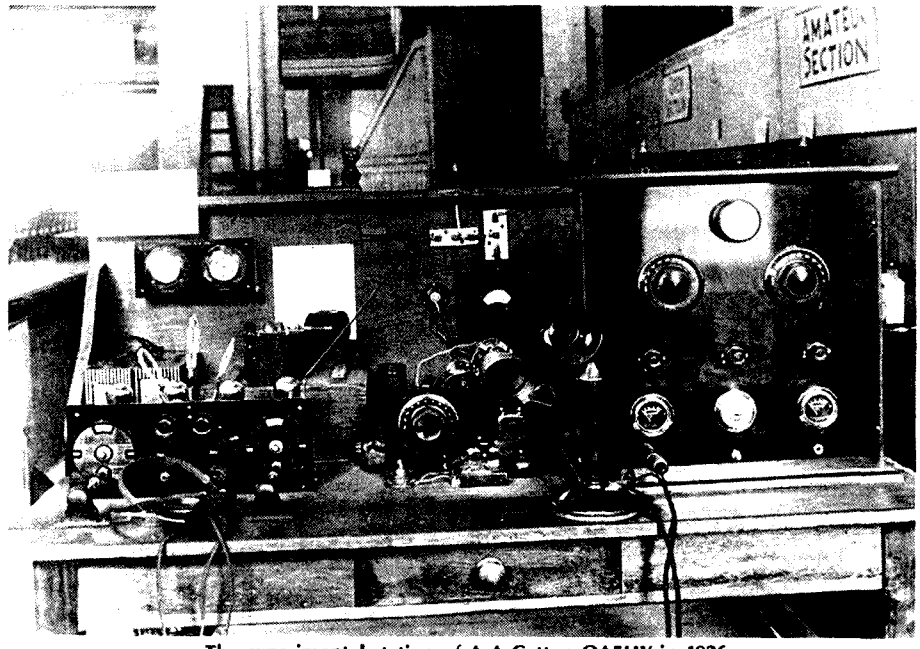
Members were requested to voluntarily fly pennants approved of by their Council from their aerials so that members of the Wireless Institute, on seeing an aerial, could tell at a glance whether the owner was a member of the Institute, and so that members from other States visiting would know where they would find a welcome from a fellow member of the Institute. This scheme had already been adopted in NSW. One dozen flags were ordered, at a cost of 5/6d each.

Membership continued to grow, with over 50 members. One applicant for membership, F G Miller, had travelled all the way from Murray Bridge to Adelaide, a distance of over 60 miles (96.5 km), and in view of his enthusiasm in coming such a long distance to join the Institute, the usual proceedings in passing on his application to the Council were waived in his case, and he was declared a member forthwith! (Frank had been a signaller in the first World War, and while in the trenches worked on the development of the teletype machine, and was credited with its invention by the Royal Signal Corps.)

The meeting place of the Institute was altered from Currie Street, Adelaide, to the YMCA, and shortly afterwards to the University.

Also in 1921, the Division was registered under the Companies Act, and on 6th September 5WI was granted for the official station (it became 5AV for 7 months three years later, before reverting back to 5WI).

It was suggested radio apparatus should be exhibited at the September Show to bring radio before the public and make the Institute more widely known.



The experimental station of A A Cotton OA5HY in 1926.

During this period many lectures were given, such as ones on a tuned buzzer and sparking buzzer; the theory of atoms and electrons; honeycomb, duo-lateral, pancake and spiderweb coils. A single stage amplifier was demonstrated, using a V24 valve and built into a cigarbox by Hal Austin 5BN (later 5AW) "which reflected great credit on that gentleman's handiwork, he having constructed his own intervalve transformer and all other fittings".

In 1922 speech and music were successfully broadcast by Fred Williamson 5AH. Adelaide was astonished and delighted with a social and radio dance on 28.6.1923 in the first publicly announced application in this State of broadcasting to practical use, when music for the dancing was played by Harry Kauper 5BG and Lance Jones 5BQ at the Royal Institute for the Blind Hall in North Adelaide, and transmitted by radio from records at the home station of Hal Austin, two miles (3.2 km) away.

By the end of 1924 the Institute demonstrated the reception of programmes on nine receivers set up on a specially chartered night train to Halletts Cove. Nearly 500 booked seats, and it was an outstanding success.

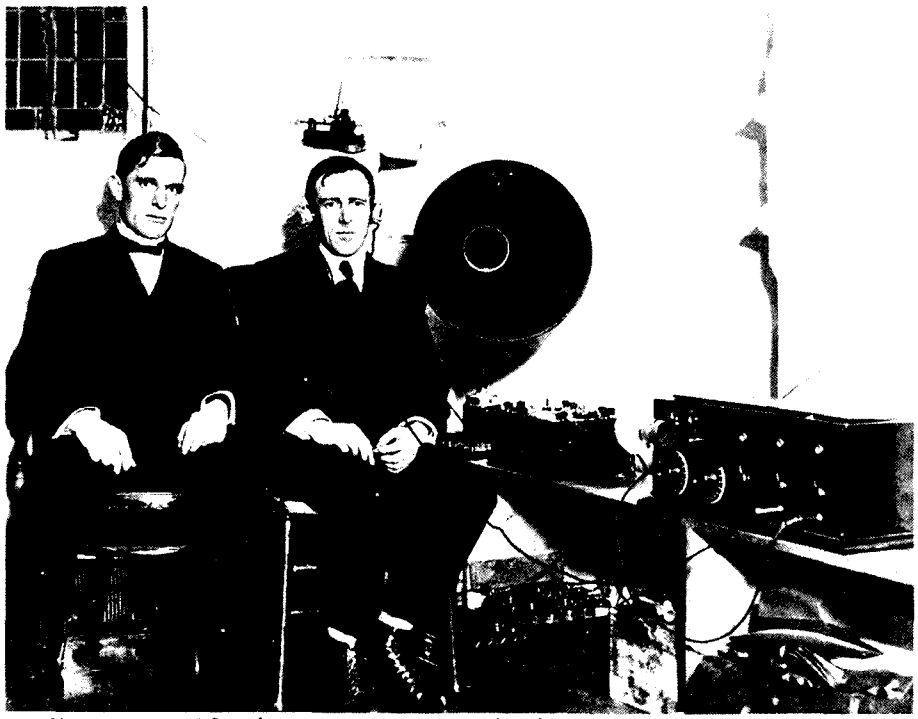
Experimenters were so frequent now (at least 30 or 40) that people with licences to listen to commercial broadcast stations were complaining of interference from the spark transmitters of the amateur experimenters.

Twenty or more clubs were established throughout the metropolitan and country areas of South Australia in this period of intense activity, no doubt fuelled by excellent constructional articles on crystal sets etc. in such papers as "Boys' Own Paper" and the "SA Wireless (Monthly) and Radio Magazine" (the official organ of the Institute from 1924) and "Radio Broadcast" (from September 1925).

In 1924 the NSW Division asked for co-operation in endeavouring to keep in touch with an exploring expedition in Western Australia that was equipped with wireless. The expedition was being led by Dr Clapp, and they were using a Marconi .25kW quenched spark transmitter and valve receiver on 600 metres.

1925 saw new bands issued to experimenters (the 8-10, 21-23, 32-37 and 85-95 metre bands) and the first contacts between SA and California USA on Morse code. It was not long before other countries were contacted.

In 1927 there were 400 amateur transmitters licensed in Australia (45 in SA, and half of those in the Institute), and the Institute suggested to a Wireless Royal Commission that control be by one body, allowable power be 500W, traffic of a non-revenue earning nature be transmitted (to equip



Harry Kauper 5BG and Lance Jones 5BQ operating the receiver at the first Radio Dance in SA in 1925.

Reg Anthony OA5CM transmitting at Unley Park in 1927.

operators to handle any emergency), and permission be granted for experiments on commercial broadcast bands when they were not in use, to determine propagation.

At this time, during a severe storm, a submarine cable to Kangaroo Island broke, and several amateurs maintained contact until repairs were effected.

Also in 1927 the fourth Federal Convention was held in Adelaide, comprising representatives of the WIA from all over Australia.

In 1928 the membership was 66 (31 licensed to operate transmitters), and this was the time that meant the end of loneliness to thousands in the outback — Alf Traeger (5AX and 8XT) developed the first pedal radio (typewriter keyboard and a pedal generator) for the Flying Doctor Service, with Harry Kauper 5BG (who had invented a method of firing a machine gun through the moving propellor of a plane during WW1).

Photograph courtesy The Advertiser

Alf Traeger seated at an early model pedal radio set.

Council appointed Bob Bruce VK5BJ as QSL Officer, and this position was shortly taken over by George Luxon VK5RX who undertook it for nigh on 50 years, assisted at times by Frank Bourne VK5BU.

1929 to 1933 were the main depression years, and in spite of reducing the annual subscription from 25/- ($2.50) to 21/- ($2.10), membership numbers dropped by about 50 (from 220 to 170), but one of the brighter efforts to lighten the gloom was the broadcast on commercial radio of the wedding of George Luxon VK5RX and Thelma Job in 1931.

Excitement was at fever pitch during the six day Sydney to Perth air race, which started on 28.9.1929. Dougal Whitburn VK5BY was in charge of message handling in SA, and this was the first public performance of the newly formed RAAF Radio Reserve (picked from the Australian radio amateurs) to prove to the Government and Air Force that Australian *radio* amateurs *could* become an extremely important cog in the machinery of national defence. Planes in the race were single engined, open cockpit, and all communication was by Morse code. They were also supplied with strips of cloth and a code card to signal to planes if out of touch and forced to land between stopping places.

One of the early "Field Days" organised by the Institute over the years was held at Long Gully, Belair National Park, on 17.11.1929, when portable gear was operated and contests held, and a good time was had by all (transport for some being a Model T Ford).

Television apparatus which "gave visitors an idea of the possibilities of this branch of science when it is fully developed" was demonstrated by its builders R B Caldwell and P A Kennedy, two local radio pioneers, at the Radio Exhibition organised by the WIA in co-operation with radio dealers, held in Adelaide in July 1931.

On opening the Institute's new clubrooms at 176 Rundle Street, Adelaide, the Institute was congratulated on its initiative and enterprise in arranging and so successfully conducting the recent Radio Exhibition, which was a great financial success too. Three sections of the Institute met in the new clubrooms:

Technical Development	*(research)*
Brass Pounders	*(active transmitting)*
Receiving	*(development of shortwave phone reception).*

With hindsight it is amusing to see how knowledge has changed over the years, but in 1933 Professor Kerr Grant gave a lecture on the heaviside layer in which he said he was of the opinion that penetrating radiation was caused by shooting stars, which when travelling through the air and turning to dust by friction, caused the generation of electricity. It was intended at a later date to send up a balloon loaded with material similar to that which we find in a comet or shooting star, and blow the lot to pieces with explosives, ignited by a time fuse, and record on laboratory instruments any electrical impulses which would most likely be generated.

In Australia, Federal Executive was originally administered by each State in turn, and in March 1933 Dougal Whitburn was offered the Federal Presidency but resigned in favour of R B Caldwell VK5BP. In 1934-35 the Federal President was Pete Bowman VK5FM.

On 1.10.1933 the WIA published its own official organ "Amateur Radio" with a copy sent every month to every member in Australia, and apart from one issue missed during the war years, this excellent monthly magazine has provided official information, technical articles, photos, advertisements, and club and Divisional news ever since.

VK5WI started transmitting telephony broadcasts on the 80 meter band late 1934, and SA can now boast one of the best weekly news bulletins in Australia, relayed on most bands throughout the State and to the Northern Territory.

Back in 1936, however, licensees were informed of restrictions, in that no music was allowed between 5 pm and 8 am on the 7 and 14 MHz bands, all other telephony was to be for genuine experiments only, and each session was to last no more than ½ hour. Also, they had to have a stable signal 25W input maximum. The biggest blow to new licensees was they were not allowed to use telephony at all for a probationary period of 6 months, and this restriction stayed in force for 12 years.

On 1.8.1936 the first auction was held of gear of a deceased amateur.

The Institute was the hub of social activities about this time — there were social nights every Friday in the clubrooms for card parties and table tennis matches, general business nights, separate lecture nights, and of course the annual sit-down Christmas supper, smoke socials, dances, picnics, field days and other get-togethers.

When bushfires were rampant in SA and Victoria in February 1939, communication was maintained on Fleurieu Peninsula in SA for 30 hours by a number of amateurs using mainly Morse code, and the hope was expressed more emergency gear would be built and kept in readiness for such times of need.

However, in September 1939, on the outbreak of World War II, all transmitting gear was confiscated by the PMG's Department in the interests of National Security, and by the time the gear was released to amateurs six years later, it was so obsolete because of the fortuitous speedy advance in technology by the Armed Services, it was hardly worth bringing home!

During the war, when threat of invasion brought fears of disruption to normal communications, the Institute (with official approval and assistance to obtain replacement parts) set up a network on 1775 and 3605 kHz using telephony and duplex operation, and regular weekly exercises were held by at least eight amateurs, with the blessing of Civil *Defence and Navy* authorities.

Institute fees had been dropped to 12/6d ($1.25), in an effort to keep members, and encourage others to join, as it was realised their only chance of getting back on air again was to have a strong and united society of amateurs.

After the war, a meeting was held on 18.7.1945 by 43 enthusiasts with the aim of reforming the Institute (Joe Kilgariff in the chair). Within a month a general meeting elected

President	*Ivor Thomas*	*VK5IT*
VP	*Joe Kilgariff*	*VK5JT*
Secretary	*"Doc" Barbier*	*VK5MD*
Asst. Secretary	*Ted McGrath*	*VK5MO*
Treasurer	*Ces Baseby*	*VK5BZ*
Membership organiser	*Joe McAllister*	
Publicity Officer	*Pete Bowman*	*VK5FM*
QSL Officer)		
Programme Officer)	*George Luxon*	*VK5RX*
Public Officer	*Warwick Parsons*	*VK5PS*
Instrument Custodian	*Frank Wreford*	*VK5DW*

Full membership was 21/- ($2.10), associate 10/6 ($1.05), country 7/6d (75 cents), the nominating fee 2/6d 25 cents, and meetings were held at 17 Waymouth Street, Adelaide. AOCP licence requirements were altered to two classes, and within two years reverted to one class of licence, CW increased to 14 WPM, maximum 100 watt output, no music or entertainment to the transmitted at all, and the 6 months CW probationary period to remain.

In 1945 the first post-war AOCP class was held on 5th November, and was attended by 16 students, the lecturers were Roy Buckerfield VK5DA and Harry Robert VK5MY.

Enthusiasm was increasing, and at successive meetings over 30 members were welcomed as full members. Not surprisingly, a larger meeting room

Back row — 2nd from right John Bulling VK5KX, right Gordon Bowen VK5XU. Front with bat — Warwick (Pansy) Parsons VK5PS, 2nd from right Clem Tilbrook VK5GL. Date and other unknown — can any member help?

was needed and this was hired (still at 17 Waymouth Street).

Identity badges were needed at meetings (a healthy sign!) and an attendance book was implemented to record signatures and call signs of members and visitors attending general meetings. A buy, sell or exchange board was also provided at meetings, and amateurs proposing to carry out tests on any particular frequency were requested to place a notice on the board showing times and frequencies.

A Technical Information Service was formed under Ted McGrath VK5MO, and the Vigilance Committee was reformed and known as the Experimental Advisory Committee, to act as a buffer between any amateurs infringing the regulations, and the PMG's Department.

Test equipment was available to members, and advantage taken of the disposal of surplus Service gear.

One aid to amateurs which was eagerly awaited were the Ionospheric predictions of John Allan VK5UL.

A Programme Organiser was appointed, and one very popular item on the year's agenda was always the Christmas Social, held in a cafe on North Terrace, Adelaide.

A War Service Record was undertaken by Council, and a new Constitution was adopted.

By May 1946 it was deemed safe enough to take no further action regarding the amateurs' part in the Air Raid Precaution (ARP) network.

It was normal to build your own gear, and in those busy constructional days of "home brew" gear, electrical traders in Adelaide gave a discount to licensed amateurs who were members of the Institute, but later on as the "black box" (manufactured gear) became available, discounts (and home brewers) became less common.

In those days the transmitter was crystal locked onto one frequency, and you had a separate tunable receiver. You would call "CQ" on your own crystal frequency, and tune around until you heard someone calling you (on their crystal locked frequency), so you always worked split frequency. When VFOs came into use, it was normal to get on the same frequency as the person calling you (which is what we do now, although with a transceiver you are automatically on the same frequency (hopefully!)

A discussion was held on the extension of hours for amateurs outside restricted periods, because amateurs were allowed to broadcast music and any other entertainment on what is now known as the commercial broadcast bands, during certain hours when the normal broadcast services were not operating, eg Sunday mornings and after 10 at night. Eventually the amateurs were unable to do this, because the broadcast stations got on earlier and earlier, and now many operate 24 hours a day.

Amateurs had the use of bands 28-29, 50-54, 166-170, 1345-1425, 7.150-7.200, 14.100-14.300 MHz, and by September 1946 the 3.500-3.800 MHz band was released. Within two years the 144 MHz band was released in lieu of 166 MHz.

At the end of 1946 members were circularised regarding sending food parcels to their opposite number in G-land: for instance Dougal Whitburn VK5BY sent a parcel to G5BY (much to the recipient's surprise and delight!)

Total membership by now was 267, and growing steadily. Fees were one guinea still ($2.10).

Early in 1947 the half hour limit placed on each QSO was abolished, and QSL cards were provided free by the SA Tourist Bureau to amateurs in SA as a novel travel promotion and good publicity.

Les Pearn VK5PN suggested the WIA should again broadcast notes to country and city members, and Reg Harris VK5RR commenced the VK5WI broadcasts under his own call sign in January 1947, the call sign and licence for VK5WI being re-issued on 13.5.1947.

A Sports and Field Day was held at Hawthorndene Oval in January 1948, and proved a great success, and others have since been held at Clare, Fort Largs/Outer Harbour.

The AOCP classes were also so popular by 1948 that there were 31 students and others had to be turned away.

An Associates' Representative (Jim Paris) was appointed to Council also a VHF Representative, nominations were called for a Country Representative on Council, and three Trustees (Ces Baseby VK5BZ, Len Sawford VK5YF, and Dougal Whitburn VK5BY) were appointed under the terms of the Constitution to safeguard excess monies.

15.8.1948 saw the first Remembrance Day contest to perpetuate the memory of amateurs who lost their lives in the war. VK amateurs only participated until 1971, when New Zealand amateurs joined in. In the 32 years 1948-79 inclusive, the trophy has been won by VK5 ten times.

Fees rose to 25/- ($2.50) full member, 17/6d ($1.75) associate city, 15/- ($1.50) country.

The Christmas Social was catered for at the Burnside Town Hall at a charge of 4/- (40 cents) per member. A vote was taken on whether it should be "wet" or "dry", and the "drys" won 57 to 55 with 1 informal vote. Costs were becoming prohibitive, and the following year the Social was an informal gathering in our own meeting rooms with members bringing along a basket supper. It was some years before ladies were invited to attend.

Gear was purchased at this time for the use of members confined to hospital (type III, Mk 2), and a Visiting Committee discussed to visit sick amateurs.

The May 1950 meeting proved to be quite a success (after a cautious start) as a "buy and sell" was held and a considerable quantity of equipment changed hands. Enthusiasm for this type of entertainment has not diminished over the years.

Amateurs in Darwin proposed to form a branch of the WIA there in 1951, and it was not for another 9 years that VK8 was allocated to the Territory.

The Woomera Radio Club sought affiliation with the WIA, and had their own special difficulties operating from a security area.

The Institute has arranged working displays at many Exhibitions, and only those who have assisted would appreciate the improvisation neccessary to get gear and aerial systems functioning satisfactorily under makeshift and often awkward working conditions. The Institute was awarded the bronze medal for its display of VK5WI at the Royal Adelaide Exhibition in 1952. While the Governor of SA watched, the amateur operators worked America, to everyone's delight. When the medal was received, the President asked Reg Harris VK5RR to be custodian, as it was due to his efforts that VK5WI was the success it turned out to be.

In this year that King George VI died, a dozen Greybeard Certificates were issued by the Institute to those members of more than 20 years' standing who were still active on the air, and these were proudly displayed in their shacks.

1954 saw the first of the picnics for XYLs and children, at the George picnic ground, and it has been a regular highlight ever since, latterly being held at the Bridgewater oval in the Adelaide Hills.

VK5 agreed to provide the Federal Contest Committee for four years from 1954, and many "volunteers" were coerced to help the Committee of Gordon Bowen VK5XU, Reg Harris VK5RR, Jim Vivian VK5FO, Jack Coulter VK5JD, Reg Galle VK5QR and Warwick Parsons VK5PS.

1954 also saw the Limited AOCP exam granted by the PMG's Department, and these successful applicants with "Z" calls were admitted to full

Award issued to the VK5 Division in 1952.

membership of the VK5 Division. The age limit for the AOCP had been set at 17 years, and this was reduced to 16 years and later to 15 years.

In 1955 Jim Sullivan VK5JK suggested the forming of an emergency network, after difficulties experienced in maintaining communications in recent disastrous Hills bushfires, and in view of floods in NSW. Mention had been made in his submission to the Minister of Agriculture of the radio communication service provided during the war from the metropolitan area to Civil Defence HQ in the event of landline disruption, and also that the WIA had some 3,000 members (350 in SA of whom some 200 had transmitting and receiving equipment in operation, 50 of them located in country towns and 150 in the metropolitan area). The Government accepted this proposal. Within 12 months Fred Martens VK5MA proved the value of the emergency network system during floods at Renmark.

Photograph courtesy VK5 Archives and Lance Worrall VK5WF

SA Divisional Council 1953, Back from left — Jack Coulter VK5JD, C Sappiatzer, Joe McAllister VK5JO, J Parish, D Hosking, John Bulling VK5KX and Hal Austin VK5BN/5AW. Front from left — Reg Harris VK5RR, 'Doc' Barbier VK5MD, 'Pansy' Parsons VK5PS, Gordon Bowen VK5XU and H Vivian. (Hal Austin became SK in August 1954 and 'Doc' Barbier in March 1962).

Joe McAllister VK5JO showed considerable foresight in 1955 when he organised the Brompton Boys' Club, the first of the Youth Radio Schemes in Australia, which aimed to develop the capabilities of boys and girls of generally High School age, towards radio and electronics as either a hobby or career. Bob Guthberlet VK5OD was the State Co-ordinator of the YRS in SA.

Meeting nights were extremely popular, on an average 90 to 100 attending. A display of members' gear was a popular innovation, and an inspection of the Electricity Trust's power house at Osbourne was a great attraction. Such was the enjoyment of the meeting nights that repeated visitors had to be given a tactful suggestion as to their joining the Institute!

The changeover to 50-54 MHz from 56-60 MHz came into effect, much to the concern of most amateurs, because the band was not harmonically related. We used to have bands 14, 28 and 56 MHz, and you would have a 7 MHz "rock", double for 14, quadruple for 28, then double again for 56, using the same piece of gear and doublers etc. When the 50 MHz band came into use, it was necessary to buy a new crystal, say on 8.3, triple it to 25, then double to 50.

Another cause for concern to amateurs was the proposed allocation of the 144 MHz band to TV channel 5. South Australia has been fortunate to avoid this.

The TVI Committee was formed under Ray Tuck VK5BT, and the SWL Group had regular meetings with Jim Paris as their representative on Council.

During October 1957 the Institute's Moonwatch Committee played a significant role in tracking early satellites launched by Russia and America, and the data obtained was sent to those countries. Observers were

Gordon Bowen	VK5XU
Graeme Bowen (son)	VK5XV
Colin Luke	VK5XY
Brian Austin	VK5CA

often on a clear, frosty night on the flat roof of a University building. The Astronomical Society provided the dozen or so telescopes, and Gordon built a receiver on 108 MHz to give warning of the approach of the Sputniks etc over the horizon.

July 1958 saw the power output increased to 150W, and this remained the limit until 10 years later when the wording was altered to a maximum of 400W PEP for SSB operation.

South Australian amateurs enthusiastically took part in the first Jamboree on the Air in 1958, when scouts and guides visited amateur radio stations to talk to others around the world.

In December 1959 the first issue of the SA wireless Institute Journal was written and sent to the Division's 400 members, by Gordon VK5XU. Funds were cautiously provided, as it was not expected to continue, yet in 1985 the Journal celebrates its 26th anniversary. This is the only State to have such a direct link with its members (other than through "AR").

1960 also was the year the meetings were held in St Paul's Church Hall, Pulteney Street, Adelaide. Within 2½ years another move was made to the Master Builders' Assn at 47 South Terrace, Adelaide.

Fees were raised in February 1960 (for the first time in eight years) by 10/- ($1) for all but junior associates.

A beacon was commissioned and operated on 50.5 MHz at Mt Lofty, with a VHF beacon under consideration, and a beacon on 430 MHz proposed.

A Public Relations Officer, and a Publications Officer were appointed at this time.

Amateur TV experiments were proving successful, with the first two-way TV contact in SA in 1963 claimed between VK5AO/T and VK5ZEY/T over a distance of 5 miles (8 km).

The 1964 Federal Convention was held in Adelaide (the third time we had hosted this), and one of the items discussed was the formation of the Federal Company of the WIA.

The Institute in SA had conducted classes for the AOCP from the very early days (and for the last 12 years John Allan VK5UL had taken the theory classes). These were organised and financed by the Adult Education Section of the Education Department in 1964.

The Minister for Education also approved the Youth Radio Scheme for SA. Requirements were that we must find interested schools and arranged speakers, we must have active amateurs to assist with club activities, training and testing for certificates, and we must provide equipment parts. Training must be guided and integrated into school curricula. There were 12 YRS clubs affiliated with the Division within 12 months, although latterly the novice licence has captured the enthusiasm of youngsters (and those not so young) alike.

Around the time of the introduction of decimal currency, kilocycles (Kc) became Kilohertz (kHz).

There was a sigh of relief from those sitting for the AOCP when the CW speed was reduced from 14 WPM to 10 WPM at the end of 1967.

In September 1968 membership figures had risen to 270 city full, 120 city associate, 135 country associate – 525 in all. Fees were $5 city full, $4 city associate, $3.50 country full & associate.

The VHF Group was very active, with the 576 MHz distance accomplishment and the 432 MHz converter project. Members were also constructing a translater for installation in the Adelaide Hills. Repeater VK5RAD was commissioned in 1970.

VK5 was making plans to host the 1970 Convention and this time VHF allocations were high on the agenda for discussion.

1970 saw the start of objections by Councils to the erection of towers by amateurs, and the Courts in the eastern States ruled that a Council was not competent to rule on aesthetic grounds. Negotiations continued, including an appeal to the Planning Appeal Board, with the Institute endeavouring to educate local governmental bodies on a more accurate interpretation of the Building Act in regard to processing amateur radio tower installations. (The Supreme Court upheld our appeal in 1981 that amateur radio is a normal home activity.)

VK5 promised support for the Australis OSCAR 6 satellite ("Orbiting Satellite Carrying Amateur Radio") and appointed Edwin Schoell VK5NZ as the Australis Co-ordinator. Satellites have proved a very popular aspect of amateur radio activity.

The amateur licence fee was increased to $6 in 1970, instead of $2 (not changed since 1924).

The Equipment Supplies Committee came into being under Barry Cleworth VK5BQ and Roger Pullem VK5ZKK, and an Intruder Watch Co-ordinator appointed.

In 1971 the Division had nearly 650 members, and a Building Committee was appointed to investigate obtaining our own headquarters. The Thebarton Destructor Building (an incinerator designed by Walter Burley Griffin from Chicago, USA, who also designed Canberra, ACT) was deemed suitable (with a lot of work) and the first Council meeting held in the renovated building on 15.11.1974. The official opening was on 3.4.1977, forty years after its original opening.

Clive Pearson VK5PE, secretary of SA Division 1977-79 at the controls of the Institute's transmitter.

The Federal Awards Manager's position was undertaken in 1973 by Brian Austin VK5CA, and then by Bill Verrall VK5WV in 1979. Duties included issuing certificates for the Worked All VK Call Areas, Worked All States, VHF Century Club, Worked All Continents, DX Century Club.

In 1974 it was decided novice licensees would be granted full membership in SA, as had the limited licensees 20 years before. The Institute undertook two novice courses and appointed John Mitchell VK5ZJB as Education Co-ordinator. The first novice exam was held in 1976.

VK5 was glad to be able to help with communications after Cyclone Tracy hit Darwin on 24.12.1974, with WICEN and others assisting.

The beginning of the end! The first female elected to VK5 Council in 1980. Back row from left: Maurie VK5ZU, Ross VK5AG, Ian VK5QX, John VK5NX, Bill VK5AWM and Gerry VK5PI. Front — Trevor VK5ATW, Jenny VK5ANW and Colin VK5HI.

Fees in 1976 were set at $20.50 full city, $19 full country, associate city or country, $9 student or pensioner, $2 family.

1976 was a busy year for repeaters, with 5RMN (mid north) handed over, 5RHO (Ch 5 at Houghton near Adelaide) operational, 5RMG (Ch 6) at Mt Gambier almost ready, and application for a TV repeater being processed. Later, a repeater was proposed for Cowell, also a 70 cm repeater.

New groups were being formed — Microprocessor Group, RTTY, and John Ingham VK5KG was appointed by Federal HQ as Custodian of the Video Library. A Membership Secretary, Historian, and Commissioner for Scout Radio were also appointed.

Membership was now over 900, and the first one-day Planning Conference for the Division was held at a Christies Beach venue, with 10 Council members and 2 invited members attending, and the discussion covered the meeting format, State repeater policy, station facilities at HQ, broadcast facilities, WICEN, education, relations with P & T, public relations, financial planning report etc.

Over the years the Institute has been fortunate in having many willing workers, but ten members have given exceptional service to the Institute, and have been granted Honorary Life Membership, Up to 1980 these were —

Professor Emeritus	*Sir Kerr Grant*
Joe McAllister	*VK5JO*
"Doc" Barbier	*VK5MD*
Gordon Bowen	*VK5XU*
Warwick Parsons	*VK5PS*
George Luxon	*VK5RX*
Brian Austin	*VK5CA*
Geoff Taylor	*VK5TY*
Roy Cook	*VK5AC*
Bob Murphy	*VK5MM*

In the 60 years of its existence in SA the Wireless Institute has increased to over 1,000 members, and although not as widely known as some would like, it is respected in the community. It is one of only two hobbies in which members have to pass a stiff exam and be licensed (the other being flying).

It is hard to imagine the next 60 years could see the same progress, excitement and rewards of the last 60 years, but with the advent of computers, new horizons will surely emerge to test the initiative and ingenuity of members of the Wireless Institute.

(It should be noted the above is necessarily incomplete, as 25 years of minutes are missing.)

An approximate decimal amount is included beside the pounds to allow younger members to compare. **AR**

Members of the Past VK5 Divisional Council

JOHN MITCHELL VK5JM

IAN HUNT VK5QX

BILL WARDROP VK5AWM

JOHN BUTLER VK5NX

GRAHAM RATCLIFF VK5AGR

JENNY WARRINGTON VK5ANW

DAVID CLEGG VK5AMK

STAUNTON McNAMARA VK5ZH

MAURIE PHILLIPS VK5ZU

DICK BOXALL VK5ARZ

WIA (SA DIVISION) GENERAL INFORMATION

The Headquarters Building is at the rear of the Thebarton Council Depot, West Thebarton Road, Thebarton, Phone 352 3428. General Meetings are held on the fourth Tuesday of each month at 7.30 p.m.

The Divisional Broadcast is transmitted each Sunday at 9.00 a.m. local time on 1.820 MHz with relays on 3.550, 7.095, 14.175, 28.470, 53.100, and 147.000 MHz. The Broadcast is also relayed via the Adelaide Amateur TV repeater VK5RTV with an output frequency of 579.000 MHz. This repeater may be tuned on channel 34 of any television receiver. Some relay frequencies may vary slightly to avoid interference. Except for a four week break over Christmas, Morse Practice Transmissions designed specifically for learners, are provided each evening at 1030 UTC, on 3.550 MHz +/− QRM.

A WICEN Call Back net operates each Wednesday evening at 8 p.m. local time on repeater channel 7000 and at 8.30 p.m. on a frequency of 3.600 MHz. Call sign for the WICEN Control Station is VK5WIE.

The Divisional Journal is published bi-monthly by the SA Division of the WIA. The closing date for receipt of contributions or copy is the 15th of each odd month.

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Firstly, I would like to thank all those people who have been in some way involved with making this issue of AR a very special issue for VK5. Hopefully, they will all get their due credit in various other places in the magazine, if I mentioned them all here it would take up most of the column.

This year is the tenth birthday of ALARA (no, you haven't started reading the wrong column), so to celebrate the event, each state was asked if some sort of celebration could be arranged within the state. Here in VK5 there are about 25 to 30 licenced YLs, so it was decided that we should contact as many as possible, and those that we couldn't contact personally, were invited via the WIA Broadcast.

On Saturday, 27th July, a group of 15 licenced and two licenced YLs met for lunch at the Olde London Tavern in Adelaide. Those present were, Marlene VK2KFQ (an honourary VK5, as she lived in Adelaide a couple of years back), Joy VK5YJ, Marlene VK5QO, Meg VK5AOV, Denise VK5YL, Myrna VK5YW, Loraine VK5LM, Janet VK5NEI, Vicky VK5FK, Carol VK5PWA, Elaine VK5KEB, Linda VK5QP, Judy VK5BYL, Pauline Koen, Liz VK5NES, Diane Smit and myself. Carol VK5PWA flew from Port Lincoln for the weekend and stayed with us at the Warrington QTH.

Judy travelled up from Victor Harbour on the day, and Janet and Loraine had also travelled from Wasleys and Mallala, respectively. Marlene VK2KFQ had planned a holiday in Adelaide for that week!

One person that we would have liked to have had present but, unfortunately we were unable to get in contact with her, was Mrs Elizabeth Wallace, the former Betty Geisel, who was the first VK5 YL and the first VK5YLI Both Linda and Myrna were founder members of ALARA, so their presence also had an historical significance. At the other end of the scale, we were delighted to have Liz VK5NES and Liz's mother, Diane. Liz is our newest VK5 YL, and she is 12 years old. Her father is Hans VK5YX and both he and Diane are justifiably proud of Liz. We hope to hear a lot more of you on the bands Liz, when homework permits.

The get-together was considered such a success, it looks like being an annual event. Any YL who would like to join us next year, please let me know.

Thankyou also to Peter Koen, who took photographs of the historical, or should it have been hysterical, event.

DIARY DATES

22nd October . . . General Meeting. Speaker will be John Moffat VK5MG, showing us the latest in radio gear.

29th October . . . Buy and Sell night.

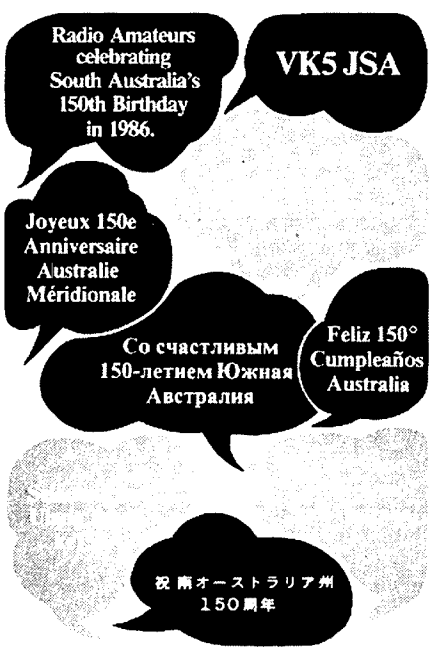
17th November . . . WIA Picnic.

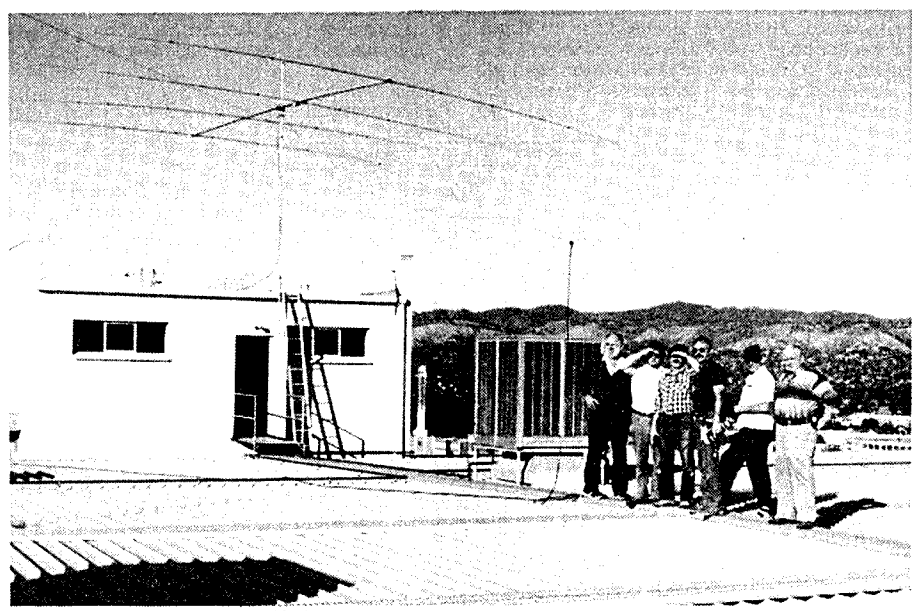
26th November . . . General Meeting. Speaker will be Trevor Conlon from CFS Headquarters. **AR**

"AMATEUR CROWEATERS ACTIVATE FROM VK5-LAND"

Graham Horlin-Smith VK5AQZ
Co-ordinator J150-WIA (SA)
2 Athol Avenue, Plympton, SA. 5038

Eighteen months planning to link amateur radio with SA's 150th birthday in 1986 reached fruition on Monday 27th May 1985 when VK5JSA, the special events call sign, was activated from the centre of the city of Adelaide. The location was the Renaissance Centre which overlooked the Rundle Mall in Adelaide.





Don VK5ADD, Roland VK5OU, Bob VK5BJA, Peter VK5PRM, John VK5LV and Peter VK5NPC, pause while checking the antennas on the Renaissance Centre Roof.

Three operating points were established. At street level a group of HF operators worked two rigs from an OB radio van, a 93X and an FT757GX out of a 204 BA, 4 element monobander and a 40-80 metre trapped dipole respectively located on the roof of the seven storey building about 61 metres (200') above ground level. The second operation for CW and RTTY was located in Radio Rentals (Adelaide) ground floor shopwindow (5 band trapped vertical also at the same height) and the third consisted of UHF/VHF, ATV and a satellite display on the 6th floor of the restaurant which had a commanding view of Adelaide and Repeaters 5 and 8 in the Adelaide Hills. Computers by ICL demonstrating the link with amateur radio and substantial visual displays by the WIA (SA Division), International Communication Services, Dick Smith's (Adelaide), the Department of Tourism and the Jubilee 150 Committee complemented all operating points. With outside scenic lifts opening into the restaurant an average

Bill VK5AWM, WIA, SA Division Immediate Past President, welcomes guests at the Renaissance Centre Restaurant. From left — Rob VK5RG, Bill Fitzgerald, Jubilee 150 media. Bryan Sheahan, Department of Technology, Dr Ian McPhail, chairman of Bi-Centenary Committee, John Neylon, Jubilee 150 Education Department, Graham VK5AQZ, Amateur Week Co-ordinator.

of 2,000 daily visitors had a direct eyeball with amateur radio during the weeks operation.

The activity launched the commencement of a programme of several activities which intend to continue during 1985 and throughout 1986. As a result of this and other planned activities VK5 amateurs expect to propogate 100,000 special Jubilee Sourvenir QSL cards worldwide and 2,000 awards during 1986. The special issue welcomes amateur participation in SA's 2,000 plus planned Jubilee programme and extends "Happy Birthday" greetings to SA in eight different languages, a very novel almost "unique" welcome to the first Grand Prix held in Australia which coincides with the commencement of a "whole" year of birthday parties. 28th December is SA's Proclamation Day, and 1986 it's 150th birthday or sesqui centenary year. Come on over and "enjoy" SA!

SA has chosen to share and twin its 150th year celebrations with Texas, Adelaide and Austin, Texas, being linked as twin cities. In excess of 170 towns and districts and 300 schools have been distinctively linked and exchanges have already commenced. SA amateurs see a role in providing the communication link to assist, where possible, with towns, schools, activity groups, community and service organisations — a daunting task, but look upon as a real challenge and a spirit of adventure which hopefully will be rewarding in so far as the hobby of amateur radio is concerned. Promotional type activities and working with Jubilee activities, it is hoped, will provide a positive exposure of the hobby as well as an awareness and a better understanding of amateur activities in the long term.

"Amateur Radio Week, Promoting SA", fired the first shot and the launch of the programme. The official launch was by Dr Ian McPhail, the Chairman of the Bi-State Centenary Committee with guests from government, the Jubilee 150 Committee and representatives from sponsorship groups, 50 guests in all. The Launch took place in the VIP area of the Renaissance Centre Restaurant on the 6th Floor. Escorted tours of the operating locations, press releases, media

John VK5LV conducts a footpath Press Conference during AR Week.

involvement and amplified amateur radio links with Texas via San Francisco into an amplified Mall focused the public's attention on amateur radio which continued throughout the week. Special appearances later in the week by Mr Gavin Keneally, the Hon Minister of Tourism and Local Government and a special amateur link between the citie's respective Mayors, Adelaide's Lord Mayor, Mr Jim Jarvis, and Austin's Mayor Frank Cooksie, exchanged greetings and invitations and gave further impetus to amateur communications in support of Jubilee 150 and SA promotional activities.

The WIA (SA Division) Sub-committee of Jenny Warrington VK5ANW, Rowland Bruce VK5OU together with Graham Horlin-Smith VK5AQZ, co-ordinator, acknowledge the financial sponsorship of the Department of Tourism (SA Government), Estrow (Civil Engineers and Supervisory Consultants), the Jubilee 150 Committee and the WIA (SA Division) with the willing backup support in equipment and displays by Radio Rentals (SA) International Communication Services, Dick Smith's (Adelaide), The Electric Bug, Captain Flash Advertising, Norman's Estates Winery, ICL, the South Coast ARC, the Renaissance Centre Management (Emanual Group), Sound Out Services and the Renaissance Tower Restaurant management. In such an undertaking these people gave the group the opportunity to mount a successful promotion of amateur radio and achieve the purpose of the programme. There were many amateurs themselves who contributed time and effort to get the show into the ionosphere for which sincere gratitude has been acknowledged.

The week's operation netted 1063 logged contacts of which there were 297 DX contacts from 20 countries, a reasonable expectation when priority was given foremost to promoting SA and the 1986 Jubilee celebrations. Timeouts were opportune to introduce the hobby to the many visitors and answering enquiries from interested "budding" amateurs in the making. USA, ZL and VK headed the list of contacts with one major sortie into Europe when the 204 BA, 4 element 20m monobander was armstronged into the long path. To linger at the centre and under a major pile-up was a fantastic experience.

Almost 800 contacts were made with Australian stations, 200 of which were made by UHF and VHF. The 40 and 80m trapped dipole favoured Australian contacts generally. Promotion rather than contesting was preferred particularly as the location point of contact was at the very heart of the City of Adelaide's shoppers and school holiday visitors. The organisers were pleased to welcome to the official promotion Dr Karl Meizner and his charming wife, Wendy, during their short visit to Adelaide and to share some of the host state vintages.

THE STICKY-TAPE AND STRING SECTION

The problems of erecting temporary HF antennas on the roof of a city building are many. The most important consideration was to ensure safety for both the crew erecting the antennas and

Bob VK5BJA making contacts on 20 metres from the outside Broadcast Van.

the general public below. The antenna crew were no real worry, because one look over the side of an eight storey building is all it takes for individual self-preservation to take over, and any thoughts of "daring deeds" vanish instantly.

The safety of the public is another matter. We had to erect an efficient antenna system that would stay put for the duration of the project, not fall off the building and cause injury below, not to mention, re-arrange the VSWR and element spacing of the antenna.

The antennas decided on were a 204 BA, 4 element, 20 metre mon-band Yagi, a half-wave dipole on 80 metres with traps for 40 metres, a couple of trapped verticals and a VHF "Slim Jim".

The installation of all these antennas went smoothly and with the enthusiastic and dedicated crew, took one and a half days working at a moderate pace and although the roof now resembled an elaborate "bird-trap", antenna performance was interesting, if not predictable.

The 204 BA when checked, exhibited a VSWR of 1.1:1 right across the band. I suspect that the 300 metres of RG-8 might have been responsible for making it look slightly better than it was. The dipole, which was also fed with 300 metres of RG-8, underwent apparent VSWR changes, as originally it was tuned using a short feeder. However the result was still reasonable and well within the scope of the automatic AT units used.

These antennas enabled the station to transmit strong signals and we generally received very good reports.

Due to a high noise level, reception was not as good as we had hoped. The noise problem was the result of a trade-off between going for the efficiency of elevation, and the local noise generated in the elevator control rooms which were, of course on the roof with our antennas. The trapped verticals, needless to say, were particularly susceptible to the noise and as a result, weren't very successful.

Surprisingly, the "Slim Jim" on 2 metres performed well inspite of the fact that it also was fed with 300 metres of RG-8.

The moral of the story is, given a little

The OB Van used for HF contacts.

forethought, commonsense, a good crew and a few handheld radios, a complex project can be achieved with safety and efficiency.

Immediate responses to the programme have been most gratifying to those involved, the support groups and, in particular, the WIA (SA Division) and Council which superintended the operation and gave the green light of approval to the proposal, purpose and eventual achievement of the project. The co-ordinators, the operators, the technical advisors and the antenna group ensured the practical success of this first up, unique operation which had its few uncertainties, doubts and difficulties to say the least. Fortunately the project, in its outcome, was almost problem free and therefore projected the hobby and image of amateur radio favourably in the eyes of the community and the general public. Of valued importance has been the impact of sharing the hobby from the awareness viewpoint with people from higher echelons of government and administration — another positive step forward to promote the rewarding expectations of amateur radio on the home front and welcome visitors to SA.

"Amateur Radio Week, Promoting SA", successfully negotiated by a willing group of amateur entrepreneurs, has provided the spark for future programmes as SA prepares itself for its Jubilee celebrations . . . in 1986.

Photographs courtesy Peter Koen AR

SA WIA Divisional Presidents

10.9.19 —	A Mather (provisional President)
1919-1923	J W Hambly-Clark XVX (later VK5AA)
1923-1925	R B Caldwell
1925-1927	Jack M Honner
1927-1931	R B Caldwell
1931-1932	Dougall R Whitburn VK5BY
1932-1934	R D Elliot VK5RD
1934-1936	A O (Ozzie) Richardson
1936-1937	E A Barbier VK5MD
1937	Marshall F Hider (SWL) (April-August only)
1937-1939	Joe Kilgariff VK5JT
War declared 3.9.39 — all gear confiscated.	
1945-1947	Ivor Thomas VK5IT
1947-1950	Hal Austin VK5BN (later VK5AW)
1950-1952	E A "Doc" Barbier VK5MD (LM)
1952-1954	Warwick "Pansy" Parsons VK5PS (LM)
1954-1956	Gordon Bowen VK5XU (LM)
1956-1958	John Bulling VK5KX
1958-1960	Brian Austin VK5CA (LM)
1960-1961	Lloyd Brice VK5OK (1 year)
1961-1963	John Haseldine VK5JC
1963-1965	Phil Williams VK5NN
1965-1967	Ross Dow VK5KF
1967-1968	Murray Burford VK5ZQ (1 year)
1968-1970	Tom Laidler VK5TL
1970-1972	John Allen VK5UL
1972-1974	Geoff Taylor VK5TY (LM)
1974-1975	Les Diener VK5NJ (1 year)
1975-1977	Garry Herden VK5ZK
1977-1979	Colin Hurst VK5HI (LM)
1979-1981	Ian Hunt VK5QX (LM)
1981-1982	John Mitchell VK5JM (1 year)
1982-1984	Bill Wardrop VK5AWM
1984-1986	Dick Boxall VK5ARZ

(L M = Life Member)

Other Life Members not included above —

Professor Sir Kerr Grant (died 13.10.67)	
Joe McAlister	*VK5JO*
George Luxon	*VK5RX*
Rob Wilson	*VK5WA*
Bob Murphy	*VK5MM*

Jenny VK5ANW, at the GPO display on 22nd May, coincidlng with the release of the WIA's 75th Pre-stamped envelope.

Photograph courtesy The News & Sunday Mail

THE FLYING DOCTOR, PEDAL RADIO AND ALF TRAEGER

Ken McLachlan VK3AH,
PO Box 39, Mooroolbark, Vic 3138.

The Royal Flying Doctor Service, the first service of its kind in the world, came into being in Queensland in May 1928. The Service was to provide medical aid in emergencies, comprehensive health care and community service to the people of inland Australia.

The Service was the 'brain-child' of the Reverend John Flynn — Flynn of the Inland — who was involved in missionary work for the Presbyterian Church's Inland Mission. When he began his missionary work in 1912, there were only two doctors to service large areas of Western Australia and the Northern Territory. Flynn realised that aircraft and radio would be a way of breaking the isolation of the Inland and also provide medical care for its people.

Photograph courtesy RFDSA

John Flynn.

It is felt fitting that some of the history of the perceptive gentleman who was the founder of the Aerial Medical Service, later to be known as the Royal Flying Doctor Service of Australia, The Very Reverend Dr John Flynn, OBE be documented with this article. He was born at Moliagul, near Bendigo, Victoria and at the age of 18, joined the Victorian Education Department for five years. This was not his calling in life, as he then served two years with a mission appointment for the Church, prior to enrolling to become a Minister. He was ordained to work in South Australia in 1911. In 1925, he was made a member of the Wireless Institute of Australia, 1933 saw him awarded the Order of the British Empire and in 1939 he was appointed Moderator-General of the Presbyterian Chuch of Australia, the peak of his career. He passed away on the 5th May, 1951.

When the Service first began on 15th May, 1928, there were no radio links, but it was realised a cheap, but reliable two-way radio was necessary. The unit would need to be easy to operate, need a range of around 500 km and be light enough in weight to make it portable.

This was a very large order in the days of the infancy of radio. Flynn spoke to many technically qualified men, but always received the same answer — it couldn't be done. However there was a young, inventive genious in Adelaide that was making generators and motors for a living, who was willing to accept the challenge. This was Alf Traeger.

Alfred Hermann Traeger was born at Glenlee, near Nhill, Victoria on the 2nd August 1895 and spent most of his boyhood on the family farm at Balaclava in South Australia. At the age of twelve he developed communications between the machinery shed and the house, using a home made telephone utilising pitch fork prongs, wire, tobacco tins and charcoal. This young innovator, was later educated at the Adelaide School of Mines, where he graduated as a Mechanical Engineer with distinction.

John Flynn had faith, so much faith in fact that he employed Alf on a salary well in excess of his own and within twelve months the first set was on the air. The initial set that Alf designed required the operator to crank a handle to provide a power source, which was to overcome troublesome batteries. As it was necessary to use Morse Code to combat poor radio conditions, this unit proved difficult to use for one person, by the time they cranked the handle with one hand and sent their message, on the key, with the other.

Photograph courtesy The Advertiser

Alf Traeger with a 1928 transmitter of the second type made.

The first successful on-air experiment was conducted from a nursing home in Alice Springs to another set at the Hermannsburg Mission, about 150 km west of the "Alice" and a third set (which didn't work) was positioned at the police station in Arltunga, about 250km to the east. Incidentally the Mission was among the first to receive a transceiver. Problems existed with the cranking method but Alf overcame this problem by equipping the set with pedals to provide power — hence the pedal wireless was born. These pedal sets were installed in remote outstations, and provided vital links with flying doctor bases.

The story goes that the Rev John and Alf drove into the Queensland town of Cloncurry, in early November 1928, which happened to be Melbourne Cup Day, to publicise a better model of their innovation. The ideal place to set up the demonstration was in front of the local hotel and as a local horse was running, a crowd soon gathered to see if the results could be quickly obtained. A transmission of over 4000 km was heard, the local horse won, the crowd that had gathered adjourned to celebrate, and two men were left with the set, knowing that they had succeeded in their venture.

Not to be forgotten in the pioneering days of what has become a service that has helped so many, is Maurie Anderson ex 5AM. Maurie, an ex-ship's radio officer, was employed in 1929, as the Radio Officer at Cloncurry, on the princely sum of six pounds per week ($12), where he served for ten years, before being transferred to open the base at Alice Springs. It is believed that Maurie was in everything and had a hand in transmitting weather reports to KLM Airlines when they were surveying the Europe to Australia air route. This man of boundless energy, prior to leaving Cloncurry, made an inspection and repair tour of many installations, which involved travelling in excess of five thousand kilometres.

The next improvement to the sets was the development of a keyboard transmitter that was first used in 1931, a typewriter which sent the correct Morse signals when the required keys were pressed. Tnis eliminated the need to learn Morse code.

The demand for this form of communication grew and the quiet, unassuming amateur radio buff was to go on to open his own factory, Traeger's Transceivers, in Marryatville, S.A. and produced many other innovations during his long career, including a solar device that produced fresh water from salt water and at the age of 77, Alf designed a vehicle that was powered by a gas-turbine that generated power for electric motors connected to the rear wheels.

Around 1937, technology had developed to a stage whereby voice operation could be employed instead of Morse and more reliable batteries, with the use of vibrators, could replace the pedal generator. Alf's original transmitter at the base station in Cloncurry remained in service until the 1940s.

At the outbreak of WWII, his radios were extensively used for Military purposes and highly praised by the Commander in the Pacific, the late General Douglas McArthur. Alf, later in his career, was awarded the prestigious Order of the British Empire (OBE).

An AT14 war surplus transmitter was employed at the main base at Cloncurry in 1945, due to its higher output and in 1947 a new base at Charleville opened, using Alf's original Cloncurry transmitter, however

Photograph courtesy RFDSA

Reverend John Flynn and Padre Skipper Partridge talking from the outback to distant Cloncurry.

eventually modified disposals equipment was installed to improve the service.

Until the mid 1950s, all equipment was either AM or DSB but improved technology was beginning to show that the use of SSB would be more economical and practical. From January 1978, all communications have been converted to SSB.

It is interesting to note that the flying doctor works like any other medico. Each homestead is equipped with a medicine chest containing about 100 different medications which are all numbered and regularily checked. The diagnosis is made by radio and the patient is instructed what number and quantity to administer. Of course certain drugs must never be taken without the doctor's authorisation. An instant service with no waiting rooms, a boon to patients, particularly those in isolated areas.

It is interesting to note that it is now an around the clock, all days of the year service with a medico always on call. When the receivers are unattended and a signal is detected, an alarm is actuated that can only be silenced by the transmitter being operated.

Probably some statistics would be in order. The RFDS in 1984, flew 1177 people to hospitals and 34,877 patients were treated by the doctors belonging to the service. One can only imagine the number of lives that have been saved and the assistance that has been given since its inception.

If it were not for the radio section of the RFDS, many people would live in complete isolation. With the closest shop 200-300km away and the nearest neighbour possibly 100km down the track, no telephone, radio is the only form of communication. When the channels are not occupied for official traffic, such as sending telegrams, a certain time each day is set aside for a "galah" session. This is like an old fashioned chat over-the-back-fence in suburbia.

A gentleman who belonged to the fraternity of amateur radio enthusiasts, Alfred Hermann Traeger OBE, ex VK5AX/VK8XT, passed away on the eve of his 85th birthday, the 31st July 1980 in Adelaide. He will not be forgotten for his ingenuity, that brought immediate medical assistance within the scope of innumerable homesteads, sparsley spread across the arid inland of our vast country and was the forerunner of School of the Air and other communication necessities. It was estimated that 30 stations were existent in 1934, today it would be in the thousands.

Again it can be seen that amateurs have made a substantial contribution to the development of meaningful communications in this country.

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Health Be In It.
Royal Flying Doctor Service of Australia. Volume 8 (Queensland Section).
Australia's Who was Who.
The staff of Latrobe Australiana Library.
The staff of Lilydale Municipal Library.

AR

Photograph courtesy The Advertiser

Alf Traeger and a later model Pedal Wireless. The photograph was taken in February 1963. Twenty of these sets were sent to the African Flying Doctor Service by Treager.

Photograph courtesy RFDSA

Reverend Fred McKay using one of the portable transceivers.

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

At the expense of receiving a mail box full of letters with differing opinions, I am going to make the statement that all DXpeditions to be recognised, should get accreditation by submitting visas, operating permits and relevant information to the ARRL or another accredited body acceptable to the ARRL's impeccable standards, for endorsement that their efforts will be recognised, prior to proceeding on a costly jaunt to themselves and numerous QSL cards that are sought by amateurs and SWLs and if received by reasonable expense to the recipient, are proven to be valueless.

I am sure that this would deter quite a number of "pirates", allow adequate publicity in time for deadlines of all DX orientated magazines and allow a far better return of QSO's to the expedition, which would assist them in donations of equipment and expenses.

It is appreciated that in some cases it is hard, but not impossible, to get documentation in advance at the beginning of the planning stage. This would be easier and less costly to all concerned and even it would probably benefit the DX net controllers in preparing their lists; in some cases those on the list would know the station that they were in the running for!

Think about it, the serious DXer has many cards that are quite attractive but completely valueless and they have cost a lot of time, frustration and money to acquire. Would tentative accreditation from a country's licensing authority, validated by documentation that the operator or operators did actually transmit from that much valued location, benefit the hobby and the pockets of all concerned? I think it would — what do you think?

HOLIDAY JAUNT

Ernie VK3DET, ex 3D2TN, 5W1DW, A35TN and ZK2BB, and his charming XYL Kim, are taking a holiday jaunt around the Pacific. Their itinerary includes operating as ZL0ACP from the 19th to the 22nd of November and as A35TN from the Kingdom of Tonga, Kim's home country where they were married in 1982, from the 25th of November until the 3rd January next year. It is not an expedition but a holiday and Ernie hopes to get on all bands as much as possible. QSL in 1986 when they return to Ernie Turner VK3DET, 1006A Armstrong Street Nth Ballarat 3350 Victoria. Happy holidaying Ernie and Kim.

INDIA

If you think you have hassles, read this, as they may seem infinitesimal to those of a couple of VU amateurs. One amateur had a gift external VFO and microphone sent to him in July 1984. He has sent registered letters to the appropriate authorities in September and October last year and in January and March this year. So far no reply and of course, he has not sighted his equipment.

The other amateur apparently revalidated his licence in 1963 and despite several reminders, has not as yet received the paperwork.

A RECORD?

Apparently veteran CW operator Jack VK2KQ, when a telegraph operator at the Tamworth Post Office, was told to stand by at about 9.30 am in the morning as a message was coming through from Burren Junction concerning a murder case.

Jack sat at the sounder until 7.15 pm that evening, until there was a change of operators, taking the traffic at 25 WPM. Apparently the message was in excess of 15,000 words. Some effort! How many operators could stand the pace in the '80s? Being honest, I know I couldn't even in speech let alone CW.

Can anyone beat Jack's "record" — either commercially or on an amateur basis? And I wonder if Jack, at that time, wished that Samuel Morse had stayed a painter, instead of becoming an inventor.

Adapted from WESTLAKES Amateur Radio Club Newsletter, July 1985.

SAO TOME

Where is it, many amateurs are asking. The easy answer is 0 degrees 10 minutes North and 7 degrees East and West of Libreville in the Gabon. The area of 960 square kilometres consists of the main island, Sao Tome with its capital being the same name, the second island Principe and four other small islands. From the middle of the 15th century, except for one hundred years rule by the Netherlands, the area has been colonised by Portugal, until a transitional Government was installed on the 21st December 1974. The Principe of Sao Tome gained its independence on the 12th July 1975.

The population was estimated to be about 115,000 inhabitants in 1980 and its main export for the last 150 years has been cacao, which was forced on them by the Portuguese rule, with 90 per cent of the area being under cultivation. The seeds were exported and items such as wheat, rice and other necessities were imported.

Since independence, the islands have become economically unstable, as the former landholders "tore" up the ownership documentation for the cacao plantations, leaving the farmers with a decreasing market, no technology or chemicals to assist the already old plantation trees. Financially ruined, parts for equipment and automobiles that still do exist are unobtainable. Their exports tumbled dramatically and are still dropping according to the latest figures available, which are quoted in sterling, was 494,000 pounds in 1982 which dramatically dropped to 218,000 pounds in 1983. Their imports also reflected the dropping export revenue, as in 1982 the value was 1,510,000 pounds with a drastic drop to 218,000 pounds in 1983.

In spite of the financial problems being encountered, the islands are abundant with many kinds of fruits including bananas, pawpaws and mangoes. The area is rich in sea foods, but as the President, Dr Manual Pinto de Costa, has said "Everything can be harvested; but we have no equipment to cultivate and fish." Education is a high priority on the government's agenda, and school attendance is deemed to be 100 per cent at the elementary level and all graduates of high schools receive their certificate plus a scholarship to continue studies abroad.

Luis or Luiz as perhaps it should be, S92LB, who has been licensed for some twenty years, and his XYL Berta are thought to be partners in the business of the Luiz and Jonseca Company, which apparently is a trading company from all reports. His former transmitter was apparently confiscated and now he uses a TS 520 and dipoles.

By reports from overseas newsletters, he is rather prompt in returning cards. Good luck Luiz and Berta, and may you be worked by all those that need you for a new country, particularly in the Pacific, and not the chosen few who trade on "mate rates".

CLUED UP "PIRATES"?

It is felt that 5A1AB, not an April Fools prank in bad taste, does exist, even if it is only a figment of the operator's "brain". But this brain evidently has some "grey matter" even if it is *channelled in* the wrong direction. He gives his QSL information as G4UZO. G4UZO is not listed in the 1985 International Call Book and the RSGB Call Book's notation alongside the call is "Particulars withheld at licensee's request". In other words, someone has done their homework!!

Another similar case is that of 702PP, heard in Europe quoting "WB0IDO" as his QSL route. "WB0IDO" does not appear in the current International Call Book either!!!

PETER THE FIRST ISLAND

Well this island has a high chance of being operated for a period of 24 hours in late December or early January. (What a Christmas present!)

Apparently a Japanese fishing vessel will be going near the island and is willing to take Jin JF1IST, along. Jin will have to remain with the vessel for four months and will have to go ashore alone in a rubber boat, if the schedule comes off. The fishing vessel will wait only 24 hours in the vicinity and, as mentioned before in this column, the landing conditions are very hazardous on this island. If Jin makes it, there will be no elaborate antennae (which has to be dismantled and removed before he leaves either by transporting it back to the "mother" ship or casting it into the sea), as the Norwegian authorities have decreed that nothing must remain on the island.

Jin, if it comes to fruition, every good wish for your welfare and if you make one QSO, congratulations, as in my book you are a very brave and determined amateur and the thoughts of all DXers go with you. If the plan goes as scheduled, the QSLs will be handled by Suzuki JR1HHL, who is not noted in the 1985 International Call Book.

MOUNT ATHOS AGAIN

Does any DXer remember Don Read WB1GDQ, who created the impression that he was on San Felix as KF1O/CE0X. (Refer AR September 1982, p30.) Well, Don also has the calls SV0BV and G4VGO attached to his name.

Don has been heard on air signing SV0BV/A expounding the fact that the monks were providing wine and cheese one afternoon. He was challenged by another SV amateur that it was a "commercial venture" but Bob, always with a reply, said all IRCs were being donated to the Holy Community. Many other operators would not work him and he packed his base and went home from wherever he was.

Is this another "Mission Impossible" for Don Search at the Newington Headquarters? My advice is to let us see if this was a genuine operation, before we commit any IRCs to charity or otherwise!! For the record QSL to G5VS.

My impression of Bob, with apologies to Luis CE3IW.

THAILAND AND BANGLADESH ACTIVITY

Apparently Jonas HS1SD, is the only active station from this country at the moment and it is believed that he is a high-ranking Police Officer. Apparently there is no ban as such on amateur activities, as the Minister of Communications lifted it in January this year. Meanwhile another school of thought is that amateur examinations are due to

be held soon and the Thai authorities will allow the Radio Society to issue the new call signs and all will become active at the same time. We hope so, as the hobby in this country has been in a "grey" area for some considerable time now.

No genuine operations out of S2, except that Saifud, President of the Bangladesh Amateur Radio League who has done so much to promote the hobby in his homeland, recently passed the British examinations. He hopes to be active from his Middlesex home shortly. Congratulations Saifud.

NEW COUNTRY????

Many JA operators believed that BT0NMN, being in the Tibet Autonomous Region, could be a new DXCC Country. It is thought that this station and BY0AA are located in an area that is administered by a local government, which is quite separate from the Beijin administration and the People's Republic of China. Incidentally BY0AA is in the much sought after Zone 23.

Meanwhile, many more BY stations are becoming active!

UNUSUAL NETT

Rainer DL1BEI advises of a net that may be of interest to some of our readers. The net is run at 0500UTC each Wednesday on 14.300 MHz +/- 10 kHz using the "Piatt" dialect. It appears that this dialect is a mixture of the Dutch, German and Belgium languages.

GU DXPEDITION

The Guernsey Amateur Radio Society with the support of the RSGB Committee is sponsoring an under 18 DXpedition from the 19th to 27th of this month, to allow participation in International Youth Year. They hope to become involved in the CQ WW DX Phone Contest. If they are heard, it would be worth a call, to make the organisers' hopes of promoting these young members of our fraternity with familiarity of better operating skills and widening their horizons with the use of the hobby they have chosen.

GUERNSEY

The DAGOE (Dutch Amateurs going on Expedition) will activate this DXCC Country under the call PA0FAS/GU0 from the 23rd to the 30th of this month. The operators PA0FAS, PA0TUK, PA3AWW, PA3CJF and PE1FNB will activate 160 through to 10 metres, on both CW and SSB including the WARC bands. Equipment that will be pressed into service includes a TS820, TS930, L4B, L75B into a beam for the high bands and dipoles for the lower end of the amateur allocations.

They hope to participate in the CQ-WW Contest and all QSLs are via DAGOE, PO Box 356, 3300 AJ Dordrecht or via the PA Bureau.

NEWS FROM GUAM

Ed KB6DAW/KH2, from his prime position in the Pacific has been getting his share of some good DX. Ed has worked SU, 7X and HV on the Rare DX Net with Zedan JY3ZH. This net is at 2100 UTC on the frequency of 14.224 MHz. Other stations heard have been 7X5CYK, A92EM, KX6DS, TA1A and TA1E.

Kimsan XU1SS is being heard, but when she reappears consistently, YB0BZZ and Ed are organised to assist in running some traffic for her. Another station that has been inactive is RF0FWW with his Net on Wednesdays at 14.195 MHz. His problems have been of an equipment nature.

Unfortunately Ed's trip to Johnson Island has been cancelled but the trip to Wake Island has been approved for the 22nd of this month until the 4th of November. That period covers the CQ World Wide DX CW Contest. Call signs to look for are KB6DAW/KH9 for CW, NY6M/AH9 for SSB and KB6DAW/NH9 for the contest only. All QSLs for the expedition are via KB6DAW/KH2, Edward Campbell, 300A Rendova, APO SF 96334, USA.

Ed has been asked to activate some VK and ZL stations to look over towards the South America's around 2200UTC on 14.338 MHz where the "Confusion Net" is run.

Good luck with Wake Island, Ed, and we hope to work you.

DXCC AND ALL THAT!!!

The ARRL DX Advisory Committee has voted 15-1 to amend the Country Criteria Rule 5b to read as follows:

"The following will NOT be eligible for consideration as a separate entity from the host country: Embassies, consulates and extra-territorial legal entities of all nature, including but not limited to monuments, offices of UN agencies and related organisations, nor other intergovernmental organisations, diplomatic missions, etc."

Well not being a "Legal Eagle", I feel that this will be the curtain call for 4U1VIC and maybe others if it is adopted by the ARRL desk. More aspirin or maybe something stronger for Don Search, who holds the responsibility for the DXCC administration!

HELLO — GOODBYE

The last Willis Island changeover went smoothly and at departure time both crews were full of smiles as this picture shows. Note the dish that many amateurs would like in their back yard!

L to R John Goonan—OIC*, Neil McArthur—O+, Brian McGurgon—OIC+, Kim Briggs—VK9ZB; RTO+, Chris Frisby—O*, Gaye Wooley—O*, Owen Anderson—O+, Peter McLennan—VK9ZR, RTO*.
KEY: OIC denotes Officer in Charge, O = Weather Observer, RTO = Radio Technical Officer, * = Outgoing crew and + = Incoming crew.

Photo supplied by Peter Barclay VK3FR.

BITS AND PIECES

The prefix OJ0 is no longer issued for Market Reef, so if you want this country, watch for any call signing . ./OJ0. ** UA8T is active from Oblast 174. ** Who was "YA7FPB" and "3Y3W"? Perhaps some psychologist may be able to elaborate! ** Lothar 5T5SL, will be QRV until the end of this month as will VR6JR. ** It is sad to relate that the XYL of 1Z9A was killed by a sniper in the Karen State. ** Kim VK9ZB, quite active from Willis Island and is also on 6 metres, particularly looking for VK contacts. ** Irma OH8MA, a well-known YL DX operator including being a member of the recent JW5E operation, was active from the Maldives as 8Q7MA. QSL via OH2BH. ** 4J0F was an operation from the USSR-owned Kuril Islands that lie between Kamchatka and Japan. ** Steve VK2PS, received 18 USSR cards in the last batch from the Bureau. Someone still listens on the bands! ** It is believed that OK2BKH is at the QTH of XZ2HN, but it is impossible to obtain the correct authorisation to operate amateur radio. ** Feng, ex XW8BP apparently has been allocated the call BV2EA. ** Apparently why WB0IDO is not in the International Call Book is that the call isn't issued. ** According to HB9TK, who is employed with the Swiss Embassy in Accra, the hobby is absolutely forbidden. ** YIs will soon have their own personal call signs but will be limited to operation from the club station. ** 70 might be active in the near future. ** Watch for JY50 stations in November and there could be an award. The special call is to celebrate the birthday of JY1, His Majesty King Hussein. ** XF4MDX had only 5386 QSOs during their jaunt, the propagation was so bad due to a solar storm prior to arrival that only nine stations were worked from Europe 2 and 7 on forty and twenty metres respectively.

HEARD AND WORKED ON THE EAST COAST

20 METRES:
1Z9D, 3A2TO, 4U1VIC, 5N3RTF, 5Z4DU, 5Z4EG, 7O7LW, 9J2BO, 9K2YA, A22DP, AH2AN, AH9AC, AL7L, BY1SK, C21DX, DU1DBT, EA6BH, FK8FF, FG4CB/FS, FT8XB, G3EDM, GB0XN, H44HA, HL1AFR (YL), HL9AA, HL9JJ, I5ICL-YL, I5YBZ (YL), JY3ZH, JW6VDA, K1CTK/TU, KA6KKN (YL), KC6HA, KC6JC, KD7P/KH4, KL7JJB, KX6PO, N6DOC (YL), OD5QS, OH0RJ, OX3BJ, PA0ALO, PJ2HB, S83H, SP4LEN, SV1OL, T30AT, T30BY, TF5EP, TF5GW, TI2CCC, UG7GWB, UL8FWE, V2AZM, VE7CBK (YL), VE7YL (YL), VK0GC, VK0YL (YL), VK2BCH/LH, VK9JA, VK9XB, VK9XG, VK9ZB, VR6JR, VU2KAJ, YJ8RG, Z21BP, ZK1IK, ZL2BAD (YL), ZS2OM, ZS6AIS.

40 METRES:
AL7FG (YL), CE3FTV, CP6NU, CT1FL, CE1HBI, CT2CQ, CP5LE, EA4FL, EA7AYD, EA8TH, GI3OOR, GW4BKG, GW4OFQ, HC5E, HC5EA, HH7PV, KA8GVS/KH2, TI2KD, YV6BJG, VE6OU, VI5JSA, VK0GC, VK2BCH/VK9LH, VK9ZB, VR6AB, ZK1WL, ZP7CO.

80 METRES:
VK0GC, VK9ZB, ZK1WL.

QTH INFORMATION

9Y4SA — Try PO Box 595, Port of Spain, Trinidad, West Indies.
CE0ZIJ — PO Box 1, Easter Is via Chile.
ET3PG — Bekele Asfaw, PO Box 22976, Addis Ababa, Ethiopia.
J6LPT — PO Box 195, Castries, St Lucia.
JT1AO — PO Box 844, Ulan Bator 13, Mongolia.
TA1C — PO Box 188, Istanbul, Turkey.
TA1D — PO Box 1167, Instanbul, Turkey.
TA1E — PO Box 794, Istanbul, Turkey.

KA4JRY/TT8 C/- 335 Jackson Av, Satellite Beach, FL 32937, USA.
N3DLO 2804 Spencerville Rd., Burtonsville, MD20866, USA.
OX3HX PO Box 22, Godthaab DK 3900, Greenland.
PY0FNI PO Box 441,, Recife, 50000, Brazil.
S92LB Luis, PO Box 147, Sao Tome.
SV0AH PO Box 66, Rhodes, Greece.
SV0DH PO Box 282, CR-85, 100, Rhodes, Greece.

S79CW PO Box 4, Mahe, Seychelles.
T40PAZ PO Box 1, Havana 10, Cuba.
T42AL PO Box 10, Havana 10, Cuba.
TA1E PO Box 794, Istanbul, Turkey.
TI1CUR PO Box 64, 2050 San Jose, Costa Rica.
TR8PC PO Box 177, Libreville, Gabon.
TT8CW PO Box 70, 91605 Savigny Cedex, France.
VK75A WIA, 412 Brunswick St., Fitzroy 3065, Vic, Australia.
XX9WW PO Box 922, Macao.

QSL MANAGERS

5X5BD:DJ5SI, 5X5WR:DJ5RT, 5Z4DU:KE4DA, GB0XN:GI3YMT, KC6JC:KC8JC, ZC4ZN:PA0GMM, ZD8LA:G40FY, ZK1WL:ZL3AFH.

THANKS

Sincere thanks go to the following: the editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, CQ-QSO, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGERS LIST, KH6BZF REPORTS, LONG ISLAND DX BULLETIN, LONG SKIP, NEWSLETTER of the NATIONAL INSTITUTE OF AMATEUR RADIO HYDERABAD, OLD MAN, QRZ DX, RADIO AMATOORI, RSGB DX NEWS and WESTLAKES AMATEUR RADIO CLUB NEWSLETTER. Magazines including: 73 for Radio Amateurs, BREAK IN, cqDX, JA CO, JARL NEWS, KARL NEWS, OST, RADCOM and VERON.

Members who have contributed include VKs 2PS, EBX, 3FR, YJ, YL, and G3NBC. Overseas amateurs include DL1BEI, G1EOD, PA0GAM and ZL1AMM. Sincere thanks to one and all, happy DXing and Intruder Watching. **AR**

WE'RE A WEIRD MOB

The WIA Victorian Division financial accounts underwent their annual audit, but an item called "Security" had the office-bearers puzzled.

Was it an overlooked expenditure for the Wireless Institute Centre (Vic Div HQ) — doorlocks or something?

No, it turned out to be postage and other expenses for the Intruder Watch Co-ordinator.

The Auditor not knowing about Intruder Watch, thought it would be more appropriate to list the item as Security.

I suppose he's right — for without IW our exclusive amateur bands would not be secure.

Contributed by Jim Linton VK3PC **AR**

ALARA

Australian Ladies Amateur Radio Association

Margaret Schwerin VK4AOE
114 Bunya Street, Dalby, Qld. 4405

I am privileged to be given the opportunity to write this month's column.

The 27th July was the day chosen by YLs in four states to meet in celebration of the 10th anniversary of our Association.

In VK5, 15 ladies met for a luncheon in Adelaide, 10 of whom were members and included Marlene VK2KFQ. Such an enjoyable time was had by all that it was generally agreed to give consideration to making the luncheon an annual event.

And, I won't reveal the identity of the YL who, arriving late, hurriedly placed her car in a car park and when she returned found the gate to the park securely locked until the evening!

Fifteen ladies and six men, plus several members of the Redcliffe Radio Club who called in to say hello, joined in the VK4 celebrations, which were held at Redcliffe. Josie VK4VAN did all the organising and the result was a highly successful, first ever ALARA function in Queensland. The Redcliffe Radio Club very kindly provided afternoon tea, which Josie prepared with the help of Beryl, wife of VK4UG, Elsie, wife of VK4NBL and Josie's daughter Roxanne (John VK4QA would never forgive me if I used the term XYL). We were happy to welcome Darleen WD5FQX, Bev VK6DE and Brian VK6AI, also John VK4QA, President of the Queensland Division of the WIA.

Bev and Brian, who were touring the eastern states, 'just happened' to be in the vicinity of Redcliffe. Good planning Bev! Darleen, with daughter Diane, spent a few days with Wendy VK4BSQ and family, on their boat. She is the International Membership Chairman of YLRL and is looking for Australian YLs who would like to be sponsored into YLRL. Any ladies interested, please contact Jessie VK3VAN, who will pass the information onto Darleen.

The VK4 festivities were wound up with 15 staying on for tea at Antony's. More news on the functions in other states next month.

During July, I was interviewed on the Television Channel 10-4-5A 'Here Tonight' programme. The topic was ladies in amateur radio. The on-air showing was very brief but, judging by the many comments I have heard, it was very well received.

The results of our birthday contest have been received from Marlene VK2KFQ. The winner was Kim VK3CYL, who was awarded the mystery prize — a crochet centre designed to commemorate ALARA's 10th Anniversary. The very close runner-up was Gwen VK3DYL, who received a consolation prize. Thank you to all who participated.

Apologies to our hard working editor, Marlene VK5QO, who was omitted from the list of office bearers published in August's AR. Marlene is responsible for publishing our quarterly newsletter and does a fantastic job. Additions to the committee are:

VK2 State Representative — Bobby Ohare VK2PXS
VK5/8 State Representative — Meg Box VK5AOV
VK7 State Representative — Laura Tucker VK7NYL

Welcome to new members, Jan VK3NCA, Judith VK3NYL, Betty KG6C and Joanne N6LFZ and a welcome back to Siegi VK4VSF, Helen GM4KNQ and Doris N5CFP. Last, but certainly not least, is congratulations to Dorothy, who has changed her call sign from VK2NVQ to VK2DDB.

VK75A was activated by Connie VK4ATK on 12th August. Val VK4VR plans to air this special call sign on 11th November, so do look out for her.

33 73 88, Margaret VK4AOE.

AR

HISTORICAL STRAYS — AT HOME AND ABROAD

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld, 4101.

The Canadians, who were part of the USA progressive scene, possessed a certain advantage over their Down Under cousins in early days; information on the state of the art reached them more quickly than it did us — nevertheless, VKs were never far behind, and in some cases ahead.

The AOCP license came into being in Canada in 1919 and in VK in 1925.

The first VE Broadcast MW voice transmission also occurred in 1919. Two amateurs with the call signs 3GX and 3IG (the VE prefix was not then in existence) combined to transmit the human voice (no mention was made of music) from a homebrewed station they called KDKA. The antenna used was a long trolley wire 'obtained' from a nearby railway yard and strung between two high structures.

In Australia, one of the first amateurs to set up a MW sound Broadcasting Station was Tom Elliott using the call 4CM. This took place from the top of the Queensland Insurance Building, cnr, Adelaide and Edward Streets, Brisbane in 1920.

Amateurs on both sides of the Pacific threw up makeshift antennas using all sorts of wire — but the sky hook erected by Canadian Graham Peacock 3SI deserves a mention. It was a roll of phosphor bronze wire which was so thick, tenacious and non-pliable that he had to borrow his Dad's team of Clydesdales in order to unroll and straighten it out. It was used for MW experiments. One wonders how he managed to get it up into the air.

The ubiquitous 210 tube used in thousands of transmitters around the world originally cost $13.50 in VE land in the 1920s — this was more than the average man's weekly wage.

In the quest for a triple ton, ie 300 countries worked, most avid DXers would eventually QSO St. Paul Island, off the Canadian east coast. Contacting this rare spot is really nothing new as it was first activated by Syd Young (VE)1EO in 1926. The power used was 100V at 10mA (or 1 watt input). Much DX was accomplished.

In the early thirties, when living on the shores of Moreton Bay to the south of Brisbane, Roy Jonasson VK4NG pulled off some remarkable QRP DX feats to NZ and USA. Also locally he worked into VK2 on phone, on more than one occasion, using 15 volts and less on the transmitter plate. His antenna was an end fed Zepp some 60-70 feet (18-21 metres) up.

In the late thirties, Harry VE3IT, operating from Toronto, worked several VE west coast stations (about 3000 miles 500km) using 5 watts with the antenna lying on the floor.

W Wright of Winnipeg, Canada (call sign not known) homebrewed his 700V power supply in 1925. The transformer made so much noise, it had to be suspended by rope under the operating table. When placed on the floor it made the whole room vibrate. In spite of this, it worked successfully.

Can any Aussie beat this? Motoring through lonely country out of Buffalo, Canada, in a model T Ford in the year 1922, amateur 8AII (name not known) became lost. *What to do next?* Ingeniously he found a length of wire, weighted it at one end, threw it over the nearest tall tree and connected the other end to a spark plug on the model T motor. (It is not known if the wire was 'borrowed' from a nearby fence or carried in the car). He then cranked up the motor, set it running at a good rev and keyed the sky hook at the spark plug connection. Another experimenter some miles distant heard and replied to his call for navigational help. It is reported that the QRI transmitted by the model T was something shocking, nevertheless it served the purpose. The type of receiver used is also not known but it would have been necessary to stop and then recrank the motor each time in order to transmit, a laborious, exhaustive business — but then desperate situations require desperate measures!

Acknowledgment for part of the above Canadian information is from the book titled "From Spark to Space" published by Saskatoon Amateur Radio Club VE5AA 1968. **AR**

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

FREQUENCY	CALLSIGN	LOCATION
50.00	5H44HR	Honiara
50.008	JA2IGY	Mie
50.075	S65IX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL3MHF	Hornsby
52.325	VK2RHV	Newcastle
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland
144.480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.17	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.000	VK6RVF	Roleystone

SIX METRES

Whilst we have had to be content with the occasional opening between the various states during the winter months, some activity during the northern summer Es season is reported in 'CQ ham radio' from Japan, per courtesy of Graham VK6RO. Japanese stations have been working FK8EB, DU1GF, HL1SB, as well as quite a few VKs 4, 6 and 8 stations, mostly around the end of April. It is interesting to note their reception of XX9UT on 50.110, which is listed as a beacon. My lists do not state the location with that prefix, although I note Kampuchea is XU. My Japanese is not good enough to decipher further details, but it was heard on 28/4 at 1130 by IA2GHT and again at 1928 by JR2HCB.

SIX METRE STANDINGS

I was very pleased to receive a superbly prepared list of stations and countries worked on 6 metres from Graham VK8GB. The list arrived too late for inclusion in the August issue, but will be included in the February 1986 listing. I will tell you this much too, that it will be the top number with 39 countries confirmed! I will leave further details until later as I want to make a feature of this entry, but suffice to say that it includes a photocopy of the front and back of each appropriate QSL card, the list is meticulously prepared and typewritten, and the whole bound into book form. Thanks for all your trouble Graham, I had been hoping you would eventually send me your list. I now hope we can hear from others, particularly in VKs 2, 4 and 6, who must have some impressive totals too. I am sure Bill Tynan W3XO, of 'The World above 50MHz' in QST, will be very interested in this submission.

EME ACTIVITY

Doug VK3UM still keeps bringing them in on 70cm EME, although the last EME weekend on 20/7 produced some very good signals, there did not seem to be a lot of stations on. At 0138, VK3UM worked K5JL exchanging 0/0 reports, 0155 VE4MA 449/449 and 4x3/4x3 SSB, 0700 DF3RU 449/449 and 4x3/5x4, 0744 DL9KR 459/559 and peaking to 569, and 5x5/5x5. Doug said this station was the strongest signal he had ever heard, equally as good as some of the Canberra stations he has been working on aircraft enhancement! They chatted for half an hour and Doug said it was as good as a telephone and cheaper! At 0810 G3LQR 449/449, 0830 DL2CJ 4x3/4x3.

On 21/7: 0000 VE3CRU (sched) 439/339, 0300 WB0TEM 449/449 (sched), 0042 N4GJV 4x3/4x4, 0100 N7ART 0/0 (sched), 0155 VE4MA 449/549, 0722 JA4BLC 449/439, 0815 DF3RU 449/0, 0845 F1FHI 449/449, 0942 to 1022 OE5EFM 0/0 — this one was a real battle, due to Faraday rotation, but with perseverance the contact was made.

There was a lot of very good signal reports in the above list, so it indicates a good set of conditions. Incidentally, the first signal report is that sent by Doug and the second is what he received. All contacts not marked with (sched) are random QSOs, either by being called or tuning around!

And while we are on the subject of EME, you are reminded that the ARRL EME Contests will be held on the 23rd and 24th of November and if you have a reasonable 144MHz setup, particularly if using a masthead preamp, you should have a chance to hear some stations, particularly those with good OSCAR systems with the ability to elevate the antenna.

If you would like a computer printout of azimuth and elevation for your location so you may see what you can hear, then I repeat the offer made by Chris VK5MC of Hatherleigh, SA. 5280, who is prepared to send you such a printout if you will send him your latitude and longitude, and enclose a LARGE stamped, self addressed envelope. But don't leave it until the last minute, Chris does have to do work around the farm to enable him to eat, so be fair and get moving straight away, if you have not already done so.

THE ROSS HULL CONTEST

As VHF/UHF operators know this is an annual contest in memory of the late Ross Hull, a keen exponent of the art, and will start again this year in December and end in January. Please keep your eyes on the Contest pages of AR for the opening and closing dates.

The Federal Contest Manager, after each year's contest, receives some logs and quite a few complaints about the conduct of the contest, particularly in relation to the points score. The Victorians argue that the Western Australians have it too easy and the Western Australians say they are too isolated when compared with the ease and luxury of close distance contacts from Melbourne to other parts of Victoria and to Tasmania and therefore deserve some special considerations.

It has been long known, that for a country as large as Australia, it will never be possible to make a VHF/UHF contest which is fair to everyone, something which is not too hard to obtain in HF contests. That the rules of the Ross Hull Contest change so frequently is evidence of the pressure placed on consecutive contest managers by various groups and an honest attempt to appease those who are often quite vocal and to be fair to the greatest majority. No one denies the large amount of effort it requires to build and finally operate equipment on a multitude of bands and there have been very commendable efforts to do this in both WA and Victoria. At the same time, those who operate only on, say, 6 and 2 metres, often do not submit logs because they realise they have no hope against the multi-band stations, yet they form the backbone of the total number who do operate during the contest, and it must be agreed there is quite a high level of overall activity during the Ross Hull, particularly on 6 metres and to a reasonable extent on 2 metres, but this would not be reflected in the number of logs submitted.

Without going too far into the politics of which camp is the right one to promote (multi-band against two/three bands), a subject which could be the source of a separate article for AR, which I may consider initiating later, for the time being, the important thing is to keep the contest going while we once more look at the problems in depth. I would like to advocate therefore, that as many as possible submit a log to the contest manager for the next contest, in December, and when submitting your log, give your thoughts on the subject in as much detail as you can, with the aim of such material eventually being looked at by both the contest manager and myself in the first instance, with the aim of getting details of any forthcoming proposals or changes into AR for comment early in the year, rather than it should start being aired as the time for the next contest arrives. One would see the ultimate aim of any such deliberations eventually involving representatives from WA and Victoria in particular, so through these columns I am prepared to keep the matter open and before readers on a continuing basis while sorting out what can be done for the best interests of all participants and for the memory of Ross Hull.

For a start, I am prepared to raise my level of participation to the highest possible and will submit a log. I hope there will be many more of you doing the same thing. I repeat, it is important to keep the contest going for the present, while we again see what can be done to help it, and support needs to come on a continuing basis from the multi-band operators as well as the less well endowed stations. In other words, let us maintain the status quo for this year and make a concerted effort to arrive at some worthwhile decisions. I am prepared to foster the idea in conjunction with the contest manager, who at the moment has been threatening to close up the contest, due to lack of log support, but I would see this as a great pity, so it will be up to all of us to be rational and fairminded in our approach to a problem which will not be easy to solve with the best of intentions. I seek the support from all of you, particularly during the next twelve months.

A WOODPECKER ON 427MHz

The July 1985 issue of 'The West Australian VHF Group Bulletin' contains an article headed like that, and the article, together with the additional article by Don Graham VK6HK on the subject should be prescribed reading for those who have an interest in our hobby and the 432MHz band, in particular.

"SYLEDIS is the French acronym for (Lightweight Range Measurement System). It is designed for use over water at ranges up to 150km. A transponder is mounted on the vessel and a network of responding beacons is erected at accurately determined places onshore. When interrogated, a beacon emits a long pulse (5300 microseconds) of UHF which is digitally encoded as two megabits/sec. This is correlated and digitally filtered by the transponder to give a continuous readout of distance from each beacon, and hence location.

"The absolute accuracy of SYLEDIS in measuring range is three metres up to 80km, deteriorating to about 12 metres near maximum range. The band chosen by SYLEDIS was 420-450MHz (primary allocation radio location, secondary amateur) because 'It offered a very good compromise between the relative spectral occupation of the transmissions and the quality of long distance propagation'. However, there have been problems in extending the range of SYLEDIS, the main one being 'super-refraction', better known to other occupants of the band as 'ducting'.

"Efforts were made to reduce the spectrum occupation and spurious emissions by using a high quality interdigital filter. This resulted in a bandwidth of 2.5MHz at 20dB. Without the filter, the bandwidth would be 70MHz . . . . 'which would be considered intolerable for radio authorities of many countries'. (!!)

"The following article by Don Graham VK6HK shows how a total lack of consultation has enabled SYLEDIS to blow a hole in the primary amateur TV location like an Exocet (another product of French ingenuity) encountering a 'large naval object' in the Gulf War".

SYLEDIS INTERFERENCE TO 425-432MHz TV

"ATV operators in the Perth suburbs of Victoria Park, Balga, Wembley Downs and Melville have reported severe interference to Amateur Service Television transmissions over the past month (approximately), when using the WIA recommended primary television channel. (Vision carrier 426.25MHz, Sound 431.75MHz).

"The interference has been traced to the installation of a chain of at least five pulsed beacons along the coastline, north and south of Perth and Fremantle, all operating on the same nominal carrier frequency of 427.3MHz approximately. The bandwidth allocated is 2.5MHz, fast rise time pulses being transmitted, at a PRF of 25Hz.

"Enquiries with the Radio Frequency Management Division of DOC (Mr B R Field) have confirmed the presence of the system and established:

"(a) The system, known as SYLEDIS, has been installed as part of elaborate navigational preparations for the 'America's Cup' series and will operate 24 hours a day until 1987. The State Government have also expressed interest in retaining the system indefinitely thereafter.

"(b) The present frequency was allocated, in principle, to SYLEDIS several years ago, but no consultations were known to have taken place with the Amateur Service as the Secondary Service.

"(c) The existence of WIA Band Plans as an indicator of likely interest by the secondary user, or as an indicator of the impact of frequency allocation decisions, was not known or taken into account by the DOC Head Office, who tended to be of the view that the WIA should not recommend band plans in shared allocations, without consulting the Department. The DOC Central Administration is of the opinion that the SYLEDIS frequency allocations have been made known to the Federal Representatives of the WIA.

"(d) The system was switched off on 19th June pending clarification of its status with DOC, but is now restored.

"(e) The options for any improvement appear very limited. A compromise involving effective 'surrender' of the SECONDARY ATV channel 443-450MHz to SYLEDIS was considered as the best solution. However, while the beacons can apparently be retuned (synthesiser/filters), the associated receivers come as a high or low band version and it could be that some visiting users may not have the right equipment if the upper band is chosen.

"A second compromise option is to position the SYLEDIS between 420425MHz. This would require careful control of the lower sideband products of ATV transmissions to avoid interference to SYLEDIS, although the system seems to be fairly immune to outside influences. The problem of high/low band receivers remains.

"A third option is considered even more unpalatable than the present situation. SYLEDIS might be moved to a frequency around 434MHz. This would probably see the end of the present weak signal work between 432 and 436MHz, which includes activities associated with beacons, SSB, repeater inputs, and international allocations for EME and the amateur satellite service. Licencees are active in Perth in all pursuits. This course is to be avoided at all costs!

"The fourth option is 'to grin and bear it'. This will probably mean that ATV activity will have to transfer to the secondary channel (443-450MHz). The penalties are that the existing prevailing psuedo DSB transmitters will have to be replaced by new VSB IF modulated designs at significant inconvenience and expense. Existing RF amplifiers may have to be redesigned and achieve the same performance as at present. Receivers and antennas will have to be returned or rebuilt. It will present the sort of modest challenge with which the Amateur Service is all too familiar.

"All options are impractical from the DOC viewpoint except the fourth. The Amateur Service has apparently little or no standing as the Secondary Service. Frequency changes in this band must be preapproved by other departments and this involves months of unacceptable delays in commencement of service by the business interests involved, with no guarantee of success. After strenuous efforts, Mr Field has now advised that nothing can be done to change the allocation and that ATV operators in the Perth area should transfer operations to the alternative 443-450MHz channel.

"RECOMMENDATIONS"

"It has been recommended that:

"(i) The WIA take up as a matter of urgency, clarification of the future possibility of extensions of SYLEDIS in Australia.

"(ii) The WIA discuss urgently with DOC, band plans for the shared UHF bands and endeavour to have them recognised as points for consultation when fixed allocations are made to Primary Services. The DOC are currently preparing Policy Guidelines associated with the Australian Frequency Allocation Table and input to these guidelines may be possible. (The formal title is 'Australian Frequency Assignment Policy and Technical Criteria').

"(iii) The WIA attempt to correct by any means the approach taken in the present instance which has treated the Secondary Service as if it did not even exist. At least a warning to avoid interference to the Primary Service in a capital city would have practical value!

"(iiii) Wide publicity be given to the Perth case to reduce the possibility that licencees may be incurring further expenditure on 426.25MHz ATV equipment, which will be rendered useless by SYLEDIS interference.

"QUESTION: Has the SYLEDIS plan, nominating 8 or 9 spot centre frequencies between 426.59 and 427.50MHz been made known formally to the Amateur Service?

"LESSON: This is what being the Secondary Service really means . . . How many of our bands carry this tag?

"Obviously there is a message to be learnt and understood in what has transpired in Perth, and as has already been done similarly overseas with this radio location system. We could well see in the future the existence of such systems around each capital city, so what price for future contacts between Melbourne and Hobart in the 70cm band? Or between Adelaide and Albany?

DXPEDITION?

Roger Harrison VK2ZTB, has responded to a suggestion from Don Richards VK2BXM, that the Dick Smith Explorer may be available late January/early February 1986 for a DXpedition.

Roger suggested one possible trip could be to the Kermadecs of the North Island of New Zealand. It is about 2400km from many points along the eastern seaboard of Australia and the path has possibilities for both Es and tropo propagation modes on the VHF/UHF bands. Sponsorship for food and fuel is the major requirement, of about $3000 per week.

The suggestion has already been put to Don, who is looking at it, but Roger would like some feedback from others who could be interested, as the Kermadecs allows for exploring an interesting propagation path, opens the opportunity to probably the widest range of operators and creates interest because of the call sign (authorities permitting) being a rare one. Propagation to the New Zealand islands could also be explored, further broadening the appeal of the expedition. Weather data could be recorded, perhaps using balloon profile flights and a portable ionospheric sounder.

Roger notes the above are only suggestions and is open to thoughts from others, but fairly soon looms the need for a proposal and willing sponsors. It would certainly provide some healthy VHF/UHF activity, as well as giving an adventure to a few lucky people. If you have any thoughts and could help I am sure Roger would be pleased to hear from you at PO Box 289, Wahroonga, NSW. 2076, phone (02) 487 2700.

By the time you read this I will have returned from a trip to the Pacific on the 'Oriana', so these notes are prepared a fortnight earlier than usual, hence the lack of news. So, closing with the thought for the month: "The only people who brag about having been poor are the rich!". 73. The Voice of the Hills.

AR

AMATEUR HONOURED

A get-together will be held on the 6th October 1985 to commemorate the 50th Anniversary of the first TV transmission in Queensland, which was conducted by the late Tom Elliott VK4CM, one of the Sunshine State's outstanding amateurs.

Those wishing to participate in this official event are requested to assemble at the convict built Observatory Tower on Wickham Terrace, Brisbane at 10.00 am on the above date. This was the site and building from which Tom transmitted his first pictures.

It is not mandatory, but to add atmosphere to the happy gathering, you are invited to appear in period costume — 1930-35 or earlier.

After an official nostalgic speech, those in attendance will then be transported by a colourful fleet of 20 vintage cars, supplied by the Brisbane Vintage Car Club, to the Royal Historical Society in William Street, Brisbane. Here HD Television and other items of the art will be displayed and memories of bygone days joyfully aired.

Come along and pay tribute to a great experimenter and amateur.

For further details contact, Tom Ivins VK4ABA, 11 Bunya Park Road, Eatons Hill, Qld. 4035. Telephone: 264 1278.

SOUTH POLE HAS SHIFTED

Since measurements began at Mawson Base 30 years ago, the South Magnetic Pole has moved approximately 300km. Latest measurements show the pole has shifted north west of its 1955 position in the eastern sector of the Australian Antarctic Territory.

Its present location is 150km offshore from the French station, Dumont D'Urville. An accurate measurement of the pole's position is important for navigation, particularly in higher latitudes.

The reason for the pole's movement is unknown, but scientists believe that it is caused by changes in the electric current in the earth's outer molten core.

Contributed by Jim Linton VK3PC from LINK, a publication of the Victorian Department of Industry, Technology and Resources.

COMPUTER CARE

A British manufacturer of a wide variety of cleansing and maintenance products is seeking an Australian agent for its range of computer care products.

The range includes a tape and disk drive cleaner, anti-static foam and screen cleaners, pressurised air duster, printer cleaner and much more.

A range of accessories including cleaning brushes and floppy disks are also available.

The company is seeking a national distributor in the first instance, with the possibility of exporting in bulk for re-packaging and perhaps later formulating the fluids in Australia.

Enquiries should be directed to the nearest office of the British Consulate-General, and quote AL15/IT/BITN.

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

OCTOBER

5 — 6 VK/ZL Oceania Phone Contest (Rules September AR)

12 — 13 VK/ZL Oceania CW Contest (Rules September AR)

13 RSGB 21/28MHz SSB Contest (Rules September AR)

20 RSGB 21MHz CW Contest (Rules September AR)

26 — 27 CQ WW DX Phone Contest

NOVEMBER

9 — 10 European DX Contest, RTTY Section (Rules July AR)

23 — 24 CQ WW DX CW Contest

DECEMBER

14 Ross Hull Memorial VHF Contest . . . . begins (Rules this issue)

JANUARY

6 Ross Hull Memorial VHF Contest . . . . concludes

December should also see the ARRL 160 and 10 metre Contests however, I do not have any dates for these at the time of writing.

To allow a calendar to be set up for 1986, I have had to allocate dates for those contests conducted by me. In doing this, I have tried to avoid clashes with major overseas contests, based on dates which have operated over the past three or four years. It may still work out that there will be some clashes, although there is very little else that I can do about the situation.

One of the worst months for contests is March, with the ARRL DX Phone, BARTG RTTY and CQ WW WPX SSB contests, all being staged in that month. I have, for several years, campaigned to have our Field Day Contest changed to fall within this month for safety reasons and I feel very strongly that it must receive precedence, as a result. Coupled with this, is the current requirement for an additional contest, namely the CW Contest. Following my notes last month, in which I addressed the matter of too many contests, I was asked by the Federal Office for my comments on this contest. My reply addressed the matter at length and it has been circulated to all Divisions. I have presented a very strong and reasoned case as to why this contest should be deleted from our calendar and have proposed that a postal motion, should be raised. In the meantime, I have no recourse but to schedule the CW and Field Day Contests for consecutive weekends in March. Thus contests under my control for 1986, will be programmed as follows, with the CW Contest scheduled only on a tentative basis, pending a decision yet to be arrived at.

14th December 1985 to 6th January 1986, Ross Hull VHF Contest. 8th and 9th March, CW Contest. (Tentative). 15th and 16th March, John Moyle Memorial Field Day Contest. 21st and 22nd June, VK Novice Contest. 16th and 17th August, Remembrance Day Contest.

Harking back to my comments of last month about the rules for the Contest Championship Trophy, I would also toss the following question in for good measure. Should championship points be accredited to home stations when they are operated in the Field Day Contest? I personally believe that they should not, even when they are operated on emergency power, as I do not believe that they can be classed as being in any direct competition with field stations in this particular contest. Discussing this matter with quite a number of operators from various states, seems to elicit one main comment to the effect, 'it is a real can of worms'. I am still anxiously looking forward to receiving some bright and outstanding suggestions to solve the problems presented. Maybe I will have to put the matter up to a Federal Convention?? In all seriousness, if you have an opinion or some interest in this matter, see that it is brought to notice within your Division for proper discussion and debate within the membership. Meanwhile, I will attempt to have discussion raised by working from the other direction, through the Federal Executive and back down to you through the Federal Councillors, who should also bring such matters to the Divisions for discussion amongst the membership.

Remember, this column is being written in August and I feel that our organisation should be capable of making decisions in a rational manner, but without there having to be excessive time delays.

I would also take the opportunity to repeat here what was written by me previously and published in the August 1984 issue of AR. "Please take note that such matters discussed in these notes should be brought to the attention of Divisional Secretaries and Councils". I wonder whether repeating this plea for some interest to be shown, may now fall on other than Deaf Ears

ROSS HULL MEMORIAL VHF CONTEST 1985

Following discussion with quite a number of VHF orientated operators and with particular help from Eric VK5LP, who is well known to you as the correspondent of the VHF column in this magazine, I present, in this issue, the rules of the Ross Hull Memorial VHF Contest for 1985. The rules are being published earlier this year to allow plenty of time for studying them. Quite a number of changes have been made, which we feel (or at least hope) might cause a modicum of increased interest in this contest, following the abysmal showing last year, with only seven entrants logs received. I have received various letters dealing with this contest, some of which make certain claims as to just how great the interest really is. Also, at the Federal Convention, statements were made that interest does exist.

Now, please let us just face facts. The only way I, or anyone else for that matter, have of determining how much interest is shown in any particular contest is by the number of entries submitted to the contest manager. I queried as to whether it was worthwhile continuing this contest in my annual report and to date, no one has really answered my question in any satisfactory way. I would suggest that if there is a poor response again this time, my next annual report may well contain a very strong recommendation that this contest be disbanded. So, come on all you VHFers, if you want a specialist contest for VHF/UHF minded operators, make it known in the obvious manner by supporting it.

One particularly interesting letter I have received, describes a portable operation utilising VHF equipment and a number of operators, who are enthusiasts, obviously trying to do their best to provide an interesting number of contacts during the period of the Ross Hull Contest. The letter did however, pose a query as to the nature of the operation, particularly as it involved multiple operators. My view point, is that under the rules, such a station cannot enter the contest on a competitive basis although, it would seem perfectly acceptable that the station could make contacts on VHF and such contacts may be utilised by other stations competing in the contest. If any stations do adopt such forms of operation as proposed in this instance, and give out serial numbers for the contest, I would appreciate receiving a check log, which will help me when checking contacts and results.

Another view point proposed was, the contest is a battle between just a few elite members of the VHF fraternity. Now, this is certainly one approach which I would like to discourage. I feel, the rules are being framed in such a way to make it possible for many more operators to participate, otherwise why go to so much trouble for just a few? Last year was an attempt to encourage more entrants and this year, whilst there are changes made, with the same idea in mind, none of the changes could be considered radical or outside the general guidelines for this contest. Over the years there have been many experiments made with the rules of this contest and I would like to feel that, if we keep going, we could find a formula which will make it much more enjoyable and of interest to a greater number, as well as providing a stable set of rules which can remain unchanged for quite some time.

Following the listing of the rules, are quite a number of comments and examples of how things should work and explanation of the philosophy adopted in trying to achieve the desired ends. Again I would like to express my thanks to Eric for his invaluable help in providing these comments.

Before closing, I would like to bring one other aspect of the Ross Hull to your attention — the matter of unethical methods of operating. Various instances of such happenings have been brought to my notice and I have set about investigating such complaints.

Whilst it is not possible for me to monitor all that goes on, it is a fairly simple matter to obtain information about such practices occurring. I would also like to point out that the practices complained about actually do infringe the regulations applying to the operation of our stations and as such, they are likely to be monitored by official Departmental monitors and action taken where necessary.

Further, I would suggest to you, we are engaged in a hobby which should bring us much pleasure and surely we would not gain pleasure and true gratification by spoiling things for other operators by operating in a selfish manner. I do realise, at times there are technical difficulties which we encounter, such as crowded bands and cross modulation which present problems but generally there is a way around such difficulties if we apply ourselves.

The previous comments could of course apply to operation in all contests and, to any of our operations at any other time, as well. I would simply wish that you all find your contesting and whatever other facets of the hobby you deign to pursue of benefit and pleasure, at all times.

OBJECTS — Australian amateurs will endeavour to contact as many other amateurs as possible.

PERIOD — From 0001UTC 14th December 1985 to 2400UTC 6th January 1986.

EXCHANGE — RS(T) plus three figure serial number starting at 001 and increasing by one for each contact. When 999 is reached, a start is made again from 001.

BANDS — All amateur bands above 30MHz. Six metre contacts valid only between 52 and 54MHz. Cross band contacts are not permitted. Contacts via active repeaters and translators cannot score.

OPERATOR — Single operator only. One transmission only at one time.

CONTACTS — One contact per UTC day per band with each station.

DURATION — a) For the period of the whole contest. b) 7 UTC days — not necessarily consecutive. c) 2 UTC days — consecutive.

SECTIONS — i Phone (AM, SSB, ATV, SSTV). ii CW, RTTY. iii 52 and 144MHz only. All modes. iv Receiving. Any mode.

LOG SHEETS — It is desirable that logs covering the complete period of the contest be submitted for cross checking purposes. Photocopies are acceptable. The following details must be shown. Date and Time in UTC. Band, Emission, Station Worked, RST and Number Sent, RST and Number Received, Points, Bonus. Each page must be numbered and totalled at the bottom.

FRONT SHEET — A front sheet must be attached to the log entries showing the following information, in this order. Section, Call Sign, Total of Daily points with Bonus points added to provide an overall contest total, List of the best seven UTC days,

with a daily score and bonus points added to provide a seven day total, List of the best two UTC days with daily score, bonus points and two day total. List the bands on which operation has taken place.

DECLARATION — I certify that I have operated in accordance with the rules and spirit of the contest. Name, address, signature and date.

SCORING TABLE FOR AUSTRALIAN STATIONS — 52MHz — 1 point, 144MHz — 1 point, 432MHz — 2 points, 576MHz — 5 points, 1296MHz — 5 points, 2304MHz — 10 points, 3300MHz — 20 points, 5650MHz — 30 points, 10000MHz — 40 points.

The above points apply irrespective of distance.

BONUS — a) For each new call area in Australia, including own call area, 10 points once only per band per UTC day.

b) For each prefix worked outside Australia, 10 points once only per band per UTC day.

c) For each band used, 576MHz and higher add 10 points once only per UTC day.

SCORING FOR OVERSEAS STATIONS — Stations outside the Australian mainland and Tasmania call areas will endeavour to contact as many Australian stations as possible. Scoring for such contacts will be: 52MHz — 20 points, 144MHz — 50 points, 432MHz — 100 points. Should any contact by overseas entrants take place on bands higher than 432MHz, scores will be: 1296MHz — 200 points, 2304MHz — 300 points, etc.

AWARDS — A perpetual trophy is awarded annually for competition between members of the Wireless Institute of Australia. The winners name is inscribed on the trophy and he/she also receives a suitable certificate. The entrant with the highest overall score for the contest will be the winner and their Division will hold the trophy for one year.

Certificates will be awarded to the highest scorer in each of the seven day and two day divisions. No entrant may receive more than one certificate. Overseas entrants will be awarded certificates on the same basis, one for each call area.

STATE SCORES — Certificates will be awarded for the highest overall score in each State, and for the highest seven day score in each State.

52 and 144MHz — Certificates will be awarded to the entrants with the highest overall score and the runner up for operation on 52 and 144MHz only (combined).

SUBMISSION OF LOGS — Entries are to be forwarded to the Federal Contest Manager, WIA, GPO Box 1234, Adelaide, SA. 5001. Entries must be received no later than Friday, 7th February 1986. Please endorse the outside of the envelope 'Ross Hull Memorial Contest'.

RECEIVING SECTION — Logs for the receiving section must show the same information as for a transmitting log, except for the second number exchange. If both stations participating in the contact are heard, both may be claimed but must be listed as separate entries on the log. Scoring will be as for a transmitting log. Any scoring contacts may be logged with no limit to the number of times that one station can be logged.

DISQUALIFICATION — The Contest Manager may disqualify logs which are illegible or improperly set out or do not conform to the rules laid down. See the General Disqualification Criteria as published in Amateur Radio for August 1984. Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may also be disqualified.

COMMENTS ON A FEW CHANGES TO THE RULES FOR THE ROSS HULL MEMORIAL CONTEST

As a result of submissions from entrants in the 1984 contest, it seemed the ten hour operating rule for another contact with a station was undesirable and this has been removed to allow only one contact per band per UTC day with each station. This should allow some entrants to catch up on wanted sleep.

There seemed also to be quite a call for scoring over the whole period of the contest as it was a number of years ago. This has been included, but with the seven and two day sections retained. Let us see how it works out before you criticise! The bonus points for VK6 have been withdrawn. It was a very sore point with a lot of people. Some doubt still exists in my mind that some form of loading may still be desirable, but at what level is open to comment. Let us try this year without. A two day section has been added to the 52 and 144MHz part, it was missed last year.

Now to the scoring table. This has always been the greatest source of contention and various combinations of scores and distances have been tried ever since the contest started. None have been really satisfactory and I doubt if there is any one formula which can suit everyone in a VHF/UHF contest spread over a country as big as Australia and with a limited VHF population, when compared with some overseas countries. At best, one can only strive to provide reasonable competition for the majority, there will always be someone disadvantaged in any or all states.

There have been suggestions to have the upper limit over 3000km, instead of last years 2500km, some have doubts about the accuracy of the 400km limit, others would like to see the minimum distance for all bands set at 100km and so it goes on. One of the major continuing problems has been the demand by those operating many bands, that due recognition should be given to the fact, and in general over the years this has been done, either by massive scores per contact, band multipliers and the like. But, what seems to be overlooked, is the question of relativity of scores. Even one point per contact, irrespective of band or distance can be very worthwhile providing, it receives a bonus for the effort involved, which in turn ensures the multiband operator keeps a step ahead of the one or two band operator.

However, one must realise that, were it not for the many people who operate on 52 and 144MHz only and make contacts available to all and sundry, the VHF bands would be a rather drab place. Without the push required to match scores being run up by these two bands people, the multiband operators would also find the other bands also becoming drab. It is the mixing of contacts across the spectrum and with all kinds of operators that makes it a contest worth having, and the removal of the second contact after ten hours will make life easier for most.

The scoring table this year is the same as the top line of last years table with the addition of points for the next three highest bands after 2300MHz and all distance scales have been removed. Some will be shocked at this move, but before getting too worried, study the tables below and see how it really does affect you.

On average there is no way operation only on 52 and 144MHz can take the overall trophy, although these bands could feature in the issue of certificates. The present formula for scoring will make log preparation so much easier and more accurate and there will be no distance dispute. In one stroke it has removed the disgruntlement that Es on 52MHz is more favourable to some than to others, and will be some consolation to those in Ch 0 and 5A areas, to know other areas are not drawing away from them in leaps and bounds with high scoring contacts. Examples . . .

BAND	52	144	432	576	1296	2304	3300	5650	10000
CONTACTS PER BAND-1	1	1	2	5	5	10	20	30	40
CALL AREA BONUS-1 area	10	10	10	10	10	10	10	10	10
576 & ABOVE BONUS	-	-	-	10	10	10	10	10	10
TOTAL FOR 1 CONTRACT	11	11	12	25	25	30	40	50	60

If you operated on 52 and 144MHz, that one contact gave you 22 points, up to 2304 you got 114 points, and to 10GHz — 264 points.

If the opposition got into it and worked 50 stations in four call areas on 52MHz, and ten stations on 144 in two call areas, his score would be 120 points. If the multiband operator did the same, he would score 212 up to 2304MHz and 362 up to 10GHz. But, if the multiband station in the same time only worked five stations in two call areas on both 52 and 144MHz, plus one on each of the high bands, then his score would be 142 up to 2304 and 292 to 10GHz.

If each contact, irrespective of band, was one point then, 52 and 144MHz only would be 22 points, up to 2304 would be 96 and up to 10GHz 159 points, with the added bonus score, and all this for only one contact on each band!

Surely it cannot be said there is no incentive to operate multibands when, in all reasonable approaches to a daily set of operating contacts, the multiband station wins easily. The 6 metre operator would need to make massive daily scores to have any chance of matching the results of a multiband station of six bands, and then his score is negated to some extent because the multiband operator also takes his share of 6 metre contacts! If the multiband operator sees scores of 100 to 200 points per contact as required to warrant his operating on some of the highest bands when he already has many advantages with lesser figures, then his stance is somewhat unrealistic.

What price banning 52 and 144MHz contacts under say, 200km, with pro rata, similar distance bands for all other bands?

Incidentally, some operators thought five weeks for the contest was too long. It has been shortened to three weeks and two days covering most of the prime Es periods. The XYL should be more amiable now!!

UBA SWL COMPETITION 1986 — FOURTH EDITION

This SWL competition is open to anyone in the world that are members of an organisation recognised by the IARU.

The intention of this contest is to log as many DXCC countries as possible on five bands during a one year period, from 0000UTC 1st January 1986 to 2400UTC 31st December 1986.

The countries are according to the ARRL DXCC list and operating bands are, 28, 21, 14, 7 and 3.5MHz.

Each country heard counts as one point, and each new country counts as a multiplier.

The final score is the total of countries heard on all bands added together and multiplied by the number of different countries heard.

There are four categories. It is possible to participate in more than one category at the same time.

The categories are: Phone - single operator, CW - single operator, RTTY - single operator and all mode, club stations or multi-operator.

It is necessary to use special logs, these logs are available from the contest manager for four IRCs.

Stations logged must have made a QSO and the call sign must be shown in full. Dubious calls will be refused.

To enter the contest, an interim result, no log, must be sent to the contest manager twice during the year, postmarked no later than 1st April and 1st September. The log must be post marked no later than 20th January 1987.

Prizes and certificates will be awarded by the SWL Committee of the UBA and its decision will be final.

All participants will receive at least the commemorative QSL via their organisation. Participants who wish to receive the interim and final results direct, are asked to enclose one IRC with their interim results or log.

Comments are always appreciated.

Logs, interim results and all correspondence regarding this competition should be addressed to The UBA SWL Contest Manager, Marc Domen ONL 6945, Gebr Blommestraat 14, B-2200, Antwerpen (Borgerhput), Belgium.

PRIZES - The winner in the categories 1, 2 and 3 will receive a trophy. The top five in all categories will receive a certificate. In all categories, the top scorers from each DXCC country, the first YL and the first /MM stations will receive a certificate if a reasonable score is reached.

All other participants will receive a special QSL. All operators in category 4 will receive a QSL if their names are mentioned in the log.

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

Further to the information relating to the WAC Awards, published in the July issue of Amateur Radio, please note the following, which brings the information up-to-date.

FAX endorsed certificates are available. Satellite endorsed certificates are available. 50 and 430MHz endorsement stickers are also available.

QRP stickers are available, effective 1st January 1985.

There are no CW certificates. Basic certificates are issued instead.

AM phone certificates are now discontinued.

I also asked the question, 'Who claimed the first WAC issued by the ARRL and also the first award issued by the IARU, to VK amateurs'.

Alfred Short 2SH, was the first awardee of the WAC certificate by the ARRL to an Australian amateur. It was in 1926 and he was number 34, worldwide.

A S Matber VK2IZ, was the awardee of the first WAC certificate issued by the IARU to an Australian amateur. It was in 1930, and he was number five worldwide.

The announcement of the issuance of these certificates was made in the IARU News column of the March 1930 and March 1931 issues of QST magazine.

AWARD NET ASSISTANCE

To assist amateurs and SWLs gain Australian awards, the following information relating to nets operated by some clubs is shown.

* FISHERS GHOST AWARD, Fishers Ghost ARC, Box 249, Camden, NSW. 2570. Net Fridays 1000UTC on 3.580MHz. Call VK2FFG.

* BLUE MOUNTAINS AWARD, Blue Mountains ARC, Box 54, Springwood, NSW. Net Tuesdays 1030UTC on 3.540MHz. Call VK2AUX.

* LAWRENCE HARGRAVE AWARD, Illawarra ARS, Box 1838, Wollongong, NSW. Net Sundays 1000UTC on 3.562MHz. Call VK2AMW.

* SOUTHERN CROSS AWARD, EMDRC, Box 87, Mitcham, Vic. 3132. Net Thursdays 1000UTC on 3.567MHz. Call VK3ER.

* QUEENSLAND CITIES, TOWNS AND SHIRES AWARD, Box 323, Warwick, Qld. 4370. Net Thursdays 0930UTC on 3.605MHz. Call VK4QA or VK4BMW.

* GOLD COAST AWARD, Gold Coast ARS, Box 588, Southport, Qld. 4215. Net Wednesdays 0930UTC on 3.605MHz. Call VK4WIG or VK4VGC.

* GARDEN CITY AWARD, Darling Downs ARC, 367 Margaret Street, Toowoomba, Qld. 4350. Net Saturdays 0930UTC on 3.587MHz. Call VK4WID.

* PELICAN AWARDS, Sunshine Coast ARC, Box 80, Nambour, Qld. 4560. Net Thursdays 0900UTC on 3.595MHz. Call VK4WIS.

* GOLD AWARD, Gympie ARC, Box 384, Gympie, Qld. 4570. Net Wednesdays 1000UTC on 3.570MHz. Call VK4WIH.

* WHITE BULL AWARD, Roma and Districts ARC, Box 237, Roma, Qld. 4455. Net Fridays 1000UTC on 3.610MHz. Call VK4AEB or VK4NCI.

* MINERAL FIELDS AWARD, Mount Isa and Districts ARG, Box 1715, Mount Isa, Qld. 4825. Net Thursdays 1000UTC on 3.610MHz. Call VK4WII.

* TONY BURGE AWARD, VK4 Disabled Persons RC, Box 3126, Toowoomba, Qld, 4350. Net Fridays 0900UTC on 3.590MHz. Call VK4BTB.

CQ WPX AWARD

The CQ WPX Award recognises the accomplishments of confirmed QSOs with the many prefixes used by amateurs throughout the world. Separate distinctively marked certificates are available for two-way SSB, CW and mixed modes.

APPLICATIONS: All applications and endorsements for WPX certificates must be submitted on the official applications form - CQ 1051A. This form can be obtained by sending a SASE to the WPX Award Manager, Norman Koch K6ZDL, PO Box 1351, Torrance, CA. 90505. It is highly desirable to use a business size envelope for this purpose.

All QSOs must be made from the same country.

All call letters must be in strict alphabetical order and the entire call sign must be shown.

All entries must be clearly legible.

Certificates are issued for the following modes and numbers of prefixes. Cross mode QSOs are not valid for the CW or SSB certificates. Mixed (any mode) — 400 prefixes confirmed. CW — 300 prefixes confirmed. SSB — 300 prefixes confirmed. Separate applications are required for each mode.

Cards need not be sent, but must be in the possession of the applicant. Any/all cards may be requested by the WPX Award Manager or by the CQ DX Committee.

The application fee for each certificate is $4.00 for subscribers and $10.00 for non-subscribers, or the equivalent in IRCs.

All applications and endorsements should be sent to the WPX Awards Manager.

ENDORSEMENTS: Prefix endorsements are issued for each 50 additional prefixes submitted.

Band endorsements are available for working the following number of prefixes on the various bands:- 1.8MHz-50, 3.5MHz-175, 7MHz-250, 14MHz-300, 21MHz-300, 28MHz-300.

Continental endorsements are given for working the following number of prefixes in the respective continents:- North America — 160, South America — 95, Europe — 160, Africa — 90, Asia — 75, Oceania — 60.

Endorsement applications must be submitted on CQ Form 1051A. Use a separate application form for each mode and be sure to specify the mode of your endorsement application.

For prefix endorsements, list only additional call signs confirmed since the last endorsement application.

A self addressed envelope and $1.00 or five IRCs is required for endorsement stickers.

PREFIXES - The two or three letter/numeral combinations, which form the first part of any amateur call sign will be considered the prefix.

Any difference in the numbering, lettering or order of same shall constitute a separate prefix. The following would be considered different: W2, WB2, WA2, WN2, K2 and KN2.

Any prefix will be considered legitimate if its use was licensed or permitted by the governing authority in that country, since 15th November 1945.

A suffix would designate portable operation in another country or call area and would count only if it is the normal prefix used in that area. For example, K4IIF/KP4 would count as KP4. However, KP4XX/7 would not count as KP7 since this is not a normal prefix. Suffixes such as /M, /MM, /AM, /A and /P are not counted as prefixes. An exception to this rule is granted for portable operation within the issued call area. Thus contacts with a special prefix, such as WS2JRA/2 counts for WS2, however, WS2JRA/3 would count for W3.

All calls without numbers will be assigned an arbitrary 0, plus the first two letters to constitute a prefix. For example RAEM counts as RA0, AIR as AI0, UPOL as UP0. All portable suffixes that contain no numerals will be assigned an arbitrary 0. For example, WA4BPD/LX counts as LX0 and WA6QGW/PX counts as PX0.

VPX AWARD

The VPX or Verified Prefixes Award can be earned by short wave listeners (SWLs), who possess QSL cards confirming reception of at least 300 different amateur prefixes. No mode endorsements are available. Applications are submitted to the WPX Award Manager, in accordance with the WPX rules.

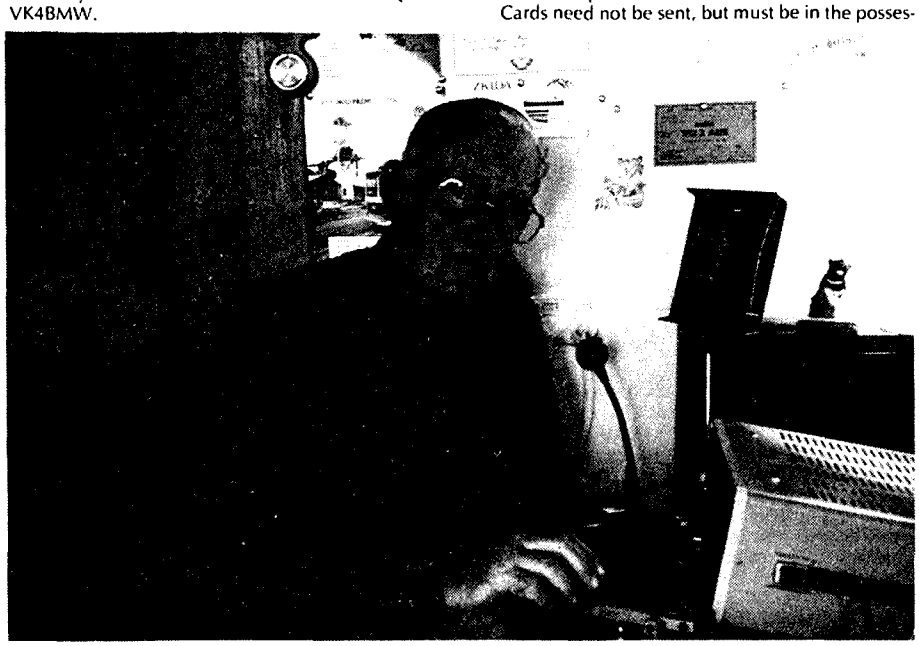
For those amateurs and SWLs who do not wish to send their QSL cards to the CQ DX Awards Manager, they may send them to either of the check points in Australia. ie VK3NDY and/or VK6JS.

PELICAN AWARD

This award is made available by the Sunshine Coast Amateur Radio Club for all licensed amateur radio stations and SWLs.

Stations must obtain 10 points by working Sunshine Coast Club members. Overseas stations need only obtain five points for qualification. SWLs must indicate the call signs of both stations heard in a QSO.

Stations can be worked on any band, using any mode.



Photograph courtesy VK7AN

Bob Jackson VK7NBF, Tasmanian Devil Awards Co-ordinator and Net Controller. The Tasmanian Devil Net is on 3.590MHz every Tuesday at 1000UTC.

A contact with the club station VK4WIS counts as two points.

QSL cards are not required. Applicants must send a log extract giving details of the contact.

The cost of the award is $2.00 or 10 IRCs.

Address all applications to The Awards Manager, Sunshine Coast Amateur Radio Club, PO Box 80, Nambour, Qld. 4560.

The award is printed in two colours on good quality white matt paper. The title is in blue and black, the bird in black whilst the surround is blue. The award measures 305 x 230 mm.

A club net is held each Thursday night on 3.595MHz at 0900UTC and on 28.400MHz at 0945UTC.

SINGLE MODE — FIVE BAND — ALL CONTINENTS AWARD

This award is sponsored by the Northern Kanagawa DX Association. Rules are, as follows.

Applicants must submit proof of QSOs with stations in six continents on a single mode and five bands.

This award is issued to any licenced radio amateur and SWL who submits proof of two-way radio contacts with the above stations.

The mode and amateur bands used, and the date of contacts are not limited.

The serial number of the award is separately given to each mode.

This award may be issued for six or more bands with the special endorsement if all supporting information is included in the application.

QSL cards of the same station for different bands and different modes may be used in the one application.

Cross-band and cross-mode QSOs cannot be counted.

This award is given in the form of a trophy with a medal.

Log extracts must be certified by two other licenced amateurs.

Applications to be forwarded to The Awards Chairman, Northern Kanagawa DX Association, JE1TTI, Michinori Jimbo, 2653 Suarashi, Sagamiko-Machi, Tsukui-Gun, Kanagawa-Ken, 199-01, Japan.

Cost of the award is 35 IRCs and the award is returned by air mail.

A FAR NET AWARD CERTIFICATE

The Armoured Force Amateur Radio Net offers it's 'A Far Net Award' certificate to amateur radio operators of any nation. The 216 by 279mm certificate is printed on white heavy stock, in four colours and is intended for framing.

Endorsements are available for making additional contacts also for contacts in one mode or on one band. Applications may be made for any award, level, mode or band operation, at any time.

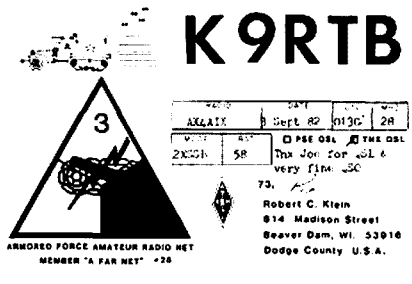
To qualify for the basic award, non-member stations must establish two-way contact with a minimum of 15 different Net members.

To qualify for endorsements, non-member stations must make contact with 10 or 35 member stations on any band, in any mode.

Confirmation of the required contacts must be through a copy of the non-members log which has been certified by two other amateur radio operators.

Applicants for the basic award certificate must submit a minimum of 50 cents, along with their application to cover postage, envelopes, etc.

All applications should be sent to The A Far Net Certificate Manager, Alfred G Beutler K2DWI, 36 Manchester Road, East Aurora, New York, 14052.



A Far Net members have a very distinctive QSL card which shows the badge and the members number.

NEW ZEALAND LIGHTHOUSE AWARD

This award is sponsored by the Certificate Hunters' Club, NZ Chapter #3 and commenced on the 1st February 1985.

The main purpose of the award is to make two-way contact with, and collect points from amateur radio stations within a radius of 30km of the 26 recognised Marine Department lighthouses around the New Zealand coastline.

Only those lighthouses on the check list are acceptable. Lights under the control of the Harbour Boards are not acceptable.

Points are allocated according to the degree of difficulty in road access to within the 30km radius. This distance has been selected as it represents the average distance that these lights can be seen, even though they may not be visible on land.

A total of 10 points are required for ZLs, all others require five points. An extra point is given if the station worked is within one km of actual light.

Two extra points are given if the station worked is aviation mobile or marine mobile within the 30km radius.

Triple points are given if the station worked is a paid member of the lighthouse service of the Marine Division, Ministry of Transport and is operating within one km of a recognised light.

Applicants to also work any five members of CHC nominating this award for the contact. The members CHC number to be recorded.

All applications to be on the official check sheet, which also has a list of the lighthouses which are acceptable. They are available from the Awards Custodian.

Cost is $1.00 and applications should be sent to The CHC Awards Custodian, Evan P Tombs ZL2IG, Ihakara, RD. 1, Levin.

JUBILEE 150 AWARD

The Colony of South Australia was founded on the 28th December 1836, and to celebrate the 150th Anniversary of this event, the Wireless Institute of Australia, South Australian Division Inc has pleasure in announcing the Jubilee 150 Award.

Through the generous support of the South Australian Tourist Bureau (major sponsor), ESTROW and Qantas, the award is issued free of charge to radio amateurs and short wave listeners who satisfy the conditions set out below. There is a $2 handling fee, one pound sterling or 4 IRCs.

1 a: Amateur operators must work stations in the Australian fifth call area, ie AX5, VI5 and VK5, to accumulate 150 points, all contacts to be made within the conditions of the operator's licence. Contacts to fall within the UTC year 1st January to 31st December 1986.

2 b: SWLs must log stations in the Australian fifth call area, as above, to accumulate 150 points. Each log entry must show not only the Australian call sign, but also that of the station being worked. No CQ calls to be included. Logged stations to fall in the UTC year 1st January to 31st December 1986.

2 The points per contact are calculated from the location of the station claiming the award as below:

QTH/BAND	*1.8*	*3.5*	*7*	*14*	*21*	*28*	*50/ABOVE*
VK5	*1*	*1*	*1*	*1*	*1*	*11*	
VK1-4 & VK6-8	*3*	*1*	*1*	*1*	*1*	*2*	*5*
OTHER OCEANIA	*5*	*3*	*2*	*1*	*2*	*3*	*10*
REST OF WORLD	*6*	*5*	*3*	*2*	*3*	*4*	*10*

Exceptions are satellite and EME contacts, 5 points. WARC Bands, 5 points regardless of location. WIA affiliated club stations count double (VK5s — WI, WIA, ALE, ALM, ARN, APC, ARC, BAR, BPA, BWR, LZ, RCN, SR). Jubilee station VK5JSA counts 15 points (alternative prefixes allowed). Stations other than VK5 are allowed repeater contacts on VHF/UHF. Each station may be worked once only on each band.

3 Contacts may be made by any mode, on any authorised band, and awards will be endorsed appropriately if requested. Contest contacts are acceptable, and DX stations should note that the primary DX contest is the VK/ZL/Oceania Contest held on 3/4 October (phone) and 18/19 October (CW).

It is not necessary to submit QSL cards. Log extracts submitted may be checked for authenticity.

4 The log should show the call sign/s, name and QTH of the applicant as well as the following information, set out in chronological order.

*Date, UTC, Station Worked/Heard, *RS(T) Received, RS(T) Sent, Band, Mode, Points Claimed.*

** SWLs should indicate here the station being worked by the South Australian stations.*

5 Further information, and application for the award should be made to Rowland Bruce VK5OU, GPO, Box 1234, Adelaide, SA. 5001.

MALTESE AMATEUR RADIO INTERNATIONAL SOCIETY OF AUSTRALIA

The MARIS was formed in January 1981, and has experienced a healthy growth, with the object of promoting amateur radio to the Maltese community, Australia wide.

The society's activities include field outings, two regular nets on the air and conducts regular lectures in electronics for those interested in achieving an amateur radio licence. One net is held every Wednesday at 1000 UTC on 3.585MHz +/- QRM, the other being each Sunday at 2300UTC on 28.585MHz +/-.

An award is available for amateurs and SWLs who can fulfil the following conditions.

Only contacts with members of MARIS of Australian are valid for this award.

DX stations require three points.

Stations within Australia require five points.

Claims submitted for the award should show an extract of the log, including the MARIS members number per station worked.

MARIS members count as one point, MARIS club station counts as two points.

Applications together with A$3.00 or equivalent should be sent to: The Award Manager, 842 Old Northern Road, Glenorie, NSW, 2157 or PO Box 690, Parramatta, NSW, 2150.

Submitted by Ali Portelli VK2PPA, PR Officer, MARIS of Au

WIA AWARDS

The Federal Awards Manager is on leave for three months. During this time, all awards material will be handled by Joe VK4AIX, QTHR.

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

October has arrived, which means that it is time, once again, for the annual VK/ZL Contest, Jamboree on the Air, as well as the CQ Worldwide DX Contest. It can be quite a hectic month, if one were to engage themselves in all of these activities.

I will mainly be concentrating on JOTA '85 and will be operational again with the 18th Launceston Scout Troop. I am sure there will be many other amateurs operating portable with the scouts, or having scouts in their shack over the weekend of the 19th and 20th October.

HIGH SECURITY PROFILE

This month I will be involved in monitoring various services, with regard to the amount of deliberate interference they suffer from OTHR systems or from 'jammers'. Sadly, the amount of interference is increasing, which does restrict available band space for HF communications. There have been developments with specialised communication systems, such as some with time division and frequency division multiplex modes, to get around jamming. But these modes are designed, primarily for data applications, where there is a need for security and speed and not by amateurs or broadcasting services. Both TDM/FDM modes are utilised by the military services or by other users with a high volume of traffic requiring a high security profile.

UNMISTAKABLE WHITE NOISE

While I am talking of jamming, I did notice that the BBC Russian Service continued to be suffering interference, during the recent strike by BBC External staff, even though there were no programmes, only announcements stating that normal programming would be resumed the next day. One source claims that the jammers were removed from the BBC's Russian and other language groups of the USSR, but this may have been on later time slots. Yet the unmistakable white noise was clearly audible at 0345UTC, during the first release of Russian.

This white noise is a real nuisance, for it spills over on adjacent channels, causing real difficulties to listeners. It would be ideal if there were no jammers to clutter the air waves. Yet, we have to be realistic and face the fact that jamming will continue. Protests have some effect, but the results seem to be temporary. With propagation being markedly poor because of the low sunspot count, it is quite annoying to have jammers splatter over the allocations, when one is trying to listen to signals.

NEW RECEIVER

Recently I acquired a Sony ICF 7600D portable communications receiver. I must say that I am pleasantly surprised by its performance although, admittedly it is not in the same league as my R-70. The sensitivity is quite good but, its selectivity is wide, which is to be expected. The size is a lot smaller than the original ICF-2001 and is only 640 grams. Its dimensions are 184.5mm wide by 118.5mm high and only 32mm deep. This means that it slips very easily into a carry bag. It runs on 6 volts DC from four 'AA' cells and has an AC adaptor, which weighs as much as the set itself.

The set tunes from 153kHz to 29.995MHz, continuously. It also has a BFO for SSB or CW. It also covers the FM broadcasting band from 76.000MHz to 108.000MHz. There are ten pre-set memories for you to enter your favourite channels. There are four ways of tuning the set by manual or automatic tuning. However, you do go to the nearest five kilohertz above 160kHz, eg: Radio Pyongyang on 9.997kHz will appear as 9975 on the display, but one can net exactly with the fine tuning control.

NOT PREVIOUSLY HEARD

On medium wave, the set scans in 9kHz steps, yet inside there is a switch to scan in 10kHz steps within North America. Unfortunately, my location is pretty close to a 5kW sender on 1.008MHz, which blocks all MW signals. This is overcome by using an ATU or wavetrap.

Away from the city, I have no overload problems. Yet here in Launceston I have heard Radio Beijing on 1.296MHz broadcasting in Vietnamese quite well from 1130UTC, when both 4BK in Brisbane and 1ZH in Hamilton, New Zealand, fade out. The transmitter is believed to be located at Kunming and is rated at over 500kW. I must confess that I haven't previously heard this signal on my R-70.

The set performs reasonably well on the tropical bands, although its wide selectivity causes problems. I have heard Radio Reloj, in Costa Rica, on both 4.832 and 6.006MHz, although there was plenty of noise and whistles from adjacent stations. That is why I prefer the R-70 on tropical bands, as I can notch out adjacent channels and use the noise limiter.

MAJOR PLUS IS PORTABILITY

I would say that the set's major plus is its portability, as it fits quite readily into my lap or travel bag, only taking 90 seconds to pack whilst the R-70 takes at least 20 minutes. I can carry the ICF-7600D anywhere.

BROADCASTING IN TURKISH

Interestingly enough, I recently came across Riyadh, in Saudi Arabia, broadcasting within our 20 metre amateur band. The station was broadcasting in Turkish on 14.060MHz and was operating on 11.685MHz in parallel. Now, as you are aware, that frequency is allocated exclusively to amateurs and not broadcasters, so you may wonder why it was on that channel with 350kW of RF. Well, it appears as if human error is the simple explanation, for the sender normally is scheduled to operate on 15.060MHz, at that time. The station has returned to normal operations on 15.060MHz now, after causing havoc on the CW section for a few days before they realised their error.

Well, that is all for this month. Until next time, the very best of DX and 73 — Robin VK7RH.

AR

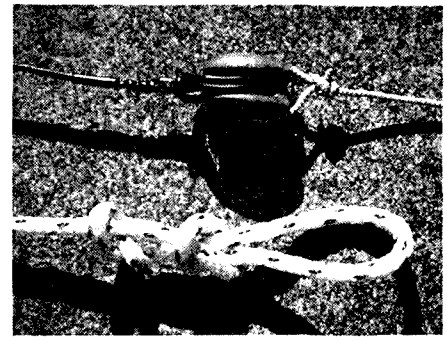
RADIO LICENCES INCREASE

The Wireless Department of the Commonwealth Government was working long hours in 1925, after a revision to licencing regulations. A total of 58,876 broadcast listener's licences were granted in Australia. 32,889 in NSW, 18,517 in Vic, 3290 — WA, 2702 — SA, 1004 — Qld and 474 in Tasmania.

To supply this large radio public with programmes there were six 'A' class stations and 13 'B' class stations. In addition there were 1118 experimental receiving licences and 276 transmitting/receiving licences.

Adapted from The Listener In, 4th July 1925.

TRY THIS



THE 'GEE' KNOT

Errol Chick VK3GG
15 Vida Street, Essendon, Vic. 3040

This simple loop knot has been used over the ages by the Eskimos but, for some unaccountable reason, its existence and virtues have been ignored.

Compared to the usually recommended bowline, the Gee knot is easier to tie, main line tension is easily maximised, adjusted and maintained and the end is clear of the loop.

It is simply formed by feeding the end of an overhand knot back through that knot, repeating the overhand twist the same way around the main line, then locking the end against the knot — see photograph.

It all started when my wife wanted a tight nylon line in the laundry to air clothes. The problem was to maintain tension when tightening the knot — coming back through the overhand knot was ideal: push against the knot and pull the end tight, hold, lock and finally tighten.

My first *reaction* was 'Gee - What an ideal knot!' Hence the name and surely someone had thought of it before. As expected, knots research revealed the Eskimos as the origin.

This knot can also be safely used on fishing line, thin enough to apply good tension but, for Halyards, I prefer to use 2.5mm monofilament nylon shark line as the most durable and weatherproof, with minimum wind resistance and maximum strength. It is then desirable to use extra locking by a second overhand knot, instead of the self-locking twist.

Neither the bowline nor the Gee knot give maximum line strength, so the Blood Bight Loop knot should be used for fishing. AR

GALLIUM ARSENIDE

Gallium Arsenide has arrived! This year it will begin to replace silicon as THE material for semiconductors. Not a few UHF GaAsFETs but for up to five times faster computer chips. A simple device has been developed with a few transistors in which electrons travelled from input to output in 11 trillionths of a second. The other big advantage is temperature. Silicon deteriorates with heat. Gallium Arsenide works happily at 200 degrees Centigrade.

From Bear Facts, courtesy of Paparkura Amateur Radio Club.

AR

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB, Graham VK5AGR and various UOSAT Bulletins.

AMSAT AUSTRALIA NEWSLETTER

Graham VK5AGR, the National Co-ordinator of AMSAT Australia, is now producing a monthly newsletter containing updated satellite news, orbital predictions, keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to realise funds for the funding of projects or the purchase of an item/s of hardware for a future amateur satellite project, eg: Phase 3C, Phase 4 or whatever. The cost of the newsletter is $15 and cheques made payable to the WIA (SA Division) should be forwarded to Graham VK5AGR, QTHR.

At the time of writing these notes, there were 111 paid subscribers to the newsletter.

PLAN 10 COMPUTER SOFTWARE

An excellent OSCAR 10 software package, called PLAN 10, has been written by Jim Miller G3RUH. This package takes into account the actual attitude of the spacecraft (lat and long in BAHN co-ordinates), and outputs a term titled SQUINT angle, in addition to the standard Az and El data. The SQUINT angle is the angle subtended by the spacecrafts antennae and the groundstation, a direct reading of the off-pointing magnitude. Due to the massive eclipse season that OSCAR 10 is currently experiencing, thus the resultant re-orientations that are taking place, makes the use of PLAN 10 a must for the most ardent of communicators.

At this stage, the programme is available from AMSAT Australia (VK5AGR QTHR) for the Tandy Model 1 and 3, and the Commodore 64 computers. Jim G3RUH requests that a donation be made to the satellite programme for each copy made, and in Australia, cheques made payable to the SA Division, WIA, will assist the smooth transfer of funds to the satellite programme.

MANNED MISSIONS

The latest shuttle liftoff was from Cape Canaveral, at 2100UTC on 29th July. The launch had to be postponed from 12th July because of a faulty computer. It was due to launch at 1923 on 29th July but, further minor problems forced the delay until 2100. When the first 2 metre SSTV signals were heard on orbit 47, the word was spread quickly, that the operation was under way. W0ORE began keeping QSO scheds with club stations and youth groups. Video was exchanged with the JPL Club in Pasadena, WA6VIA, the Johnson Space Centre Club in Houston, and the Goddard Space Flight Centre in Greenbelt, WA3NAN. Later open field QSOs were sought by the astronaut and thousands responded with a deluge of RF.

AUSTRALIAN OPERATIONS

At the time of preparation of these notes, VK par-

SATELLITE ACTIVITY FOR PERIOD 30 MAY TO 30 JUNE 1985.

1. LAUNCHES.

The following Launching Announcements have been received:-

1985 042A	Cosmos 1656	May 30	USSR
1985 043A	Soyuz T 13	Jun 6	USSR
1985 044A	Cosmos 1657	Jun 7	USSR
1985 045A	Cosmos 1658	Jun 11	USSR
1985 046A	Cosmos 1659	Jun 13	USSR
1985 047A	Cosmos 1660	Jun 14	USSR
1985 048A	STS-51G	Jun 17	USA
1985 048B	Morelos-A	Jun 17*	Mexico
1985 048C	Arabsat 1B	Jun 18*	ASCO
1985 048D	Telstar 3D	Jun 19*	AT&T
1985-048E	Spartan 1	Jun 20*	See below
1985 049A	Cosmos 1661	Jun 18	USSR
1985 050A	Cosmos 1662	Jun 19	USSR
1985 051A	Progress 24	Jun 21	USSR
1985 052A	Cosmos 1663	Jun 21	USSR
1985 053A	Three Objects	Jun 21	USSR
1985 054A	Cosmos 1664	Jun 26	USSR

also:

1984-125E	VEGA 1 Lander	Jun 10*	USSR
1984-125F	VEGA 1 Balloon	Jun 10*	USSR
1984-128E	VEGA 2 Lander	Jun 14*	USSR
1984-128F	VEGA 2 Balloon	Jun 14*	USSR

NOTES.

* denotes the date that the satellite was separated from the main platform.

1985-048E Spartan 1 was launched from the STS Shuttle Discovery on June 20, 1985. Spartan 1 is the first of a series of low-cost free flyers designed to extend the capabilities of sounding rocket class experiments.

These satellites are designed by NASA to be deployed and retrieved by the orbiting STS Shuttle, using the Canadian-built Remote Manipulator System (RMS). Once deployed, the Spartan satellite will perform scientific observations for up to 40 hours. All control commands are stored onboard in a microcomputer, and all data is recorded on a 10E10-bit tape recorder. When the Spartan has completed its observing sequence, it secures all systems and places itself in a stable attitude to permit retrieval by the shuttle and return to Earth for data analysis and preparation for a new mission.

The Spartan 1 experiment, which is a medium-resolution X-ray scanner over the energy range 0.5 to 15 keV, will make observations of the Perseus Cluster, Galactic Center, and Scorpeus X-2. The instrument was provided by the U.S. Naval Research Laboratory.

2. RETURNS.

During the period forty-five objects decayed or returned including the following satellites:-

1973-097A	Molniya 1-26	Jun 9
1984-125E	VEGA 1 Lander	Jun 10
1984-125F	VEGA 1 Balloon	Jun 10
1984-128E	VEGA 2 Lander	Jun 14
1984-128F	VEGA 2 Balloon	Jun 14
1985-031A	Cosmos 1647	Jun 11
1985-044A	Cosmos 1657	Jun 21
1985-048A	STS-51G	Jun 24
1985-048E	Spartan 1	Jun 24

OSCAR-10 APOGEES
OCTOBER 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
1st October										
274	1733	1543:17	-20	263	272	33	282	44	302	66
2nd October										
275	1735	1502:20	-20	253	278	41	290	53	324	72
3rd October										
276	1737	1421:20	-20	244	285	50	301	61	0	76
4th October										
277	1739	1340:22	-20	235	295	59	318	68	37	73
5th October										
278	1741	1259:22	-20	225	310	66	346	72	59	66
6th October										
279	1743	1218:25	-20	216	334	72	20	72	72	57
7th October										
280	1745	1137:27	-20	207	9	74	46	67	80	49
8th October										
281	1747	1056:27	-20	197	40	70	62	60	86	40
9th October										
282	1749	1015:30	-20	188	59	63	73	52	91	31
10th October										
283	1751	0934:30	-20	178	71	55	81	43	96	23
11th October										
284	1753	0853:32	-20	169	79	46	87	35	100	14
12th October										
285	1755	0812:32	-20	160	86	38	92	26	105	6
285	1756	1952:04	-20	335					252	1
13th October										
286	1757	0731:35	-20	150	91	29	97	18	110	-1
286	1758	1911:06	-20	326					256	9
14th October										
287	1759	0650:38	-21	141	96	21	102	10		
287	1760	1830:06	-21	316			250	-1	261	17
15th October										
288	1761	0609:37	-21	131	101	13	107	3		
288	1762	1749:09	-21	307			255	7	265	26
16th October										
289	1763	0528:40	-21	122	106	5				
289	1764	1708:11	-21	297	253	4	260	14	270	34
17th October										
290	1765	0447:40	-21	113	111	-2				
290	1766	1627:11	-21	288	258	12	265	22	275	43
18th October										
291	1768	1546:14	-21	279	262	20	270	31	281	52
19th October										
292	1770	1505:14	-21	269	267	28	275	39	290	61
20th October										
293	1772	1424:16	-21	260	272	36	282	48	304	69
21st October										
294	1774	1343:16	-21	250	278	45	291	56	332	76
22nd October										
295	1776	1302:19	-21	241	286	54	303	64	15	77
23rd October										
296	1778	1221:21	-21	232	296	62	324	71	49	72
24th October										
297	1780	1140:21	-21	222	313	70	357	74	67	64
25th October										
298	1782	1059:24	-21	213	343	75	32	72	77	55
26th October										
299	1784	1018:24	-21	203	22	74	54	66	84	46
27th October										
300	1786	0937:26	-21	194	50	69	68	58	90	37
28th October										
301	1788	0857:56	-22	185	66	61	78	50	94	29
29th October										
302	1790	0816:56	-22	175	76	53	84	41	99	21
30th October										
303	1792	0735:59	-22	166	83	44	90	33	103	12
31st October										
304	1794	0654:59	-22	157	89	36	95	24	108	5
304	1795	1834:30	-22	332					252	4

Continued over page . . .

ticipation in the STS41-F Shuttle Mission was rather sketchy. However, it has been reported that Peter VK2BXQ did manage a voice contact with Tony England W0ORE on 5th August at around 1130UTC. On the subject of the SSTV transmissions, I understand that many fine pictures were received by many amateurs in VK2 and VK3. To this end, Barry VK2AHE, in Newcastle, is undertaking the task of co-ordinating all the SSTV receptions and plans to make a video tape of all the Shuttle pictures, for the benefit of those unable to view SSTV transmissions. It is hoped that Barry's efforts will find their way into the Federal Video Tape Library.

UP-COMING FLIGHTS

Two German radio amateurs may be carrying an amateur radio station aboard Shuttle Flight 61A, this October. It is reported that Dr Ernst Medderschmid, DG2KM and Dr Reinhard Furrer DD6CF, will be on board Shuttle Columbia, for the Spacelab D1 operation and hope to engage in cross band, OSCAR transponder type operation. The equipment was reportedly built by the European electronics concern, Robert Bosch Company, and is said to be capable of four, 2 metre and eight 70cm channels. In addition to two-way FM QSOs whenever the astronauts are available, automatic logging equipment is planned for recording all received calls when they are busy with other Spacelab duties. The package will also have a 1 watt, 70cm beacon for determining when the shuttle is within your communications range. The equipment appears to be designed for cross band, rather than in band operation. A typical Mode B or Mode J station would appear required to permit QSOs. (Mode B is 70cm up, 2m down; Mode J is 2m up and 70cm down).

AMSAT OSCAR 10 OPERATIONS

As anticipated, the new restricted use operating schedule was put into effect by command station ZL1AOX, earlier this month. The exact cutover date was slipped from 1st August to 5th August, to allow a few extra days for repositioning the satellite. The new schedule is:

OFF	040-189
MODE L	190-206
MODE B	207-039

The ten extra counts of Mode B time (as compared to the previously announced cutoff of 29), is an experiment according to ZL1AOX. It will be carried at this extended level for as long as battery condition allows.

Also changing with the new schedule, is the use of the 2 metre omni-antenna — its use now extends from MA45 to 184. This increase reflects the results of experiments last month to evaluate the effectiveness of the omni, compared to the high gain array, during portions of the orbit when the latter is severely off-pointed.

This schedule and antenna protocol is likely to remain in effect until early September.

SOVIET SPACECRAFT

The RS satellites have been off because of eclipses, according to G3IOR, who also stated that ISKRA 4 will not be launched this year, but rather January 1986. There will be no transponder aboard according to this report, but a beacon is possible, however no frequency has yet been specified. The ISKRA satellites are constructed by a group of international students studying at the Moscow Aviation Institute and are intended more as educational exercises in practical engineering, rather than communications experiments, but they have none-the-less provided considerable propagation information.

de Colin VK5HI.

AWARDS

Bill Hempel VK4LC is on holidays. Please direct all award claims, etc, to Joe Ackerman VK4AIX, at 5 Koomooloo Court, Mermaid Waters, Qld. 4218.

OSCAR-10 APOGEES
NOVEMBER 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
0th November										
304	1795	1834:30	-22	332					252	4
1st November										
305	1796	0614:01	-22	147	94	27	100	16	112	-3
305	1797	1753:32	-22	323					257	12
2nd November										
306	1798	0533:01	-22	138	99	19	105	9		
306	1799	1712:32	-22	313			251	2	261	20
3rd November										
307	1800	0452:04	-22	128	104	11	110	1		
307	1801	1631:35	-22	304	249	-1	255	10	265	29
4th November										
308	1802	0411:06	-22	119	108	4				
308	1803	1550:35	-22	294	254	7	260	18	270	38
5th November										
309	1805	1509:37	-22	285	258	15	265	26	275	47
6th November										
310	1807	1428:40	-22	276	263	23	270	34	281	55
7th November										
311	1809	1347:40	-22	266	267	31	276	43	291	64
8th November										
312	1811	1306:43	-22	257	272	40	282	51	308	73
9th November										
313	1813	1225:42	-22	247	279	48	292	60	342	78
10th November										
314	1815	1144:45	-22	238	286	57	306	68	31	77
11th November										
315	1817	1103:45	-22	229	298	66	331	74	59	70
12th November										
316	1819	1022:48	-23	219	318	73	9	75	73	62
13th November										
317	1821	0941:50	-23	210	355	77	43	71	81	53
14th November										
318	1823	0900:50	-23	200	35	74	62	64	88	44

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Intruders reported for the month of June 1985 are a little up on the figures for the same month, last year. Let us hope the rest of the current year shows a downward trend.

BEING HEARD

The nuisance beacon-like signal sending 'V' in CW on or about 7.003MHz is still in evidence, and is being heard by many observers.

INTRUDERS ON LATE

The usual 40 metre broadcasts continue to plague us, and late at night, the intrusions into the 40 metre band have to be heard to be believed.

BROADCASTING!

For those who are hearing and/or reporting the broadcast station 14.060MHz, the information is that this is BSKSA, in Riyadh, Saudi Arabia. Its usual frequency is 15.060MHz, and it broadcasts in Turkish between 0400 and 0600 UTC. It is also heard on 11.685MHz. Radiated power is 350kW . . . try competing with that!!

Thanks to Robin VK7RH for that piece of investigative work.

IS YOUR CALL HERE?

Other interested amateurs and SWLs who have helped out with reports for the month comprise: VKs 2BQS, 2DEJ, 2DUO, 2QL, 4ADB, 4AKX, 4BG, 4BHJ, 5GZ, 5TL, 7RH and Mr G H A Bradford. I do not know what we would do without these stalwarts of the Intruder Watch. What about giving them a hand?

Perhaps a look at the number of intrusions reported for June may motivate someone to send in a report . . . 311 intruders were logged using the broadcast mode; 74 using CW; 89 using RTTY and 48 were using other modes of emission. 48 intruders gave identifying call signs . . . very civil of them — pity they didn't have such high standards in other spheres.

NEW SHACK

As I write the column this month, I am about two hours away from the RD Contest, and am even now mentally preparing myself. Should do well this year, as I have just built and only a few days ago, moved into a new shack. There is nothing like a new shack — the signal reports are improving already!!

While I am talking personally, I would like to report that I have just qualified for, and have received, the WIA DXCC Certificate. A lot of work went into the obtaining of this desirable award, and I am very proud to be a recipient.

I would like to take the opportunity to say what a fine job Bill VK4LC is doing as Federal Awards Manager. He processed my application in quick time, and deserves many thanks for doing a fine job. (One which I wouldn't like to have, incidentally). Better finish up now, as the RD Contest will be starting soon, and I want to get in early, although if conditions are no better this year than they were last year, it will be tough going.

See you all later, and think of the Intruder Watch next time you hear a station that should not be there. 73 and good DX.

MAGPUBS

Please note that the UHF Communications magazine (English version) is being produced for 1985, and the first issues were sent at the end of July 1985.

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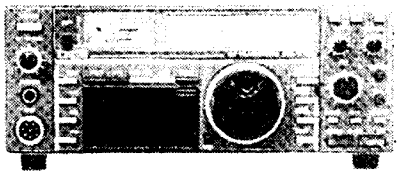

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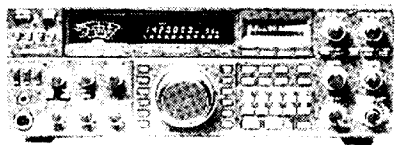

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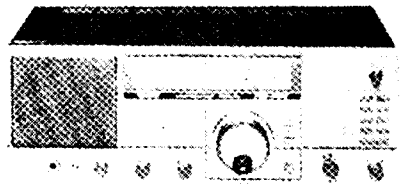

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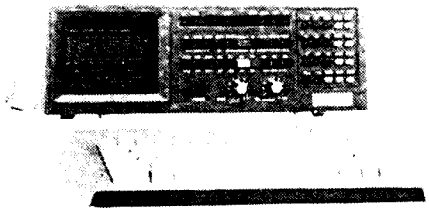

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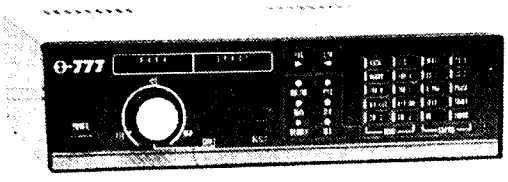

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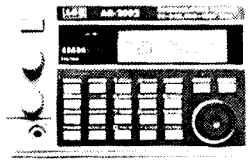

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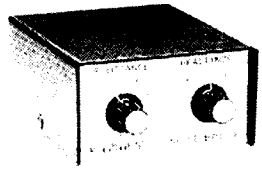

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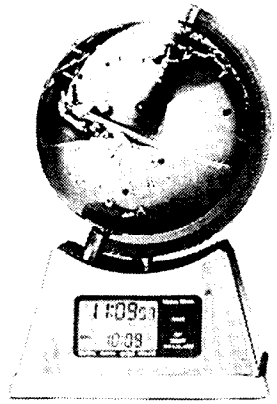

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EDUCATION NOTES

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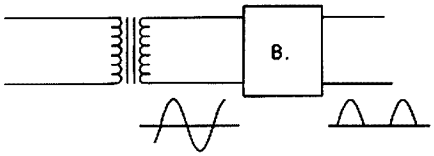
NAOCP TRIAL EXAMINATION PAPER

This time we again test members with a Novice Trial Exam. This is a chance for listeners to check to see if they are ready to sit for an operating licence and for licence holders, who sat for their licence a few years ago, to see if they would still get their ticket today! Select the correct or most appropriate alternative and indicate that alternative.

1 An EMF is induced in a conductor when:
a it is in a strong magnetic field.
b the magnetic field around it changes.
c a current flows through it.
d it is wound into a coil.

2 The device in B could be a:



a bridge rectifier.
b low pass filter.
c diode.
d Class B amplifier.

3 The characteristic impedance of open wire twin feed transmission line is usually:
a 50 ohms or 72 ohms.
b 150 ohms.
c 300 ohms or 600 ohms.
d 1000 ohms.

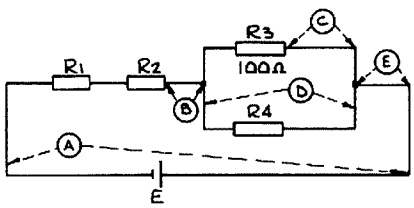
4 A resistor is colour coded red, violet, yellow, gold. Its measured resistance should be between:
a 283 kohms and 256 kohms.
b 342 kohms and 418 ohms.
c 28350 ohms and 25650 ohms.
d 297 kohms and 243 kohms.

5 A novice transmitter has a DC input to the final stage of 30 watts. The power supply transformer should be capable of supplying:
a 30 amps.
b 30 watts.
c 35 watts.
d 75 watts.

6 When low level modulation is used in an AM transmitter:
a the received signal will appear undermodulated.
b no audio amplifier stage can be used.
c the modulation must be applied at the final power amplifier stage.
d all subsequent RF amplifier stages must be linear.

7 The point of peak voltage in a quarter wave length vertical antenna is:
a at the tip.
b at the feed point.
c one quarter wavelength below the tip.
d alternately at the tip and the feedpoint.

8 The current through R3 could be calculated from the voltage measured at:



a A.
b B and E.
c C.
d D.

9 A germanium diode will conduct when:
a the junction voltage exceeds 0.3 volts.
b a positive voltage is applied to the N type material.
c there is an excess of electrons in the P type material.
d the depletion layer is saturated with current carriers.

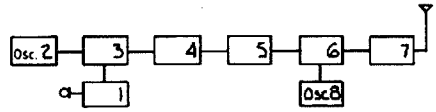
10 The screen grid in a pentode electron tube is usually:
a at higher potential than the anode.
b at cathode potential.
c at potential between that of the cathode and the anode.
d internally connected to the anode.

11 The third harmonic of a 7MHz signal would appear at:
a 2.33MHz.
b 21MHz.
c 28MHz.
d 56MHz.

12 In a bridge rectifier circuit, the PIV ratings of the diodes should be at least:
a twice the peak AC output of the secondary.
b the peak AC output of the secondary.
c twice the AC RMS voltage.
d equal to the AC RMS voltage.

13 An RF power amplifier stage may be neutralised:
a to prevent the radiation of harmonic oscillations.
b by providing positive feedback to the input.
c when the output frequency is exactly twice the input frequency.
d by providing negative feedback.

14 In this SSB transmitter the function of block 4 is to:



a suppress the carrier.
b filter out one sideband.
c multiply the frequency.
d filter out the modulation.

15 A keyed CW signal when transmitted comprises:
a a continuous single frequency intermittently modulated by a 1kHz tone.
b short and long segments of a single frequency modulated by a 1kHz tone.
c a single unmodulated frequency switched on and off.
d a 3kHz band of frequencies broken up by keying.

16 The wave propagated from a horizontal dipole antenna will be:
a vertically polarised.
b horizontally polarised.
c omnidirectionally polarised.
d unpolarised.

17 To receive CW on a receiver designed for AM only, it is necessary to add:
a a product detector.
b a BFO.
c another IF.
d an RF pre-amplifier stage.

18 If a moving coil meter is used to measure alternating current:
a there will need to be a diode in the circuit.
b the figure measured will be the peak AC value.
c a series capacitor will be needed.
d a large value shunt resistor will be needed.

19 A neighbour's broadcast receiver suffers overload when a novice station transmits. This problem:
a could not be reduced by reducing the novice station power output.
b may be due to harmonics in the amateur signal.
c may be due to insufficient selectivity in the broadcast receiver.
d is usually caused by random parasitic oscillations.

20 In a 28MHz, three element Yagi antenna, the driven element should be:
a approximately 10 metres long.
b impedance matched to the feedline.
c the longest element.
d electricity coupled to the other two elements.

21 The mixer stage of a single conversion superheterodyne receiver mixes:
a two radio frequencies to provide the IF.
b audio and radio frequencies to provide modulated RF.
c two radio frequencies to balance out the carrier.
d the received signal and the first IF to produce the second IF.

22 If a novice transmitter causes 'splatter', the operator should:
a fit a high pass filter at the transmitter output.
b neutralise the transmitter power amplifier.
c reduce the transmitter power output.
d reduce the modulation level.

23 For an AM transmitter to be 100 percent modulated the power in the modulating signal must be:
a twice the power in the carrier.
b one third the power in the carrier.
c half the power in the carrier.
d half of the total power output.

24 The ionosphere:
a is a magnetic field around the atmosphere.
b includes the layers of charged particles in the upper atmosphere.
c is present only during daylight hours.
d refracts the very high frequencies better than the high frequencies.

25 A transformer has a primary:secondary impedance ratio of 64:1. Its turns ratio will be:
a 64:1.
b 8:1.
c 1:4.
d 1:8.

26 For a transistor in the common emitter mode, the 'current gain' is the ratio of:
a emitter current to collector current.
b grid current to anode current.
c collector current to base current.
d base current to emitter current.

27 To protect a television receiver from the effects of a strong unwanted signal on a particular frequency, the antenna input should have a:
a parallel tuned trap.
b series resonant circuit tuned to the unwanted frequency.
c tuned diode detector.
d series RF choke.

28 The specifications for the receiver section of an amateur transceiver state, in part, '2.5kHz at 6dB down, 4.1kHz at 60dB down'. The characteristic referred to is:
a sensitivity.
b carrier suppression.
c audio frequency response.
d selectivity.

29 The reliability of a particular long distance (DX) communication path may vary during the daytime due to changes in:
a sunspot numbers.
b the amount of cloud cover along the path.
c the degree of ionisation of the ionosphere.
d the angle of the moon's inclination to the earth.

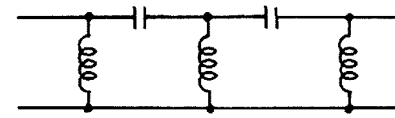
30 A primary cell:
a has an output voltage of 1 volt.
b provides the power for the first stage of the transmitter.
c cannot be recharged.
d cannot be used in series or parallel combinations.

31 An unsuitable type of material for use as the dielectric in a capacitor is:
a mica.
b ceramic.
c air.
d aluminium.

32 Class A amplifier stages operate at an efficiency of about:
a 30 percent.
b 45 percent.
c 60 percent.
d 75 percent.

33 A zener diode used as a voltage regulator must be:
a forward biased.
b bypassed by a bleeder resistor.
c followed by an electrolytic capacitor.
d reverse biased.

34 This device may be used:

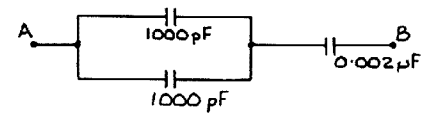


a at the output of a novice transmitter to prevent radiation of harmonics.
b at the input to a television receiver to reject a strong novice station signal.
c as a smoothing filter in a DC power supply.
d as a trap in a multiband antenna.

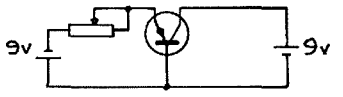
35 The presence of standing waves on a transmission line indicates:
a loss of power in, and radiation from, the feedline.
b overdriving of the final stages of the transmitter.
c a mismatch between the transmitter and the feedline.
d that unbalanced feedline is being used.

36 Parasitic oscillations may be:
a prevented by reducing the power output.
b harmonically related to the transmitter output frequency.
c caused by random inductances and capacitances.
d detected by monitoring the audio output.

37 Total capacitance between A and B will be:



a 2000pF.
b 0.0022uF.
c 1000pF.
d 0.004uF.
38 In this transistor the:



a base is N type material.
b emitter — base junction is not biased.
c gate is N type material.
d collector current is greater than the emitter current.
39 The relationship between frequency (f), wavelength (*) and velocity (V) of a radio wave is given by the formula:
a V = f/ .*
*b V x f = *.*
*c V = 1/f x *.*
*d V = f x *.*
40 A novice SSB transmitter operating on 3.5MHz with its carrier oscillator on 5.5MHz is likely to have a heterodyne oscillator on:
a 2.5MHz.
b 7.0MHz.
c 9.0MHz.
d 11.0MHz.
41 The three basic filter types often used in TVI and RFI prevention are:
a low pass, high pass and broad band.
b low pass, band pass and choke input.
c high pass, band pass and capacitor input.
d high pass, low pass and band pass.
42 In a very simple AM receiver, the detector circuit might use a:
a point contact diode.
b silicon power diode.
c FET product detector.
d three terminal regulator.
43 The dc input power to a transistor power amplifier is calculated by:
a using 70 percent of the output power as a reference.
b multiplying the collector voltage by the collector current.
c measuring the power drawn from the power supply.
d measuring the voltage drop across the output capacitor.
44 The crystal in a high stability oscillator:
a is usually in the anode circuit.
b usually operates at its fundamental frequency.
c cannot have its frequency changed.
d is not dependent on the piezo-electric effect.
45 A television receiver shows interference in the form of two parallel bands of spots across the screen. This is due to:
a 'splatter' from a novice transmitter.
b harmonics from a high powered amateur station.
c parasitics radiated by an amateur station.
d a power leak from an AC power line.
46 The inductive reactance of a coil:
a is measured in henries.
b depends on the composition of the wire used.
c depends on its inductance and the frequency used.
d is highest at its resonant frequency.
47 Semiconductor devices are most vulnerable to:
a moisture.
b cold.
c overheating.
d light.
48 A single conversion superheterodyne receiver tuned to 3.6MHz with an IF of 455kHz could also respond to an image signal on:
a 3.145MHz.
b 8150kHz.
c 4.510MHz.
d 910kHz.
49 'Key clicks' produced by a CW transmitter:
a can be cured by use of an appropriate filter.
b are due to an excessive gap at the key.
c occur only when the oscillator stage is keyed.
d are the result of incorrect transmitter tuning.
50 The effectiveness of an HF mobile installation depends mainly on the:
a battery voltage.
b efficiency of the antenna.
c speed of the vehicle.
d artificial earth connection.

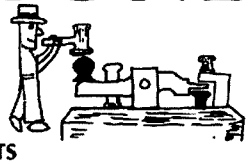
AR

ANTARCTIC NOT SO FAR AWAY!

A new satellite telephone system, expected to be operational within two years, will link Australia with its Antarctic Bases.

The project, expected to cost about one million dollars, will give a 24 hour telephone and data link system to Davis, Mawson and Casey Bases.

POUNDING BRASS



Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

CONTESTS

This is being written during the week after the 1985 Remembrance Day Contest. Like most of those who participated, I suspect, I have had my fill of operating for a while and so, better late than never, have dedicated this column to what seems to be an appropriate subject. Not terribly timely, I guess, but maybe some of you will file it for next year, or have a crack at the John Moyle or a international contest.

The change in rules this year seems to have caused some confusion, and mixed feelings. Personally I am glad that VHF was separated from HF phone, but disappointed that CW was separated from phone in the HF section. I managed to complete logs in both phone and CW and, assist in the Adelaide Hills club operation, VK5BAR, but I can't help wondering whether CW participation was reduced by the need to make 25 contacts for an eligible log. I know our co-ordinator, Ian VK5QX, is amenable to suggestions, so drop him a line if you have any thoughts on the matter.

While I'm on that subject, I heard several operators complaining about the need to wait three hours between contacts on VHF, and there was a campaign going to get people to make comments to that effect on their VHF log sheets. I have to sympathise with the Z calls who have never managed 5WPM CW and therefore are restricted to VHF and up during the RD. It's just the logic which puzzles me slightly. Why not allow multiple contacts on HF after, say, 12 hours a'la John Moyle? And obviously the VHF crowd would be delighted if you allowed a repeat contact after only one hour. For that matter, why not after ten minutes? Hey! Why have a time limit? Why not just see how many times they can 'work' the same station in 24 hours?

That may sound a bit silly, but I am afraid I will have to admit that contesting in general seems a bit silly to me if one is in it to 'win'. If that is your only motivation you will always be wiped out by somebody in a better part of the world, or who has better gear, or a higher tower, or is willing to cheat. There are good reasons for participating, but you've missed the point of amateur contests generally if you are so concerned about personal, or divisional, glory that the *rules* themselves become a battleground.

So enough preaching, let us talk about how to operate in a CW contest.

The following paragraphs will form a general introduction to the subject, and I hope, encourage some otherwise timid souls to get their feet wet in what should be a valuable educational and practical exercise.

There are so many different aspects of CW contest operation that it is difficult to decide where to begin. There are CW Only contests, contests with separate sections for CW operation, and mixed mode (open) contests. One can enter as a serious contestant, use CW to supplement a phone score, or participate on a casual basis with no intention of submitting a log. There are some fringe benefits to participation in a CW contest which make it attractive to the 'non-contesters' among us...you can experience a wide variety of sending styles and speeds in a very short time, and significantly improve your 'ear' or copying ability while you are at it. As with any contest, the basic point of it all is to make as many contacts as possible, as fast as possible. Therefore contest exchanges are cut down to the bare bones. A typical contest exchange requires call sign, signal report (RST), and a contest number (serial number, zone, or age, etc) and would look something like this:

STATION 1	*CQ test de VK9ABC K*
STATION 2	*De VK2DXP K*
STATION 3	*De VK5FN*
STATION 1	*VK2DXP NR 5 N N TT8 BK*
Station 2	*QSL UR NR 5NN 132 BK*
Station 1	*R GL E E CQ test . . .*

There isn't much to it, is there? And when you consider that most of these exchanges take place at 20-30WPM or faster, the contact rate can be very high indeed.

Looking at the sample exchange piece by piece. the first element is the CQ *contest* call. *Quite often* this is specified in the contest rules, but if not, common sense and efficiency should prevail. The Remembrance Day Contest call is CQ RD; the John Moyle Field Day call is CQ JM or CQ FD; when in doubt CQ TEST is just fine. The call should consist of the CQ, your call sign, and K sent only once, allowing three or four seconds for a response before repeating.

The answer to a call should be simply DE followed by your call sign. This presumes that if you answer on the same frequency, you must be answering the CQ.

The station calling CQ should send the responding station's call sign once, because there may be several stations answering, and will then give the signal report and contest number. Repeats are usually not given unless requested. Signal reports are usually given as 5/9/9 regardless of the facts of the matter, and I shall refrain from making any further comment on that subject aside from noting that reports were not even required in the '85 RD. Nines and zeros are coded because they are so common (N = 9, T = 0), so an exchange of 5/9/9 008 would be sent as 5NN TT8. BK, or break, is then sent to invite the other station to transmit. Often it is sent as B (space) K, and sometimes K is used by itself. Sometimes the break is preceded by 'QSL?'

As is the case in phone contests, it is up to the station which called CQ to send any pleasantes (such as GL E E) and he may or may not listen for an acknowledgement (E E) before calling CQ again. Unlike most CW activities, successful participation in a contest does not depend to any great extent on your copying speed for 'normal' CW. You can generally work a station calling CQ at twice to three times your normal copying speed. Firstly, the format is so standardised that all you have to pick out is a call sign and a number. You can listen to two or three calls before answering in order to be sure of the call sign; you can listen to the next contact the guy makes in order to verify the number. Secondly, asking for a repeat is as simple as sending a question mark. For example, if you missed the number, you send 'NR? K.' Finally, although you may start out listening to CQ calls three or four times, it doesn't take long before you can pick them up first time. It is generally recognised that any 5WPM novice can recognise a single character at speeds up to 50WPM; a string of three or four characters at 25WPM is not difficult.

As far as sending speed is concerned, you should send as fast as you can and still be readable at the other end. But as I've said before, it is only reasonable to send the minimum to get the job done. If the other station wants a contact, (why else would he be in the contest?) he'll be patient.

That pretty well covers the aspects of contest operation which are unique to CW; questions of whether to call CQ or 'search and pounce', when to change frequency or band, when to have supper or try to pacify the XYL...all these are matters for judgement based on experience and CW is no different from phone, in that regard.

By all means, dust off that key the next time a contest is on and hand out a few numbers . . . you will probably be hooked. 73 FER NW.

AR

CLUB CORNER

BALLARAT AMATEUR RADIO GROUP

The Ballarat ARG will again hold 'HAMVENTION 85' during the weekend of 2nd and 3rd November 1985. This years hamvention will follow the lines of previous, very successful hamventions.

A dinner will be held on Saturday and on Sunday, a giant trade display, along with the usual amateur radio activity events will be held.

A barbeque lunch and afternoon tea will be provided on Sunday, along with special entertainment for members of the family not involved with amateur radio.

Attending amateurs are asked to bring their own QSL card to put on the display board. It could win a prize for the most interesting QSL card.

Further details may be obtained from Kevin Hughes VK3WN on (053) 35 5011.

The venue will be the Marty Busch Recreation Reserve, seven kilometres south of the Ballarat City Hall on the Ballarat to Colac Road.

See you at 'Hamvention 85'.

Contributed by Kevin Hughes VK3WN. **AR**

WESTERN ZONE OF THE VIC DIV

At 01:30pm, on 21st September the Western Zone will hold a members General Meeting at the Lake Bolac Hotel. Come along.

Join the Western Zone 'Hook-up' each Monday evening at 1000UTC. The 'Hook-up' is cross band, dual mode on Ch 7 and 3.585MHz, with the call sign VK3BWZ.

Office Bearers for 1985-86 are:
PRESIDENT Geoff Smith VK3ADB
VICE-PRES Ken Taylor VK3KAV
JUNIOR VICE-PRES David Timms VK3YLV
SEC/TREASURER Jim Wright VK3CFB
COMMITTEE VK3KAV, VK3YLV, VK3CAI, VK3XFC, L31266, VK3DLO, VK3ANH
TECH OFFICERS VK3KAJ, VK3AGD
INTRUDER WATCH Ken Taylor VK3KAV
REPEATER COMM VK3AGD, VK3YLV,VK3AEX, VK3BFF, VK3KJH
STATION OFFICER Oliver Gellert VK3AEU
WICEN OFFICERS VK3KAV, VK3AEU, VK3DWL
AWARDS MANAGER Maurie Batt VK3XEX

Contributed by Geoff Smith VK3ADB
AR

DEVIL NEWS FORM THE NW BRANCH

Attendance at the recent meeting was good, with 25 present. Apologies were received from VK7s: WJ, SF, AH and BV. Jack VK7WJ was on holiday on the main island. Syd VK7SF is also on holiday, but he has travelled a litte further afield — he is in England and plans to visit Cardiff.

CLUB CARD: It was decided, at the meeting, to have a special club QSL card printed so the club may reply, as a club, to QSLs received.

MEMBERSHIP: A new member from America, K6KTO was welcomed to the club.

REPEATER NEWS: As more money becomes available, it is hoped to make some improvements to repeater VK7RNW. At present the repeater is performing adequately.

ACTIVITIES: The first broadcast on RTTY by the club was very good with five replies to the broadcast. This was very encouraging and there is now a regular broadcast each Friday night on 3.630MHz. All who receive the broadcast are welcome to join in.

YOUTH AFFAIRS: VK7NAE has been doing some PR at his school and has been explaining the benefits of the WIA. He is hoping to encourage visitors to club meetings.

CLANGER AWARD: Was presented to Ivan VK7XL for miscellaneous activities leading up to and about trying to stop a cow from choking by jumping up and down on its stomach. The general belief was that he was using it for a trampoline.

REMEMBRANCE DAY: Volunteers operated the club station VK7NW for the RD Contest. Stations who participated were: VK7s: WP, WN, ZAP, KY, ZBT, EQ, WZ, WL and AX.

QSL BUREAU: The QSL section of the club is operating quite well, although there are not many outgoing cards due to the conditions with propagation.

AUCTION: An auction followed the meeting with Ron VK7RN acting as auctioneer. He performed so well we think he could 'sell honey to the bees!' The largest item sold was a Siemens Teleprinter. A good time was had by all.

It was anticipated to hold a video night after the auction but, unfortunately the auction took up too much time so the video was held-over for a future time. However, the auction was such a success it is hoped there will be another one, before too long.

The club extends sympathy to Terry VK7BV, on the death of his father.

Cheers until next time.

Contributed by Max Hardstaff VK7KY. **AR**

MANLY WARRINGAH RADIO SOCIETY

The MWRS has been testing a 70cm voice repeater over the last few months on 438.175MHz and is presently awaiting final approval. Increased use of the 70cm band in the local area, encouraged the group to develop a new repeater co-sited with the existing 2 metre repeater, VK2RMB 146.875MHz, providing mobile coverage through the northern beaches of Sydney. The group has recently started developing a 2 metre Packet Repeater, to be licensed and co-sited with the voice repeaters at Terrey Hills.

Meetings are held every Wednesday night, with business meetings on the second Wednesday of each month, at 7.30pm. All are welcome to attend, including out-of-town visitors. Location is at the MWRS club rooms, in the Warringah Volunteer Services Centre, Aumuna Road, Terrey Hills.

Contributed by Steven Blanche VK2KFJ
Publicity Officer, MWRS

AR

SYDNEY AMATEUR DIGITAL COMMUNICATIONS GROUP

The SADCG is a non-profit organisation, set up to provide help and information to amateur radio operators wishing to experiment with amateur packet radio. We have encouraged the formation of similar groups in other states.

Since the formation of the SADCG, there has been diversification into hardware and software development of both packet equipment and packet protocols, primarily based on Canadian and US activities.

Marketing of packet equipment was a task previously done by the SADCG, but has now been passed on to a professional marketing company.

Further information of this group activities and news may be obtained from Box 231, French's Forest, NSW. 2086.

Submitted by Steven Blanche VK2KFJ
Secretary, SADCG **AR**

Your best friend could be the next WIA member. Persuade them to join today . . .

AR SHOWCASE

NEW MOBILE RADIOS

The first of the Victorian Police's new mobile radios have gone into action with excellent results.

The 1885 UHF radios, valued at $3.2 million, have been supplied by Motorola Australia's Mulgrave factory in Melbourne and are the latest in state-of-the-art communications equipment.

The radios have been enhanced to meet the operational requirements of police in Victoria. They prevent general interference on allocated police frequencies, have the facility to be used as a repeater from a small hand-held portable, and scan several police frequencies as desired by the operator.

In addition, all 1885 radios can be quickly adapted to prevent eavesdropping or scanning of confidential police broadcasts, if desired. Several have already been tested by Special Task Force and Surveillance groups. They are proving ideal for the job.

Assistant Commissioner (Services) Mr Newnham said, "The new equipment gives police a flexibility and capacity not possible previously. The number of channels has been expanded from a previous 10 to 144 and the capacity to have voice confidentiality if desired, in the one radio is most cost effective".

"The new radios are installed in police cars, motor cycles, Water Police and Air Wing units", he added.

For further information contact, Martin Cahill, Motorola Australia. Telephone: (03) 561 3555.

AR

Constable Lisa Hardeman of Russell Street, demonstrates the new Motorola equipment.

QSP

ENCODING

A method of encoding computer data, claimed to be many thousands of times more secure and half the price of the American DES encryptor industry standard, has been announced by a Western Australian telecommunications group.

Perth based Ran Data Corporation Ltd launched its (EKES Encryptor) in London recently. Encryption is increasingly being used in electronic funds transfer, message transmission, and will play an important part in the new era of home banking.

The DES system employs a 56 Bit (key), but questions had been raised as to its adequacy. Ran Data uses a 32,000 Bit (key) system which was accepted as statistically unbreakable using present technology.

Contributed by Jim Linton VK3PC

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta NSW 2150

The VK2 Division is continuing the 75th Anniversary Year through until March 1986, when the 'Time Capsule' will be closed off. To mark the end of the year, the 1986 VK2 Seminar will be held, together with the judging of the 'Homebrew Contest'. In addition, March 1986 Amateur Radio is planned as another VK2 special feature edition.

During this month, October 1985, there are several VK2 activities. One is the 75th Dinner, which will be held on Saturday, the 12th. Bookings have closed, but there may still be room if you contact the Divisional Office, without delay.

Then there is the JOTA weekend. At the end of the month, the South West Convention will be held at Wagga, which includes the 'National Foxhunting Championships' over the weekend of the 26th and 27th. During the same weekend, WICEN will be involved in the 24 hour communications exercise on the Hawkesbury River for the 'Outward Bound Canoe Classic'.

HOME BREW CONTEST

Entries are invited for the 1985 'Home Brew Contest'. The closing date will be 1st March 1986 and entry forms and other details are available from the Divisional Office.

DIVISIONAL LIBRARY

Aub Topp VK2AXT, has upgraded the cross indexes at Parramatta. If you can attend the library, you will be able to find the material we have under its specific heading. If you are unable to attend, then a written or phone request will enable a photocopy of the reference page to be sent to you. From this you will be able to select the particular item/s, and a loan of the magazine arranged. It should be noted that postage costs on books and magazines can be high. Where permitted, copying of the item could be a cheaper alternative.

Work is currently underway to increase the storage capacity of the library area. From time to time, donations of books and magazines are received for which we are very grateful. In many cases, particularly the Australian publications like EA and ETI, adequate copies already exist and we either have to decline or pass them on to groups and clubs. Sometimes the odd copy helps make up a set. However, we are interested in many of the overseas publications and in particular, the older technical books, which were often limited print editions. So, if you are faced with a clear out of publications because you no longer have the room, or you have to dispose of a deceased estate, would you first contact the Divisional Office. It is likely that we would be interested.

TAPE LIBRARY

Now to a library of a different kind. The Divisional Office maintains a copy — in VHS — of the majority of the material in the Federal Video Tape Library. New material is added at intervals and a SAE to the office will obtain a list and borrowing conditions, either for your club/group or individual members.

ANOTHER ANNIVERSARY

While the WIA celebrates its 75th, not far behind in the age stakes, is the Waverley Amateur Radio Club, who first received their licence on 18th August 1920. Duane VK2VE, is preparing a history on WARC — VK2BV to appear in Amateur Radio at a future date.

ANNUAL GENERAL MEETING

The 1986 AGM will be held on Saturday, 5th April 1986. A reminder that the Divisional year for reports and financial matters ends on 31st December 1985. Further reminders closer to the time.

RADIO FOR THE PRINT HANDICAPPED

2RPH on 1.629MHz, Radio for the Print Handicapped needs volunteers with technical experience and qualifications for occasional assistance in maintaining their on-air equipment. Further details from the station at North Sydney on (02) 92 8056, during business hours.

BROADCAST ROSTERS

Another period in the roster has commenced from October to December. To help maintain the numbers and the spacing between each day of duty, as far as possible, additional announcers and engineers are always welcome. Contact the Divisional Office or Jeff VK2BYY, OIC, Dural, for further details.

JOTA

There is still time to help with this years JOTA. Many groups have the venue, they just need the amateurs. Contact the VK2 JOTA Co-ordinator, John VK2NDJ on (02) 772 3437, as soon as possible.

CONFERENCE OF CLUBS

The next C of C will be held at Westlakes ARC, Teralba on Sunday 3rd November. The agenda has closed, but your club needs to be represented on the day. Check and find out who will be your delegate and let him know your views on any matter to be discussed.

SATELLITES

Do you own a Commodore 64? Are you interested in satellites? For a $15 donation to AMSAT funds, you can obtain a copy of the excellent VR85 satellite mapping and tracking programme, with full instructions for the cost of a disk. Contact Bruce VK2DFH on (02) 84 5886 for details.

STUDY CLASSES

Will your club or group be conducting any licence study classes in early 1986? If so, would you let the Divisional Office have the details to be filed for the enquiries we are always receiving. One course already advised is a Novice course to commence on 30th January. It is being conducted by Gladeville ARC. For details, contact either VK2JX on (02) 428 2462 or VK2LT on (02) 516 1271. A further reminder, that the Correspondence course, conducted by the VK2 Division, is always available, should you be unable to attend a personal class.

VK2WI — DURAL

Following the lightning strike in February, an inspection of the towers at VK2WI was carried out. No damage from the strike was found but, it was noted that it was reaching the time that general maintenance was required to them.

Accordingly, Divisional Council has authorised a commercial firm to undertake the tightening and replacement, where required, of the nuts and bolts on the main tower.It was decided that both towers should be painted, as some of the original finish is strarting to deteriorate. A rub back, undercoat primer and a final 'harbour bridge grey' paint has been carried out on the beacon tower. By now, much of the work on the main tower will be completed.

A couple of months ago, something of doubtful parentage paid a visit and cut some of the coaxial cables to the HF antennas.

The construction of the 23cm beacon is well underway. When installed, it will be on the frequency of 1296.420MHz. After some tests into Packet Radio at VK2WI, Council has started the paperwork to apply for a Packet licence. Equipment and frequency is yet to be determined.

TWO METRE INTERFERENCE OF THE RF KIND

The increasing development of paging networks increases the problems to the 2 metre band. The majority of the paging systems use frequencies in the 148 to 150MHz sub-band. This is remote in frequency terms from the high-band commercial channels, but is adjacent, with no guard band, to the amateur band. The top megahertz repeater inputs are from 147.625 to 147.975MHz. The first pager channel is 148.0125MHz. In Sydney, where the majority of the top megahertz repeaters have been developed, there is also a large number of pagers, both for the public telephone access as well as private paging companies. It appears recently, that VK2RLD 7375 has had a pager installed in near proximity to its site. It has been taken off air while a solution is found.

VK2ROT 7075, near the city, is suffering from pagers a couple of kilometres either side of its site. VK2RWS 7150, on the North Shore, gets its share of problems, too.

This problem has occurred in other areas, also. Currently, discussions are underway between the SRC and FTAC for possible solutions.

PACKET RADIO

This new mode is starting to gain converts in VK2. With interest, comes the need to talk (type?) further and with VK2's terrain and distances comes the desire for repeaters. It appears, at this stage, that interest for inter area connections starts in Sydney and goes north along the coast. So far, repeater applications have come from Hornsby and District ARC, Manly Warringah RS, Westlakes ARC, the Division and WICEN. Part of the experimental work at VK2WI was to test a frequency of 144.800 MHz, which got away from the nearby pagers. While much of the Packet work can be carried out around 147.575 and 147.600MHz, these frequencies may present a problem with sharing a site where either a top megahertz repeater exists or a pager.

Packet uses a single frequency to transceive on and the voice repeater, its two channels. To place both on the same site may cause both to desence each other, the packet receiver from the voice transmitter and the voice receiver from the packet transmitter. A solution here is a frequency towards the lower end of 2 metres, unless one lives in a channel 5A area. This is another area for discussion and solution for the SRC and FTAC.

The State Repeater Committee would be interested in hearing opinions on Packet frequencies for 2 metres.

In a recent Federal tape, there was a call for groups with an interest in Packet to register this interest with the Federal Office, at PO Box 300, Caulfield South, Vic. 3162, so that you can participate in the guidelines for this emerging mode.

WICEN

Mentioned elsewhere is the exercise to be held on 26th and 27th October on the Hawkesbury. In November, there is an exercise with the Schofields Air Show on the weekend of the 9th and 10th and the annual SET on 24th November.

AWARDS

Many clubs and groups in VK2 have an award. A request is being made to those who issue awards, to make a sample copy available for display, along with the rules, at the Divisional Office.

SLOW MORSE ON 80 METRES

Since the early sixties, a nightly session has been transmitted by a host of volunteer stations on 3.550MHz. The early part of the evening from VK2BWI and then followed by VK5. The frequency seems most popular for everything else and there are times when copy is difficult for our future amateurs. Some of the problem comes from Japanese fishing boats operating in international waters. While the segment 3.500-3.700MHz is primary amateur within Australia, it is an equal share in Region 3 between amateur — fixed and mobile. On the lower side of 3.550, there is RTTY operation and all round there is the crowding of phone stations, all trying to find a clear space.

The frequency choice comes from the time when the CW/Phone point was, I understand at 3.550MHz.

In the crowded 80 metre band, it would most likely suffer, no matter where it was so, perhaps it would be best if we all could give 3.550 a little breathing space so that the future users of the 80 metre band may learn a little sooner. Up the top end of the 80 metre band, on 3.699MHz is VK2RCW, as reported last month, so there is further practice there after you finish with the evening sessions on 3.550.

REPEATERS

UHF repeater, VK2RRS 8475, was taken out of service in the Parramatta region during August, for a major overhaul. VK2REE 8325, to the north/west of Taree, went into service during the winter, on its final site. The channel 7300, band planned for ATV liaison, will be used by the future Sydney region ATV repeater. The TV side will have an input at ATV1 in 70cm and the output at 50cm on channel 34. An application for this service is currently in the course of development. Parkes and District ARC advise that their system VK2RWM 7100 is now fully operational from their site near Grenfell. Good coverage has been reported. It fills the region which was previously on the outer service areas of VK2RGF 6850, VK2RWG 6750, VK2RAO 6700 and VK2RRT 6900 in the central west of the state.

As has been reported previously in these notes, repeaters have generated their bad side with anti-social behaviour. Sydney has been through another wave of such behaviour on VK2RWI 7000. Many amateurs think it just a matter of a complaint to the Department and DOC will come out, locate and prosecute the offenders. When this does not happen overnight, they complain, come on air and some even act in such a way that it is hard to tell who is who.

For a successful prosecution to be made, evidence must be obtained which will stand up in court. Much of the anti-social acts thrive because some amateurs appear to crack under the strain. Others appear to like to indirectly communicate with an offender, either by abuse at him or talking about him. Still others make on-air comments as to who they think it is or the bearings or signal strengths of the transmission. All these actions help encourage this behaviour. to be constructive, one should observe and report findings, desirably through the Division.

At intervals, there are some offenders apprehended and for a time the frequency returns to a degree of normality. It is then that all amateurs should read up on the handbook and operate correctly, with decorum. We should respect the privilege that we have with access to the radio spectrum. Now-a-days, many services in the radio spectrum have the added privilege of 'self regulation', we should rarely have to resort to calling in others to do it for us.

BREAK-IN AT THE DIVISIONAL OFFICE

During Sunday evening, 11th August, a robbery occurred at the Divisional Office in Parramatta. The forced entry was through the ground floor office, which gave the intruders access to the stairs. The object of their visit was the office safe. They brought with them, some oxy equipment and a range of engineering tools. The safe is used by the Division as a fire proof second storage. It must have been a disappointing nights work for them, as they netted less than $150 in petty cash from both offices.

They left the police a range of fingerprints, other identification and the full set of oxy and tools.

Little damage occurred to the records but it left us with a mess and repairs to the property. Some interest was shown in the key register. The Divisions key system has been re-keyed.

The break-in left one with the impression that, they were rather amateurish at their 'trade'. The investigations are being conducted by the Parramatta police, to whom any information should be given. **AR**

VK3 WIA NOTES

NEW MEMBERS MADE WELCOME

The Victorian Division of the WIA would like to welcome the following members who joined in the month of July.

P R Adams VK3XNI, Stephen Bell VK3XSG, John Brennan VK3KKN, David Burden VK3VFO, H R Campigli VK3BIA, R C Carter VK3CAZ, George Christie VK3XEC, Robert Crowle, Gordon Esam VK3AGE, Eric Ferguson VK3KF.

David Grinblat, Ronald Harding VK3KKQ, Barry Hipgrave, Graeme Ireland, Eric Kelly, J R Kemp VK3CAY, William Leeming VK3ALW, Stewart McLean VK3AIA.

David Paulin, Daryl Quirk, Andrew Richards VK3YML, Jack Spark VK3AJK and Neil Ross VK3CUF.

WICEN NEWS

WESTERN ZONE WICEN ACTIVITIES

Regions 4,5 & 17

After organising a training school in Hamilton earlier this year, in which Derek McNiel was the instructor, the WICEN group were keen to put their newly acquired knowledge into practice. They did not have long to wait to do so.

An off-chance comment to a member of the Hamilton Light Car Club saw an invitation forthcoming for the WICEN group to provide communications for their Yulunga all-night-car-trial during the evening of 13th April to the small hours of the 14th.

The invitation was duly accepted and the afternoon of the 13th saw Ken VK3KAV, co-ordinator, Lyle VK3DWL, controller and their group setting up stations in the Annya State Forrest and the immediate hinterland.

The trial officials were, at first, a little slow to make use of the communications facilities, however, as the event continued, the messages continued to increase, speeding up the search for lost cars, directing the recovery teams and passing safety messages and scores.

The event concluded with an early morning barbeque breakfast, where the competitors, officials and WICEN group got to know more of one another.

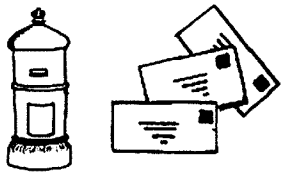
A weary WICEN group got to bed at a time when normal people were getting up but all agreed they would be willing to participate again next time.

Thanks go to Lyle, for his ability to supply maps, etc for the event and for his efforts as control station.

At this time, Region 17 WICEN do not have any active members. If you live in this region and would like to participate, call Ken VK3KAV, QTHR and he would be pleased to answer any queries.

Contributed by Ken Taylor VK3KAV

PARTICIPATE IN THE NATIONAL FOXHUNT — 26th & 27th October



OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

CONFUSION!

Unfortunately, I did not peruse the rules of the RD Contest until the evening it commenced. Try as I would, I failed to unravel the complicated set of rules. I consulted a friend on air and he was not sure either.

After 27 years continuous participation,it seems a pity that I couldn't see the light. Consequently, I regret that my log or logs will be missing this year. I abandoned the whole business.

I look back to the days when the rules were sensible, simple and precise: we scored points commensurate with the effort we made. Now it is a headache to get past the rules, let alone work the contest.

Is it possible that drastic changes were motivated by bad losers somewhere along the line? Today the will to win has a queer effect on our standards. To participate in a memorial contest should be sufficient reward.

This year, I pay silent tribute to those silent keys!

Maybe I am a lone ranger but, contest participation may tend to prove otherwise.

73,

Max **Ives VK7MX,**
Unit 51,
Cosgrove Park,
Launceston, Tas. 7250.

AR

EXPEDITIONS!!!

Many amateurs know of the Oceanic Research Foundation and the various expeditions undertaken by them.

The Executive Board of the Foundation is now looking at the feasibility of an expedition during 1986 to the Kermadec Islands in their vessel, the Dick Smith Explorer.

The Kermadecs, NE of New Zealand, are interesting from many viewpoints and it is anticipated to carry, scientists in several disciplines, on board.

There would, no doubt, be many amateurs who would like to make contact with this country on HF and there is scope for interesting work on VHF and possibly UHF.

To make such a trip successful, we would want some help, particularly by way of defining a radio programme and raising money.

If anyone thinks they can assist in either or both of these functions, I would appreciate hearing from them.

The Oceanic Research Foundation is a non-profit research organisation funded by sponsors and public subscriptions.

Yours sincerely,

Oceanic Research Foundation Ltd,
D F Richards VK2BXM,
The Ski Inn,
Sackville Road,
Ebenezer, NSW. 2756.

AR

AMF AMATEUR RADIO SOCIETY

To all members and ex-members of the Australian Military Forces, I feel very disappointed when I hear other service and ex-service men and women joining their particular nets - RNARS, RAFARS and RSARS. All ex-sailors and airmen are entitled to join their respective society, but unfortunately no soldier is entitled to join the RSARS unless he served in the Royal Signals RAS.

We can go one step forward, and make our society open to all ex-soldiers, no matter which army he served in, we are all friends, whether we come from England, Germany, Greece, Italy, etc. There will be no discrimination as we are all Australians. We all have something in common so we all have something to talk about, and who knows, we may find some of our lost friends.

I personally have served in many countries, with many different countrymen and many armed forces during my 37 years in the Army.

We may be able to design an emblem. So let's hear some suggestions.

I enjoy reading Amateur Radio and hope that this year will attract many new members, especially with the 75 Award, as many amateurs feel very small when you ask them for their WIA number and they reply 'I am sorry, I am not a member yet'.

73 and keep up the good work,

Yours sincerely,

Sam Galea VK2AKP/9H1GS, ex RAA, RA, RAA.
Hadidu,
57 Fairview Road,
Canley Vale, NSW. 2166.

AR

FURTHER TO P H MCELROY!

Re the query concerning Mr P H McElroy, who was the founding treasurer of the WIA.

A gentleman of that name operated a business known as Homecrafts (P H McElroy) at 211 Swanston Street, Melbourne in the 1920/1930 era. The business catered for hobbyists, particularly those interested in model engineering electrics and woodwork.

He also published the 'Homecraft Magazine', which carried articles covering the construction of various electrical appliances, model locomotives and railway supplies, in addition to radiocomponents. He later sold the business, which was later transferred to larger premises, but still traded under the Homecrafts name, but only in radio and electrical goods.

I purchased my first radio components from Mr McElroy, in the late 1920s.

Unfortunately, I have no idea when he first established the business.

73,

J Kelly VK3AFD,
28 Tottenham Street,
Carnegie, Vic. 3163.

AR

HALLEY'S COMET

After twelve months of research and endeavour, in co-operation with other amateur enthusiasts and astronomical groups, it would appear that the apparition of Halley's comet will have no effect on the HF bands, as the Comet itself has no radio emissions. There is the co-incidence that the comet's arrival parallels with every seventh sun spot minima.

The VHF bands however, whilst not being subject to any known interference, does offer an opportunity for meteor scatter enhancement as the result of the new meteor trail, associated with the comet's 1985/6 apparition. To this purpose, it will be very necessary to evaluate the density of the trail and compare it with the present trail associated with the 1910 Halley comet apparition manifested in the eta Aquarid and Orionid meteor showers in May and October of each year. To date these observations have been visual as there is, as yet, no amateur radio group set up to make recorded radio observations.

Just recently, during the last eta Aquarid meteor showers, visual observations over Australia recorded meteorite entry into our atmosphere at over 100 per hour. (Remember, that this is from a trail that has been shedding meteorites into our atmosphere every May and October for the last 75 years). The astronomical societies predict that radio observations could be three times greater than visual, and that there is a much needed development in this field. I believe that there has been some work done in this field but, it seems to have lacked in continuity and I have not been able to contact anyone who is involved or has any equipment for such projects.

Current investigative work is being conducted between VK5ALH and VK2AFX on 2 metres. Previous 6 metre contacts have been accomplished and it is necessary to continue this work, as well as look at the possibility of a new project to be initiated on 10 metres.

It is worth noting that the duration of meteor scatter propagation is proportional to the frequency. ie: the higher the frequency, the shorter the duration and, it appears that 175MHz is about the top cut-off point and to date 21MHz appears to be the bottom cut-off point. (There are other factors involved, such as the size of the meteorite, its speed and angle of entry, etc).

Further details regarding these projects can be obtained from VK2KA, VK3AJU, VK4UQ, VK5ALH and VK6MY, all QTHR. Mostyn VK5ALH, in particular, is very interested in amateurs in South Australia, who are prepared to set up a study group and arrange development programmes. Mos is also the chairperson of the Halley Comet Net, held each Tuesday and Thursday, 0430UTC on 14.160 +/- QRM or alternatively 7.070MHz. If enough interest is shown, it is planned to have a net, same time and frequencies on a Sunday for those who cannot make the mid-week scheds.

Much has yet to be discovered from the study of meteors and this study will not cease when Halley disappears from our skies, it is only the beginning and in co-operation with the various astronomical societies, can be a vast and exciting experience. It is known that governmental instrumentalities are very interested in this field also and are probably more advanced than we are led to believe. The fact that the eta Aquarid and Orionid meteor showers are usually mentioned in press articles, and probably the best known, they are non the less, part of many (in fact there can be several showers a month), that can be used for meteor scatter. There are, in reality, about a dozen meteor showers per year that afford reasonable contact results.

Continual monitoring of research may provide some changes in our present findings. If any changes do come to hand, every endeavour will be made to rush it into the presses and broadcast it over the WIA Federal News and WIA Divisional News Broadcasts.

Yours fraternally,

C D Rice VK6MY,
Chairperson,
Comet Sub-Committee,
PO Box 10,
West Perth, WA. 6005

AR

IN REPLY TO . . .

The following letter has been published in THE LANCET, 29th June 1985, in reply to the letter published in Amateur Radio, August, page 62. The letter is in reference to Leukaemia Risk in amateurs.

In his letter, Dr Milham uses the 'silent key' (recent deaths) information from two US states published in the ARRL's magazine QST to claim an increased incidence of certain leukaemias in a group of amateur radio operators as compared with a 'normal' population. While some previous studies have suggested a link between leukaemia and occupational exposure to mains frequency electromagnetic fields (Ref 1,3), other studies have not found a correlation (4). The question needs further careful study but we disagree with Milham's conclusion that there is a casual link with amateur radio operations, and we also disagree with the selection of a group of radio amateurs to test his hypothesis.

The operating habits of amateurs are highly varia-

ble and ofter not very extensive. A 1980 survey of 8895 amateurs in the USA and Canada showed that typical amateurs spend 6.1 hours per week on amateur radio (5). Much of this time is itself highly variable, for most of it is spent listening, with any transmissions made intermittently, with highly modulated (fluctuating) wave-forms, giving low average radiated power. Milham also states that 35 percent of the Washington amateurs were employed in electrically related occupations. Were the additional cases of leukaemia related to this occupational exposure or to the lesser time spent on amateur radio? Furthermore, silent keys are not representative of the amateur radio community as a whole, deaths being listed in QST only when reported by a family member. Therefore silent keys tend to be those particularly prominent in amateur radio just before their deaths. Amateurs are also more well-to-do than the general population (5), which may be an added selection bias. The whole question is further complicated by the possibility that toxic chemicals were commonly present in electrical/electronic equipment in days past (1).

There are pitfalls associated with the use of ratios when the population exposed to a risk (and the exposure) is not adequately defined (6,7). The numerators of the ratios are known but not the denominators. MacMahon and Pugh (8) explain that 'numbers of cases of a disease are sometimes expressed relative to the total number of cases of all diseases, rather than to the population. For example, the number of deaths ascribed to a particular disease may be expressed as a proportion of all deaths. This value is known as the proportional mortality rate (PMR).

Such proportional rates do not, of course, express the risk of members of the population contracting or dying from the disease. Even Monson (9), originator of PMR and cited by Milham, offers similar caveats, which Milham seems to ignore.

For these reasons, and because of the other defects of Milham's study in regard to sample sizes, we believe that his hypothesis that electromagnetic fields are carcinogenic remains purely specualtive. On the basis of the data we have seen, it cannot be assumed that participation in amateur radio activities increases the risk of leukaemia.

Milham's study has methodo logical weaknesses similar to those admitted by Wertheimer (10) in respect of her studies associating mains frequency fields with cancer incidence (promotion) in children and adults (11). Milham is less modest: he goes all the way and offers a carcinogenic hypothesis.

Raymond B Wangler,
Chairman, Committee on the Biological Effects of RF Energy.
Peter M Bradley
W D Clift
David Davidson
Lawrence Higgins
Kerry Sandstrom
Roger Stephens
ARRL, Newington, Connecticut, 06111, USA.

1 Wright W, Peter JM, Mack TM. Leukaemia in workers exposed to electrical and magnetic fields. Lancet 1982: :1160-61
2 McDowall ME. Leukaemia mortality in electrical workers in England and Wales. Lancet 1983; :246
3 Coleman M. Bell J. Skeet R. Leukaemia incidence in electrical workers. Lancet 1983; : 982-83
4 Environmental health criteria document no 16: radio frequency and microwaves Geneva: World Health Organisation, 1981
5 Sumner D. Survey of amateur radio, 1980. QST 1981 (March); 65: 11-18
6 Shorr SS. Fundamentals of biostatistics, New York. GP Putnam, 1968
7 Hill AB. A short textbook of medical statistics London: Hodder and Stoughton, 1977; 265-72
8 MacMahon B, Pugh TF. Epidemiology principles and methods. Boston: Little Brown 1970; 59-60 9 Monson RR. Analysis of relative survival and proportional mortality. Computers Biomed Res 1974; 7: 331
10 US Court of Appeals, 7th Circuit. Decision in County of Marquette, Michigan, Caspar W Weinberg. No 84-1569; p21 (decided 20 Aus, 1984)
11 Wertheimer N, Leeper E. Adult cancer related to electrical wires near the home. Int J Epidemed 1982; 11: 345-55

AR

FUSING CONFUSION

In reply to the letter from Mr George Cranby VK3GI published in the open column 'Over to You!' in the August issue of Amateur Radio, that appeared under the heading 'Fusing Error', referring to my article 'Electrical Safety in the Amateur Shack', published in May issue.

The writer expressed concern regarding Par 6(b). In the article, Par 6 referred to equipment and requirements, if mains operated, and connected to supply via flexible cord.

6 (b) reads "Fusing, in both active and neutral of supply lines".

Mr Cranby is correct in his concern regarding a blown fuse in the neutral conductor at the equipment. He is, however, incorrect in applying SAA Wiring Rules to that portion of the article.

I would suggest that SAA 3000 Wiring Rules applies to 'fixed wiring', and not to equipment that is connected to supply via flexible cords.

A more suitable specification for research may be AS 3100 (1981) 'Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment'.

From my own experiences with a large variety of radio and electrical equipment (connected to mains supply via flexible cords), it has been a common practice to fuse both of the supply lines at the equipment.

The reason for this is the uncertainty of just which is the 'active' when flexible cords and possibly extension leads are involved.

It is a nice feeling to know that, if your mains transformer breaks down to earth on the primary side (in your power supply or whatever), that you have both ends of the winding protected by a fuse.

I would concede, that I now recall that 'more modern' equipment of the 'better quality' does have built into it, protection on the supply side in the form of a double pole miniature fixed setting, over current, circuit breaker.

I see this as the answer to the problem.

The article was produced by me as a discussion aid, in a lecture to the Radio Enthusiasts Club of the Blind and delivered under the same heading.

A copy of the article was submitted to the Chief Electrical Inspector, Victoria, for his comments. (A copy of his reply follows this letter). He showed concern regarding item 3(b) and the explanation of the principle of operation of core balance earth leakage circuit breaker protection.

It is interesting to note that, in the reply from Mr L J Francis, the Chief Inspector does not show any concern for item 6(b).

In the same column, August AR, Mr Colin Heath VK5FX, expressed concern regarding the lack of a clear and suitable warning that the earth leakage protection will only give protection on the primary side of a mains transformer.

The concern expressed is justified and he is totally correct in his understanding of core balanced earth leakage protection, and its limitations.

Mention was made in the article, of the possibility of electric shock in conditions where, the circuit formed, was balanced and the core would not detect it. No mention was made to contact with any live parts on the secondary side of the transformers other than Par 6(d).

I thank both readers for their interest and contribution.

Yours sincerely,
Fred McConnell VK3BOU,
89 Latrobe Street,
Bulleen, Vic. 3105.

With reference to your letter and a copy of the article 'Electrical Safety in the Amateur Shack', the article of which would be of assistance in promoting electrical safety has been perused and comments follow.

The reproduction of the information in Braille would be of great benefit to blind persons and the comments made are not offered as criticism, but rather to contribute to the value of the document.

Item 3(b) generally would not be correct for a subswitchboard supplied by the multiple earthed neutral system which is used almost universally in Australia. This system relies on the continuity of the neutral conductor of the mains or sub-mains and, therefore, the neutral is not switched unless special conditions prevail, such as changeover to a stand-by generator.

In relation to the explanation of the principle of the core balance earth leakage circuit breaker form of protection, the explanation could read as follows:

"The core balance earth leakage circuit breaker is interposed between the supply and the operator in such a way as to interrupt the passage of current if minute values of leakage current flow to earth. The sensing core for the circuit monitors the normal load current between the active and neutral conductors but if the earth leakage current exceeds (say 30mA), the detected current is amplified, then used to trip the circuit breaker".

Apart from the suggested amendments as set out above, the article would have been of interest and help to radio enthusiasts.

Yours faithfully,
L J Francis,
Chief Electrical Inspector, Victoria
State Electricity Commission of Victoria,
Box 2765Y, GPO,
Melbourne, Vic. 3001.

AR

HELP!!!!!

I live on Rodriguez Island and hold the amateur radio licence 3B9FR, issued by the Director of Telecommunications at Mauritius this year.

I am the first licencee on the island and my licence has the privileges of Region 1, including the WARC bands.

I taught myself radio theory and Morse to attain my licence.

Up until now I have not operated, due to the economical condition on the island, and I am seeking help to find some old radio equipment suitable for an amateur station.

Thanks in anticipation.

Yours faithfully,
Robert Gerard Felicite 3B9FR,
Victoria Street,
Port Mathurin,
Rodriguez Island
Indian Ocean

AR

TOWER ASSISTANCE

I wish to express my appreciation to the WIA for the assistance given to me regarding my negotiations with the Portland Town Council for a permit for a 60 feet (18.3 metre) antenna tower.

Special thanks to Mr A Noble VK3BBM for his personal involvement in assisting me in formulating and lodging an appeal, and to his XYL for her overnight hospitality on the day of the appeal hearing.

I now have the necessary permit to erect the tower, so I suppose the hard work now begins.

Yours fraternally,
K Simpson VK3XFC,
58 Wade Street,
Portland, Vic. 3305

AR

LEUKAEMIA AND RF

I read, with interest, the letter detailing leukaemia deaths of operators in Washington State.

For some considerable time I have felt that we treat too casually electromagnetic fields, particularly the very high frequencies and above. The long term effects of such radiation is still a matter of conjecture but evidence is accumulating, as is pointed out by Milham, that such fields are very likely carcinogenic.

However, before locking the shack and throwing away the key, it would be interesting to know if the operators who died of leukaemia were:
operating at the high power levels which are fairly common in the USA,
or, if they were subject to excessive stray radiation in the shack,
or, did the location of the antenna place the shack

or residence directly 'in line of fire' of the antenna.

If the latter applies, were health checks done on family members or other occupants of the dwelling.

I feel however, that if one adopts a common-sense attitude and operates at or below the modest levels of power, at which we are permitted to radiate, if a check is kept for stray radiation in the shack and if the antenna is located a reasonable distance from the shack, one can, I feel, be reasonably certain the electromagnetic field generated and radiated will be innocuous, particularly if the shack has a corrugated iron roof. This presupposes that an operator has adequate or for the separation of the antenna from people, something that may not be possible for a lot of operators — so be on the safe side, keep radiated power low.

73,

Richard Barnes VK2BTM,
Railway Cottage,
Bribbaree, NSW. 2594

AR

ETCHING CIRCUIT BOARDS

With reference to my article on Circuit Board Etching, Try This — August AR, using a mixture of Hydrochloric Acid and Hydrogen Peroxide.

I have received advice that this mixture is potentially dangerous.

I apologise for any inconvenience.

Thank you.

Bevan Hay VK4ABV,
MS 346,
Nanango, Qld. 4315. AR

Without commenting in depth on the use of Hydrogen Peroxide and Hydrochloric Acid (which seems to have dangerous possibilities) I fear that Bevan Hay VK4ABV, has entirely missed the point of my article in etching circuit boards in the June issue of AR.

He states that with Ferric Chloride one can't see what is going on. True, if one drowns the board in etch, but I went to the trouble to stress that the etch SHOULD BARELY COVER THE BOTTOM OF THE BUCKET in which case it will merely WASH OVER the board. And if the etch does not continuously cover the board it can hardly prevent one from seeing the board.

In practice, the board is continuously visible, one can see exactly what is happening and the Ferric Chloride can be used and stored without dangerous fumes being generated.

Roy Hartkopf VK3AOH,
34 Toolangi Road,
Alphington, Vic. 3078. AR

CORRECTION

I was alarmed to see (page 17, August Amateur Radio), that I had drawn the two zener diodes the wrong polarity. Connected this way, the bias line is short circuited to earth. The consequences are excessive plate current and a severely embarrassed QQEO3/20.

In reference to the article, September AR entitled Another VZ200 RTTY System, I have now added Morse code to the programme and hardware. The hardware modifications are simple.

This modification should be an attractive addition, but I am unsure if the system will work on the VZ300.

73,

Lloyd Butler VK5BR,
18 Ottawa Avenue,
Panorama, SA. 5041.

We look forward to receiving and printing your follow-up article, Lloyd . . . . ED

AR

EGO IS A DIRTY WORD?

I reluctantly reply to John Eastaugh VK5GY, whose letter 'Satisfy an Ego' appeared in Amateur Radio, August.

Will readers please closely examine what John has said, to quote: "If a person really wants to know about amateur radio, he will find out, come hell or high water".

He appears to be naive about publicity and public relations. Fact is that people will only find out about our hobby from the direct actions of radio amateurs. It pays to advertise, and one of the main ways to do this is by public displays.

John, and sadly others, fail to understand the purpose of public relations and publicity. The hobby has, for too long, been starved of the oxygen of publicity. My personal experience is, that publicity and displays result in people taking up amateur radio, who would not have otherwise done so.

Comments from members of the public include: "I did not know such an interesting hobby existed" or "Have fiddled with radios many years ago, how do I get a licence?"

John has shown a lack of understanding about the role of public relations, which is different from publicity. Basically, public relations aim to raise the public awareness and understanding of amateur radio. We need to be understood by our neighbours, the general public, municipal councils and state and federal members of parliament. If we are not understood, the hobby will suffer through poor relations with neighbours, and at the hands of ill-informed legislators.

The Amateur Radio Service is relatively small compared with other community groups. For this reason, more PR aware radio amateurs are needed, either acting on their own in their local community or workplace, or in a club, group or WIA branch.

It is an insult for John to say that those who put on amateur radio displays, and that would include participation in JOTA, do so to 'Satisfy Their Own Egos". On the contrary, they are making a positive contribution to the well being of the hobby. Hopefully they will not be discouraged by statements like John's, and will get the support they need.

Jim Linton VK3PC,
4 Ansett Cresent,
Forest Hill, Vic. 3131.

AR

EXTRA CB CHANNEL FOR EMERGENCIES

A second channel for emergency messages, Channel 35, is to be reserved for exclusive emergency use from among the forty UHF channels available to users of CB radios.

The change was to take place from the proclamation of the Radio Communications Act in August 1985.

AMATEUR YOUTH FEATURE

STUDENTS TRACK SATELLITES

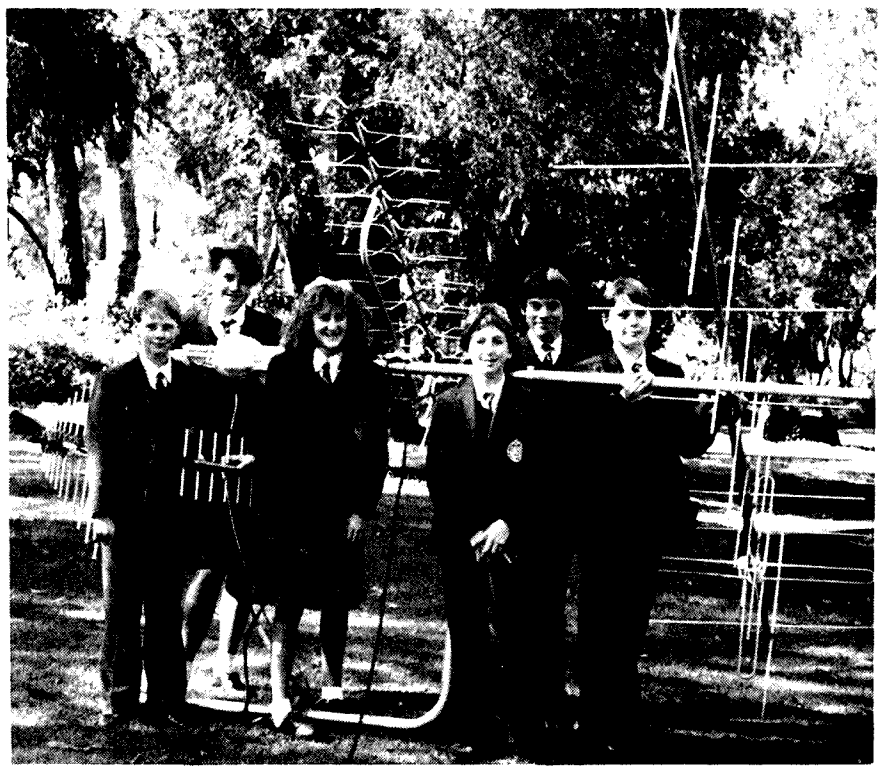
Radio option students in year 9 at Bunbury Cathedral Grammar School have been actively engaged in tracking satellites.

The students have built their own equipment and are now communicating with other radio amateurs via OSCAR 10.

The project is a joint exercise between the mathematics and science departments of the school. The school's senior science master, Keith Peterson VK6PT, has been conducting amateur radio classes since 1975, and the school received a Federal Government Grant in 1978 to establish an earth station.

The students operate with the call sign VK6OT. The students have been working OSCAR 10 since the beginning of the school year and have had over 30 contacts with overseas countries.

Compiled from information supplied by Keith Peterson VK6PT and the South Western Times, 25th July 1985.



The photograph depicts six of the year 9 students with their home-brew antenna system for OSCAR 10. It consists essentially of a vertical square of aluminium piping, with a rotator and bearing in the top section. A fibre glass pole forms the extension on which is mounted the crossed nine element Yagi for 145MHz. The uplink antenna is a 48 element skeleton slot beam on 435MHz, mounted at the top centre of the square parallel to the 2 metre antenna. The whole antenna fits into a second rotator on top of a 30m tower. This set-up gives a full 360 degrees azimuth rotation and 0 to 90 degrees elevation control.

Silent Keys

It is with deep regret we record the passing of —

MR EDWARD BRADLEY	VK5PXZ
15th May 1985	
MR CLIFF PICKERING	VK3ATP
27th July 1985	
MR WALTER HARRY PLANT	VK4FO
1st August 1985	
MR E F WILLIS	VK2PGT

Obituaries

C N (CLIFF) PICKERING VK3ATP

Cliff became a silent key on the 27th July 1985, at the age of 66 years.

Educated at Scotch College and later graduating in Electrical and Mechanical Engineering at the Swinburne Institute of Technology. Cliff was employed by the companies of ICI, GMH and later Telecom, from which he retired in 1977.

His interest in amateur radio dated back to his early years, when he obtained an Experimental Licence, later updating to the AOCP in August 1947.

Cliff's association with the WIA extended over 40 years and, one of the highlights of this period, was his dedication to introducing new members to the hobby and the running of meticulous study courses, that gained many amateurs a licence to operate on the bands. For his untiring efforts, Cliff was honoured by being bestowed a Life Membership of the Institute.

Apart from his tutoring activities, he was an active 'home brewer' and later in his hobby career, his station became quite sophisticated, including state of the art, computerised RTTY equipment and the preparation of establishing the mode of ATV.

Other activities of this gentleman were the sports of bowling, boating and fishing and the love of his Lodge, being honoured by becoming a Master in 1982.

Cliff, a member of the RAOTC and the Moorabbin District Radio Club, will not be forgotten for the help he has given to so many, through his quiet, unassuming manner which, endeared him to all that had the pleasure of knowing him.

Sincere condolences are extended to his XYL Margret, daughters Natalie, Jennie and their families.

Ike Tarbit VK3OW

AR

WALTER HARRY PLANT VK4FO

All, who in their lifetime, were fortunate enough to cross the path of 'Wally', as he was affectionately known, will be saddened by the news of his sudden death from a heart attack on Wednesday, 1st August 1985.

Wally was born in Birmingham, England, in 1925 and during World War II saw service as a Wireless Operator, mainly as a crew member of the Lancaster . . . 'Lonesome Lola'. He migrated to Australia after the war via East Africa arriving here in January 1962. As a UK amateur he held the call sign G3BQC before moving to East Africa, where his call sign changed to VQ4FO. This changed to VK4FO on his arrival in Australia. He was an active member of the Queensland Division of the WIA and, whenever his health permitted, strongly supported WICEN.

Maybe, as a rub-off from his visit to the Sutton-Coldfield Jamboree in Birmingham in 1958 (where Jamboree on the Air saw its origins) and because of his commitment to his three sons, he joined the Scout movement, becoming a Group Leader of his local Group, and in 1970, Assistant Branch Organiser of Jamboree on the Air in the Queensland Branch.

Wally was a quiet and gentle person, highly regarded by all his friends and, when one achieved that status, one came to know his many other talents, not least of which was his expertise in leatherwork. He was a wonderful husband to Monica, a devoted father to his three sons and one daughter, and a fine father-in-law and grandfather to the rest of his family.

He will be sadly missed by them all, as well as his many other friends in amateur radio, scouting and other fields in which he became involved.

Vale Wally.

Noel Lynch VK4BNL

AR

THE GREAT REPEATER RUMPUS

Lindsay Lawless VK3ANJ
Box 112, Lakes Entrance, Vic. 3909

Our new president said we needed a repeater; one which we could call our own and which would make us independent.

Nobby woke up, looked around sleepily and said. *"We've got a repeater, me and Jim built it and got it going three years ago. I haven't heard much traffic on it since old Bob died but I thought everyone knew about it".* Our startled president looked disappointed, he saw his chance of impressing us disappearing at this his maiden debut as chairman.

"Yeah," said George *"it works alright between my place and Jim's — we usually have a talk on our hand helds bringin' in the cows".* Our curious president asked *"does anyone else use it?"* and *"is it any good?"* Some of those present had heard of it but didn't know which channel it was on; the rest hadn't heard of it. It appeared that Nobby, Jim, Bob (deceased) and George had enjoyed an exclusive channel for some time. *"I think we had better appoint a repeater committee to investigate this"* said our efficient president. *"would you be leader Nobby?"* Nobby declined and pointed out that he couldn't be very active until all the cows had dried out but he would provide the circuit diagram and show the way to the four wheel drive track to the site.

Several meetings later the repeater committee reported as follows — they made their way to the repeater site without incident and found everything in good working order; the batteries were fully charged, electrolyte level was correct and tests to and from the site confirmed transmitter output and receiver sensitivity satisfactory. The general opinion was that Nobby was doing a good job. *"I haven't been near the place for about eighteen months"* interjected Nobby. Our confused president fearing complications requested further investigation and another report.

At the next meeting the repeater committee reported that their representative had talked with the owners of the site and their new technician. The technician said he knew the equipment referred to and had kept it in good order and condition. Our representative thanked him profusely to which he replied *"If I'd known it was amateur gear I would have thrown it over the side".* Which he did on his next visit.

The repeater committee is now charged with the task of salvaging the Nobby repeater from a fern gully at the foot of the mount and repairing this for installation at a new site to be determined.

Our retiring president has discovered the joys of HF DX. Nobby sleeps through all meetings waking only for supper.

AR

Up until a few months ago it had been unlawful for extra phone points to be put in unless the work was done by Telecom.

However a Telecom spokesman said this had changed and products were now available to help anyone do it themselves.

Two new products being sold by Telecom were the telephone extension cord and telephone double adaptor.

A leaflet entitled "Handy, Do-It-Yourself ways to adapt your phone to your needs" explains the products.

The extension cord is 10 metres long and comes complete with a plug one end and a socket on the other.

Suggested uses for the double adaptor include extra telephones, answering machines, Viatel terminal, data modems or other telecommunications equipment.

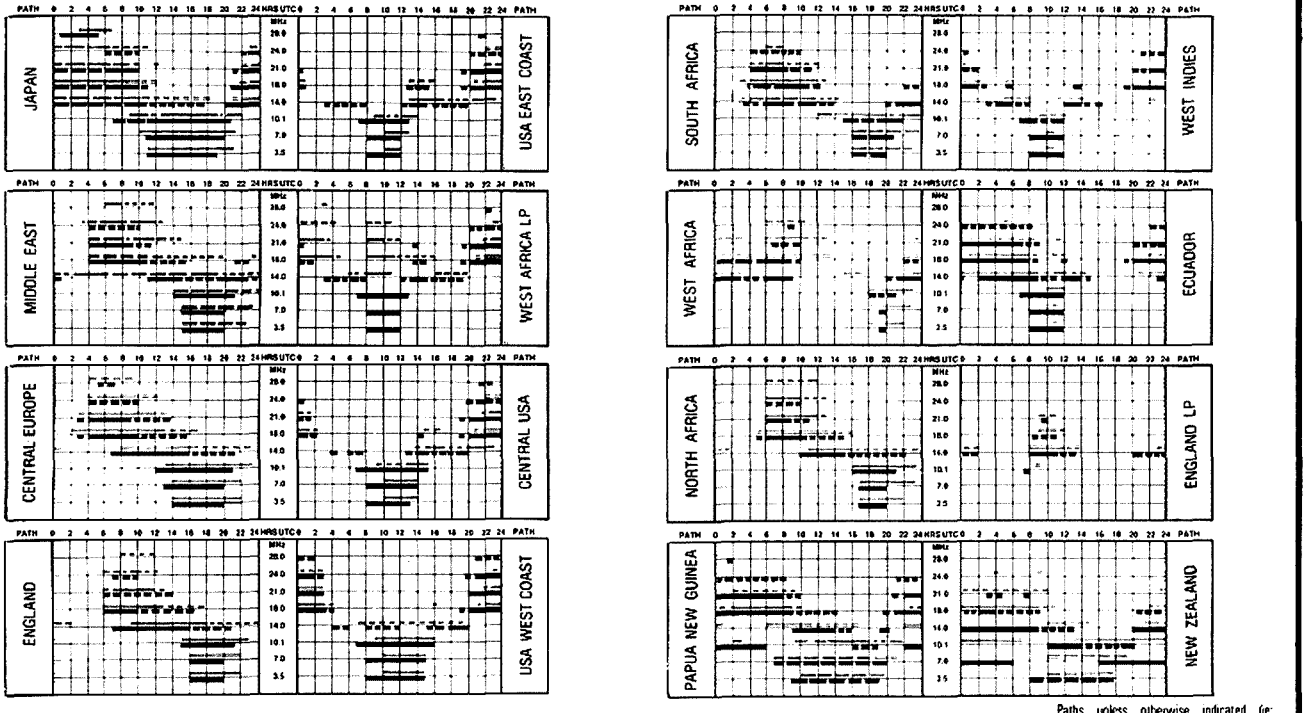
"Make your telephones extra handy — use the double adaptor and extension cord together to connect an extension phone in your home or office," said Telecom.

For further information contact your nearest Telecom Business Office.

AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)

Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated (ie: LP = long path) all paths are short path.

Predictions reproduced courtesy of the Department of Science and Technology, Ionospheric Prediction Service, Sydney.

All times in UTC.

SOLAR GEOPHYSICAL SUMMARY-July 1985

Solar activity was low in July. On second and ninth, there were M class solar flares. The 10cm flux was elevated during the period from the first to 14th, corresponding to the transit across the visible disc of an active region which has produced energetic flares on previous rotations. The 10 cm flux again increased after the 25th when the active region returned, once more, to the visible disc.

The 10cm flux peaked at 101 on the ninth, which was the highest value since the same day, last year.

Daily 10cm readings were 1 = 74, 2 = 82, 3 = 79, 4 = 78, 5 = 81, 6 = 85, 7 = 95, 8 = 95, 9 = 101, 10 = 99, 11 = 94, 12 = 90, 13 = 83, 14 = 74, 15 = 71, 16 = 70, 17 = 70, 18 = 70, 19, 20, 21, 22, 23, 24 = 69, 25 = 73, 26 = 75, 27 = 77, 28 = 79, 29 = 81, 30 = 81, 31 = 80. The average was 79.1 with a Sunspot average of 30.8.

GEOMAGNETIC-JULY 1985

1st July . . . Geomagnetic field at storm level A = 15.

4th-8th July . . . Disturbed, with intervals of minor storm level A = 24, 16, 22, 20, 16.

11th-14th July . . . Generally active, on the 12th there were storm conditions A = 15, 35, 15, 15.

17th July . . . Disturbed, particularly 1100 to 1700UTC A = 19.

23rd and 24th . . . The field was at storm level from 0000 to 0600UTC. Active on 24th A = 11 ,15.

26th and 27th July . . . Active A = 16, 17.

31st July . . . At storm level after 0600UTC A = 38.

The most disturbed days were the 12th and 31st A = 35, 38. The month was a disturbed one, but most were relatively weak.

Courtesy of the IPS Radio and Space Services.

AR

Bill the Philosopher

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

Bill Blitheringtwit was sitting in his garden thinking about life in general. He had come to the conclusion that life is like a battery. It had a plus and a minus. Sometimes he had got the distinct impression that there was an over-abundance of minuses but, on reflection, he had to admit that every now and again appeared a plus.

For example, there was that business with his neighbour's TV set the other day. Bill wasn't to know that the turret tuner would come away in his hand the way it did. It had cost Bill a few dollars to get the unit fixed, but he guessed (correctly) that it would be a very long time indeed before the neighbour would mention TVI again.

Then there was the XYL. Getting into the bowling club hadn't been a resounding success for Bill, but the XYL had got very interested and, in fact, was still an active member. This meant that she was absent from the house, leaving Bill to do his own thing for long periods. This was much appreciated. After all, wasn't amateur radio all about doing your own thing?

So things had worked out pretty well, on the whole. Bill sighed luxuriously and turned the pages of the magazine he had been glancing at. There was a very interesting article he had been reading about RTTY. He'd never been involved in that field of activity and was keen to get into it.

He had acquired an old Model 100 and had been boning up on the modem required to get on the air. It didn't look too difficult and, in any case, Bill prided himself on his ability to overcome problems.

All he needed were a few bits and pieces and, before you knew it, he would be on the air making those odd bird-like chirpings he had heard so often, particularly on his favourite band, 40 metres. He decided to have a rummage around his garage for some bits.

The bench was covered in a layer of assorted junk and Bill found himself an ice-cream carton to hold anything useful he might find. Several minute's diligent searching didn't turn up anything other than useless rubbish. However, he did come across a small electric drill which he thought might be handy to make the holes in the circuit board. He hadn't used the thing for many years and couldn't think why he had left it simply lying around on top of the bench, instead of putting it away somewhere. He thought he would try it out.

The power cord looked a bit frayed, but at least it was continuous. He plugged it in and turned on the power. Almost immediately he dropped the drill, as a shock almost paralysed him. Now he remembered why he hadn't put the thing away. It was live. At this stage the drill began to emit smoke, finally bursting into flames. Bill ran over to the garden tap, turned on the water, and directed the hose on to the bench top. There was a loud bang from the house fuse box.

It occurred to him that perhaps today was one of those minus days after all.

AR

ANSWERS TO NOVICE TRIAL EXAM PRINTED IN THIS ISSUE

1b	11b	21a	31d	41d
2c	12a	22d	32a	42a
3c	13d	23c	33d	43b
4c	14b	24b	34b	44b
5d	15c	25b	35a	45d
6d	16b	26c	36c	46c
7a	17b	27a	37c	47c
8d	18a	28d	38b	48c
9a	19c	29c	39d	49a
10c	20b	30c	40c	50b

NOTICE

All copy for inclusion in the December issue of AR must arrive at the Federal Office by midday on 23rd October.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- **Eight lines free to all WIA members. $9 per 10 words minimum for non-members.**
- **Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.**
- **Repeats may be charged at full rates.**
- **QTHR means address is correct as set out in the WIA current Call Book.**

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

☐ TRADE ADS ☐

AMIDON FERROMAGNETIC CORES: Large range for all receiver & transmitting applications. For data & price list send 105x220mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fyshwick, Plaza, ACT.

☐ WANTED — NSW ☐

TRANSMITTING VALVES: 4-250A or 4-400A. VK2KCZ, QTHR. Tel:(046) 25 1519.

☐ WANTED — VIC ☐

AUDIO WATT METER: Heathkit AW-1 or similar resistive load watt meter. VK3OM, QTHR. Tel:(03) 560 9215.

☐ WANTED — QLD ☐

EIMAC VALVE SOCKET: Type SK800B, air chimney type SK806. Also require 8874 valve & 5-6kVW filter capacitors. David VK4BGB. Tel:(07) 844 1749.

VIDEO HEADS: Can anyone supply & fit new video heads to Shibaden SV700E. VK4KD, QTHR. Tel:(075) 58 2293.

☐ WANTED — SA ☐

DRAKE R4C COMM RX: Pref with filters. No mods. Must be in good cond. Pay good price for right set. Interstate answers welcome. Bob. Tel:(087) 25 1511.

HELRAY PEAK POWER METER: Ranging from 150-500W. Will pay good price. Graham VK5YM, QTHR. Tel:(087) 25 9752 after 6.00pm.

☐ FOR SALE — ACT ☐

ICOM IC451A: As new $635. Yaesu FV707DM digi VFO, new $145. KLM 140W, 2m linear, $170. HP606A and HP608D sig gen, $325 each. VK1VP, QTHR. Tel:(062) 49 6348 AH

☐ FOR SALE-NSW ☐

AR7 RX: With complete set of coils. Modified to a self contained, single unit with int power supplies. 1st RF stage mod 6SK7. Audio stage mod for ext spkr use only. RF gain cut off mod. ACC & BFO on sep switches. Recond & aligned. Works very well. $200. Unit must be collected. VK2EES, QTHR. Tel:(067) 36 2383 AH.

FOOD RECIPE COOK-BOOK: VK2AXZ limited edition, collector's item, worthy cause. $2 posted. VK2ATZ, Westlakes RC, Box 1, Teralba, NSW 2284.

KENWOOD TL922 LIN AMP: 2 3-500Z tubes, new cond with orig instr manual, orig pack. $1600. Manfred VK2RV, QTHR. Tel:(02] 371 8854.

KENWOOD TR2400: 2m h/held complete with all manuals, spare nicad batt, fast & slow chargers & spkr mic. $200. Kenwood TS930S with built in tuner, extra filters, very good cond. $1750. 2m power amps, 50W, $60 & 80W, $100. ETI Modem, 300 & 1200 BAUD, modified for Packet Radio use. $100. Dentron Super Tuner, 1kW 160-10m with in built high power balun. $150. VK2HL. Tel:(02) 981 4762.

KENWOOD TS830S TCVR: $850. Swan TB2A beam ant, $155. CDE HAM II ant rotator with control, $150. Antenna mast with cables, $150. Adigawa PM2H power/SWR meter, $65. Zephyr 21ZA mic in grey handpiece, $15. Tel: 871 7758.

KENWOOD TS700A: 10W, all mode tcvr, 144-148MHz, 240VAC & 12VDC operation. $300. Yaesu FT227R, 10W, 2m FM mobile tcvr. $150. Athol VK2BAD. Tel:(02) 605 7731.

SWAP IC700R: amateur bands rx in 1st class cond, cannot fault, very selective & sensitive rx, for general coverage rx. Tel: Bribbaree 61.

YAESU FT107DMS: 160/10m inc WARC bands. 240VAC/13.5VDC. 12mem chs. CW & AM filters fitted. H'held scan mic. Orig cond, top perform, little use. Oper & w'shop manuals. Extender boards $850. VHF & UHF lin amp. Mirage B108 (2m) 80W out. Tokyo Hi Power mod HL45 (70cm) 45W out. Both have pre amps & suitable SSB, FM, CW modes. As new. $150 each .VK2DJH. Tel:(043) 24 7630.

YAESU VHF H/HELD 208R: Ex con, new batt pack & charger, spkr/mic. $260 ONO. FDK 2m Allmode 750GX. Ex cond. $420 ONO. Station monitor, Kenwood SM220 used only once. Has BS5 pan adaptor for TS520. $350. Tel:709 2826 AH.

☐ FOR SALE-VIC ☐

CB BASE UNIT: converted to 10m band. Freq 28.300-28.600MHz, SSB/CW. Built in PS & SWR meter. VGC $100 ONO. Mark VK3PUC. Tel:(053) 32 1333.

GENUINE SHACK CLEARANCE OF PRELOVED AMATEUR GEAR: 2 Swan design 9 el Yagis. Sell separately or $50 pair. CE55DX, 5 el tribander, 8m boom. $225 ONO. TS520 Kenwood tcvr. VGC & MC35S mic. $450 ONO. SP520 match spkr incl with above. Icom IC202 tcvr & mic. VGC. $100 ONO. Icom IC502 tcvr & mic. EC. $110 ONO. All original pack & manuals for above. Home brew linear (RSGB 640 design) & PS, 144MHz. $50 ONO. B40 rx. 640kHz-30.5MHz. Ex HMAS Melbourne. GC. Collectors item. $70 ONO. RTTY Terminal. ETI Design. See working. (730/731) Throw in Model 15 tape perf/sender. 3 spare motors. $100 ONO. Rolls of paper for all machines, fuses, etc. ATU 'Z' match RSGB. $30. ONO. Also various meters. $5 each. Geoff VK3ADB, QTHR. Tel: (053) 32 1037.

KENWOOD TR2400: H/held 2m tcvr & ST1 pulse charger with ext mic & aerial connections for base station operation. MC30S 500ohm mic to suit the lot. $250. Incl carry case. Frank. Tel:(03) 529 1686.

KENWOOD TS530SP: In VGC. $850. Eddystone 840C, gen cov rx. Very seldom used. $240. Jim. Tel:(03) 367 6920.

NATIONAL RJX601 PORT TCVR: 6m, VFO controlled, FM/AM. $180. Realistic AX190 comms rx. 11 bands inc CB & VFO input. $180. VK3CKD. Tel:(03) 561 5119.

PERFECT DX QTH: Large 2 storey home on 1.25 acres, for sale. Near summit of Dandenongs, good views of city, access nearly every VK3 repeater, 4 bedrooms, radio room, sauna, formal lounge & dining, billiards & games room, with built-in bar, large aviary & more. Lance VK3DIM or Laurie XYL. Tel:(03) 755 1758 or 755 1900

ROBOT 400: Little use & in EC, with full documentation. Includes partly built key board, with all parts and circuits. Tel:(03] 725 9285.

ROTATOR: Able CT1000 computerised rotating system. 6 mths old. $500 ONO. 4 ATN 16 lb, 432MHz Yagis, power divider & 'H' frame. $250. Andrew VK3BEL, QTHR. Tel:(053) 34 1397, weekends.

SHACK CLEARANCE: Antique coils, tuning gangs, dials, sockets, silk wire, misc components, etc. Early projector globes. Meters, transformers, genemotors, valves, 100s, many in orig early boxes. Large spaced tuning gangs, tx inductors. Powerful transformer, 100V multi tapped, 20A. Pye TRP1 port tcvr in case, with whips, 2-7MHz. GC. Hi band carphone. Command tx, 7-9MHz, GC. Much more, list available. Peter VK3APN, QTHR. Tel:(03) 211 8979.

YAESU FT-230R, 2m FM tcvr. 144-148MHz in 5kHz steps. Fully microprocessor controlled. 10 mem chan, 25W o/p. $320. VK3BEW. Tel:(057) 21 2363.

YAESU YM38 SCAN MIC: Suit all current Yaesu rigs. Sell for $35 or swap for MC50 mic. Yaesu HY55 h/phones. $10. Yaesu hand mic, 4 pin connector. Suit older gear. $10. Icom SM6 desk mic. Brand new in box. $45. VK3OM, QTHR. Tel:(03) 560 9215.

☐ FOR SALE-QLD ☐

DX100 REALISTIC GEN COV COMM RX: 520kHz-30MHz. As new in orig box & pack. Instr manual. Cost $159. Sell $95. Tel:(071) 94 1271.

FT75B WITH FP75B & DC75B POWER SUPPLIES: Orig cartons. Also FV50C VFO & spare finals. On air trial if reqd. Goes well. 100W PEP $275. Bill VK4BN, QTHR. Tel:(071) 93 1178.

YAESU FL2100B LIN AMP: Unmarked, as new. $400. VK4AGL, QTHR. Tel:(071) 41 2315.

TR2400 TCVR: H/h 2m FM synthesised 800 ch, 10 mems, scan ext/mic, mains charger, manuals. Good cond. $180 (less batt). DC200 batt power supply for FT200 tcvr. $50. VK4AKU, QTHR. Tel:(071) 45 1714.

TRS 80 MODEL 1 LEVEL II 16k COMPUTER: Macrotronics M80 CW interface, B/W TV monitor, cassette recorder & assorted software. Best offer. John VK4KOQ. Tel: (079) 58 9485.

VALVES: Tx valves, QB3-300 (4/125) $20, pair used 572Bs $70, 8008 mercury rectifiers (new) $10. Plate transformer 4kV CT, 500mA continuous $50. David VK4BGB. Tel:(07) 844 1749.

VALVES: 2 6LQ6, new. $10 each. 8 6KD6, new matched pairs. $28 pair. 4 6LF6 matched pairs. $30 pair. 6GK6, 6BE6, 6EW6, 12BA6, 12BZ6, 12BE6, 12AX7, 6BY7, 6BQ5, 6BW6, 6BA6, 6AV6, 6DX8, 6N8, 6BM8, 6AL5, 6DA6, 6DC8. $4 each. All new. Keith VK4KS, QTHR. Tel:(07) 353 1968.

☐ FOR SALE-WA ☐

EIMAC 4CX-250 TX TUBES: In absolutely mint cond, in orig sealed poly packs. 4 only at $50 each. Also STC MTR151-25A, 25W solid state, 70-85MHz tcvr, 12VDC opn. $15 each. Plus P&P. Also new RF pwr transistors, 2N5589. $8 each. 2N5590, $9 each. 2N5591, $10 each. Ray VK6PW, QTHR. Tel:(09) 339 1359.

ADVERTISERS' INDEX

Just when you thought you'd seen it all . . . .

Latest Generation Receivers from Yaesu!

FRG9600 Scanner

Never Before! A scanning receiver that has so many features, offers so much. And it's absolutely ideal for the amateur, too! It offers **continuous coverage** between 60 and 905MHz, in all modes (SSB up to 460MHz), with FM and AM in both wide and narrow bandwidth. But that's not all:

You get 100 keypad-programmable memory channels, full rotary dial tuning as well as push-button tuning, fully programmable scanning in various modes . . . and much, much more.

PLUS it's a CAT unit: with the optional interface you can control its operation from most micros! Virtually unlimited customised control functions in software are possible!

Impressed? Not half as impressed as you will be with one in your shack!

Specifications:

Range: 60 — 905MHz (SSB 60 — 460MHz)
Modes (3dB bandwidth)

FM (N): 15kHz 0.5uV Sens (12dB SINAD)
FM (W): 180kHz 1.0uV Sens (12dB SINAD)
AM (N): 2.4kHz 1.0uV Sens (10dB S+N/N)
AM (W): 6kHz 1.5uV Sens (10dB S+N/N)
SSB : 2.4kHz 1.0uV Sens (10dB S+N/N)

Conversion:	Triple for FM (N) AM & SSB, Double for FM(W)
IFs:	45.75MHz, 10.7MHz and 455kHz
Image rejection:	60-460MHz — 50dB typical
	460-905MHz — 40dB typical
Memory Channels:	100
Power Supply:	12-15V DC 550mA (lithium cell back-up)

LIMITED STOCK!

(Includes power supply) **$799**

Cat D-2825

Orders taken now at your nearest DSE store

DICK SMITH ELECTRONICS PTY LTD

B-052

FRG8800 Receiver

What about HF, you ask?

No worries. Yaesu design engineers have excelled themselves yet again!

- General coverage from 150kHz to 30MHz
- All mode, including AM wide and narrow and FM narrow
- 12 internal memories (push-button) with scanning functions
- Selectable AGC rates, noise blanking widths & tuning rates
- Dual digital clocks (great for different time zones)

And so much more!

PLUS, it's also a CAT system: add a microcomputer and the optional interface and you can transfer function to your micro!

And even more: with the optional VHF coverter (fits completely inside) you also get 118 - 174MHz.

It also uses the '7700' series of accessories: active antenna, and antenna tuner.

Specifications:

Modes:	AM, SSB & CW in both wide and narrow; FM (N)
Sensitivity:	AM, SSB & CW: 10dB or better (S+N/N)
	FM (N): 20dB or better (S+N/N)
Selectivity:	AM (W) 6kHz (−6dB), 15kHz (−50dB)
	AM (N), SSB, CW 2.7kHz (−6dB), 8kHz (-50dB)
	FM (N) 12.5kHz (−6dB), 30kHz (−40dB)
Antenna Imp:	50 ohms and 500 ohms (VHF conv 50 ohms)
Power:	240V AC

Cat D-2820

$899

Alternative: FRG-8800 SW — 2MHz to 30 MHz range, otherwise identical $829.00
Cat D-2821

LIMITED STOCK!

Optional VHF Converter

Yes! 118-174MHz from your FRG-8800. And it fits completely inside the set — operation is completely automatic. Full dial or pushbutton selection, same features as standard set.

Incredible versatility - and full CAT operation too.

Cat D-2823 **$189**

Your entire spectrum? Covered!

Icom's latest dual band IC-3200A delivers a powerful 25W punch at VHF & UHF. Big performance. Small size. *Lowest price dual bander on the market.

HF, VHF, UHF: Icom's spectrum of technology.

An ultra compact 100W HF transceiver small enough to go mobile. The IC-735 combines size, superior performance, & FM, CW, LSB, USB, AM to become a new HF standard: yet the simplified front panel makes the IC-735 easy to use, even when mobile.

Powerful, clean performance in the bands you use most. Icom's team perform for you at your local authorized dealer.

Like a brochure? Send us your name & address.

Simply the best.

ICOM

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* At the time of publication

ICO024

AMATEUR RADIO

VOL 53, No 11, NOVEMBER 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

75th ANNIVERSARY 1910 1985

JAMBOREE ON-THE-AIR

Special Queensland 75th Anniversary Issue

WELCOME

The Wireless Institute of Australia welcomes overseas dignatories and visitors to our 75th Anniversary Celebrations. We particularly welcome:

The (Right) Honourable Michael Duffy MP
Minister for Communications

Mr Richard Butler
Secretary General of the International Telecommunications Union, Switzerland

Mr Richard Baldwin W1RU
President of the International Amateur Radio Union

Mr Carl Smith W0BWJ
Vice-President of the International Amateur Radio Union

Mr David Sumner K1ZZ
Secretary of the International Amateur Radio Union

Mr L Van Der Nort PA0LOU
Chairman of the International Amateur Radio Union, Region 1

Mr John Allaway G3FKM
Secretary of the International Amateur Radio Union, Region 1

Mr Pedro Seidemann YV5BPG
President of the International Amateur Radio Union, Region 2

Mr Alberto Shaio HK3DEU
Secretary of the International Amateur Radio Union, Region 2

Mr David Rankin 9V1RH/VK3QV
Chairman of the International Amateur Radio Union, Region 3

Mr Keigo Komura JA1KAB
Director of the International Amateur Radio Union, Region 3

Mr Masayoshi Fujioka
Secretary of the International Amateur Radio Union, Region 3

Ms Tsuyako Miyagi
Assistant Secretary of the International Amateur Radio Union, Region 3

Mr Larry Price W4RA
President of the American Radio Relay League

Mr William Stevens W6ZM
Pacific Director of the American Radio Relay League

Mr Wang Xun
Chinese Radio Sports Association

Mr Huang Yongliang
Chinese Radio Sports Association

Mr Pentti Lareva OH3TY
Finland Amateur Radio Society

Mr Shozo Hara JA1AN
President of the Japan Amateur Radio League

Mr Yoshi Arisaka JA1HQG
Director of the Japan Amateur Radio League

Mr Yutaka Kasahara JA1CLN
Manager, External Affairs, Japan Amateur Radio League

Mrs Junko Tanaka JR1ANP
Japan Amateur Radio League

Also travelling is a large delegation of JARL members

Mr Seung Bang Park HL1AFR
Vice President of the Korea Amateur Radio League

Mr Terry Carrell ZL3QL
President of New Zealand Amateur Radio Transmitters

Mr Erlanega Suryadarma YB0BZZ
Organisasi Amatir Radio Indonesia — Council

Mr Ben Samsu YC0EBS
Organisasi Amatir Radio Indonesia — Council

Dr Sukarto YB0MS
Secretary General of the Organisasi Amatir Radio Indonesia

Mr S Anwar Mahmood Shah AP2AM
Pakistan Amateur Radio Society

Mr David Evans G3OUF
General Manager of the Radio Society of Great Britian

Mr Nick (A H) Percival 9Y4NP
President of the Trinidad & Tobago Amateur Radio Society

On behalf of the members of the Wireless Institute of Australia — the World's Oldest Amateur Radio Society — I bid you welcome and hope that you all have a memorable stop-over on your journey to New Zealand.

D.A. Wardlaw

David Wardlaw VK3ADW
Federal President
Wireless Institute of Australia

AMATEUR RADIO

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Photograph courtesy Ken McLachlan VK3AH and Julie Lane.

The 1st Beaumauris Sea Venturers getting in a litis operating practice for JOTA, before donning life-jackets and going maritime-mobile. Pictured from left are: Christopher Goffin, Stuart Gribble, Cameron Sandell, Mavis Russell VK3BIR, and Stephen Cumming.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

November's issue of Amateur Radio is a special "Jumbo" size edition and features much news, views and history.

VK4, this month, have a special segment containing a history of radio in that State, year by year, until WWII intervened, plus a look into many other historical events in Queensland.

Roger VK2ZTB, probes the intrigues of Aircraft Enhancement further. Roger examines the previous results, together with other information available about this phenomenon, and suggests a preliminary "model" of the propagation mechanism.

Is membership to your radio club flagging? Are you concerned at the lack of new, young amateurs coming up through the ranks? A letter from Jim VK2BQS, page 76, and an editorial from CQ magazine gives an insight into some of the reasons why the youngsters may not be interested in radio and suggests that everyone must attempt to prove to them what a good hobby radio really is.

What happens to old amateurs when they move into Retirement Villages? It is a time for retirement and enjoyment of their hobby, but many are restricted as they are not allowed to erect antennas and henceforth, in many cases, no amateur radio. Harry VK6WZ, after a chance encounter with an old-timer, has given this problem much thought, and suggests that special "Villages Veekay" be erected so the OTs may enjoy their hobby in peace, with no restriction. *See page 8.*

DEADLINE

All copy for inclusion in the January 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday, 11th November 1985.

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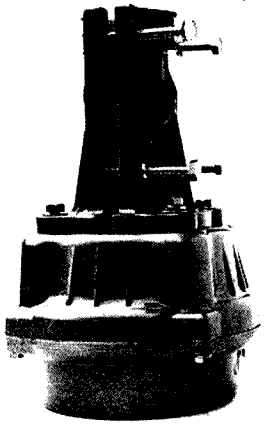

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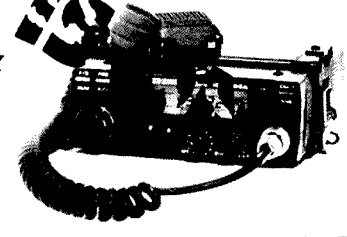

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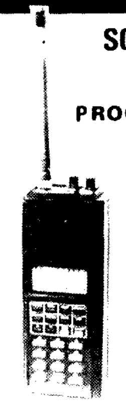

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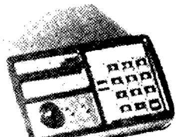

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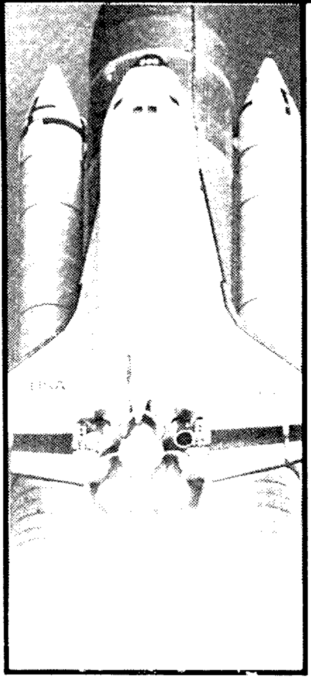

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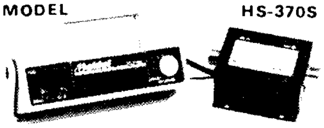

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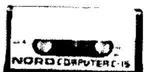

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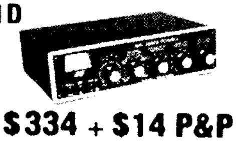

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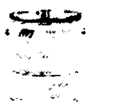

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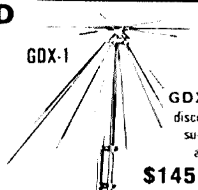

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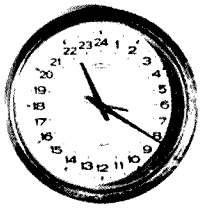

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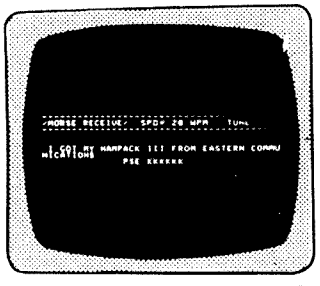

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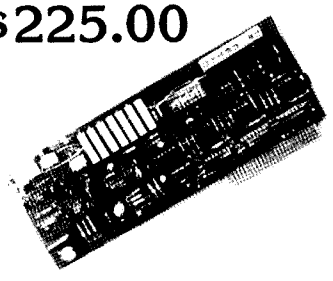

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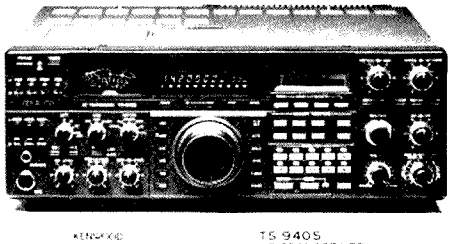

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EDITOR'S COMMENT

MORE ANNIVERSARIES

It is in the nature of us all to endow with some significance the passing of one or more whole years since some notable event. Birthdays and wedding anniversaries are always an occasion for celebration. We become even more impressed when the number of years is a multiple of five or ten. There is little doubt that our decimal counting system was originally based on our quota of fingers, so, as with the Chinese abacus, the special significance of five and ten is easily understood.

However, this year of 1985 seems to have been endowed with more than the usual number of anniversaries, significant to us as radio amateurs. All this year we have, of course been celebrating the 75th Anniversary of the WIA, and those of us in VK3 are also enjoying the 150th Anniversary of the State of Victoria. Last month, we mentioned the Girl Guides organisation, which shares, with the WIA, a 75th Anniversary, noted the 40th Anniversary of Hiroshima and Nagasaki, and the end of World War 2. We also proposed a listing of all those who have belonged to the WIA for 50 years.

But, that's not all! An organisation very closely connected with the WIA in its early days was the RAAF School of Radio, which began as the Signals School at Laverton, in 1935, and after various changes of name and location, (to Point Cook and Ballarat) came back to Laverton in 1961 under its present name, and forms now, a large and impressive part of that Air Force Base.

All those who have qualified for the WIA 50 year Honour Roll will remember the pre-war RAAF Wireless Reserve, whereby the WIA and the RAAF were jointly involved in building up a nucleus of competent amateurs, familiar with Air Force practice, many of whom went on to serve in the war. We remember some of the unlucky ones, every year, in the RD Contest (which will have its 40th Anniversary in 1988, Australia's Bicentenary year! These special years keep on coming!).

Perhaps, not totally unrelated, another 50th Anniversary also occurs this year. It was in 1935, that experiments in England proved the feasibility of detecting distant ships and aircraft, by their reflection of radio waves. In the atmosphere of increasing international tension until the war erupted in 1939, this discovery was of obvious strategic value, and a high pressure top-secret development programme led to Britian having a viable radio-location system when war broke out. With the British-invented magnetron and American mass production, radar (radio detection and ranging) became a vital factor in the eventual Allied victory. Some of our older members were involved in this developmental saga.

Now radar not only guides our missiles and spacecraft, but maps the planets, brings airline passengers routinely home through all kinds of weather, and even detects us exceeding the speed limit! Today the magnetron also cooks some of our meals; truly a ploughshare, as well as a sword!

Bill Rice VK3ABP
Editor
AR

WIA Seventy Fifth Anniversary

In celebration of the 75th Anniversary of the Wireless Institute of Australia — the world's oldest amateur radio society — Mr Murray Hull of Parameters Pty Ltd, has donated one of his company's new range of Digital Multimeters to the Institute for use in a membership recruitment competition, during this Anniversary Year.

The rules are simple: any member who sponsors a new member during NOVEMBER 1985, will be entered into a draw to be held after receipt of lists from Divisional Offices, by the Federal Office. If you sponsor more than one new member, you increase your entries in the draw.

As usual, there are exceptions and Officers and Employees of the Institute, and their families are not eligible.

The 75th Anniversary Sub-Committee extends its thanks to Mr Hull of Parameters Pty Ltd, for his generous gesture.

IARU ADMINISTRATIVE COUNCIL MEETING

The IARU Administrative Council will be holding a business meeting in Melbourne on the 8th and 9th November 1985. All members of Council from around the world will be attending. This meeting is being held by the IARU's Administrative Council, to honour the 75th Anniversary of the Institute.

BOOK PACKS, THE 75TH ANNIVERSARY AND THE YEAR OF YOUTH

The June issue on this item has generated a great deal of interest and mail to the Federal Office. In order to satisfy many of the questions being asked, listed below are the contents of each book pack. (Items may change subject to availability).

$15 pack. P&P Paid.
Into Electronics (NSW Education Service), Novice Electronics, 100 Basic Projects, Guide to Amateur radio (RSGB), WIA Book 1, WIA Call Book, and Radio Amateurs World Atlas.

$30 pack. P&P Paid.
The following plus the $15 pack:
Basic Training Manual (NZART), Hints and Kinks (ARRL), and Weekend Projects (ARRL).

$50 pack. P&P Paid.
The following plus the $30 pack:
ARRL Handbook (ARRL), and Maidenhead Locator World Atlas.

Each pack will contain information on amateur radio in the form of letters, leaflets, and posters.

When applying for a book pack, please ensure that you enclose, in your request to the Federal Secretary, details of the Club/Group making the presentation and the recipients. It must be stressed that the value of these packs bears no resemblance to retail prices.

AR

WIA NEWS

(WARC-ORB (1)) completes its work.

After nearly 40 days of work, the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit (GSO) and the planning of the Space Services Utilising It (WARC-ORB (1)), organised by the International Telecommunication Union completed its work on Sunday, 15th September 1985. It was opened on Thursday, 8th August at the International Conference Centre in Geneva and attended by over 900 delegates and observers from 111 countries and 14 international organisations.

BACKGROUND AND PURPOSE

This Conference was the first of its kind in history and had before it, as its principal task, to decide which space services and frequency bands should be planned and establish the technical criteria and the planning method(s) to be used. The Conference was also requested to adopt Final Acts to enable the incorporation of the decisions of the 1983 Regional Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in Region 22.

Tremendous progress in the field of space radio-communications and satellite telecommunications has taken place since the

Members of the Union first took specific steps at the Ordinary Administrative Radio Conference of 1959, to adopt new international legislation to govern the radio frequency spectrum for space activities.

These developments, together with the ever-increasing realisation of new service applications, linked with ever-decreasing unit costs, led to a series of administrative radio conferences for space radio-communications, the first of which was held in 1963.

The principle of the use, by all countries, with equal rights, of the GSO and the frequency bands allocated to the space radiocommunication services was established by the Space Conference in 1971 and endorsed (Resolution No 2) by the World Administrative Radio Conference, Geneva, 1979. Furthermore, the WARC-79, in its Resolution No 3, relating to the Use of the Geostationary Satellite Orbit and to the Planning of Space Services Utilising It, resolved that a world administrative radio conference, to be held in two sessions, was to be convened to guarantee in practice, for all countries, equitable access to the GSO and the frequency bands allocated to space services using it. (For the agenda of the Conference, refer to Press Release ITU/85-12(Corr) of 7th August 1985).

During the five weeks of meetings, the Conference endeavoured to find a balanced solution that would not only permit any Member of the Union to start a satellite service on a basis of equality and consolidate continuing equal access to satellite services, but also avoid hampering the development on a sound basis of satellite technology aimed at improving spectrum use and economic viability — especially in view of the present rapid rate of technological advance in all fields of telecommunications.

The WIA, whilst not directly participating in this Conference, did give a thorough briefing to the Australian delegation on amateur involvement prior to its departure. The delegation will report to the Federal Executive any decisions taken that could effect amateur radio in space.

LICENCE FEES

The Department of Communications has notified the Institute that as from September 1985, the fee for an amateur licence will be $23.00 per annum, an increase of $2.00.

1985 IARU REGION III CONFERENCE

David Wardlaw VK3ADW, the Federal President and the Institute's IARU Liaison Officer, will lead a WIA Delegation to the Conference in Auckland, New Zealand, this month. Accompanying David will be Ron Henderson VK1RH, Guy Minter VK4ZXZ, and an observer, Wally Watkins VK2DEW.

Michael Owen VK3KI, as a Director of Region III, is also travelling to New Zealand.

Host for this Conference is our Sister Society, the NZART, who will be supplying the back-up facilities.

IARU REGION III CONFERENCE 1988

As part of the proposed Bi-centenary celebrations in 1988, the Institute has proposed to the Administrative Council of the IARU, that the 1988 IARU Region III Conference be held in Australia. A decision on the venue will be made during the IARU Region III Conference 1985, being held in Auckland, this month. There will be other contenders for the Conference in 1988. At the time of writing, we know that Korea has also applied (in conjunction with the 1988 Olympic Games).

GOVERNMENT ISSUES DISCUSSION PAPER ON RADIO COMMUNICATIONS PRIVACY

Currently the Institute's officers are studying a discussion paper on the above subject, issued by the Minister for Communications, Mr M Duffy. The paper covers the Intent, Concerns, the Issues and Implications of possible new legislation to ensure privacy, by controlling unauthorised reception of radio communication signals.

The Minister, commenting on the paper, has said that some privacy control was possible under the Telecommunications (Interception) Act 1979, but this was restricted to controlling the interception of communications over the Telecom network. The Minister continued that, over the past 25 years there has been an explosive growth in the number of radio communication services in Australia. In many cases, interception of the messages is of no concern, but in others, for security or commercial reasons, confidentiality is vital to the user.

The Government is not considering legislation to prevent interception by unsophisticated devices such as scanners used by casual listeners and hobbyists. What is being considered and discussed is legislation which would support users who go to the trouble and expense of encoding their messages.

MEXICAN EARTHQUAKE DISASTER

At the time of preparing this news segment, we know that a number of first-hand reports of this disaster have been made by amateurs through the media. Australian amateurs are assisting in passing personal messages into Mexico.

AR

VILLAGE VEEKAY

It was a million to one chance — but it had happened. Two strangers, side by side, in a bus, suburbs bound from the city, and they discovered they shared a common interest — amateur radio.

Harry Atkinson VK6WZ

294 Middleton Road, Centennial Park, Albany, WA. 6330

He'd lived in the city all his life, I was a recent arrival from the country. We had worked once or twice, as it happened, but had never met until that moment.

"What do you think of that?" He held up a small plastic bag with an electronics firm's logo on the side. "Few ounces — grams they call it now — of 30 gauge enamelled. Cost $7!" I made sympathetic noises.

His tone of disgust turned to one of triumph. "But, I'll beat 'em with this. See if I don't!"

"Who — the people in the shop?" "No!" Disgust again, this time directed at me. "Listen," he went on, "ever seen those articles in AR and QST — you know, about invisible antennas and the like?" I nodded. "Well, that's what this is for — my own invisible antenna. I'll trick them and be back on 40 and 80 again, talking to the boys. You can't keep a good amateur down!"

It happened that he was a widower and had recently sold his house and invested the proceeds in a unit at a retirement village. That was where some things got better ... and others worse.

The unit was ideal in every way. No steps to climb. No maintenance, except by paid professionals. On-site health care if needed. Everything one could ask for — well, nearly everything.

No radio masts. No beam antennas. No amateur radio. Comfortable rooms. Nice furniture. Friendly neighbours and staff. But no radio! !

"What makes me so mad," he continued, "is this. All the experts say we oldies must have hobbies and/or pets, for a full and happy life. At the units there are people playing bowls, golf, mini-golf, even tennis. They are encouraged to take part in indoor and outdoor pastimes, they can even have pets. There are so many activities, but no radio!"

The bus rumbled on. I felt sorry for him. In an age when life was blooming, he was one of society's neglected men. His voice broke in on my thoughts. "Nice meeting you; keep an ear open for me on 80 one of these nights!" He waved his little bag, rose and got off.

As the bus moved on again I went back to my thoughts. Why should amateur radio be taboo in a retirement village? Retirement is the very time when OMs and YLs look forward to pursuing their hobby with even greater enjoyment than before. They have more time for every facet of the hobby.

There must be many who have had to sell their gear and give up their hobby because of the hard-and-fast, uncaring rules and regulations in institutions and retirement villages. All over Australia, numerous bodies are devoted to the improvement of conditions for the elderly, but amateur radio remains the one area which, far from being simply neglected, is actually being discouraged.

"We can't have visual pollution. I mean, aerials and all that wire hanging about the place. And of course there is all that interference with television. But, how about joining the aerobics class? Or even tiddleywinks?"

No thanks. I'm headed for Village Veekay. The first of many, I hope. A village for amateur radio operators. Singles or couples. All 'mod cons' as in an ordinary retirement village, but with one important extra. AMATEUR RADIO! I

Can you visualise it? A village where amateurs co-operate on a loosely-framed roster basis. Where all the proper procedures will be followed so that television, computers and flectronic musical instruments, can live happily, side by side ..... with radio. A place where scheds can be kept without hassles.

A pipe dream, you say. Don't be negative. Radio itself was a pipe dream, once-upon-a-time.

So, who is going to build the first Village Veekay? Who is going to take the plunge? Cost? No worry, all that is needed is a sponsor for the idea. Retirement villages are largely financed by the occupants themselves — directly or indirectly. What is needed is a live, but small steering committee to make contacts with State and Federal Departments involved in community funding, to get the facts and to discuss the scheme with developers. Friendly societies, churches and lodges, those already involved in villages, would be an invaluable source of information.

How about marking the WIA 75th Anniversary by laying the foundations of this scheme? Remember ladies and gentlemen under 50 — your turn will come, one day. Won't it be nice to have a Veekay Village to turn to? **AR**

AIRCRAFT ENHANCEMENT OF VHF/UHF SIGNALS

— towards a propagation model

Roger Harrison VK2ZTB
PO Box 289, Wahroonga, NSW. 2076

In the July 1985,issue of Amateur Radio[1], Doug McArthur VK3UM, detailed results of observations, carried out over some two years, of unusual signal level 'enhancements' of VHF and UHF troposcatter signals over the Melbourne-Sydney and Melbourne-Canberra paths. This paper examines the results reported, along with other information gleaned about the phenomenon from the many other amateurs exploiting the propagation, and sets forth a preliminary 'model' of the propagation mechanism. Suggestions for further experimental investigations and measurements are advanced.

Being a long-time VHF/UHF enthusiast, with a keen interest in propagation, my curiosity was naturally aroused by Doug McArthur's article in the July 1985 issue of AR[1]. In some detail, Doug describes how, during attempts at making contact via tropospheric scatter on 144MHz between his station, in Melbourne, and Gordon McDonald VK2ZAB, in Sydney, a path some 700km long, massive 'lifts' in the signal level lasting some minutes were evident at times. The same effect was observed, fortuitously, on the Melbourne-Canberra path. This led to the effect being correlated with the passage of domestic passenger aircraft more or less passing through the path mid-point between the stations.

Subsequent to the early observations, many other stations exploited the 'newly-discovered' propagation mode and a series of co-ordinated contacts threw up a great deal of data about the phenomenon. In addition, the same paths initially exploited on 144MHz were successfully attempted on 432MHz, with similar results.

In summary, here are the observations reported:

a. Predominantly, the phenomenon has been exploited with south-bound aircraft.

b. Enhancement periods on the Melbourne-Sydney path, for 144MHz, are about 2-7 minutes. On 432MHz the period decreases to about half or two-thirds.

c. Signal level 'lift' observed is estimated to be 30-60dB. Subjectively, signal lift on 432MHz appears greater than on 144MHz.

d. No 'flutter' fading of signals is observed.

e. Signal level lift and period of enhancement are dependent on upper-air wind conditions. Period and signal strength are best when upper-air conditions are 'quiet', worst when 'turbulent'. Diurnal (daily) and seasonal effects are noted (though subjective); winter providing better enhancements on average than summer, and evenings being better than daytime or morning.

f. Stations in Frankston (Melb) hear stations in Sydney some two to three minutes earlier than VK3UM, who is located about 40km closer to Sydney.

g. Best enhancement periods are observed when stations lie close to the line of the aircraft track.

h. Stations located up to 60km distant (possibly more), orthogonal to the aircraft track, have exploited the phenomenon.

i. 'Backscatter' propagation is noted between Canberra and Sydney stations while exploiting propagation on south-bound aircraft. This phenomenon is only noted during exceptional 'lift' conditions.

j. Lengthened enhancement periods are observed when two (or more) aircraft pass at 8-15 minute intervals.

k. The size and type of aircraft seemingly has little bearing on the enhancement characteristics, although jet or turbo-prop aircraft are known to be always involved.

That gives a fairly complete picture of the aircraft enhancement propagation phenomena.

MECHANISMS PROPOSED

Three possible mechanisms were proposed by McArthur:

i. Direct reflection from the body of the aircraft.

ii. Reflection from the condensation trails left by the aircraft flying above 30 000 feet (about 9km).

iii. Refraction caused by the air turbulence wake left by such aircraft. (Temperature heating effect or vortex turbulence).

From personal discussions with Gordon McDonald VK2ZAB, he favours i. as the explanation.

The model of the propagation mechanism I propose to explain the characteristics of the phenomena is based on iii. First, however, let me explain why I dismiss i. and ii.

I do not think reflection from the aircraft is the mechanism involved, nor does it contribute to the observed signal levels. I have argued this in another article, published in 6UP recently[2], but let me re-cap here. There are two reasons why I believe direct aircraft reflection is not a consideration:

I. Consider Figure 1. If the aircraft is acting as a mirror, the reflection of the signal will have a 'foot-print' on the ground that travels at twice the speed of the aircraft and in the **same direction.** *The observation in f. above directly contradicts this and an aircraft reflection model does not explain this important observation of which I have first-hand experience[2].*

II. There are widely differing opinions, even in the engineering texts, as to how to calculate the signal levels after reflection from the aircraft. Picquenard[3] gives a relatively simple 'mirror' reflection method for calculating the signal strength. Consider Figure 2. Picquenard indicates the total path loss, from A to the 'mirror' to B, is the sum of the individual path losses. This model takes the 'mirror' to be simply a re-radiator of the energy illuminating it.

Take the VK3UM-VK2ZAB case. I calculate the distance between the stations to be about 708km. For the 'mirror' at path midpoint (0.5d), the distance between A and the 'mirror' is 354km. From [3], the free-space path loss for this distance is calculated from:

Loss = 32.4 + 20log(d) + 20log(f)
where — d is distance in km
f is frequency in MHz

On 432MHz, we get:

Loss = 32.4 + 20log(354) + 20log(432)
= 32.4 + 20(2.55) + 20(2.64)
= 32.4 + 51 + 52.8
= 136dB (within 1dB)

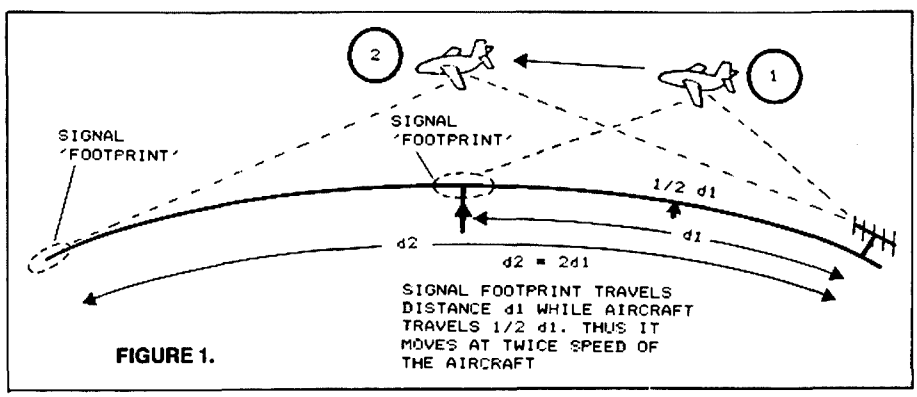

FIGURE 1.

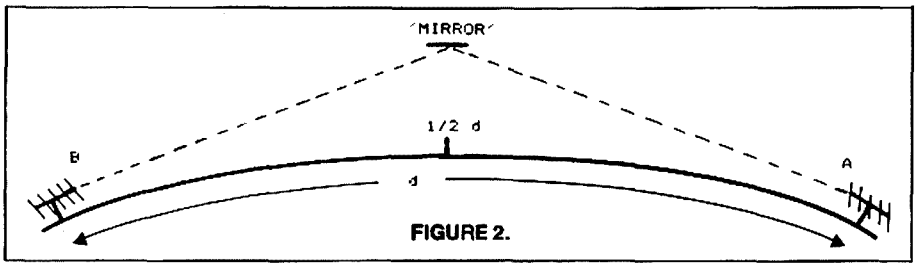

FIGURE 2.

Thus, total path loss is twice that, or 272dB. Note that the EME path loss is 262dB on 432MHz[4], which makes the 'mirror' model 10dB worse off under these circumstances providing Picquenard's methodology applies.

Even if the 'mirror' were able to focus the signal, thus providing an improvement in signal strength by concentration of the beam reflected, this model of the mechanism cannot apply as so little power falls on the 'mirror'.

In addition, stations off-track would reflect a foot-print off-track on the opposite side of the aircraft track and the observations do not show this.

As for ii., aircraft vapour trails comprise atmospheric water vapour. Radio waves travel slower in such a medium and thus a terrestrial VHF or UHF radio wave impinging on the vapour trail would be refracted upwards, away from the ground. In addition, vapour trails are not always present where signal enhancement is experienced.

For those who might consider some form of reflection from a possible ionised trail left behind by the aircraft exhaust, let me point out that the recombination time of atmospheric ions at the aircraft altitudes involved would be extremely short. Remember, the aircraft fly well below the minimum height of the ionospheric D layer.

Now, let me set down the geometry of a variety of the paths exploited by different stations as this is important to my hypothesis and gives a more 'visual' picture of what is going on.

GEOMETRY OF PATHS

An overview of the Melbourne-Canberra-Sydney path is shown in Figure 3. The Sydney-Melbourne (south-bound) aircraft track has a bearing of about 50-51 degrees (from Melbourne), which is pretty well along the Great Circle path joining Melbourne and Sydney. Canberra lies just to the east of the track. The aircraft will take an actual flight path that may be a few kilometres east or west of this track at times, but that only contributes a minor, if at all noticeable, variation, as we shall see later.

The Melbourne-Sydney aircraft track takes a bearing slightly northward of the southbound track, flying some 50km or so to the west of Canberra before turning east again on the approach to Sydney. The aircraft fly at heights between 30 000 feet and about 45 000 feet, or roughly 9km to 13.5km altitude.

From a mass of data about reported contacts between stations[5], I have sorted out some particular contacts that provide a picture about the details of the path geometry. The paths chosen are listed in Table 1, in which I have listed the point-to- point distances involved. Note the large path distance variation observed, from 360km to 750km. I would point out that these are not necessarily the maximum or minimum limits.

Using a set of ICAO World Aeronautical Charts covering the Melbourne-Canberra-Sydney path[6] I plotted the general track of the Sydney-Melbourne flights involved and then measured the orthogonal distance of four off-track locations of Victorian stations who had exploited the enhancement phenomena to get an idea of the size of the 'foot-print' of signals from Sydney and Canberra. The geometry of the idea is shown in Figure 4, and the orthogonal distances listed in Table 2.

It is apparent from observations and chart plotting that VK3UM, at Chirnside Park, in Melbourne, is located very close to the line of the general aircraft track. How fortuitous! It seems, also, that some Sydney stations are similarly positioned, *(Note, though, that aircraft descending for a landing at Melbourne airport, Tullamarine, turn off-track well to the north of VK3UM).*

The vertical geometry of the situation is illustrated in Figure 5. Essentially, this is an optical model of the situation. The station at A will 'lose sight' of the aircraft when it passes point M. Likewise, the station at B will lose sight of the aircraft when it passes point L.

Using this diagram, you can fairly well estimate the time taken for an aircraft to traverse M-L and the 'seeing angles' (a and b) for given path lengths, knowing the typical aircraft cruising speeds and altitudes for the paths involved as reported in [1]. The various aircraft that fly the Sydney-Melbourne route cruise at speeds that range from around 800km/hr to 910km/hr (from data supplied by the various carriers).

From [7], I worked out typical tangential distances station-to-aircraft and was able to make good estimates of the time two stations could 'see' an aircraft, as well as the other parameters. As you would expect, the parameters vary with path length, aircraft cruising speed and altitude and the altitude of the stations.

Typically, on the Sydney-Melbourne path, stations are able to 'see' the aircraft for periods of around five to seven minutes. On the Canberra-Melbourne path, stations are able to 'see' the aircraft for some 18-23 minutes (ignoring the obscuration of Black Mountain for some VK1s). We'll see how this fits into the reported enhancement periods shortly.

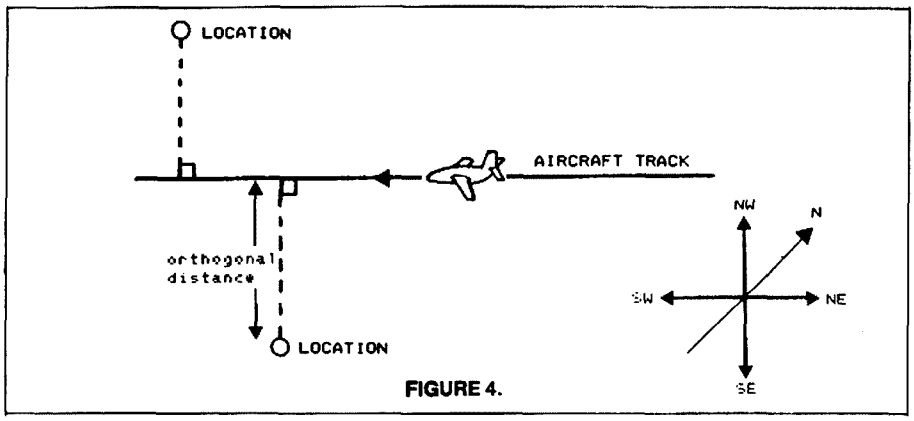

FIGURE 4.

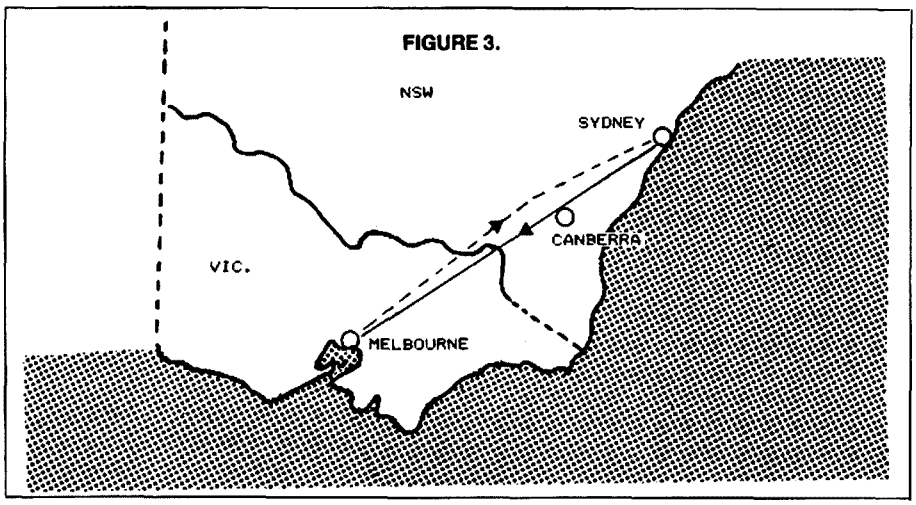

FIGURE 3.

THE SIGNAL 'FOOT-PRINT'

By timing the first appearance of a signal at two separated stations located at one path terminal[2 5], it is apparent the signal foot-print travels toward the aircraft at about the same speed as the aircraft is flying. By timing the period of the enhancement — from acquisition of the signal to loss of signal — one gets an idea of the longitudinal width of the foot-print at a particular station location. By taking into account the orthogonal distances listed in Table 2, one gets an idea of the lateral extent of the foot-print.

From putting together more or less simultaneous observations by Melbourne stations located on-track and off-track[5], it seems the lateral and longitudinal width varies with upper-air wind conditions. The foot-print apparently shrinks when upper-air conditions are turbulent.

Well, just how big is that foot-print and what might its shape be?

For the Sydney-Melbourne path I would judge the foot-print to be roughly elliptical, or

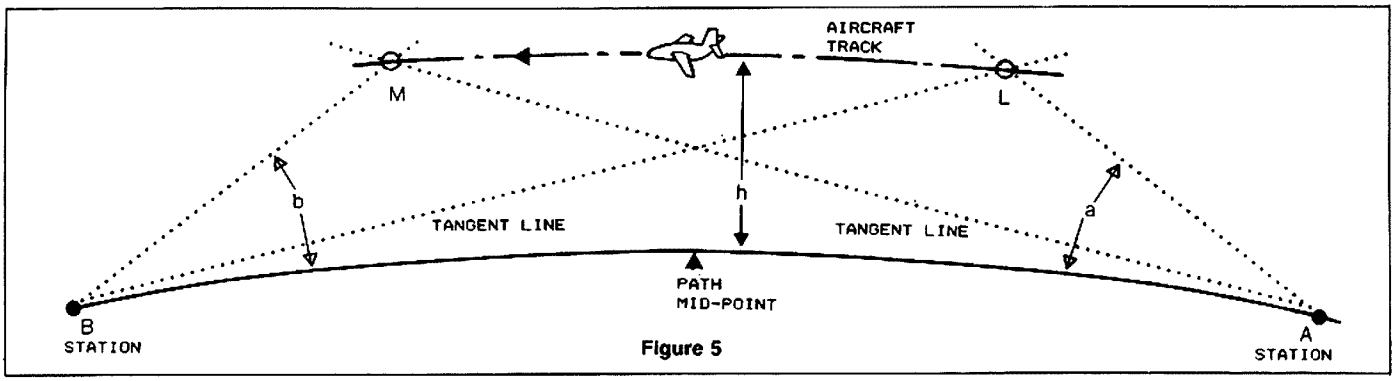

Figure 5

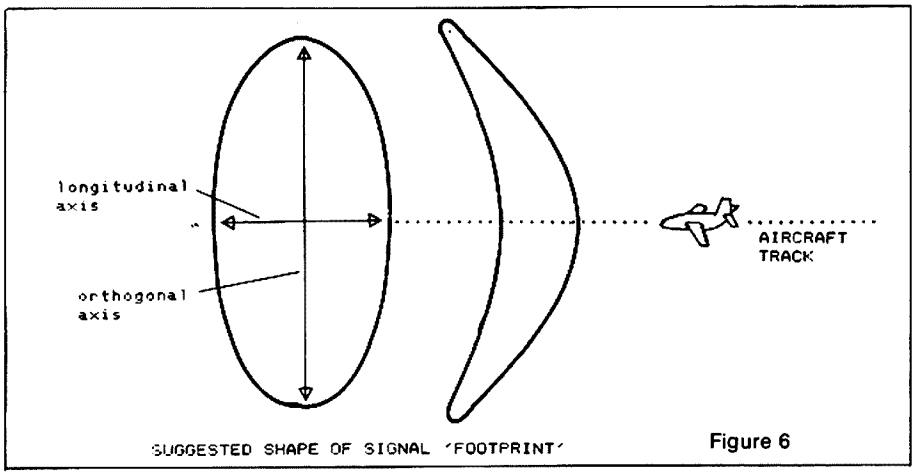

Figure 6

perhaps an ellipse 'bent' into a crescent shape (not unlike a boomerang!), see Figure 6. Under conditions of best enhancement, its longitudinal axis seems to be around 60-70km, and its orthogonal axis somewhat greater than 120km. When conditions are 'bad', it seems to shrink so that its longitudinal axis is only about 6km and its orthogonal axis about 25-30km. See Figure 7.

observations of David Tanner VK3AUU[5]. Under bad conditions, the minimum foot-print seems to be much the same as for the Sydney-Melbourne case. This isn't to say that, if a Melbourne station first works a Sydney station, followed by a Canberra station, the successive foot-prints in Melbourne will be of comparable sizes resulting in similar enhancement periods.

With such a foot-print model, stations located

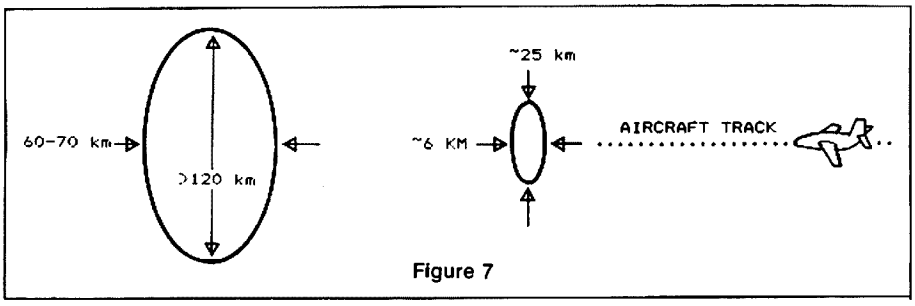

Figure 7

For the Canberra-Melbourne path, the longitudinal axis under best conditions appears to be around 150-200km, although the orthogonal axis seems to be about the same (ie a circular foot-print), judging from the more or less on-track with the aircraft flight path will always observe longer enhancement periods, while those off-track will experience shorter enhancement periods. For stations well off-track (eg VK3AUU), conditions have to be

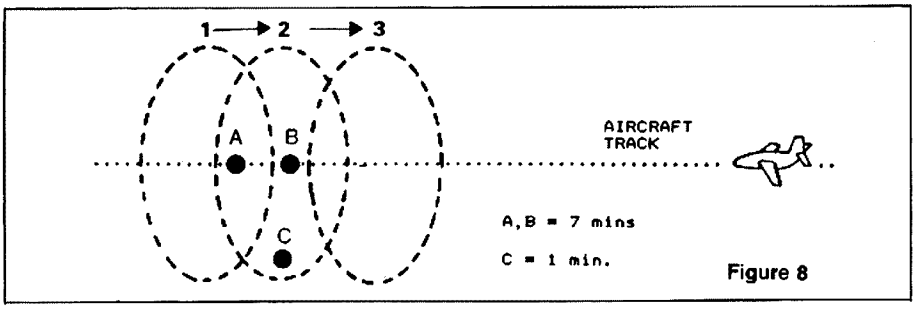

Figure 8

good if they are to make it at all. Figure 8 illustrates the typical enhancement periods reported under good conditions as the foot-print passes over stations on-track and off-track.

A PROPAGATION MODEL

If the aircraft is not itself reflecting sufficient signal to account for the observed phenomena, *what mechanism returns the signal to earth in the manner observed?*

I think the aircraft engine exhaust — largely superheated air — is responsible. It seems very little is known about what these aircraft leave behind as they traverse their paths through the sky. From data obtained by Don Bradbury VK3YV[8], the exhaust temperature of the jet engines fitted to the variety of aircraft flying the route is around 650 degrees Celsius or so, but this decreases rapidly to about 200 degrees C as it passes the aircraft tail (for wing-mounted engines, eg on 747s, 737s, A300s, etc) at the altitudes involved. *But what happens to all that hot air?*

The aircraft develops a turbulent wake; this is well known. What seems not to be well known are the parameters of the aircraft wake at altitudes of 9km and above. A recent issue of the Aviation Safety Digest[9] gives a few clues, but is not all that helpful. The particular article detailed measurements of the 'vortex tube' created by jet aircraft, measured at quite low altitudes. Apparently, the vortex tube descends behind the aircraft at a rate of around 500 feet/minute to a distance of around 900 feet below the aircraft. This seems to relate more to what the aircraft does to the air than what the engine exhaust contributes. Draw a blank there.

What I think happens is this: although the jet engine exhaust cools rapidly a first, the cooling rate will slow down rapidly; the hot exhaust air left behind will then expand, creating a 'bubble' of air at a temperature well above that of the surrounding air (which will be typically at -30 to -40 degrees Celsius). A radio wave impinging on this hot air bubble from below will travel faster in the hot air than in the cold air and thus be refracted toward the ground. The amount of refraction depends on the rate of change of temperature from outside the bubble to inside the bubble. From Collier[10], a rate of change of temperature with height of three degrees Celsius per 100 metres will cause a refraction at 144MHz of perhaps three to five degrees in angle, possibly more.

Now, the temperature inside the bubble need not be too much greater than the outside air temperature to provide the necessary refraction. Until we can obtain some direct data on the parameters,exactly what is happening there will remain a mystery.

Accepting that the signal is refracted by the hot bubble being dragged along behind the aircraft, *why does the signal foot- print travel towards the aircraft?*

Consider Figure 9. As the aircraft drags its bubble through position 1 (equivalent to L in

Figure 5), it will refract the signal as shown, and station C will commence to hear A. When the aircraft has progressed to position 2 (equivalent to M in Figure 5), station B hears A. Communications will last so long as the station at one end of the path can 'see' the bubble and also that the angle between the ground and the bubble is not so great that the bubble cannot refract the signal sufficiently to return it to earth.

On the Sydney-Melbourne path, the 'seeing angle' to the bubble (a in Figure 5), when the aircraft passes through position 1 (Figure 9) is typically around 1.25 to 1.5 degrees and the bubble can be seen for around 5-7 minutes, depending on the aircraft's altitude. This accords well with the observations.

On the Canberra-Melbourne path, while the bubble can be seen from both ends for around 20 minutes, the elevation angle for one end of the path eventually becomes too great for the bubble to refract the signal to ground. Typically, I estimate the elevation angle at loss of signal to be five or six degrees.

BUBBLE DIMENSIONS

How long is the bubble and what diameter is it? The bubble trailing behind the aircraft will eventually dissipate its energy through convection and radiation. Under turbulent upper-air conditions, it will be literally blown away.

The 'length' of the bubble, as 'seen' by the radio wave, depends on the bubble having sufficient refractivity to return the signal to ground. A rough estimate obtained by correlating subsequent Canberra-Melbourne contacts with Sydney-Melbourne contacts for VK3UM, puts the bubble length under best enhancement conditions at around 60km to perhaps 80km. The diameter is much harder to estimate.

One could possibly get an estimate of bubble diameter from the width of condensation trails. It seems entirely reasonable that the condensed water vapour would mark the lateral boundaries of the base of the bubble, but not necessarily the longitudinal extent. Water vapour, once condensed in the upper atmosphere under the right conditions, is quite stable, whereas heated air will dissipate by radiation and convection.

By estimating the angle subtended by aircraft con trails at altitudes around 10km or so, I would put the diameter of the bubble to be around a half kilometre to perhaps two kilometres within about 20km behind the aircraft. I will admit this is a bit of a fudge, but we need some starting point.

Diurnal and seasonal variation of upper-air conditions are reasonably well known and would affect the bubble accordingly. Lower air temperatures in winter would mean a greater temperature differential in the bubble, and quite possibly generally larger bubbles. This would account for the reported better conditions in winter compared to summer. A similar explanation applies to diurnal variations, in broad terms.

SIGNAL STRENGTHS

To get a reasonable numerical model to explain signal strengths is a difficult problem indeed. One of the fundamental problems here is lack of accurate measurement of the signal level 'lift' observed. The majority of reports are the usual amateur 'S-meter' (rhymes with 'guess-meter') reports. All we can really deduce is that S9 is 'quite strong' and S3 is 'quite weak'. McArthur[1] provides an estimate of the signal level variation, being some 60dB, which gives some clues. If, enhancement levels can vary this much, then the 'lift' provided should be at least that or greater, providing the reported estimate is within at least 10dB. From[5] I'm fairly confident of that.

If the troposcatter path loss for Sydney-Melbourne is around 235dB on 144MHz[11], then the aircraft is dragging a 'window' through the path, reducing the path loss to around 175dB. As suggested[1], stations of quite modest performance will have sufficient system gain to overcome that and achieve communications. *But what about the reported back-scatter on the Sydney-Canberra path?* I would say the signal travels twice through the bubble, being scattered from the ground at the far end of the path. As observed, it requires a 'good' enhancement and well-equipped stations.

From experience, ground back-scatter loss at the frequencies concerned is on th order of 30-40dB. This would subtract from the lift provided by the enhancement, but well-equipped stations can readily overcome the extra loss, as has been reported[1].

I hope o tackle a numerical 'guesstimate' of how the observed signal strengths are obtained in a subsequent article.

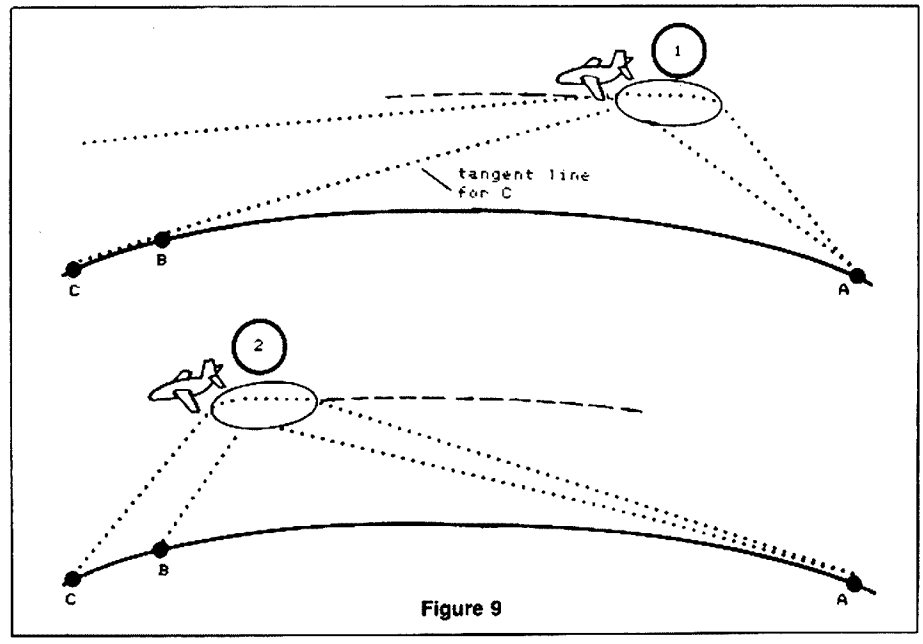

Figure 9

MAXIMUM PATH LENGTHS

From Figure 5, reference[7] and knowing the sort of altitudes the aircraft fly at, it is possible to predict maximum path lengths, For an aircraft flying at 40 000 feet (12km) or above, maximum path length is on the order of 900km for an enhancement (under 'good' conditions) of a minute or less for stations on-track at each end. If you could 'chain' flight paths and arrange the aircraft to fly through their respective path midpoints at around the same time, you could get a two-aircraft enhancement and extend the path to around 1800km.

McArthur[1 5] reports observations of VK4LC which suggest just such a possibility for Brisbane-Sydney/Sydney-Melbourne flights.

SUGGESTIONS FOR EXPERIMENTS

I would suggest it is now important to obtain two sets of measurements: calibrated signal strengths and co-ordinated time observations of the foot-print parameters. In addition, the paths should be attempted on other bands, such as 50MHz and 1296MHz.

A calibrated step attenuator at the receiver front end, or in some convenient portion of the receiver chain, could be used to measure peak 'lift' values quite simply. Upon observing the maximum signal lift, simply add enough attenuation to reduce the signal to scatter levels or below the noise.

Chart recorder observations of beacons or a continuously transmitting station would be invaluable. Simultaneous chart recordings from stations at one end of a path, separated both longitudinally and orthogonally with respect to the aircraft track would also tell us much about the signal foot-print.

Co-ordinated simultaneous tape recordings of one station by an array of stations at the opposite end of a path would be relatively easy to attempt using readily available equipment. Each listener would need a stereo tape recorder and an HF receiver in addition to his VHF/UHF receiver. The station at the other end of the path would be recorded on one channel of the tape, while VNG or other time standard station is recorded on the other channel. By co-ordinating on another band or channel, all recorders would be started before acquisition of signal by the furtherest away station, and stopped after loss of signal by all receiving stations.

Such experiments would tell us a great deal and likely contribute much toward working out a numerical model for the propagation mechanism.

To paraphrase a common expression — the foot-print is in your court, gentleman!

1 McArthur D. (VK3UM), "Aircraft Enhancement of VHF/UHF Signals", Amateur Radio, July 1985, p4.
2 Harrison R. (VK2ZTB), "Aircraft Enhancement Propagation of VHF/UHF Signals — Preliminary Observations", 6UP, Vol 5, No 1, 1985, p5.
3 Picquenard A., "Radio Wave Propagation", Philips Technical Library, published by MacMillan.
4 Crawford Hill VHF Club (W2NFA), "System Considerations for the EME Path", Technical Report No 3, reproduced in 6UP, Vol 4 No 1, Autumn 1984, p26.
5 McArthur D. (VK3UM), personal communication.
6 ICAO World Aeronautical Charts, 3456 (Sydney), 3457 (Canberra) and 3470 (Melbourne); produced by the Division of National Mapping, Department of Resources and Energy, Canberra, ACT.
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9 Aviation Safety Digest, No 121, pp3-4-5.
10 Collier, "Upper-Air Conditions for 2-metre DX", QST, September 1955.
11 Farrell M. (VK2AM), "Tropospheric Scatter Propagation on 144MHz", Proceedings of the 1979 Symposium on Future Amateur Communications Techniques, edited by Roger Harrison, VK2ZTB.

TABLE 1 — Path Distance Parameters.

LOCATIONS	APPROX DISTANCE
VK2ZAB/Berowra to Frankston (eg VK3ZBJ et al)	750km
VK2ZAB/Berowa to Drouin (VK3AUU)	720km
VK2ZAB/Berowa to Chimside Park (VK3UM)	708km
VK3UM/Chimside Park to Sydney (eg VK2BE et al)	678km
VK3UM/Chimside Park to Canberra (eg VK1BG et al)	466km
VK3UM/Chimside Park to Adaminaby (VK2ZRE)	360km

TABLE 2 — Off-Track Parameters.

LOCATION	ORTHOGONAL DISTANCE/DIRECTION
Drouin (VK3AUU)	62km/SE
Adaminaby (VK2ZRE)	45km/SE
Geelong	25km/NW
Frankston	22km/SE

ACKNOWLEDGEMENTS

I would like to acknowledge the willing assistance of Doug McArthur VK3UM, Gordon McDonald VK2ZAB, Ian Cowan VK1BG, Don Bradbury VK3YV, Peter Ford VK3YTB and my youngest son, Corey, who obtained all the relevant physical data on the aircraft. I would also like to acknowledgement the encouragement and forebearance of my wife, Val, who acquiesced to lengthy late-night STD 'phone calls and my long hours buried in texts and behind a word processor.

AR

INTERNATIONAL TRAVEL HOST EXCHANGE

The ARRL are maintaining a listing of amateurs throughout the world, who are prepared to entertain, and in some cases, accommodate travellers.

The list of countries are as follows: *Australia, Austria, Canada, France, Germany, Ireland, Italy, Jamaica, Japan, Kenya, Lesotho, Liberia, Netherlands, Sierra Leone, Sweden, Switzerland, Syria, United Kingdom and USA.*

Any members travelling overseas can, by writing to the address below, obtain a copy of the current listing. Also any other member who wishes to have their details included on the listing, can do so by advising the address below.

ITHE,
Federal Secretary,
Wireless Institute of Australia,
PO Box 300,
South Caulfield, Vic. 3162.

AMATEUR RADIO IN SPACELAB D1 MISSION

Last month, the Federal Republic of Germany had their first scientific manned space mission, the D1 mission. German science astronauts, Ernst Messerschmid and Reinhard Furrer hoped to carry out experiments on board the SPACELAB, transported by NASA's Space Shuttle COLUMBIA. Both men are licensed radio amateurs and members of the Deutscher Amateur Radio Club, (DARC).

From left — Dr Messerschmid DG2KM, Professor Furrer DD6CF, the astronauts and Dr Ellgering DL9MH, the co-ordinator of the mission.

During the seven day mission, the science astronauts operated an amateur radio station, located in the Spacelab on board Columbia. The call sign was DP0SL.

Activity was focused on Europe, but attempts were made to contact other parts of the world.

Calls of responding ground stations were recorded on tape and will, eventually, be evaluated and confirmed by a special QSL card by the DARC.

The VHF/UHF transceiver used is a special development, designed and constructed by BOSCH/Germany, according to the D1 mission specifications and uses components out of the normal mobile transceiver programme of BOSCH.

RF power output of the transceiver is 10 watts, which is reduced to one watt for automatic (beacon) operation. Frequency range of the transmitter is 144 to 146MHz, modulation is FM.

The receiver is a double super-heterodyne receiver, with a receiver frequency range of 430-440MHz. Sensitivity for S+N/N is 12dB 0.45 microvolts.

Selection of operating frequencies is provided by a ROM, programmed for four VHF transmitting frequencies and six UHF receiving frequencies within a 25kHz channel spacing. The transceiver has a built in micro-cassette recorder.

THE WAY IT WAS

The original Westlakes Novice Contest was the inspiration of Paul Linsley, then VK2NDL and now P29PL.

The contest arrived on the scene shortly after the introduction of the Novice licence to Australia. The purpose of the contest was to encourage newcomers to amateur radio towards contest activities, at an easy, friendly level.

The first contest was held over the weekend 10-11th December 1977. It was a moderate success. With much publicity, another attempt was arranged during 1978, but no sooner had the Westlakes Novice Contest gone to air than the problems arrived.

The major problem was that half of the two man organising team was transferred to P29. During the 1979 Gosford Field Day, the Federal Contest Manager was informed of the success of the contest and the new problem. It was stressed that although the contest was a great idea, the mere fact that an organisation, apart from the WIA, was conducting it might be construed as 'dividing the camp'.

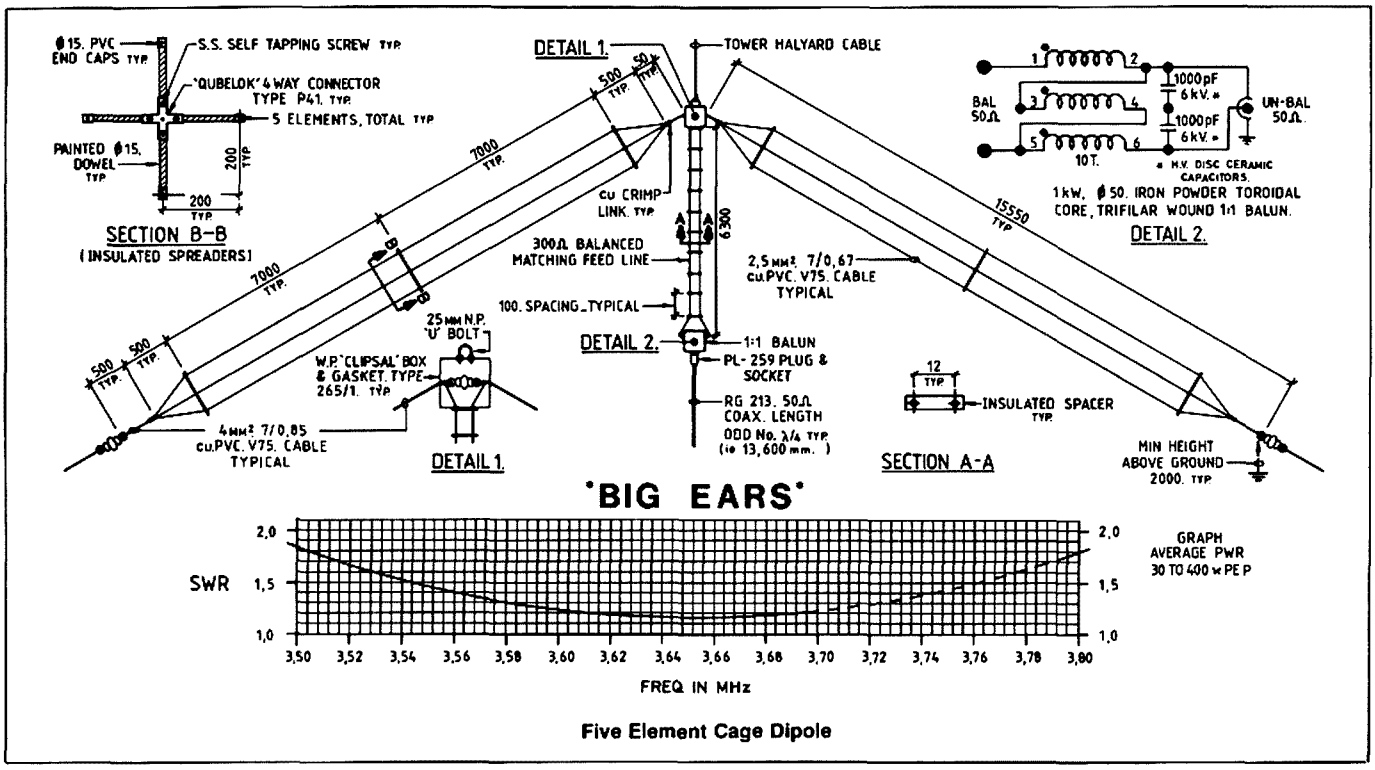
Letters were exchanged during 1979 with WIA Federal Executive and the Westlakes Club. In the interim, Westlakes would supply the remainder of the handsome certificates for overprinting and also the contest trophy. At Westlakes request, the original trophy was deleted. It was agreed that another trophy, called the Keith Howard, VK2AKX Trophy be accepted. By way of explanation, Keith, a WIA Life Member, also played a major role in getting the Novice licence started. As well, he had a record of educational achievements, most notably, the compilation and printing of the Manual of Questions and Answers, for the Novice licence.

The new conditions were accepted, with the contest to be known as the Australian Novice Contest.

At present this contest is held in September and is known as the VK Novice Contest. Due to a variety of reasons, the original concept of the contest appears to have changed.

Much of the success of this contest depends upon the participation by the amateur fraternity at large. Next year, see if we can have a record participation.

Condensed from Westlakes ARC — Monthly Newsletter, August 1985



Drawn by Malcolm Johnson VK6LC

Five Element Cage Dipole

'BIG EARS', A HALF-WAVE BROADBAND ANTENNA

Malcolm K Johnson VK6LC
9 Abinger Road, Lynwood, WA. 6155

For 75 and 80 metres in restricted space

The author lacks the space necessary to construct a full half-wave dipole, but required a broadband antenna which could be fed directly by a solid-state transceiver without needing an antenna tuner. The resulting cage design, aptly known as 'Big Ears', performs extremely well over the whole band.

This antenna was constructed last January because the original dipole just did not have the receiving capabilities to sched with RSARS members in the Eastern States and overseas. As expected from the SWR curve it runs very smoothly with the solid-state rig (IC730) over the full 300 kHz bandwidth without the use of an ATU.

The broadband characteristics result from the use of a 400 mm diameter cage rather than a single wire. The antenna is only 0.38 wavelength at mid-frequency (31.1 metres or 102 feet), so exhibits capacitive reactance at its centre. This is *transformed* by the parallel line feed section to become slightly inductive. An alternative way of looking at this is that the centre 300 ohm feed section of approximately 0.08 wavelength extends the antenna to just beyond half-wave resonance. Shunt capacitors then parallel-resonate with the inductive reactance. Due to their opposing reactance-frequency behaviour, this combination of parallel resonance with the inherent series resonance of the dipole further aids in bandwidth extension.

BALUN

The antenna will work quite well without the 1:1 balun, but receiving performance suffers due to local noise pickup which otherwise cancels out when the balance is better. Also the radiation pattern may become slightly asymmetrical without the balun. The toroidal balun core is one of the "Amidon" range, and the wire gauge is chosen so that the trifilar winding can be comfortably wound on to it. 18 or 20 gauge wire is suitable.

The shunt capacitors are very generously over-rated. In all probability a single 470 or 510 pF unit of 1 kV rating or better would suffice, but the two 6 kV items were on hand and ensure that failure here is virtually impossible.

The coaxial feedline is shown as a quarter wavelength. This also is not essential, but the accuracy of the SWR curve cannot be guaranteed for other lengths.

PERFORMANCE

Tests have proven reception to be 100 percent better from the present location, after testing it out with stations such as A71AD, YC4FPE, ZL1ON, JI1QPU, ON5YA, EI8H, DJ4AX, WA6SLO, 9M2CO, SP9MRO, 18SAT, HA5XW, Z21EV, OK3EY, YU4EBL, G3FPQ, H44IA and GI3OQR using FT102 and IC730 rigs on SSB. These stations were not all worked on 75 metres, but at the top end of 80 metres. Many incoming reports were 5x8 or 5x9.

Incidentally, if a different centre frequency (within 100 kHz or so) is required, it can be lowered by adding 125 mm to the 300 ohm feedline for each 20 kHz change, or conversely raised by similar shortening.

One practical point is that the cage section, both top and bottom, requires support from two points using heavy duty nylon fishing line to prevent the cage from turning in strong winds.

In the installation tested, the central tower is 10 metres high, with a 1 metre outrigger at the top, to the tip of which the halyard pulley block is attached. The two cage halves then slope down to a height at their ends of 3 metres.

AR

ANTENNA TUNERS WITH PARALLEL TUNED CIRCUITS

Leo Weller VK3YX
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It is an accepted fact that some antennas are easier to match to the transmitter than others. The number of hard-to-match ones are, too often, demonstrated on the amateur bands by a strong carrier going up and down in level for some 30 seconds before talking commences. In the course of experimenting with three antennas for the 15 metre band, three tuners were built to facilitate quick change over. There is no apparent reason why any of the three tuners could not be made to work equally well with any antenna. But problems arise when they are least expected (Murphy's Law again!).

Having established problems with some antenna tuner-circuit combinations, a number of different tuners have been built and their characteristics noted. This article describes five different tuners using a parallel tuned circuit.

INPUT CIRCUIT

In the following circuits an input capacitor will be found. This gives the tuner a high impedance until it is tuned. Many circuits use a capacitor in the output circuit, however it will perform its task equally as well on the input side. In particular, when the CW mode is used for tuning purposes, the author believes that the output transistors are safer.

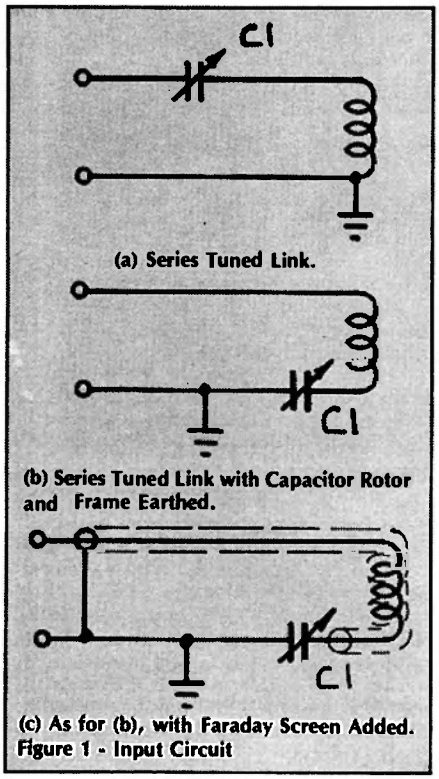


Figure 1 - Input Circuit

In some situations, it may be easier to earth the frame of this tuning capacitor. Figures 1 (a), 1 (b) indicate two circuits which are electrically the same. It was found that the capacitance between the coil and coupling link played an adverse role. This was eliminated by introducing an electrostatic (Faraday) shield. Coaxial cable was used to wind the link. The screen was earthed at one end only, usually at the input socket, and is cut back 1cm on the other end. This link is always located on the earthed side of the main coil, to reduce the probability of flash-over.

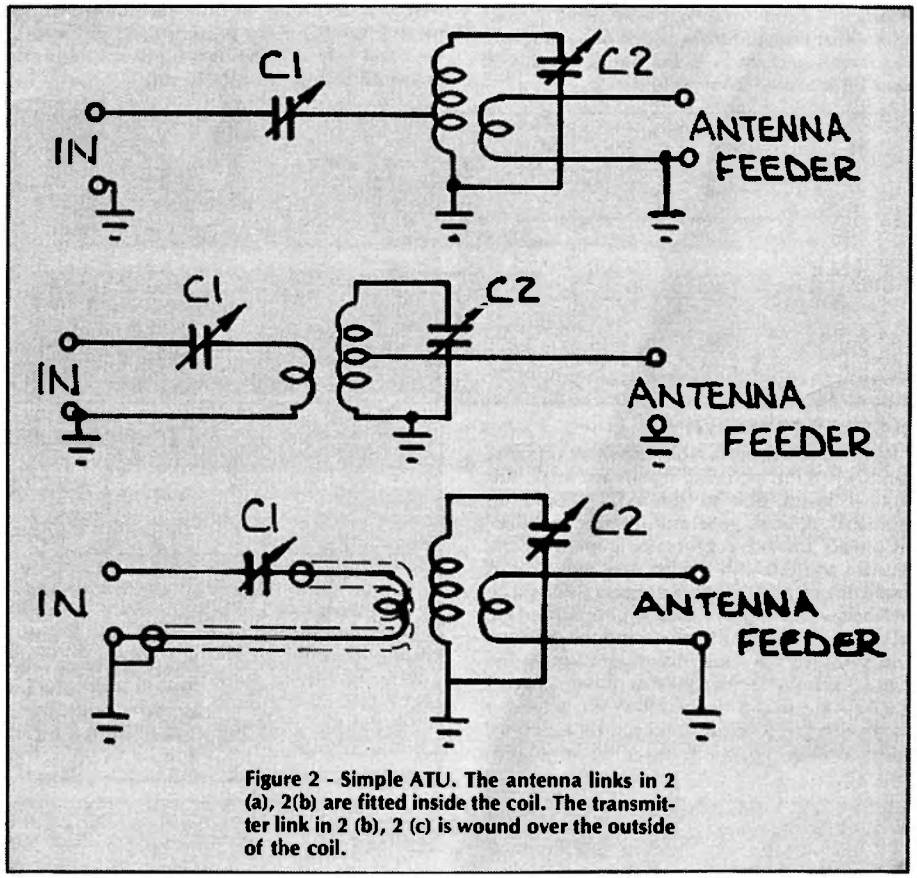


Figure 2 - Simple ATU. The antenna links in 2 (a), 2(b) are fitted inside the coil. The transmitter link in 2 (b), 2 (c) is wound over the outside of the coil.

SIMPLE ATU CIRCUIT

The circuit in Figure 2 (a) is so simple that one cannot escape testing it first and that of Figure 2 (b) next. Both circuits exhibited some interaction between the two tuning capacitors which was eliminated by using the circuit of Figure 2 (c). This also gave a remarkable reduction in received noise from local devices such as vacuum cleaners and washing machines.

TESTING FOR COUPLING FACTOR

A watt meter, if available, is the correct instrument to use however, an SWR meter will also do the job. The purpose of this test is to establish that the turns ratio or tapping positions are correct. Adjust the ATU to provide a 1.0:1 SWR with the antenna connected. Connect the transmitter to a dummy load via the SWR meter. The VSWR

should be 1.0:1. Set the transmitter output power to a low level and adjust the SWR meter for full scale deflection in the 'forward' mode. Now connect the tuner instead of the dummy load. If all is well the SWR meter will read the same. If it reads low, the coupling must be increased. The SWR meter does not always tell the whole story. (Or the whole truth. Tech Ed). Although the SWR meter might indicate that the correct match has been achieved the forward indication is a very sensitive comparator. The CW collector current is also a sensitive indicator of incorrect adjustment. If the coupling is too light, the tuning of C2 will be very sharp and if the coupling is too heavy, the tuning will not be effective. Incorrect coupling can also result in very high RF currents in the tuner, which will lead to increased power loss in the tuner.

AUTOTRANS ATU

The name originates from the autotransformer, due to the similarities of operation. Figure 3 illustrates a circuit suitable for use with plug-in coils and receiver type tuning capacitors. The wires and the taps must go at right angles from the coil for at least half a coil diameter, before being bent to ensure that no half turn is added or subtracted. The frames and rotors of the tuning capacitors must be insulated from ground.

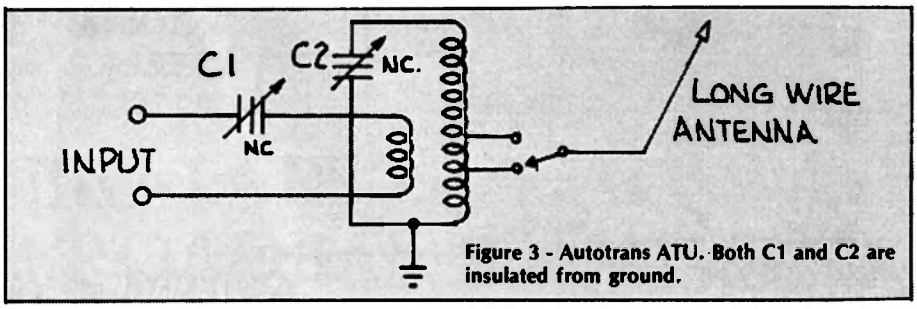


Figure 3 - Autotrans ATU. Both C1 and C2 are insulated from ground.

RECEIVER SENSITIVITY

Receiver sensitivity is most important on quiet bands when the incoming signals are weak. Additional losses due to the ATU should be evaluated. A noise generator is recommended.

Connect the noise generator directly to the receiver and establish a noise level sufficient to distinctly override the receiver noise. This will be well below an S1 meter indication. Next insert the ATU between the noise source and the receiver. The ATU must previously have been adjusted to give a 1.0:1 SWR with a 50ohm dummy load. If the ATU has negligible loss, then the generator noise will still override the receiver's internal noise. (A loss of up to 1dB should be acceptable. Tech Ed.)

ALL BAND TUNER

This is another simple circuit using old broadcast receiver tuning capacitors. The capacitor frames and rotors must be insulated. Two coils are used, a switch short circuits the one not being used. See Figure 4.

The links are made of coaxial cable with both the inner and outer being shorted to ground at one end. The link is of two turns on the high band coil and three turns on the low band coil. Shorting the unused coil effectively shorts the associated link.

INTERACTION TEST

Load the tuner with a dummy load and adjust for a 1.0:1 SWR in band centre. Now check to see if a 1.0:1 SWR can be maintained across the band by adjusting the main tuning capacitor, only.

Repeat this test with the antenna connected but start at the resonant frequency of the antenna instead of band centre, if these differ.

Ideally C1 is only adjusted when the band is changed and can be fitted with a clicker plate to make tuning quicker. See Figure 5.

In practice, with an antenna connected, a perfect match will not be achieved right across the band but, with the right tuner, the residual mismatch will be acceptably small.

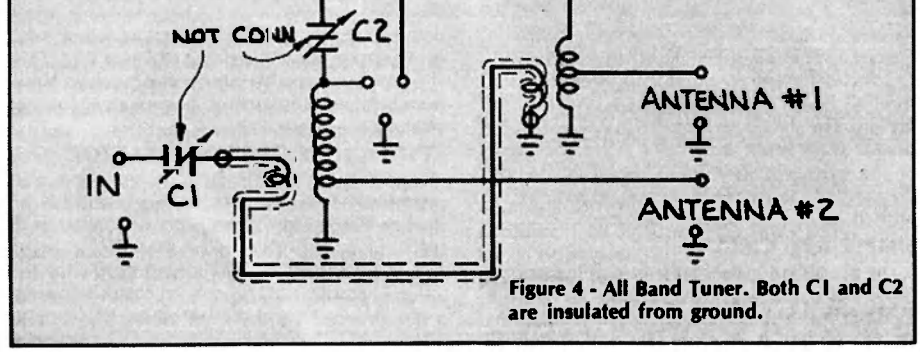


Figure 4 - All Band Tuner. Both C1 and C2 are insulated from ground.

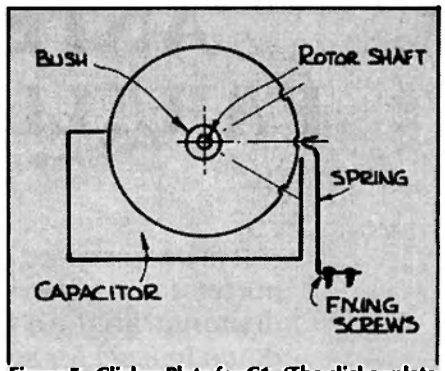


Figure 5 - Clicker Plate for C1. (The clicker plate could be made from brass sheet and soldered onto a bush fitted with a grub screw to facilitate fitting on the rotor shaft...Tech Ed.)

LONG WIRE MATCHER

This circuit, shown in Figure 6, was found in various World War 2 transmitters, intended for use with random lengths of wires. With broadcast tuning capacitors, it will tune two bands without a coil change, but a switch is needed to select the correct tappings, which can be found by experiment.

A good earthing system is required for this antenna system.

IMPROVEMENTS TO THE ALL BAND TUNER

It must be realised, that with a tuner covering the 10, 15 and 20 metre bands in one sweep, the width of the 20 metre band is only 15 degrees out of the 180 degrees sweep.

For ease of tuning a slow motion mechanism is recommended. The disc and spindle drive from an old radio receiver is perfect. A disc of 5cm diameter is sufficient.

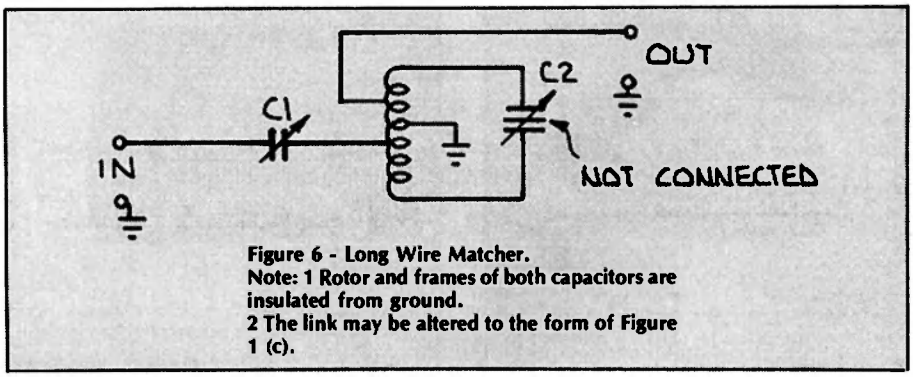


Figure 6 - Long Wire Matcher.
Note: 1 Rotor and frames of both capacitors are insulated from ground.
2 The link may be altered to the form of Figure 1 (c).

TRANSMATCH ATU

The transmatch, (from ZS1CK back in 1947), feeds the transmitter from the rotor of the split stator capacitor, while the output is from point A. See Figure 7. Tuning requires care as there is some interaction between C1 and C2.

I found that by tapping the output down to two turns from the cold end that C1 was no longer critical of adjustment and could be replaced by switched fixed capacitors to suit the bands and antenna in use. For a 100 watt transmitter the necessary capacitor plate spacing is 1mm.

CONCLUSION

In the preface, it was pointed out that easy tuning depends on the correct tuner-antenna combination. The circuits described will pass all tests mentioned in this article, but not necessarily on

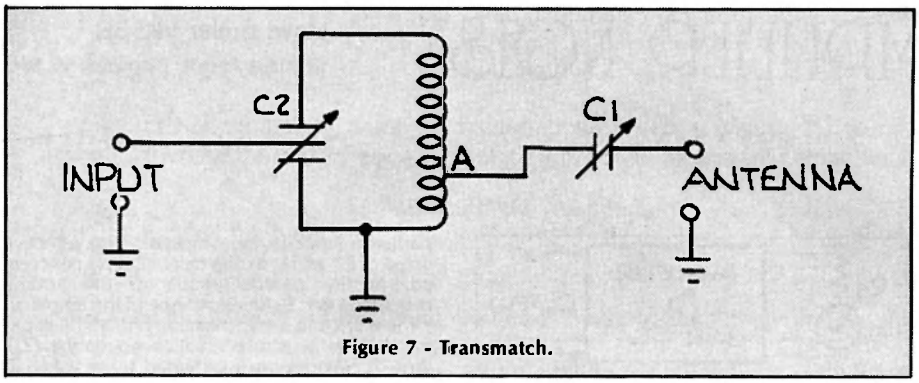


Figure 7 - Transmatch.

every antenna. The most convenient solution to the problem of rapid frequency shifting may be one tuner for the low band and one for the beam.

The author calls these tuners 'up-tuners' as the received signal increases on the correct setting. Only a 5 watt signal is required for tuning to a 1.0:1 SWR which is accomplished in 2 to 3 seconds. Details of the number of turns in the coils have been omitted because the author used many components that were on hand and these may not be available to many readers. Should any readers wish for further details, they are welcome to write to the author. (Include an SAE please. Tech Ed.)

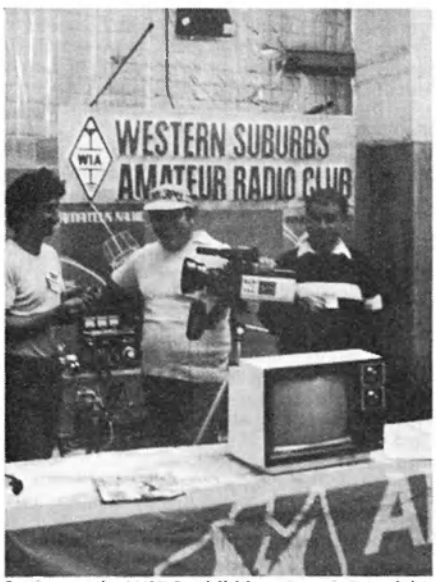
AR

"FLYING HIGH WITH AMATEUR RADIO"

Mark J Stephenson VK3PI
PO Box 163, Whittlesea, Vic. 3757

Earlier this year WICEN and the Western Suburbs Radio Club promoted amateur radio in many ways before over 150,000 people.

The occasion was the Melbourne Airport Open Weekend organised by the Keilor Rotary Club, with participating organisations including the Department of Aviation, Ansett Airlines of Australia, Trans Australia Airlines, Qantas, Royal Australian Air Force, Victoria Police, Australian Army, State Emergency Service, Wireless Institute Civil Emergency Network and others. Static displays of aircraft and associated equipment were presented, along with vintage, military and civil aircraft. Enthralled crowds were also treated to aerobatic displays and fixed wing aircraft and helicopter manoeuvres.



Setting up the WSRC exhibition, from left to right, John VK3NJS, Fred VK3PU, and Terry VK3KBD.

The Western Suburbs Radio Club presented an amateur radio display within the Ansett Airlines of Australia hangar. Antennae were erected atop of the hangar, and live ATV pictures transmitted via VK3RTV, the 50cm ATV repeater situated on Mount Dandenong, east of Melbourne Airport. Scores of visitors to the display were fascinated

Left to right Mark VK3PI, Rob VK3VOE and Gordon VK3YOD perusing safety equipment within the Ansett hangar, and next to the Club exhibition.

by their own images displayed on a monitor. Members of the club explained many aspects of amateur radio to the public, whilst operating equipment and demonstrating operating practices. A promotional videotape, on loan from the Victorian Division of the Wireless Institute of Australia, ran continuously for the duration of the event, and assisted in outlining fields of amateur radio not able to be demonstrated in practice, such as SSTV, RTTY, Satellite work and emergency communications.

Twenty five Region 14 and two Region 8/26 Wireless Institute Civil Emergency Network members provided communications between services such as the Department of Aviation, Victoria Police Force, Country Fire Authority, State Emergency Service, and others. An amateur television link was also provided on simplex, between the State Emergency Service location, and the Command Centre. This link displayed logistics information relating to traffic control, and was of benefit to the Department of Aviation, State Emergency Service, and Victoria Police.

It was interesting to note that when a fire broke out in one of the public car parks, WICEN passed the message directly to the Country Fire Authority, and as the CFA were co-located with WICEN in the Police Caravan, action was prompt. The incident proved to be an effective demonstration of WICEN being utilised to provide communications between services with non-compatible communications systems.

Overall communications was conducted on VHF and UHF simplex, and the exercise proved to be of training value, and a worthwhile public relations effort. This was particularly true in proving to other members of the Region 14 Disaster Committee that WICEN Region 14 are capable in providing reliable ancillary communications, in a responsible manner.

To list those amateurs involved in both facets of the Open Weekend would be a considerable task, however, let it be said that both the Western Suburbs Radio Club and WICEN Region 14-8/26 members are to be congratulated on their enthusiasm in promoting our hobby in such a professional manner. A special thanks to Norm Dench VK3DNE for his enormous personal contributions in assuring the success of both efforts. To all concerned well done!!!

WICEN PHOTOGRAPHS courtesy Ted Borowiecki VK3DXK
WESTERN SUBURBS RADIO CLUB PHOTOGRAPHS courtesy of Mick Van Geyzul VK3KMV.

AR

Portable operators, Colin VK3LO and Lawrie VK3AW.

AMPLIFIER NOISE

Lloyd Butler VK5BR
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Amplification of low level audio or RF signals is always accompanied by noise generated in the amplifier itself. The following discusses the generation of this noise and some of the methods of assessing noise performance.

One of the factors which governs the performance of any amplifier system is the noise in the system. Noise might be defined as signals in the system which are unwanted and which degrade the desired signal content in the system.

As far as the amplifier system is concerned, noise can be divided into noise it receives at its input and noise it generates itself. A good system is one in which the noise generated by the amplifier itself is small compared to noise from the incoming source. In a HF receiver, for example, atmospheric noise is high and it is not difficult to achieve this requirement. At VHF and UHF, atmospheric noise is low and performance is limited by the noise generated in the first stages of the radio receiver.

Noise is generated in all stages in amplifiers and radio receivers but it is the first stages, operating at the lowest signal levels, which are of main concern, particularly where low signals from aerials, microphones, etc, are to be amplified.

THERMAL NOISE

There is no such device as a perfect amplifier, but assuming such a device could be built, there is still a limit to how low a signal level can be detected. Figure 1 shows an amplifier fed from a signal source which has a resistance R_s. Thermal noise in the resistance generates a noise voltage (E_t) as follows:

$$E_t = 2\sqrt{KTBR_s}$$

where

K = Boltzmann's constant
T = Absolute temperature
B = Bandwidth in Hertz

At normal temperatures (say 17°C), this simplifies to:—

$$E_t = \sqrt{1.6 \times 10^{-20} \times B\, R_s}$$

Short of fitting the source in a cryogenic chamber, this is the lowest noise which can be achieved at the amplifier input and the practical equivalent noise at the input as always higher than this.

EQUIVALENT NOISE VOLTAGE

Whilst noise generated by an amplifier system is generated within the system, the level of noise is evaluated by referring it to the amplifier input, that is, it is considered as equivalent noise at the input as though it were being generated at that point. The equivalent noise voltage (E_n) is calculated by dividing the noise measured at the amplifier output (E_{no}) by the gain of the amplifier (A_v).

$$\text{ie } E_n = \frac{E_{no}}{A_v}$$

BANDWIDTH

Noise in any system is dependent on bandwidth of the system and this must be specified when defining noise performance. It is common practice to define noise for a 1 Hz bandwidth, for example, noise voltage might be specified in nanovolts per square root of Hertz (nV/√Hz).

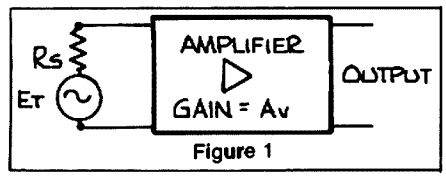


Figure 1

Over a limited bandwidth, noise power can be considered to be proportional to bandwidth and noise voltage proportional to the square root of bandwidth. If noise voltage is defined for a 1 Hz bandwidth system noise can be determined by multiplying by the square root of the system bandwidth.

The level of noise generated by an amplifier system generally varies over a wide spectrum, and for a wide bandwidth the noise performance must be defined by plotting noise (say in nV/√Hz) against frequency.

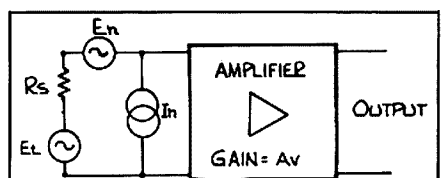


Figure 2

EQUIVALENT NOISE VOLTAGE AND CURRENT GENERATOR

In considering solid state amplifiers, noise is often resolved into two components at the amplifier input, an equivalent noise voltage generator (V_n) and an equivalent noise current generator (I_n) (refer figure 2). The first component (V_n) is independent of the value of source resistance (R_s). The second component (I_n) develops a noise voltage across R_s equal to $I_n R_s$, that is, the noise voltage it develops is directly proportional to the value of R_s. V_n can be separated from the voltage developed by I_n and also the thermal noise (E_t) by short circuiting the input terminals. The voltage developed by E_t and I_n is then zero and what is left is the noise voltage generator V_n.

NOISE FIGURE

One method of defining the noise performance of an amplifier is the noise figure (F). This can be defined as the ratio of equivalent noise power developed at the input to that generated by thermal noise in the source resistance (R_s). Noise figure is often expressed in decibel form. A perfect amplifier, if such a device were possible, has a noise figure of 0 dB.

To establish noise figure, the voltage gain (A_v) of the amplifier is measured and the noise voltage output (E_{no}) is measured at a known bandwidth (B). For the second measurement, the amplifier input must be terminated in a resistance (R_s) equal to the normal source resistance. Noise figure is calculated as follows:

$$F = 20 \log A_v \frac{E_{no}}{\sqrt{1.6 \times 10^{-20} B\, R_s}}\ dB$$

Figure 2 and the formula assumes a high impedance input to the amplifier. The effective value of R_s, as far as the calculation is concerned, is the parallel result of the source resistance and input resistance of the amplifier. If the source is a transmission line and it is terminated in its characteristic impedance (Z_o), then R_s should be substituted by a value Z_o divided by 2.

TRANSISTOR NOISE

The value (V_n) of the equivalent noise voltage generator in a bi-polar transistor can be calculated from the following formula:—

$$V_n = \frac{0.0147\ nV/\sqrt{Hz}}{\sqrt{I_e}}$$

where I_e = Emitter current in amps.

Note that the noise voltage is entirely dependent on emitter current and decreases as the emitter current is increased.

Derivation of the value of the equivalent noise current generator is more complicated. Its value is dependent on various constants which vary with transistor type and which also vary between selected samples of the same type. For lowest noise, it is therefore necessary to select samples on a test basis. The noise current is also dependent on emitter current and frequency. Figure 3 illustrates a typical change in noise current with frequency for a bi-polar transistor, giving a rise in noise current below 1000 Hz. Above 1000 Hz, noise current is constant.

In contrast to the value of the noise voltage generator, the noise current value increases as emitter current is increased. The noise voltage developed from the noise current is further dependent on the value of source resistance (R_s) through which it flows. (Refer previous paragraphs).

In consequence, for a given transistor, at a given frequency, there is an optimum emitter current for each value of source resistance (R_s) used, the point at which the curve showing the noise voltage generator (negative slope) intersects with that of the appropriate curve showing noise voltage derived from noise current generator (positive slope), refer figure 4.

At low values of source resistance (say 50 ohms), the equivalent noise voltage generator is the predominant factor and lowest noise is achieved at emitter currents in the order of several milliamps. At higher impedances, (0.1 to 1 megohms), noise voltage developed from the noise current is predominant and emitter currents in the micro-amp region must be used to reduce the noise. (It is also of note that if common emitter configuration is used, these low emitter currents are necessary to achieve the high input resistance required).

For a low source resistance, a low noise bi-polar transistor works well and provides high gain. A typical noise current is 0.1 pA/√Hz and of little consequence developed across the low source resistance. For a high source resistance, a low noise field effect transistor is more suitable. Noise current at the input of a field effect transistor is a fraction of that for a bi-polar transistor and even at high impedances, the equivalent noise voltage generator is the predominant factor. For low noise, drain

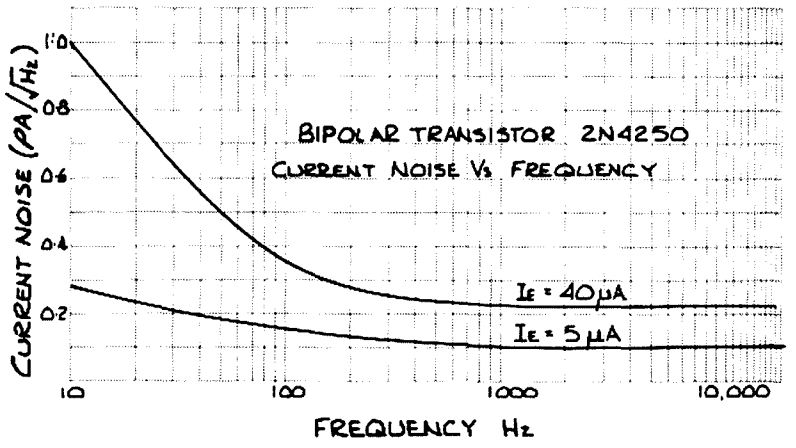


Figure 3 — Bi-polar Transistor 2N4250 Current Noise Vs Frequency

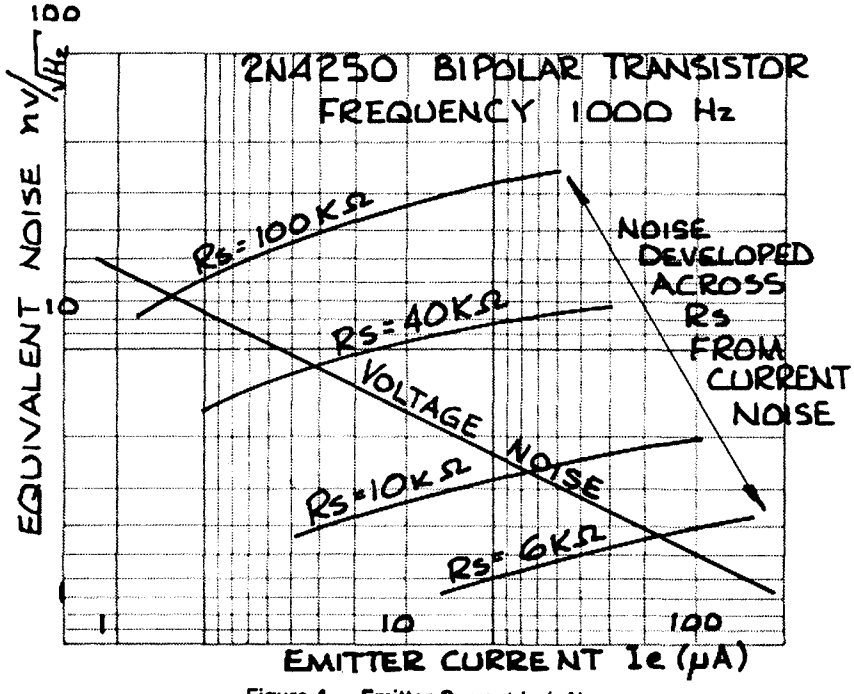


Figure 4 — Emitter Current Ie (μA)

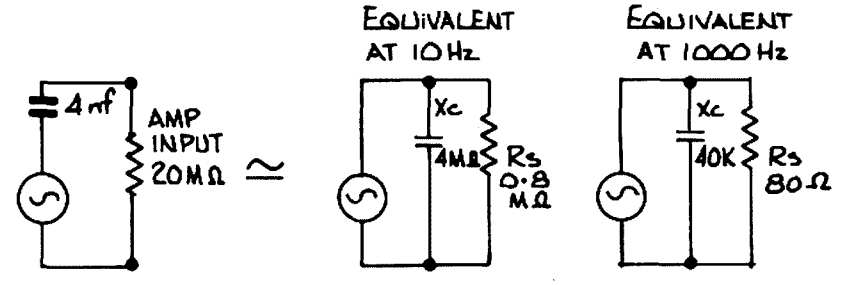


Figure 5 — Plezo Electric Device Equivalent Parallel Resistance.

current in the order of 2 to 10 mA is used.

Field effect transistors have found quite universal use as low noise front end amplifiers in VHF and UHF receivers where their gate is connected across the high impedance input of a tuned circuit.

A TYPICAL NOISE PROBLEM

One typical noise problem occurs when a piezo electric device (such as a microphone) is used at audio frequencies and connected to the input of an amplifier. At audio frequencies the device can be considered as a generator in series with a small capacitance (refer figure 5). Supposing the series capacitance were 4 nF and frequency response down to 10 Hz were required; the device must then be terminated in not less than 20 megohms to achieve response at the low frequencies. Referring again to figure 5, it can be shown that such an example places a resistive component across the amplifier input of 0.8 megohms at 10 Hz compared with 80 ohms at 1000 Hz. The high equivalent source resistance at the low frequencies is a problem where amplifier current noise develops a noise voltage across that resistance. Quite apart from amplifier noise, the high value of R_s puts a limit on the lowest noise voltage achievable due to factor KTBR.

Bearing in mind the problem discussed in the previous paragraph, the writer tested a number of different operational amplifiers and discrete transistor circuits to compare noise at the input using the 4 nF and 20 megohms example. Table 1 shows the results obtained.

Table 1. Measurements of Equivalent Noise at Input for Various Devices in Nanovolts/√Hertz

Device	R_s = 0.8 megohms f = 10 Hz	R_s = 80 ohms f = 1000 Hz
OP AMP OP7	773	18.
OP AMP OP5	2711	18.5
OP AMP NE5534A	7553	18
OP AMP AD510	782	29
OP AMP LM11	330	256
OP AMP LA3140	262	45
OP AMP AD504	3374	19
OP AMP BB3510	1919	21
OP AMP LM308	256	32
OP AMP μA776	1211	38
Balanced bi-polar transistors (I_c = 2 x 9μA)	450	8
Balanced bi-polar transistors 2N4250 (I_c = 2 x 3μA)	207	15
Balanced FET transistors 2N5523 (I_d = 2 x 1μA)	130	6
Thermal Noise limit ($2\sqrt{KTBR_s}$)	126	1.3

Discrete bi-polar transistors running at very low collector currents demonstrated a lower noise voltage than the operational amplifiers tested. At low frequencies, where the value of R_s is high, the FET gave the best performance. At higher frequencies, where the value of R_s is low, the bi-polar and FET transistors are comparable. Had the bi-polar transistors been run at milliamps of collector current instead of microamps, they would have out-performed the FET transistors at the higher frequencies but been unsatisfactory at the low frequencies where R_s is high.

One interesting device, not yet tested, is the Burr-Brown OPA111 FET operational amplifier. According to the curves published for this device, it would produce noise figures comparable with the discrete FET transistors tested. (At 10 Hz with an R_s = 1 megohm, noise voltage would be 120 nV/√Hz. At 1000 Hz with an R_s = 100 ohms, noise voltage would be 7 nV/√Hz).

MEASUREMENT OF NOISE

To measure equivalent noise voltage at an amplifier input or to measure noise figure the following is required:—

A means to measure RMS noise voltage over a controlled bandwidth.
A means to measure the voltage gain of the amplifier.

Voltage gain can be measured using a signal generator and calibrated CRO suitable for the frequency spectrum of interest. A spectrum

analyser is very useful to measure noise voltage as it usually has a defined bandwidth or means to adjust bandwidth over which the measurement is made.

Equivalent noise (E_n) in nanovolts/√Hertz is calculated from the measurements as follows:

$$E_n = \frac{E_{no}.10^9}{\sqrt{B.Av}} \text{ nV}/\sqrt{\text{Hz}}$$

where E_{no} = Measured noise output voltage

A_v = Amplifier voltage gain

B = Bandwidth of measurement in Hertz

THE NOISE DIODE

One means used to measure noise figure in the VHF and lower UHF region is to use the thermionic noise diode (refer figure 7). Plate current is fed through resistance R_s which becomes the source resistance of the noise generator formed. The plate current is controlled by varying the filament voltage of the diode. It turns out that for a temperature limited diode, the noise component of the plate current is precisely related to the DC plate current as follows:—

If the plate current is adjusted so that the noise power in the receiver being tested is double that for zero plate current, then noise figure is:—

$$F = 0.02\ I\ R_s$$

where I = the plate current in milliamps.

For a source (R_s) = 50 Ω, the formula is F = I, hence the noise figure can be read directly from the plate current value.

Equivalent input noise power for the receiver is KTBI and the equivalent input noise voltage (E_n) is:—

$$E_n = \sqrt{1.6 \times 10^{-20}\ I\ R_s}\ \text{V}/\sqrt{\text{Hz}}$$

Many years have passed since solid state electronics phased out most uses of the vacuum tube and hence suitable tungsten filament diodes are not easy to obtain. An alternative noise generator can be made using a semiconductor diode (refer figure 8). In this case, the relationship between noise voltage and diode current will depend on the characteristics of the diode and for the device to be of any use in testing receiver performance, it must be calibrated against a known noise source.

Noise power change is best measured at the output of the IF amplifier in the receiver. In an AM receiver (but not an FM receiver), audio noise power can be measured. The method is to gradually increase the diode current until the power indication is double, or if an AC voltmeter is used, until the voltage increases by a factor of 1.4 (Refer also to figure 9).

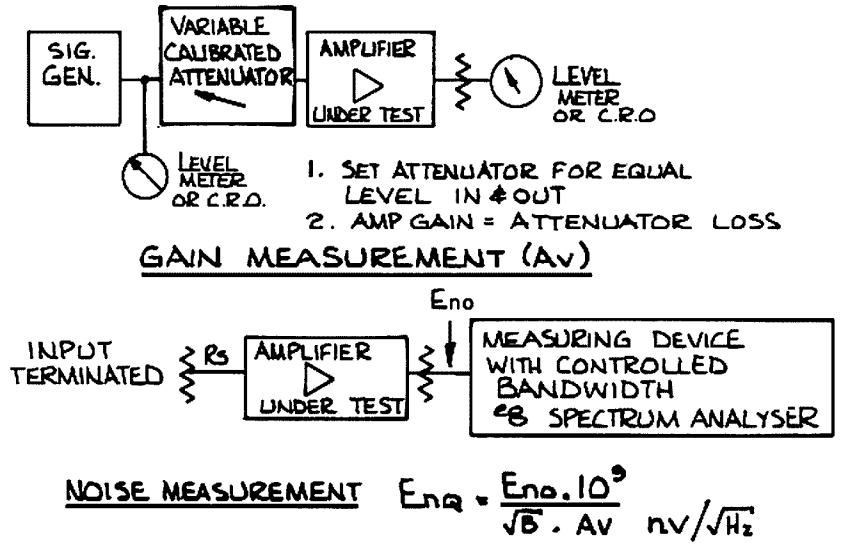


Figure 6 — Measurement of Noise

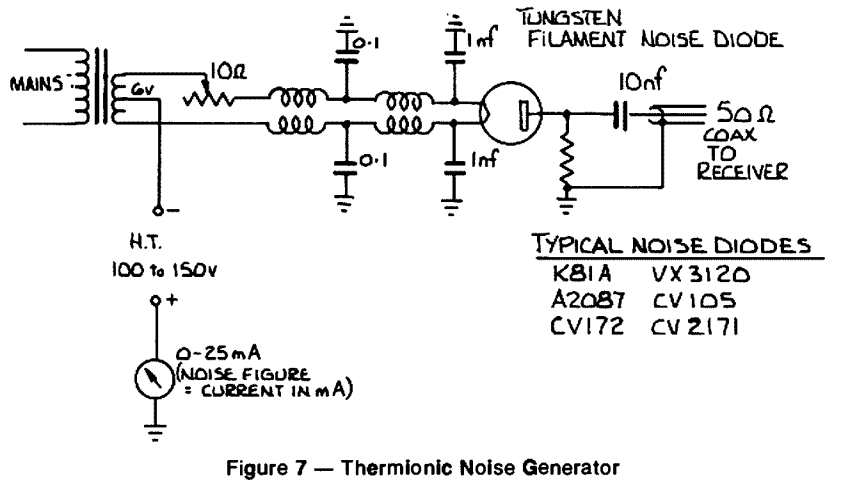


Figure 7 — Thermionic Noise Generator

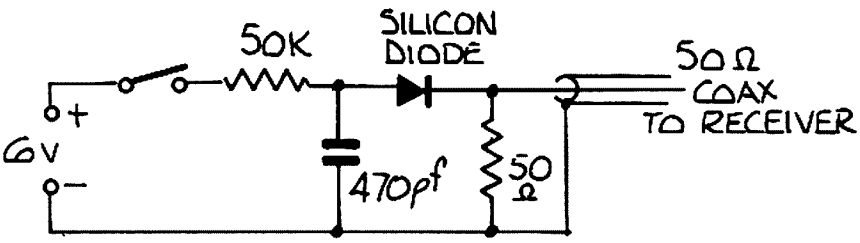


Figure 8 — Noise Generator using Semi-Conductor Diode

RADIO RECEIVER PERFORMANCE

A discussion on noise would not be complete without reference to specifications for receiver performance since such specifications are tied to amount of noise generated in the first stages of the receiver.

Amplitude modulation (AM) receivers are often said to have a given signal to noise ratio for a given input level in microvolts eg 15 dB S/N ratio for 1 μV of signal. What is assumed (if not quoted) is that noise power at the audio output is 15 dB below a 400 Hz or 1000 Hz signal demodulated from a 30 percent modulated, 1 μV signal at the receiver input. To get some idea of noise performance, the receiver bandwidth must also be considered. A 15 dB S/N ratio for a 3 kHz bandwidth receiver is not as good a noise performance as one with a 15 dB S/N ratio with 6 kHz bandwidth.

A single sideband receiver might be quoted as 12 dB S/N ratio for 1 μV of sideband. This implies noise 12 dB below 1 μV, i.e. 250 nV. If the receiver has a bandwidth of 3 kHz and its input resistance is 50 ohms, thermal noise is calculated as 49 nV and noise figure is 20 log (250/49) = 14 dB.

The noise performance of a frequency modulation (FM) receiver is more difficult to define. Noise, as has been considered, is caused by random amplitude variation which the FM demodulator is designed to reject. The noise takes predominance when the FM signal level falls to a critical level and it has been a practice to quote decibels of quieting for a given input signal level eg 20 dB of quieting for 0.5 μV. Whilst this gives an indication of the noise performance of the front end of the receiver it does not give assessment of the noise performance as an FM detector and an additional specification giving decibels of S/N ratio for an input signal deviated by a fixed amount is also required eg 20 dB S/N ratio for 0.3 μV signal deviated 5 kHz by 1000 Hz tone.

A more recent specification is SINAD performance. For this, a minimum signal input level

in microvolts is given which satisfies a given level (12 dB) of noise and distortion below a modulating tone. (1000 Hz deviating 3 kHz in a 5 kHz maximum deviation system). To test a receiver, an FM signal generator, modulated by a 1000 Hz tone to a deviation of 3 kHz, is fed to the aerial input and the audio output is monitored with a distortion meter (refer figure 11). The input level is decreased until distortion read is 25 percent (ie 12 dB of noise and distortion below the tone level).

The difference between SINAD measurement and previous methods of measurement is that the tone is tuned out at the output of the receiver instead of switching off at the input signal source. With tone removed, noise components remain and in the SINAD case, include distortion components generated in the receiver by the tone itself.

A conventional method of measuring signal to noise ratio in an AM receiver is illustrated in figure 10. Performances testing of an FM receiver using the SINAD method is illustrated in figure 11.

SUMMARY

Low equivalent noise at the input is better achieved using discrete transistors with controlled collector (or drain) current rather than IC packages. Bi-polar transistors are good for a low source resistance but field effect transistors perform better for high source resistance.

Noise can be measured by a number of methods described. At VHF the noise diode is useful. Assessment of performance of FM receivers requires different test procedures to those for AM receivers.

AR

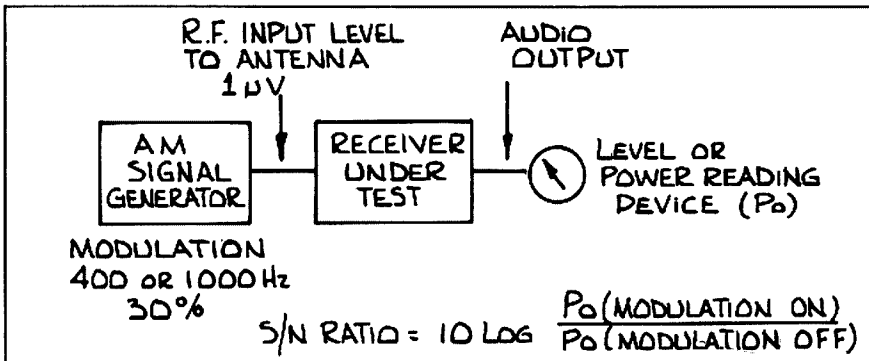


Figure 10 — Conventional S/N Ratio Measurement in an AM Receiver

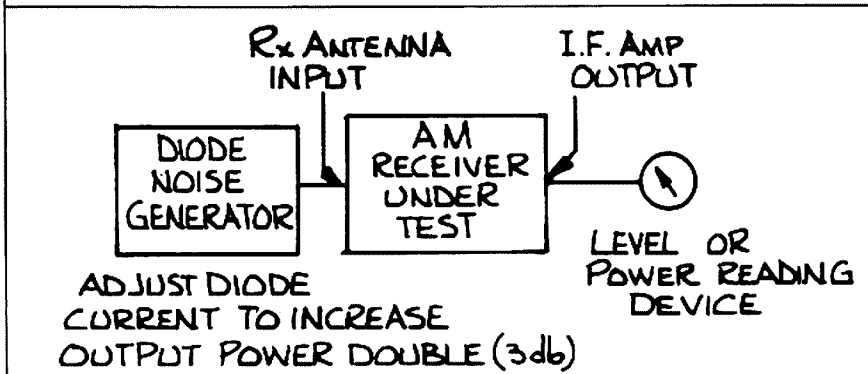


Figure 9 — Use of Diode Noise Generator

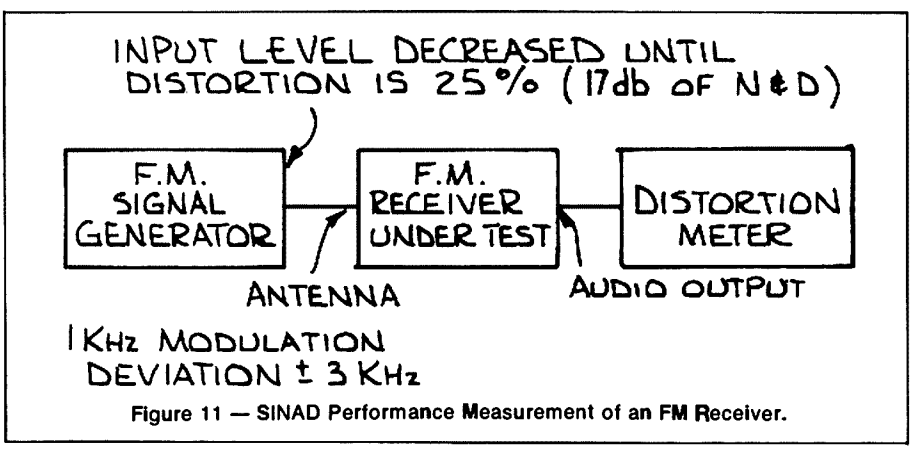


Figure 11 — SINAD Performance Measurement of an FM Receiver.

PROFILE OF TWO NEW MEMBERS OF THE WIA PUBLICATIONS COMMITTEE

The WIA Publications Committee is pleased to welcome two new members to its ranks, namely, Doug McArthur VK3UM and Peter Gibson VK3AZL. Peter and Doug will add some new ideas to the Committee and will also be laden with technical editing.

Doug was first licenced in 1958, as VK5KK and later operated from Alice Springs and Darwin, as VK8KK.

He has been a member of the WIA since 1957.

Doug's main interest is VHF, UHF and specialist communication techniques with his 'pet project' currently, operation on 70cm EME.

Previously employed in High Power, TV, Microwave and Data Communications with the PMG, Doug is presently employed with the DOC.

Peter joined the WIA in 1963. In 1964, he became licensed as VK3AZL, at the age of 16, and has been actively involved on HF since that time.

Peter's main interest in the hobby is home brewing and has a wide variety of projects ranging from Test Equipment to a Synthesised Two Metre Transceiver.

He graduated as a Communications Engineer and was employed for 12 years with the Department of Transport and Aviation, working on Navigational Aids and then the development of Microwave Landing Systems. He is currently employed at Channel 7, Melbourne, as a Video Tape and Project Engineer.

Welcome Gentlemen — Ed.

DOUG MCARTHUR VK3UM

PETER GIBSON VK3AZL

THE FEEDER TUNED ANTENNA

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA. 5112

If you want to work all HF bands including the WARC bands, with one antenna, without exhausting your patience or wearing out your finger tips by constantly retuning an ATU for each QSY, here is the system for you.

It is possible with three switch selectable feeder lengths, to do away with the need for an ATU, if the Antenna Matching Unit (AMU), also described, is used.

The switching can be done with a double pole, three position switch having good insulation, good sized and well spaced contacts, or alternatively by two DPDT switches or relays of similar construction.

This antenna design relies on broadly tuned antenna and feeder line lengths rather than sharply tuned lumped L and C, as in an ATU. The antenna arrangement is similar to the G5RV and the J pole, both of which can be fed with coaxial cable at the base of a tuned length of open conductor feeder. With the G5RV, only one compromise length of feeder is used and this really only suits the 20metre band. On other bands the SWR is often above 10:1. With three lengths of tuned feeder obviously three bands can be exactly tuned, or with a slight compromising of the 80 and 40 metre lengths, all the other HF bands can be covered with quite low SWR. More than three feeder lengths could be used, with additional switch positions, if so desired.

In the physical construction, a centre pole must be used to support the feeder selecting switch mounted on the pole and to hold the three feeder systems, extending from it, towards the shack. It is preferable that the outer poles be of equal height, but this is not essential. Shorter outer poles or inverted V construction can be used. Where space is a problem, the outer ends of the antenna radiator may be bent down, or sideways, for about 3m at each end, with very little loss of performance.

The three position switch can be a rotary type with the shaft pointing downwards and extended to near ground level by a long insulated shaft, such as a 4m length or more of orange coloured plastic conduit, as used in electrical work. It will probably be best to remove the switch clicker plate for easy turning and fit a pointer on the shaft at the bottom. Alternatively the switch can be extended mechanically to the operating position or motored in much the same way as an antenna rotator.

Open wire feeders have been shown for the tuned feeder sections in all cases, but these could be replaced by slightly shorter lengths of window type 300 ohm ribbon, if preferred. Multiply the open wire lengths given by the velocity factor, usually .82, to determine the length required. The coaxial cable can be either 50 or 75 ohms and the use of baluns at the antenna ends of these cables normally seems quite unnecessary. The open wire feeder lengths are only approximate calculated lengths, in practice these are only a guide, slightly longer lengths should be cut and then pruned to get the best results.

The electrical design is based on the principle that it is possible to do all necessary tuning by

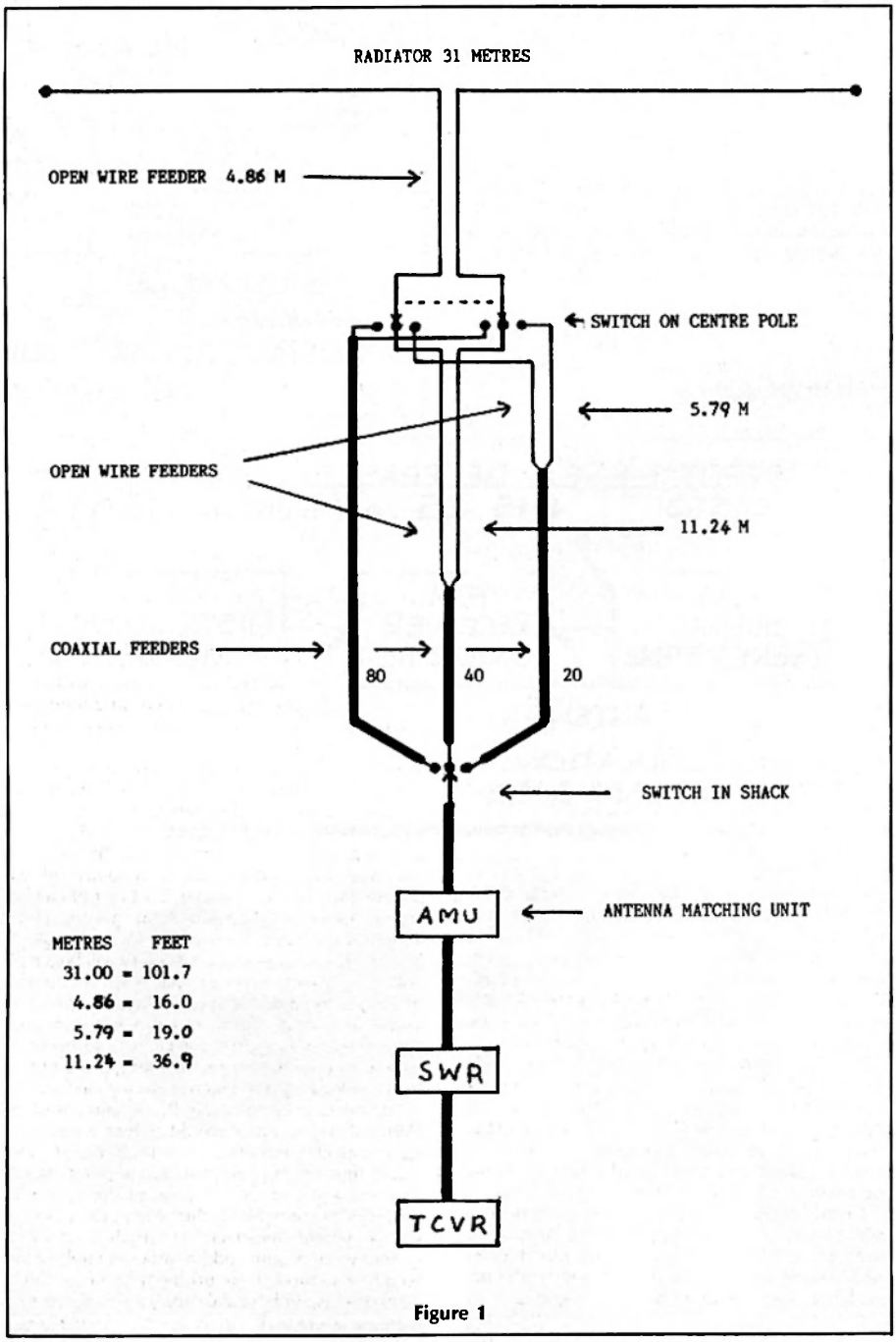


Figure 1

pruning the lengths of the radiator and the feeders used and any slight SWR remaining can be dealt with by the AMU described.

It is best to think of the radiator and open wire feeders as a continuous antenna length, a portion of which is folded up in the form of an open wire feeder at the antenna centre. Thought of in this way, the 80 metre system is a half wave with a slightly folded up centre portion. The 40 metre system is three half waves with a little over one half wave folded at the centre. The 20 metre system is five half waves with two of these folded at the centre. As we are considering resonant lengths and harmonic frequencies for long wire type operation, I first submit the following useful table of figures.

HALF WAVES	METRES FORMULA	HARMONIC MULTIPLIER
1	142.5	
3	442.5	3.11
5	442.5	5.21
7	1043	7.32
9	1343	9.42
11	1643	11.50
13	1943	13.60

NOTE: Half waves refers to the number of electrical half waves in the radiator and open wire feeders combined. Metres formula is the figure that must be divided by the frequency in MHz to obtain the metres length required. (Feet = Metres x 3.2808).

Harmonic multiplier is a figure used as a multiplier to the fundamental frequency to obtain harmonic frequencies. Eg: The third harmonic of the fundamental frequency is not exactly three times — it is 3.11.

Considering the above table and making calculations using it, we see the total length the 80 metre coaxial cable needs to 'see' for 3.5MHz is 40.71m. This is the sum of the radiator 31m plus both sides of the 4.86m feeder. To obtain the harmonic frequencies we use the multiplier table, 3 = 10.9, 5 = 18.2, 7 = 25.6, 9 = 33. So we see the harmonic frequencies suit the WARC bands if the 80 metre fundamental frequency is 3.5MHz or a little lower.

On 40 metres, the coaxial cable 'sees' three electrical half waves. Using figures from the table and calculating for three half waves, 7.0MHz is 63.2m. Using the multipliers, we find the fundamental frequency is 7.0 divided by 3.11 as 7.0 is the third harmonic frequency. So we get, 1 = 2.251, 3 = 7.0, 5 = 11.73, 7 = 16.48, 9 = 21.20, 11 = 25.89, 13 = 30.61. The 15 metre band is well covered by the ninth harmonic (a better ratio than first to third) and the 10 metre band is not far from the thirteenth harmonic.

On 20 metres, the coaxial cable 'sees' five electrical half waves, so the length needed for 14.2MHz is calculated as 52.3m. The fundamental frequency will be 14.2 divided by 5.21, as we are using the fifth harmonic. Resonate frequencies will be, 1 = 2.726, 3 = 8.48, 5 = 14.20, 7 = 19.95, 9 = 25.68, 11 = 31.35. Only the 20 metre band is 'spot on', but 10 metres may be reasonably close to the eleventh harmonic.

In all the above, more decimal places than necessary have been used so figures will check out reasonably well, in actual fact no such accuracy is possible. The slight velocity factor in the open wire feeders and the antenna thickness ratio have both been neglected, but the errors will only be small.

Considering the high order harmonics sometimes used, some may think the impedance seen by the coaxial cable would be very high indeed however, the folded portions reduce this impedance, so the overall results are good.

Before tuning-up the system, let us consider the height of the pole mounted feeder switch. The distance down from the top is shown on the diagram, but other heights are possible. If higher positions are used, the radiator will become longer and you may not have enough room. If lower positions are used, too much of the 80 metre half wave will be folded up in the feeder and poor results will be obtained on this band. The position shown is good, as it gives three half waves on the radiator for the 20 metre band, thus giving a very good radiation pattern. With typical pole heights of about 10m, the switch can be easily reached from a small home extension ladder, a very useful point. In the following, we assume the switch has been fixed at the height shown on the diagram and that the radiator, 40 and 20 metre feeder lengths have been cut a bit long to allow for exact pruning.

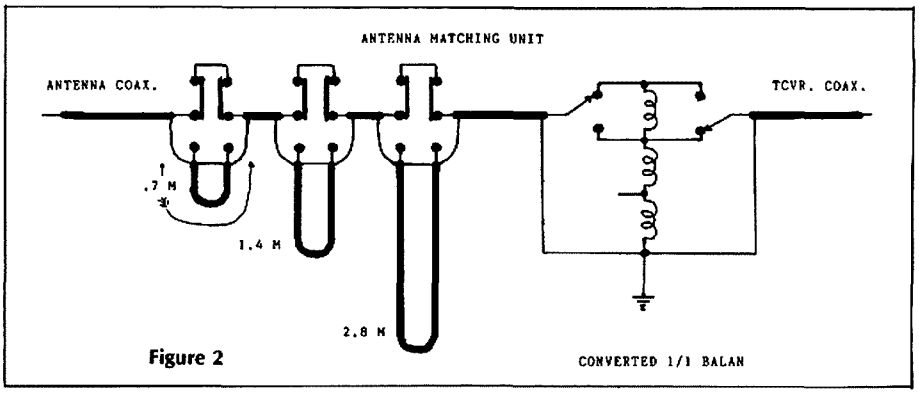


Figure 2

To tune-up the system, the feeder pole switch is set to the desired position then GDO readings are taken at each coaxial cable connection point before the cable is connected. Check at both the fundamental and any useful harmonic frequencies, pruning to get the best average results. On 80 metres, the antenna ends are pruned and for 40 and 20 metres, the open wire feeder lengths are pruned. Of course, 80 metres must be attended to first as the radiator length decided on will also be used for 40 and 20 metres. As all three feeder lengths give harmonics close to the 10 metre band, most likely all three will be suitable for 10 metres use, but at least one will be without any special tuning. Having attended to this pruning, the coaxial cables can then be connected, but leave them a bit long as they also may need to be pruned slightly.

As the coaxial cables will usually not be perfectly matched, the resulting SWR will mean the voltage, current and impedance along each cable will not be uniform throughout its length. At current maximum points, there will be low impedance and at voltage maximum points high impedance will be experienced. Starting from a high current low impedance point looking along a long length of coaxial cable with considerable SWR, an electrical quarter of a wave away will be a high voltage, high impedance point. A further quarter of a wave and it will be back to high current, low impedance once again and this will continue along the entire length of the cable. The electrical length is equal to the physical length multiplied by the velocity factor which is usually .66 for most solid type coaxial cables. In this system, as some SWR will be present, it would be nice if we could stick to electrical half waves or multiples of a half wave, thus having low impedance points at the antenna and transceiver ends of the cable. In cables with some SWR, the worst possible case will be where the electrical length is an exact quarter wave or some odd number multiple of this length. The most likely problem band for this is 80 metres as, with typical cable, this is about 13m of physical length. If 13m happens to be the length needed to reach your transceiver, even a few extra metres might well be worthwhile to reduce the problem.

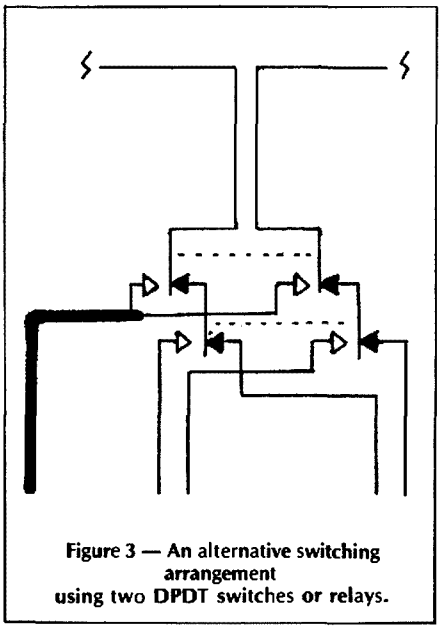


Figure 3 — An alternative switching arrangement using two DPDT switches or relays.

Looking at the Antenna Matching Unit (AMU), it will be noticed that provision is made for switching in additional lengths of coaxial cable and a RF matching transformer is also included. With the coaxial cable additional lengths available, the problems of difficult coaxial cable lengths can usually be overcome, but if difficulties still persist slightly different antenna coaxial cable lengths can be used. With the matching transformer a considerable range of impedances can be matched. The advantage of using this no lumped inductance or capacitance system is that no exact tuning is needed and the switch settings usually hold across an entire band.

Looking at the AMU diagram and the coaxial switching used it will be noticed that starting from the shortest length, the next is double the length and the longest is double this again, making it four times the shortest length. This arrangement, by the different switch combinations available gives seven possible additional lengths, so starting from zero a total of eight lengths are available. The lengths I have chosen will normally be satisfactory but other lengths may, at times, be better, but stick to the same 1, 2 and 4 ratios, so the switch adding will give a choice of seven additional lengths. It will be noticed that the braid of the coaxial cable is bonded in a way that could be considered as a short circuiting of its length but this does not cause any problems.

The matching transformer is basically a con-

verted 1:1 balun or you can buy a balun kit from a well known radio supply house and wind your own. In the diagram, I have shown the windings end to end for simplicity when actually they are interwound. It will be seen either a slight step up or step down can be achieved by changing the switch positions. Also, if both are set either up or down a 1:1 ratio is obtained. So three impedance matchings are possible, in practice giving reasonably close transceiver matching to antenna coaxial feeder impedances of about 15 to 150 ohms. The unused tap on the transformer could be switched in instead of the presently earthed end to give an even greater range of impedance matching if desired, but I have found this unnecessary in my case.

To operate the system watch the SWR meter and using a minimum of RF power run through all eight switch length positions in order starting from zero to the seventh added position, and do this for each of the three impedance matching conditions. If you write number 1 next to the switch adding the shortest length, 2 next to the medium length and 4 next to the longest length, it then becomes a matter of simple addition to get the number you require.

Unless your memory is much better than mine, you will need to record the best operating switch positions for each band. One way of doing this, is as follows, designate the three impedance positions as A, B and C and the length positions as 0 to 7 then all switch positions can then be recorded by a single letter and figure, so you can return to any desired setting, with ease. The average SWR for this system across all HF bands (including WARC) is 1.2, proving it is possible to avoid using an ATU.

AR

A Solar-powered House and Amateur Station

We live in the village of Sarmai Atas, on the side of a hill about 80 km west of Jayapura, in the Indonesian province of Irian Jaya. we are surrounded by lush green forest, interspersed with gardens of taro, sweet corn, bananas, sugar cane, and coconuts. This is one of 25 villages where the Nimboran people live, whose language we have been studying for six years. The climate is hot and humid all the year round. As we are a long way from sources of electric power, our power needs are met by solar panels. These provide electricity for lighting, radio, and some other household items.

Kevin May YB9ARZ/VK5IV.
Box 54, Jayapura, Irian Jaya, Indonesia.

The basic system comprises a 12 volt battery, two ARCO solar panels of 30 watt output each, a voltage regulator, and distribution wiring to lights and outlets throughout the house.

The battery

Any automotive 12 volt battery can be used, and at first we had a standard 40 ampere-hour car battery. This had the usual disadvantage of needing maintenance and topping up, but it performed satisfactorily while it lasted. However, it is a better proposition in remote areas to have sealed gel-type batteries which need no maintenance, and can be carried in easily. We now have one of 38 Ah capacity which meets our needs well.

A battery that can't spill can be very important. One of our friends had her radio battery taken to town to be charged, before she had solar power installed. On the way back to her village, a 2½ hours walk, it was accidentally carried upside down, and when it arrived there was no acid left in it at all! Sealed batteries can also be carried safely and easily in light aircraft, such as serve some of the more remote villages.

The Solar Panels

The two panels are mounted side by side on the roof of the house. Here they are clear of shadows from nearby trees all day. They lie along the slope of the roof, an incline of one in four, so that rain will drain off quickly, taking any dirt or fallen leaves with it. They face slightly to the east, so as to make best use of the morning sunshine. Often the afternoons are cloudy, so a tilt toward the east is beneficial.

Output of the panels working in parallel in good direct sunshine is normally around 2.5 A. This is surprising at first, seeing that each panel can deliver just over 2.0 A on its own. The explanation can be seen from Figure 1.

Figure 1a shows a single-panel charging circuit. The source resistance is Rp, the internal resistance of the panel. The load resistance Rl is the *sum of* resistances in the wiring (Rw), the regulator (Rr), and the battery (Rb). The net EMF is the difference between that of the panel (Es) and the battery (Eb). Thus the output current for one panel is:

$$I_1 = \frac{Es - Eb}{Rp + Rl}$$

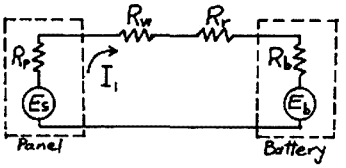


Figure 1a — Charging circuit with one panel.

If a second panel is connected in parallel, then the source EMF is the same, but the source resistance is *now* ½Rp (Figure 1b). The *output* current for two panels is:

$$I_2 = \frac{Es - Eb}{½Rp + Rl}$$

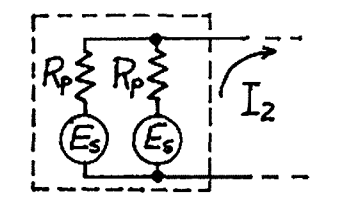


Figure 1b — With two panels.

Because Rl is not negligible, I_2 is always rather less than $2 \times I_1$. The real benefit of a second panel comes in cloudy conditions, when due to the lower illumination of the panel, Rp is greater. A smaller current flows, and the regulator, responding to a lower circuit voltage, reduces its own resistance Rr. Thus Rl becomes much smaller than Rp, and I_2 is *much closer* to $2 \times I_1$, and a worthwhile improvement in the rate of charge is obtained.

The regulator

The regulator controls the rate of charge, using a voltage sensing circuit to control a pass transistor. As the battery voltage rises to the fully-charged condition, the transistor reduces the flow of charging current to maintain a trickle charge. During the night, reverse current is blocked by the regulator to prevent battery discharge through the panels. It also has a meter to monitor the charge rate and battery voltage. Using this system, the house can be left unoccupied when necessary without danger of discharge or overcharge of the battery.

The load

Household lighting consists of a 10 watt fluorescent lamp in each room, each with a simple transistor inverter built in. A 304.8 mm (12 inch) square of aluminium foil behind the lamp makes a fine reflector, and the resulting light level is adequate. Apart from the radios, other equipment supplied from the battery includes an automotive-type stereo player, tape recorders, portable computer, and an organ. We also use a 12 volt soldering iron, a small power drill, and a food mixer converted from rechargeable batteries (when they failed) to run directly on 12 volts. However, the stove and refrigerator run on kerosene, because of their much higher power needs.

Outlets around the house are of the car cigarette-lighter type. A number of 12 volt appliances and adaptors are available nowadays with that style of plug already fitted, so they are convenient. They are safe as well, since you can't reverse the polarity by accident, as you can with some 2-pin plugs.

Radio Equipment

The main amateur transceiver is a TS-130S, working into either a TH3JR tribander, or a G5RV dipole. This unit is quite economical on battery power, which is very important to us as the amount of recharging each day is limited. I also have a 2-metre FM rig, which works into a homebrew 4-element quad. With reasonable

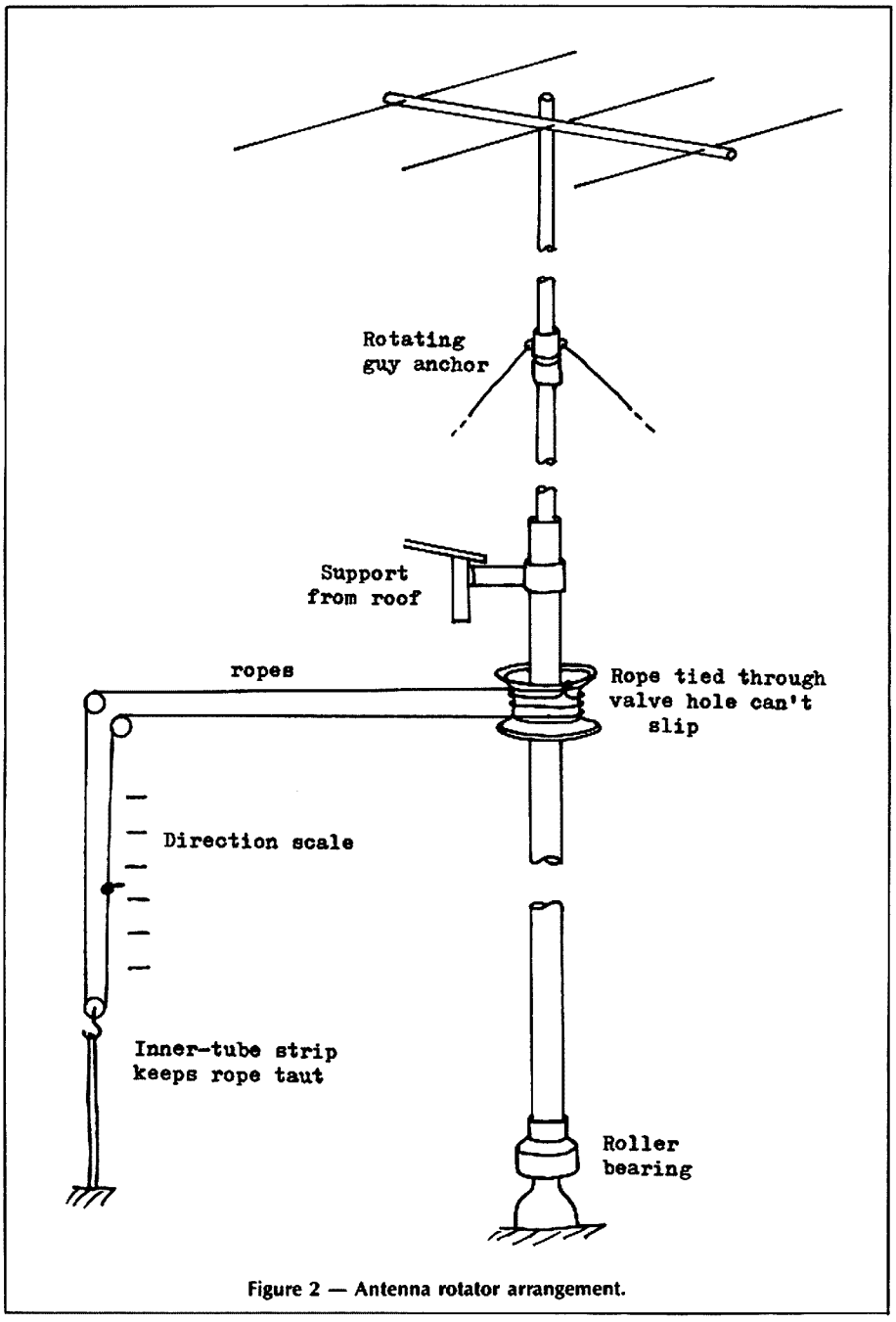


Figure 2 — Antenna rotator arrangement.

Kevin YB9ARZ/VK5IV operating with Solar Power.

restraint on the length of time each week spent on the air, we have no problem with over-discharging the battery. Obviously, daily prolonged sessions are not possible, but then we have other work to do too!

The beam antenna is rotated by the "armstrong" method, so that no power is needed for that. The antenna is mounted on top of two 6-metre lengths of water pipe telescoped together. The bottom of the pipe is supported on a car wheel-bearing, and a rotating guy-wire anchor allows the whole to turn freely. Near the house roof another support surrounds the pipe, close to a wheel from a Vespa scooter which is clamped to the pipe. A rope attached to the wheel is brought in over pulleys to the operating position, where a knot lies close to a scale on the wall to show antenna direction. Pulling one side or the other of the rope provides rotation of 1½ turns. The arrangement is sketched in Figure 2.

The G5RV antenna was built and erected over Easter this year. It is supported on two masts made of water pipes of three sizes telescoped end to end, and standing 14 metres high. It is mostly used on 80 metres, but will, of course, work on the other HF bands also. The antenna which I first used is a 20/15 metre duo band portable dipole, but this is now held in reserve for use when I am away from home for longer periods.

I first began amateur operating in Australia as VK5IV in 1982. In Indonesia I have had the call signs YB0ARK, then YB9ARK, and now YB9ARZ. I have also operated from Papua New Guinea as P29KM. The YB9 prefix is fairly uncommon, so that there is seldom a shortage of people to talk to. I mostly prefer chatting rather than DX-chasing, with its pile-ups and tensions, yet I have recorded a total of 67 countries contacted so far. It goes to show that one can get considerable satisfaction from the hobby of amateur radio with modest power output and simple equipment.

AR

NEWS FROM THE ARRL

A reciprocal licence agreement has been signed by the USA and Japan, effective the 7th September 1985. THe WIA awaits details of the agreement, prior to asking the Australian Administration to conclude a similar agreement.

The ARRL have obtained use of the 902-928MHz band for Technician Class Licences and above on a secondary, non-interference basis.

Amateur operators in the northern parts of the USA have had the 420-430MHz band removed from their allocation. At this stage, little is known as to the reasons, but we believe this action has been taken to protect Canadian Fixed and Mobile operations.

RADIO PRIVACY LEGISLATION

Legislation to protect the privacy of radio communications is suggested in a Department of Communications discussion paper, dated 1st September 1985.

Communications Minister, Mr Michael Duffy, said he was not considering legislation to prevent interception by unsophisticated devices, such as scanners and shortwave receivers.

Mr Duffy said however, that there was an increasing public desire to prevent the interception of messages which were commercially sensitive or vital to security.

An option in the discussion paper is to have legislation which will support users who go to the trouble and expense of encoding their messages.

Besides making it an offence to intercept certain radio messages, legislation could also control the supply of decoding devices which, enable people to intercept these messages.

In many cases, interception of messages is of no consequence, but in others, security or commercial reasons make confidentiality essential.

FOURTEENTH AUSTRALIAN JAMBOREE

The 14th Australian Jamboree will be held from 29th December 1985 until 9th January 1986, near Wollongong, at Cataract Scout Park, about 6km from Appin. An amateur station, using the call sign VK2SAJ, will be set up on the highest part of the site for the duration of the Jamboree and will hopefully be manned 24 hours a day.

The antennas, an 80 metre dipole, two 40 metre dipoles, two 4 band beams with rotators, beams for 6 metres, 2 metres and 70 cm, and various ground plane antennas for 2 metres and 70cm will be mounted on three wooden poles about 20m above ground level. They will be arranged in a triangle. The shack will be a portable building, about 8m square.

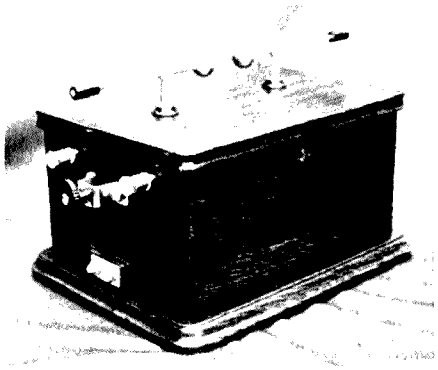
COLLECTORS CORNER — Featuring Bob Pallett VK3BEA

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld, 4101.

One of the great attractions of amateur radio is that it allows a broad range of interests under its title. There is scope for endless diversity even among those whose hobby is homebrewing. For some, construction projects involving the silicon chip are the attraction; others like Bob Pallet VK3BEA turn their skills to recreating equipment used at the very beginning of WIRELESS — and now almost impossible to obtain.

The accompanying photos show the high degree of Bob's skill and craftsmanship.

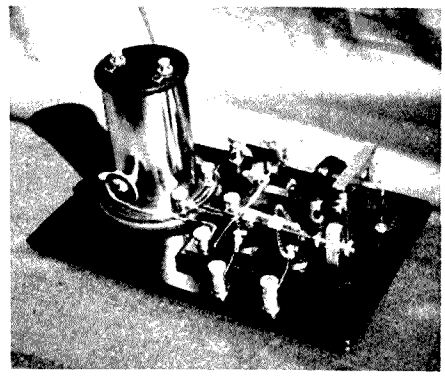
The MAGNETIC DETECTOR (used by Marconi and others) not only looks as good as anything turned out commercially — it also works well. In Bob's words . . . *"not quite as sensitive as the galena detector but picks up the local broadcast stations with good quality."*



This shows an INDUCTION COIL housed in a box of exotic wood, with a spark gap mounted on top. The coil is simply one taken from an automobile. A 1 inch (25 mm) spark is possible.

VK3BEA's further artisan skills encompass making exact replicas of various component parts; eg vintage horn speaker drive units, gramophone pick-up heads, rare and odd shaped knobs, etc. In most cases they are so well done it's impossible to pick the imitation from the real thing. And no, he does not have an elaborate workshop. His tools are simple but effective — the main item being nothing more than a handy man's electric drill. Figure 1 is a sketch of the many ingenious ways Bob sets up and uses his homebrewed tools.

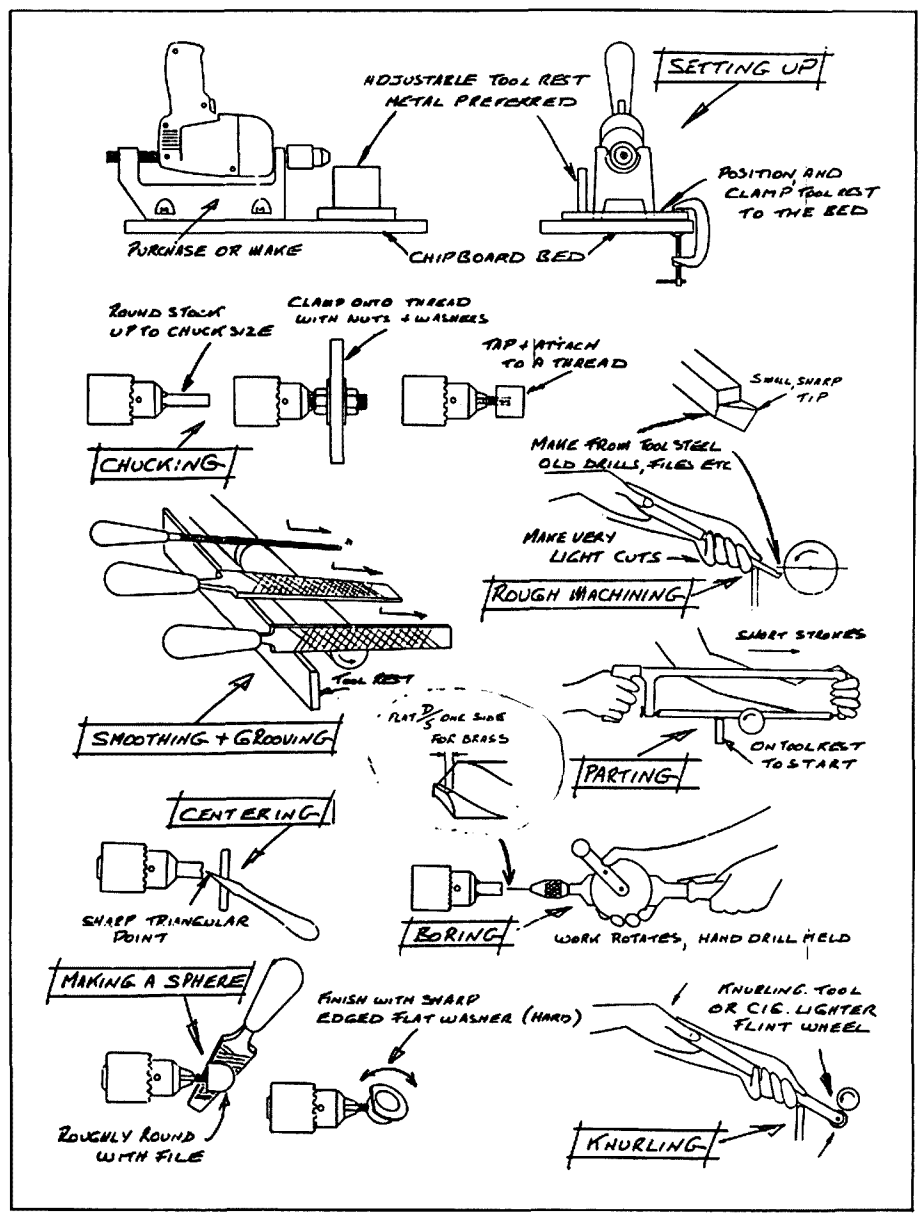
He is also a member of HRSA (Historical Radio Society of Australia) — group dedicated to the restoration and preservation of early wireless.



A COHERER DETECTOR in use at the turn of the century. This particular one, built by VK3EA, is not only a masterpiece of homebrewing, it works magnificently. Coupled into a G5RV antenna it will register lightning strikes thirty miles (48 km) distant. Bob reports that the COHERER is very sensitive and has a very good on/off ohmic ratio.

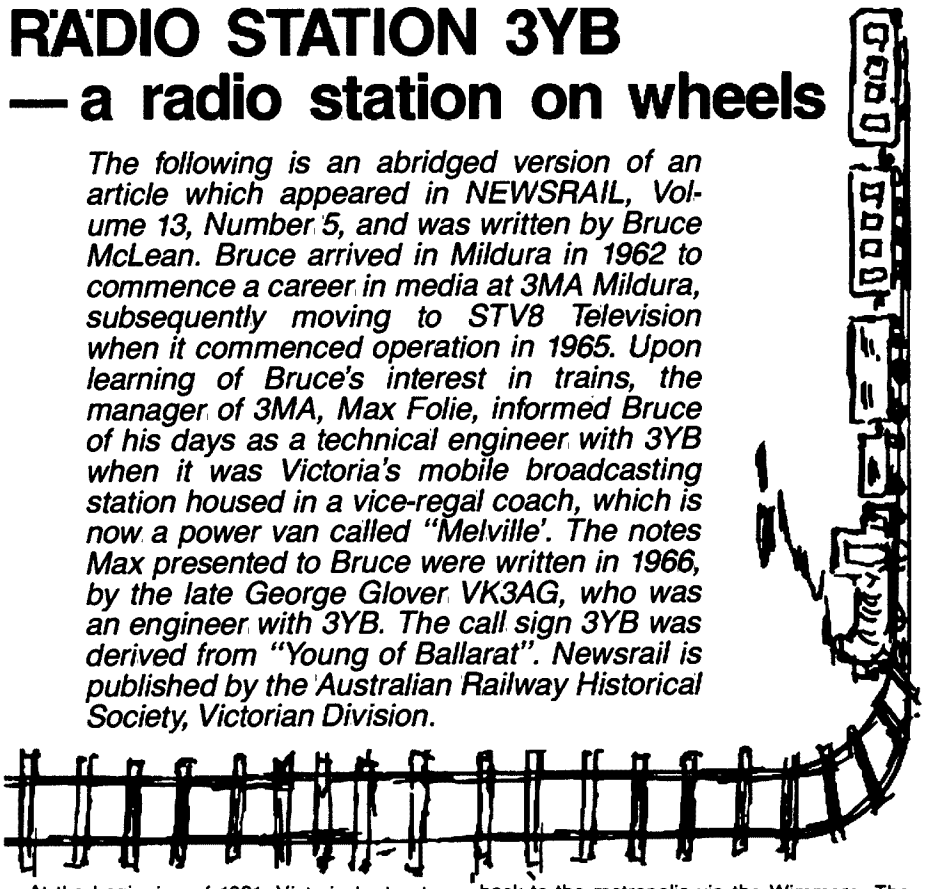
Amateurs like VK3BEA are now very thin on the ground and they will be greatly missed when they QRT. No matter how well history is written, it is only by eyeballing and actually using the equipment of our pioneers that a real appreciation of their achievements is understood.

Other homebrewers working on similar equipment can write to Bob and swap information or ideas at 4 Ailsa Street, Dandenong Nth, Vic. 3175



RADIO STATION 3YB — a radio station on wheels

The following is an abridged version of an article which appeared in NEWSRAIL, Volume 13, Number 5, and was written by Bruce McLean. Bruce arrived in Mildura in 1962 to commence a career in media at 3MA Mildura, subsequently moving to STV8 Television when it commenced operation in 1965. Upon learning of Bruce's interest in trains, the manager of 3MA, Max Folie, informed Bruce of his days as a technical engineer with 3YB when it was Victoria's mobile broadcasting station housed in a vice-regal coach, which is now a power van called "Melville'. The notes Max presented to Bruce were written in 1966, by the late George Glover VK3AG, who was an engineer with 3YB. The call sign 3YB was derived from "Young of Ballarat". Newsrail is published by the Australian Railway Historical Society, Victorian Division.



At the beginning of 1931, Victoria had only four country radio stations, and the receiving sets then available, lacked the selectivity and range of the equipment of today. Further, most stations were operating with limited power so, unless in close proximity to a station, reception was very poor.

The Chief Wireless Inspector, Jim Malone and his Deputy Jack Martin, were anxious to give country listeners a better service and were naturally in favour of mobility when the idea was put to them by Mr J A Young, an employee of radio station, 3BA Ballarat.

They were however, somewhat dubious, so agreed to a permit for three months trial.

Support was obtained by Mr Young from several Melbourne business men and Mobile Broadcasting Services Pty Ltd was registered.

Two large motor caravans and one trailer housed the complete equipment which was constructed by Mr Bert Aldridge and thus 3YB was born. It left Melbourne on 11th October 1931 for its initial tour with the first broadcast from Clunes, near Ballarat, on 12th October. The crew comprised Messrs Vic Dinneny, manager and announcer, Bert Aldridge, engineer and operator and Bert Rennie, business manager and copywriter. These were their official titles but unofficially they were known as housemaid and cook, motor driver and mechanic, and circus hand and general labourer, respectively.

ERECTING THE AERIAL

The aerial was supported by two 40 feet (12m) steel masts placed 120 feet (36m) apart. When the aerial was erected, the caravans were manoeuvred immediately below. The whole system was then coupled by flexible cables. As far as it is known, 3YB was the first complete broadcasting station on wheels in the world. The first tour covered the Lower and Upper Mallee, as far north as Mildura and then back to the metropolis via the Wimmera. The tour occupied a period of three months. At the end of the first six months, Max Folie took over from Bert Aldridge and Bert Rennie retired to the metropolis.

Adventure, humour and real human interest were encountered by this small band of pioneers as they heralded a new era in the broadcasting field.

The nature of the aerial system demanded open space, the type only found in paddocks, which meant that bogging in wet weather endangered the maintenance of the itinerary. After one winter, camping under appalling conditions, it became obvious that a more congenial means of carrying a broadcasting service to the country was a must.

During this period, Jack Young was busy dreaming of a broadcasting station on rails, and after many interviews with officers of the Railways Department, and overcoming many obstacles, a coach which had been built 30 years previously for use throughout Victoria of King George V and his Queen, when they visited Australia as the Duke and Duchess of York, was swung into service for the radio station.

The coach was admirably suited for its new duties. The parlour became the studio, comfortably furnished with a long settee which converted to two beds, a table, chairs, a convertible easy chair and the operating desk with double electric turntables, and a microphone pendant from above. A corridor led to the far end of the coach where a room, the dining section, housed the transmitter, cupboards and lockers contained spare tools. Between the two rooms, a kitchen was equipped with running water and all necessary cooking and storage facilities. The rear platform of the coach was equipped with a canvas weather blind covering the power plant which was used on locations where mains power supply was not available. The aerial consisted of two 20 feet (6m9 masts arranged one at each end and on opposite sides of the roof. A counterpoise system on the roof completed the system. For stability, an earth pin was driven in beside the rails when the coach was on location.

On 17th October 1932, 3YB, now a station on rails, definitely the first of its kind in the world, set out for a tour of the Goulburn Valley.

Upon arrival at its destination, the coach was backed into a siding, where it remained until called for, on schedule, in accordance with a carefully prepared itinerary covering a wide area of Victoria. In spite of the low power used by 3YB, 25 watts, the coverage was excellent.

By arrangement with the metropolitan stations, relayed items of particular interest were featured, fed over the landline from Melbourne, and coupled into the station by temporary lines provided by the ever courteous members of the Postmaster General's Department. Where power supply was available in the town, arrangements were made whereby temporary service was given, otherwise the station's own plant was used.

In 1933, Mr James Joyce, well-known in the theatrical world at that time, took over as manager/announcer and Jim Givens as engineer and operator. Jim was later relieved by George Glover VK3AG, who remained with the station until it changed over from rails to a fixed location. The story of the life of this unusual station which paved the way for a chain of fixed stations which replaced it, ended in 1935 when the mobile licence was surrendered for two fixed licences, namely Warrnambool where 3YB still carries on in the old tradition, and Warragul where 3UL profits from the pioneering spirit that brought it into being.

Some of the equipment from the mobile unit which was withdrawn from service when the fixed 3YB at Warrnambool received a higher power licence, was still operating in the amateur station of Harry Fuller VK3HF in May 1966. Harry, an engineer, succeeded George Glover at Warrnambool in 1938.

Thanks to Mr Richard Watts, Articles Editor of Newsrail, for his permission to publish this article. Further information for members interested in trains and who may be interested in receiving Newsrail, may be obtained from the ARHS Membership Officer, Box 5177AA, GPO, Melbourne, Vic. 3001. Abridged and adapted from Newsrail by Bett McLachlan.

AR

COUNCIL OF EUROPE — TP2I

A new radio station has been created at the Headquarters of the Council of Europe, in Strasbourg, France.

The call sign is TP2I, this prefix serial was deleted from the French international call sign series, and officially attributed by the ITU to the Council of Europe.

The Council is an International organisation bringing together 21 democratic countries of Western Europe. It co-ordinates European activity in the political, cultural and juridical fields, it also deals with human rights problems.

The Headquarters enjoy Extraterritorial Status and are now applying for a New Country on the DXCC list, at the ARRL.

The station's director and QSL manager is F6FQK, assisted by F6EYS. Station operators are F8RU, F6EQG and F6HIX. Operations begin in December 1985.

Contributed by Francis Kremer F6FQK

IS THE CB LICENSED DAD? ... GEE NO DAVE!

An upsurge in illegal UHF CB operation in rural areas was coming in for attention from the Department of Communications.

A DOC spokesman said a nationwide appeal had been made for farmers to pay the $12 licence fee or face prosecution and equipment confiscation, under the Radio Communications Act.

UHF CB is popular in rural districts, but apparently many users are neglecting to obtain a licence.

NEW 2m/70cm FM HANDHELDS from YAESU

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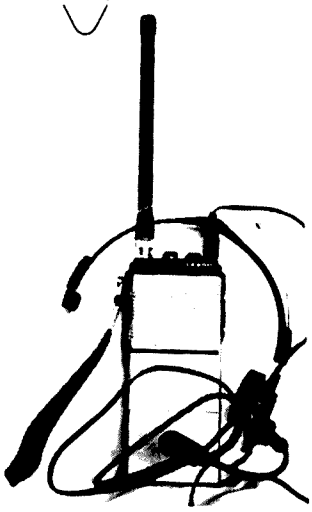

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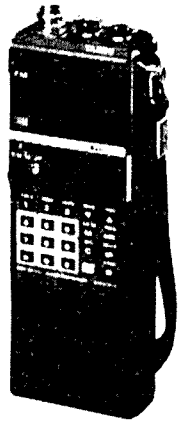

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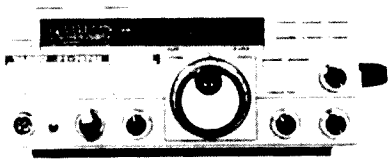
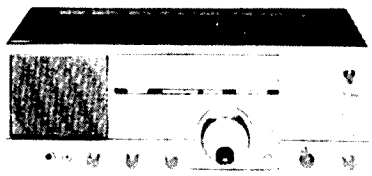
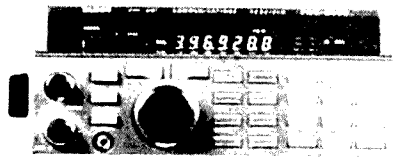


FT-757GX HF ALL MODE TRANSCEIVER



FRG 8800 COMMUNICATIONS RECEIVER



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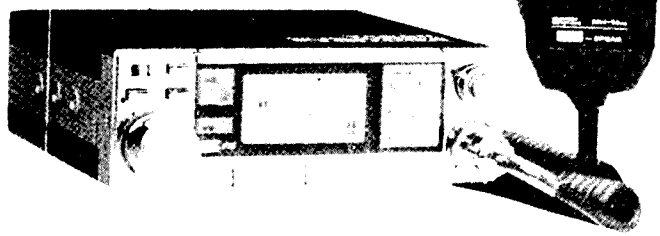

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VK4 WIA NOTES

Alan Shawsmith VK4SS
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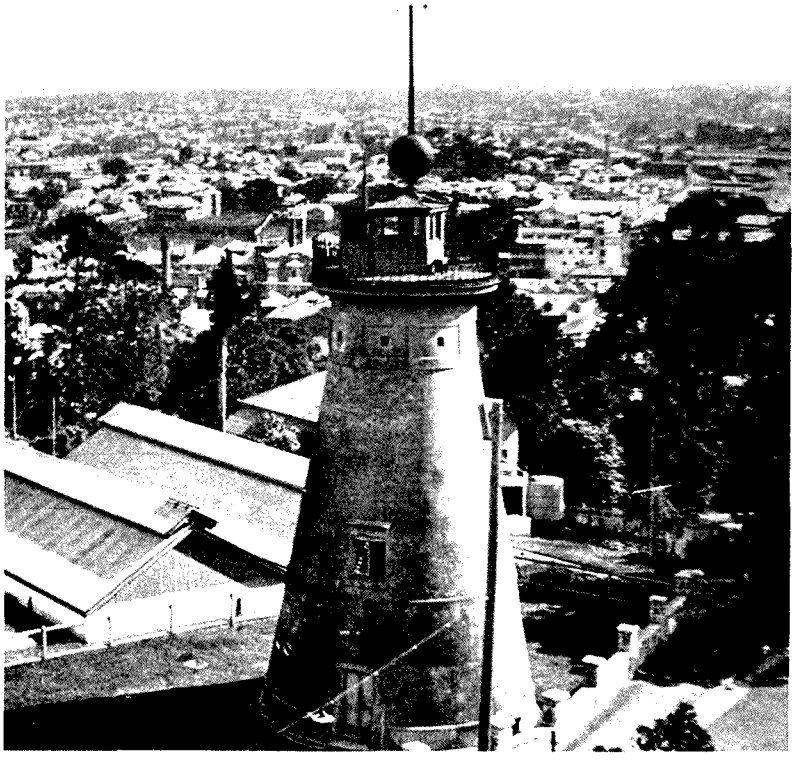


Photograph by F Stevens in 1928.

The convict built Windmill and Observatory Tower. One of Brisbane's oldest landmarks and the QTH and shack of Tom Elliott 4CM. It was from here he directed Sir Charles Kingsford Smith to the Australian coast and later carried out his famous television experiments. The Tower now attracts thousands of curious visitors each year.

PRE-WORLD WAR TWO VK4 HISTORY *(abridged)*

*Marconi has gone down in history as the WORLD'S FIRST AMATEUR — a title he loved to hear, particularly in his latter years. Although this is something of a misnomer, no one would begrudge it to him. Many of his wireless experiments were commercially backed and the word AMATEUR as applied to WIRELESS at the turn of the century was seldom used — the official term was EXPERIMENTER; nor was he the **first** person to achieve WIRELESS communication.*

Queensland, the Sunshine State of Australia, had a few 'eccentrics' who experimented with wireless, as distinct from electricity, in 1900 — or even before this date. They must have been very few and far between, because at the outbreak of WWI, in 1914, only 10 names appeared on official lists. By the year 1930, this number had grown to 95 (give or take a few). During the next nine and a half years, to September 1939, the ranks had swelled to 275, with the ratio of city to country being approximately 50:50. WWII then intervened and when peace was restored, six years later, the number to re-register was 169 — a drastic depletion. Not all paid the supreme sacrifice, many simply had given amateur radio away for other interests. The immediate pre-war figure of 275 was not reached again until the year 1948. This meant that the war set amateur radio back, population wise, by almost 10 years.

Early in 1912, the Wireless Institute of Queensland (WIQ), was formed by S V Colville XQF This gave the Bananalanders the distinction of being the third Australian state to form such a group.

The first VK Call Book was published by the WIV in July 1914 (AR August 1970, page 10, features a reprint) and, out of a total of 401 experimenters listed, VK4 could only manage 10, as mentioned above. However, the equipment used by at least one of these very early pioneers, viz Marcus Brimms ZQA, of Mareeba, N Qld, is still intact. The spark type station was dismantled and stored. There is no reason why it cannot be re-assembled and made to function. It appears to be the earliest station still complete in VK4 and must be one of the oldest in Australia. Shortly after the Call Book was published, experimental stations were ordered to QRT due to the outbreak of WWI and all gear was impounded by the PMG's Department.

The electronic spin off available at the cessation of hostilities gave the home-brewing experimenter many unexpected advantages. One of these was the improved quality and efficiency of the vacuum tube, which quickly led to the development of SOUND TRANSMISSIONS, ie voice and music. The first Queenslander to ably demonstrate this was Tom Elliott, who built station A4CM. His broadcasts, in 1920, were transmitted from the third floor of Preston House, later named the Queensland Insurance Building, in Queen Street, Brisbane. To commemorate this achievement, a plaque describing the event was installed in the vestibule. From this location, he very successfully organised the first Outside Broadcast (OB), a stage play being performed at His Majesty's Theatre — no mean feat in those days. OBs then became a regular feature of his transmissions.

Back in 1915, for security reasons, the Royal Australian Navy (RAN) took over the control of Australia's communications from the PMG, until 1920 — two years after conflict ceased. Anecdotal stories that have surfaced from around this time indicate that both the Navy and PMG were somewhat reticent to issue 'experimental' permits to private individuals. Part of a letter written by Old Old Timer, Frank Carey VK2AMI, shortly before he became a Silent Key, will shed light on the official attitude:

. . . the VK call letters were not in use then and no 'experimental wireless' was permitted. When WWI ended, the Post Office stubbornly refused to allow any form of 'wireless' by private owners. However, I managed, on my war record, to get Prime Minister Billy Hughes on my side, (allegedly by personal interview). The Post Office's objection, which was given as lack of secrecy in communications, was over ruled. I got the call 4FC but, the Navy refused to allow me to use it away from home on account of possible 'homing' on a sea-going ship leaving our ports."

If ex-Queenslander, Frank 4FC, A4FC and finally VK2AMI, found it necessary to enlist the PM's aid in obtaining a licence to experiment, then it can be assumed that lesser souls had little or no hope. This official attitude surely must have retarded the progress of wireless in VK — fortunately it did not last. VK2AMI was a skilled electrical and mechanical engineer — decorated by the USA for his WWI service. His name and call sign appear on the Honour Roll in the Toowoomba City Hall; his home brewed spark transmitter (circa 1917) is permanently displayed in the Brisbane Museum. This set must also be amongst the oldest functional equipment in Australia.

At this point it may be propitious to clarify the progression of call signs used in Australia since wireless began. Pre 1914, the experimenters call sign was a three letter affair with the prefix 'X', eg XCM. After WWI this was replaced by a number assigned to each State, eg 4CM — Queensland. Then the letter 'A' (for Australia) was added, eg A4CM. As DX began to reach into other continents, Down Under was further clarified, in 1926, by the addition of the letter 'O' (for Oceania), eg OA4CM. Late in 1929, amateurs were allocated the 'VK' prefix which has remained to this present day.

In 1925, the PMG first introduced the Amateur Operators Proficiency Certificate (AOPC), later changed to AOCP — and about this time the term EXPERIMENTER began to be superseded by the less descriptive word AMATEUR.

GOLDEN DECADE

'National' MW Broadcasting, namely 4QC Brisbane and Commercial Station 4GR Toowoomba came to the Sunshine State in 1925. These events appear to have inspired the experimenting fraternity to follow suit in a big way. Research reveals a surprising number of amateur disc jockeys who 'had a ball' between the years 1925-35. The PMG then began to impose restrictions on MW transmissions and finally closed them down pre WWII. One of the best known amateurs, during this period, was Cec Morris VK4LW, who had a large listening audience. V H Wooster VK4VH of Townsville was another. His signal was heard far and wide, even to the islands north of Australia. Most clubs had a weekly broadcast service and many, using only QRP, were heard at incredible distances. It is hoped to provide much more information on this 'Golden Decade' of amateur radio DJs, in VK4, at a later date.

VHF ARRIVES

The firsts forays into VHF began in 1925 in Queensland. As a matter of passing academic interest, Hertz and others, investigated VHF in the 1880s — but decided the spectrum had little potential and naturally turned his genius to more profitable research. What this great man may not have fully realised was, that the shortcomings lay more in the apparatus than in the medium.

Early experimenters in VK4 faced the same dilemma; the state of the technical art was hardly up to efficient communication at VHF In 1926, Leighton Gibson OA4AN constructed, what must have been one of the first successful five metre transmitters in Queensland, the adjective 'successful' being relative. From a look at the photograph of this rig it appears to have been the well-known, one tube Hartley oscillator. At 56MHz it must have been very unstable and subject to hand capacity when tuned. How well, or how badly, it keyed will never be known. It was displayed at a radio and electrical exhibition at Brisbane in the above year. One prophetic comment written at the time bears mention, *"five metres appears useless for DX but has potential for interplanetary communication."* Obviously the science fiction writers were among us way back in 1926.

In 1928, Arthur Walz OA4AW, prominent in all pre WWII activity in VK4, produced a receiver which performed creditably on VHF It was stable enough to allow signals to be tuned with minimum difficulty. In the early 30s, with one or two reported exceptions, five metre DX was mostly restricted to a range of a few miles.

It was not until Edwin "Feedback" Armstrong's super regenerative circuit was adopted, that things began to move. This super sensitive, simple, easy-to-construct set, nicknamed the 'rush box' — because it operated with a no signal, low level, high pitched hiss — revolutionised VHF operation. For the first time ever, mobile duplex phone became a "piece of cake'. Magazines from 1930 onwards began to feature regular articles on the 'RUSH BOX' transceiver — QST (USA) in July 1931, devoted 11 pages to, what was now, a most popular activity.

As the 30s advanced, so did the VHF DX frontiers. One of the best five metre QSOs was made by Arthur Walz, VK4AW at Nundah, with Roy Harston VK4RY. and Bill Wishart VK4WT at Mount Gravatt, early in 1934. Although this cross-town contact covered only 22km, the signals both ways were steady, strong and clear — a triumph for "rush box' equipment. Shortly after this, technical instruction on super regeneration became part of the WIA (Q) tuition class curriculum.

Over-the-horizon ship-to-base contact had already been made by a WIA (Q) crew using Nim Love VK4JL's ship, the SWEETHEART en route to Stradbroke Island — thus disproving the, then current theory, that VHF waves were strictly line of sight.

Early in 1935, several members of the WIA, viz VKs: 4AW, 4HR, 4RY, 4AL and others achieved a long sought aim, by breaking three Australian VHF records. They were: mobile to mobile, mobile to base and base to aeroplane. Maximum distance was 112km. This DX was very quickly surpassed with QSOs from places well north of Brisbane to beyond Toowoomba, on the Darling Downs, and to Springbrook near the NSW border. Again Arthur VK4AW was prominent in all of these activities. These final successes on VHF were a just reward for a dedicated group of VK4s who, initially had many failures, but stubbornly persisted investigating this part of the electromagnetic spectrum.

BUMPY ROAD TO TRAVERSE

Most post WWII amateurs would know very little about the early days of the WIA and might conclude that, since its inception in 1910, the body has progressed smoothly and steadily. Not so! As with all long surviving societies, the Institute has had its 'ups and downs' and at least one era, when it had to contend with a vigorous and fast expanding group, the Australian Radio Transmitters League (ARTL).

In March 1919, at Brisbane, an inaugural meeting was held to form the Queensland Wireless Institute, known hereafter as the QWI. Like its predecessor the WIQ, which became largely inactive during WWI, membership must have been only a handful of enthusiasts, at most. Some six years later, dissatisfaction with the Institute began to surface; the younger and more active experimenters viewed it as an ineffectual body. Frank Carey A4FC had this to say, *". . . the development of wireless is not due to the skills and knowledge of the academic 'big shots' . . . but due to progressive ideas from just ordinary fellows from all walks of life."*

Research by this author at the Oxley Library, Brisbane, has, so far, failed to reveal any high level activity by the QWI during the period leading up to the mid-20s. There are records of experimenters on the 200 metre band and some tuition in wireless — but this did not satisfy a growing number of vigorous younger experimenters, who viewed progress in the State of Queensland as being in a State of Stagnation.

This led to a well-attended meeting held in April 1927 at Tom Elliott's Radio Shop, Adelaide Street, Brisbane, where those assembled, formed a separate organisation. It was given the name of the Queensland Radio Transmitters League (QRTL). Office Bearers elected were:

President — Matt O'Brien OA4MM
Secretary — Leo Feenaghty OA4LJ
Treasurer — Cliff Gold OA4CG
Working Committee — A Walz 4AW, R J Browne 4RB, C Gold 4CG and Tom Elliott (of T.V. fame)

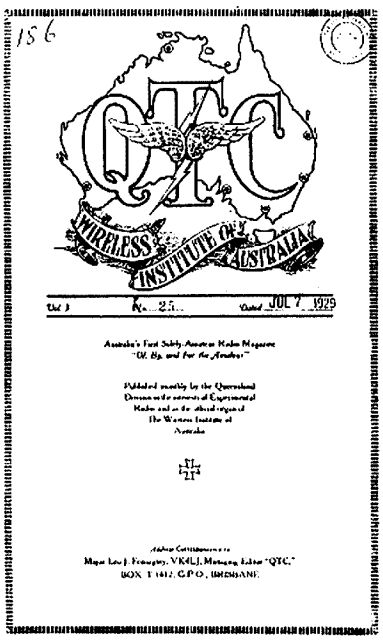
These office bearers became some of the most talented experimenters, administrators

Leo Feenaghty as he is today, retired on the Gold Coast. He was the Secretary of QRTL and AR's first Editor.

and journalists that the VK4 Division has ever had.

Three months later, on 29th July 1927, the QRTL published its first newsletter 'QTC', under the editorship of L J Feenaghty OA4LJ — a foolscap sized, 12-15 page production, issued monthly, for a subscription of six shillings (60c) post free. It met with an enthusiastic reception and had to be reprinted twice, subsequently being expanded and read in several foreign countries. 'QTC', the first solely amateur wireless magazine in Australia — and the second in the British Empire — went on to become the official organ of the ARTL and eventually the WIA.

The influence of the QRTL spread rapidly and in less than 12 months there were interested groups in all States. This led to the suggestion that a National Organisation be formed under the title of the Australian Radio



QTC 1929.

Transmitters League and each State identify itself by appending its Division, eg ARTL Queensland Division. The decision as to which State would act as Federal Headquarters went by majority vote to Queensland — this came into effect in July 1928.

ARTL membership was growing rapidly all over Australia and in Queensland alone it was several times that of the QWI (reportedly 10:1). Official recognition by the PMG would put the seal of authority on the ARTL, so to this end direct representation was made. The Departmental reply was pragmatic — neither Yes or No. It preferred, if possible, to negotiate with ONE body only — but didn't specify which one.

By this time, the ARTL was in a position of strength to enable it to alter the course of Australian amateur radio history, consequent on any decisions it decided to make. On its side, the WIA had many years of official recognition behind it — but the ARTL had undisputed popularity, positive, progressive policies and an energetic group of persuasive administrators, bursting with new ideas.

QTC Magazine, Volume 2, Number 17, November 1928, ran the following editorial (extract only):

". . . . in Australia at the present time there are two great bodies representing the amateurs. There is the WIA, the senior body in point of date of formation, having its strongholds in Tasmania and Victoria. In the early days of its formation, the Institute rendered yeoman service to the amateur cause and not a few of the privileges we now enjoy are the result of its activities. For certain reasons, there arose, in this country, some 18 months ago, the Radio Transmitters League movement which, on account of the need for some body composed entirely of transmitters, had a phenomenally successful reception and which very soon firmly established itself in Queensland, New South Wales, Victoria and Western Australia. The stage has now been reached when it behooves the two bodies to take stock and examine the position of the amateur very carefully, with a view to joining forces for the ultimate good of the CAUSE which both sides are striving their utmost to foster . . . ."

NO WIA?

After much discussion, the FHQ decided to seek a possible merger with the WIA, which had formed itself into a National body with headquarters in Victoria. Had the ARTL chosen the alternative course, at this point of time, and single mindedly pressed the PMG for recognition as THE National body representing the amateur, there might well be no WIA today. No one can really say — it can only remain as one of those polemic moments in our history.

During the following month, December 1928, Major L J Feenaghty VK4LJ, the ARTL Secretary, journeyed to Melbourne to discuss amalgamation with the WIA Executive, represented by the President Howard Love VK3BM, Vice-President Stanley Gadsen VK3SW and the Secretary Bruce Hardie VK3YX. The intense week long conference produced a rough draft of a new Australian amateur radio society. It included an amended constitution, the name Wireless Institute of Australia was to stand unchanged and QTC magazine was to become the official magazine of the Institute.

It is gratifying to report that the above negotiations were conducted in a spirit of cordiality and goodwill. However, it is unfortunate to report that VK4LJ was indisposed during this period, a fact that may have had some influence on the final draft.

All that now remained was an indication of acceptance by the Divisions in order that the merger could be declared a 'fait accompli'. The QWI proved to be a stumbling block; it rejected the decisions taken at the December Conference. This led to a sudden surprise move by the WIA Federal Executive in Melbourne. It simply recognised the ARTL Qld District as the official Qld Division of the WIA. Queensland Secretary, VK4LJ, in his editorial in April 1929 issue of QTC mentioned jubilation among the VK4 ARTL followers. In his turn, the WIA Federal Secretary, Bruce VK3YX said, *". . . Thus gentlemen, we have achieved our object — we are the WIA. A great and bloodless victory has been ours and I am able to say that no trouble is likely to be experienced from QWI and that we will experience no opposition from them in connection with the Federal Headquarters action."*

In April 1929 — two years almost to the day when the QRTL was first formed — the last obstacle to an ARTL/WIA amalgamation had finally been overcome. The merger was a 'fait accompli'. The stage was now set for a united WIA to play a positive role in the Halcyon Days of the coming decade, ie 1929-39.

During this halcyon period, the private clubs that had at first flourished in VK4, began to diminish in influence, but the WIA (Q) went from strength to strength. This was primarily due to energetic and capable executive officers who established the Institute as a body of influence and respect.

Among the fraternity, the state of the art began to expand rapidly. Single tube Hartley transmitters gave way to multi-stage crystal oscillator or variable frequency oscillator controlled rigs; the superheterodyne receiver was homebrewed or bought over the counter and primitive beam antennas put in an appearance. As solar activity improved, DX and award hunting increased dramatically. Contests were staged and well supported. For the first time ever, communication wise, the world had become a global village. (See Chronology).

AND SO TO WAR

Amateur radio was never looking so good when, on 3rd September 1939, the then Prime Minister, Mr R G Menzies, informed the people that we were at war. Once again all amateur radio ceased and rigs were dismantled. Sadly, due to circumstances beyond control, many never returned to the hobby.

It is gratifying to record that Major L J Feenaghty, ex 4LJ, who played a dominant role in forming the QRTL, ARTL and negotiating the ARTL/WIA merger, is still alive and receives Amateur Radio magazine. He also produced the first VK all amateur journal, which became the first official WIA journal, viz "QTC" and he must be happy to know that it is still the official WIA (Q) newsletter.

The above material, is but an extract of VK4 history being compiled, not a complete account. Hopefully, many more events of a personal nature and general relevance will be added. Readers are invited to submit any information they have, either new or contradictory. But please include your source of information. The author is eager to hear from any Old, Old Timers who held any WIA (Q) Division Office or Council Executive position pre WWII. He is also hoping to compile an Honour Roll of all VK4s who died as a result of service in any combat zone, up to and including WWII. Please write to the author at the above address.

ACKNOWLEDGMENTS: Much of the above mentioned information was obtained from periodicals and magazines held at the Oxley Library, Brisbane. Many thanks must go to the staff for their courtesy and assistance.

AR

CHRONOLOGY

Queensland's Amateur Radio History Prior to World War Two

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld. 4101

1905 — The 'X' prefix allotted to all experimenters — terminated at the beginning of WWI, August 1914.

1911 — David James Garland active. Now regarded as Queensland's first experimenter. His SPARK transmissions achieved a DX of 50km.

1912 - The Wireless Institute of Queensland formed (WIQ).

1914 — Ten Queensland experimenters on official lists. In the USA, 3800.

1914 — Marcus Brimms XQA, completely homebrewed a SPARK station. Dismantled, but still intact. Possibly the oldest functional, complete station in Queensland.

1917 — SPARK transmitter built by Frank Carey ex XFC, later VK2AMI. Transmitter now in the Queensland Museum.

1919 — The Queensland Wireless Institute formed (QWI).

1920 — Numeral prefixes allotted to each State. replacing the prefix 'X', eg 4CM — Qld.

1920 — Tom Elliott built Station 4CM and transmitted the first MW sound broadcast from Preston House, later the Queensland Insurance Building. A brass plaque placed in the foyer to record the event.

1921 — Bill Bright 4WB, a railway telegraphist conducted the first wireless tests between Toowoomba, Qld and Melbourne, Vic. Frequency — MW, Mode — Spark.

1921 — Tom Elliott, using station 4CM, organised the first outside broadcast from His Majesty's Theatre, in Brisbane — a three hour stage play. No mean technical feat, in those days.

1923 — The letter 'A' added to the prefix. 'A' stood for Australia, as DX was becoming international, eg A4CM — Qld.

1923 — Norm Odgers licenced as A4BO, now VK4CH. He is believed to be the longest licenced amateur in Queensland — 62 years to 1985 and still active.

1924 — Harold Hobler A4DO, in Rockhampton, received Broadcast Station KGO (USA), in daylight hours, on one valve. During this year, A4DO was placed second in Australia during the Wireless Weekly Tests.

1925 — National and commercial broadcasting began in Queensland, with stations 4QG in Brisbane and 4GR in Toowoomba. Amateurs began to follow suit.

1925 — Tom Elliott developed the ELLIOTT 3 HF receiver. Acknowledged as a superb performer.

1925 — First experimental forays into VHF

1926 — Letter 'O'added to the prefix 'A' to further distinguish area. 'O' for Oceania, eg OA4CM — Qld.

1926 — Successful five metre transmitter built by Leighton Gibson OA4AN. Displayed at the Electrical and Radio Exhibition in Brisbane.

1926 — Radio journals and magazines began to appear commercially in Queensland. During the following decade, more than a dozen different publications were in circulation in Australia and New Zealand, at one time or another. Only a few were still functioning at the outbreak of WWII.

1026 — Hal Hobler OA4DO, worked the USA on one watt, QRP and was made a member of the Australian Rag Chewers Club. Queensland was the winner of the Trans Pacific Tests. Queensland winner of the Jewels Miles per Watt Contest.

1927 — SPARK type transmissions made illegal.

1927 — Amateur radio clubs began to be created in Queensland. During the 30s, some 24 clubs, with an estimated total membership of 1000, were active at one period or another. Only a few were still functioning at the outbreak of WWII.

1927 — Queensland Radio Transmitters League formed (QRTL).

1927 — First publication of 'QTC', the newsletter of QRTL. Editor was Leo Feenaghty OA4LJ. This was the first publication devoted entirely to the experimenter.

1927 — QRTL staged the first Radio Convention in the Commonwealth, in Brisbane.

1927 — QRTL obtained permission to handle urgent radio traffic.

1927 — QRTL gave evidence before the Royal Commission on wireless.

1927 — QRTL influenced a group in NSW to form the NSW RTL.

1927 — QRTL expanded activities and had an active representative in all States (Districts), eg Qld — Fourth District.

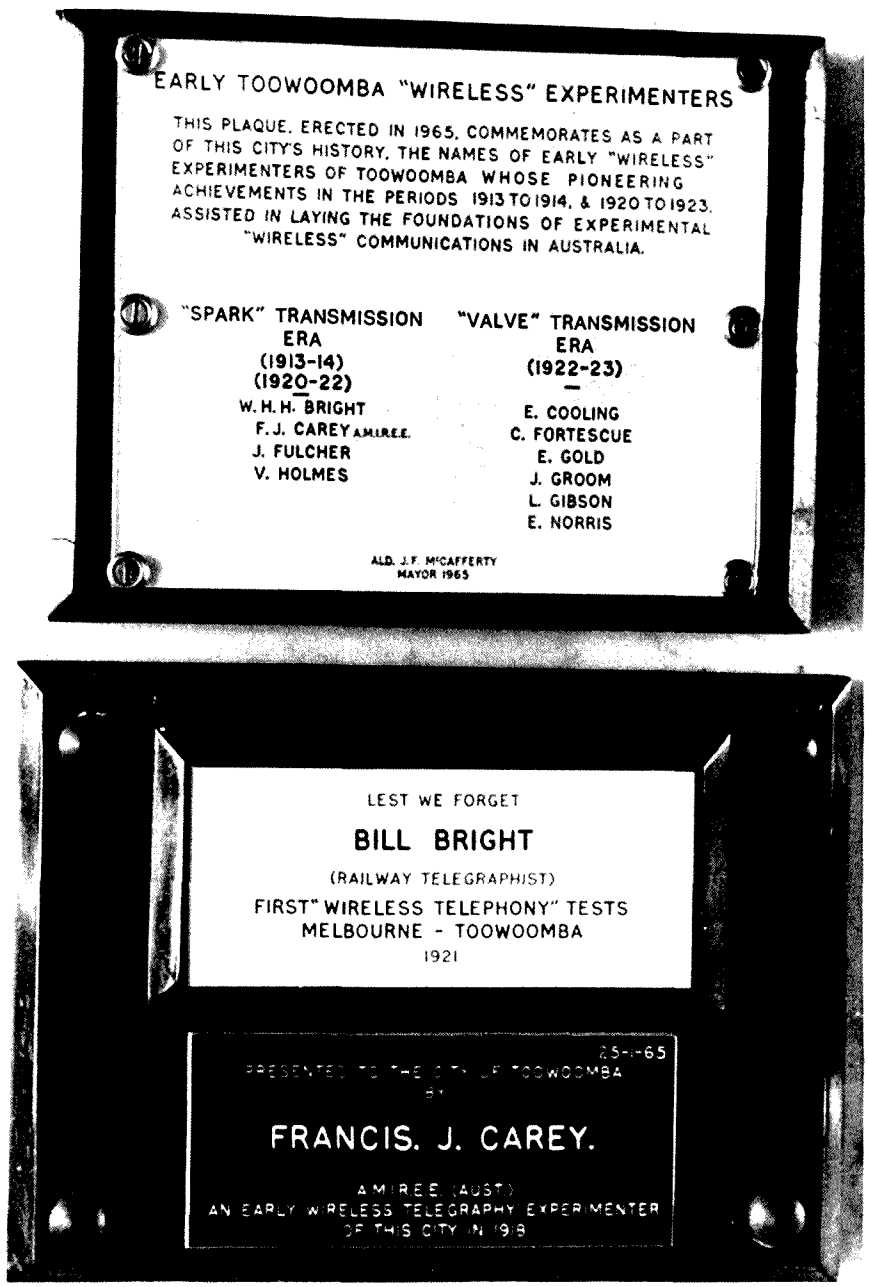
1927 — QRTL opened QSL services for any 'OA' operator.

1927 — Leighton Gibson OA4AN and Andy Couper OA4BW, in North Queensland, handled urgent cyclone traffic. Both praised by Mr A J Christie, Department Director of Posts and Telegraph.

1927 — V F Kenna OA4FK, 'Marconi' to his mates, passed the AOCP exam at 18 years. He then began a career as a trainee mechanic in the PMG, later rising to be Senior Engineer in the Radio Section of PMG Headquarters in Victoria, the highest position one could attain in this field. An *outstanding* Queenslander.

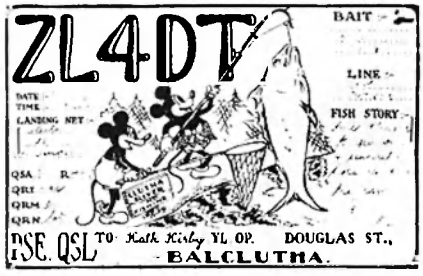
1928 — Australian Radio Transmitters League (ARTL) formed with a Division in all States. Queensland was voted Australian Headquarters.

1928 — ARTL, Qld Div membership was several times more than that of QWI membership.



Photograph courtesy The Toowoomba Chronicle

1928 — ARTL seeks official recognition from the PMG.
1928 — Five metre receiver was constructed by Arthur Walz OA4AW and performed efficiently. He was heard in freak conditions in Tasmania.
1928 — Tom Elliott, using OA4CM, provided an HF navigational fix for 'Smithy', making it possible for the completion of his record breaking trans Pacific flight. After leaving Fiji, the 'Southern Cross' ran into extremely bad weather and urgently required directional assistance.
1929 — 'VK' prefix replaced the 'OA' prefix and has remained **unchanged** to the present time, eg VK4CM.
1929 — ARTL and Federal WIA propose to amalgamate — official title to be WIA. 'QTC', under the editorship of Leo Feenaghty VK4LJ, became **Australia's first solely amateur radio magazine,** with approximately 15 foolscap pages. It was published by the Qld Division as the official organ of the WIA.
1930 — QWI objects to ARTL/WIA amalgamation. QWI's total assets 20 pounds ($40).
1930 — Federal Executive of the WIA in Melbourne ceased to recognise QWI and accepted ARTL, Qld Div, as the official Qld Division of the WIA.
1930 — Reverend R J Delbridge VK4RJ, wins the Hutchison Cup for HF activity work.
1930 — Bill Hagarty VK4WH, using eight volts to a Model T Ford coil into a CX310, worked OA4J in Peru, South America, on QRPp.
1930 — Miss Dorothy Harriss VK4DH, was the first YL operator licensed in Queensland.
1930 — Frank Nolan VK4JU, in contact with USA on 80 metres, 10 watts CW.
1931 — 'QTC' magazine ceases to exist by directive from Federal WIA, Melbourne.
1931 — G (Mac) Mackenzie VK4GK, first to receive news of Napier, NZ, earthquake from a ZL amateur. There were 500 deaths. He relayed the information to the Courier Mail in Brisbane.



1931 — J McDermont VK4JM, contacted Western Australia on 40 metres, QRPp (less than one watt to a 201A receiving tube).

1932 — Roy Jonasson VK4NG, contacted ZL4DT in Balclutha on the South Island of NZ, on 40 metres 'loop' phone. Power in the aerial was .2 watt. Report was 3 x 5. During the same year VK4NG worked VK2KZ in Curri Curri, NSW on 'loop' phone. No measurable antenna current on the meter. 10 volts HT to the tube. Report 3 x 4.
1932 — Vince Jeffs VK4VJ, began experimenting with single sideband.
1932 — 'Five Point Relay' organised by the Association of Amateurs, NSW, was won by Reg Vickary VK4RV. The third place went to Arthur Walz VK4AW.
1933 — Len Grey VK4LN, was the first Queensland amateur to fly the overseas service with QANTAS as a pilot and wireless operator. He had to repair and self-service the gear when needed.
1933 — R Vickary VK4RV, of Cunnamulla, using 12 watts input was heard in Rockhampton on the broadcast band in daylight.
1933 — Jack Wooster VK4VH, of Townsville regularly put 204.7 metres broadcast signals into New Guinea on QRP, (50 watts), in daylight hours on Sunday mornings.
1933 — F Scott VK4BO, was QRV from Thursday Island. Was he the first VK to operate from this location? ?
1933 — P Whelan VK4KR, believed to be the first amateur active from Willis Island.
1933 — P (Pop) Hardgrave VK4PH, was almost an octogenarian when he obtained his amateur licence. He was then the oldest amateur in the British Empire.
1933 — Bill Chitham VK4UU, licensed. Created the famous 'U'gang.
1934 — Arthur Walz VK4AW, W Harston VK4RY and W Wishart VK4WT successfully conducted a 14 mile (22km) cross-town (Brisbane) five metre QSO with strong, steady signals both ways. Best VHF results to this date.
1934 — Sunshine State conducted its first Radio Cup Contest. Winner unknown.
1934 — Queensland Division wins the Fisk National QRP Contest.

The 12 year old prodigy of the 1930s, Madeline MacKenzie VK4YL, now Mrs Pligh, photographed in 1981. Shown here proudly displaying her trophies and parts of her old vintage gear. Her decision to leave amateur radio post WWII was a big loss to the fraternity.

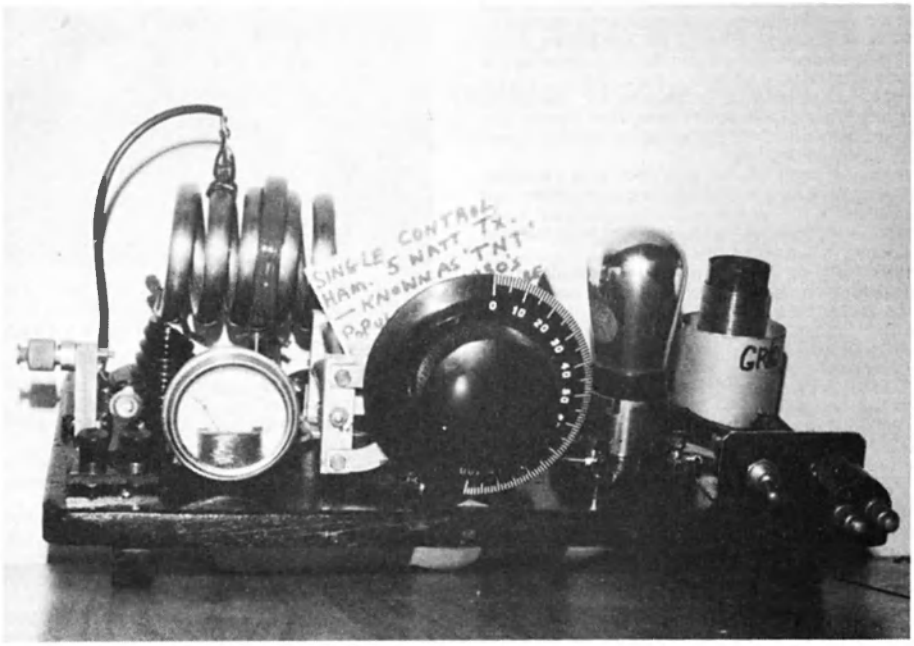
1935 — Madeline MacKenzie VK4YL, the youngest licenced YL operator in the British Empire. Her age — 12. Quickly, she became a competent CW contest operator with many high placings in BERU contests. WBE on 20 metres soon after she was licenced.
1935 — M O'Brien VK4MM, W Wishart VK4WT and Nim Love VK4JL, successfully conducted over-horizon, ship-to-shore, five metre contacts, thus disproving the then held theory, that VHF was line of sight communication, only.
1935 — Australian five metre DX record was broken several times. Participants were Arthur Walz VK4AW, H Scholz VK4HR, B Munro VK4AL and Pat Kelly VK4KB. All were WIA members. The distance covered was approximately 174km.
1935 — Roy Belstead VK4EI, was the first Bananalander to contact Europe on 10 metres. He worked ON4AU, F8VF and D4JMK, with 20 watts input.
1935 — Alf Guilford VK4AP, won two WIA, Qld Trophies — for outstanding DX achievement and the most efficient active station. He was issued with a special QRO permit by the PMG.
1935 — E R Ashlin VK4EA, QRV on 229 metres with six watts input, was heard by two short wave listeners in New Zealand. Reports from both contained enough logged information to make them acceptable.

Two great QRP DX men. VK4RF left, and VK4EL right, making FS measurements to a vertical antenna in an effort to coax the last milliwatt of RF into space.

1935 — Harry Angel VK4HA, obtained his AOCP Harry is still on air almost daily, held a century later at the age of 93 years. Is he Australia's oldest active amateur?
1935 — Eric Lake VK4EL, sells the rights of his 'One Valve HF Lake Special' (unofficial). A super performer.
1935 — Queensland Division wins '5 plus 5' CW Fisk Contest. Mr E T Fisk, in the broadcast station 2CH Sydney, presented the Fisk Trophy to Arthur Walz VK4AW, Queensland Divisional President, in the broadcast station 4BC Brisbane.
— Tom Elliott VK4CM, broadcast television signals on 136 metres from Observatory Tower, Brisbane. The picture transmitted was of film star, Janet Gaynor. Subsequent transmissions were received on the Darling Downs, 90 miles (144km) away.

A recent photograph of Arthur Walz VK4AW holding the Fisk Trophy, which was won by the Queensland Division in 1935.

1936 — Queensland Division again won the Fisk Contest and was declared the outright winner of the Trophy. The Fisk Trophy Contest was a forerunner of the REMEMBRANCE DAY CONTEST.
1936 — Vi Nolan VK4LO, the YF of Frank VK4JU, is said to have completely homebrewed her own rig, down to the component parts, including winding power transformers. Quite an ex-YL. Also claimed contacts with 20 000 USA stations up to the period of WWII.
1936 — Eric Lake VK4EL, made WAC on 20 metres CW with less than half a watt, into a vertical antenna and claimed overseas as a QRPp world record at that time. VK4EL, was the official WIA and private Morse code instructor to all and



The famous Work-the-World TNT Circuit, one tube, five watt transmitter, circa 1930. The usual form of modulation was LOOP — a single loop around the tank coil, connected to a PMG carbon microphone. Some operators used a glove to prevent RF burns and avoided lip contact.

sundry. In his latter capacity, the fee was six pence (5 cents) per hour, or free if beyond the ability to pay.

1936 — Harold Hobler VK4DO, created WAC in a world record time of 50 minutes, on QRP.

1936 — G MacKenzie VK4GK, worked the first WAC on 10 metres AM phone.

1935 — Fred Lubach VK4RF, makes WAS (USA) in 100 days on 20 metres CW. VK4RF also worked DXCC in less than 12 months on QRP during this year.

1937 — G MacKenzie VK4GK, awarded 10 metre CW WBE by BERU.

1938 — Chas Miller VK4CM, now VK4QM, achieved first place in the VK/ZL CW Contest. Bob Beatson VK4BB, of Maryborough, was placed first in the Junior A1 section.

1939 — Frank Nolan VK4JU, participates in the, now famous, all continent round table 20 metre AM phone event. Other participants were VK3KU, VK3DH, VU2CQ, G6ML, W4DLH and stations in Egypt and South America, whose call signs are unknown. Reported in the USA and Europe and recorded by VK3DH.

1939 — Frank Shannon VK4SN, won the WIA Queensland Divisional Pennant for DX achievement on QRP.

1939 — VK4SA, now VK4SS, handles an emergency from cyclone devastated, Solomon Islands. In the same year, VK4SA contacted G8KP, a prefix 'first' for both. After 40 years, they 'eyeballed' for the first time and swapped the first QSL cards sent to each other, pre WWII. **AR**

Alan Shawsmith VK4SS.

FINE ACHIEVEMENT IN AMATEUR RADIO

10 Metre Communication Between Queensland and Europe

For seven years it has been the ambition of Australian amateur wireless men to establish two-way radio contact with European amateurs on the 10 metre band, and to a Queenslander has fallen the honour of having done so. The successful amateur is Mr. Roy Belstead, of Townsville, who last Sunday night worked with ON4AU (Belgium), F8VF (France), D4KPJ (Germany) and D4JMK (Germany).

On previous occasions OH7NC (Belgium) has reported having heard VK4EI (Mr. Belstead's station), and 4EI has heard European amateurs, but last Sunday night was the first time he was able to establish two-way contact.

In amateur circles this is regarded as a noteworthy achievement and VK4's are particularly pleased that it was a Queenslander who has made fresh history on the 10 metre band. The successful contact has stimulated interest in the efforts to link up with European amateurs, and reports from abroad state that the Europeans are keeping a look-out every night for VK stations.

Another interesting report is that, for the second time in the history of 10 metre experimental transmissions, an Australian has established two-way communication with a South African

An excerpt from the Brisbane Telegraph — 8th October 1935.

PROFILE OF THOMAS M B ELLIOTT

Thomas M B Elliott, early wireless and television pioneer, is credited with the following 'firsts'. He was the first radio voice in broadcasting in 1919, built the first sound broadcasting station, 4CM in Queensland in 1920, was the only amateur to contact and assist aviator, Sir Charles Kingsford Smith in 1928 and was the first to regularly transmit television pictures in 1935.

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld, 4101

It would seem, fate is largely indifferent to the struggles of man, and bestows her whims as she deems fit. There was nothing in the early years of Tom Elliott's life to indicate that he was a man destined to become a legend in his own lifetime.

Born in Queensland in 1899, Tom was one of a fairly large, but not affluent family. Nevertheless, his parents provided him with a good basic education. In 1916, at the age of 17, he secured a position as a Wireless Operator (Sparks) with the ORIENT Line. How he obtained the technical knowledge for this position is not known, however he would have been quick to acquire the skills.

Tom left the sea in 1919 and participated in building the broadcast station that was the forerunner of 2BL. Anecdotal information says that from there he made the **first voice broadcast.** A recording of this is said to be in the National Museum, Canberra.

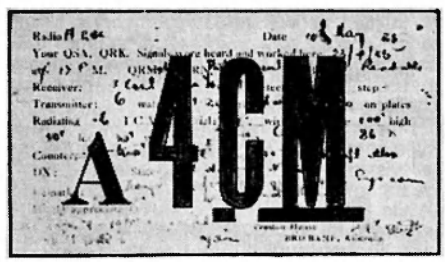
In 1920, he returned to Queensland and, during this year, constructed and put on air, broadcast station 4CM. This was a full **five** years before National and Commercial Broadcasting began in the Sunshine State. The listening public was restricted to reception by the ubiquitous crystal set. Very few had valve receivers. Unofficial reports of 4CM's transmission indicate it was heard at a distance of 2000km. A large plaque in the vestibule of the Queensland Credit Union Centre building, then Preston House, in Queen Street, Brisbane, testifies to this achievement. The wording is thus:

"Sound Broadcasting Originated in Queensland from this Building. Transmission Commenced in 1920 and continued to 1923 under the Auspices of Dr V MacDowall. The Installation was Designed and Operated by Thomas M B Elliott".

Tom's next venture was a very successful outside broadcast (OB) of 'Aladdin's Pantomime' from His Majestys Theatre, Brisbane. No mean feat in those days when, music and other effects had to be picked up acoustically. Again, this broadcast was the **first** of its kind in Queensland — and in Australia — conducted by a purely experimental station. These OBs became regular features, many being relayed from the Exhibition Hall. A well received speech, by the then Premier of Queensland, Mr E G Theodore, broadcast in 1924, finally created an awareness in political minds of the potential of broadcasting, and acted as a catalyst to the creation of station 4QG, Brisbane, which came on air in 1925.

The station A4CM at Preston House was dismantled and, for a period in the mid 20s, Tom ventured into radio retailing, setting up a 'Wireless Centre' in Adelaide Street, Brisbane. At these premises, in April 1927, the inaugural meeting of the QRTL, forerunner of the powerful ARTL, was held. Tom was elected to an executive position.

By 1928, the experimental station OA4CM had been rebuilt in the Old Windmill Tower, on Wickham Terrace. Not only was this place ideal for radio and TV experiments, it also had a great historical background. From here, on the morning of 9th June 1928, Tom Elliott wrote himself into the pages of both wireless and aviation history books. Through the QRN on approximately 35 metres, he heard the call KHAB from the transmitter aboard the aeroplane SOUTHERN CROSS, in which Sir Charles Kingsford Smith (Smithy), who was attempting to fly the Pacific. Contact was made and a message received by Tom, asking for navigational directions and the provision of a 'fix' so that landfall may be reached as quickly as possible, before the fuel supply was depleted.



A photocopy of a card confirming a QSO with A2BC from Preston House in 1925. Power was six watts into an antenna 100 feet (30m) high.

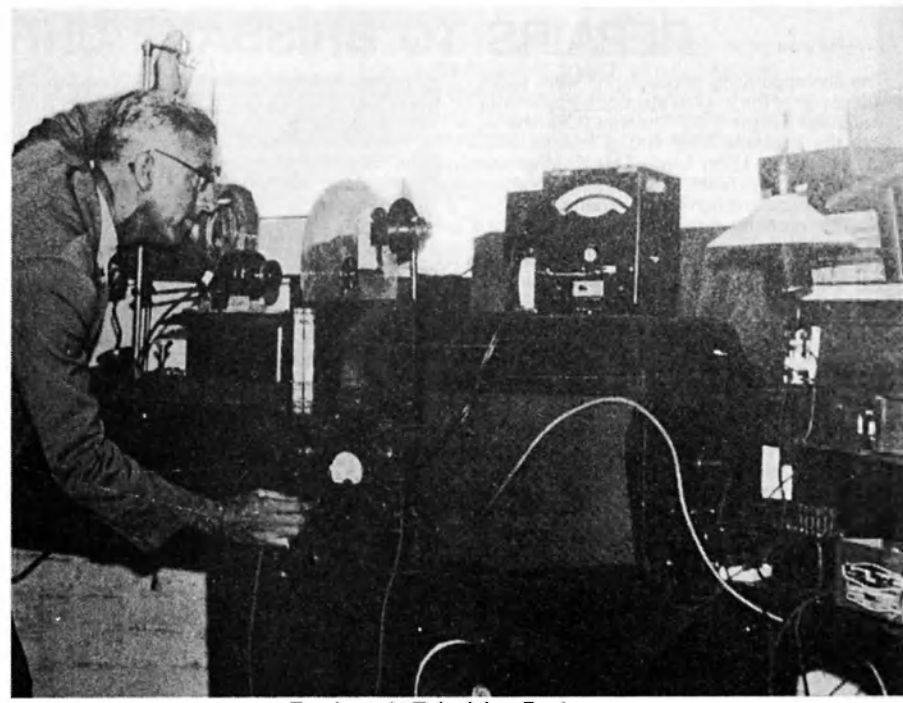
The 'off course' predicament that 'Smithy' was best described in this extract, taken from Australia's Heritage, Volume 5, page 1895, published by Hamlyn.

". . . on the afternoon of Friday 8th June, the Southern Cross left Suva on what was to prove the worst part of the trip. Four hours later, the plane ran into storms, which Ulm described as the worst he had ever encountered.

"Three times now, great sheets of lightening have flashed across our path and each time it had been accompanied by terrific roars of thunder'.

"For the next three hours, the plane was thrown all over the sky and at times it took the combined strength of Smith and Ulm on the controls to drag the Southern Cross back on to an even keel. Throughout the night the storms raged and Smith was forced to fly blind for hours on end, relying solely on his instruments, rather than his instinct, to tell him whether the aircraft was level, turning or climbing. At 7.30am on Saturday, 9th June, Warner received the first radio message from Australia and Smithy turned the aircraft to the west. Two hours later, they crossed the Australian coastline, to discover they were, in fact, about 100 miles south of their proposed Brisbane landing field . . . . . "

The station referred to was OA4CM and Smithy's Wireless Operator Warner asked Tom to keep the key of his transmitter closed, so that a navigational 'fix', on which to fly, could be established. In attempting to comply, Tom also ran into difficulties whicn are best told in



Tom's early Television Equipment.

his own words — "*. . . it was necessary to use full power to maintain contact, As the rig wasn't built to operate key down at this input, the PA tube plate was soon cherry red, in spite of a fan blowing cold winter air on it. I knew that if the valve blew, all might be lost,* (apparently Tom had no spare) *so I had to regularly break the transmission. For over an hour my gaze was glued to the tube — would it last the distance? Fortunately it did, until contact was lost due to short skip; but Smithy was now near the coast and crossed it about 90 miles south of Brisbane. Not bad, considering he was flying in the wrong direction when contact was first made . . . .*"

Tom 4CM (right) and friend Jim Munro taking the air from the verandah of the Grand Hotel, Southport (now demolished).

One of the crew of the Southern Cross (The Old Bus), speaking publicly shortly afterwards, made a brief, but pertinent comment on the flight from Fiji. He said, "*. . . no one will ever know if we would have made it without the timely assistance of Tom Elliott operating station OA4CM . . .*"

Perhaps Warner has a better idea than most. Thirty years later, when visiting Australia, he paid Tom a congratulatory visit and signed his log book.

In 1935, VK4CM achieved yet another first. Television pictures were transmitted from the Windmill Tower on approximately 130 metres and received clearly in Ipswich, 40km away, and later on the Darling Downs, 140km distant. An extract from a plaque erected on the tower reads,

"*An experimental television station was established in the Windmill in 1935 by Dr Val MacDowall and Thomas M B Elliott. The first actual television transmission in Queensland was broadcast from this Tower.*"

These first transmissions were made by means of a mechanical drum. At the outbreak of WWII, his transmissions were an all electronic affair on approximately 200MHz and 180 lines. Tom Elliott was a superb homebrewer,

Tom relaxing with a friend on the waters of Moreton Bay in 1946.

able to construct almost anything to meet his individual needs, including large vacuum tubes specially suited to his television experiments. By instinct, he was a true experimenter, willing to 'cut and try' any project a dozen times until satisfied — then his inquiring mind instantly moved ahead to meet the next immediate challenge.

Readers may be curious to know just what type of man Tom Elliott was, outside radio and television — a man who had spent so many years in research burning the midnight oil. While living in the Tower, pre WWII, he was regarded by some as a recluse — in truth, he was so preoccupied by the tasks in hand, he came to resent being disturbed by curious visitors. At the same time, he was in business, retailing Xray equipment from a nearby office in Ballow Chambers. To eyeball him was a pleasant surprise, his early education was evident in both his manner and speech. No trace of dull or distant academia touched him — in fact he rather exuded the playboy image. Tom enjoyed nothing better than a session with the boys, where his talents as a very witty raconteur had full scope and many a convivial glass was raised in the process. His friends were legion and from all walks of life.

Personal material possessions seemed to have little attraction for him. When, in deference to his advancing years, he was asked to write his memoirs, he replied,

"*There are two large plaques erected in my honour — one at the Tower, the other in Queen Street — they will tell anyone interested in Mr T Elliott all they need to know*"

Such was the simple, but great nature of the man. Thousands of passerbys and tourists now view these plaques each year.

In 1965, Tom was made an Honorary Fellow of the University of Queensland and soon after this, the Royal Historical Society of Queensland bestowed its Fellowship upon him.

There is no record that he ever obtained his AOCP. The call signs used, viz 4CM, A4CM, OA4CM, VK4CM belonged to the late Dr Val MacDowall, who became Tom's mentor, early in his career. They worked together for a time in the profession of radiography. After the doctor's death, the call VK4CM was allotted to another great DXer, Charlie Miller ex VK4US, ex VK2ADE. In the mid 60s, at the suggestion of the PMG, Charlie gladly returned the call to Tom as a mark of respect for the man's achievements. It appears also, Tom was never a member of the WIA.

Tom Elliott died at Redcliffe, Queensland, on 31st July 1971, aged 72 years.

To honour the memory of this true pioneer, the SEQATV Group held a commemorative reunion (50 years since the first transmissions), at the site of his famous experiments, the Old Windmill Tower, Wickham Terrace, Brisbane, on 6th October 1985.

AUTHOR'S NOTE: No attempt has been made to describe and explain the technical experiments conducted in the Tower. These were long, involved and difficult, and a story for another time. I am indebted to a lifelong friend of Tom's, viz Jim Munro of Clontarf, for much of the above information.

AR

REPAIRS TO BRISBANE UHF REPEATER

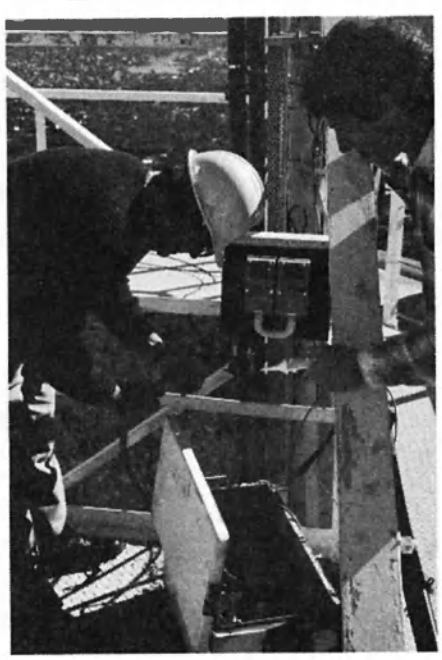
The accompanying photographs were taken on the tower of the largest six metre transmitter in Australia! This is TVQ Channel 0, Brisbane, where the Brisbane VHF Group has its UHF repeater, at the 137m level. The base of the tower is roughly 300m above sea level on Mount Coot-tha, overlooking Brisbane. For four years, the repeater has operated from an old metal car fridge (Esky). But recently it has been a little erratic. On a repeater day recently, Paul Mead VK4ZEM, Nev Potts VK4KNP and Don Marshall VK4AMA climbed to the level to find the problem — the box had collapsed through corrosion, corrosion caused by weather on tne 240V plug (rain and mist blow upwards at that level), plus a little electronics.

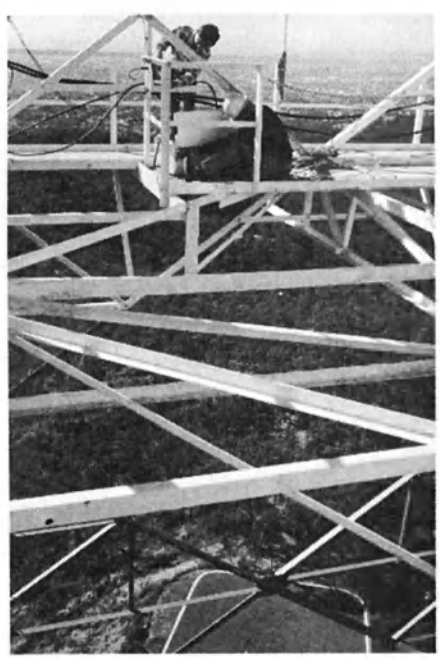
The equipment was carried down the tower in haversacks and it is now being revamped. The unit will possibly be changed to micro control and after testing in the city, will be installed in a new box at the same place on the tower, provided a solution can be found as to how to get the box up the tower.

The tower is a maze of a variety of aerials up to SHF dishes, but the Group were able to report their progress, via a UHF handheld, to other Group members on terra-firma below, despite RFI. On a good, clear day visibility is around the 80-100km range.

Contribution and photographs courtesy Don Marshall VK4AMA

AR





KENWOOD

SUMMER SALE!

TM-211A

The TM-211A 2-m FM mobile transceivers has been designed to be the ultimate in compact size and lightweight, and feature a front panel that can be tilted in relation to the main body of the radio, allowing maximum flexibility in automotive installations. The use of the latest in technology is exemplified in the incorporation of KENWOOD's new DCS (Digital Code Squelch) circuit that provides the operator with a capability to program his radio to respond only to transmissions from stations whose radios transmit a preselected digital code. Additional convenient operating features include a powerful 25 watts of RF output, dual digital VFO's built-in, priority watch, memory scan and programmable band scan, audible "beeper" to confirm operations, microphone test function, repeater offset switch, reverse switch, and high performance receive/transmit specifications.

DCS

TR-7950

KENWOOD, in its new TR-7950 2 meter FM mobile transceiver, introduces a completely new concept of versatility and performance in 2 meter operations. Among the more important convenience features providing enhanced ease of operation is a new, large, easy-to-read (direct sunlight or dark) LCD siaplay, 21 new multi-function memory channels that store such information as frequency, offset, and sub-tone channel data (sub-tone unit optional) with a hefty 45 watt output power in the TR-7950, and the use of microprocessor technology throughout. Other important features include auto-offset, programmable priority, memory, and band scans, automatic center-stop tuning in scan modes with center tuning indicator, built-in lithium battery memory back-up, and a built-in 16 key autopatch. Both models are identical, except for power output.

TR-9130

The TR-9130 is a powerful, yet compact, 25 watt FM/USB/LSB/CW transceiver. Available with a 16-key autopatch UP/DOWN microphone (MC-46), or a basic UP/DOWN microphone.

FEATURES

• 25 watt RF output power on FM/SSB/CW • FM/USB/LSB/CW all mode operation • Six memories • Internal battery memory back-up (battery not supplied) • Memory SCAN • Automatic band scan (1 MHz segments) • Hand microphone with UP/DOWN switch • Squelch circuit on all modes (FM/SSB/CW) • Repeater reverse switch • Tone switch • Tuning transmit frequency for OSCAR operations • Built-in CW semi break-in with side tone • Digital display with green LED's • Dual digital VFO's • High performance receive-transmit characteristics • Compact design and light weight • Transmit OFFSET switch • High performance noise blanker • RF gain control • RIT circuit • AGC time constant automatically selected • HIGH/LOW power switch • Accessory terminal (rear panel) • Piezoelectric beeper • Visual indicators • Quick release mounting bracket • Extended frequency coverage 143.900-148.999 MHz (Region 2/3 version)

KENWOOD

SUMMER SALE!

DIGITAL CODE SQUELCH

TRIO-KENWOOD's new DCS "Digital Code Squelch" is a revolutionary signalling concept for Amateur Radio that utilizes current state-of-the-art technology. This new technology is a major feature of the new TR-2600A, TR-3600A "2-m and 70-cm FM Handheld Transceivers", the TM-211A, TM-411A "2-m and 70-cm FM Mobile Transceivers", and the TS-711A, TS-811A "2-m and 70-cm All-mode Transceivers". The DCS should not be confused with conventional CTCSS (Continuous Tone Coded Squelch System). DCS uses a 5 digit, digitally coded data string, to open squelch on a receiver that has been programmed to accept this same specific code group. By utilizing a 5 digit code group the operator may choose from 100,000 possible combinations, thus providing increased security. In addition to the 5 digit "access code" the DCS also transmits the operators call sign, in decimal ASCII code. Call signs of a maximum of 6 digits may be entered. By using the optional CD-10 Call Sign Display, the operator may store incoming call signs, for later review or logging.

100,000 different 5 digit code groups. Convenient keyboard entry of the "access code" is possible with all models equipped with the DCS.

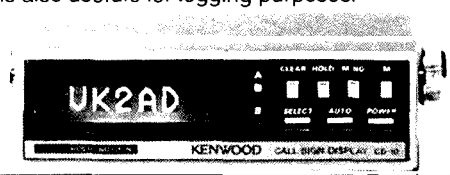
Capable of monitoring multiple access codes. The DCS codes, and call sign data, are stored in separate memory locations within the host unit. This allows the operator to monitor several access code groups at one time. Clubs and nets will find this function useful, as will operators who wish to listen for more than one group at a time.

CD-10

The CD-10 store the call sign of calling station in its memory and displays it on an LCD display. Call signs of up to 20 of the most recently calling stations are stored, allowing the operator to quickly check for and return any call.

DCS Decoding. Decodes the digital ASCII call sign data that is a portion of the DCS data string.

Automatic Call Sign Transmission. A 6 digit Amateur "Call Sign" is entered into the DCS memory using decimal ASCII coding, by use of the frong panel keyboard. This call sign is then transmitted in conjunction with the DCS data string each time the PTT switch is depressed or released. By using the optional CD-10 Call Sign Display the operator can automatically store up to 20 different call signs. This feature is useful for unattended monitoring of the radio. Upon return to the station the operator can review the CD-10 memory to determine who tried to contact him during his absence. This function is also usefule for logging purposes.



TRIO-KENWOOD (AUSTRALIA) PTY. LTD.

(INCORPORATED IN N.S.W.)

4E WOODCOCK PLACE, LANE COVE, SYDNEY, N.S.W. 2066. Ph. (02) 428 1455.

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EMTRONICS—94 WENTWORTH AVENUE, SYDNEY (02) 211 0988
WASSIL ELECTRICAL—71 SUMMER STREET, ORANGE (063) 62 6249
REG STOCKMAN COMMUNICATIONS—CNR BANOCKBURN RD. & SHIRLEY ST., INVERELL (067) 22 1303
ELECTRON 2000—3 ELIZABETH STREET, TIGHES HILL, NEWCASTLE (049) 69 6399
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3

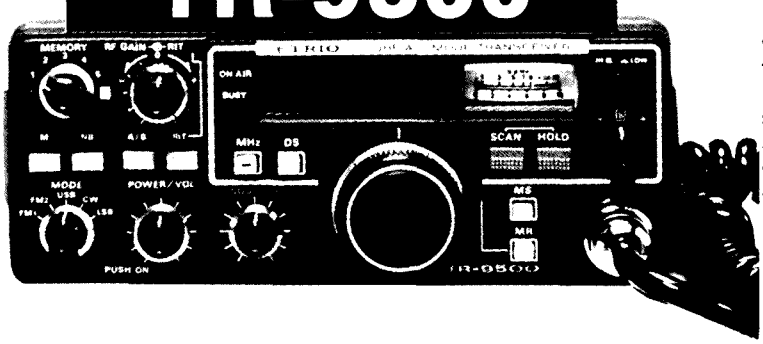
KENWOOD

SUMMER SALE!

TM-411A

The TM-411A 70-cm FM mobile transceivers has been designed to be the ultimate in compact size and lightweight, and feature a front panel that can be tilted in relation to the main body of the radio, allowing maximum flexibility in automotive installations. The use of the latest in technology is exemplified in the incorporation of KENWOOD's new DCS (Digital Code Squelch) circuit that provides the operator with a capability to program his radio to respond only to transmissions from stations whose radios transmit a preselected digital code. Additional convenient operating features include a powerful 25 watts of RF output, dual digital VFO's built-in, priority watch, memory scan and programmable band scan, audible "beeper" to confirm operations, microphone test function, repeater offset switch, reverse switch, and high performance receive/transmit specifications.

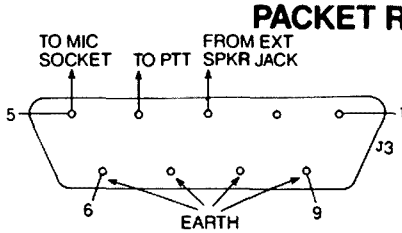
TR-9500



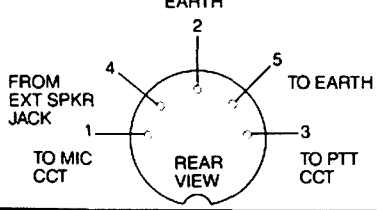
The TR-9500 is a compact 70-cm USB/LSB/CW/FM transceiver providing increased versatility of operation on the UHF bands. It features dual digital VFO's six memory channels, memory scan, automatic band scan, SSB/CW search, high performance receive and transmit, and a host of other features. It should be especially appealing to the OSCAR or 70-cm SSB/CW operator.

SEE SANTA'S SUPA-SCOOP SPECIAL PRICE ON PAGE 8
(AVAILABLE ONLY FROM TRIO-KENWOOD HEAD OFFICE)

PACKET RADIO INTERCONNECTION DATA

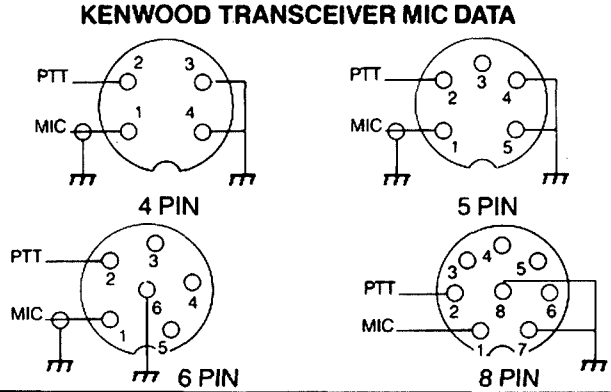


T.A.P.R. T.N.C. I



T.A.P.R. T.N.C. II

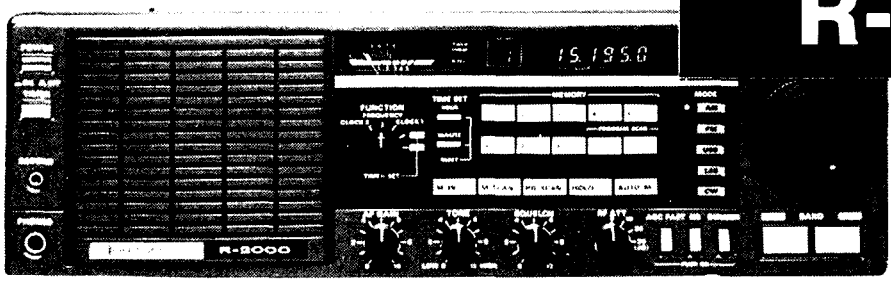
KENWOOD TRANSCEIVER MIC DATA



KENWOOD

SUMMER SALE!

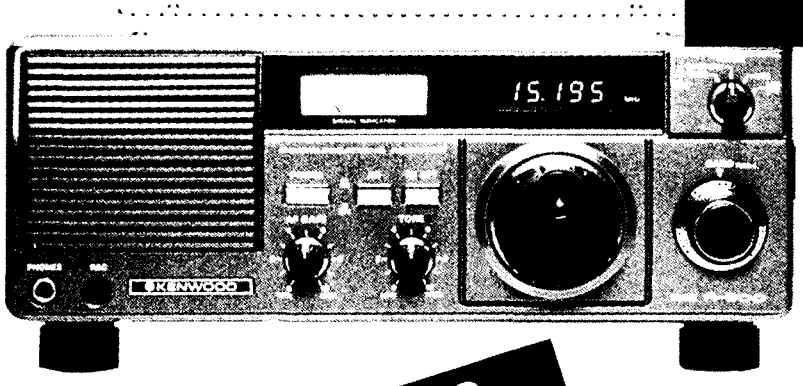
R-2000



R-2000 COMMUNICATIONS RECEIVER — World's leading all mode receiver. Receives 150 kHz to 30 MHz.

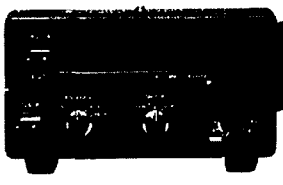
The R-2000 is an innovative all-mode SSB, CW, AM, FM receiver that covers 150 kHz — 30 MHz. New microprocessor controlled operating features and an "UP" conversion PLL circuit assure maximum flexibility and ease of operation. Key features include digital VFO's, ten memories that store frequency, band and mode information, memory scan, programmable band scan, digital display and 24 hour dual clock with timer, plus a host of other features to enhance the excitement of listening to stations around the world.

R-600



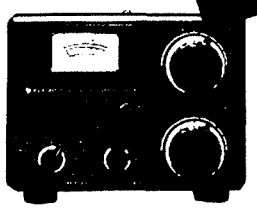
The R-600 is a high performance general coverage communications receiver covering 150 kHz to 30 MHz in 30 bands. Use of PLL synthesized circuitry provides highly accurate frequency control with maximum ease of operation. Use of the latest technology assures the ultimate in short wave listening enjoyment on all covered frequencies, whether using AM, SSB or CW modes of operation. The compact size of the R-600 allows the user the maximum flexibility in placement of the radio, and the front mounted speakers permits the radio to be located between shelves without degradation of audio quality.

AT-250



AUTOMATIC ANTENNA TUNER
The AT-250 is an automatic antenna tuner designed to match the TS-430S in size, colour and appearance. It may also be used with other HF transceivers such as the TS-130 series, the TS-530S, TS-830S and the TS-930S.

AT-230



ANTENNA TUNER
The AT-230 antenna tuner includes the new three bands and functional features such as a through-line wattmeter, SWR meter and antenna selector switch. The AT-230 adds greatly to the effectiveness of your station.

AT-130

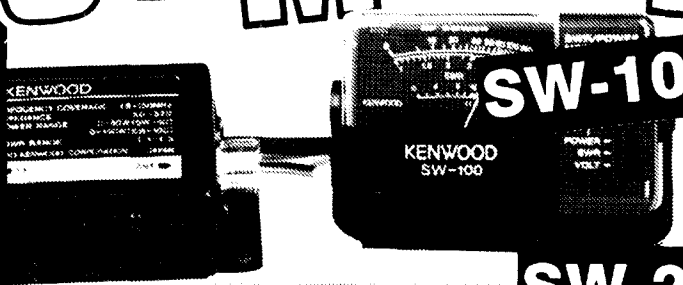
ANTENNA TUNER
The AT-130 is a compact and lightweight antenna tuner designed for base or mobile use. (Includes the new three bands). It consists of an antenna coupler, an SWR meter and an antenna switch.

6

KENWOOD

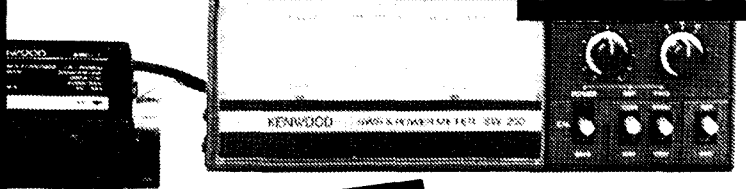
SUMMER SALE!

SW-100 A/B



SWR/POWER METER
Compact and lightweight SWR/POWER/VOLT meters cover 1.8 — 150 MHz (SW-100A), 140 — 450 MHz (SW-100B) in range of 150 W full scale for mobile use.

SW-200 A/B SW-2000

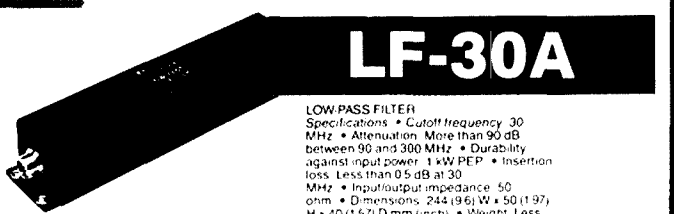


SWR/POWER METER (Supplied With A Coupler)
SW-200A supplied with SWC-1, SW-200B supplied with SWC-2, SW-2000 supplied with SWC-3. Selectable peak-reading/RMS. SWR/POWER meters cover 1.8 — 150 MHz (SW-200A), 140 — 450 MHz (SW-200B), 1.8 — 54 MHz (SW-2000) in range of 0 — 20/200 W (SW-200A/B), 0 — 200/2000 W (SW-2000) full scale for base station use.

AL-1/2

LIGHTNING & STATIC PROTECTOR
AL-1: Handles 100 W output at 50 ohm with SO-239 Connector.
AL-2: Handles 1 kW output at 50 ohm with SO-239 Connector.

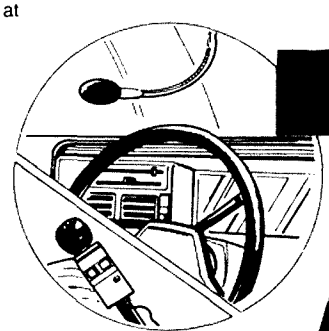
LF-30A



LOW-PASS FILTER
Specifications • Cutoff frequency 30 MHz • Attenuation More than 90 dB between 90 and 300 MHz • Durability against input power 1 kW PEP • Insertion loss Less than 0.5 dB at 30 MHz • Input/output impedance 50 ohm • Dimensions 244 (9.6) W x 50 (1.97) H x 40 (1.57) D mm (inch) • Weight Less than 560 g (1.2 lbs.)

MC-60A

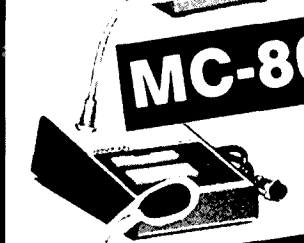
MC-60A (8 Pin)
Deluxe Desk-Top Microphone With Built-In Pre-Amplifier
The zinc die-cast base provides high stability, and the MC-60A is completed with PTT and LOCK switches, UP/DOWN switches, an impedance selector switch and a built-in pre-amplifier



MC-55

MOBILE MICROPHONE (6 Pin or 8 Pin)
The MC-55 provides UP/DOWN switch, LED display for switching transmit or receive, adjustable microphone gain, automatic receive returning circuit (approx. 5 minutes) and many functions.

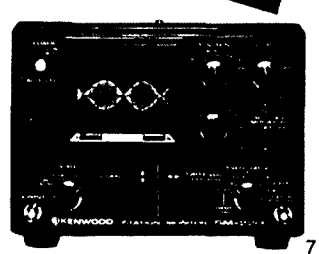
MC-80



MC-80 (8 Pin)
Desk-Top UP/DOWN Microphone With Built-In Pre-Amplifier
The MC-80 is an omnidirectional electret condenser microphone provided with UP/DOWN switch, volume adjustment for output level, PTT and LOCK switch, and built-in pre-amplifier

SM-220

STATION MONITOR
Suitable for use with the TS-530SP, TS-830S and the TS-940S. Direct connections. Based on a wide-frequency-range oscilloscope (up to 10 MHz), the Model SM-220 station monitor features, in combination with a built-in two-tone generator, a wide variety of waveform-observing capabilities.



MC-85

MC-85 (8 Pin)
Multi-Function Desk-Top UP/DOWN Microphone With Built-In Audio Level Compensation
The MC-85 is an unidirectional high-class electret condenser microphone provided with the output selective switch, audio level compensation circuit, low cut filter, level meter, PTT and LOCK switch

7

KENWOOD SANTA SUPA-SCOOPS

E-80 — E-80 80M Coil for MA-5. **$5**

HA-3 — HA-3 Vertical Antenna for 21/28/50 MHz. Usually $125. ~~WAS $125~~ **$70**

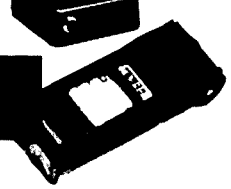
TR-9500 — TR-9500 70cm All Mode Transceiver (see page 5 for details). **$625**

FC-10 — FC-10 Remote Control for TM-201/401. Usually $65. ~~WAS $65~~ **$15**

SC-4L — SC-4L Leather Case for TR-2400. Usually $25. ~~WAS $25~~ **$10**

BO-9 — BO-9 Base Mount and back up supply for TR-9000 and TR-9500. Usually $40. ~~WAS $40~~ **$12**

ST-1 — ST-1 Base Charger for TR-2400. Usually $80. ~~WAS $80~~ **$10**



SC-3 — SC-3 Soft Case for TR-2400. Usually $20. ~~WAS $20~~ **$6**

MB-77 — MB-77 Mobile Mounting Bracket for TR-7730/8400. Usually $20. ~~WAS $20~~ **$6**

KB-1 — KB-1 Spinner Knob for TS-530/830. Usually $20. ~~WAS $20~~ **9$**

Santa SUPA-SCOOPS — Available from TRIO-KENWOOD 4E Woodcock Place, Lane Cove, Sydney, N.S.W., 2066. Either by counter sale or mail order ONLY. (Please add freight).

8

The past and future of amateur radio, as I see it!

Dennis Breitkreutz
14 Birmingham Street, Alderley, Qld. 4051

My experience with amateur radio goes back to around 1952, when I started as a shortwave listener in the days of audio modulation, using ex-WWII vintage receivers purchased from disposals stores. To name but a few, there were AR88s, AR8s, R1155s, Kingsley AR7s and HROs.

The task was to convert these receivers for amateur use. First, it was necessary to make a power supply, so they could be operated from the 240V mains power. Next, the selectivity and sensitivity had to be improved. Information about these changes was published in Amateur Radio and Army conversion manuals. Amateurs of the day were a fussy lot, you know!

I knew some licenced amateurs at that time and we became close friends. These amateurs were very knowledgeable men when it came to amateur radio, but to ask them what a SWR meter was, they would say they had never seen one, never used one and that was that. I have watched them check their transmission lines, etc by holding a fluorescent tube in their hands and moving it along the open line feeder. As far as I was concerned, I didn't worry about these fancy goods, I used a long wire antenna and was satisfied with it.

At that time it was not necessary to have a SWL licence, but it was necessary to have a broadcast receiver licence, which was issued by the PMG's Department.

A very reasonably price unit some years ago, was the Geloso VFO. This sold for around 17 pounds ($34) and with a key and power supply, plus licence you could be operational on the amateur CW bands. For phone, a driver p/o stage, public address amplifier and microphone was needed. But don't forget the aerial!

In those days, amateurs had to construct their own gear, frequently with the help of other amateurs, who had been there and done that. I constructed a VFO using a 5Y3 rectifier, 6J7 oscillator driving a 6V6. When I switched it on I jammed the local amateurs for miles around.

Not far from my QTH there was an electronic enthusiast, who was known as the 'Colonel'. When he fired up his transmitter, with two 'lighthouse tubes' in the final stage, which shot two kilowatts into the aerial. He was so strong, I was able to read him strength 9 with our electric 'stove'.

Another amateur friend was very cunning. In those days, it was necessary to have a Class C Wave Meter in the shack, by law, to check the transmit frequency. But amateurs were checking their transmitting frequency with a calibrated receiver or crystal calibrator instead. This amateur didn't have a wave meter but he had a box with dials and knobs which looked like one.

One particular day, he had a call from a radio inspector who was doing 'spot checks'. He looked around the shack and did some voltage checks on the terminals at the back of the transmitter. All checked okay. He then pointed to the 'wave meter imitation' and asked if it worked. The amateur said, "Like a beauty". The RI then left and my friend took the covers off his meter to show me the naked interior.

I did a lot of constructing, got it operational and then would sell it. I made things on breadboards, changing components until it worked. There were no such things as transistors, so these things were built around HT power supplies. There was a lot of trial and error involved, and I never knew what the finished product would look like.

We all took pride in our equipment, too. When I sold my AR7 receiver, the buyer asked if it was selective? I said that, with 455kHz crystal phasing, it would change a duet into a solo. I made the sale.

Around the late 1950s, amateur radio received a shot in the arm with the introduction of SSB and transistors. It was then, head down, tail up to learn how these new-fangled things worked. With this new mode it was necessary to improve selectivity by making Q multipliers. BFOs were no problem as most ex Army equipment had them built in, for CW reception. Working with transistors was a breeze — no high voltage to worry about, a big reduction in size, and above all, much cheaper. There were no PCBs so all wiring was point to point, as had been with the valve equipment.

Using this method, it was difficult to build two pieces of equipment the same, however, with PCBs this was a thing of the past.

Amateur radio moved rapidly in the mid-60s with the arrival of ICs and amateur transceivers.

Over the years, I've been a railwayman by day and an electronics engineer by night, and I think this is what amateur radio is all about.

Now how did I get interested, in the first place? I can remember going to Radio Equipment Junk Sales in the early 50s and buying some funny looking pieces, cheaply. I would then take it to the local radio shop to attempt to find out what it was. They wouldn't know and would send me off to the local 'ham'. He lived close to me, we became friends and I was hooked.

Radio clubs of today could learn a little from the past, to bring new people to this worthwhile hobby. It is not so important to run club displays and write pamphlets but more to get people involved. Start with the youngsters. Encourage schools to have hobby classes as part of their programme.

What hampered me from taking out an amateur licence in those days, was the 14WPM Morse code. I could have taken out a limited call but this was of no interest to me. I didn't know of any AOCP classes and as far as I knew, the only book on amateur radio was the ARRL Handbook. It was basically necessary to listen to CW on air, at about 20WPM. Many amateurs overcame the problems with Morse, but I just didn't like it.

I finally sat the Novice exam, and received the call VK4NMK, in May 1978 and 12 months later the limited call VK4ZEW. By this time, when I went to air, I didn't have to make or convert anything. I just went out and bought the latest transceiver, put up an aerial and was off and running. In fact I got on the air without even using a soldering iron. Impossible in the early 50s!!

However, the old cunning was still there when the Novice licence was received. I was rearing to go but had to wait over a weekend to be allocated a call sign . But, it was necessary to see if the aerial was working, wasn't it? If it was no good it may not be worthwhile getting the call sign! I found a group of operators on 10 metres and tuned up on top of them. When they started complaining, I knew I was transmitting all right.

Some people say "in the good old days". The only thing good about them was that we were younger. The amateurs of today have it made, with computers, micro-controlled transceivers and the like. With buying our equipment, it gives us more time to play with it and our new modes. Just think, with Packet Radio, Satellites, ATV, RTTY, etc, we don't get the time to build our equipment, anyway.

And what of the future of amateur radio? Well, I think it will be high speed data transmissions, with SSB and FM finishing up like the AM mode of the past. But the amateur spirit will never change.

If someone ever invents a TELEPORT system, as seen in the Star Trek TV series, you may bet London to a brick, that there will be an amateur radio operator in there somewhere.

AR

MORE HISTORY

The WIA is pleased to acknowledge the receipt of some more extracts of a 1920s publication, Amateur Wireless Handbook, safely kept for the past 50 years by Clem Scott VK4DW.

Clem includes the following information: *Superhets were being developed and taking over from the TRFs, which were a bit touchy to manipulate. Of interest is the dressage of the wiring of these old timers and is it is any wonder that hand capacity caused the operators a few headaches.*

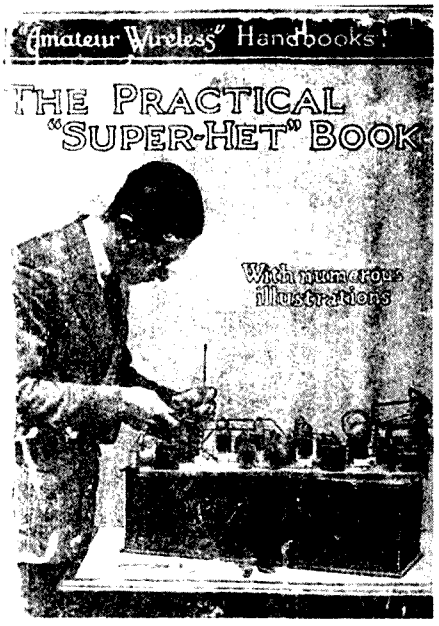
Filament control — Four rheostats were used (excluding the master rheostat on the panel), to control the filaments of the seven valves. These were adjusted to give best results, after which the brilliance of the filaments are controlled by the single-master rheostat on the panel. No 18 gauge square-section wire is used for connecting all the components and 16 gauge for the filament run.

After switch on and when signals were received the filaments rheostats and positive HT tappings were adjusted for best results. Also adjusted for the best result was the screw, with knob control, on the bottom of the horn type speaker.

I can remember listening to the wrestling, matches every Saturday night from Melbourne, in the late 20s, early 30s, on one of these old sets.

Time marches on!

Many thanks, Clem for your most interesting contribution. ED



ELECTRONICS IN THE 'OLDEN TIMES'

Alex Ellison VK4RU
5 Colthorpe Street, Boondall, Qld. 4034

My father began constructing radio receivers in the early 1920s. He was the local school teacher, and in a country community, in those days, was looked upon as a source of knowledge, first aid man, bush lawyer, etc. But he knew nothing of radio, either theory or practical. I was six or seven years old at the time, and have many recollections of the era, as seen through the eyes of a mere child.

I have no idea where he got his inspiration, but later on, of course, Wireless Weekly was very useful.

The first radios attempted were crystal sets, I was told, but I have no particular recollection of them. There were no suitable signals available on what is now the Sunshine Coast, except from Sydney, so there were no results. A valve set was then built, in partnership with a neighbour, who was a beekeeper/farmer/tinsmith, etc.

I remember this particular unit. A breadboard was channeled to take the wiring and the channels filled with Bees Wax! Wire used was ordinary hard copper, telephone wire and soldering was achieved by the use of an ordinary plumber's iron, heated in a kerosene tin; flux was killed spirits. They later found the convenience of 'Fluxite', but never used rosin, as far as I can recall.

BRIGHT LIGHTS

The set did not work, and after a couple more attempts an entirely new circuit was used, which was a regenerative detector type. I well remember being fascinated by the bright bulbs used. It could not be made to work either, so my father made a trip to Brisbane, 63 miles (102km) by rail, to visit a Mr Price of Radio House. This gentleman confirmed the construction, but pointed out that the valve, though it lit brightly, had its filament (cathode) touching the grid. So Dad bought another valve and Mr Price assured him he could 'listen to Sydney tomorrow night'.

There was no joy immediately, with the set, but eventually Dad heard his first words on radio. The call 'Beaumaris, Victoria' was repeated several times, and part of a Sydney programme was heard.

A check of the valve revealed the filament was again touching the grid. Several different types of valves were used and I can remember some but, not all the type numbers. There was a Marconi 'R' and a V24. Another valve I later used as a bedroom light, using four reconstructed telephone cells in home made beer bottle jars, with sal ammoniac electrolyte and sheet zinc cathode. Later I used beer bottle jars as Leyden jars in static electricity experiments.

Radio batteries proved a problem. The 'A' battery was the car battery but, as the car, a 1923 Studebaker, was infrequently used, it was a problem to keep the battery charged, and the car was hand started. 'B' batteries were expensive but a round-up of the school children produced several dozen Marmite and fish paste jars. Dad was able to strip the old cells and make a new recycled battery.

I loved to help, but Dad's temper fluctuated from benevolent to very irritated, when I got in his way. I learned a lot, anyway, and I could wind coils, both honeycomb and 'fan' type, with the best of them. I also learned to solder.

A GOOD AERIAL!

Attaining a good aerial was a hassle, and I am sure the idea used by my Dad was original for him, though it has possibly been used elsewhere, since.

We lived in a government house, on a hill, with a road around three sides. At the acute corner, on the road, was a huge gum tree, with a large fork some distance from the ground. To the western side was a pineapple farm and to the east, a sugar cane field. Dad decided to fly a kite through the fork of the tree, hauling a line attached to some aerial wire. He constructed a kite, complete with tail and when the south east wind blew, he tried to fly it through the tree. It was really hilarious.

It took no time for the kids to gather, also the neighbouring farmers. Most knew nothing about kites and even less about wireless. Dad was the expert, but every time he got the kite near the fork, the tail would get caught. This necessitated going through fences into either our yard or the cane field, to disentangle it. In the process some of the young cane was trampled. The neighbour's dog, a black and white 'bitzer' called Toby, a good friend of mine, had a field day. He enjoyed the game of picking up the ball of string, attached to the kite, and kept running off with it.

Eventually the kite flew where it was supposed to, but another problem arose, how to get it down from the tree. It was a good strong kite and it was anticipated that if left there, it would chafe the line through. Eventually dad gave it a mighty jerk and the tail came off.

A SOURCE OF WONDER

That aerial was a source of wonder to all. Tomato sauce bottles, with holes laboriously bored through the bottom, were used at each end as insulators. The holes were made with a hand brace, a metal rod and some grinding paste. They gleamed in the sunlight and were visible for some distance. The wire used was telephone wire.

This high antenna resulted in exceptional reception until it came to a sticky end when the road was built and graded and the tree was duly felled. We then had to use a 'normal' aerial from a pole in our yard.

ELECTRO-CULTURE

About the 1930s, there was a lot of interest in 'Electro-Culture'. Possibly many old timers would remember it and I think the subject has been resurrected in various guises up to the present time.

Basically the theory was that an antenna was erected, with leads to wires placed above the crop that was to be grown. It was thought that electric force drawn from the sky encouraged growth, and apparently many people wrote of fantastic results.

A very amusing story (fiction) was published about this time, and I think it was in Wireless Weekly. It seems that a farmer (Dave) decided it was too costly to put on electro-culture, as a major project and decided to first experiment with a pilot scheme on a banana plant.

Uncle Bill was sceptical, but the children were very interested, especially Harry, the ring leader.

A mast was erected to support a vertical wire, with points pointing to the sky. The lower part of the wire was anchored to a post and grounded, via a circle of wire over which the banana sucker was to be planted.

The great day of the banana planting ceremony arrived. It was a Sunday and Uncle Bill, the local farmers and sky-larking children were an apprehensive audience. Tea was provided, with corned beef and mustard sandwiches and Uncle Bill had something special hidden away in the nearby cowshed. Careful measurement of the banana plant indicated it was 27 inches (686mm) high.

CRASH, BANG AND GROWTH

Dave measured it every morning and carefully recorded the height in a note book. There was no change for several days then, one morning it had grown three inches (76mm). Amazing! ! This new idea seemed to be working. Actually, there had been a 'bit of a storm last night', and the lightning must have stimulated it.

Nothing more was noticed for a few days, then again there was another growth of three inches. Everyone was intrigued and again a summer storm was given credit for the growth.

There was not another storm for about a week, but on the Saturday there was a 'real beauty'. Smith's lost their roof, lightening struck a tree and brought it down across a fence, killing a cow in its path. By this time, the story of electro- culture had spread far and wide, and next morning there was quite a gathering as Dave went through his measuring process.

Lo and behold, now 48 inches, a good 12 inches or more gain, overnight! Uncle Bill strolled over and examined the plant carefully, then strode toward the cowshed, returning with a bottle and tin mug, which he presented to Dave.

Dave was elated but Uncle Bill was still wary. "I say Dave, didn't you plant a Cavendish sucker?" "Yes", replied Dave. Bill, "Well yonders a Lady Finger and if your fancy idea can change a Cavendish into a Lady Finger overnight, it is really worth celebrating". Dave looked thoughtfully around the throng of children, then roared: "Where's young Harry?" But Harry was long gone!

RIDICULOUS, BUT TRUE

Earlier, when our neighbour was in partnership with Dad in the first radio project, they got in touch with an ex Royal Navy radio operator.

Both my father and the neighbour were of generous natures, anyway, they needed help with their pet project. They used to drive seven miles (11km) to Nambour to collect the Navy op and he would then stay overnight at one of our houses.

I now realise he may have been a good operator on spark transmitters, but he knew nothing about voice reception. He would pore over the circuit trying different things and spend most of the evening enjoying the hospitality. There was a vario-coupler in use and he would twiddle the knob with his right hand whilst pressing the left fingers to his forehead.

Our neighbour was the first to realise our Navy man was a bit of an empty vessel, but not before he had unsuccessfully tried, for several night to operate the radio, using all the arrangements he could think of.

Ridiculous? Maybe, but true!

AR

Something to ponder on:

Returning from a computer display trade fair, my teenage son was asked, "How did it go?" His reply: "It was much easier to communicate with the computers than it was with the attendants!"
—VK4SS—

IPSWICH AND DISTRICT RADIO CLUB

At a gathering of radio enthusiasts at a local Scout Hall, on the 28th August 1962, the Ipswich and District Radio Club was formed. From the large group present, a committee of six was selected to formulate the aims and policies of the Club. The membership fees were set at five shillings (50c) for seniors and two shillings and six pence (25c) for juniors.

On 12th February 1963, affiliation with the WIA was effected and the Club continued to prosper. Monthly meetings were conducted at the Scout Hall, but on 7th July 1964 the winds of change struck. As members felt that the Club now had more to offer, the fees were raised to one pound ($2) for seniors and three shillings (30c) for juniors. Mr W Hayden, Member for Oxley, was elected Patron and the Mayor of Ipswich was elected as an Honorary VP, a position each succeeding incumbent has accepted. Due to pressure of office, Mr Hayden relinquished his Patronage in 1978 and that position was accepted, and is still retained, by Dr Sir Llew Edwards.

In August 1964, an application was submitted for a Club call sign and a station manager, VK4LI was appointed. The Club Station, VK4IO, was officially opened by Mr Hayden on 24th January 1965, using the VK4LI equipment at his home. Member enthusiasm was increasing and after a Club Award Certificate was produced in March 65, proposals for acquisition of a Club House began to emerge. Inquiries to the City Council resulted in the grant of some land, currently occupied by the Club House, the plans of which were approved in January 66. After many trials and tribulations, the efforts were justly rewarded when, on 26th July 66, the first meeting was held in the encumbrance free Club House, possibly a first for any VK4 club.

The members, now happy with a permanent home, were desirous of furthering the cause for amateur radio. The facilities for lectures and classes had vastly improved and training aids were constructed. A repeater licence was obtained and VK4RAI, channel 6900, was activated, firstly at the Club House, then at the current location at Mount Crosby. More recently, a UHF licence established VK4RWM, channel 8375, to operate from the Club House.

In common with other clubs, even those not electronics orientated, the technology explosion has affected membership. The advent of computers and video recorders has provided another avenue for recreation with a resultant decrease in active club membership. This Club welcomed, as associate members, a group of TRS-80 computer enthusiasts, some of whom are also licenced amateur members of the Club. This is not the only computer type of interest to members, others being used in CW, RTTY and Satellite modes. Use of a VCR for theory classes was discounted, due to the impersonal nature presented by that format.

Meetings are held at 7.30pm,on the second and fourth Fridays of the month at the Club House. Theory classes are conducted each Thursday at 7.00pm, subjects being regulated to the requirements of the students. The club station, now VK4WIP, conducts a weekly net on Thursdays at 7.30pm, operating on 3.590MHz +/- QRM, from the first Thursday in April to the last Thursday in September. It then goes to 28.500MHz for the summer months.

The computer group meets on the last Sunday of each month at 1.00pm — a popular event.

All visitors are cordially welcomed, both on air and personally at Club meetings. Details of the Club Award are available from members and VK4WIP.

Contributed by Bob Linskel VK4ALI, President and Life Member of the Club.
AR

THE CORAL COAST GROUP

Les Bell VK4LZ
Box 40, Airlie Beach Post Office, Qld. 4741

Prior to September 1967, for radio amateurs living north of Mackay, the Kookaburra Net was most popular, but owing to QRM from Asian stations, and the fact that most operators had to sign out by 2130UTC to go to work, it did have some difficulties.

A clear frequency was found on 7.068MHz, where northern stations could have a clear reception, and on 28th September 1967, Charlie VK4BQ Townsville, Les VK4LZ Airlie Beach, Bill VK4XZ, at the time living at Charters Towers, Basil VK4ZW Cairns and Newton VK4QW of Brisbane, met at 2100UTC and decided to form a group to serve, mainly Northern Queensland. It was called the Coral Coast Group.

Evelyn VK4EQ of Townsville, was the next to join, followed by Vince VK4VJ, Vic VK2ARY and Bob VK3GR. Vic was residing at Coffs Harbour and was a friend of Newton's. He had also known Les in New Guinea.

The Group remained on 7.068 until 3rd September 1969, when QRM caused them to move to 7.060MHz, where it is still operating today.

As time was limited for most, it was decided to keep overs short, attempt to give each operator at least two overs, give signal and weather reports, state of health and short items of interest, and to leave long discussions until after 2130UTC. The net was also to encourage mobile and others in as many areas as possible, and those who were interested in propagation, state of the roads and other conditions.

The net is open for any station wishing to join in and today there are regular members from Cairns and Weipa in the north to Traralgon, Victoria, in the south. For breakers, there is always someone who will hear them, ask them to stand by and advise the Net Controller, who will call them in.

The net has been most helpful to many people in distress on the roads and at sea. At one time, a Canadian family aboard a yacht near Port Macquarie, en route from New Guinea to California, via Sydney and New Zealand, had a small sick child on board and were seeking medical advice. The net controller relayed the request to Frank Carey VK2AMI (now a silent key), who contacted a doctor friend in Sydney. Details were given and advice for a cure was relayed back. As a result, when they arrived at Port Stephens two days later, after battling heavy seas, the child was in good condition and made a speedy recovery. Later a letter of appreciation was received by the group, from the child's parents.

Usually, the net controller calls the most northerly stations in at 2100UTC, then the most southerly. Then each station passes it to the next, working along the coast from south to north. If there is no reply, the net controller calls the next area and this continues until the farthest north station is reached again. After this, the controller calls for late-comers or DX.

The Net virtually controls itself and if the usual controller is absent, any of the usual members can take over and proceed as usual.

At times, due to skip and eastern QRM, the going can be rather difficult but, due to the great distance covered, there is always someone able to relay to another within hearing distance.

Much valuable information on propagation and working conditions has been gathered over the years and it has shown how different conditions are in the north from that in Victoria.

Many DX stations have called in and recently ZS6DN from Pretoria contacted all on the Net. This is the fourth occasion he has been able to call into the Net at 2100UTC and it is most noticeable that propagation to the far north is always stronger than in the southern regions. For instance, he was S 5-6 at Traralgon, S 7 in Sydney, S 8-9 in Brisbane and up to S 9+ at Airlie Beach, Townsville and Cairns.

Many marine mobiles, overseas DX stations, all states of Australia, North and South Islands of New Zealand with several ZL stations almost regulars.

To 30th June 1985, over 49,474 contacts have been made on the Net, with 772 different call signs. Following is a list of the first 25 stations to call into the Net. Those marked with an asterix still call in. VKs: 4LZ*, 4BQ*, 4QW, 4XZ, 4ZW, 4EQ*, 4VJ, 2ARY, 3GR, 4AB, 4XX, 4UN, 8XI, 5ZX, 2NS, 4JW, 4DO, 4SA, 4HB, 4OL/MM, 2ANZ, 4KM, 3QZ*, 2PA and 4RZ*. Prefixes who have joined in are: VKs: 1-9, ZLs 1-4, FK8, P29, N6, ZS6, YJ8, YC1 & 9, YB0, VR2, WA6, ZK, EL, VE, KC, G3 and YJ0.

Aeronautical mobiles to have used the Net are: ZL1AKI, VK4YT and VK4MAL and marine mobiles: VKs: 4OL, 4JJ, 4JM, 4JI(New Guinea), 4ALN, 3BAG, 2AUA, 2BK, 4CM, 4EP, 6NM, 9AR(New Guinea), EL8EP, VE0NER, ZL1DQ, ZK1DQ, VK3AUO, KS6ES, KS6EV, WA6GOU, VK4ATZ, VK4PHO, EL2EU, VK2APQ, VK4EP, VK4BVS, N6SPN, YJ0AXZ and VK4APM.

Unfortunately, the Net also has its Honour Roll of Silent Keys. Newton VK4QW, Basil VK4ZW, Vince VK4VJ, Ramsay VK4AB, Herb VK4JW, Stan VK4SA, Wal VK2SA, Ernie VK4CEB, Bob VK4NG, Vern VK4LK, Trevor VK2NS, Cedric VK3ARX, Freddie VK3BAL, Fred VK3YS, Stan VK3UE, George VK5CV, Graham VK9DJ, Eddie VK2BB, Sid VK4VT, Bill VK2ABZ, John VK2QJ, Ted VK4MH, Bill VK2WF, Casey ZL4CA, Colin ZL1BJL, Claude VK4ZY, Gerry VK4YB, Basil VK2HI, Frank VK2AMI, Frank VK4FN, Bob VK3AHF, Frank VK2IZ, Len VK4GD, Harold VK4DO, Geof VK6NM and Harry VK4HK.

AR

HALLEY'S COMET INFORMATION LINE

The CSIRO and Telecom are providing a news service about Halley's Comet. Recorded messages can be heard on telephone number 11622 in Brisbane and Sydney, and 11613 in Melbourne.

The telephone message includes information about Halley's approach, details of Space Missions, particularly the European Space Agency's Giotto mission and general information about comets and meteor showers.

The Giotto spacecraft will fly through the head of the comet during its closest approach to Earth next April and will send data and pictures back to Earth via the CSIRO's radio telescope at Parkes, NSW. Halley's Comet has returned every 76 years since, at least, the first documented sighting in 240BC.

BEACON ADDITIONS

The following are some additions to the beacon list, published in September AR, page 63, contributed by Bert VK5AUS.

28.200MHz .... KF4MS, 28.201MHz .... LU8ED, 28.210MHz .... K4KMZ, 28.2175MHz .... WB9VMY, 28.253MHz .... WB4JHS/KF4UZ/B and VK2RSY, which was incorrectly listed, amended to 28.262MHz

John Wb4JHS/KF4UZ/B, requests amateurs look for his seven watt, continuous beacon on 28.253MHz and QSL any reception.

NO BLACK BOX?

or how to get going in the 1980s the 'hard way'

Aub McKibben VK4AFO
5Concord Drive, Loganholme, Qld. 4129

Maybe it was the outworking of the effects of electromagnetic radiation (EMR) at a young age, but by 1980, the 'bug' was biting worse than ever and I just had to do something about getting 'that ticket'.

Actually my fascination with radio goes back to the 1950s when, I was being brought up 'just down the road' from a 100kW BBC broadcast station in Northern Ireland. The large tower and flashing navigation lights, at night, were enough to start any four year old's imagination running with wonder! All my father knew, was — 'its for the wireless'. But for me the bug had bitten.

Symptoms came fast when, a few years later, the family moved to another location where I could overlook a small mountain with a 1000 feet (305m) television tower, dwarfing the mountain. However, it was not until later years that I became interested in 'tuning around' on the family shortwave radiogram.

I scored a windfall in 1968 when, at the age of 14, my father decided that it was time to retire our 1950 model radiogram and buy a stereo unit. It wasn't long before the broadcast/shortwave radio was whipped out of the large cabinet and promptly placed in my bedroom where a piece of wire — as long and as high as I could get it — was attached. My shortwave listening days had begun!

After a short while I realised I could pick up some private citizens (they called them radio 'hams'), down at one end of the dial (160m), and would occasionally tune down there when nothing else was on. I gradually became more interested in what they had to discuss (it was mostly technical talk in those days), but occasionally one station would come on frequency with 'duck talk', which confused me a little. This was SSB.

I was fortunate to get-to-know a friendly amateur who explained the need for a BFO to resolve SSB and I then proceeded to add one to the receiver. He also allowed me to visit his station and, when I was handed the microphone to talk to someone in California, USA, at 2.30pm one afternoon, I was rather dumbfounded. Realising he was operating at about 14MHz on SSB, I searched this frequency and was amazed to hear the USA and other amateurs quite well. Thus followed a number of years of SWLing on the amateur bands. It is really amazing what you can do with a receiver that has an IF strip as wide as a barn door! !

It was not until I had done some of the more important things in life, like a job, marriage and starting a family, that I had a little spare time to finally try for a licence. A quick phone call to DOC got all the papers underway and, before too long, I sat for, and passed, the Novice AOCP.

Having gone to the trouble of getting up to a good seven WPM Morse speed, I thought I had better keep the inertia going and practice hard for the next 'full call' CW exam. I sat and passed the CW and theory, now, *what about getting on the air?*

Well, that was the problem! I didn't have any equipment and our finances were being put to better use paying for a house, rather than a black box. Being the holder of a NAOCP and AOCP licence and never having been on air, it was time to do something.

The receiver side of my problem was obvious. My old friend, the 1950 domestic shortwave receiver would have to do. It was reasonably frequency stable on 80 metres, as long as the table was not bumped, and sensitivity was good also. But what to use for a transmitter?

I built a two transistor (oscillator and RF amplifier) unit; my version having about half a watt output. It was crystal locked, so I figured that would please DOC, anyway, with that much power I wouldn't get out of my own backyard, would I?

Fortunately, and also unfortunately, I figured that 50kHz within the band edge would be 'safe'. This got me out of the CW QRM with the old receiver — but put me right in the middle of the slow Morse WIA broadcasts on 3.550MHz. What is more, they beat me to the frequency nearly every night! !

A multiband, inverted vee, fed with open wire feeder was the antenna decided upon, with icy pole sticks as spacers. A 'link coupled' antenna tuner was built and also a SWR meter. The results were, at first, confusing and disappointing.

The transmitter would key for the first dit or dah — thereafter, it would not oscillate and the SWR meter made no sense, at all. The solutions were simple enough once realised — which was the hard part.

I had carelessly left the base bias resistor off the oscillator transistor of the transmitter and SWR meters need approximately five watts of RF to start to operate. I was only putting in about half a watt. Not to be outdone, I used it as a field strength meter, instead.

Soon, I was tuned up and ready to work the guys down the street. I sent out CQs at about 12WPM, not believing I would get any replies, except for very local amateurs. When I heard my call sign coming back the first time I nearly fell off the chair and I didn't copy a word of the QSO unfortunately, as I was so excited. However, I slowed the CQs down and worked at a slower speed until I understood what FB TNX BCNU, etc really meant. It was great fun.

Before long, I realised that my miserable half watt was covering the east coast of Australia, and putting about a 5x5 signal into New Zealand, as well. I quickly learned a great respect for QRPp!

I battled with the old receiver for a while. Selectivity was poor and often three or four stations were on top of one another. But it is amazing how the human brain can be used as an IF strip in cases of necessity. Retuning was necessary every few minutes due to drift and there was no beat note from the receiver in the transmitter, just a growl, because the strong local RF seemed to pull it off frequency. It was a challenge, to say the least, buy great fun, just the same.

Not everyone gets started with a black box, have the guidance of a radio club or amateur friends to help, but it was really worth the effort, as I have found a challenging and rewarding hobby, with many very special QSOs, both on key and phone, over the past years. I look, with interest, to what the future holds for the amateur.

AR

THE LONG WAY ROUND

Moira Millgate VK8NW
45 Giles Street, Alice Springs, NT. 5750

Some Saturday mornings, when I was a little girl, my father used to take me with him to his workshop/office at the back of the post office. We passed the telegraph office on the way and I could see the operating room and hear the clatter of the Morse key. It fascinated me and I promised myself I was going to learn that language and find out what they said to each other.

Luck was with me when, in 1936, I found the Morse alphabet in a Wireless Weekly and included with it, an article on "How to Learn the Morse Code". I have been carrying this article around with me ever since and it is well torn and tattered now.

In those days, it all seemed far away and beyond my reach but in May 1942, I read an article in a Sydney newspaper, which said something like this: "If you would like to become a wireless telegraphist in the WRANS, apply at No 2 Clarence Street for training in Morse code". I went there the next day, and about six months later, with the help of Mrs Florence McKenzie and members of her Signalling Corps, I passed the 22WPM entrance examination, required for the WRANS.

I stayed with Mrs Mac, as a member of her Signalling Corps, until I left Sydney in 1943 for HMAS HARMAN and a life in the Navy for the next three years.

For different reasons, that should have been the end of the story, except some 35 years or so later, two amateur radio operators from Queensland, crossed my path. In different ways, they convinced me that I ought to study electronic theory and become a radio amateur. One of these amateurs was Bob VK4ADZ of Bundaberg, my husband's brother; the other, Arthur, now VK4KOB, of Gin Gin, Bob's friend.

On a visit to Alice Springs, Bob brought me helpful study books, and 'spied' out the land for a suitable future antenna site.

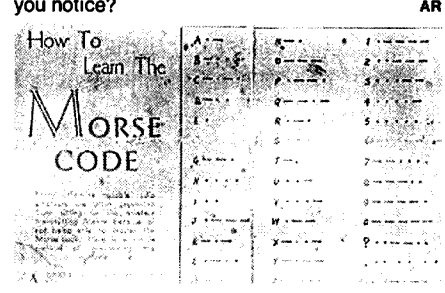
Arthur, some months later, when passing through, used a shanghai to "shoot' a long wire into our Jacaranda tree. We then talked to Bundaberg from our back lawn.

Arthur also left an eight WPM Morse tape with me while he and his family travelled to Ayers Rock and back. It was very encouraging to find I could read this tape after so many years. I then sent to Brisbane for an 18WPM tape, to see what would happen to my morale.

Exactly two years after Arthur catapulted his aerial into our tree top, I became a full call amateur radio operator. The electronics had been a problem, but different amateurs in Alice Springs were kind enough and helped me out.

Somewhere along the way, however, I missed out on being able to read those old post office chatterbox sounders . . . but the buzzer does have a happy dancing swing to it, or didn't you notice?

AR



FIELD DAY 1939

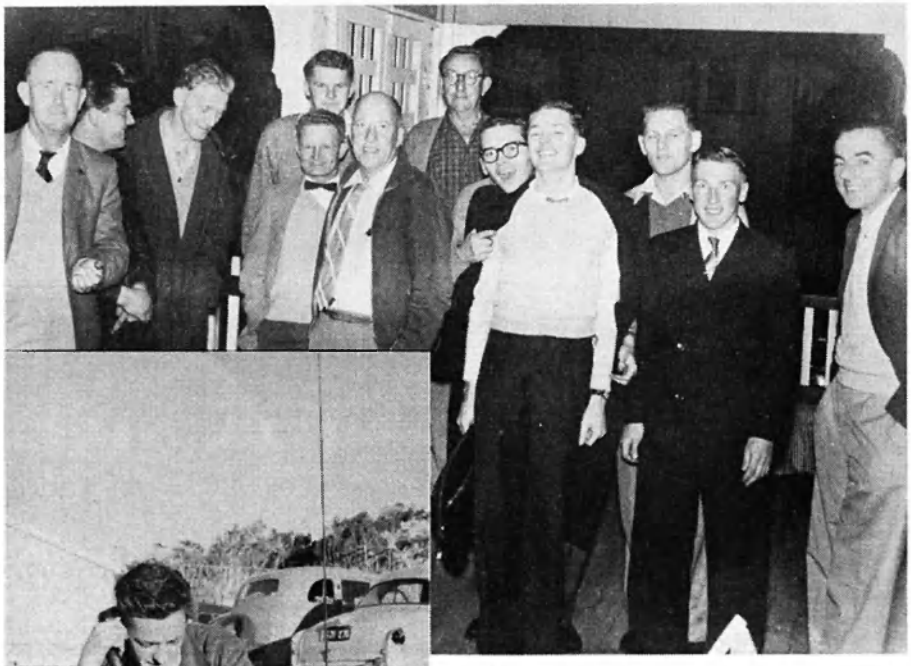
The photograph at right depicts a group of WIA (Q) members at the completion of a very successful field day, on location at Eildon Hill, Brisbane, on 20th August 1939, just prior to WWII.

The suburbs of Brisbane were divided into mapped grid zones. The 'ENEMY" vehicle was followed on DF, on 80 metres with the 'CHASER' vehicles receiving instructions, via two-way, on five metres.

At the far back are two Rover Scouts. Back row from left: John Thorley VK4RT (d), Pat Kelly VK4KB (d), Howard MacGregor VK4ZU (nl), Dr Margan Gabriel (d), Bill Harston VK4RY (d), Keith Price VK4KF (d), Albert Carter VK4LT (la), Visitor VK2??, Leo McMahon VK4LM, now VK2AC (la), Geo Hughes VK4HU (nl), Jack Files VK4JF (d).

Front from left: George Gray VK4JP (la), Vince Jeff VK4VJ (d), Arthur Walz VK4AW (la), Alf Guildford VK4AP (d), Bill Chitham VK4UU (la), Jack Heine VK4JX, now VK3JF (la).

Present Status: (d) Deceased. (nl) Not now licenced, but still living. (la) Licenced and active.
Contributed by Arthur Walz VK4AW.



Above

In the photo are: Lionel England VK4DR, John Cartmill VK4ZAV, Lorimer Rickaby VK4VR, Alan Fuller VK4ZBF, Jack Ross VK4JO, Tom Barber VK4TB (VK4ZBH), Les Mallinson VK4LM, John Burton VK4ZBJ, Eric Edwards VK4ZAJ, John Pickles VK4FP, Lew Hill, and Bruce Hughes VK4ZBD. Notably absent from the photo were Mick Pettiford VK4ZAA and Tom Lane VK4ZAL.
Contribution and photograph courtesy B Rickaby VK4RX (VK4ZAP).

Left

Bruce Hughes, Queensland President, tests the WICEN communicator, which had been brought to the Convention from VK3, by Pierce Healy.

VHF GROUP 1958

At left is an early photograph of some members of the Brisbane VHF Group. The photograph was taken in August 1958, at the home of the first President, Jack Ross VK4JO.

The Group was formed at a meeting held on June 1958, during the 1958 WIA (Q) Convention, at Palm Beach, Qld.

Bruce Hughes VK4ZBD, later VK4BZ, was the Queensland Divisional President at this time. He was the first limited licensee to become president of the Division.

The VHF Group resolved to support the fledgling WICEN concept and undertook to build several WICEN communicators — a six metre, battery operated, valve transceiver, developed in VK3.

TELEPHONE AIDS FOR THE HANDICAPPED

British Telecom has recently produced a catalogue of some 70 products and services for customers who have difficulty in using a telephone. The catalogue covers devices for those with impaired hearing, speech difficulties, blind and visually handicapped and those with restricted mobility.

The 36 page book is being circulated to many of the world's telecommunications authorities.

One of the most recent innovations is the Claudius Converse, a portable speech synthesiser. It consists of a keypad connected to the telephone and can 'speak' up to 64 phrases at the touch of a button, including emergency messages such as 'I want the police!'

Other devices include amplifying handsets, Vistel, a portable deaf communicating terminal, and the Jumbo Button Terminal, which has large raised figures and letters for people with limited sight or dexterity.

Adapted from Information Technology from Britian, 30th August 1985

THUMBNAIL SKETCHES

Alan Shawsmith VK4SS
35 Whynot Street, West End, Qld. 4101

NORM TYAS VK4TY (SK)

Norm was one of the real OOTers, having obtained his licence at Brisbane in 1932.

As principal of various Queensland State Primary Schools for over 30 years, in both country and city areas, his QTHs read a bit like the Lucky Starr song, "I've been everywhere man". It's a wonder his arms didn't become tired taking down and putting up his antennas. Norm wasn't the sort of chap to be satisfied with a dipole just strung up anywhere — rather he strove constantly for better, bigger and often higher skyhooks.

VK4TY at work. His equipment and desk were homebrewed to suit his needs.

How many OOT operators have their FIRST log book, compiled over fifty years ago? Here is a page extract from Norm VK4TY's first log. OOTers will recognise many familiar calls with pleasant memories, no doubt. As this is a photocopy from the log it has some shadows from the next page showing through, unfortunately.

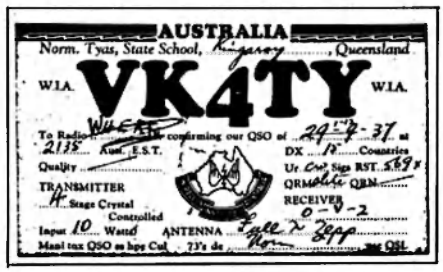
An ardent homebrewer, he applied the same principle to his gear — always seeking improvement. His second hobby, carpentry, was a most valuable asset which enabled him to construct his own operating desk to suit his particular needs.

Norm was always ready for a rag chew, nevertheless, he spent most of his time chasing DX — the end result being many contest placings and a long list of awards. His Australian DXCC, number 35, was a good effort, dated 26th August 1950. He was a long term member of the WIA and was invited to join several overseas clubs, viz CHC No310, QRP No713, QCWA No2553, ISSBers, etc.

During WWII he served in the RAAF as a Wireless Operator, being stationed in Port Moresby, Papua, Darwin and Townsville. As may be expected, Norm's CW 'fist' and operating technique were very professional, indeed.

VK4TY finally settled at Manly in Queensland. His signal from this seaside QTH was outstanding and it is a great pity he did not have more years to enjoy amateur radio. Rightly, he could be called 'the complete and fair dinkum amateur', in that he built much of his gear to suit his need and participated in most of amateur radios activities.

AR



ROY L BELSTEAD VK4EI (SK)

Roy was the first amateur in Oceania to contact Europe on 10 metres phone. The contact took place on the 5th October 1935.

Roy Belstead VK4EI at the age of 23.

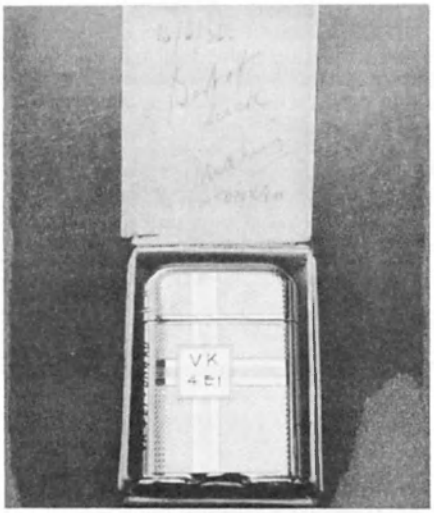
This achievement in wireless could be likened to breaking the four minute mile in track athletics. Most believe it would be done eventually, but by whom and when! The Oceania amateur radio honour fell to a Queenslander and a TARC member, VK4EI from Townsville. No exact time has been recorded for the contact but, in view of the season, it is safe to say, the two way contact was made around 11pm EAST.

A feature of this 'first' VK/Europe QSO was that it occurred during a period of low solar activity. In 1933, the average Zurich sunspot number, expressed as Rz, was approximately five; this was the minimum between Cycles 16 and 17. For 1935, as the cycle began to strengthen, the Rz was given as 35. By October of this same year, when the QSO was made, it was probably around 60-65 — still not enough to expect a QSO with Europe on 28MHz, with QRP and no beam antenna. Consequently, it is reasonable to ask, "Did Roy VK4EI strike it lucky? Was there a magnetic disturbance of the ionosphere — even a minor one?" Only a check of past records can say if this was so.

Pennants awarded to VK4EI for DX Achievements.

Special Award presented to VK4EI.

The A B Shepherd Trophy presented to VK4EI in 1936.



A Cigarette Lighter sent to VK4EI, from ON4AU, for the first anniversary to commemorate a 10 metres QSO.

Like the first sub-four minute miler, Roger Bannister, who gave credit for his success to the optimum conditions, so Roy Belstead was the man on the spot at the right time and place.

The Brisbane Telegraph and Rockhampton Morning Bulletin (16.10.1935) both reported the event, as did overseas magazines. The WIA Queensland Division presented Roy with three large pennants and a handsome silver cup, the latter being inscribed thus — *"Special Award to VK4EI 1st VK/Europe 28mc Contact"*. He also received the 'A G Shepherd Trophy", another very fine cup. The identity of this donor is now obscure, however it is thought he was a non-amateur member of TARC and/or a local identity keen on amateur radio.

ON4AU in Belgium was so delighted to be at the European end of such an historic event, as a first anniversary memento, he sent Roy a cigarette lighter engraved with the words *"Remembrance of First 28mc QSO. Oceania/Europe. VK4EI-ON4AU October 5th 1935."* All these prestigious trophies are now held in perpetuity by the Townsville Amateur Radio Club.

Roy Belstead VK4EI obtained his AOCP in Townsville in 1934. He was then 23 years of age and a member of the TARC. As his early log books show, he wasted no time getting among the DX on all bands.

His first occupation was that of a clerk in the Queensland Railways. Later he journeyed interstate and completed a BOCP course at the Marconi School of Wireless, Sydney. Next he was employed as a technician at the Broadcast Station 2KY, for some years. Eventually, after several positions, he returned to Winton in central Queensland in 1971. Here he set up the business 'Belstead Electronic Repairs' and operated under a new call sign, VK4RU. Ill health forced him to retire in 1978 and he became a silent key in April 1981. However, in the minds of most Northern Queenslanders, he will remain forever as VK4EI — the rather quiet, unassuming man, who broke the 10 metre barrier to Europe.

The author is indebted to TARC Historian, Evelyn Bahr VK4EQ, for much of the above information and photographs.

WING COMMANDER KEITH McCARTHY, DFC.AFM.AE (RTD) — VK4DU

A 'peek' into the activities of Keith VK4DU (Macca to his mates) shows him cleary as a man's man, one who instinctively spiced his life with challenge and adventure. His best and most distinguished years — over thiry of them — were spent with the RAAF as both W/O and Navigator. This meant that AR had to take second place, out of necessity — even so, he held and used a dozen different call signs from places in Australia, New Guinea, the south west Pacific and the UK.

Keith's first interest in wireless was stimulated in a rather unusual way; it was not the construction of the ubiquitous crystal set followed by the purchase of a pair of headphones to test it out — rather the reverse. In Macca's case, an uncle who was a ship's W/O gave him a heavy GERMAN navy headset, way back in the 1920s — that started it, Keith had to build a set to accommodate them.

In 1930 he qualified as a telegraphist in the Victorian Railways; no doubt this job moulded his 'fist' into that clear-cut, well-spaced, relaxed style of sending that was to signify his QSOs in later life.

Gaining the AOCP two years later (1932), he went straight to air with the call VK3FX. During 1934 Macca was QRV in Sydney NSW as VK2IM; however the PMG relieved him of this call and assigned it to the Harbour Police Launch in 1935 and in exchange he was allotted VK2VM. 1936 saw him back in Victoria using his original VK3FX and it was in this same year that Keith joined the RAAF.

During the war years (1939-45) Keith was engaged in active service on BEAUFIGHTER and LANCASTER aircraft in New Guinea and SW Pacific areas.

A short list of Macca's post-war call signs are as follows:

1946 — VK2VM again, at Richmond RAAF Station.
1948 — VK4FX Port Moresby (PNG at that time was part of VK4), as Chief Sigs Officer Northern Command RAAF.
1949 — G1AA, on staff of Empire Radio College RAF, Dabden UK.
1952, VK3FX again, Chief Instructor at RAAF School of Radio.
1964 — VK4DU, Wing Radio Officer at No 82 Wing RAAF Amberley.
1971 — VK9AR, now a civilian aboard his ketch "Pandemonium", Port Moresby.
1978 — VK4PY
1981 — VK4DU
1983 — VM4AAA

Also the ship civil call signs: VM2039, VMPM, PZPM

After his RAAF discharge Keith and his YF sailed their auxiliary ketch "Pandemonium" to various parts of Micronesia, New Guinea and Malaysia. Using the call VK9AR regular contacts and scheds were kept with the VK mainland. An around-the-world cruise had been planned but this was cut short by unavoidable circumstances.

In 1965, a navigator and 'back up' W/O if needed, he was a member of the distinguished WWII veteran air crew which flew a 'worn out' Lancaster (fit only for the wreckers yard) from Australia to the UK, against all odds. Already almost a legend among his mates, this was quite possibly Wg Cmdr K McCarthy's finest hour. The whole hair-raising adventure is graphically described by author P Kilvington in the book "THE LAST LANC". — a **must** for all those who had anything to do with flying during WWII, it will grip you to the last chapter.

Stories of crazy capers in the Officers Mess in the Armed Services are legend. It is alleged that a case of spirits, which carried an exotic and unknown brand name was delivered to the Officers Mess. Macca's boys broached it with caution — and sampled it with greater caution. The common consensus was, "Send it over to the Sergeant's Mess."

Next day Keith enquired from an NCO how he enjoyed the gift (with compliments) from the Officers Mess. "Well, it was like this, Sir," said the Sergeant reflectively stroking his chin and running a tongue across his dry lips, "If if had been any worse we couldn't have drunk it — and if it was any better we wouldn't have got it!"

Rich in the satisfaction of many jobs well done, many places and faces seen and various call signs used to good effect, Keith now lives in retirement in a well-chosen spot near Beenleigh half-way between the Gold Coast and the City of Brisbane.

He can be heard on/air on 'Charlie Whisky' when the spirit moves him, with the rightfully-earned distinctive call sign of VM4AAA. The VM4 prefix is issued only to those Queensland OOTers who have held an amateur license for a half-century or more. May no injustice ever deprive him of it.

AR

ERIC LAKE, VK4EL (SK).

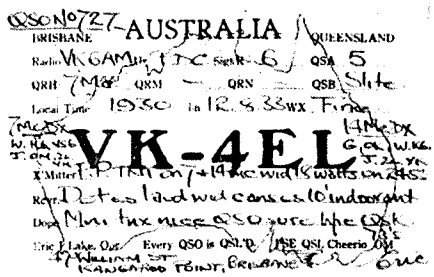
Eric, gifted with a plethora of talents topped off by wit and humour, was one of the nicest OOTers ever to find his way into AR. Born in Shrewsbury UK, he eventually emigrated to Sunny Queensland and sat for his AOCP in 1933.

His first transmission was alleged to have taken place from Kangaroo Point, Brisbane, where he erected a 90 feet (27m) pole and started out as a DJ on the 200 metre band. This was short-lived as the skyhook crashed down in one of Brisbane's thunder storm blows (one wonders how the neighbours reacted). However, he soon turned his attention to HF, particularly 20 metres CW, where his ability as a top class operator became apparent.

It is often said that a good code man can copy Morse when it is no stronger than the background QRN; Eric VK4EL could do better. He could extract call signs and turn them into QSOs when only noise was apparent in his receiver; visitors to his shack will attest to this. He was even referred

to with admiration as the 'bloke with super ears', able to decipher sounds beyond the range of the average listener. From his Camp Hill QTH, which was close to a main road and his reception permanently marred by low level car QRN, he nevertheless managed to work more 'G' stations with A1 mode QRP on the long path than anyone else in VK4 during the same period 1935-1939.

Shortly after the war he joined the PMG and served for many years on the technical staff at Broadcasting Station 4QN Townsville. He lived at the nearby suburb of Belgian Gardens, from



whence he continued to chase DX. His achievements in this regard were impressive. However, fate was to intervene. In the prime of life he fell ill and bacame an SK before reaching 50 years of age.

Eric made several contributions to AR, the most important being his ability to impart his knowledge to beginners. He supervised the WIA AOCP classes and he had private students as well. There was hardly a period in his amateur career when he was not engaged in a teaching task, either theory or code. His worth to AR in this regard will never be fully known or recognised. Teachers who are engaged in WIA AOCP youth student schemes are like SWLs — the forgotten section of our hobby.

He received international recognition when he attained WAC on CW on QRP, viz. ½watt in ½wave vertical. This was reported in overseas magazines and hailed as a record for its time.

In the 1930s he constructed a one valve regeneration receiver which became know as the One Valve VK4EL Special. There was nothing radical or innovative in its design but Eric experimented with the value of every component in it to obtain maximum sensitivity. Rumour has it that he sold the circuit to a Sydney manufacturer for mass production.

In his youth Eric had the honour of representing Queensland in a game of soccer against a Chinese team. The Bananalanders were beaten by 20 goals to one, VK4EL scoring the only goal for the home side. He naturally wanted to tell others of this accomplishment, but when he did, their reply was usually, "That's not a score mate, that's a race track starting price!" Consequently, Eric kept it a secret.

Author's Note:

Eric VK4EL did not earn the reputation of a worker of 'Gs' purely by chance. For him, a QSO with his motherland was a dedicated daily two hour ritual — part of his territorial imperative.

Around 4:30 pm local time the gear in his spartan downstairs shack would be tested; a 3 valve TRF receiver and a 3 stage transmitter with a modest 245 in the final; power usually around 20 watts. His operating position was a straight-backed kitchen chair — no soft comforts for Eric. Although capable of sartorial elegance when the occasion demanded, his shack attire even on cold days was also spartan — a 'jackie howe' and shorts seemed to be all his bulky frame needed. With a mind so pre-occupied winter didn't exist.

As the receiver settled down to a steady crackle, a rather fat cigarette was rolled and lit. Listening intently, the band was very slowly tuned (no on frequency operation then — an object lesson on DXing for any Novice). Intently, he poured all his aural senses into the band noise, listening listening; the 'fag' drooping from his mouth was forgotten — and out — a useless, spittle-soaked appendage. At the end of two hours his immaculately kept log usually showed more than one 'G' QSO, even in bad conditions. His sending 'fist' was a pleasure to copy — even at 30 WPM plus.

AR

past achievements present objectives future aspirations of R R C

The Redcliffe Radio Club was formed in 1971 with the banding together of a few licensed operators on the Redcliffe Peninsula. It was quickly discovered there were many would be amateurs within a 30 mile (48km) radius of the Redcliffe City, who desired to acquire the skills and knowledge in theory, regulations and Morse code, to enable them to pass the, then, half yearly examinations set by the Department of Communications.

Volunteer instructors were willing to teach theory and the code and students began to qualify at the examinations. Membership of the Club was strengthened accordingly. This trend has continued to the present day and the Club now boasts a membership of 100 and is thriving.

Early in its inception, the Club instigated the Redcliffe City Award, with the financial assistance of the Redcliffe City Council. The promotion of the Award appealed to many active Club members and special award nets were instituted on a weekly basis, on Saturday afternoons and Wednesday evenings. In excess of 500 awards have now been distributed on a world wide basis and has played its part in the tourist promotion of the Redcliffe area. This, naturally, is a source of satisfaction to the Redcliffe City Council.

At appropriate times, Club members have organised 'on air' displays at the annual Redcliffe Show and the Redcliffe Library. These efforts have assisted to create interest and the publicity has been responsible for an increase in Club membership.

As time inexorably passes, so to have some of the foundation members. One, VK4IZ, was granted Life Membership, and his memory is further kept alive by his donation of a HF transceiver, which is available for use by Club members. In addition, the Club has inherited a fine collection of amateur radio books from the late VK4YB, and these are available for use, by members. A reference library of technical books are available on loan, also.

Meetings are held weekly on Mondays, at the Redcliffe Education Centre, from 7.30pm. The first and third Mondays are devoted to class instruction and discussion nights, the second is a General Meeting, with a Guest Speaker, if there is one available. The fourth Monday is a general workshop evening, with something of interest to all.

Members of the Club have actively supported JOTA each October, with 1985 having been no exception. This year the JOTA station demonstrated two metres, 70cm, RTTY and amateur television.

AR

Craftman's Corner

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Louis has a well equipped workshop, able to cope with most engineering tasks. He will make keys and very low loss, highly selective 70cm UHF cavity resonators to your specifications, if you supply the materials.

Contributed by Alan Shawsmith VK4SS

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FM (N): 15kHz 0.5uV Sens (12dB SINAD)
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AM (N): 2.4kHz 1.0uV Sens (10dB S+N/N)
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Conversion:	Triple for FM (N) AM & SSB, Double for FM(W)
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Cat D-2820

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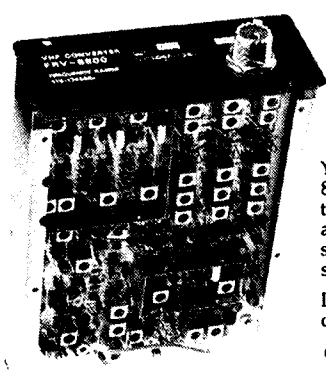

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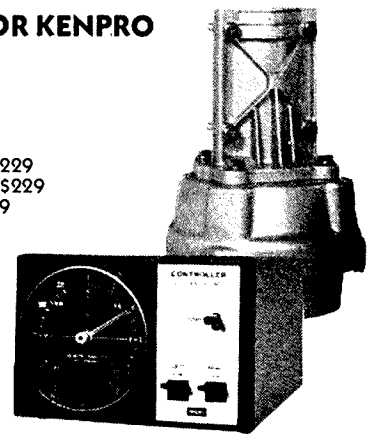

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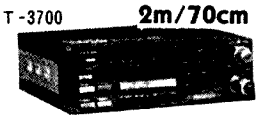
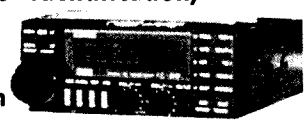
FT-3700 2m/70cm 

FMP-1 

FT-3900H 70cm 

FT-2303R 2m 

IC-26 2m 

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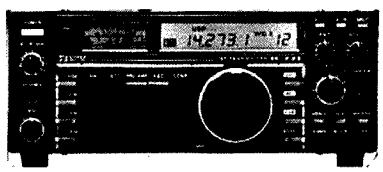

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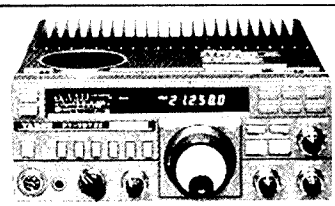

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All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

FREQUENCY	CALLSIGN	LOCATION
50.005	H44HIR	*Honiara*
50.008	JA2IGY	*Mia*
50.060	KH6EQI	*Honolulu*[1]
50.075	VS6SIX	*Hong Kong*
50.109	JD1YAA	*Japan*
51.020	ZL1UHF	*Mount Climie*
52.033	P29BPL	*Loloata Island*
52.100	ZK2SIX	*Niue*
52.200	VK6VF	*Darwin*
52.250	ZL2VHM	*Manawatu*
52.310	ZL3MHF	*Hornby*
52.325	VK2RHV	*Newcastle*
52.370	VK7RST	*Hobart*
52.400	VK0MA	*Mawson*[2]
52.420	VK2RSY	*Sydney*
52.425	VK2RGB	*Gunnedah*
52.440	VK4RTL	*Townsville*
52.450	VK5VF	*Mount Lofty*
52.460	VK6RPH	*Perth*
52.470	VK7RNT	*Launceston*
52.490	ZL3SIX	*Blenheim*
52.510	ZL2MHF	*Upper Hutt*
144.019	VK6RBB	*Busselton*
144.400	VK4RTT	*Mount Mowbullan*[3]
144.410	VK1RCC	*Canberra*
144.420	VK2RSY	*Sydney*
144.465	VK6RTW	*Albany*
144.565	VK6RPB	*Port Hedland*
144.460	VK6VF	*Darwin*
144.800	VK5VF	*Mount Lofty*
145.000	VK6RPH	*Perth*
147.400	VK2RCW	*Sydney*
432.057	VK6RBS	*Busselton*
432.180	VK6RPR	*Nedlands*
432.420	VK2RSY	*Sydney*
432.425	VK3RMB	*Ballarat*
432.440	VK4RBB	*Brisbane*
1296.171	VK6RBS	*Busselton*
1296.480	VK6RPR	*Nedlands*
10300.000	VK6HVF	*Roleystone*

(1) A short note has come from Lee KH6BZF, asking that the KH6EQI Beacon be re-listed, but in the note he says the beacon is operating on 50.600MHz! Now I am pretty sure that frequency is incorrect. It operated for a long time on 50.060MHz and I listed it as such, to have it operating on 50.600, right out of the DX band, seems strange, so see it as a written error. For the time being, it has been included again, but on 50.060MHz; if incorrect, please advise me. Lee.
(2) A message from Mark VK0AQ, at Mawson, Antarctica, indicates he has the beacon running there 24 hours-a-day and will keep it that way unless special problems of interference arise. So far there are no problems. The antenna is on Australia and the beacon runs about 90W output, with FSK ident, although you may have to listen closely to make the identification. At the moment, Mark has problems himself, operating on six metres, and has no way of knowing when the band may be open as he has no TV stations to alert him, as David VK0CK had at Macquarie Island, so the possibility exists that you could hear the beacon and not have anyone to work. Mark expects to be at Mawson until February 1986, so he will have a full Es season to play with for contacts.
(3) A letter from Peter VK4ZDO, the Acting Secretary of the Brisbane VHF Group, asks for their two metre beacon, VK4RTT at Mount Mowbullan, to be added to the list. (I am not sure why it was removed, but it has been added again . . . 5LP). Peter goes on the say that, except for maintenance, the beacon has served the amateur community for 20 years, and believes it to be the oldest two metre beacon in Australia. It is owned and maintained by the Brisbane VHF Group, who also operate a two metre repeater, VK4RBN, a 70cm beacon, VK4RBB, and a 70cm repeater, VK4RBC.

NATIONAL CALLING FREQUENCY ON HF

A letter has arrived from Charlie Gnaccarini VK3BRZ, airing a matter which has received attention in the past, without a great deal of success. He says: *"Recently, I had my enthusiasm for VHF DX operation rekindled after many years of almost exclusive HF operation. The recent article in AR, on Aircraft Enhancement, was particularly responsible for this, and I am currently putting together a serious two metre SSB station.*

"It has occurred to me many times, that VHF DX operation is very much a hit and miss affair, (mostly miss), since a number of random events need to coincide, (propagation conditions, operators being on the air, beams pointing in the right direction, etc). What is required is a national calling frequency on HF, where communications can take place throughout Australia, with some reliability, so that scheds can be arranged, tests co-ordinated, and so on.

"Some attempt was made years ago by keen six metre operators to use 10 metres for liaison, but 10 metres is not what it used to be! My proposal is to agree on a frequency on 40 metres and one on 80 metres, so that day and night can be covered. By being able to liaise with other operators, we may be able to improve the chances of working openings which we would otherwise not be aware of, instead of optimistically calling CQ with beams pointed every which-way. Perhaps we could even have a weekly 'VHF DX Net' on 80 metres. This would go a long way towards encouraging VHF SSB operation.

"Limited call holders would still gain some benefit from the HF nets by simply listening to what is happening. If the 80 metre net is held inside the Novice segment, than combined Novice/Limited call holders could make use of it too (the only problem is finding a clear frequency!).

"Perhaps someone in the past has thought of this before and I am merely re-inventing the wheel. I would certainly be prepared to give the scheme a try, if not just to find out what others are doing on the VHF scene, and to keep up with the latest gossip".

What you are asking, Charlie, has certainly been attempted in the past, in fact several times, I believe, but with only limited success. Maybe we did not have the right frequencies, but more likely we lacked the dedicated operators, with the requisite time required to maintain the net, and lacking the right kind of person to be net controller. It was used with quite a degree of success during the high years of Cycle 21, on 28.885MHz, and a lot of useful information was sent to other people on that frequency, at the time. Its usefulness tended to run out when propagation conditions changed and the frequency, itself, became unreliable. It also suffered from the accusations that some unscrupulous operators were using 10 metres to complete 50 and 52MHz contacts, which had only partially been completed on the six metre band, when it too faded out during the opening. These accusations are very hard to prove, of course, but I believe there is a measure of truth in the statement. Such a situation may not so readily arise here if the main purpose is to bolster two metre and above operation, but in the prime six metre days, when there was a mad scramble to work as many countries as you could, the opportunity was there to finish the contact by any means, and still claim a valid contacts!

However, despite what has happened in the past, there seems no reason why the matter should not be aired again. Anyone interested should write to me and state their views, and indicate what frequencies (Specifically), and the times of operation (bearing in mind we have a two hour time difference across Australia), and on what day/days the net should be held, and who should control it. I am prepared to be a clearing house for any opinions, so aired!

ROSS HULL MEMORIAL CONTEST

You are once again reminded of this VHF/UHF contest coming up for a start in December. There are some more rule changes this year, which it is hoped, will be acceptable to the majority. They will not, and cannot satisfy everyone on a country as large as ours, so some compromise will be required. Importantly though, please send in your log to the Contest Manager, at least keep the Contest alive while we try and sort out how best to run it; without logs, the Contest will surely disappear off the calendar.

USE OF VI PREFIX

The Department of Communications has approved the use, by all amateurs, of the 'VI prefix' instead of 'VK' for the period, 1st October to 31st December 1985, in celebration of the WIA's 75th Anniversary. VHF and UHF operators should note this also applies to them and is not restricted to the HF bands. It would be appropriate to use the new prefix during the Ross Hull Contest, this year.

SIX METRE STANDINGS UPDATE

Following my plea in August AR for more operators to add their scores to the present list of Six Metre Standings, it is pleasing to note some entries are coming in. Lindsay VK4ALM, has given an update to his listing, Graham VK8GB sent in that very comprehensive list I mentioned before, and Bert VK3ZZY has sent in his list for the first time. I still make a plea for others to do the same, there must still be some excellent scores around the country, unlisted. Once you have you listing with me, it is very easy to keep it up-to-date, as QSLs come in. At least, from our listings, the rest of the world can see that Australia, which is one of the most difficult VHF DX locations to work from many other countries, has had quite a share of exciting contacts.

I have received several requests from VHF operators, for me to list what countries the higher scoring stations on the list, have worked. I can see no reason why this should not be done, as the results are not secret, and it would be, as Bert VK3ZZY says: *"interesting to see what the potential list is and which ones of those I might have worked, had I been near a six metre rig, at the time."*

David VK2BA, heads the list at the moment, with 28 countries confirmed and these are: *6.1.78 ZL3QK New Zealand; 8.1.78 VK9NI Norfolk Is; 28.11.78 VK2HZ Aust; 19.12.78 JA4MBY Japan; 23.12.78 FK8AX New Caledonia; 7.1.79 P29BH Papua/New Guinea; 7.1.79 YJ8ZV New Hebrides; 12.3.79 KG6DX Guam; 13.3.79 WA4TNV/KL7 Alaska; 10.3.79 W6XJ USA; 2.4.79 HL9TG Korea; 5.3.80 KH6IAA Hawaii; 9.4.80 XE1GE Mexico*; 13.4.80 KX6QC Marshall Is*; 13.9.80 C21NI Nauru; 6.10.80 VK2YHA Lord Howe Is; 24.10.80 VK9ZG Willis Is; 2.4.81 ZF2DN Cayman Is*; 11.4.81 KH3AB Johnston Atoll; 12.4.81 FO8DR Tahiti; 20.4.81 AH8A American Samoa; 25.4.81 VS5DX Brunei; 4.2.82 H44PT Solomon Is; 3.4.82 3D2JT Fiji; 11.4.82 A35JT Tonga; 18.12.82 VK0AP Macquarie Is; 29.12.82 ZK2RS Niue Is; 19.6.83 ZL4OY/C Chatham.* * means split frequency QSO, with VK2BA operating above 52MHz and the other station on 50MHz. All other QSOs were two-way, above 52MHz. A very commendable effort and one which many will find hard to better.

The letter from Lindsay VK4ALM, with his standings update says, that at long last he had received a QSL from A35GW. It took a long time and several letters, but eventually the treasured card arrived. Lindsay believes there are still quite a few disappointed stations waiting for their card.

Lindsay also worked A35RS (Bob), on 24th November 1984, on 52.055MHz, and sent the usual IRC, etc, direct to his New Zealand address, but nothing heard. As he says, you win some, you lose some!

On the six metre scene, in the Rockhampton area, Lindsay said it has been very quite this year. The mid-year Es were of short duration, with a few openings in June to VK2 and VK3, with the last recorded opening to VK3s: XQ, AZY and AMK, on

15th July. No ZLs heard. Russian TV showed up on 14, 15 and 16 September 1985, usually between 0730 and 1000UTC and reaching S9 on the 15th, at 0900. No sign of any JAs on 50 or 52MHz, and no beacons. Last contact was with JA4MBM on 28th April 1985. Also, a report that Graham VK8GB has worked JA4MBM on the 7th September, the same day the band opened on 10 metres to the USA's 4 and 5 areas from Rockhampton. Lindsay also spoke to FK8EB and FK1SB on 10 metres on 14th September and both reported no six metres for quite some time, and no VK TV either, in Noumea. Thanks for writing Lindsay, we all hope for something better this summer.

USING MOUNT ANAKIE

The Geelong Amateur Radio Club Bulletin reports, that after two years of time-consuming, and often frustrating negotiations, the GARC and WIA has secured exclusive use of a site on Mount Anakie to house their repeaters and beacon, VK3s: RGL, RBU and RGG. Drawings of the tower and hut are being prepared and, when formalities are completed, construction can commence as soon a the weather improves. The Club is looking for a free standing tower, 14 to 20m high for use on the site. *Can you help?*

Approval has also been given for the installation of repeater, VK3RGC, on Montpellier, using a Philips FM828 with 18W output. Antenna; transmitting, a folded dipole at 14m, and receiving, a folded dipole at 7m, with an Intel 8748 Microprocessor controller. Time out, three minutes. Ident, seven minutes.

OVERSEAS

The Northern Hemisphere have recently passed through their summer Es period with the big news being the 2nd July Es opening across the Atlantic to the UK. Bill Tynon W3XO, and 'The World Above 50MHz' in QST for September 1985, says there have been other such openings in the past two years, but this one was the most widespread, and longest lasting, of any trans-Atlantic Es propagation yet experienced.

"Scattered reports have arrived of several stations, as far south as Washington, DC, working one or more stations across the pond. W3ZZ had a QSO with EI0RTS at 2358UTC. W3WFM hooked up with G4DGU at 2345. WA1OUB, in New Hampshire, was alerted to the possibilities of interesting conditions at 2115, by very short skip to the north east, on 10 metres. He began calling on six metres and was rewarded at 2145 by a call on 28.885MHz from G4GLT. It would be 2230 before the select group of 100 Gs, who have special permits for 50MHz operation, would be allowed to begin transmitting on the band. The two stations hooked up again at 2230 for a two-way, six metre QSO, with 5x9 signals, both ways. WA1OUB went on to work G4BPY at 2232, EI0RTS at 2232, G6NB at 2234, GW3LDH at 2242, G3OSS at 2244, G3COJ at 2255, G3WBN at 2302, and G4DGU at 2305. At 2356, EI0RTS was worked again and the last contact was at 0027, 3rd July with GJ3YHU. Except for G4GLT and EI0RTS, signals were weak, between 4x3 and 5x5. Bob reported that the Gs said they had heard W4 and W5 earlier in the day."

Good to see our US friends sharing in trans-Atlantic contacts. I did hear only this week (mid-September), that amateurs in the UK were all to have an opportunity of working 50MHz outside TV hours, instead of only 100; hope they get it. It should be possible to work across the Atlantic with reasonable consistency, the distance is about half that from VK to the West Coast of the US, which means about the same distance for us on the Eastern Seaboard to, say Tahiti (FO8). Even VK5LP has worked that far, but not often! With a large six metre population in the US and the thrills of early times on six metres for the G operators, means vigilance on the bands will certainly produce contacts, so we can expect to hear this being repeated from time to time before long, as more and more Gs obtain six metre equipment. The opening of 2nd July will be a shot-in-the-arm for six metres, both ways.

EME NEWS

Nothing heard from Doug VK3UM this month, but there is some news from Lyle VK2ALU, in 'The Propagator' for August and September 1985.

Lyle reported having discussions with G3WDG, in the UK, and VE7BBG in Canada, while on his holidays, on the subject of EME. Also by phone, with G3LTF and PA0SSB, all of whom have been worked by VK2AMW on either 432 or 1296MHz.

G3WDG has had several EME contacts with OE9XXI, etc, on the 2300MHz band. VE7BBG indicated that it should be possible to obtain echoes from the moon on the 10GHz band with 35W output, into a 10 feet (3m) dish. The receiving system would require to have a 2dB noise figure, with 500Hz passband. The interesting point is that all the above transmitter and receiver requirements have been individually achieved by amateurs, but not used for EME operation. It would be interesting to have to keep the moon within the 0.6 degree beam-width of the antenna, Lyle said.

A critical look at results obtained by VK2AMW, indicated that it may be possible to improve reception of signals by readjustment of the feed-horn of the dish. This work will keep the EME station off the air until further notice.

In the September issue of 'The Propagator', Lyle VK2ALU, reported the EME site building had been broken into again, just two weeks previously. The intruders were well equipped with cutting equipment, as they were able to destroy a heavy steel shroud plate, fitted over the padlock on the door, after the previous break-in. The hardened steel lock had been cut with large bolt-cutters. Fortunately, most of the equipment had been removed for checking, while the dish feed-horn was taken down for re-building, so nothing was stolen.

One wonders at the mentality of people who set about such destruction. I recall, years ago, the damage that was done, at the former site of the dish, by vandals and thieves, and the need, then, to shift the dish for greater security. Seems as though nothing is safe today!

OTHER NEWS

There is very little. Six metres has been almost dead. Channel 0 from Brisbane is often heard, particularly during mid-morning, and I did hear a VK4 working a VK2 around 0225 recently, but they faded out before I could make a call when they looked like finishing their contact.

Congratulations to David VK3AUU, who worked VK4AUR and VK4GC, on the 17th August, around 2130, via meteor scatter. Signals were understood to be quite strong and did not last long. That would be a normal comment, as MS on two metres doesn't usually last long, there is no time for niceties!

While the pros and cons of having Morse code examinations continues from time to time, it may be well to ponder the feats of those best at the game, as they appear under amateur radio in the Guiness Book of Records, per favour of 'Tiara News' and 'Break-In' August 1985: *"The world record for copying Morse code is held by Ted R McElroy. He is credited with copying 17 characters a second. Yes, that's right — per second. That works out to 75.2WPM. McElroy set that record on 2nd July 1939, so if has stood for 46 years! The sending record, using a straight key, is held by Harry A Turner W9YZE. He sent at 35WPM, back on 9th November 1942. Last, but by no means least, Richard C Spencerley KV4AAA, holds the record for the most QSOs in a single year — 48 100. That works out to an average of 132 QSOs per day."*

At 132 QSOs per day of, say, 12 hours per day, every day for a year, that is 11 per hour or just over five minutes per QSO, right throughout the year. Phew!

Also from 'Break-In', ZL1HV *"Revealed at the Paris Air Show by British Aerospace, were plans for a Mach 9 aircraft, which will be able to carry 69 passengers from London to Sydney in 45 minutes. So early next century, it will be possible to have a QSO before breakfast in London and deliver the QSL card to VK2 the day before it was made! But I doubt if even that would be good enough for some DX hounds."*

Closing with the thought for the month: *'By ever taking out and never putting in, one soon reaches the bottom.'* **And don't forget to enter a log for the Ross Hull Memorial Contest starting next month.** Full rules and details appeared on page 44, in last month's AR. 73. The Voice in the Hills.

AR

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

NOVEMBER

9 . . Australian Ladies' Amateur Radio Association Contest (Rules this issue)
9-10 . . European DX Contest — RTTY Section (Rules — July AR)
23-24 . . CQ WW DX CW Contest

DECEMBER

7-9 . . ARRL 160 metre Contest
14-15 . . ARRL 10 metre Contest
14 . . Ross Hull VHF Memorial VHF Contest Begins (Rules October AR)

JANUARY

6 . . Ross Hull Memorial VHF Contest Concludes
11 . . 40 metre World SSB Championship Contest
12 . . 75 metre World SSB Championship Contest
18-19 . . 160 metre World SSB Championship Contest
25 . . 15 metre World SSB Championship Contest
26 . . 20 metre World SSB Championship Contest

Note that the World Championship Contests are sponsored by '73' magazine, not 'CQ' magazine as stated in October AR. The rules for these five contests will appear in December's issue of AR, as previously indicated.

As I write the notes for this month, the very large quantity of logs from the Remembrance Day Contest are flooding in. Opening and sorting of same has been *proceeding and*, naturally, I have been quite interested in scanning through the comments, which were forwarded with the logs.

I would make two observations which come to mind — it is surprising just how many people cannot spell the word 'REMEMBRANCE' and it is also surprising, just how many operators fail to endorse the envelope, containing their log, with the name of the contest, despite the fact that a requirement for it appears in the rules.

Perhaps we can improve on this item in future. It may seem just a little thing, however, when there are many envelopes to be opened, it allows me to differentiate between contest logs and other correspondence, some of which may require instant attention.

It has been most pleasing to note that the vast majority of logs for this years contest have been of a much improved standard, as have the 'Dupe Sheets', when provided. Congratulations chaps and ladies, let's keep up the standard, in this regard.

Generally speaking, the Remembrance Day Contest seemed to run fairly smoothly. I have already received many requests from all over the country for the time for repeat contacts on VHF to be reduced even further and, judging by my observations, this may well be warranted. Unfortunately, I was only able to spare time to operate mainly on the Saturday and my own personal score is lower than usual, although, even under these circumstances, the going seemed somewhat slow. I will have more comment to make when the results of the contest are ready for publication.

VK NOVICE CONTEST — Activity in this contest seemed only fair and as usual, the going was very slow. I certainly hope to see quite a big improvement in support of this contest in 1986, although those who were participating seemed to be really enjoying themselves.

Rules for the 1985 ALARA Contest were only provided to me in time for this issue, however, I do hope that you will support our lovely ladies in this event. I thank Joy VK2EBX, for providing me with the details and I wish ALARA well in all their activities.

Pressure of a number of activities means that the notes for this issue will be much shorter than usual. There are still many things to be discussed and points to be brought forward. I already have received some comments on the subjects of the Contest Championship Trophy and the need to reduce the number of contests. On this latter point, I would offer my opinion, that while our VK Contest Calendar may not appear to be excessive, one must be prepared to accept the fact that contesters do not form the majority of operators, and spectrum space must be available for all to operate with as much freedom of action as possible. No doubt, much more is yet to be said on these and other related subjects.

Please keep your ideas and opinions rolling in. Whilst I may not reply personally to every letter, you may rest assured that I value your contributions and they allow me to formulate suggestions and recommendations, based on a reasonably widespread body of opinion.

Any contest station needs to have equipment, which is well set-up and is top line as far as performance is concerned. Not the least of the necessary items is a good rotator for the directional antennas employed. I have recently taken steps to replace *my* rotator, which was a 'Ham M', which I have had in use for about 26 years. My research into the subject of rotators led me to select one of the new Multi-Torque units, which uses up to four separate motors. I must admit that I was more than pleasantly surprised by the very fine design, construction and engineering, which has gone into this unit. The approach has obviously been well thought out, even to such refinements as the neatly machined drain channels beneath the underside of the unit.

My next issue of notes will be the last for 1985. The time does certainly fly past and we must continue to make the most of what opportunities are offered to us as we expand our experience.

I trust that for the rest of this year, all your activities will be successful, and you are able to enjoy your hobby to the utmost.

So, until next month, I pass along my best wishes to you.

ALARA CONTEST

ELIGIBILITY — All licenced operators throughout the world are invited to participate. It is also open to SWLs.

OBJECT — The object of the contest is **participation!** YL works everyone, OM works YLs only. One contest (combined phone and CW) run over 24 hours.

PERIOD — 0001UTC Saturday, 9th November 1985 to 2359UTC Saturday, 9th November 1985.

SUGGESTED FREQUENCIES — bands to be used are: 3.5, 7, 14 21 and 28MHz only. The following are suggested frequencies for easier location of contacts.

PHONE	CW
28.480-28.520	28.100-28.200
21.180-21.200	21.100-21.200
21.350-21.370	14.050-14.060
14.180-14.200	7.010- 7.020
14.280-14.300	3.525- 3.535
7.100- 7.120	
3.570- 3.590	

OPERATION — Phone and CW operation. Each station may be counted twice on each band for credit: once on phone and once on CW. All contacts must be made in accordance with operator and station licence regulations. No net or list operation, no cross-mode.

PROCEDURE — Phone: Call "CQ ALARA CONTEST". CW: Call "CQ TEST ALARA"

EXCHANGES — ALARA member: RS or RST, serial number, starting at 001, ALARA member, name. YL non-member or OM: RS or RST, serial number starting at 001, name.

SCORING — Phone: Five points for each ALARA member contacted. Four points for a YL non-member contacted. Three points for OM contacted.

CW: Double all points for CW contacts.

SWL: Five points for ALARA members logged. Four points for YL non-members logged.

LOGS — Single log entry (but Australian YL Novices entering for the Mrs Florence McKenzie CW Trophy should indicate their CW score separately, also). Logs must show date/time UTC, band, mode, call sign worked, report and serial number sent, report and serial number received, name of operator of station worked, and points claimed.

LOGS MUST BE SIGNED — Logs to also show full name, call sign and address of operator, and show final score (points claimed). Logs must be legible. No carbon copies. No logs will be returned. Decision of the COntest Manager will be final. Logs must be received by the ALARA Contest Manager on or before 31st December 1985.

CONTEST MANAGER — ALARA, VK2KFQ, 31 Cadell Street, Wentworth, NSW. 2648.

A TROPHY — Will be awarded for the highest aggregate score over five years (commencing 1983) of a licenced YL operator (not necessarily Australian.

MRS FLORENCE MCKENZIE G W TROPHY — This will be awarded to the Australian YL Novice operator with the highest CW score (not necessarily an ALARA member). Minimum score 50 points. The actual trophy, because of the size and weight, will not be forwarded to the winner, but a certificate bearing a photo depicting the trophy, will be sent to the winner each year.

CERTIFICATES — Will be awarded for the following:

Top overall score
Top score Australian YL Novice (Mrs Florence McKenzie Certificate)
Top ALARA member score in each country and VK call area
Top YL non-member score in each Continent
Top OM score in each Continent
Top SWL score in each Continent
Top VK Novice score
Top Overseas YL Novice score — CW

Mrs Florence Violet McKenzie, 1892-1982, was the first lady in Australia to take out a transmitting licence, in 1921. She passed the AOCP in 1925, and obtained the call sign 2GA, later VK2FV. Mrs Mac taught Morse code to thousands of people, particularly service personnel, during the 1939-45 war years. In 1984, the Townsville Amateur Radio Club kindly donated a trophy in her memory.

VK VERSUS THE WORLD CW QRP CONTEST

DATES: Saturday, 16th November and Sunday, 17th November 1985.

DURATION: A total of 48 hours from 0000UTC 16th to 2400UTC 17th November.

MODE: CW only.

CALL: CQ QRP.

BANDS: 160 to 10 metres, no WARC operation.

SECTIONS: QRP. Single operator. QRP. Multi-operator. QRO. Single operator. All multi-band or single band.

PERIOD: Full period — 48 hours or half period — any 24 consecutive hours within the 48 hours period.

EXCHANGE: All stations use six digits comprising RST and serial number, starting with 001 up to 999, then starting again with 001.

SCORING: QRP stations indicated power output must not exceed FIVE WATTS. QRO stations power exceeding five watts. Each contact shall score points based on the following.

Up to one watt — six points, between one and two watts — five points, between two and three watts — four points, between three and four watts — three points, between four and five watts — two points, over five watts — one point. QRO stations over five watts **QRO/QRP only allowed.**

SAMPLE LOG:	Date/Time UTC	Band MHz	Mode	Callsign	RS(T) & serial No sent	RS(T) & serial No rec'd	Name	Points
	9/11 0135	28	SSB	VK3DML	59001	58028	Margaret	5
	0141	21	CW	VK2SU	599002	599045	Freda	10

MULTIPLIERS: Every contact in a different ITU zone counts as a multiplier, on each band.

BONUS SCORE: Field stations using battery/solar/wind/hand generated power, excluding motor generators, multiply the grand total score by 1.5. Field stations to be erected on the same day a the contest.

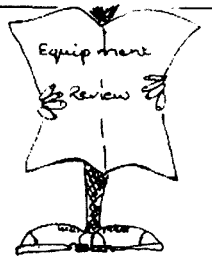
CONDITIONS: One contact in each band in each 24 hour period. A separate log sheet must be used for each band. Each logged QSO to show: DATE, TIME (UTC), STATION WORKED, RST EXCHANGE, MULTIPLIER, POWER OUTPUT, POINTS CLAIMED and GRAND TOTAL SCORE. The grand total score is derived from the total points from all bands by the total multipliers from all bands by the bonus score.

ENTRIES: All entries must have a summary sheet showing, the calculation of the grand total *score* plus, name address, call sign and signature, with a declaration stating ... *"I certify that all entries in my contest log sheets are true and honest."* Entrants are requested to include a brief description of their station's equipment and any comments/suggestions.

CERTIFICATES: To the QRP single operator and multi-operator, in each country, with the highest score, in each section. To the QRO operator with the highest score in each section. To the highest scoring CW OPERATORS QRP CLUB member in each section.

CLOSING DATE: Entries to be addressed to: *The Contest Manager, J Elliott, 8 Queens Street, Rosedale, Vic. 3847* no later than 14th December 1985.

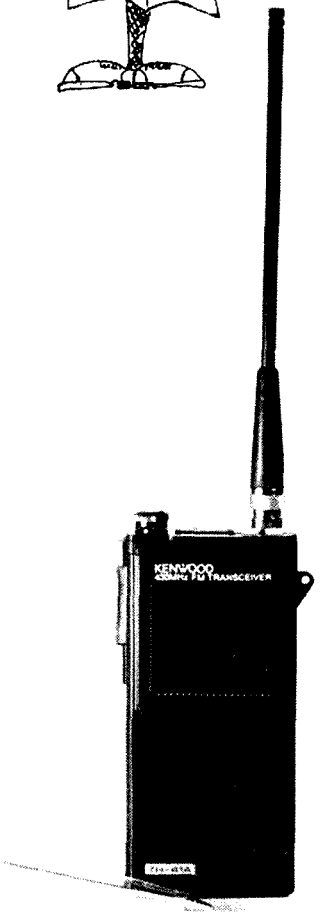
Contributed by Rai Taylor VK7VV.
AR



EQUIPMENT REVIEW

Are black boxes getting smaller, or am I putting on weight?

Written and reviewed by David Furst VK3YDF



Kenwood have released a new hand-held, two metre transceiver, the TH21A. Of itself, the release of the unit probably warrants little attention, however, the TH21A marks a new direction in our hobby.

The era of hand-helds began in this country with beasts such as the Ken transceiver. Hand-held it was, but only if one had a very large hand. From these inauspicious beginnings began the revolution (well, bloodless 'coup d'etat'). New designs followed, making the rigs smaller, adding frequency synthesisers and then built-in computer power. I personally didn't like this. A unit (in my humble opinion) should be simple beast, a joy to use and not overly complicated. The advent of something I could carry around and talk into was nice. Loading it with enough computer power to calculate pi to a zillion decimal places just meant that I had to study away my leisure hours, working out how to drive the thing! To add insult to injury, by the time I had halfway mastered the evil device it had been superseded a couple of times.

The IC2A was a good sturdy unit, simple enough to drive without a diploma, light enough to carry around and it performed very adequately indeed. Here was a rig I could walk hand-in-hand with, into the sunset.

The IC2A (and its clones) were a boon. They suffered only one fatal flaw. Have you ever tried to carry one in *your* pocket? It was probably very practical. If you happen to have pockets that large, okay — but don't go to the Supermarket, because they will probably think you are a shoplifter and spirit your freedom away before you can say "Hand-held".

The TH21A solved this (and coincidently I can now frequent supermarkets unmolested). Kenwood realise you don't hold a hand-held rig all the time. Sometimes it would be nice to just tuck it into a pocket and attend to other matters — or just daydream. Yes, a truly pocket-sized rig.

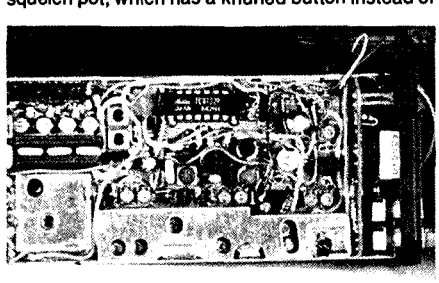
The specifications state that (including projections) the rig *is* 65.5mm (2.5inches) wide, 127.5mm (5inches) high and 32mm (1.25inches) deep. It is about the same size as a packet of cigarettes.

How does it perform? Really well, no less. Compared to the IC2A it comes in well. This is most appropriate as this rig has similar controls and facilities as the 2A, the only difference being that the TH21A doesn't have a separate on/off switch — it is incorporated into the volume control.

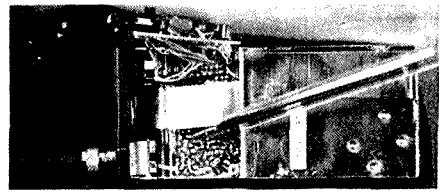
Both cover 144 to 148MHz in 5kHz increments. Both receivers are double conversion superhets with adequate sensitivity, though the TH21A is better with 28dB quieting for an input of .5 microvolts, as opposed to the IC2A with its 20dB quieting for the same input.

The Kenwood pushes out one watt on high power and uses 600mA. The IC2A has 1.5 watts for an input of 550mA. This is where the only significant difference in performance shows. The IC2A will transmit for a reasonable time before the batteries die, the TH21A has smaller batteries which don't last as long. This is a good reason to buy a spare battery pack, as you will always have fresh power at hand.

Living with one of these units is a pleasure. It is not only small, it qualifies for a 'Tiny Award'. It is light in the pocket and very comfortable in the hand. The transmit button is sensibly placed and doesn't tire the button finger. Controls are well placed, and are most usable. I particularly like the squelch pot, which has a knurled button instead of a knob and the squelch is a good reliable 'set and forget' type. The battery pack slides onto the back of the rig and the spare pack is slim in the pocket.



Internal View.



Internal View compared to a "throw-away" Biro Pen.

A slightly radical departure from normality is the antenna connector. This resembles a RCA connector with a thread on the outside so you may screw something onto it securely. The antenna mounting is good and tight, but if you use their BNC connector it will twist the inside of the connector five or ten degrees each time you connect or take something off the rig. On my unit, this broke the internal connection going to this connector. This is the only problem I have encountered with the unit — the physical design is excellent.

I was silly enough to repair the above problem myself. Probably boyish curiosity, just wanting to see the insides of the new toy. If you are a microsurgeon by all means open the unit. The rest of us should leave well enough alone (it has the tiniest, tightest packed internals I have ever seen).

The unit arrives with a circuit diagram, which is immensely larger than the unit itself. This must be a new record for a rig to circuit diagram ratio.

The earphone is excellent and naturally, tiny. My unit came with a vinyl case and belt clip. I personally don't like vinyl cases, on principal, and belt clips seem irrelevant for a rig which fits so neatly into a pocket. I have a bet on with the AR advertiser who sold it to me. If I find no use for the belt clip in twelve months, he is giving me one of my dollars back! You may find a use for this clip — but for me, I intend to get that dollar!

The TH21A does cost more than an IC2A, but then it really is a portable rig. I am extremely pleased with mine. If you get one, I'm sure you will be tool

The TH21A also has a 70cm brother, the TH41, which is physically identical and is photographed on this page. The unit for photographing was supplied by the courtesy of Am-Comm Electronics.
AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

With most of the major overseas contests tucked away for another year by the end of this month, Spring over, and Summer in the offing, now is the time to check the antennas and associated coaxial or open wire feed lines, before one starts their Christmas shopping list. Perish the thought, another year has slipped by without significantly adding to the DXCC list.

Whatever power one runs, efficiency in the antenna system will give you an edge on hearing that elusive country that you have been seeking and one must hear the station before they can call it.

I have found it important to check all connections on the beam, tighten bolts, check waterproofing, and renew if thought to be doubtful, examine the tape that the birds have cheerfully played with, also the coaxial cable if they have fancied that as a delicacy too. Check rotator couplings and wiring, also all earths, not forgetting the SWR on all bands across the frequency range, jotting them down in the back of the log book for future reference.

You are now prepared for another season of good listening and whilst in the mood, check all the connections in the shack, vacuum around the inside of the equipment, with a plastic nozzle attached to the XYL's vacuum cleaner and of course don't forget to have the equipment turned off. Then it is the time to put the feet up and tune across the bands, knowing that your equipment is 'top notch'.

USSR

Many USSR stations, using the prefix of EN0 and 9, have been active. No reason can be offered for the use of the unusual prefix. Work them and wait, they will QSL, with the SWL cards coming in as well.

QSO NUMBER 500

Nothing unusual about the heading, which is a little misleading but herein lies quite an interesting story.

Mike VK4BFO, on the 18th August this year, made his 500th QSO with John G4KJF, located at Diss on the Norfolk/Suffolk border of England. Mike's QTH is in Mt Isa. Their first QSO was Christmas Day 1980, on 10 metres. When this band closed, 15 was used, generally on the short path around 0800 UTC. These gentlemen have always had two overs each, even though the signals may be 4x1 each way. Amazingly they have only had two QSOs on 20 metres, due to Mike's location in proximity to a hill.

So far this year, the duo have had 35 QSOs at the time of writing these notes and Mike has been absent from the QTH for three months. The equipment on the VK end consists of a FT107M/DMS driving a FL2100Z into a TH6.

A fine effort gentlemen and this proves that the signals are there, if one cares to perservere. More listening and calling girls and boys, will produce more QSOs!

GUAM

Ed KB6OAW/KH2, a subscriber to this column, has kindly written an insight to the island where he lives during his tour of duty.

Guam is a small island, 48 kilometres long by 19 kilometres wide, maintaining a population of 175 000, with 20 percent living on the mainland. Of this population there are approximately 20 000 people that are transient service personnel.

Guam is known as the "hub" of the Pacific, as it is a major link for NASA satellite communications, being less than 10 000 km from Los Angeles, 5 800 km from Honolulu, 5 600 km to Singapore, 4 800km to Manilla and a mere 2 500km from Tokyo.

This island has two types of seasons, wet and dry, *no in between*. The wet season is from July to December when the surrounds are lush and green. The temperature ranges from 30 degrees to 24 degrees Celsius with an annual rainfall of 2 160mm. Quite a lot of rain!

The highest point of the island is Mount Lamlam, with a height of 400 metres. The lowest point is to the north where there is a plateau located, dotted with several undisturbed jungles and is the habitat for about 75 percent of the population and where the Andersen Air Force Base is located. The population density is about 685 people per 25 square kilometres.

Located at the southern end of the island is Apra Harbour where the main Naval Station may be found. Nearby there is a small island known as Cocos Island, which is about 7 square kilometres in area and is quite a tourist attraction because of its sandy beaches, hotel and a zoo, which is home to many tropical birds and other wildlife.

The proud population of this island in the Pacific are made up of a mixture of Chinese, Japanese, Koreans, Filipinos, Micronesians and some of Spanish descent without including the itinerant workers for the services from the United States. The Guamanian men are known as Chammorros and the ladies as Chamorritas.

Guam has quite a history. After many years of rule by the Spanish, it became a Territory after the Spanish American War and the Treaty of Paris in the year 1898. Over half a century later in 1950, the Chomoro people were given their citizenship by Congress. In 1971, Guam elected its first Governor, after many years of one having been appointed by Congress. The following year they elected their first delegate to the United States Congress.

I feel that Ed should be the Public Relations Officer for the island, as he states that the island is a DXers dream, with about half of the 100 amateurs being active with very little QRM. Also duty free shopping exists, with some of the prices being about 50 percent of the same item in the United States.

With good weather and lots of water sports, to me it sounds marvellous and a lot better than 'punching' the keys on this word processor, to write my notes.

Thankyou Ed, for giving us an insight into the land, its people and attractions from where you operate.

SAO TOME

Apparently the Carolina DX Association Bulletin recently reported that INDEXA has been assisting two Brazilian amateurs with plans for a DXpedition to Sao Tome. The planned operation of 10 to 14 days duration, possibly this month, apparently has the sanction of the President, Dr Manuel Pinto de Costa.

It appears the main purpose of the proposed operation, anticipated to take place later this month, is to take the 'heat' off Luiz and allow a more orderly segregation of the DXers clamouring for this country.

Let us as DXers, firstly hope that it comes to fruition, secondly that propagation will allow all VKs to hear, before calling, this much wanted country and thirdly, let all behave and show the true spirit of the hobby with impeccable operating habits. Many, from VK and other countries may have to practice, before-hand, by using their dummy load, if they possess one!

Incidentally, the cards of Luiz S92LB, are being accepted by the ARRL DXCC Desk.

LATE NEWS

Unfortunately, an International Telegram from Dieter DK9KD, arrived too late for inclusion in the last issue. Deiter, advises of a concentrated onslaught of removing this much wanted country further down the DXCC ladders "wanted list".

It is hoped that all VKs that wanted it for a new country, made the grade. QSL to DK9KD, unless advised to the contrary, by the operator. Good luck, one and all.

PREFIX HUNTERS BONANZA

A group of amateurs, under the banner of the Uruguay DX Group, have decided to reactivate the CV prefix, which has been sitting unused on the "shelf" for more than a decade.

Eleven operators intend to actuate "Isla de Flores", a small island with an area of six square kilometres located just over 10km from the coast. The island has quite a history, having been discovered by Juan de Solis in 1516, during his search for a route from the Atlantic to Pacific Ocean.

The first "Lighthouse" was the stern lantern of the unfortunate Spanish frigate "Loreto", which was wrecked on the island in mid-1792. The lantern was placed at the highest point on the island, remaining there until the present lighthouse was built in 1798.

The operators are being transported to the island by the Uruguayan Coast Guard and hope to be operational by 2100UTC on the 6th of December, for three days.

Further information, regarding bands, modes and a handsome award, that is available, may be obtained from the QSL Manager, *Ricardo CX2CS, PO Box 2063, Montevideo, Uruguay.* A SAE and 2 IRCs should suffice.

TIME CHANGE

I had the pleasure of catching up with Dave ZL1AMN and his XYL, Aola ZL1ALE, who by the time you read this, will have returned from a jaunt to South East Asia.

Dave as a NZART Councillor has taken on the onerous task of co-ordinating, and being the custodian of, the special prefix of ZM6ARU, which will be aired on different dates to those previously published. Operation of ZM6ARU, a special call to commemorate the IARU Conference, will commence at 0001UTC on 1st November, and end at 2359UTC on the 18th November, at 2359UTC.

To further create chaos in the household, Aola has taken over the chores of being the QSL Manager, and all cards are preferred to be received via the Bureau. Aola's mail QTH is *PO Box 397, Papakura, New Zealand*, for those that prefer this method.

AFRICA JAUNT

The "Globetrotting Colvins" are on the move again under the YASME banner. Their hopes are to operate from, whilst visiting, the prefixes of ZS3, A2, 7P, 3D6, S8, ZE, 7Q, 9J and possibly CR8, before returning home to the United States in April, next year.

Iris and Lloyd are dedicated first class DXers, whom many have tried to emulate, but without success. I personally feel it is time that the YASME Foundation seriously considered instigating the *"Colvin Award"*, maybe for stations that have worked them in 25 different locations on one mode, as a commencing point.

The QSL information for YASME is *PO Box 2025, Castro Valley, CA94546, USA.*

For those that might agree with my sentiments, re an award, please drop a line to the Secretary of YASME, Bob Vallio W6RGG, expressing your views! I

RECIPROCAL AGREEMENT

A reciprocal agreement has been signed between the USA and Japan allowing amateurs, whilst visiting, to operate without further testing. The call sign allocation in JA, is from the block 8N1AAA-8N1XZZ. It seems the FCC will use their present arrangement for visitors.

Apparently, the USA are the first to implement reciprocal rights, of a number of countries, contemplating an agreement.

MOUNT ATHOS

Unfortunately, the Mount Athos discussion is still being continued and the mail to overseas Newsletters and the ARRL, shows that quite a lot of the exponents of DXing are concerned with the "fiasco" that has been caused by a few unscrupulous operators.

Bob Read who was signing SV0BV/A, and has a number of other calls attributed to his name, has

now been heard signing JY9BV. It is a wonder that this very "slick" operator didn't succeed in getting a lower prefix numeral allocated.

The QSL arrangements are with Alec G5VS, who is going to QSL the Mount Athos cards, even though they are valueless. Bob is still maintaining to the Jordanians, that he will get a letter from the monks. In my opinion he will get a letter, but it will never be forwarded to the ARRL.

SABLE ISLAND

This country will be activated in late October or November by a group, for one week. It is intended that LF propagation will be the order of the day, but equipment for all bands from 160 through to 6 metres and OSCAR will be operational.

OSL to VE1ASJ, who incidentally is associated with the Bedford Institute of Oceanography which is located in Dartmouth, Nova Scotia.

NEW COUNTRY? ? ?

The Headquarters of the Council of Europe, located in Strasbourg, have been allocated the call TP2I. By all reports, the Manager for SSB operations is F6FQK and the Assistant Director is F6EYS, who will handle all the QSLing duties.

They have applied for DXCC accreditation, but with previous remarks made in this column, their success could be doubtful. The adage of work them first and worry later starts when they fire up in December. Good luck.

QSL CARDS OF VALUE

Do not discard QSL cards, they are of value. My XYL Bett, browsing through the local library, whilst researching some other material, came across a book entitled "Collecting Australian Postcards" by Nick Vukovic. This excellently illustrated book of nostalgia, has a reproduction of a card from VK3KE to VK5JS for a 14MHz contact on the 17/11/1948 and is valued at $2.

It is imagined for those interested, it would be obtainable at most libraries and in Victoria it is coded 769.509.94 VUK.

NOT ACCEPTED

The Pribiloff Islands will not become a new DXCC Country. This has been decreed by the ARRL, against the recommendations of the Advisory Committee. It is felt that the criteria, when correctly interpreted, will make it exceedingly difficult for new countries to appear on the list in the foreseeable future.

GREECE

The special prefix SW3 will be used by some SV operators through to the end of the year to celebrate the founding of Thessilonika, 2 300 years ago.

BITS AND PIECES

Since 1972, Erik SM0AGD, a quiet gentleman with excellent operating techniques, has operated from CE0, SM0AGD/3B8, HK0, 3C1, TA2, A2, 7P8, S2, CR3, 9N1, XW8, CR9, J5, 9X5, 3D6, A22, ZK1, 3D2, C21, T30, T2, FW0, KH8, ZM7, T31, KH1, T32, 5W1, and 3B8. A true DXer! * * YA1KBL and YA1KBZ. Very doubtful, I am afraid. * * Nice to hear more BY stations populating the bands, also an increase of activity from Indonesia. * * HC8 was well represented before, during and after the CQ WW DX Contest. * * More stations from TA appearing weekly. * * 5B stations using 5B25, to celebrate 25 years of independence. * * No official amateur operations allowed from D2, therefore no recognition from the ARRL and other societies for accreditation. * * Don't become optimistic about 7O becoming operational, if you hear one, work and wait! * * ZL9AA was active from Auckland Island. * * It is anticipated that Willis Island, VK9Z will be active after Kim VK9ZB, finishes his tour of duty in December. * * Another special Canadian prefix graced the ether. It was CG9, to commemorate the Canadian Summer Games at Saint John, New Brunswick. QSL to VE1 and the suffix used. eg:CG9AU to VE1AU. * * 8Q7ITU will be operational until the end of December. * * Martii OH2BH, still awaits some confirmation from the Albanian authorities. Patience is a virtue, Martiil * * 8A0PPI was located at a Fair in Indonesia. * * Gerben PA0GAM, has taken over the QSL duties for 9Q5MA. * * VE8RCS is located at Alert, 450 nautical miles from the North Pole. * * YJ8IND/1 was Ron YJ8RG, with a special call used to celebrate independence. * * Cyprus stations have been using 5B25 prefixes to celebrate 25 years of independence. * * Alain 5R8AL, has returned from his holidays in France and is beginning another one year stint. * * Jim N6TJ, hopes to operate from D44BC's QTH on Cape Verde, to coincide with the CQ World Wide DX Contest. * * TZ6FE is operational, early birds watch 14.227 MHz around 2000-2200 UTC and good luck. * * The suffix PNG added to the P29 prefix was to celebrate 10 years of independence. * * I am pleased to relate that I have the logs of VK0YL, courtesy of Gwen VK3DYL. All cards received have been processed and mailed. * * 9U5JB active again after leave. QSL to ON5NT. * * Nice to know that XU1SS is active again. * * ZA2EW? ? reported to be worked from Europe. QRV at a special exhibition and could only be operational for a few hours! ! ! * * May be some operation from Tokelaus before the end of the year! * * During the CQ WW DX Contest and a few days after, Pedro CE3BFZ and Jorge EA4LH/CE3 were hopeful of being active as XQ0ZFZ and EA4LH/XQ0. The location: Robinson Crusoe Island in the Juan Fernandez Island group. * * TA2TAT, is one station that you do not waste your IRCs on! * * Joe W3HNK, is NOT a QSL Manger for any Soviet station. On occasions he can assist if other avenues have failed.

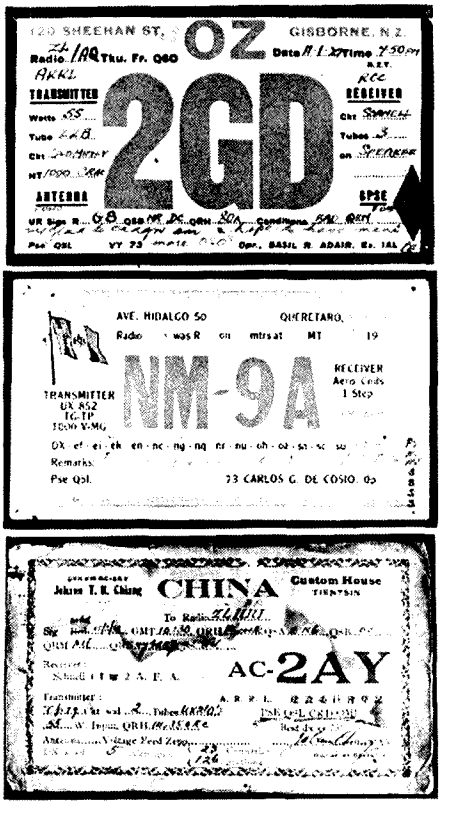
UTC

Although it is not mandatory to keep a log under the new licensing laws, except under certain conditions, for a DXer this would be foolish in my book. It is important for checking QSL and SWL cards, as well as maintaining information on conditions. But please, for the benefit of all, use correct UTC time and date on your QSL, it is easier for all.

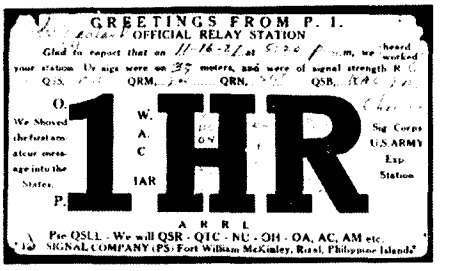
LOGS AVAILABLE

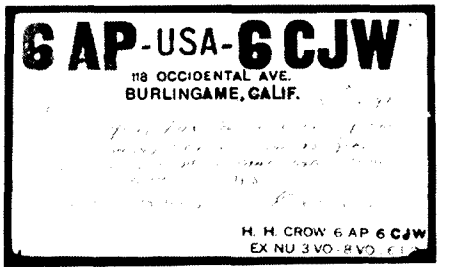
The logs for 4W1ED, A6EF, MP4TEE, P29LS and P29MF are available from G4CHR No cards are available for 4W1ED or A6EE I feel that a signed letter from the Manager, stating that it appeared in the log would be adequate for DXCC purposes.

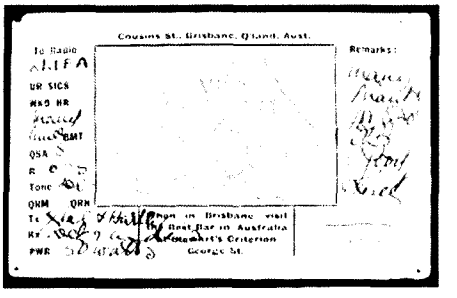
NOSTALGIA QSL CARDS



These QSL cards from yesteryear are reproduced, courtesy of Peter Wolfenden VK3KAU.







Peter has a large collection of old QSL cards, and it is anticipated, as space permits, to present some more. Many thanks, Peter.

WORKED ON THE EAST COAST

15 METRES: HL0I*.

20 METRES: 3D2DW, 4X4FR, 5B4MF, 5B25MF, 5Z4JM, 8J3UNV, 8J3UNV*, 9V1VS*, A35SA, AP2ZA, BY1SK, BY1SK*, BY4AA, BY5RA*, DU9RG, FK8XB, FT8XB, G4STZ, HL9AA, JY3ZH, JY5HH, KL7KN*, KL7NT, KX6AZ, OE6HGB/YK, OK2BXW*, OH0JN, OH1TW*, OH9RJ, PA0ALO, RF0FWW, SL5BO, SM5BCO, SV1DO/SV9, UD6DZ, UL8ULA, UO5GO, UP2BR, UO1GXZ, UY5PC, V85BA, P29PNG, VI0AH, VK0DJ, VK0YL, VK9ZB, VR6JR, VS6BB, VS6JH*, XE1ANU*, Y63TI, YO9BCM, YJ8RG, ZS1AV, ZS2OM and ZS6J.

40 METRES: 3D2ER, 8J6IYY*, AH6FG, AL7FG, CP5LE, CP6NU, CT1BOH, EA8BCJ, FM5WD, HC5EA, F9RV, HK1AMW*, G2BJK, G4AMT, GI3OOR, GW4OFO, GW4VEQ, HB9RG, KA8GVS/KH2, KC6IN, KL7XO, WL7E, VE3NSZ and VK9ZB.

** denotes CW operation.*

INTERESTING CARDS RECEIVED

Steve VK2PS, reports that he received 16 JA cards for contest QSOs, 17 USSR cards for QSOs including RJ8WCY (1983) and 42 USSR SWL cards, mostly of the picture variety with good quality printing. Others received of interest included A4XKH, F5OF, HK1ANP, HL2SF, ON4KU, ON5IU, ON7BM, ON7JK, YO2CMI, YO2BEH, YO8OK and 5 USA cards for the VI prefix. Steve notes that he OSLs, all cards received.

Joy VK2EBX, the 'radio poetess from the north' has received a batch of cards, those of interest being from the late CE0AE via WA3HUP, CE0FQU, CE0ZIJ, FW8AF, VK0YL and VK2BCH/LH.

THANKS

Sincere thanks are extended to the following: *The Editors of weekly, bi- weekly and monthly newsletters including the ARRL NEWSLETTER, CO-QSO, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST, KH6BZF REPORTS, LONG ISLAND DX BULLETIN, NEWSLETTER of the NATIONAL INSTITUTE OF HYDERABAD, OLD MAN, QRZ DX, RSGB DX NEWS and THE WESTLAKES AMATEUR RADIO CLUB NEWSLETTER. Magazines including, BREAK IN, cqDX, JA CQ, JARL NEWS, KARL NEWS, OST, RADCOM and VERON.*

Members who have contributed include VKs 1KEN, 2HD, PS, EBX, 3FR, YJ, YL, 4BFO and G3NBC. Overseas amateurs include G1EOD, KB6OAW/KH2, WB6GFJ and ZL1AMM. Good DXing and early Christmas shopping.

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

SATELLITE ACTIVITY FOR PERIOD 30 JUNE TO 29 JULY 1985.

1. LAUNCHES.

The following Launching Announcements have been received:-

1985-055A	Intelsat-VA-11	Jun 30	ITSO
1985-056A	Giotto	Jul 2	ESA
1985-057A	Cosmos 1665	Jul 3	USSR
1985-058A	Cosmos 1666	Jul 8	USSR
1985-059A	Cosmos 1667	Jul 10	USSR
1985-060A	Cosmos 1668	Jul 15	USSR
1985-061A	Molniya 3-25	Jul 17	USSR
1985-062A	Cosmos 1669	Jul 19	USSR
1985-063A	STS 51F	Jul 29	USA
1985-063B	Plasma Diog. Package	Jul 29	USA

STS 51F with a Plasma Diognostics Package was launched using the Challenger spacecraft from Kennedy Space Centre on July 29.

Orbit elements were period 90.9 min, inclination 49.5°, apogee 321 km, perigee 312 km.

On board were C.G.Fullerton, R.D.Bridges, F.S.Musgrave, A.W.England, K.G.Heinze, L.W.Acton, and J.D.Bartoe.

The spacecraft carried Spacelab-2 and a free flying Plasma Diognostics Package which is deployed and retrieved using the remote manipulator system.

Amateur Radio including SSTV, was operated by Tony England WOORE and John-David Bartoe W4NYZ.

2. RETURNS.

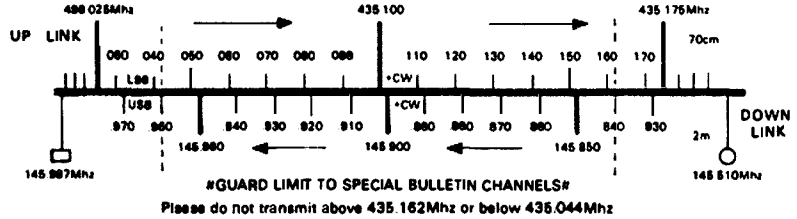
During the period fiftysix objects decayed including the following satellites:-

1985-051A	Progress 24	Jul 15
1985-052A	Cosmos 1663	Jul 5
1985-054A	Cosmos 1664	Jul 5
1985-057A	Cosmos 1665	Jul 17
1985-059A	Cosmos 1667	Jul 17
1985-060A	Cosmos 1668	Jul 29

3. GENERAL.

1966-100A ATS 1 . As at July 7, 1985 1637 UTC, ATS 1 was located at 146.130°East. Inclination 11.767°.

OSCAR TEN UP/DOWN FREQUENCIES



#GUARD LIMIT TO SPECIAL BULLETIN CHANNELS#

Please do not transmit above 435.162Mhz or below 435.044Mhz

AMSAT CALLING FREQUENCY 145.957
AMSAT - UK CALLING FREQUENCY 145.950

AMSAT - UK LONDON E12 5EQ ENGLAND

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and Graham VK5AGR.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR, the National Co-ordinator of AMSAT-Australia, is now producing a monthly newsletter containing updated satellite news, orbital predictions, keplerian data and operating hints and techniques. The objectives of the newsletter are to keep the amateur populous informed on the latest information available, and to realise funds for the funding of projects or the purchase of an item/items of hardware for a future amateur satellite project, eg: Phase-3C, Phase 4 or whatever. The cost of the newsletter is $15 and cheques should be made payable to the WIA (SA Division) and forwarded to Graham VK5AGR, QTHR.

To date, the newsletter has been a resounding success within Australia and now comments from overseas amateurs, who have received copies from friends in Australia, indicate that they would also like something similar in their own countries. The newsletter is basically an eight-page compendium of the nitty-gritties that are relevant in the short-term, items that are basically out-of-date when printed in this column, due to the six week lead-time of AR.

To date it has included some small computer programmes specifically for satellite determination, the latest telemetry blocks from OSCAR 10 and OSCARs 9 and 11. If you are at all interested in satellite communication, this newsletter is a must!

HAND-HELD COMPUTER OFFER

Perhaps one of the drawbacks of satellite communication is the ability of knowing where the satellite is and whether it is available to you. In the past, computers conjured up dollar signs in front of our eyes to the tune of some thousands of dollars. However, today the price of hand-held computers is well within the reach of us all. Although these hand- held computers are restricted in memory capacity, thus preventing the more traditional expectations of a computer, they can be of significant use if you have a specific problem to solve. Karl Meinzer DJ4ZC, the father of the Phase 3 programme, whilst in Australia, demonstrated a small hand-held computer (see August AR, page 22), utilising an excellent orbit derivation programme, based around the computer software he produced for the actual spacecraft.

This programme, utilising the Sharp PC-1246 Pocket Computer, is now available through AMSAT-Australia for $70, including packaging and postage, as a special service to the amateur community. Bargain hunters will readily note this price is well below the listed retail price, and it also includes the software.

When forwarding you cheque, made payable to the WIA (SA Division) Inc, please include your

stations latitude and longitude so that these values can be inserted in the programme for you, by AMSAT-AUSTRALIA, and thus saving you the hassle. A complete set of operating instructions comes with the computer, plus a printout of the actual computer programme.

All that is required is to turn the computer on, insert the day and time you wish to operate from and the computer will display the time, beam headings, and mean anomaly. Then with the stroke of a single button, you can increment the display at 30 minute increments. The satellite communicators, who have purchased these units, adamantly declare that it has included a new dimension to their activities. Frank VK2ZI, an ardent satellite communicator, despite his blindness, had his unit adapted to a talking computer, and he unashamedly boasts that to him *"... it is the best thing since sliced bread"*.

In the short term that this unit has been available from AMSAT-Australia, those amateurs who are gifted with software expertise have already included additional operating improvements to suit their respective tastes, within the limits of the memory capacity of the units.

It is interesting to note that amateurs who have full-blown computer systems prefer to use this small hand-held unit because of its more practicable operation.

Just turn it on, insert the data, and that's it!

OSCAR-10 OPERATING SCHEDULE

As mentioned in previous columns, it pays to listen to the Sunday evening session of AMSAT-Australia, to keep track of the operating schedule of OSCAR-10. The latest schedule however, is as follows:

MEAN ANOMALY	MODE
40 to 119	B
120 to 136	L
137 to 220	B
221 to 39	Off

With the passing of the latest spate of extreme eclipses for OSCAR-10, it is anticipated that this schedule may remain in force for some months to come.

AUSTRALIAN COMMAND STATION

Whilst on his recent visit to Australia, Karl DJ4ZC invited Graham VK5AGR, to act as a command station for Phase 3C, due for launch in 1986. Ian Ashley ZL1AOX, is currently the sole command station in the Southern Hemisphere for the Phase 3 programme, and as such, is heavily committed towards OSCAR-10. Command stations are one of those commodities that everyone takes for granted, however, it is perhaps one of the most demanding, and extremely responsible tasks that an amateur can impose upon himself/herself.

The commitment Ian ZL1AOX, has made to OSCAR-10 could really be re-termed sacrifice, in lieu of commitment, because, in recent months, the Northern Hemisphere command stations have seen very little of OSCAR-10 and, as such, the majority of commanding has befallen Ian, and this situation will continue for some time to come.

Consequently, the request for Graham to act as an additional command station in the Southern Hemisphere will eventually ease the burden that Ian is currently handling. It is anticipated that Graham will be attending a Command Seminar in either Marburg, West Germany or Colarado, USA later this year, to come to grips with the task that he is about to undertake, on behalf of the satellite programme. Commensurate with Graham taking up this challenge will be a dearth of technical information that has not been readily available to us in the past.

OSCAR-10 ATTITUDE PROGRAMMES

For those enthusiasts who have the means by which to receive and demodulate the PSK telemetry from OSCAR-10, and are interested in determining the attitude of OSCAR-10, Graham VK5AGR (QTHR), has a number of programmes developed by Jim Miller G3RUH, for that purpose. If at all interested, drop Graham an SASE for details.

de Colin VK5HI
AR

OSCAR-10 APOGEES
NOVEMBER 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
0th November										
304	1794	1833:13	-22	332					252	5
1st November										
305	1795	0612:45	-22	147	95	27	101	16		
305	1796	1752:16	-22	322					257	13
2nd November										
306	1797	0531:45	-22	138	99	19	105	8		
306	1798	1711:16	-22	313			251	2	261	21
3rd November										
307	1799	0450:47	-22	128	104	11	110	1		
307	1800	1630:18	-22	303	249	-0	256	10	265	29
4th November										
308	1801	0409:47	-22	119	109	3				
308	1802	1549:18	-22	294	254	7	260	18	270	38
5th November										
309	1804	1508:21	-22	285	258	15	265	26	275	47
6th November										
310	1806	1427:21	-22	275	263	23	270	34	282	56
7th November										
311	1808	1346:23	-22	266	267	32	276	43	291	65
8th November										
312	1810	1305:23	-22	256	273	40	282	52	308	73
9th November										
313	1812	1224:26	-22	247	279	49	292	60	344	78
10th November										
314	1814	1143:26	-23	238	287	58	306	68	33	77
11th November										
315	1816	1102:29	-23	228	298	66	332	74	60	70
12th November										
316	1818	1021:28	-23	219	319	73	11	76	74	62
13th November										
317	1820	0940:31	-23	210	357	77	44	71	82	53
14th November										
318	1822	0859:31	-23	200	37	74	63	64	88	44
15th November										
319	1824	0818:34	-23	191	60	67	74	56	93	35
16th November										
320	1826	0737:34	-23	181	73	59	82	47	97	26
17th November										
321	1828	0656:36	-23	172	81	50	88	39	102	18
18th November										
322	1830	0617:03	-23	163	87	42	94	30	106	10
322	1831	1756:34	-23	338					248	0
19th November										
323	1832	0536:06	-23	153	93	33	99	22	110	2
323	1833	1715:34	-23	329					253	8
20th November										
324	1834	0455:06	-23	144	98	25	103	14		
324	1835	1634:37	-23	319			247	-2	257	16
21st November										
325	1836	0414:08	-23	134	102	17	108	7		
325	1837	1553:37	-23	310			251	6	261	24
22nd November										
326	1838	0333:08	-23	125	107	9	113	-1		
326	1839	1512:39	-23	300	250	3	256	13	265	33
23rd November										
327	1840	0252:11	-23	116	111	2				
327	1841	1431:39	-23	291	254	10	261	21	270	41
24th November										
328	1843	1350:42	-23	282	258	18	265	29	275	50
25th November										
329	1845	1309:42	-23	272	263	26	270	38	282	59
26th November										
330	1847	1228:44	-24	263	268	35	276	46	293	68
27th November										
331	1849	1147:47	-24	253	273	44	283	55	314	76
28th November										
332	1851	1106:47	-24	244	279	52	293	64	1	80
29th November										
333	1853	1025:50	-24	235	288	61	310	71	48	76
30th November										
334	1855	0944:49	-24	225	301	69	342	76	68	68

OSCAR-10 APOGEES
DECEMBER 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
1st December										
335	1857	0903:52	-24	216	327	76	25	76	79	59

2nd	December									
336	1859	0822:52	-24	206	12	78	54	70	86	50
3rd	December									
337	1861	0741:55	-24	197	49	73	69	62	91	41
4th	December									
338	1863	0700:54	-24	188	67	65	79	54	96	33
5th	December									
339	1865	0619:57	-24	178	78	57	86	45	100	24
6th	December									
340	1867	0538:57	-24	169	85	48	91	36	104	16
7th	December									
341	1869	0458:00	-24	159	91	39	96	28	108	8
341	1870	1637:28	-24	335					249	3
8th	December									
342	1871	0417:00	-24	150	95	31	101	20	113	0
342	1872	1557:58	-24	325					253	11
9th	December									
343	1873	0337:29	-24	141	100	23	106	12		
343	1874	1516:58	-24	316			247	1	257	19
10th	December									
344	1875	0256:29	-24	131	105	15	110	5		
344	1876	1436:00	-24	307	246	-2	252	9	261	27
11th	December									
345	1877	0215:32	-24	122	109	7	115	-2		
345	1878	1355:00	-24	297	250	6	257	16	265	36
12th	December									
346	1879	0134:32	-24	113	114	-0				
346	1880	1314:03	-24	288	255	13	261	24	270	45
13th	December									
347	1882	1233:03	-24	278	259	21	266	33	275	54
14th	December									
348	1884	1152:05	-24	269	263	30	271	41	283	63

QSP

JUMPER LEADS DANGEROUS

The makers of most jumper leads tested recently by the Australain Automobile Association (AAA) were failures when it came to the practical use of ohms law.

Only four of 44 cables subjected to tests were considered acceptable in terms of their electrical capacity needed to start a six cylinder engine.

The AAA recommended that only cables with a 100A or greater capacity should be used to start a car with a flat battery. The testing included passing 100A through the cables for four six-minute periods, with cooling in between, and a mechanical strength test of 25kg.

These tests are in the Australian Standard AS 2697 of 1984 . . . which was drafted as a result of reports of injury and damage caused by inadequate cables. During AAA testing of electrical capacity, the plastic insulation on many of the cables melted because they could not carry 100A. Thick insulation on the cables, in some cases, gave the appearance of them being heavy duty.

The mechanical test revealed bad wire-to-clamp connection which also led to overheating and failure to the cable.

The AAA said none of the 44 cables tested claimed to meet the AS 2697 standard, and one of the four which passed its test was slightly shorter than the standard's recommended minimum 2.7 metres length.

Contributed by Jim Linton VK3PC AR

WAVERLEY AMATEUR RADIO CLUB

The Waverley ARC celebrated the 65th Anniversary of the granting of an Experimental Licence by the then Department of the Navy on 18th August 1920, the Waverley Club having been formed in March 1919.

With the granting of Licence Number 249, the club was allowed to transmit and receive Morse code on 200 metres with 250 watts, spark transmission. The annual licence fee was two pounds, later reduced to one pound in 1923.

In June 1921 permission was given to transmit radio telephony on 1,000 to 1,500 metres, as it was considered that radio telephony on 200 metres was impractical. The reception of voice and music, in a public hall in Coogee, NSW, from the club radio station, took place on 22nd September 1922. During 1923, the call of 2BV was issued, instead of using the number of the licence issued to the club, namely N249.

In that same year, broadcasts of concerts at St Lukes Church, Clovelly, NSW, were permitted. The club was allowed to transmit on the 90 metre band in 1925, and in 1926 additional bands were authorised, namely 85 to 95 metres, 32 to 37 metres, 21 to 23 metres and 8 to 10 metres. In 1928, the club was allowed to transmit telephony between 125 and 250 metres with a power of ten watts.

1926 saw the club's call change to A2BV, then in 1930 the present prefix was allocated which resulted in VK2BV with a licence fee of 30 shillings. The club's members were very active when approval was given to conduct television experiments in the 56-60MHz band with the proviso that no commercialisation on the transmissions would be allowed. THIS WAS IN 1935!!!

The club's call sign was re-activated after WWII on 21st August 1946 and has been active ever since. The club also activated the repeater VK2RBV between December 1975 and June 1978.

The Waverley Amateur Radio Club is the oldest radio club in Australia and has had the continuity of licence for 65 years.

Contributed by Duane Foster VK2VE, Patron of the Waverley Amateur Radio Club. AR

DEPARTMENT OF THE NAVY.

Details of Proposed Experimental Wireless Station

(TRANSMITTING ONLY).

1 Type

...nsions [illegible]

h[illegible] [illegible]

...rizontal Length [illegible]

...struction [illegible]

...ure and Voltage of Primary Power

240 volts 60 cycle alternating current [illegible]

...ransformer, Ratio of Winding

[illegible] 1·2 [illegible]

Spark Gap, Type of

Rotary [illegible]

Particulars of Transmitting Oscillator

[illegible]

Capacity of Condenser—

[illegible]

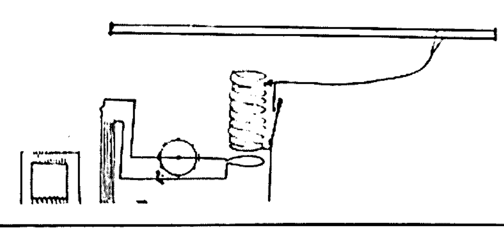
Form of Coupling

Inductively coupled

Particulars of Earth Connexion

[illegible]

Sketch of Aerial and Diagram of Proposed Circuits.



DEPARTMENT OF THE NAVY.

Details of Proposed Experimental Wireless Station

(TRANSMITTING ONLY).

l Type

ensions Inverted L type sixty feet long, "lead down" 75 ft long.

ht Sixty feet

izontal Length Sixty feet

nstruction Two wires stranded 7/20 S.W.G. Copper spaced six feet apart

ure and Voltage of Primary Power

240 volts 60 cycle alternating current as supplied to operating room by City Council system.

ransformer, Ratio of Winding—

Transformer giving 3" spark winding (ratio unknown) Primary taking 240 volts at approximately 1·2 amps.

Spark Gap, Type of

Rotary "non synchronous" eight electrodes on ... wheel. Driven by 1/6 H.P. AC motor at 1800 – 4000 revs.

Particulars of Transmitting Oscillator

Primary: single turn No 8 rubber covered copper wire wound on former 5½" diam

Secondary: about 8 turns No 10 rubber covered copper wire wound on " " "

Capacity of Condenser—

six plates 12"x14" sq by 1/8" covered with foil 10"x12" capacity ·01 mfd. The plates to be submerged in oil.

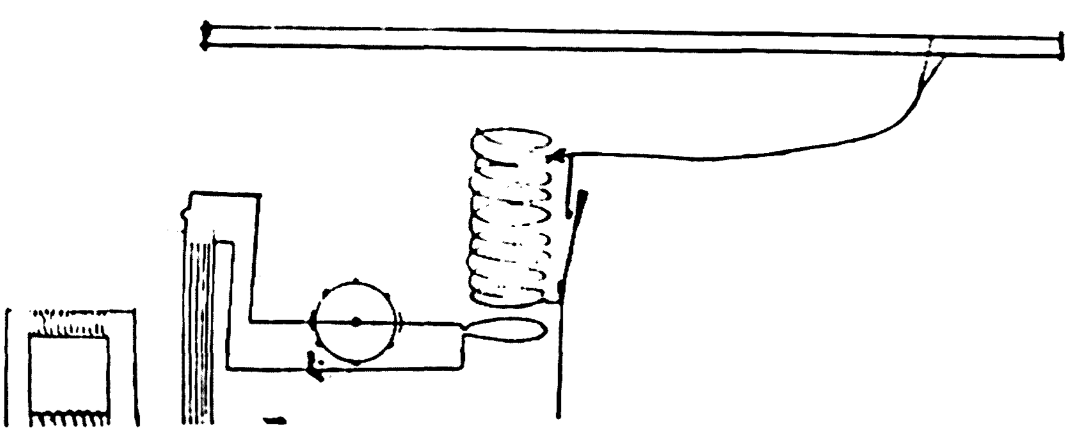
Form of Coupling

Inductively coupled

Particulars of Earth Connexion

Water pipe is situated about 10 yds from operating room, connection made by 7/20 copper cable – 100 amp switch direct earth

Sketch of Aerial and Diagram of Proposed Circuits.



COMMONWEALTH CONTEST 1985

John Tutton VK3ZC
11 Cooloongatta Road, Camberwell, Vic 3124

As most participants will remember, conditions on HF in March this year were pretty poor, not much worse than they have been over the last few months, so it was quite a surprise to find that 58 VKs had submitted logs, comparing well with the 66 in 1984 when the bands were in much better shape.

Congratulations again to RUSS COLESTON VK4XA, who led the Australian contingent for the sixth year in succession and the seventh time in the last eight. He was placed eighth overall, and was the only VK in the top ten — there were four last year. It is pleasing to see P29PR well up in the results, but again disappointing that only four ZLs sent in logs. The absence of ZLs generally has a detrimental effect on VK scores as for some hours during the day, ZL is the best DX we can work! Picking the overall winner was a bit harder than usual because of the lower serial numbers encountered, but VE7CC would have been the favourite (as he well might, with TS820/L4B, 80 metre delta loop, 80 metre inverted vee, both at 100 feet (30m), 40 metre, 2 element Yagi (same height), 20 metre, 5 element Yagi at 105 feet (32m), and a 4 element Yagi at 90 feet (27m) on 15)!

In the receiving section, ERIC TREBILCOCK completed a treble, 83-84-85.

TOP TEN

1. VE7CC	4285	6. VE5RA	3501
2. 6Y5HN	4062	7. P29PR	3499
3. 5Z4MX	3954	8. VK4XA	3365
4. G4BWP	3793	9. VE3CRG	3135
5. G3FXB	3514	10. ZL2BR	3115

RECEIVING SECTION

ERIC TREBILCOCK BCRS 195 1840

AUSTRALIAN SCORES

8. VK4XA	3365	36. VK3AZW	1915
13. VK2AYD	2947	37. VK8XX	1857
15. VK7BC	2740	36. VK3JI	1792
18. VK2BQO	2737	39. VK5UM	1786
19. VK3ZC	2650	42. VK2DO	1700
20. VK7RO	2622	43. VK4XW	1682
21. VK5BN	2615	44. VI3KS	1637
22. VK2AQF	2553	45. VK3DNC	1626
24. VI3AUO	2427	47. VK3DQ	1585
25. VK4APZ	2402	49. VK28HO	1540
26. VK2GW	2395	50. VK3BDH	1527
27. VK5AGX	2385	51. VK7CH	1520
29. VK6RU	2322	54. VK2EL	1360
32. VK6IT	2080	56. VK3FC	1355
33. VK5GZ	1975	57. VK6AJ	1345
35. VK2APK	1950	60. VK8HA	1330

The following VKs had scores ranging from 1240 to 150.

61. VK3YK, 64. VK3LC, 66. VK3MJ, 68. VK7GB, 72. VK5RG, 73. VK7RY, 74. VK3XF, 77. VK3YD, 78. VK3CAL, 79. VK4BKM, 80. VI3XB, 82. VK4TT, 83. VK2SU, 88. VK6AUX, 88. VK5BS, 90. VK3RJ.

92. VK5HO, 94. VK7ZO, 96. VK3XU, 97. VK4SF, 101. VK2AZR, 104. VI3DOV, 105. VK2IC, 108. VK4NUN, 112. VK3SV and 115. VK3CYL.

Single band entries amid the above were: *3.5MHz — VI3XB, Overseas Leader, VK3RJ, VK4NUN, VK3SV.*
7MHz — VK2APK, Overseas Leader, VK3YD, VK4SF.
14MHz — VK8HA, VK4TT, VK2IC, VK3CYL.

PACIFIC AREA SCORES

7. P29PR, 3499 points, 10. ZL2BR, 3115 points, 12. ZL1AIZ, 3010 points, 23. 9V1TL 2530 points, 34. ZL1HV, 1965 points, 55. ZL2OM, 1359 points.

TEAM EVENT — *The four man team event was again won by New South Wales, while VK3 just managed, by 23 points, to keep ahead of VK5 for second place. VK8 had only two entrants, while VK1 seems to have had two participants, but no log submitted.*

COMPARATIVE TOTALS for the past four years are:

	1985	1984	1983	1982
VK2	10632	16272	10467	13450
VK3	8784	14549	13062	15813
VK5	8761	8965	6822	7760
VK4	8359	12475		
VK7	7982	7571	5199	9865
VK6	6482	10303	6776	9746
UK	13193	17064	10872	20384
VE3	8626			

AUSTRALIAN AWARDS

The Gold Medallion for the leading VK entrant was won by RUSS COLESTON VK4XA.

The Silver Medallions for the leading State Team were awarded to D PILLEY VK2AYD, KAREL NAD VK2BQQ, E CARRUTHERS VK2AQF and LYELL WOOLNOUGH VK2GW.

The Bronze Medallion for the middle placed VK entrant — S BOURKE VK2EL.

HOW THE LEADERS MADE THEIR SCORES

QSO/BONUSES per band 80-10 (claimed)
VE7CC, 58/36, 91/45, 127/49, 19/18, —
6Y5HN, 57/17, 121/39, 221/39, 12/9, —
5Z4MX, 43/12, 121/35, 143/41, 97/14, 2/2
G4BWP, 67/33, 62/42, 79/52, 12/12, —
P29PR, 35/22, 59/34, 127/41, 33/23, —
VK4XA, 49/25, 81/35, 124/40, 7/7, —
VK2AYD, 48/26, 106/39, 49/32, 4/4, —
VK7BC, 25/19, 63/38, 55/38, 6/6, —

RSGB COMMENTS

It appears that the VE stations still prove a threat to those who challenge for the honours in this contest, and this year sees a return of a Canadian winner in the form of Lee Sawkins VE7CC, who wins the Senior Rose Bowl with an impressive total of 4265 points, narrowly beating last years winner Nigel Hoyow 6Y5HN, who receives the Junior Rose Bowl, with 4062 points. Third place goes to first-time entrant Rolf Salme (SM5MX), who operated from the Swedish Embassy in Nairobi as 5Z4MX. 6Y5HN and 5Z4MX were separated by a mere five points on claimed scores, and thorough checking was called for to establish the correct positions.

Al Slater G3FXB, laid down the 'gauntlet' last year, challenging the G4s and his challenge was well met by F Handscombe G4BWP, who managed to oust G3FXB from top UK spot, the first time Al has been beaten in this contest for 12 years, with a total of 3793 points to Al's 3514. Well done! However, I am sure Al will not let this rest and a good battle should take place next year. Eric Trebilcock BCRS 195, entering his 45th BERU (is that a record?), just beat Brad Bradbury BRS 1066 with 1840 points to 1805, to take the Receive Rose Bowl.

Conditions for the 48th Commonwealth Contest were the worst that many had experienced for a long time, perhaps shown best by the lack of activity on 28MHz, with just four OSOs in total being logged on this band! Even 14MHz, which can usually be relied upon to provide plenty of communication, succumbed to the dismal conditions with no long path openings from the UK to VK/ZL, whilst 21MHz was generally poor. This resulted in lower scores and bonus points for all concerned, although some of the leaders managed to pick up many areas which others missed through well timed operation and good ears.

Unfortunately, the WIA decided that the 10th March would be a good day to celebrate their 75th Anniversary, with a 24 hour CW contest! This caused some confusion with many VK stations being called in the Commonwealth and the WIA contest. A special station, VK75A, operating from VK3, was worked by many, and claimed as VK7. The adjudicator decided to bend to this overwhelming support for VK7 and adjusted logs accordingly. The added complication of ZL call areas did not seem to manifest itself, and unfortunately, the error of omitting ZL2 from the call areas list did not deter entrants from claiming for ZL2. Thank-you.

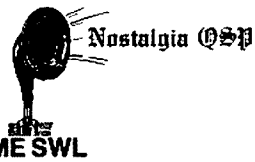
Once again, 14MHz carried most traffic with 45 percent of the total QSOs being made on this band, followed by 32 percent on 7MHz and 22 percent on 3.5MHz. 21MHz had little support except from 9J2BO and Z23JO.

Just under half of the Commonwealth Call Areas, 51, were active and worked. It is interesting to note that 3B8 and 3B9 were worked once only, and from the UK! Of course, this contest relies upon good support from the Commonwealth Call Areas and it would be far more interesting if more areas could be activated. *How about it? Does anyone have any contacts with those rare areas for next years contest?*

Once again almost 300 UK stations appear in the logs, but not in the list of entrants! The HFCC are anxious to improve UK participation, particularly amongst the more newly licenced amateurs. This contest is not like the 'hammer and tongs' of AFS or NFD, it requires a great deal of skill, knowledge of band conditions and patience, so how about it G4s. You never know, you may pick up some useful prefixes too ! Thanks to John Tutton VK3ZC and Eric Trebilcock BCRS 195, for their publicity, down under. See you next March. G4DJX.

BERU 1986 WILL BE HELD NEXT MARCH, 1986. Rules in February Amateur Radio.

AR



OLD TIME SWL

Keith Wood of Surrey Downs, SA, started short wave listening as a young man in 1925, on his parents' farm, about 16km from Ardrossan, on Yorke Peninsula, where his parents took up land in the early 1900s.

Keith lived there for almost 70 years and his listening log books, in immaculate hand-writing, are something to see. His busy life on the farm did not give him time to study for a transmitting licence.

Now retired, in Surrey Downs, for the past 12 years with his wife, Keith has 60 years of SWLing behind him. Quite a good effort for one who was 81 years young on 31st August 1985. Many more good years of listening, Keith.

From The South Australian Wireless Institute Journal, August 1985. Written by Wally Mann VK5DF

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

I recently recalled the numerous occasions when I came across low-powered signals on the bottom edge of 40 metres. These were broadcasting in Indo-Chinese languages. What sparked off the reminiscences was the television tribute to fellow Tasmanian Cine-cameraman, Neil Davis, who was tragically killed in fighting in an abortive Thai Coup. These weak signals were usually around 7.006MHz, but it was extremely difficult identifying them as they were under-modulated and there was considerable frequency instability, also. These were the stations of the Viet Cong or National Liberation Front.

I do recall one night in September 1974, hearing a station in Vietnamese on 7.021MHz, around 1300UTC. I obtained complete identification with plenty of martial music. This was after foreign assistance had withdrawn, leaving South Vietnamese to do the bulk of the fighting.

HOME SERVICE LOUDER

As well, the Voice of Vietnam, from Hanoi, was often heard in English at 1000 and 1100UTC, very close to WWV's frequency. It broadcast the names of US POWs and had occasional interviews, in English, which were heavily edited. Today, the Voice of Vietnam can still be heard on 9.840MHz, at 1000 and 1100UTC, in English. However, their Home Service outlet on 10.059MHz, in Vietnamese, is much louder that the Foreign Service outlets. There is also a very strong MW outlet on 680kHz, which I hear daily. This isn't very surprising, as they reputedly utilise a 500kW sender. Listen around 1200UTC and you will have no difficulty copying it. It is the same programme as on 10.059MHz.

There are a number of low-powered provincial stations wandering about 6.600MHz, in mostly minority languages. They are particularly noted for their abrupt frequency hopping. This is presumably because they are using ex-military senders, captured from the Americans, which employed rapid frequency alteration techniques.

PRESENCE HAS DIMINISHED

In the late-60s, early-70s, it was quite common to hear US Military traffic to and from Guam, Clark AFB (near Manilla), and South Vietnam. They were heard around 8.900-9.050MHz almost continuously, and also around 6.700MHz. Today the amount of US Military air traffic is only a fraction of what it was at the peak of the Vietnamese war, as the American presence within the region has diminished. Most of the communication is now, probably, routed via satellites and cable from VHF/UHF channels.

Somehow, I was never able to hear the South Vietnamese radio from Saigon, as they were lost within the crowded allocations, underneath more powerful competitors. Today, Saigon has been renamed Ho Chi Minh City, and I have, surprisingly, observed it on 610kHz, after the Brisbane ABC station, on 612kHz, closes down at 1402UTC.

AUDIBLE IN VK

While there is an absence of any clandestine broadcasting in Vietnamese, the same cannot be said for nearby Kampuchea, especially since it was invaded and the Pol Pot was overthrown. The Chinese have provided the Khymer Rouge with a sender, which is easily audible here, in Australia. The two frequencies to try, at 0930UTC, are 15.135MHz or 1.680MHz. Broadcasts are exclusively in the Khymer language. There were other Khymer clandestine stations of other resistance groups, which were tiny, but these have virtually disappeared since the Vietnamese launched an offensive in Easter of this year and drove them to find sanctuary, in Thailand.

The same Chinese site used for the Khymer Rouge programmes was also utilised by Malayan communist guerrillas in there clandestine broadcasts. The base was located at Kunming and was on the non-standard channel of 15.880MHz, which made it easily heard during the evening hours. Programmes were in English, Chinese, and Bahasa Malay. But, since the Chinese began cultivating relationships with Malaysia and Singapore, the guerrillas have lost their facilities and been forced to commence broadcasting from their bases, located near the Thai-Malaysian border. The Intruder Watch noticed the appearance of a low powered signal around 7.075MHz up until last year. There have been reportedly joint operations by Thai and Malaysian security forces in the border jungles, which have virtually nullified the guerrillas and the senders have not been heard since.

VUNC

Another *unusual* station, I also *recall* observing, was the Voice of the United Nations' Command (VUNC), based in South Korea. This was a hangover from the Korean War in the 50s, and had programming in Korean. They were also on an unusual frequency of 14.870MHz, which made it audible in the evening hours. The station was deactivated in the late-60s or early- 70s.

Looking back in my log book of 10 years *or more* ago, I came across a logging on 3.668MHz, around 1200UTC. The station was in a language similar to Spanish and had pop music, plus commercials. Audio was on the upper side of the carrier. The station was, in fact, located in Dili, Portuguese Timor, which meant that the language was Portuguese, of course. I first came across it in September 1974, and it was some *time before I* was able to find out where it was operating from. In November 1975, Indonesia invaded the Portuguese colony and the original transmitters were destroyed. Dili today is heard down at the bottom edge of the 90 metre tropical allocation, as part of the Radio Republik Indonesia (RRI) network.

INTRUDERS A DECADE LATER

While glancing at the log book of a decade ago, I noticed, to my chagrin, that several intruders noticed then, are still operating today on the same channels, or very close to them, For example, the Chinese domestic network on 7.095MHz is still coming in very loudly, as it did in 1973, although it has switched networks. The semi-clandestine Fujian Front Station is still on 7.025MHz, In various Chinese dialects, beamed to Taiwan, although the station's call is Haixia or Voice of the Straits. It also has been heard on 3.640 and 3.535MHz, In the Northern Winters. And, of course, Radio Tirana is still on 7.065 and 7.090MHz in various European languages, as they were then. So, nothing appears to have significantly altered.

Upon reflection, I can safely state that the bands have become more congested today, compared to 10-15 years ago. More nations have acquired 100, 250 or 500kW transmitters. The amount of deliberate interference or jamming has also increased as well, with adjacent channels suffering from the resulting degradation. If you look at the frequency occupancy charts today and compare them to 15 years previously, one can readily appreciate how congested the international broadcasting allocations have become. A decade or more ago, there were only a handful of stations broadcasting outside the recognised allocations. Today however, the various broadcasters have begun to crawl out alarmingly from the standard allocations, to attempt to get a clear channel. The channelling of much telecommunications traffic onto satellite and cable has assisted in this, although a significant number of developing nations still utilise HF, as it is more economical.

With the trough of the cycle at present, it is easy to speculate it we will return to the exceptional conditions we experienced in 1979-80. Is propagation more unreliable today than it was 10 or 15 years ago? Today the science of propagation has been advanced considerably, by extensive space exploration. I think that despite the *inconvenience* and disruption caused by blackouts, we can more safely predict when disturbances are likely to occur, than we could a decade or more ago.

MASIRAH ISLAND

I do note on the BBC schedule for October, that they will be experimenting with the Masirah Island Relay Base to broadcast to Australasia. This has been tried out because of the strong signals coming into the region from UAE Radio in Dubaii. So they will be using 21.550MHz from 0600 until 0800UTC, with the World Service. As well, 7.150MHz will be on from 0700 until 0915UTC. 15.070MHz is on from 0600 until 0800UTC and again through the local evening hours.

Well, that is all for this month. Until next time, the very best of 73 and good listening — Robin VK7RH. AR

ANDREWS CORRECTION

The following prices were incorrect in the Andrews Communication Systems advertisements, page 26, October AR.
Tokyo Hy-Power HL-85V — $249
Tokyo Hy-Power HL-62V — $219
Tokyo Hy-Power HL-35V — $149

75th Nostalgia!

THE MORSE CODE AND ITS USE

or How to learn Morse 1898 style!

SIGNALLING is accomplished by sending long or short groups of wave-trains in certain recognised sequences, the arrangement being different for each letter of the alphabet.

A momentary depression of the signalling key constitutes a dot, and this consists of short groups of sparks, each which sends out a train of waves to the distant receiver; If the key is held down for longer, a dash or long group of wave-trains Is produced.

Each letter or other sign is made up of dots and dashes and the letters are distinguished from each other by longer periods of rest than those given between signals which make up the letter.

The beginner is advised to transmit various letters in continuous repetition for three or four minutes each, until the person at the receiving end is thoroughly used to reading them.

V is a clear and useful letter to send while adjustments are being made at the receiving station.

Until the operators are thoroughly familiar with the different signals, it is well for all messages to be written on a piece of paper in the Morse code and transmitted while the sender reads from this paper.

Similarly, the receiving operator should write down, in properly spaced dots and dashes, all that he receives, interpreting it at his leisure, when the signals have ceased.

Any hesitation while the signals for letters are hunted for in a book will lead to hopeless confusion and spontaneous messages sent as they come to mind, should not be attempted until thorough proficiency has been attained.

Dots should be sharp and crisp, and dashes should be long enough to give them clear distinction.

Uniformity of dots, dashes, and spacings should be aimed at: but signals should be sent slowly at first, the speed being increased as the code becomes familiar.

Is it not marvellous, that Morse code is still a major reliable means of communication in 1985.

The above was contributed by Peter Alexander VK2PA, an excellent exponent of the Morse art, and the winner of the WIA 75th Anniversary CW Contest. The extract is from **WIRELESS TELEGRAPHY FOR AMATEURS** by R P Howgrave-Graham (Associate member of the Institution of Electrical Engineers). Published in London in 1898.

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

FRASER VALLEY DX CLUB AWARD — VE7DXC

DX stations are required to work five members of the club to qualify for this award. Cost is US$1.00 or 5 IRCs.

Send log information only showing Date, Time, Call Sign, Name and Frequency to: *The Awards Manager, Box 3112, Langley, BC, Canada, V3A 4R3.*

FVDXC members are: VE1LD, VE7s — AB, ADC, AFY, AIO, AKH, AKR, AUF, AVA, AVC, AZA, AZQ, BFO, BGY, BIP, BSM, BTV, CA, CBH, CC, CEW, CFC, CGM, CIK, CIO, CJG, CJK, CMF, CMY, CMZ, CPT, CVM, CXC, CXN, CZS, DLM, EXE, HV, IN, SZ, TT, WJ, XQ, YD, YJ, YQ, VE8DX. Note that VE7BIP is now VE7YL.
KC7GX, N7RO, W7s — EKM, ISX, MBY, SFF, WA7s — YCZ, ZWG, WB7s — CAO, CLU, VXR, WQE and YV5HLK.

KDXA BUFFALO AWARD

The KDXA logo is the American buffalo, the official State animal of Kansas. In the early days, the American buffalo numbered millions and roamed free in large herds on the Kansas prairies. The logo outline represents the Kansas State Boundary.

This beautiful award is offered to DX stations outside the Continental USA.

RULES:

DX stations shall work 20 Kansas stations plus five KDXA members.

Contacts on or after 1st September 1980, qualify for the award.

Use of any amateur band or mode.

Applicants shall submit normal log information. QSL cards are not required.

SWLs shall submit log information of stations heard.

Applications shall be sent, together with 4IRCs or US$2.00, to KDXA, Box 454, Salina, Kansas, 67401, USA.

KDXA will supply a current membership list upon receipt of an SAE and 1 IRC.

INDONESIAN AWARDS

ORARI, representing the Republic of Indonesia, and CRSA representing the People's Republic of Chine were admitted to the membership of the IARU, Region 3, in September 1984.

The ORARI has a membership of 40 000, only one percent of these being DXers. However, an upgrading programme hopes to increase this number to 10 or 20 percent.

YB0BZZ, previously the Secretary of the Society, is now in charge of the QSL/Awards Bureau. A letter written by him to K6UD states:

"For your information, by law, all amateurs have to become a member of ORARI (Organisasi Amatir Radio Indonesia), there are no individual amateurs. Everyone should be under the district and regional sections of ORARI, but we do have problems also, due to our geographical situation, which consists mostly of islands. It is as wide as from the west to east coasts of the USA, therefore a get-together between the Regional Committees is only once every three years. We in Jakarta, the capital city, which is the 0 call area, together with the National Committee, will always be the barometer throughout the country."

Acknowledgment to the NCDXF Newsletter.

The ORARI awards programme is shown below, with rules only, as there are no sample copies of the awards.

The **"Jakarta Award" (JA/SWL-JA)** is for confirmed contacts with, or having heard from, 20 licensed amateurs, including at least one club station, in Jakarta, (0 call area only), the capital of the Republic of Indonesia. Apply to M S Lumban Gaol, YB0WR, Box 96, Jakarta, 10002, Indonesian. Club stations are: YB0s — ZAA, ZAB, ZAD, ZAE, ZAF, ZBA, ZBB, ZCA, ZCB, ZCD, ZCE, ZDB, ZDC, ZDD, ZDE, ZDG, ZEA, ZEE and ZZ.

The "Worked all Indonesian Award" (WAIA/ SWL-WAIA) for two confirmed contacts in each call area with, or having heard from, licensed amateurs in each of the Indonesian call areas, total 20 contacts. The Awards Manager is, Mr M Maruto YB0TK, Box 96, Jakarta, 10002, Indonesia.

The "Worked the Equator Award" (WEA/ SWL-WEA) for confirmed contacts with, or having heard from, licensed amateurs in countries along the equator. The countries are: C2, HC, HC8, HK, KH1, KB6, PP-PY, PY0 (St Peter), S9 (Sao Tome), T30, T31, T32, TN, TR, YB5, YB7, YB8, 5X, 5Z, 6O, 8Q and 9Q. The WEA will be issued in three classes, ie

Class 1 — For confirmed contacts with 15 countries

Class 2 — For confirmed contacts with 12 countries

Class 3 — For confirmed contacts with eight countries

All classes must contact YB5, YB7 and YB8.

The Awards Manager is Ben S Samsu YC0EBS, *Box* 96, Jakarta, 10002, Indonesia

GENERAL RULES:

ORARI Awards will be issued to licensed amateurs for two-way SSB, CW, RTTY, mixed or single mode, mixed or single band in the 80, 40, 20, 15, and 10 metre bands, only. SWL Awards in the same category will also be available.

The applicant may request endorsements for such distinctions accordingly.

All contacts on or after 9th July 1968, will be valid for these awards.

Claims must be accompanied by a QSL card list (GCR) furnished with the call sign of the stations worked, dates, bands and modes of contacts, meeting the requirements of the award concerned.

Rules and requirements will be specified, when required, *in* each of the awards *programmes.*

QSL card list must be accompanied by a statement from the applicants National Society, Club Station, or from any two amateurs, other than the applicant, that the QSL cards of the contacts listed are in the possession of the applicant, and that the items of the cards are correctly listed.

A fee of US$8.00 or 16 IRCs should accompany the Award application to the respective award manager.

Only contacts with land stations within the same country will be accepted.

IDX — ISLAND DX AWARD

This award is sponsored by the Whidbey Island DX Club, and is available to all licensed amateurs and SWLs on a heard basis.

Awards are issued for two-way SSB, CW, RTTY, SSTV, as well as mixed and single band accomplishments.

The basic award requires 50 IDX Islands. Endorsements are given in increments of 50 Islands, up to and including the maximum number of Islands possible.

All DXCC Countries which are bonafide "islands" are the only qualifying contacts.

To be valid, all contacts must be made AFTER 1st October 1977.

To apply, prepare a list of contacts in prefix order. PLEASE NUMBER YOUR CONTACTS 1 through 50 etc. Include the call sign of the station worked, IDX Island's name, band, mode, date and UTC.

DO NOT SEND QSL CARDS! ! ! Have your list verified by two amateurs or local radio club officials. Confirmation of each contact must be in the applicants possession and confirmed by verifying signatures.

Send verified list with US$4.00 or 12 IRCs and a 101 x 229mm business size, SASE to the following address: *Whidbey Island DX Club, 2665 North Busby Road, Oak Harbour, Washington, 98277, USA.*

Rules governing this award are reviewed annually. Please enclose an SASE with any inquiries regarding this award.

NWIRA — TEN METRES FM AWARDS

This award is sponsored by the North Whidbey Island Repeater Association.

All contacts, to be valid, must be made on/after 1st January 1981.

Cross mode contacts do not count. Contacts must be two-way 10 metre FM.

Special endorsements include All Mobile, All Simplex, Single Frequency accomplishments and contacts made within a Single Day, Week, Month or Year.

DO NOT SEND QSL cards. Forward your list of contacts showing date, time and frequency, of each contact and provide a brief station description.

Send the list of contacts, together with US$4.00 for each award to: *The 10 Metres Awards Programme, 2665 North Busby Road, Oak Harbour, Washington, 98277, USA.*

WORKED ALL DISTRICTS AWARD: Applicants must work one 10 metre station in each of the US Call Districts.

WORKED ALL STATES AWARDS: Applicants must work a MINIMUM of 50 US States on 10 metres FM.

CENTURION AWARD: This Award requires the applicant to work a MINIMUM of 100 stations on 10 metres FM.

DX **DECADE AWARD:** Applicants must work a MINIMUM of 10 DX stations outside the 50 US States and Canada on 10 metres FM.

NORTH AMERICAN AWARD: TO qualify, applicants must work all 10 US Call Districts, a MINIMUM of six Canadian Provinces and/or Territories and at least four DX Countries within the North American continent (other than the US and Canada) *on* 10 *metres* FM.

Members of the NWIRA monitor 29.600MHz and also the area repeater on 29.640MHz (an 1800Hz tone or whistle is required to access it).

NZ CHAPTER NO 3 AWARDS PROGRAMME

The are many fine awards available from the

LA BALSA AWARD

The La Balsa Expedition, consisting of 3 rafts constructed entirely of balsa logs fastened with wooden pegs and sisal ropes, under the command of Vital Alsar and 11 other men of different nationalities and languages departed from Guayaquit on 27/5/73 and drifted 13,760 kms in 178 days to reach Ballina on 21/11/73. Radio communication was maintained by amateur radio with several operators including the late VK2PF a prominent Summerland Amateur.

PRESENTED BY THE SUMMERLAND AMATEUR RADIO CLUB

TO.....

FOR HAVING WORKED THE REQUIRED NUMBER OF CLUB MEMBERS

AWARD No..... DATE.....

....

AWARDS' MANAGER PRESIDENT

ENDORSEMENTS.....

SUPPORT THE AUSTRALIAN VOLUNTEER COAST GUARD

New Zealand Chapter of the Certificate Hunters' Club, for a reasonable fee. There are too many to list in these columns but an SASE to Evan P Tombs ZL2IG, Ihakara. RD1, Levin, NZ, will provide all the information necessary for those interested.

PAPAKURA JUBILEE AWARD

This award is sponsored by the Papakura Branch of the NZART and is available to amateurs and SWLs until the end of November 1985.

REQUIREMENTS:

Six contacts to be made with Branch members, one contact with the Club station ZL1VK, or with one YL Branch member, is obligatory.

Contacts may be made on any amateur band and/or any mode. Nets are held on the frequencies from 3.580-3.590MHz.

Application to be forwarded to: *Awards Custodian, P O Box 397, Papakura, New Zealand.*

Fee for the award is $2.00 and the log extract must be certified by another amateur.

LA BALSA AWARD

This award is presented by the Summerland Amateur Radio Club to commemorate the crossing of the Pacific by three balsa rafts.

The Award is printed on a deep blue background, with a red border and printing is in black. The Award measures 25.5 x 19cm, with one of the rafts and four crew members depicted on the bottom half of the Award.

This Award will be limited to 500 copies.

Three rafts constructed entirely of balsa logs, fastened with wooden pegs and sisal ropes, under the command of Vital Alsar and 11 others, from different nationalities and languages, departed from Guayaquil on the 27th May 1973 and drifted 13 760km in 178 days, reaching Ballina on the 21st November 1973.

Communication was maintained throughout the voyage by means of amateur radio and several Australian amateurs were deeply involved. These included Fred Carruthers VK2PF, now a silent key, who at the time was a prominent member of the Summerland Radio Club.

FT-101s were used on the rafts. One is in the Marine Museum at Ballina, whilst another one was given by VK2SG to the Westlakes Amateur Radio Club.

RULES:

Australian amateurs and SWLs are required to gain 15 points, DX stations and SWLs require seven points.

The Club Station, VK2AGH, counts as five points, members count one point.

A Club Net is held each Friday night at 0930UTC on 3.605MHz.

Applications, together with log extract and fee of $2.00, to be forwarded to: *The Awards Manager, P O Box 524, Lismore, NSW. 2480.*

AR

MOROKULIEN AWARD

Morokulien, a Swedish Norwegian border district, is a monument for peace between Sweden and Norway and was founded in 1914 in memory of 100 years of peace between the two countries. It has been proclaimed a free state and has its own flag.

Morokulien has its own permanent broadcasting station for radio amateurs. It was opened in 1968 and has the call signs, LG5LG in Norway and SJ9WL in Sweden.

The station has an award which is available to licensed amateurs and SWLs.

Contacts after July 1968 are valid for this award.

It is not necessary to send QSL cards. A list showing full details is sufficient.

The award is issued for all modes of transmission which are permissible in Morokulien.

The fee for the award is 15 N.kr, $3 or 10 IRCs.

To qualify for the award the call signs LG5LG and SJ9WL/SK9WL must be contacted on one band but on different days.

All applications to be sent to: *Ulf A Strandberg LA2ZN, Konglevegen 3, N-2200 Kongsvinger, Norway.*

For philatelists, the Swedish-Norwegian Post Office has its own post mark and it is possible to mix the stamps from two countries on one letter.

AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

G General, C Constructional, P Practical without detailed constructional information T Theoretical, N Of particular interest to the Novice X Computer programme

BREAK-IN . . . JULY 1985. Conference Reports (G) **VHF COMMUNICATIONS . . . 1/1985.** Home-made UHF Attenuators (P) 2.3GHz Prescaler (P) Index for 1984 **Q S T . . . JULY 1985.** Packet Radio (G) Amateur Station Equipment (N) Moonbounce (G) **C Q . . . JUNE 1985.** Special VHF Issue. **C Q . . . JULY 1985. DX**peditioning. **73 MAGAZINE . . . SEPTEMBER 1985.** Issue No 300. The CCD Antenna (P) SWR (G/N) Exponential-Line Antenna Matching (P) **HAM RADIO . . . JULY 1985.** Annual VHF-UHF Edition. Microwave VCO (C) Propagation Curve Computer Programme (X) Weaver Modulation (P) **WORLD RADIO . . . AUGUST 1985.** General news of Amateur Activities in the USA and International News.

AR

QSP

FURTHER TO . . . .

Further to the ZM6ARU station, operational in New Zealand for the Sixth Conference of the IARU, the dates of operation of the station have been extended. Operation will now be from 1st November to 18th November 1985, all bands, all modes. Watch for this station to be eligible for the IARU Region 3 Conference Award. Further information, page 49 — September AR.

GRAND OPENING YES EMTRONICS —

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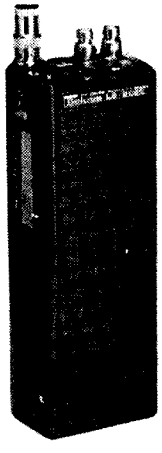

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ULTRA-COMPACT RECEIVING ANTENNA SYSTEMS GIVING WIDEBAND COVERAGE FROM 200kHz to 30MHz AT HIGH SENSITIVITY.

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Model 505 SAX — Unique new medium to heavy duty antenna rotator with 360 degree director indicator and optional preset control box. Now complete with control box.
ONLY $319 SAVE $69
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SPECIAL FOR SWL

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CWR-670E Telereader Receive Only. The compact, multi-mode CWR-670E Receiver operates conveniently with display and/or printing equipment
$475

ANTENNA BALUNS
KAUFMANN 1:1 9kW for dipoles $39
HOKO/HN HS 508 1:1 9kW for dipoles $39
WELZ DP BUS/BU7 1:1 9kW for baluns $39
SCALAR 4:1 9kW for beams & dipoles $58
SCALAR 1:1 9kW for beams & dipoles $58
EMTRON EBL 300 4:1 300W for ant tuners $92
EMTRON EBL 1000 4:1 1000W for ant tuners $35
EMTRON EBL 9000 4:1 9000W for ant tuners $45

DUMMY LOADS
TOYO T800 800W 800MHz $99
OTH50 150W 950MHz $99
CT-300 300W 950MHz $180
PORCELAIN ANTENNA INSULATORS
DOGBONE TYPE, 70mm long $1.50
EGG TYPE $1.00
TET HF ANTENNAS
TET1F3J 3el 11m broad band beam $99

TET1F5J 5el 11m broad band beam $159
SWR & POWER METER
SP400 16-500MHz $930
SP 300 1.8-500MHz $810
SP 350 1.8-500MHz $139
SP 15M 1.8450MHz $90
SP 45M 140-470MHz $129
SP 950 16-60MHz $99

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Correspondence & Mail Orders: Box K21, Haymarket, NSW. 2000

ALARA

Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER FOR ALARA
PO Box 22, Yeoval, Vic. 2868

VK5 YLs enjoying their Birthday Get-Together. Standing from left — Marlene VK5QO, Linda VK5QP, Lorraine VK5LM and Vicki VK5FK.
Seated from left — Elaine VK5KEB, Judy VK5BYL, Pauline Cohen, Marlene VK2KFQ and Janet VK5NEI.

Rear from left — Carol VK5PWA, Jenny VK5ANW and Meg VK5AOV.
Front from left — Liz VK5NES, Liz's mother, Denise VK5YL, Joy VK5YJ and Myrna VK5YW.

L-R: Wendy VK4BSQ, Bev VK6DE, Wendy VK4NWT, Val VK4VR, Cecily VK4QW, Eleanor VK4BEM, Chris VK4ABM, Margaret VK4AOE, Darleen WD5FQX, Dorothy VK4NAM, Josie VK4VAN and Jill VK4ASK.

Redcliffe, 27th July 1985. John VK4QA congratulates Margaret VK4AOE on the Tenth Birthday of ALARA.

The first thing I would like to do, on taking over the reins as Publicity Officer from Margaret VK3DML, is to thank my predecessor, who has worked so conscientiously for the past six years, and to wish her well with her studies.

We are grateful to you, Margaret, for all your willing work.

You've done the job so competently, and not been one to shirk.

There is no doubt your 'track record' will be quite hard to beat,

And I hope, as I step in your shoes, that I won't get COLD FEET!

Thanks also to Jenny VK5ANW, Poppy VK6YF and Margaret VK4AOE for holding the fort as "Guest" writers over the past three months. Your efforts were most appreciated, and, I'm sure, were enjoyed by all

Thanks are also due to Marlene VK5QO, who designed the special cover of our Birthday Newsletter; Valda VK3DVT for the ALARA Award Birthday Stickers, and Margaret VK4AOE for the beautifully embroidered table centre. Truly, we have some very talented ladies in ALARA!

While we are sorry to lose Joyce VK2DIX, Suzanne VK2PSC and Joy VK5YJ from the committee, we appreciate all their efforts on our behalf during their terms of office.

1985 is ALARA's tenth birthday year, and there have been get-togethers to celebrate the occasion in VK2, VK3, VK4, VK5 and VK6. Nineteen members attended the VK3 festivities, including Helene VK7HD and Pat, also five OMs. They all enjoyed themselves so much, they plan to repeat the performance annually.

A birthday mini-contest was held on YL activity day, 6th July, operating on the Novice frequencies. Unfortunately, conditions on 10 and 15 metres ranged from poor to non-existent, so most of the action was on 80 metres. The result was so close it had to be decided on the basis of time, with Kym VK3CYL winning by only one minute from Gwen VK3DYL.

Congratulations to Kym, who received the lovely table centre, and Gwen, whose prize was an

ALARA sugar spoon.

Our appreciation to all who submitted logs, and to Marlene VK2KFQ, our new Contest Manager, for getting it all together.

ALARA MINI-CONTEST RESULTS

Listed in Name Call Sign . . . . Score/No Prefixes

June L60068 — 13/6
Mavis VI3KS — 20/7
Betty VK2AMU — 20/8
Joy VK2EBX — 19/8
Kym VK3CYL — 22/8
Margaret VK3DML — 16/8
Marilyn VK3DMS — 8/6
Valda VK3DVT — 12/7
Gwen VK3DYL — 22/8
Bron VK3NTD — 16/8
Margaret VK4AOE — 19/8
Jill VK4ASK — 13/5
Jenny VK5ANW — 17/8
Marlene VK5QO — 21/8
Bev VK6DE/5 — 14/6
Helene VK7HD — 18/7
Pearl ZL2QY — 12/5

To the OMs who were kind enough to call, offering a contact — thanks fellas! We had to decline, as it was a YL only contest, but we will appreciate hearing from you during the ALARA contest on 9th November 1985 (UTC).

While on the subject of the ALARA Contest, let us see if we can make this tenth birthday contest the best ever! Try and get on the air, even if you can only spare a little time. It really is a lot of fun, and a very friendly contest.

Welcome to new member, Marie-Jean ON4AYL, sponsored by Marilyn VK3DMS.

Heartiest congratulations to Betty VK2AMU, ex2KYL, Margaret VK3CWA, ex3KCP, Jill VK4ASK, ex4VSK, and Eleanor VK4BEM, ex4VNS. Great to hear the new call signs.

Well, that's it for now, until next month, best wishes to all.

33/73 Joy VK2EBX

USELESS INFORMATION

The Country Fire Authority VHF radio network in Victoria comprises — 5100 mobiles, 700 base stations, 900 portables, 159 paging systems and 1500 pocket pagers.

From BARG News, August 1985.

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

I have mentioned previously that, for some time now, there has been a small committee working towards producing a Study Guide to accompany the revised Novice Syllabus. Copies of the draft have been circulated for comment to DOC and to some members, who I know, have been involved in Novice classes in recent years. By the time you read this, I hope I have the comments collated and a second draft on the way.

We have tried to produce a document which defines the depth of each topic on the syllabus, so that it can be of use to both the class instructors and the students, especially those who are unable to attend classes.

One part which still has room for further input is the list of recommended texts. I am sure there are many publications of which I am unaware, so if any readers have a favorite reference book, leaflet, article, etc, for some part of the course, I would be very pleased to hear of it. Of course, it would need to be fairly easily available if we are to recommend it in a Federal publication.

The revised syllabus is now available in leaflet form from me or from DOC State Offices, but I have not, as yet, heard when it will take effect — not that there are really many changes in content.

The next step will be to prepare a similar guide for the Full Call Syllabus. Now is the chance for those who feel they have been left out of the discussion on the Novice Guide, to have their say. A soon as leaflets of the Full and Limited Syllabus are available, I will be happy to send them out for members to work on. Education Officers in each Division already have a copy.

Perhaps each club or zone could spend one meeting night on one section of the syllabus, and let me have their ideas on how far each topic should be developed, and, perhaps more importantly, the degree of detail or knowledge that would not be acceptable for an exam question. We hope these guides will be a prescription for the examinees as much as for the examinees.

When a point of mutual agreement between DOC and the WIA is reached, the guides will be printed and made available. As soon as they are ready, I will make it known. I would expect that the Novice one should be ready for use for courses starting early in 1986, but considering the time it has taken and the greater content of the Full course, the next one is probably at least six months away — although lots of input from Interested parties would probably speed it up a bit.

Again, references for the various sections would be most valuable, as the Full call course is even less well provided for than the Novice.

With the advent of Daylight Saving in some States, local time for the Education Net will vary — ie the Net will remain at 1130UTC Thursdays, despite everything — 3.680MHz +/- in case you're looking for it.

The Net in the Novice Band of 60 metres has been cancelled because of lack of interest. I would be pleased to have the Net used for discussion of points arising from the syllabus and the Study Guide draft. It seems to me it would be much easier to discuss ideas in a group than for you each to write me a letter — I am sure I would get more out of it too. But perhaps the easiest course of all is just not to write or talk at all.

Best wished and good luck to all those sitting for the November exam. May you all get new call signs for Christmas.

73 Brenda VK3KT
AR

STOLEN EQUIPMENT REGISTER

The Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them, may write or telephone the Federal Office with their queries.

Below is a complete list of all stolen equipment as notified to the Federal Office, as at 23rd September 1985. Would members notify the Office of any items listed which have been recovered.

MODEL	SERIAL NUMBER	STOLEN FROM
Yaesu 101E	8G350283	*VK2SS*
Yaesu YP150	81090469	*VK2DCB*
Kenwood VFO520	—	*VK2DCB*
Kenwood AT200	820049	*VK2DCB*
Kenwood TS520S	820972	*VK2DCB*
Kenwood DG5	730475	*VK2DCB*
Kenwood SP520	—	*VK2DCB*
Kenwood TR2400	0061950	*VK2DPM*
Icom IC490	16101192	*VK3BVO*
Icom IC22S	15777	*VK3YXX*
Icom 2A	122-15146	*VK3CRH*
Icom 2A	12213830	*VK3YOD*
Icom IC4E	18103021	*VK3YOD*
Icom IC45A	18351005	*VK3KJC*
Icom IC22A	6853	*VK3ZU*
Kenwood 2M	1050780	*VK3YSG*
Kenwood TR900	1081098	*VK3YSG*
Trio Scope	10-20171	*VK3YSG*
Yaesu FT7	81090839	*VK3BYK*
Yaesu FRG7	299L26099	*VK3ZLY*
Yaesu FT290R	1L081321	*VK3KJC*
Kenwood TS930S	3050176	*VK7JG*
Yaesu FT480R	1H12069	*VK1ZUR*
Icom IC25A	03831	*VK2DPM*
Icom IC45A	01876	*VK2DPM*
Icom IC211	6804309	*VK3BRV*
Kyouto FM144/10	5027	*VK2KUR*
Icom IC215	05156	*VK2AMX*
Yaesu FT209RH Has blue vinyl case	4K050838	VK3C E
Icom IC2A	04484	*VK1MX*
Yaesu FT207R	10132725	*VK2EMC*
Kenwood TS120V	0081224600	*VK2VWN*
Icom IC22	12266	*VK3BLC*
7EKenwood TR2400	0061926	*VK2PJ*
7EYaesu FT708R	1H01948	*VK2PJ*
**Yaesu FT203	4H081794	—
**Yaesu 209R	4L06245	—
**Hx 2000 Regency Hand-held		
Yaesu Y-901-P With all extra modules & cables	9-L-030072	*VK1ZVR*
*Thorn B&W TV Modified for computer use	107512	*VK2XJC*
*Yaesu FT780	3F07521	*VK2XJC*
*Yaesu FT680R	3H080202	*VK2XJC*
*Tokyo HL90U 70cm Hi Power Amp	8304246	*VK2XJC*
*Tokyo HL160V 2 metre Hi Power Amp	829331	*VK2XJC*
*Tokyo HL86V 6 metre Hi Power Amp	819595	*VK2XJZ*
*Kenwood TS430S Includes FM Board, AM, CW, SSB Filters, also has clip soldered to finals cage	4010322	*VK2XJC*
*Dick Smith Audio Generator	—	*VK2XJC*
*Dressler 2 metre Pre-Amp EVV2000	1027	*VK2XJC*
*Welz SP200 SWR/PWR Meter	600384	*VK2XJC*
*Saiko SC7000 Has BNC connector for antenna socket	Scanner	*VK2XJC*
Sharp VCR	922270	*VK2XJC*
Rank Arena CTV	2017322	*VK2XJC*
National Panasonic Tape Recorder	—	*VK2XJC*
Kenwood TR2500	3040009	*VK2ZQC*
Yaesu FT290R	4E360554	*VK3KGH*
Icom IC22S	14727	*VK3ME*
Kenwood TR7950	4010747	*VK2TVG*
Yaesu FT101	34224	*VK2DC*
Icom IC720A	06242	*VK4ZSH*
Icom IC551 With FM, VOX, PB Tuning Units	01273	*VK4ZSH*
Icom IC251	01106	*VK4ZSH*
Icom IC22A	1914	*VK4ZSH*
Icom IC202	5144	*VK4ZSH*
Yaesu FT620	010489	*VK4ZSH*
Orake SPR4 Includes 100kHz Calibrator & NB Unit	3089	*VK4ZSH*
Icom IC730	13806798	*From Melbourne Uni RC, with Home Brew Power Supply*
Uniden 2020	50806009	*VK2KSY*
Yaesu ST7	81090728	*VK2KSY*
D/S Explorer 70cm Transceiver. Has extensive internal mods		

*** Indicates units are complete with manuals.**
**** from Dick Smith Electronics, Box Hill.**
7Ecall sign engraved on case.

If you are offered second-hand equipment, please check with the Stolen Equipment Register berore purchase.

AR

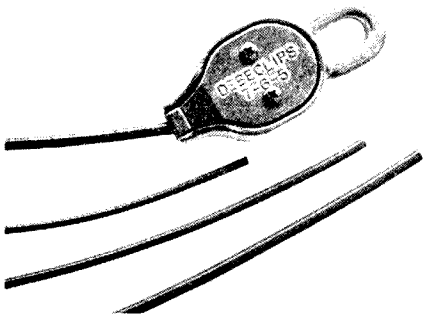
TELEVISION FOR FIJI

The Pacific island nation of Fiji has decided to have a television service and it is expected to begin in 1987.

Fijian Prime Minister, Ratu Sir Kamisese said a licence had been granted to Kerry Packer's Publicity and Broadcasting Ltd (PBL), which had proposed to develop a national network in three stages.

The ultimate aim was to bring the TV service within reach of as many Fijians as possible, in every part of the country. To enable this, the government planned to speed up the availability of electricity supplies to rural areas and outlying islands.

AR SHOWCASE



GUY WIRE SUBSTITUTE

GFS Electronic Imports have announced the introduction of 6mm Debeglass antenna tower guy wire substitutes, as a stock line. The addition of DB-6 to the range means customers now have a choice of 4, 5 and 6mm sizes.

For those not familiar with Debeglass, it is a non-conducting, non-corrosive, low elongation, high tensile wire substitute which has a number of applications in the area of radio tower guying. It also has applications in many other areas including the fishing and marine industries, mining, off shore exploration and drilling, as well as building.

The new DB-6 has a tensile strength of 970kg, with a weight of only 44 grams per metre. DB-5 and DB-4 offer 560 and 430kg tensile strength respectively for weights of 31.5 and 19.5 grams per metre.

Termination of the three Debeglass sizes is done simply by using a thimble and standard 'D' clamp, or with a Debeclip, shown in the photograph.

Full specifications and a brochure may be obtained from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Telephone: (03) 873 3777.

AR

NEW RF POWER METER HAS FREQUENCY COUNTER

Vicom Australia Pty Ltd has announced the release of the new Fujisoku range of termination power meters which include a built-in frequency counter.

The frequency counter has been designed for low power consumption and operates from internally mounted batteries. The counter uses a seven digit LCD.

The instruments are ideal for servicing applications due to the wide frequency range, the compact rugged construction and light weight.

Three models are available to cover the frequency ranges 0-150MHz, 30-500MHz and 330-960MHz. Additionally, three power ranges of 1.5, 7 and 15 watts are available. Other models for higher RF power are available.

Further inquiries should be directed to Vicom's offices at Melbourne, Sydney, Brisbane and Wellington or direct to Michael Bonacci, National Sales Manager, VICOM Australia Pty Ltd, Box 366, South Melbourne, Vic. 3205. Telephone (03) 62 6931.

AR

PACKET RADIO MODEM

In their continuing endeavour to promote and foster Packet Radio, the Sydney Amateur Digital Communications Group have commenced development of a complete Australian designed Amateur Packet Radio System.

Rather than enter into conflict with various groups that have purchased semi-commercial equipment, the SADCG have set their design objectives around a system that will satisfy most groups. The TNC has improved software handling both Vancouver V.2 and ARRL AX25 version 2, allowing multiple digipeating. This TNC will be available in late 1985.

Currently the SADCG have just completed the design of a high performance AFSK Radio Modem board, based on the AMD 7910 World Modem chip. This modem provides both CCITT and BELL modem frequencies. It is tailored for use on UHF, VHF and HF voice grade channels and incorporates a PTT Watch Dog Timer. The AMD 7910 was selected because of its ability to handle noisy conditions as found on HF and satellite operations.

This modem will interface via RS-232/V.24 to a TNC or computer. It can be easily interfaced to amateur transceivers. The circuit has the option to generate a DCD signal from either the external squelch signal from the radio or internally generated DCD from the 7910, or both. Various connections are available for LED monitoring of circuit conditions, such as CTS, TXD, etc.

The Radio Modem PCB, together with construction information, is available for $22 post free from the SADCG, PO Box 231, Frenchs Forest, NSW. 2086.

AR

NEW MEASURING INSTRUMENTS

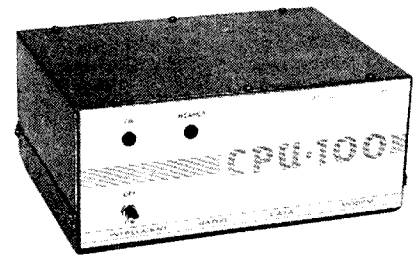
VICOM Australia Pty Ltd announce the release of a new range of RF test instruments from Fujisoku, Japan.

The range of high quality devices includes termination power meters, wideband and narrowband power meters, through-line power meters and RF power peripherals, including coaxial switches and dummy loads.

Fujisoku has been a leading manufacturer of precision instruments for more than three decades.

Further details including specifications and pricing can be obtained from VICOM offices in Melbourne, Sydney, Brisbane and Wellington or by contacting Michael Bonacci, National Sales Manager, Vicom Australia Pty Ltd, Box 366, South Melbourne, Vic. 3205. Telephone: (03) 62 6931.

AR

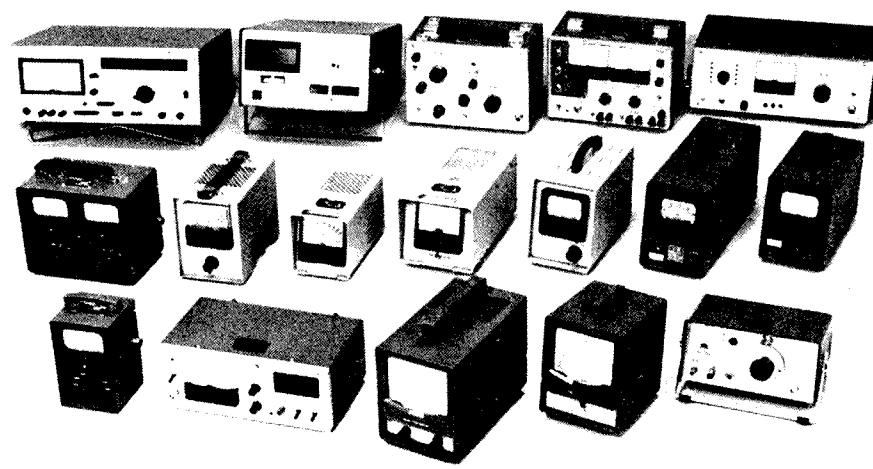


ERROR FREE RADIO DATA MODEM

A new version of an intelligent radio data modem is now available from GFS Electronic Imports. Known as the SDX-PKT 1.2, it is designed to provide error free data communications over a standard voice bandwidth simplex radio link on HF VHF UHF or two wire land line.

The CPU-100 simply connects between a terminal, computer or remote sensing device via their RS-232 port, and the radio transceiver. Its full error correction means that, even under loss of signal conditions, absolutely no data is lost or corrupted, the system is simply held up until the signal is recovered.

Data rate on the link is nominally 1200 BAUD, depending on the radio link quality. Exchange of data between the two communicating CPU-100's is in blocks and takes the form of an asynchronous Byte-oriented protocol. Automatic block resends are initiated for all detected errors. The radio equipment automatically switches from transmit to receive as each block of data is sent. For every received block, each Byte is checked for correct parity and framing or over-run errors. A further check sequence then calculates block validation data on the received block which must agree with the received check data contained in



that block. Only when all checks verify, is the data accepted and output to the DTE.

In its standard form, this version provides equal data transmission priority to each end of the link, ie 50 percent of link time is allocated to each DTE in turn. A higher priority to one end may be provided if it is felt necessary for a particular system, thus giving an overall increase in speed.

The flow of data from the DTE to the CPU-100 can be controlled by either XON/XOFF characters or the RS-232 hardware signal RTS. A buffer is provided in the CPU-100 to cater for any overflow data from the DTE that may occur after the unit has issued an XOFF or deactivated the RTS line to the DTE.

All data Bytes transmitted in each block are eight Bits, plus parity. This allows data over the full ASCII and Binary format range, for the transmission of target code programmes, etc, as well as normal text and control characters. A broadcast mode is also optionally available as the SDX-PKY 1.2 version of the CPU-100.

Other versions are also available. These include a full error correcting version, designed to operate over a dual channel duplex radio link, a high parity, non-error correcting type for a duplex link, as well as a one way, high parity version for a simplex radio link.

Further information can be obtained from the Australian Manufacturer, GFS Electronic Imports, Box 97, Mitcham. Vic. 3132. Telephone: (03) 873 3777.

AR

MURPHY STRIKES

The VK2 28MHz Beacon, listed on page 63 of September's AR, was incorrectly listed.

VK2WI and VK2RSY are one and the same and the frequency is 28.262MHz.

Also, on page 12, same issue, the teleprinter 7805 regulator doesn't have a ground in the circuit diagram.

Bill Martin, VK2COP
FEDERAL INTRUDER
WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Well, the warmer weather is now with us and, hopefully the solar cycle has finished it's fiddling about, and is heading up to where it should be! Of course, this will mean an increase in intruder activity, no doubt, and we hope that more listeners will send in their intruder reports.

REQUIRED READING

Col VK4AKX, one of the stalwarts of the IW, has drawn my attention to some interesting reading, about intruders, in a long article in "Practical Wireless" for April 1985. This makes almost required reading for any serious intruder observer, and, although the article is orientated towards the UK, there are many points germane to the VK observer.

Thanks once again to the following observers, who have helped out during July 1985: *Mr G H A Bradford and VKs — 2DEJ, 2EYI, 2PWS, 2PS, 2QL, 3AMD, 3XB, 3XU, 4AFA, 4AKX, 4BHJ, 4BG, 4BTW, 4KHZ, 5BJF, 5GZ and 7RH.*

AIRS DIRECTOR

This month sees the arrival in Sydney of Gib W7JIE, the IARU Region 2 Director of 'AIRS' (Amateur Interference Reporting System), which the Intruder Watch is known as in the USA, now-a-days. Gib is en route to New Zealand for a radio conference, and I hope to have an 'eyeball' QSO with him, whilst he is passing through Sydney.

I don't often get the chance to meet intruder watchers from overseas, or from inter-state, for that matter.

NEW MERIT CERTIFICATE

I would now like to take the opportunity to mention the striking of an Intruder Watch "Merit Certificate", which has been approved by the WIA Federal Executive. This certificate will come into effect shortly.

It is not really an award, in the amateur radio sense, but is a certificate conceived to give some tangible recognition, albeit small, to those who have taken the time and trouble to support the Intruder Watch, and by so doing, have given assistance to their fellows of the hobby, by helping to keep tabs on the radio pests of the world, who bully their way all around the frequency bands. The certificate will be issued on a "one per call" basis, and will not be easily gained. Provision is made for the **ANNUAL** issue of the certificate to that person, amateur or SWL, who has best supported the ideals of the Intruder Watch for the previous 12 months, **IN EACH WIA DIVISION.**

Each certificate will be consecutively numbered, and signed by the WIA Federal President, and counter-signed by the Federal Intruder Watch Co-ordinator, who holds office at the time. The certificate will not be issued as a matter of course, and **ANY** certificate for **ANY** Division will not necessarily be awarded in any particular year. The achievement will be recognised by the publication of the recipients details in this column, at the time of the award.

I think that those who take the time and trouble to monitor the amateur bands for the benefit of others should have, at least, this small token of appreciation.

STATISTICS

The IW statistics for July 1985 are: *327 Broadcast Intruders, 85 CW Intruders, 53 RTTY Intruders, 44 other modes of emissions and 56 intruders obliged by giving identifying call signs.*

How does it work? SOLAR ELECTRICITY

A silicon solar cell works because of its non-silicon ingredients. First, a tiny amount of boron impurity is put into the melt during crystal growth. The boron atoms are dispersed throughout the crystal structure of the silicon. However, the boron — doped silicon has one less electron in the outer shell, so it has a "hole" that will accept stray electron. Thus boron-doped silicon is called "Ptype".

After the crystal is sliced, a thin layer of phosphorus is diffused across the top surface of each wafer to form the "N" (negative) layer. The phosphorus atoms displace silicon atoms in the crystal structure, but each has one extra electron in the outer shell so it can become an electron donor when the right external stimulus is applied.

Light energy is such an external stimulus. When the light energy strikes the cell, positive and negative charge carriers are freed to migrate within the silicon wafer. There is a net migration of positive charge carriers to the "P" side and of negative charge carriers to the "N" side.

Attach leads to front and back of the cell and the charge carriers can flow through an external load to do usable work. The electrical current starts, stops and varies in intensity as a direct function of the light energy. When the sun shines the cell will work.

Each cell, regardless of size, has a potential of about half a volt. Connecting them in series will raise the voltage to more useful levels.

Most solar panels have cells connected in series and produce power at 16 VDC for use with 12 volt systems.

Cell area determine current output with 100mm cells having a current output between 2 and 2.5 A in bright sunlight (dependent on the manufacturer). By multiplying voltage by current one may determine the peak power capability of any given panel.

There is nothing complicated about Solar remote power systems. They are just sun-powered battery chargers. You can assemble them with common hand tools and maintain them with just a dust rag. You will never need to change the oil, spark plugs or filter, because there aren't any!

Solar cell modules make the system work, and storage batteries permit it to work at night since the modules only generate electricity during daylight hours. The batteries store the electricity for use at night or in periods of bad weather. A typical photovoltaic system includes sufficient storage for several days of normal operation.

The first step in choosing a photovoltaic system is to determine your power requirements. Make a list of items to be powered and compute the daily hours of operation for each. Multiply the power of each item by the hours of operation to get watt-hours per day of total consumption.

To figure how many solar panels you will need, however, you need to compute the ampere-hours per day of each piece of equipment. To get Ah/day divide watt-h/day by your system voltage.

For a simple DC system divide by 12 volts. For example, you might have four fluorescent lights, a 12 V communication station and a DC powered television set. The lights draw 1.7 A each, or 6.8 A total. The two-way radio station may draw 1 A on receive and 5 A on transmit the TV 2 A. Your typical usage might look like this:-

Item	Current Drain A	x Time (h)	= daily usage (Ah)
Lights (4 x 1.7)	6.8	x 4	= 27.2
Radio Receive	1	x 4	= 4
Radio Transmit	5	x 0.5	= 2.5
TV	2	x 4	= 8
			41.7

Next compute the number of solar panels required to supply this power. A 40 watt panel can produce 2.5 A peak, lets say 2.3 A average per hour. The average useful number of hours in central South Africa is 6 thus 6 x 2.3 = 13.8 Ah. So 41.7 Ah ÷ 13.8 Ah = 3.02 panels.

A four panel system would comfortably satisfy the above requirement.

With a photovoltaic system, you can only take out as much power as you put in. This may require establishing some new habits about electricity consumption. Plan to conserve electricity from the start. If your system allows three hours of television viewing per day, you cannot expect to watch for six hours, unless some other item, say one or two lights less are used.

You are the decision maker.

Bear in mind that in the above example the correct Ah rating is not 41.7 Ah but twice that or 83.4 Ah + 3 x 41.7 = 208.5 Ah thus giving you three days of usage during bad overcast weather.

Adapted from an article by Patch Scott ZS6ADQ in Radio ZS — December 1984..

AR

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

NEXT MEETING

The last meeting for 1985 will be our end of year social event, on 25th November. Bring your spouse or friend, and share a drink, meet old and new friends, and have a good time. The meeting is in the Griffin Centre, Civic, and doors open around 7.30-7.45pm. The bookstall and QSL bureau are available at the meeting.

VK1 AWARD

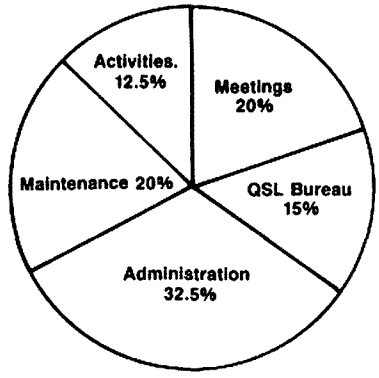
An update on the VK1 Award from the Awards Manager, Phil VK1PJ, lists those who have recently gained the Award.

ZL2 259 . . . First ZL SWL, VK2DJJ, VK2NAN, VK7NEC, VK1ZXA, VK4MAX, VK3DVF, VK1NYA, and VK2VFL.

For those looking for VK1 stations, the VK1 Award Net is run each Sunday evening on 3.570MHz ±QRM, after the VK1 Divisional Broadcast, around 1030UTC (8.30pm EAST). Phil would particularly welcome those VK1 stations that rarely (or never) join the net to come up.

1986 MEMBERSHIP FEES

At the September Committee Meeting, the committee recommended that the VK1 component of members fees remain at $9.50, so if the Federal component remains unchanged at $24.50, VK1 members will pay $34 in 1986. This makes VK1 one of the lowest priced Divisions to belong to.



1986 Planned Expenditure — VK1 Division

For 1986, we are budgeting on an income of around $2 000. Of this, one third will go on administration and secretarial costs. Other major items are, meeting room hire and equipment maintenance and depreciation. The pie chart shows the approximate breakup of expenditure.

AR

VK3 WIA NOTES

NEW MEMBERS

The Victorian Division of the WIA extends a warm welcome to the following members who joined in the month of August.

Simon Anderson VK3KRL, George Antippas, Kim Briggs VK9ZB, Arthur Brighton VK3ACB, John Carwardine VK3BMC, A Fisher VK3KTF, Douglas Flynn, Annette Inness, John King VK3XLN, Ronald La Franchi (SWL), Nick Lycopoulos.

William Pearce (SWL), Glenn Potter, Michael Scott VK3XMS, Luke Thistlethwaite VK3PHU, Robert Toseland VK3XRT, Max Tulloch VK3AKT, Laurens Van De Paveart VK3CLV, Roderick Wall VK3BKO, Peter Westley VK3DXD, Alan Woolley VK3AMT, Frederick Wright, John Day VK3ZKF and Barry Petersen VK3XIR.

BEECHAM AND LINTON

Several months ago, the Lord Mayor of Melbourne, Councillor Eddie Beecham, was pleased to receive greeting letters from the City of Melbourne, Florida, USA. The occasion was to mark Melbourne Victoria's 150th Anniversary and had been arranged through the international spirit of amateur radio.

Greetings were received from Harry C Goode, Melbourne Mayor, and the Platinum Coast Amateur Radio Society, based in Melbourne. PCARS mentioned, in its letter, how an early settler in its city was a former Melbourne, Australia, resident Cornthwaite John Hector. His colorful stories of Melbourne prompted fellow settlers to name their area Melbourne, also.

Vic WIA President, Jim Linton VK3PC, presented Councillor Beecham with the letters at the Melbourne Town Hall. Not missing an opportunity to push the cause of amateur radio, Jim asked the Lord Mayor if he knew much about the hobby. To his surprise, Jim was told about the role Councillor Beecham played in a part ot Australia's amateur radio history.

As a school teacher in the small Victorian town of Birchip, he was asked by Ray Naughton VK3ATN, in 1966, to check the mathematical calculations Ray had done for his first Moon Bounce contact with the United States.

AR

PRINTERS GREMLINS HAVE A SHUFFLE WITH AUSSAT

Two typesetting errors — DCwin (Darwin) and h-ff-gh (high), beyond the control of the Producers and Printers were compounded by the lines "of Ltd, of the attenuation caused by rain in the various times of the year" appearing at the head of column 3, page 14, October AR — instead of commencing underneath the captions for the pictures.

The Management of Waverley Offset Publishing Group apologise for any inconvenience or embarrassment this has caused to AUSSAT Pty Ltd, the writer and the readers of the magazine.

Please amend your copy now.

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

HOMEBREW CONTEST

Are you building or about to start a project? Why not enter it in this years event. The closing date is 1st March 1986. Entry forms are available from the Divisional Office, at 109 Wigram Street, between 11am and 2pm, Monday to Friday, or 7 to 9pm on Wednesday night. Or you may phone (02) 689 2417 or write to PO Box 1066, Parramatta, NSW. 2150. Check with your local club as some may also have details and/or forms for entries.

NOVEMBER EVENTS

On Sunday, 3rd November, the Conference of Clubs will be hosted by the Westlakes ARC at Teralba.

On the weekend of the 9-10th September, there will be a WICEN exercise at Schofields Air Show.

The Batemans Bay Car Rally, postponed in September due to rain, may be held towards the end of the month.

VK2BQK

The Museum has been closed for the remainder of this year while a new exhibit, for the display area, is set up.

DECEMBER BARBECUE

The Dural Committee and Divisional Council invite you to attend VK2WI on the first Sunday, 1st December. Further details will be announced on the Divisional Broadcasts during this month.

HISTORICAL ARTICLES

The next VK2 Special Edition of AR is scheduled for March 1986. Material is required for this feature. If you have anything, please contact or send to the Divisional Office.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Several months ago, I asked which old timer had been licenced the longest? Well, I still don't know the answer, but Keith Ring VK5KH, rang me from Kapunda, with a list of OTs that he thought were eminently more deserving of mention, than he. Those mentioned include, Reg Anthony VK5CM, Cliff Moule VK5CX, Elmore 'Shep' Shepherd VK5DC, George Andersen VK5GA, Vic Chennell VK5JH, Darcey Hancock VK5RJ, George Luxon VK5RX, and Arch Hewitt VK5XK. All the above were licenced in, or before, mid-1930.

I shall look forward to meeting the above gentlemen, and many others, at the 1985 Old Timers Luncheon, to be held at the Woodville Football Club, on Thursday 14th November. Not that I qualify as an old timer, but for the past couple of years a group of wives of the OTs and other interested ladies have met for lunch at the same time and venue, and I hope to join them again this year.

If you are interested, listen to the Broadcast for more details.

TAKE YOUR OWN LUNCH

That will be a busy week, because three days later, the WIA Picnic will be held at the Bridgewater Oval. The proceedings start about 11.00am and after a settling-in period, races of all sorts, foxhunts (usually of the sneaky sort), and similar entertainment will be the order of the day.

This year may see many new innovations, as Gary VK5OR and his XYL, Valmai, will be taking over much of the organising. The picnic is open to all WIA members and their families. You take your own lunch, but soft drinks, ice creams, and lollies for the children, are provided by the WIA. (Soft drinks and ice creams are for everyone). It is a very pleasant venue, and I hope to see you all there.

SOME PEOPLE HAVE ALL THE FUN

Some people get all the tough jobs! Recently, Graham VK5AQZ, in his role as Jubilee 150 Co-ordinator, organised an Amateur Radio STATION Carriage, which was attached to a train, that just happened to be going to Perth. With Alan VK5ZN and Peter Koen (who spent the previous three days silkscreening posters!), Graham spent the best part of four days on the train, and two in Perth, telling people about J150, and for those on the train, about amateur radio.

Apparently, a good time was had by all, except Bob VK5BJA, who having put up aerials, etc, had to stay behind because of work commitments.

I was invited, but before I could accept, it was pointed out to me that my presence would complicate the sleeping arrangements.

DIARY DATES

14th November — Old Timers Luncheon, Woodville Football Club and YL Luncheon.
17th November — WIA Picnic, Bridgewater Oval.
23/24th November — Display at the SA Hobby Fair.
26th November — General Meeting and Trevor Conlon, guesting from CFS Headquarters. 10th December — WIA Christmas Social. Speaker Geoff Taylor VK5TY, on the first Burra to Broken Hill Wheelbarrow Race. (At the time of writing, the venue is uncertain, so check the Broadcasts for details.)

AR

Bill Prepares for RTTY!

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

From Bill Blitheringtwit's garage emerged the muffled sound of somebody uttering curses, interspersed with slight yells of pain. Bill had been searching for about an hour, but so far his efforts had been entirely in vain. He was looking for a card table. He knew that there was one around somewhere, since he could distinctly remember buying the wretched thing. It seemed only yesterday but in fact it was some time in 1938 that he had found the little folding table in a junk shop. He could also remember putting the thing away at some time, but the problem was where.

He also couldn't remember the reason why he had folded the thing up and stowed it in the rafters. The rafters! That's where he found it, covered with dust but still apparently intact. He stood on his Holden's roof and tugged away. A piece of steel piping fell on to the car bonnet with a clang and tumbled to the ground. It left behind a long dent and a trail of scratched paint where it had slithered downwards.

This did not deter Bill. Once he had made up his mind to do something, nothing was allowed to get in his way. Finally he got the table down and carried it into the shack. The reason behind all his efforts stood before him on the carpet — his recently acquired Model 100.

Ever since he bought the heavy machine he had been trying to work out where he was going to install it. Then, in the middle of the night, a flash of inspiration lit up his brain. Of course! The card table! He was for going out to the garage right away and fetching it but his wife had (justifiably) stamped on the idea. It was 2.30 in the morning.

Bill unfolded the spindly legs of the little table, now warped with age, and stood it upright. It didn't look right somehow. It had a decided wobble. Then he remembered why he had originally put the thing away. His wife had complained that it made things fall over. Bill had to agree with her about that. He had lost quite a lot of beer because of the table's nasty habits. Anyway, the weight of the Model 100 should make it sit properly. It was a heavy machine and if that wouldn't steady the table down, nothing would.

He set the table where he wanted it and then bent down to pick up the RTTY machine. He struggled it over to the table and placed it firmly on the top. The long-suffering table gave a quiet groan. Then the thin legs gradually splayed outwards. Bill watched as something very surprising happened. All four legs suddenly collapsed with dramatic effect and the table top bowed downwards at the same time. The end result was that the Model 100 landed with a thump on the floor. Fortunately, the impact was deadened slightly by the presence of Bill's feet.

Bill sat on the floor, nursing his feet, and looked at the debris. It was as though a house had collapsed on a matchbox. Splintered pieces of wood lay all around and the Model 100 was sitting triumphantly on top.

It looked as if Bill would have to think of something else to support the dratted machine. Meantime, the bits of wood might come in handy for starting the barbecue.

AR

GOLD COAST AMATEUR RADIO SOCIETY

The Eighth Annual Gold Coast HAMFEST will be held on Saturday, 9th November 1985, from 10am to 5pm at the Albert Waterways Community Centre; opposite Pacific Fair, Broadbeach.

Displays and demonstrations will include: all facets of amateur radio equipment, computers, lasers, videos, a WIA bookshop, jewellery and copper art. There will also be a ladies fitness class demonstration.

There will also be a variety of contests for the young and old, alike.

Further information may be obtained from Bill Stevens VK4YN, President of the GCARS, Box 588, Southport, Old. 4215, telephone (075) 35 7415.

ALL WELCOME!

AR

DEVIL NEWS — NW Branch News

It was pleasing to have a gathering of 25 at the last Club meeting. Two guests, Daniel VK4YDC and Roy Rothwell, were welcomed as was Darren Dell VK7ZDD from Hobart, an ex Devonport High School student, since moved south. It was pleasing to see Tony VK7AH back in the Secretary's chair and also for the Club to gain two new members.

Devonport High has a class in electronics and quite a number of the boys from the school now have call signs, a pleasing result to the school curriculum. The school call sign, VK7DHS, is operational most lunch hours and after school, so if they are heard, please give them a call.

The Club has had a pleasing month in the QSL department with 154 cards incoming and 84 outwards. Several W stations have been heard, so maybe the bands are picking up. Let's hope so!

Permission has been received for the Club to begin work on a 70cm repeater, so now it will be all stops out to get it operational!

The regular RTTY Broadcasts have had a few problems with 'Murphy' but not even he will keep the 'stout-hearted' down, so perseverance is the order of the day.

John Duncombe, the Club WICEN Co-ordinator has been studying the requirements needed for an exercise and checking areas of Map Reading so that the Club may be prepared for an exercise, when and if called upon.

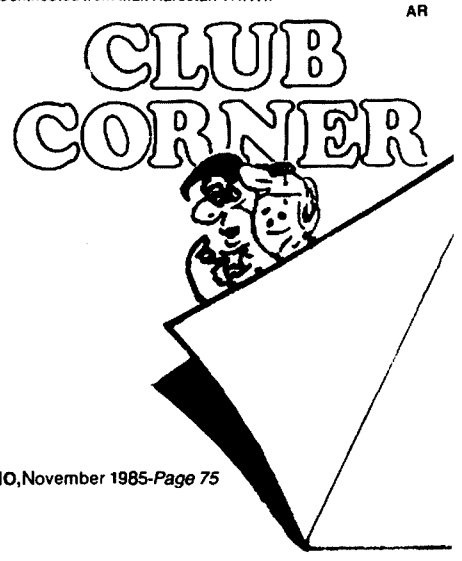
Ron VK7RN related his experiences of the difficulties in erecting a tower in the township. It is not easy to get the requirements for amateur towers, anymore.

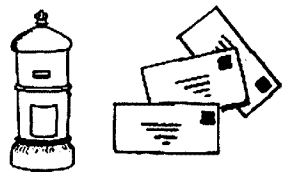
Bob VK7KAB has been placed in charge of fund raising activities, and it is hoped to have some good ideas operational by the next meeting.

The meeting concluded with a talk about the Club Repeater, and workings of same, from Andrew VK7ZAP

Contributed from Max Hardstaff VK7KY.

AR





OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

RADIO IS FUN

From time to time we find, in Amateur Radio and other magazines, which cater for the amateur radio enthusiast, articles or letters bemoaning the fact that the hobby is not what it should be. The complaints centre around many aspects of our activities buy always seem to present the problems without even a hint of the answers.

We are told that there are no young amateurs coming on to fill the gaps left by the silent keys, that appliance operating is the order of the day and that the days of experimentation are over. The standard of examinations are criticised for everything from being too difficult to being childishly simple, and the use of CW is considered everything from a discipline to an absolute waste of time and effort.

With a little thought, we can see that, In fact, all things are true to all men, the youngsters are not entering the hobby at the maximum possible rate, there are appliance operators, many of whom also happen to be highly skilled at their chosen task, the examinations are simple to the technically minded but very difficult to a hobbyist who has not entered the field before and CW can be a waste of time to one who is not interested In the mode, but it is a fine discipline and, as such, has great value. One of the biggest problems is that the radio field has progressed so rapidly, that it requires a technocrat to even start to understand some facets, but this is no reason to deny the hobbyist entry to the fold, therefore examinations must always be aimed at preliminary standards, otherwise the newcomer makes it no further than the first page.

I think the world of the amateur has forgotten the most important value that the hobby has, and really it is the *raison etre* of the entire scene. The simple word is *fun* — we can use many, many expressions to convey why we started and continued in the hobby, but they can be reduced to the one concept of *fun.* Of course, to sell this idea, something else is needed and to further this, I now turn to the 'Editorial' which started me typing this letter. Alan K2EEK, has captured much in his leader, which he assures me is the start of a series to try to convince the amateur world that they have a problem which they themselves must solve. Alan is the Editor of 'CQ Magazine' and has a large reading public, I only hope that those VKs who are unable to otherwise see his writings are given the opportunity to read of the Unicorn.

73,

Jim Swan VK2BQS,
PO Box 93,
Toongabbie, NSW. 2146.

The following is the editorial referred to in Jim's letter.

AMATEUR RADIO NEEDS A UNICORN

I am still at the awkward age — not old enough to be sage and wizened and not young enough to have all the answers. When I first got involved in amateur radio, people my present age were in charge of radio clubs and they did have all the answers, at least as far as kids my age were concerned. People my present age were the role models, the teachers, and the ones who gave us the terrible jobs on Field Day. They were the ones who quieted us down at meetings and told us they were sorry but we couldn't attend a club social because beer was going to be served and we were minors. They collected our dues, though, and gave us our first history lesson — an understanding of "taxation without representation."

In spite of the above, we persisted in amateur radio, because at the time there were no real alternatives. There really was no TV, a Sperry UNIVAC was unaffordable and would take up the whole block, sex was not to be invented for a few years, drugs came from a pharmacy when you were sick, and drinking was something "old folks" did to keep you from their parties.

But we knew how to make things better with the world, and we especially knew what the club and amateur radio really needed. We also knew that if we waited, someday we too would be that old and we would be running things *our way.* Well, those old folks just got older and more set in their ways. We got involved in other things and drifted away to school and to starting jobs and families, putting amateur radio on the back burner for a while. Oh, it was still there, but other things were a bit more important at the time. It just wasn't time for *our* time.

About the time when it became our time and we then could give out the terrible jobs at Field Day to the kids (kids and lids) and enjoy the parties without the kids (although they helped pay for the parties) and have meetings at which we could tell them to shut up, it became apparent that there were no kids. They were into CB. The ungrateful wretches wouldn't co-operate with the Master Plan.

The kids of the mid 1960s and early 70s couldn't see the value in taking abuse and in being one license grade behind, these being the rites of passage. It wasn't worthwhile to wait and endure so that you could do it to someone else later on. They were crass enough to want something immediately. CB was "dumb" enough to offer Instant acceptance to everyone on an equal level. Everyone could indulge in the same fantasy right at the same time. Everyone could talk "southern," pretend to be a truck driver, wear funny T-shirts, and display CB decals and belt buckles. CBers could form national groups, have large social gatherings for the whole family, and in general laugh a lot and have a good time. For shame, they didn't know.

We did offer to show them the error of their ways. We used all the old (there's that word again) winning ways: derision, contempt, and hostility. We honestly told them that they were not really enjoying themselves, and that we, and only we, had the answer. Some did opt for "conversion" and some kept both irons in the fire, but the majority of the 25 million went on somewhere else. They're all out there somewhere doing whatever now, but it's my guess that they're still looking for fun.

The computer craze caught the next generation or two of kids for many of the same reasons. Amateurs *are* also involved with computers, doing wonderful and interesting things, but even if every licensed amateur (and bootlegger) was involved with computers, the numbers wouldn't come anywhere near the number of civilians who are. By now, however, the panic is starting to set in as the realisation hits home. Where are the kids? Well, whatever the next electronic wizardry Is that comes down the pike, they will be there.

The one big, glaring fault with our amateur radio tradition is *NOT* the amateur radio part. We all agree that whatever it is, it is great. Why it doesn't attract kids may have more to do with the tradition part than the amateur radio part. To a lot of us it still is exciting, pleasurable, and immensely worthwhile. The problem is, how do you convey that? How do you share a world with someone perhaps less than half your age and treat that person as an equal and not a child being scolded? How do you explain the fun in working a "rare" one, in building a project, or in restoring a classic? How do you describe a hamfest to talk about friendships that transcend international and political boundaries? Amateur radio is an immense universe that is constantly changing. Those who limit the change in the name of "tradition", especially *their* tradition, have restricted the growth of amateur radio and have begun to choke its very life.

If we presume for a moment that we do have something of value to offer a youngster, namely amateur radio, then we have to examine it on its own and not as a character-building rite of passage. Since everyone involved in amateur radio feels very strongly about and extremely protective of his own definition of it, then there has to be a very worthwhile core to it that is universal. It is this essence that is the product, the commodity that must be sold. This essence, and I know that it's hard for some to believe, is FUN — FUN on its own terms and not part of any process.

Some of us have to loosen up and stop taking ourselves so very seriously. It's hard to sell a pastime that is so serious with portents of a lifelong career in engineering, physics, and Industrial management to a 12 year old. There is nothing wrong with those ambitions, but they have nothing to do with amateur radio here and now. Many careers, including mine, have come from amateur radio, but that was not the reason or motivation for getting Involved in the hobby. Initially, I thought that I would enjoy it and have a good time, period. It looked like fun.

Amateur radio has a lot to offer a youngster. We should know best. as it was offered to us. Today there is tremendous competition for a youngster's time and abilities. We need and can use that talent. It is we "older" folks who will benefit in the long run. It's up to us to come up with a way of vying for that time. The traditional cod liver oil approach of "take It" (*I took it)* even though it tastes bad and "some day *(maybe)* you'll understand when you're big and strong" just hasn't worked.

So it's up to *us* to find the way to sell the product. *Us* Is everyone, every organisation, and every group who has a stake in amateur radio. We as individuals or in groups have to compete for attention and interest. It's not easy. We have to think beyond ourselves. The product is proven and good. We have to bring it to market and sell it using modern techniques, just like an IBM. We have to develop catchy ways of drawing attention to amateur radio and creating an interest in what we do.

Recently the circus came to New York. For several days murder and mayhem, world crisis, and political unrest left the front pages in favour of the speculation on whether or not a certain animal featured in the circus was indeed a unicorn.

Prior to this the argument was academic, as the only unicorns available were those depicted in artwork and famous tapestries. However, from the numerous depictions of unicorns one would have to say that the general consensus of those who had seen these renderings would lead us to believe that a unicorn was more or less shaped like a horse. The circus unicorn was shaped like a goat, looked like a goat and made goat sounds, and in the dark with a hat on could be honestly mistaken for a goat. That it was a goat was finally and officially determined by the US government after much deliberation and careful inspection.

The circus I'm sure revelled in the publicity, and I don't think that too many people were disappointed in discovering that the one-horned goat was not really a fabled unicorn. A lot of folks, though, heard about the circus being in town and went to see for themselves to "decide" on the authenticity first hand. After all, a real unicorn is a serious thing, and we shouldn't be swayed by all of the extra tickets the circus sold.

Well, the unicorn idea was just used, and it's too soon to try to pass off a squirrel as a miniature dinosaur. The rock video option is still open, and it's still possible to get amateur radio on the charts via a hit single. Publicity is where you can find it these days. Most of our publicity has come about via extremes, natural disasters, accidents, wars, and space flights. They are hard to generate on demand, hard to control, and usually involve some measure of tragedy. It's not really an "up" sales tool.

We've got to come up with something that we can use during peacetime, sunshine, and happiness and that's exciting, novel, and captures the imagination. I know we can do it. We've waited for our time, and our time is now.

Editorial from CQ June 1985, written by, and printed with the kind permission of Alan Dorhofer K2EEK, Editor, CQ The Radio Amateur's Journal.

AR

EVERYTHING IN READINESS

LEPARC have received a call sign for the International Youth Year DXpedition to Boston Island from 8th to 14th December 1985.

As mentioned in an earlier magazine, the students are busy constructing a rig, which will be used for some contacts on 80 and 40 metres, and there will be a variety of other equipment, to ensure adequate band coverage.

The allocated call sign is VK5IYY, but the Club has decided to use the option given by DOC, the VI prefix.

Whilst operational on Boston Island, the Club will be using portable power. The Commonwealth Bank are sponsoring QSL cards and there is a local competition to design the card. Things are looking good!

73,

Carol McKenzie VK5PWA,
President, LEPARC.
97 Dublin Street,
Port Lincoln, SA. 5606.
AR

WINNER SAYS THANKS!

As winner of the WIA Anniversary CW Contest, I wish to thank you for the trophies that have been presented to me, on behalf of the Institute and William Willis & Co Pty Ltd.

The contest as an appropriate event for the 75th Anniversary, and I deem myself fortunate in submitting the top score.

Yours faithfully,

Peter Alexander VK2PA,
Rollands Plains,
via Telegraph Point, NSW. 2441.
AR

WE'RE ON A WINNER? ? ?

Congratulations on allowing me to read the latest edition of Amateur Radio as soon as I received it. Previously our delightful representative at the Postal Service would carefully fold the issue and meticulously insert it through the letterbox aperture in such a way that the rain would completely permeate it.

Now I find that all the unwanted bills are saturated with the local rain and my edition of AR is now completely dry and able to be read, immediately.

Admittedly, I do miss the opportunity to sit and carefully hold the AR carefully in front of the heater to dry it without the pages sticking together. I also find I now have a complete magazine whereas, before, often many pieces tore off with my handling of the paper.

Keep up the good work.

Peter Ford VK3YTB,
7 Sherman Street,
Forest Hill, Vic. 3131.
AR

A BIG OPPORTUNITY FOR YOUNG PEOPLE!

Do you know a young person between the ages of 12 and 17, who wants to get into amateur radio? A number of amateurs from Sydney are planning a 10 or 12 day live-in Novice Amateur Radio Course during the 1986 May school holidays.

The camp will involve five or six amateurs as lecturers and supervisors. There will be places for about 24 students. The camp will be held near Sydney and will include both theory and practical electronics, regulations and Morse code. Other activities may include swimming, bushwalking and sports.

They also anticipate that a full amateur station will be set up, including AMTOR, Packet Radio and Satellites. This will give the students some on air experience.

Interested students and amateurs should contact the undersigned, enclosing a SAE.

Yours faithfully,

Peter O'Conneli VK2JJJ
3A Algernon Street,
Oatley, NSW. 2223.
AR

WIA 75th AWARDS

I am in receipt of the September Amateur Radio, and on page 6 there is a list of the WIA 75th Award recipients.

Against No 147 on the list, appears my name, B L Mills, but no call sign is indicated. This is the only entry shown thus.

Why was this printed this way? It is obvious that there must be a call sign involved, and that this is known to the awards manager. I have had this call for 39 years, and been a member of the WIA for 34 years, so why was the call sign not printed? If you are to use a person's name, then why not do it correctly, and not incorrectly.

I have no objection to my name being published, with call sign, but I certainly do object to it in the form in which it was used, which means nothing to anybody.

Yours faithfully,

B L Mills VK2AJE,
Box 10,
Cronulia, NSW. 2230.

Unfortunately, your call sign was inadvertently omitted from the list when it was typed for Amateur Radio and the Producers of the magazine thought it was meant to have just the name published. I am deeply sorry for the upset it has caused you, OM. — Jim Linton VK3PC, WIA 75th Awards Manager.

AR

REPLY TO AN EDITORIAL

The answers to the questions, asked in the September AR Editorial, probably need airing in Amateur Radio before our PRO uses them in a publicity campaign, or whatever he plans. I am sure Jim could proceed with more confidence, knowing that the issues have been debated among our widely scattered members.

I believe that the second question is the most important; the answer to that one will provide the clues to answers for the others.

Is the hobby (?) being promoted adequately? My answer is — yes, but in the wrong way. The cover picture of the September AR is a good example. Is that an amateur radio station? My estimate of the cost is $15 000 and that doesn't include the aerial farm. Inside the September Issue, for those people contemplating making a start, the advertisers provide the following information.

Morse Key — $50
World Clock — $75
HF Transceiver — $1099
Power Supply — $280
Antenna Tuner — $400
SWR/PWR Meter — $95
Broadband Dipole (?) — $150
Total — $2149

Most parents would not spend that amount to get young Jenny or Johnny started in the hobby of their choice.

Of course, we say it is not necessary to spend even half that amount to get started. Why not 'promote' that fact? The WIA Book, Volume 1, is a good example of what can be done by the members; I suggest something similar devoted entirely to showing young people how to become involved in a branch of modern science and technology at very little cost and of great benefit to themselves. Such a book could be distributed free to all public and school libraries. It would have more chance of acceptance if prepared by members younger than 25 years. Count me out, I had my 65th birthday in September!

Lindsay Lawless VK3ANJ,
Box 112,
Lakes Entrance, Vic. 3909.
AR

I WUZ GUNNA

Over the last few years, I read in Amateur Radio, a number of stories about amateurs of quite a number of years standing, and was always interested in their stories of the early days. I knew such an old timer, I told myself, I must get around to taping his story one of these days and write it up for AR.

I had heard him talk of a lot of interesting things, anecdotes, old equipment, broadcasting music in New Guinea before the war, but I did not take notes at the time, thinking that I could come back later and tape it all.

His obituary appears in this issue and if it appears a little thin on detail radiowise, that is because I did not get around to getting his story before he passed on. So another gold mine of amateur radio history is lost to us.

So as the title suggests, *"I wuz gunna"*, but didn't. The moral of this story is *'don't let this happen to you'*. If you know an old timer, get your tape recorder out **NOW** and get the raw information on tape, before it is too late.

Brian Mennis VK4XS,
11 Jethro Street,
Aspley, Old. 4034.
AR

FURTHER TO SATELLITE ATS 1

I refer to the correspondence in Amateur Radio, August 1985, on the location of satellite ATS 1 (66/110A).

It is surprising that both Ash VK3CIT and the Technical Editor assume that a Geostationary Satellite will remain in one location over a period of five years.

Although ATS 1 was at circa 150 degrees west longitude in the 1970s, it was reported at 176.5 degrees west in June 1982. Shortly after this date, the satellite was moved to circa 164 degrees east and remained in that position until late 1984, when it began moving eastwards, reaching 179.08 degrees east on the 12th February 1985.

It has since travelled westward to its latest reported position of 155.14 degrees east, on 15th June 1985. This and other data on ATS 1, has been regularly included in the AMSAT Australia column in Amateur Radio.

SIRIO (presumably 77/080A), also referred to, has remained reasonably stable during the past five years, at 64.5 degrees east, +/- two degrees.

My data source is the NASA Spacewarn Bulletins.

Bob Arnold VK3ZBB,
41 Grammar Street,
Strathmore. Vic. 3041.
AR

Silent Keys

It is with deep regret we record the passing of —

MR S S F CLAPHAM VK6NFY
MR W H (Bill) HOLLAND VK4WT
30:07:1985
MR J C KAY VK4VMI
MR GILBERT POLLOCK VK2FU
31:07:1985
MR A E (Robbie) ROBERTSON VK2US
10:09:1985
MR HARRY SELMAN VK3CM
18:09:1985
MR RALPH WILLIAMSON VK3BRF
03:08:1985

Obituaries

RALPH L WILLIAMSON VK3BRF

It is with deepest regret that we report the passing of Ralph Williamson, on 3rd August 1985, while on holidays, with his wife in Queensland.

Even though confined to a wheelchair, Ralph was an ardent CW enthusiast who's 'bug-sent' Morse was always a pleasure to rceceive.

With the aid of his trusty 'Simplex Auto' he became famous for the expression, "G'day" when initiating a contact, and "Happy daze" when signing. His jokes, stories and humour on the key were unparalleled. Ralph's humour made CW a real joy for all who listened.

Ralph was a regular on the Friday night North West CW Net, (on 3,510MHz at 1130UTC) and it was here that we learned of his many exploits; everything form camping with his 'bride', operating whilst mobile (both car and wheelchair), to rolling his chair into a bramble bush. It was with wit that Ralph had the fortitude to look on the bright side of things. Hence he usually brightened the day of everyone he came in contact with.

While on radio, his outlook always reflected sincerity and mateship. All of Ralph's fellow amateurs were deeply saddened by his passing. Thankfully memories linger.

Deepest sympathy is extended to his wife Jolean and family. In Ralph's own words; "I can't stay long tonight chaps, as the batteries in my chair are flat. So I'd better hit the perch early so my bride can put them on the charger. Happy daze. 73"

Ralph will be greatly missed.

Maurie Milani VK3CWB
Les Warren VK3BPW
Bob Fryer VK3AQF
David Harris VK3DVW
Barry Samuel VK5BLS
AR

HARRY SELMAN VK3CM

May my YF and I pay our respects to a very lovely OOTer who never failed to visit us each time he came to Sunny Queensland — yearly, if he could manage it. Like so many pioneer Australians of that era, he kept us amused with an endless variety of humourous stories — his recall of past events was excellent. Since he obtained his licence in 1925, his interest in amateur radio never waned.

Harry's death, on 18th September 1985, came as a shock, as he had paid us a visit only recently and appeared chipper and quite active. He had driven on his own from VK3 and was about to return to Geelong.

Liking Harry VK3CM, was very easy. His natural goodwill and gentlemanly manner are qualities amateur radio can ill afford to lose. The fraternity is very much the poorer for his passing.

Deepest sympathy is extended to his two sons and families in Melbourne and Brisbane.

Alan Shawamith VK4SS

GILBERT POLLOCK VK2FU

Gilbert was born in Cumberland, UK, in 1911, but was taken over the border when he was two years of age, and really remained a Scot for the rest of his life. He migrated to Sydney in 1922 to live in Belmore. After school days at Canterbury Boys High School, he joined his family's firm, Pollock Electrical Co. Later in 1930 he became Chief Engineer at Radio 2KA, Katoomba.

He was an active member of the Lakemba Radio Club and became VK2XU in 1931. Over the next few years Gilbert made hundreds of contacts.

In 1937, Gilbert returned to London, obtained the call sign G2OY, and had relinquished VK2XU and his mobile call, VK2YQ.

During the war years he was an engineer at the Scottish Regional Transmitter at Westerglen and later ran as electrical and radio retail and repair service in Falkirk.

In 1951, he returned to Sydney and took out VK2FU, a call sign he retained to his death.

A move to Blaxland, in the Blue Mountains, during 1962, saw Gilbert and his sons, Jim VK2WX and Adrian VK2FZ, erecting a 100 feet (30m) mast to accommodate beams for 20, 15 and 10 metres. These came into operation in 1965, with phenomenal signals to Europe and the world.

In 1973, he moved to Wentworth Falls but as this was a high wind area, Gilbert used wire antennas for HF operation and verticals for VHF He was active on all bands, 80 to two metres and was always particularly happy to speak with G and GM, where he had many amateur friends.

Gilbert was on a sentimental visit to G'land when he became ill. He passed away in Edinburgh on 31st July 1985 and was interred in a country church yard in the quiet Scottish town of Selkirk.

Deepest sympathy to his widow Nancy, daughter Helen and sons Adrian and Jim.

John Warren VK2QX
AR

BILL HOLLAND VK4WT

Vale Bill Holland VK4WT, who passed away at his home at Strathpine, near Brisbane, on 30th July 1985.

Bill obtained his AOCP in Melbourne during the late 1920s, his certificate being number 114. Unfortunately, his originally allocated call sign is unknown. He had been playing with radio for sometime before obtaining his licence, and according to his wife, Jess, he never stopped.

After attending a state school in Melbourne, followed by 18 months doing a fitting and turning course, Bill took on a variety of jobs, including gold prospecting, rabbit shooting and ironing. He also tried to establish a small radio repair business, but, with the run up to the Depression, there was not much money around for such luxuries as radios, and this venture did not prosper.

At this time, gold was big news in New Guinea, and as jobs were very difficult to get in Melbourne, Bill set off for Wau, the gold centre at that time. Working in the Wau/Bulolo area, Bill had a variety of positions, including barman, mechanic, miner and eventually an electrician with Bulolo Gold Dredging. It was during this time that Bill first obtained the call sign VK9BW, and was active for most of his stay in Wau. During this time, he also met his future wife, Jess, who was staying with her brother, the local publican.

Following the Japanese landing during WWII, Bill and Jess were evacuated to Australia, where Bill was placed into radio in Melbourne under the manpower regulations. He was eventually able to join the Army in 1944 and was posted to Port Moresby, where he was involved with maintenance of the Unit's radio equipment.

After the war, Bill tried to settle down at Mackay, in Queensland, with the call sign VK4BQ, but New Guinea called and he returned, this time being located at Rabaul, again with the call sign VK9BW. Continuing in radio, he worked as a serviceman, eventually have his own business. However, the advent of transistorised equipment, children at boarding school, and his health all forced him to leave and settle in Strathpine. As his previous VK4 call had been reallocated, he was issued with VK4WT. Always a HF operator, he remained active, both operating and constructing, until his passing at the age of 74.

Bill will be missed by his many friends, and particularly those he met on the amateur bands over more than 50 years.

He is survived by his widow Jess and four children.

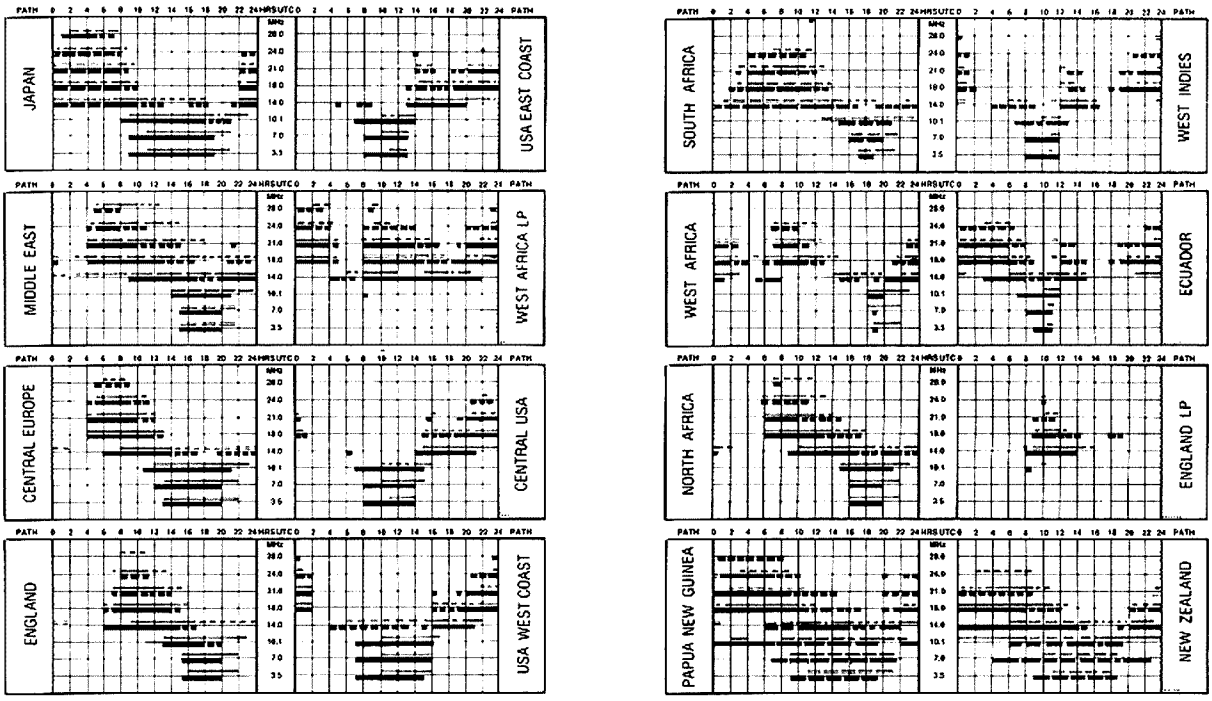
Brian Mennis VK4XS.
AR

MANAGEMENT GUIDELINES

Exceptionally well qualified — *hasn't made any blunders, yet.*
Careful thinker — *won't make a decision.*
Plans for advancement — *attends the bosses club.*
Career minded — *a back stabber.*
Conscientious — *scared.*
From Westlakes ARC — Monthly Newsletter, August 1985

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)

Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated lie: LP = long path/ all paths are short path.

Predictions reproduced courtesy of the Department of Science and Technology, Ionospheric Prediction Service, Sydney.

All times in UTC.

November issue:

ETI LOOKS AT SATELLITES

The November issue of *Electronics Today* looks at what is available on satellites and how to tune into them. Sixteen Pacific Ocean satellites are listed along with an explanation of satellite terms and antenna calculations.

ALSO IN NOVEMBER

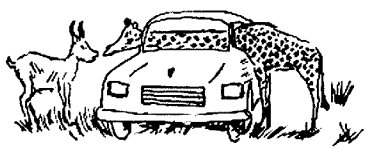
★ RTTY/FAX decoder to build for the cat

★ Toroidal cores in rf circuits

★ Build a programmable navigating robot

★ Starting Electronics looks at hardware

NOTICE



DEADLINE

All copy for inclusion in the January 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday, 11th November 1985.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

TRADE ADS

AMIDON FERROMAGNETIC CORES: Large range for all receiver & Transmitting Applications. For data & price list send 105x220mm SASE to: **RJ & US IMPORTS**, Box 157, Mortdale, NSW. 2223. (No enquiries at office ... 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, Plaza. ACT.

COMPUTER PRINT-OUT OF BEAM HEADINGS & DISTANCES: From your exact QTH to all amateur call sign prefixes, worldwide. Send your latitude, longitude, & (US)$11 to: **G MILLER K7GFL (ex VK6GZ)**, 3715 Brittlewood Avenue, Las Vegas, Nevada, USA. 89120.

WANTED — ACT

BASE STATION: Suitable for Novice operator. Nothing elaborate or expensive, please. Ph: Canberra (062) 31 8024.

WANTED — VIC

AUDIO TRANSFORMERS: Plate (20 000ohm to 600ohm, Trimax TA733B or equivalent. Bill VK3VGY. Ph: (03) 25 1456.

FRDX-400 RCVR: Working order, with manual. Laurie VK3AAJ, OTHR. Ph: (03) 878 0868.

HF LINEAR — FL2100Z: Or similar. Ant tuner FC-102 or similar. operational or not. Ray VK3HA, C/O PO Sydenham, Vic. 3038. PH; (03) 390 1019.

HUSTLER VERTICAL ANTENNA: HF fixed station, 4-band, Model 4-BTV (or 5-BTV). John VK3FH. Ph: (03) 877 1135(AH) or (03) 658 4332(BH).

HY-GAIN HY-QUAD HQ2: Graeme VK3BGH. Ph: (03) 735 7300(BH) or (03) 870 4371(AH)

IAMBIC KEYER: With weight & symmetry controls. Also Bencher Iambic Paddle. Gil VK3CGG. Ph: (057) 55 1124(AH) or (057) 55 1158(BH).

WANTED — QLD

AEA MORSEMATIC 1 OR 2: Also Paddle key. Price & details to Fred L40855, QTHR. Ph: (07) 396 3521.

VALVES: 3 6AQ8 or equivalent, to suit Trio 9R-59DE Comms rx. Alf L40126, QTHR. Ph: (071) 94 1271.

FOR SALE — NSW

COLLECTORS ITEM: US Army radio tx, BC—458-A. Western Electric. Serial No 01/14432. WWII. Small mod. Freq range 6.3-7MHz. Free. VK2DJM, QTHR. Ph: (075) 36 5868.

COMMODORE 64: High Technology RTTY/CW/SSTV cartridge (latest version) programme & VK3DPW modem to suit. Modem well- made, ready final adjustment. Just plug-in. $150. VK2DJH. Ph: (043) 24 7630.

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FT-101B: &/or Swan 350 tcvr. Both in service. For details VK2YN, QTHR.

FT-107-OMS: 160/10m tcvr with WARC, built-in PS, RF speech processor, 12 mems with digi mem shift. H'book & orig carton. Can demonstrate, $800 ONO. VK2BOD. Ph: (02) 601 2560(AH)

ICOM IC-701, PS-701, ICRM-3 CONTROLLER: All in EC, $690. Macrotronics RTTY interface, software (cassette & disk) for Apple, MDK-17 modem. All cost over $500. Sell $190. Roger VK2DNX, QTHR. Ph: (02) 546 1927.

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KENWOOD TS-120V: GC with MC-10 mic, mobile bracket & manual. $400. Please write Greg, VK2PYU. 67 Tabrett Street, West Kempsey, NSW. 2440.

KENWOOD TS-520S: Mint cond. Spare tubes, manual & orig pack. $450. John VK2VJD, QTHR. Ph: (047) 51 4257 after 6pm.

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KENWOOD TS-520: MC-50 mic, Universal antenna coupler Model HC-500, Osker SWR-200 power/SWR meter. All in good working order. $450 the lot. John VK2NCR, QTHR. Ph: (02) 449 6687, evenings.

LINEAR AMPLIFIER: Model SL250DX. Covers 1.9-30MHz. Up to 200W PEP (100W AM) in 4 steps, with 5 or 10W input. Inbuilt power meter & RF preamp. Quality unit. $250. VK2NBR, QTHR. Ph: (02) 918 2911.

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TOWER: 42', 2 sect, comm made. KR-400 rotator, c/box, cable, VGC. Dismantled, buyer to remove. Forced sale, moving QTH. Best offer. Mike VK2PPM. Ph: (049) 32 6816(AH).

TOWER: 43'crank-up — purchaser to remove. $250. Bruce VK2YU, QTHR. Ph: (02) 869 1125(AH).

TRANSCEIVER: C-45. 23-30MHz FM, no crystals $20. Creed 54 teleprinter with manual, $35. Creed 67BPN3 tape perferator & reader with manual, $25. BC-221 freq meter, $20. I-130A sig gen, 100-150MHz, $10. Regulated DC PS, 40V, 20 A. $30. Offers considered. Brian VK2EFD, QTHR. Ph: (049) 77 2178.

YAESU FT-75B: Complete with FP-75B AC & DC-75B DC power supplies. FV-50C VFO unit in VGC. $250 ONO. Standard SR-C430 UHF FM 10W tcvr. $150. VK2CN, QTHR. Ph: (049) 49 8393.

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COLLINS R-391: HF rx coil box. Assembly only. VGC, $75. Yaesu FV-107 VFO to suit FT-107 tcvr. EC with h'book. $50 ONO. Siemens Mod 100 teleprinter, c/w tape punch & reader. VGC. $85. VK3AQB. Ph: (03) 337 4902.

COMPUTER: 'Sinclair' ZX80, upgraded to 81 with 16k RAM, both books, power pack, leads, cassette recorder, AC/DC. All good working order. $150. Tcvr — 'Heathkit' HW32, 200W, 20m only. Book & HB PS. Excellent performer, $200. 432-436 dual range MM rx converter to 28MHz. As new, $60. 432-436 Dual range MM t'verter to 28MHz. All mode. 10W. As new, $220. VK3DS, QTHR. Ph: (053) 32 3226.

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ICOM 720A GEN COV TCVR: IC-HM7 mic, IC-AT100 auto ant tuner, Icom PS-15 power supply — an integrated set with manuals in cartons. 4-band vertical ant, $45. Yaesu FC-707 ant tuner with low pass filter, $95. MFJ RTTY/CW/ ASCII computer interface with software, $145. Kenwood DM-81 dip meter (unused) $95. Ron VK1VS, QTHR. Ph: (03) 597 0515.

KYOKUTO FM144-10SX: 800ch, 2m, $140. IC-202 with 15W amp & OSCAR, $130. IC-502, 6m, $110. Barlow Wadley rx, XCR-30, $110. All VGC. David VK3YLV. Ph: (053) 82 4000(AH).

VALVE TRANSCEIVERS: 2 old tcvrs using QQO6/40 & QQO3/20 output bottles. Offers? Gil VK3CGG, 7 Church Street, Bright, Vic. 3741. Ph: (057) 55 1124(AH) or (057) 55 1158(BH).

VZ200/300 MODEM PACK: 300 BAUD interface with built-in software in ROM. Modem has phone & supports Bell 103/CCITV.21 with auto-answer/auto-disconnect as standard. Complete $370. Also software for VZ200/300 programme copier. Will copy all m/c programmes. Only $12. J Halkladakis, PO Box 31, Huntingdale, Vic. 3166.

YAESU FT-101ZD: + fan, ext digi VFO, 12 mems, key pad, etc. EC, includes boxes, manuals, $700. VK3EC, QTHR. Ph: (03) 541 2598.

YAESU FT-227RB: 2m, 10W, scanning tcvr. $250. Andy VK3DTO. Ph: (053) 48 3003(AH).

YAESU FT-980: Computer aided, full coverage tcvr with mic & access. Still in box. $1800. Also Yaesu YP-150Z dummy load, still in box. $100. Also HC-500 Universal ant coupler, as new. $100. Must sell, going overseas. Ph: (051) 99 2393 or (051) 74 1381(BH).

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ICOM 730: New condition, scarcely used. Complete with all access, manual, orig pack. $750. VK4YF, QTHR. Ph: (071) 82 1183.

MAGAZINES: 300, including Elect Aust, Amateur Radio, CQ, 73. Full set of Amateur Radio Action, plus others. Will swap for old radio mags/books or sell for best offers. Details to VK4NGW, QTHR. Ph: (07) 341 5039.

144MHz VALVE CAVITY AMP: 4CX250B, silver plated cavity, tuneable, no power supply, $100. KR-400 rotator, used one month, in EC. $100. Noel VK4BTX. Ph: (074) 22 9266, 8am-4pm. (free number).

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AMATEUR RADIO

VOL 53, No 12, DECEMBER 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

EMTRONICS

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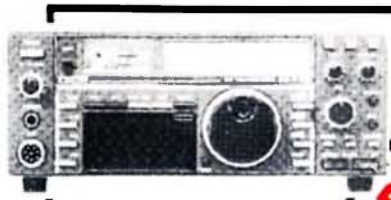

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AMATEUR RADIO

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The (Right) Honourable Michael Duffy (left) presents a congratulatory telegram to David VK3ADW, watched by Dick Butler.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

Here we are at the close of another year. During 1985, the WIA's 75th Anniversary Year, Amateur Radio has presented many historical stories, including some special contributions from the Divisions. All in all, it has been an interesting year, and it has certainly been interesting for the Old Timers to reminisce, and it has given the younger members an insight into some of the difficulties that were faced by the pioneers of amateur radio.

Locator Systems have come to the fore during 1985, and this month's magazine has another computer programme to locate your Locator using the VIC-20 series of computers, see page 10.

Reg VK2ELG, a favourite writer with many readers for his series of Clandestine articles has put pen-to-paper again. This time Reg describes how he constructed a drink heater element for use of his fellow POWs in Germany, see page 14.

A recent happening on the amateur radio scene has been the invaluable assistance it has given to many during the tragic earthquakes in Mexico City Jim VK3PC, gives a brief discription of the services provided by the Australian Traffic Net, page 19.

Chris Long, former Acting Curator of Electronics at the Museum of Victoria, a 'doyen' of the history of electronics, has compiled a history of some of the first magazines available to the radio experimenter, page 21. Chris has spent many hours perusing the magazines at the State Library of Victorian, and has managed to obtain some photocopies of the covers of some of some of the more interesting ones.

December is the time for the publication of the entire index for the year, so turn to page 26 and see if you have missed reading an article of interest. Next month will also feature the Technical Index for the past five years.

Season Greetings to all readers!

B·P

DEADLINE

All copy for inclusion in the February 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday, 2nd January 1986.

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Material should be sent direct to **PO Box 300, Caulfield South, Vic. 3162,** *by the* **23rd day of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Watch the space below the index for deadline dates. Phone: (03) 528 5962.**

HAMADS should be sent direct to the same address, by the same date.

Acknowledgement may not be made unless specifically requested. All important items should be sent by Certified Mail. The Editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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CONGRATULATIONS WIA

MESSAGE

DR DAVID WARDLAW

I WOULD LIKE TO OFFER MY CONGRATULATIONS TO THE INSTITUTE ON THE OCCASION OF YOUR 75TH ANNIVERSARY

THE AMATEUR SERVICE HAS CERTAINLY PROGRESSED A LONG WAY SINCE THE INSTITUTE WAS FORMED IN THE EARLY PART OF THIS CENTURY

YOUR RECORD OF PUBLIC SERVICE AND SOUND GUIDANCE OF THE AMATEUR SERVICE IS WELL KNOWN AND DEEPLY APPRECIATED BY MY GOVERNMENT

FROM R J L HAWKE

TELEX ME

TELEX MESSAGE TEL

MESSAGE 295 ROUTE KB7FE PHOENIX ARIZONA

TO THE WIA

IT GIVES ME GREAT PLEASURE TO EXTEND MY WARMEST GREETINGS TO THE MEMBERS OF THE WIA ON THE OCCASION OF YOUR 75TH ANNIVERSARY

OVER THE YEARS HAM RADIO OPERATORS HAVE DONE ENORMOUS GOOD WORK IN GENERATING INTERNATIONAL FRIENDSHIP AND UNDERSTANDING THEIR NETWORK HAS ALSO BEEN INVALUABLE IN TIMES OF EMERGENCY AND AS THE OLDEST NETWORK OF SUCH OPERATIONS IN THE WORLD WIA CAN TAKE JUSTIFIABLE PRIDE IN THE GOOD WORK YOU HAVE DONE

I COMPLIMENT YOU ON THAT AND WISH YOU ALL THE BEST FOR THE FUTURE

I HAVE ASKED THAT THIS MESSAGE BE TRANSMITTED FROM WASHINGTON BY A FAIRLY WELL KNOWN HAM MY GOOD FRIEND SENATOR BARRY GOLDWATER K7UGA

HE IN TURN HAD IT TRANSMITTED THROUGH A CONSTITUENT IN PHOENIX ARIZONA FRANCIS MARKS KB7FE

IN THIS WAY HAMS HAVE AGAIN PROVEN THEIR ABILITY AND EFFICIENCY

KEEP UP THE GOOD WORK AND GOD BLESS YOU

SIGNED RONALD REAGAN

AGE TELEX MESSAGE

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TO THE WIA

DEAR GENTLEMEN CONGRATULATIONS YOUR 75TH ANNIVERSARY

AS YOU KNOW I HAVE BEEN A HAM RADIO BUFF FOR AS LONG AS I CAN REMEMBER

THE AUSTRALIAN WIRELESS INSTITUTE HAS BEEN OF INESTIMABLE VALUE TO YOUR GREAT MISSION PARTICULARLY IN TIMES OF EMERGENCY

I CANNOT TELL YOU HOW PROUD I AM OF YOUR ORGANISATION AND THE PLEASURE IT GIVES ME TO BE A FELLOW HAM

WITH BEST WISHES

SIGNED SENATOR BARRY GOLDWATER K7UGA

AGE TELEX ME

EDITOR'S COMMENT

1985 IN RETROSPECT

As our 75th Anniversary year draws to its close we may recollect several highlights, the most recent being the Anniversary Dinner in November, at Melbourne's Southern Cross Hotel. Very rarely, perhaps never before, have leaders representing so large a proportion of the world's radio amateurs come together under one roof. The combination of our Dinner and the IARU Region 3 Conference immediately following it in Auckland, proved to be a powerful attraction to this part of the world for the leading executives of amateur societies from 15 overseas countries, and all three ITU/IARU Regions. We were honoured to have as official guests, the Secretary General of the ITU, Mr Richard Butler, and our Australian Minister for Communications, Mr Michael Duffy.

During the year we received letters of congratulation on our 75th Anniversary from our sister societies in almost 40 countries, and we can be sure that the WIA, and its standing as the oldest amateur society in the world, are better known everywhere as a result of our anniversary activities.

Throughout the year we have published many items of historical interest under the general title of "75th Nostalgia", and these have been received with interest, particularly by the older members. Unfortunately, this has reduced the space available for technical articles, but from now on the proportion of technical material will be much greater.

The WIA 75 Award seems to have been very successful, judging by the lists so far published of those who have qualified for it. Hopefully even your busy Editor may find time before the end of December to make the remaining contacts needed to total 75!

Altogether, the work that has been done throughout the year by the enthusiastic volunteers on the 75th Anniversary Committee and their helpers in all Divisions has been a great boost to the WIA and to amateur radio in Australia.

To round off this most auspicious year, it is now my privilege once again, on behalf of the Publications Committee, and all those involved in producing this magazine, to wish you all a very Merry Christmas and may 1986 prove to be the happiest of New Years.

Bill Rice VK3ABP
Editor
AR

WIA NEWS

CISPR

The WIA, as a member of the Standards Association of Australia, is concerned with the activities of a number of international standards bodies, including the Special International Committee on Radio Interference (CISPR). Sydney was the recent venue of a major meeting of CISPR Sub-Committees, at which the WIA was represented, both in an official and social capacity.

Firstly, some background on CISPR. This is an international committee directly associated with the International Electrotechnical Commission (IEC). It is responsible for the standardisation of Electromagnetic Interference Measurement, and for the recommendation of appropriate standards for the protection of radio services. A number of sub-committees covers such subjects as; Methods of Measurement of Interference, Industrial Scientific and Medical Equipment, Interference from Overhead Power Lines, High Voltage Equipment and Electric Traction Systems, as well as other well-known sources of RFI problems.

All sub-committees of CISPR are of some interest to the amateur service, but probably the most important is Sub-Committee E, which deals with the interference characteristics of radio receivers (and associated equipment). The immunity of television receivers, broadcast receivers, audio frequency amplifiers, etc is covered by this sub-committee, and a special working group.

The Australian Standards Association is the accredited point of contact with CISPR, and its Committee TE/3 is the responsible national group for electromagnetic interference. The WIA, through its representation on the TE/3 Committee, is able to monitor international activity in this area, and contribute to the work of SAA, CISPR, and the IEC on a continuing basis.

Since CISPR has its headquarters in Geneva, most of its meetings are held in European countries. It was, therefore, a very special occasion to have a full scale meeting of all sub-committees of CISPR in Sydney during August/September 1985.

Allan Foxcroft VK3AE, WIA Representative on the SAA Committee TE/3, was a member of the Australian delegation to the CISPR meeting, and attended sessions of Sub-Committee E. The delegation was able to contribute to the proceedings, particularly in respect to methods of measurement of immunity. It was also of significance that quite independent Australian work on the setting of immunity levels was, in many areas, closely in line with those proposed within the CISPR working group. This will finally lead to much-needed Australian standards on the immunity performance of commercial television receivers, AF amplifiers, etc.

The Federal Executive also took action to contribute financially to a function held at the end of the Conference to farewell international delegates. The function, held in the Board Room of Philips Industries, North Sydney, was jointly sponsored by the Institution of Radio and Electronics Engineers, (WIAs sister organisation), the Institution of Engineers, and the Wireless Institute of Australia.

Four members of the WIA attended officially — Allan Foxcroft, from Federal Executive, and Peter Jeremy, Tim Mills and Stephen Pall from the New South Wales Division.

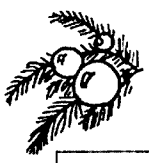
The Institute's involvement in the function proved most effective in bringing our organisation, and hobby to the attention of international delegates to CISPR. The WIA's 75th Anniversary celebrations were referred to by a number of speakers, and this led to reminiscences of amateur activities in the welcoming address by the immediate past-President of the IREE, Dr Wing. 75th Anniversary posters, which were on display, were quickly 'souvenired' — and the pity was that we did not have more to distribute.

The fact that the WIA 'was probably the senior partner emerging from the IREE/WIA common origins' was conceded by Mr Ian Shearman, in a jocular fashion, during his address to delegates on behalf of the Electrotechnical Committee of the SAA.

The contacts made, and the publicity gained, for the amateur service, and the WIA in particular, are considered to be of great value, and will undoubtedly facilitate negotiation of the amateur case in the future.

Allan Foxcroft VK3AE
AR

SEASONS GREETINGS



QSP

Our 75th Anniversary Year is now drawing to a close and, on behalf of the Executive, I would like to convey to you all the best of Season's Greetings.

This year, a milestone in amateur radio, has resulted in a close examination being made of the past history of the WIA, which, of course, is intimately connected with the development of amateur radio, in Australia.

In the early days, amateurs took up the challenge of the unknown. They were certainly to the fore-front in advancing technology, such as the use of shortwaves, during the early 20s.

Since those days, there has been a technological explosion, the rate of change being almost exponential.

The sophistication, and complexity, of modern frontier research makes it very expensive, and as a consequence, puts it largely out of the range of an individual, and into that of an institution.

However, this does not mean that the individual, who had a place in the past, has lost it. But, by necessity, his, or her contribution perhaps cannot be as great as that made by the individual in the pioneering days.

Because of the diverse nature of radio communications, there will always be a challenge for the individual to advance.

The Amateur Radio Service is a Radio Communications Service, recognised by the International Telecommunications Union, and defined by it as follows:

"Amateur Service: a radio communications service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs. That is – by duly authorised persons interested in radio technique solely with a personal aim, and without pecuniary interest".

This definition is as pertinent now as it has ever been.

It acknowledges that there are individuals to whom there is a desire to become involved in radio communications, just for the love of it.

It is obviously necessary to regulate the use of the radio frequency spectrum internationally, to avoid chaos. In this regulated spectrum a space has been provided for the Amateur Service.

Because of the diverse nature of the many aspects of developing radio communications, recognition has been made of possible future needs.

The Amateur Service, because of its unique status as a radio communications service that is not dedicated to any specific purpose has, in the past, provided communications in many emergency situations, and will continue to do so in the future. It does this at minimal cost to the community.

The Amateur Service, because radio waves do not stop at national borders, is a great ambassador of international goodwill.

In conclusion, amateur radio to the individual amateur, is what he or she wishes to make it.

There is a place for all, no matter what their special interests may be.

Remember, we are all amateurs because we want to be, not because we have to be.

David Wardlaw VK3ADW
FEDERAL PRESIDENT

DECEMBER 1985

SUN	MON	TUE	WED	THU	FRI	SAT
1 1 Advent Sunday	**2**	**3**	**4** 4 Three weeks to Christmas	**5** 5 Thailand National Day	**6** 6 Finland Independance Day 1917	**7** 7 ARRL 160m Contest
8 8 Hanukkah 8 ARRL 160m Contest	**9**	**10** 10 Ckristmas Social — VK5	**11**	**12** 12 VK2 School Breakup	**13** 13 VK4 School Breakup 13 VK1 School Breakup	**14** 14 ARRL 10m Contest 14 Rosa Hull VHF Contest Begins
15 15 ARRL 10m Contest	**16** 16 Anniversary Day: Canterbury ZL	**17**	**18** 18 VK6 School Breakup	**19** 19 VK3 School Breakup 19 VK7 School Breakup	**20** 20 VK5 School Breakup	**21**
22 22 Summer Solstice 23 Last VK2 Broadcast	**23**	**24**	**25** 25 Christmas Day	**26** 26 Boxing Day	**27**	**28**
29	**30** 30 Proclamation Day VK5	**31** 31 New Years Eve 22 UBA SWL Competition 31 VK2 Administration Year Ends				

WIA Seventy Fifth Anniversary

75 AWARD RECIPIENTS

Following are the names, and call signs of recipients 201 to 372 of the WIA 75 Award.

Ori Siegel VE/SWL 201
Karl Luckhart W9YWX 202
Keith Champlin W0MCY 203
Bob Carter W7INP 204
George Burgess VK5NGB 205
E J Wissemann VK4ADA 206
Eddy Antony YB8AY 207
Murray Jones VK5BVJ 208
Dick McKercher W0MLY 209
Graeme Harris VK3BGH 210
Ismael Perez EA5DHE 211
John Hannan KA6RAQ 212
Ralph Ernstein W6SPQ 213
Kaneaki Miyamoto JA1UZQ 214
Thomas Dorset WB4J 215
Ivan Searle VK5NSI 216
William Heslop ZL1LU 217
Wal Sullivan VK3CTS 218
Robyn Robb ZL1BXR 219
Mukoyasu Niijima JL1BBD 220
David Paperman WB5INB 221
George Brzostowski VK1GB 222
Brent Burnett KL7KJ 223
M L Dickinson VK3GZ 224
John Heys G3BDQ 225
Mike Groth VK5AMG 226
Joe Ackerman VK4AIX 227
Abet Suhaian YB4FNN 228
Frank Chapel Jr K9PSN 229
Ivan McEwan ZL/SWL 230
Steve Allen W6TGI 231
John Gash VK4KCX 232
Arlo Myers WA6UDR 233
Alan Foulstone VK3VAF 234
Gerald Hill KH6HU 235
Davys Baldwin VK7DS 236
William Fleming WA6CXX 237
Brian Adams G4RFV 238
Elbert Wood W4JFL 239
Andre Effendi VK2NAF 240
Fred Reid VK7FD 241
Alfred Johnson W8RHG 242
Reg Cooke VK2DJJ 243
Robert Garbe FK8AH 244
Gary McCrorey AL7BL 245
Dale Loffler VK5BOK 246
Ray Nolan VK6NRN 247
Dmitri Perno VK4BDP 248
Chas Orr VK2CO 249
P D Neilson ZL2QY 250
Rob Walter VK6RG 251
M Shiono JM3CNH/MM 252
Leon Reichelt VK3NLR 253
K Vriens VK3AFI 254
Bernie Maier WB3DWH 255
Glen Moss NC9N 256
Neville Pietsch VK3PNP 257
John Fogden G4WSX 258
Donald Simmonds K5BDX 259
Leo Kessinger W5KFN 260
Gary Harbour N5GWA 261
Larry Warner K5SNA 262
Takashi Yoshida JH3TWV 263
Kimiko Yoshida JR3JEN 264
Dulcie Hornsby VK4BDH 265
Bob May K4SE 266
Louis Brill NQ6S 267
Chuck Imsande W6YLJ 268
Graham Hawtree ZL2AHR 269
Mac Peirson W6QBW 270
Howard Davis KB6DJC 271
E C McTurk ZL1LS 272
P T R McTurk ZL1BEK 273
Gerry Heine K5PG 274
Jack WInstanley ZL0AIU 275
Jim Elliott W5IYR 276
Des Coote ZL2LQ 277
Dick Walker N7FTL 278
Abdul Hamid Achmad YB0AO 279
Sid Carson N5HFR 280
Phillip Catterall G4OBK 281
Des Tricker ZL1ANN 282
Ken Spraggins K6EBG 283
Richard Birbeck K6CID 284
A S Kuchare W2EKO/4 285
Bill McQuien KG6FG 286
C Del Balzo I0JLX 287
Yan Bambang S. YB3CEV 288
Steve Ball KY6L 289
Vic Hearne VK3CQP 290
Ashley Bolton VK3NAB 291
John Camilleri VK2NOG 292
Cyril Roberts VK6OE 293
Brian Cooper ZL2AZM 294
Mervyn Vinicombe VK1MV 295
Hans Piehl DJ9RX 296
Peter Jones ZL1 261/SWL 297
Colin Heath VK5FX 298
Bill Dalgleish VK4UB 299
Nancy Dietrich KA6WJI 300
Sherman Harrison KV4F 301
Robert Boone WB4FNH 302
Ellis Watts VK2DDW 303
Robert Kaiser KA2MBA 304
Alan Abel ZL2QR 305
Saviour Galea VK2AKP 306
Alan Mills GW3NNF 307
Matthew Rayner L10120 308
Steven Cima VK3DQK 309
Monte 'Ron' Stark KU7Y 310
Mark Jeffrey VK3PUC 311
B Homquist VK2PQT 312
Jock Fisher VK1LF 313
Max Temple VK7NAX 314
Dave Robinson ZL2BJI 315
Val Quinn KG6TI 316
Nancy Robinson KC4IK 317
Gordon Welsh VK5KGS 318
Adelaide Hill ARS VK5BAR 319
Tatsuo Saito JE7GGF 320
Teruko Saito JE7KCH 321
H E Sporrer VK2DUO 322
J W Little W6AC 323
Jim Henderson K6JAD 324
D J Reed N6LEC 325
Lucky Henderson W6KON 326
Alberto Guarino YV2BYT 327
Mike Maynard KJ4FZ 328
John Smetona K3SLJ 329
Harry Fillager KB8XQ 330
George Smith K7OZ 331
Paul Staton KD5DR 332
Martin Hutchings VK2VMH 333
Phillip Connoly VK2JPC 334
Tony D'Anastasi VK2PZL 335
John Kelleher VK3DP 336
Maurice Bartley VK4SK 337
David Long VK3BY 338
Robert Farkaly K9RHY 339
Hisayuki Kuroda JK3EVV 340
G A Devonshire VK4BGA 341
Dave Fowler G4YWG 342
R D Dew VK1NUB 343
Bron Brown VK3NTD 344
H Fietz VK7NFH 345
J Hodkinson VK2BHO 346
Akio Okuda JF3BNN 347
Frank Vella VK2VFL 348
Steve Curtis VK3CAX 349
Tony Mullen VK2BAM 350
Ian Callcott VK2EXN 351
D A Thornley VK5NOD 352
Sam Gillgren ZL1AOE 353
Owen Langham VK7OL 354
Allan Doble VK3AMD 355
Steven Forney N0DMT 356
Tony Smaker Jr. KL7AF 357
Ronald Hutapea YC8PR 358
John Tracey VK4BTJ 359
Allen Hart N7FYU 360
Bill Drumond KG6UA 361
Jim White N6JYG 362
Ken Hurrell G3NBC 363
Gianni Santangelo I8SAT 364
Stan Pemberton VK2SP 365
Wayne Smith VK2PWS 366
J F Costa VK3DKR 367
Peter Balnaves 368
Osamu Hirobe JH3SUV 369
Junko Okuda JI3FBW 370
William Helwig WK4F 371
Kenton Dean NK6F/VK8KD 372

WIA CW CONTEST PRESENTATION

The President's Cup and a Morse key, donated by William Willis, were presented to the winner of the 1985 WIA CW Contest at the Oxley Region Amateur Radio Club's Annual Field Day, 1985. The winner was Oxley Club Member Peter Alexander VK2PA.

The Club was honoured by the presence of Peter Jeremy VK2PJ, Jeff Pages VK2BYY, and Tim Mills VK2ZTM, members of the NSW WIA Executive, who journeyed to Port Macquarie for the presentation and Field Day.

Peter VK2PJ, congratulated Peter VK2PA, on his great performance, after giving those in attendance a brief history of the President's Cup. Peter also expressed the appreciation of the WIA NSW Division for VK2PA bringing the Cup to New South Wales.

The were approximately 150 visitors and club members present at the presentation, and the applause was deafening when Peter responded. He said it was quite an emotional win for him as he considered it to be a most prestigous event to capture. More so, because of the history attached to the Cup, added to 1985 being the 75th Anniversary Year. Offers came from members to help him keep the Cup 'polished'. Peter threw down the challenge that he will hold the Cup for 1986, against all-comers!

KEY TROPHY

At a special Club Dinner Night, members of the Club gathered to once again congratulate Peter VK2PA, as he received a specially mounted Morse key, very kindly provided by William Willis and Company Pty Ltd.

Club President, Keith VK2KDL spoke highly of Peter's dedication to amateur radio spanning some 45 years. In particular, Keith referred to Peter's long years of recognition in the CW field of amateur radio.

Peter responded by thanking the thoughtfulness of the management of William Willis for donating such a fine trophy, as a back- up to the President's

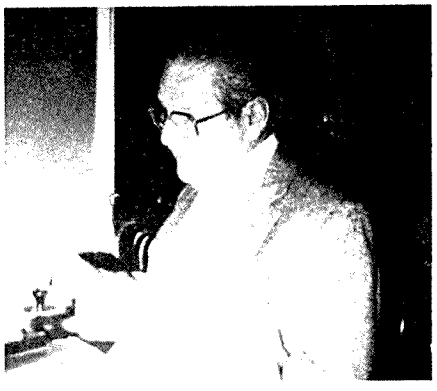
Cup for 1985. He said it will go into 'operation' and will hold pride of place in his home.

Peter had 722 contacts in the recent 24 hour VK-ZL Oceania Contest - an average of around 30 contacts per hour. All contacts were fully signed and took place on the 80, 40, 20, and 15 metre bands. Approximately 400 contacts were on 40 metres, and included 195 prefixes. A truly commendable effort again, Peter

Contributed by Lester O'Connell VK2BFP, Club Secretary AR

Oxley Region ARC President, Keith VK2KDL, presents the President's Cup to Peter VK2PA, winner of the WIA CW Contest 1985.

Peter VK2PA proudly displays the President's CW Cup which was presented to him at the Annual Field Day of the Oxley Region ARC, 1985.



"The Touch of a Master's Hand". Peter VK2PA tests the key presented to him for his winning entry in the WIA CW Contest.

The Morse Key Trophy presented on behalf of William Willis to the winner of the WIA CW Contest.

SCHOOL BEGINS

The Australian Film and Television School began a 35-week training programme for SBS radio co-ordinators and broadcasters in Melbourne (21st October), and Sydney (29th October).

The project is aimed at enhancing the growth of quality ethnic broadcasting in Australia, and will run until August 1986.

For more information contact the Course Co-ordinator Joan Sharry (02) 887 1666, or the Assistant Co-ordinator Georgina Guilfoyle (03) 328 2517.

Contributed by Sandy George, Publicity/Information Officer

SAFE TUNE-UP WITH THE FT-7

Bruce Doyle VK6ABD,
PO Box 85, Tuart Hill, WA. 6060

A discussion with a fellow amateur, Ross VK6DA, on the problems encountered when using transceivers with solid state finals in conjunction with an ATU, resulted in an article being resurrected from Ross's collection of Rad Com Journals, on an ATU pre match unit that always presents approximately 50 ohms to the transceiver, while adjustments are made to the ATU.

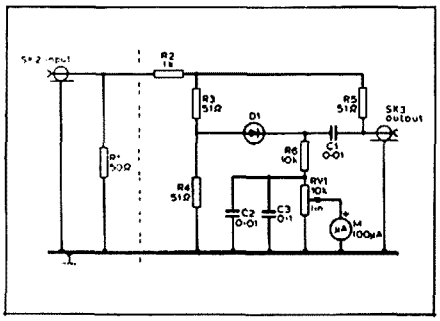
The article may be of interest to operators of solid state and valve transceivers alike, as the unit described also allows tuning of a transceiver into the antenna without any unwelcome carriers being transmitted into our already crowded bands.

The original unit design had the operator physically unplugging the unit from the transmission line to be able to conduct a QSO, but by incorporating a three pole/four way rotary switch (wired as in Figure 3), the unit may be built either as a separate unit or into the ATU and left in line.

I have tested the unit using both a TS-830S and TS-430S and have been able to tune a portable 80 metr helical dipole without the stations that I have wished to work, knowing that I had tuned up on the frequency that they were operating on.

The following is the article, written by Les May G4HHS, which appeared in Radio Communication, August 1981, page 715.

When the author's HW100 was replaced by an FT-7, no particular antenna matching problem was envisaged, as the half-size G5RV could be matched on 3.5 to 21MHz with the E-Zee Match in use. However, conversations with other operators indicated that the longevity of the transistors in modern solid-state power amplifiers was a matter of some concern; whether they were used operating valve power amplifiers is a poorly matched condition was not clear. What was well known was that the FT-7 and TS-120V transceivers must be operated with an output VSWR of less than 1.5:1.

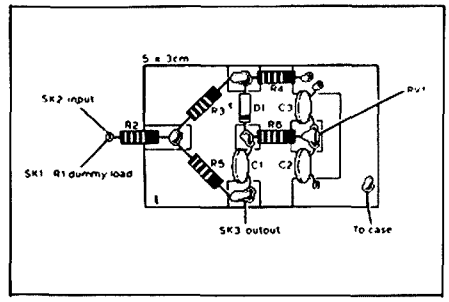


Provided a suitably tuned matching device is used, this does not present any problem. The procedure normally adopted with the FT-7 is to tune-up into a dummy load, and then to replace the dummy load with the E-Zee Match pretuned to the positions previously determined and logged when the HW-100 was in use. By pretuning the matching unit the instantaneous VSWR is always low enough for safety, and the possibility of a serious mismatch (which can occur during tune-up) is avoided. The requirements to pretune the antenna or ATU is stressed in the FT-7 manual. A major attraction of a compact lightweight rig is the opportunity it affords for mobile and portable operation, yet the pretuning requirements may act as something of a deterrent.

When a demonstration station was set up using a newly made G5RV antenna at the author's school, it was not possible to pretune the matching unit, and it was quickly realised that the instantaneous VSWR during the tune-up process was unacceptably high. Adjusting for maximum noise on receive was simply not good enough. What was required was a device which allowed the FT-7 always to 'see' 50 ohms while the antenna or ATU was being adjusted, however serious the instantaneous mismatch. A little reading and some thought produced the device shown in Figure 1, which was suggested by W Hayward and D DeMaw in their book 'Solid-state design for the radio amateur'.

The mode of operation may be understood by dividing the diagram at the dotted line. To the left R1 is a dummy load able to dissipate the output-power of the transceiver. It is shunted by everything to the right, made up of R2 and the effective resistance of R3, R4 and R5 together with the unmatched reactance of the antenna or ATU. It will be seen that whatever the condition at the output the shunting resistance will always exceed 1,000 ohms. A parallel combination of 50 ohms and 1,000 ohms resus in the load 'seen' by the transceiver being about 48 ohms, which is near enough to 50 ohms to be of no consequence.

The matching process itself is monitored by the RF bridge formed by R3, R4 and R5 and the output to the ATU. Because the three resistors are all 51 ohms the bridge is balanced when the ATU presents a pure resistance of 51 ohms. D1, C1, and the meter form an RF detector to sense the balance point; when the meter reads zero the bridge is balanced. Loading by the meter is reduced by R6 and RF is bypassed by C2 and C3. A sensitivity control was fitted but found to be unnecessary with the FT-7, as explained later. Some rough calculations suggested that R2 might need to be reduced to 500 ohms and that a diode with low turn-on voltage would be required. Because only a null reading, not a measurement, is desired, the meter does not have to be very special; a meter of the type to be found in portable cassette recorders will do provided it is no less sensitive than 100uA.



The layout of the bridge should be as symmetrical as possible, and a PCB layout is given in Figure 2. Because the board is symmetrical the input and output sides can be interchanged to suit the particular operator's convenience. Part of the board must be connected to the case by a thick wire, and a short length of desoldering braid is convenient. The 'works' fit comfortably into a 15 by 8 by 5cm diecast box. This is heavy enough to ensure the unit sits still on the bench, leaving both hands free for tuning up. The board is self-supporting on the input and output wires to the bridge. After wiring up and checking for shorts, the unit can be tested.

With a dummy load fitted to SK1, the input to SK2, SK3 not connected (to ensure maximum mismatch), and RV1 at minimum, power can be applied to the unit via an in-line VSWR bridge.

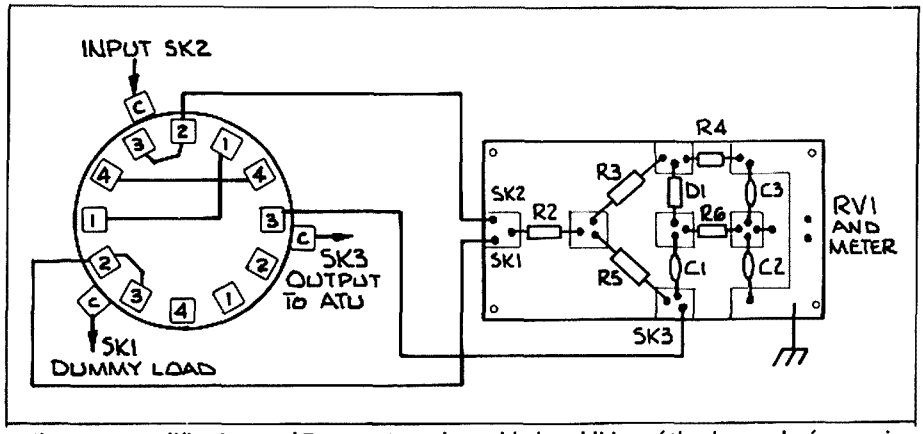


Figure 3 — Modifications and Tune up Procedure with the addition of the three pole, four position switch.

1 Function Switch . . . Dummy Load; Tune Transceiver if applicable.

2 Function Switch . . . Meter Set; Key down Transceiver, set meter for full scale deflection with a 10 kohm linear pot.

3 Function Switch . . . ATU preset; Key down transceiver, adjust ATU until preset null meter reads zero.

4 Function Switch . . . Antenna Only; Check inline SWR meter. If necessary touchup ATU.

If all is well in-line reflected power will be zero. The sensitivity control should be rotated until the meter reads full scale. If FSD cannot be obtained, R2 can be reduced but should not be less than 500 ohms. In practice, it does not matter if the meter reads a little less than full scale, and RV1 can be preset or left out entirely in this case. When the ATU is connected, the meter reading should fall a little. By adjustment, the match can be improved until the reading is zero, and no movement should be perceptible when the transmitter is keyed on and off. Some care is needed to ensure that the reading obtained is zero, as this indicates that the antenna is very well matched. When the antenna or ATU is connected to the output of the in-line bridge, the match will be found to be very close to the best obtainable with the ATU and antenna in use.

The unit described eliminates the possibility of an unintentional bad mismatch during antenna adjustment and, as a bonus, reduces the annoyance to other band users caused by continuous carrier being radiated during adjustment of the ATU. Very little RF reaches the antenna.

MODIFICATION BY VK6ABD

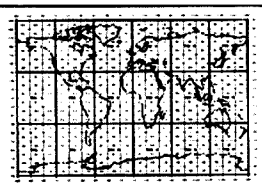
The addition of a three pole, four position rotary switch, will allow the unit to remain in line during normal operating conditions.

AR

ROBBERY

Recently, Greg Whiter, of GFS Electronic Imports, was confronted by armed bandits, who escaped with $22 000 worth of electrical equipment, plus an amount of cash.

Next month, we hope to publish a comprehensive list of the serial numbers of the equipment stolen, in the hope of recovering the same.



IARU LOCATORS

M O'Hare VK2ZQD
75 Sirius Street, Ruse, NSW. 2560


```
10 REM 2.1,VIC-20 EXPANDED, IARU LOCATORS
20 POKE36879,8:DIMT%(6):PRINTCHR$(5):PRINTCHR$(147):PRINT"   LOCATOR PROGRAM"
30 PRINT"**********************":PRINT:PRINT" VIC VERSION BY VK2ZQD":FORT=1TO150
0:NEXTT
100 PRINTCHR$(147):PRINT"THIS PROGRAM WILL:-"TAB(44)"(1)   DETERMINE IARU"
110 PRINT"      LOCATORS FROM          MAP REFERENCES":PRINT:PRINT"(2)   DETERMIN
E MAP"
120 PRINT"      REFERENCES FROM        IARU LOCATOR":PRINT:PRINT"(3)   DETERMINE
BEAM"
130 PRINT"      HEADINGS AND           DISTANCES FROM         MAP REFERENCES":PRIN
T
140 PRINT"PRESS:(1),(2) OR (3)         AND RETURN TO          SELECT DESIRED"
150 PRINT"      FACILITY":PRINT:PRINT"PRESS:(4) AND RETURN":INPUT"      TO END";
A$
160 A=VAL(A$)
170 IFA<0GOTO100
180 ONAGOTO1000,2000,3000,4000
190 GOTO100
1000 PRINTCHR$(147)"MAP REFERENCE TO IARU"TAB(44)"LOCATOR"
1010 PRINT:PRINT"LATITUDE   DEG,MIN,NS":PRINT:INPUTDAL,MAL,NS$
1020 IFDAL<0ORDAL>9BORMAL<0ORMAL>=60THEN1000
1030 IFNS$<>"N"ANDNS$<>"S"THEN1080
1040 PRINT:PRINT"LONGITUDE  DEG,MIN,EW":PRINT:INPUTOOL,MOL,EW$
1050 IFDOL<0ORDOL>180ORMOL<0ORMOL>=60THEN1040
1080 IFEW$<>"E"ANDEW$<>"W"THEN1040
1070 LO=DOL+MOL/60
1100 IFEW$="E"THENLO=180+LO
1110 IFEW$="W"THENLO=180-LO
1120 LA=DAL+MAL/60
1130 IFNS$="N"THENLA=90+LA
1140 IFNS$="S"THENLA=90-LA
1150 C$="ABCDEFGHIJKLMNOPQRSTUVWX":C1LO=INT(LO/20)+1:C1$=MID$(C$,C1LO,1)
1170 C2LA=INT(LA/10)+1:C2$=MID$(C$,C2LA,1):C3=INT(LO/2):GOTO1190
1180 C3=C3-10
1190 IFC3>=10THEN1180
1200 C4=INT(LA):GOTO1220
1210 C4=C4-10
1220 IFC4>=10THEN1210
1230 C5LO=LO/2-INT(LO/2):C5LO=INT(C5LO*24)+1:C5$=MID$(C$,C5LO,1)
1240 C6LA=LA-INT(LA):C6LA=INT(C6LA*24)+1:C6$=MID$(C$,C6LA,1):PRINT
1250 PRINT"MAP REFERENCE"TAB(66)DAL;MAL;NS$,DOL;MOL;EW$:PRINT
1260 PRINT"IARU LOCATOR"TAB(85)C1$;" ";C2$;C3;C4;C5$;" ";C6$:PRINT
1270 PRINT"PRESS RETURN TO SELECT":A$="":INPUTA$:GOTO160
2000 PRINTCHR$(147)"IARU LOCATOR TO MAP"TAB(44)"REFERENCE":PRINT:INPUT"LOCATOR";
L$
2010 IFLEN(L$)<>8THEN2000
2020 FORJ=1TO6:T%=ASC(MID$(L$,J,1)):L%=ASC(MID$("AAB0AA",J,1)):T%(J)=T%-L%
2030 H%=ASC(MID$("RR99XX",J,1)):U%=H%-T%:IFT%(J)<0ORU%<0THEN2000
2040 NEXTJ:EW=T%(1)*20+T%(3)+2+T%(5)/12:NS=T%(2)*10+T%(4)+T%(6)/24
2050 EW=EW*10000:EW=INT(EW):EW=EW/10000
2080 IFEW>=180THENDOL=INT(EW)-180:EW$="E"
2070 IFEW<180THENDOL=INT(180-EW):EW$="W"
2080 MOL=INT((EW-INT(EW))*60):NS=NS*10000:NS=INT(NS):NS=NS/10000
2080 IFNS>=90THENDAL=INT(NS)-90:NS$="N"
2100 IFNS<90THENDAL=INT(90-NS):NS$="S"
2190 MAL=INT((NS-INT(NS))*60):PRINT:PRINT"IARU LOCATOR:"TAB(53)L$:PRINT
2200 PRINT"MAP REFERENCE:"TAB(44)DAL;MAL;NS$,DOL;MOL;EW$:PRINT
2210 PRINT"PRESS RETURN TO SELECT":A$="":INPUTA$:GOTO160
3000 PRINTCHR$(147);"BEAM HEADING, BEARING"TAB(44)"SOURCE STATION"
3010 PRINT:PRINT"LATITUDE   DEG,MIN,NS":PRINT:INPUTS1,S2,SNS$
3020 IFS1<0ORS1>90ORS2<0ORS2>=60THEN3000
3030 IFSNS$<>"S"ANDSNS$<>"N"THEN3000
3040 PRINT:PRINT"LONGITUDE  DEG,MIN,EW":PRINT:INPUTS3,S4,SEW$
3050 IFS3<0ORS3>180ORS4<0ORS4>=60THEN3040
3060 IFSEW$<>"E"ANDSEW$<>"W"THEN3040
3070 PRINT:PRINT"DESTINATION STATION"
3080 PRINT:PRINT"LATITUDE   DEG,MIN,NS":PRINT:INPUTD1,D2,DNS$
3090 IFD1<0ORD1>90ORD2<0ORD2>=60THEN3070
3100 IFDNS$<>"N"ANDDNS$<>"S"THEN3070
3110 PRINT:PRINT"LONGITUDE  DEG,MIN,EW":PRINT:INPUTD3,D4,DEW$
3120 IFD3<0ORD3>180ORD4<0ORD4>=60THEN3110
3130 IFDEW$<>"E"ANDDEW$<>"W"THEN3110
3140 S5=((S1+S2/60)*π)/180:S6=((S3+S4/60)*π)/180
3150 D5=((D1+D2/60)*π)/180:D6=((D3+D4/60)*π)/180
3160 IFS5>πORS6>2*πORD5>πORD6>2*πTHEN3000
3170 IFSNS$="S"THENS5=-S5
3180 IFSEW$="E"THENS6=-S6
3190 IFDNS$="S"THEND5=-D5
3200 IFDEW$="E"THEND6=-D6
3210 DEFFNA(X)=π/2-ATN(X/SQR(1-X*X)):X=SIN(S5)*SIN(D5)+COS(S5)*COS(D5)*COS(D6-S6
```

I had thought of writing this article after reading the articles by Harold Hepburn VK3AFQ, in the May and June issues of Amateur Radio, thinking that the programme could be converted for use on a VIC-20, and improved.

This programme will run on a standard VIC-20, VIC-20 with memory expansion, or the C-64.

To run the programme on a standard VIC-20 it must be slightly shortened. This can be done by removing input validation, though this requires that care must be taken to input only valid values, and in the correct order.

The lines to be deleted are: *1020; 1030; 1050; 1060; 2010; 2030; 3020; 3030; 3050; 3060; 3090; 3100; 3120; 3130; and 3230.*

To run the programme on a C-64, it is necessary to delete POKE 36879,8 from line 20, and insert a new line — 15 POKE 53280,4 = POKE 53281,0.

The screen layout of a C-64 is different to that of a VIC-20, having 40 rather than 22 characters across the screen. This means that the displays could do with a tidy up for use on a C-64.

The programme starts by clearing the screen and setting it to black, with white characters. A title block appears and is followed by a menu from which the desired function is chosen.

If any character, other than one of those listed is chosen the menu will reappear.

SELECTION 1

The programme goes to step 1000, and displays 'MAP REFERENCE TO IARU LOCATOR'. The Latitude and Longitude are asked for, then checked for validity when given.

If a value is not valid, the Latitude and Longitude is asked for again.

```
3220 IF(1-X*X)=(0THEN3000
3230 I=FNA(X):SP=INT((I*180/¿)*111.19):LP=INT((2*¿*6367.45)-SP)
3240 IFSIN(I)*COS(S5)=0THEN3000
3250 X=(SIN(D5)-(SIN(S5)*COS(I)))/(SIN(I)*COS(S5)):IF(1-X*X)=(0THEN3000
3260 H=FNA(X)
3270 IFSIN(D6-S6))=0THENH=2*¿-H
3280 BSP=INT(H*180/¿)
3290 IFH(¿THENBLP=BSP+180
3300 IFH)=¿THENBLP=BSP-180
3310 PRINTCHR$(147);"SOURCE STATION"TAB(44)S1;S2;SNS$,S3;S4;SEW$
3320 PRINT:PRINT"DESTINATION STATION"TAB(44)D1;D2;DNS$,D3;D4;DEW$
3330 PRINT:PRINT"SHORT PATH:"TAB(44)SP;"KM",BSP;"DEG"
3340 PRINT:PRINT"LONG PATH :"TAB(44)LP;"KM",BLP;"DEG"
3350 PRINT:PRINT"PRESS RETURN TO SELECT":A$="":INPUTA$:GOTO160
4000 PRINTCHR$(147)"END":END
READY.
```

The Locator is then calculated and values assigned, using string handling to cut down on typing. Output restates the Map Reference for verification, and the IARU Locator is given.

To return to the menu, press 'RETURN', or, if the desired function is known, then input the relevant number and press 'RETURN'.

SELECTION 2

The programme goes to step 2000 and displays 'IARU LOCATOR TO MAP REFERENCE'. The Locator is asked for, then checked for validity when given.

If the Locator given is not valid it is asked for again.

The Map Reference is then calculated. Output restates the Locator for verification, and the Map Reference is given.

To return to the menu press 'RETURN', or if the desired function is known, then input the relevant number, and press 'RETURN'.

SELECTION 3

The programme goes to step 3000 and displays 'DISTANCE AND HEADING'. The Latitude and Longitude of the source station and then the Latitude and Longitude of the destination station are asked for.

The values given are checked for validity, and if any value is not valid, it is asked for again.

The Distance and Heading for both Short Path and Long Path are calculated using the Great Circle formulae.

The screen is cleared for output, then the Map References are restated for verification, and the Short Path Distance and Heading, then the Long Path Distance and Heading are displayed.

To return to the menu press 'RETURN', or if the desired function is known, then input the relevant number and press 'RETURN'.

SELECTION 4

The programme goes to step 4000, clears the screen, and ends the programme.

AR

LOADING UP ON 1.8 MEGAHERTZ

Lloyd Butler VK5BR

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How does your transmitter load on 1.8MHz? Here are a few ideas on how to match into that odd length of wire on our lowest frequency band.

INTRODUCTION

As amateurs, most of us are restricted to an antenna system which must fit into a standard house block. If we venture down to the medium frequency band on 1.8MHz, we are usually restricted to operating with whatever length of wire we can manage, connected with an earth or counterpoise system. Such a system, particularly if the wire is less than an electrical quarter wavelength, leads to a number of problems in coupling to the transmitter.

ANTENNA EFFICIENCY

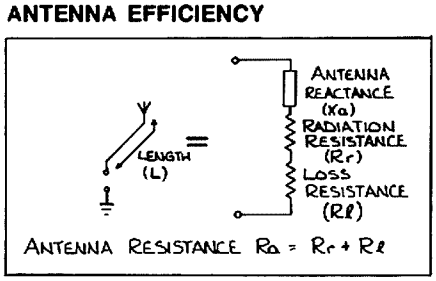


Figure 1 — Equivalent Antenna Electrical Circuit

The first problem is one of antenna efficiency. Referring to Figure 1, the antenna resistance (Ra) is the sum of radiation resistance (Rr) and the loss resistance (Rl) in the antenna system. Loss resistance is the result of a number of factors including leakage loss across insulators, the AC resistance of the antenna conductors and, most significant of all, the earth resistance. Also, not to be overlooked is the additional loss resistance of any loading inductance used in matching to the transmitter.

Antenna efficiency is calculated as follows:

$$\text{EFFICIENCY} = \frac{100\ Rr}{Rl + Rr}\ \%$$

Referring to the curve, Figure 2, radiation resistance falls rapidly as the antenna length is reduced, also reducing efficiency because a greater proportion of power is being absorbed in the loss resistance.

If antenna efficiency is to be optimised, the antenna should be as long as possible and earth resistance kept low, particularly if the antenna is shorter than a quarter wavelength. Wired radials, counterpoise or earth mat, are of value in reducing earth resistance.

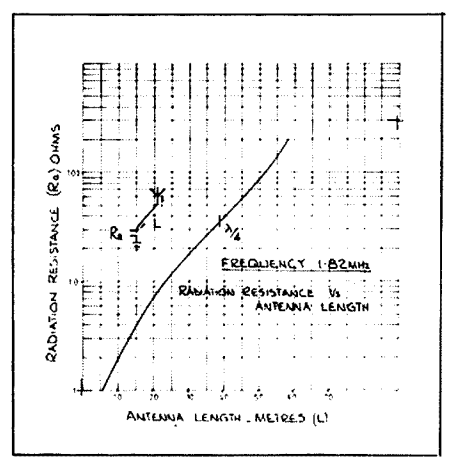


Figure 2 — Radiation Resistance Vs Antenna Length

Loss resistance can be checked by first measuring the antenna constants Ra (antenna resistance) and Xa (antenna reactance) with an impedance bridge. The measurements can be carried out quite well with the familiar noise bridge, used by many amateurs. If the bridge is calibrated directly in reactance at one frequency, do not overlook correction for 1.8MHz.

Now refer to Figure 2 to obtain the nominal radiation resistance (Rr) for the length of antenna in use. Subtract this value from Ra and the result is loss resistance (Rl). Antenna efficiency can be now calculated from the previous formula. If antenna efficiency is low, consideration might be given to improving the earth or increasing the antenna length. The constant Xa obtained will be considered later in the text.

ANTENNA MATCHING

The second problem concerns the correct matching between the transmitter and antenna. Most modern transceivers are designed to operate into a 50 ohm resistance load and do not tolerate much divergence from that impedance. The antenna, however, has resistive and reactive components which vary with length. The resistance component has already been discussed. A typical example of the reactive component (Xa) varying as a function of length is shown in Figure 3.

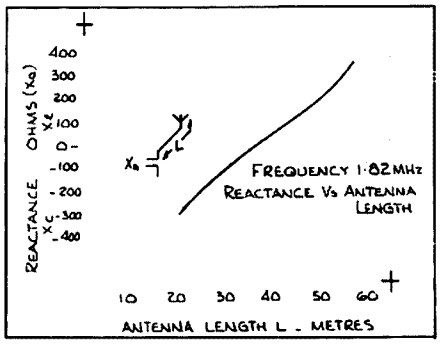


Figure 3 — Antenna Reactance Vs Antenna Length

Attempts to match the antenna to the transmitter using the typical antenna tuning unit (ATU) might not prove successful because of insufficient range in the ATU tuning capacitors. At 1.8MHz, loading capacitance needed could well be in the nano-farad regions, 1nF = 1000pF.

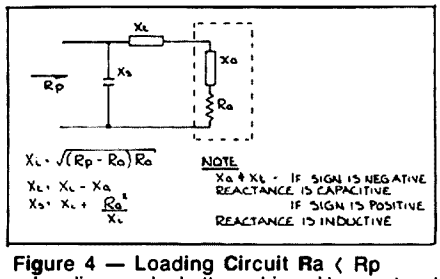


Figure 4 — Loading Circuit Ra ⟨ Rp

Loading can be better achieved by a network of fixed reactive components selected to form a correct match. To design a network, the antenna resistance (Ra) and the antenna reactance (Xa) must be first measured with the impedance bridge as discussed previously. Now proceed as follows:

If Ra is less than the desired load resistance (Rp) at the transmitter, use the circuit of Figure 4 and calculate thus . . .

i. Reactance Xi = $\sqrt{(Rp - Ra)\,Ra}$

ii. Calculate the series reactance

Xt = Xi - Xa

Note that if Xa is capacitive, its sign is negative and therefore its value is added to Xi.

If the resultant Xt is positive, Xt is inductive.
If the resultant Xt is negative, Xt is capacitive.

iii. Calculate the shunt capacitance (Xs)

$$Xs = Xi + \frac{Ra^2}{Xi}$$

If Ra is greater than the desired load resistance (Rp), use the circuit of Figure 5 and calculate thus:

i. Series reactance Xi = -Xa

That is — if Xa is inductive, Xi is made an equal value of capacitive reactance.

— if Xa is capacitive, Xi is made an equal value of inductive reactance.

ii. Calculate shunt capacitive reactance (Xs)

$$Xs = -\frac{Rp\,Ra^2}{\sqrt{Ra - Rp}}$$

iii. Calculate series inductance (Xt)

$$Xt = \frac{Xs\,Ra^2}{Ra^2 + Xs^2}$$

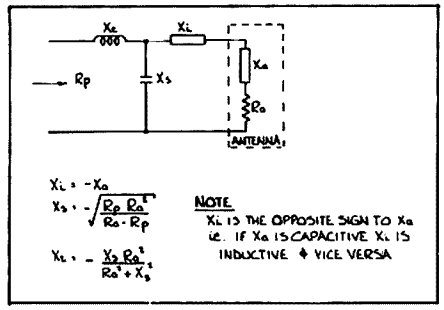


Figure 5 — Loading Circuit Ra > Rp

Fixed capacitance and inductance values are now calculated from the standard formulae:

$$C = \frac{1}{2\pi f Xc}$$

$$L = \frac{Xl}{2\pi f}$$

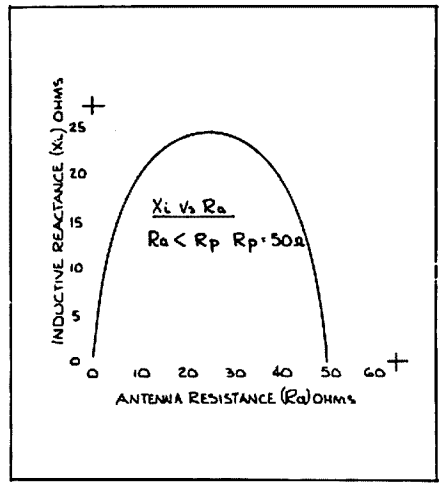


Figure 6 — Xi Vs Ra (Ra ⟨ Rp)

Taking the calculation further, specifically for 1.8MHz, we have worked out curves of network components assuming a transmitter load of 50 ohms. These curves can be used as follows:

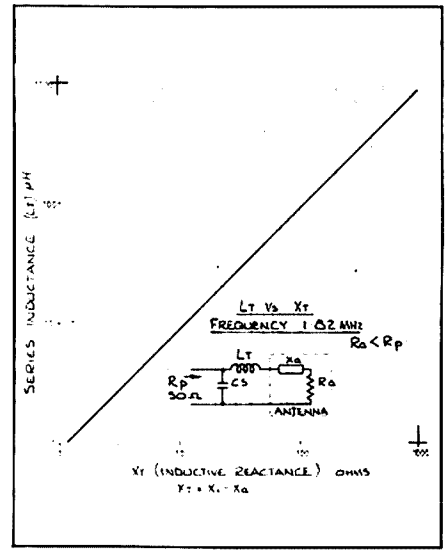


Figure 7a — Lt Vs Xt (Ra ⟨ Rp)

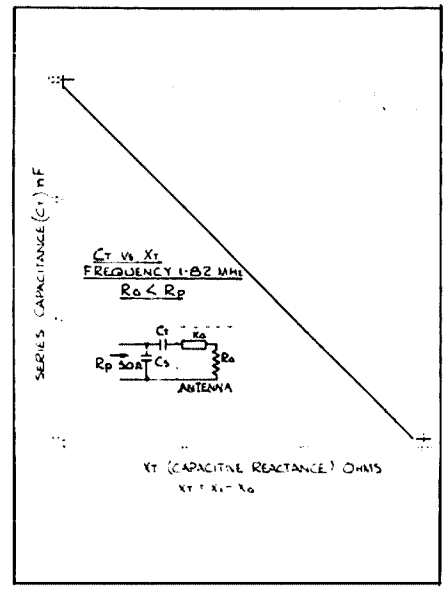


Figure 7b — Ct Vs Xt (Ra ⟨ Rp)

if Ra is less than 50 ohms, use the following procedure:

i. Refer to Figure 6 to obtain the value of Xi

ii. If Xa is capacitive, add its value to Xi to obtain Xt, an inductive reactance

iii. If Xa is inductive, subtract its value from Xi

If the result (Xt) is positive, Xt is inductive

If the result (Xt) is negative, Xt is capacitive

iv. Now find the value of series inductance (Lt) or series capacitance (Ct) from Xt in Figures 7a or 7b respectively

v. Finally, refer to Figure 8 to obtain the value of shunt capacitance (Cs)

If Ra is greater than 50 ohms, use the following procedure:

i. Refer to Figure 9 to obtain the value of series inductance (Lt) and shunt capacitance (Cs)

ii. If Xa is inductive, a series capacitor (Ci) is required and its value is selected from Figure 10a

iii. If Xa is capacitive, a series inductance (4) is required and its value is selected from Figure 10b

NETWORK COMPONENTS

The network capacitors should have suffi-

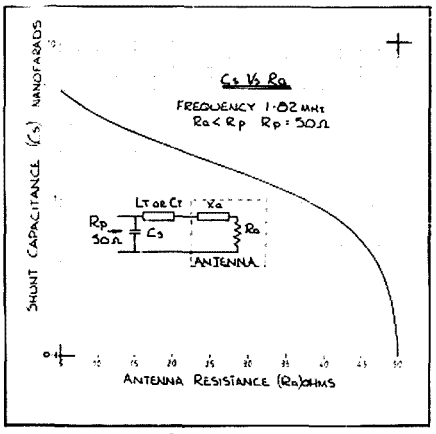


Figure 8 — Ra < Rp. Shunt Capacitance Vs Antenna Resistance (Ra)

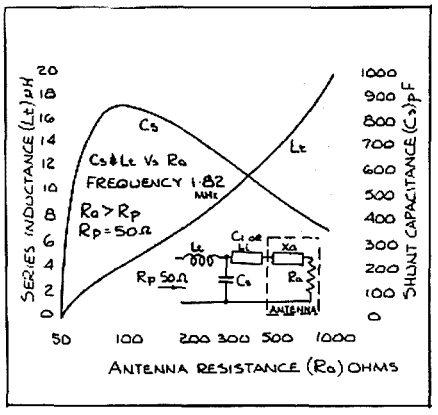


Figure 9 — Lt and Cs Vs Ra (Ra > Rp)

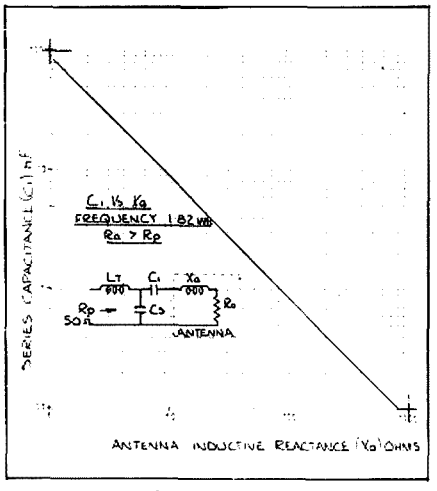


Figure 10a — Ci Vs Xa (Ra > Rp)

cient voltage and current rating. A power of 400W PEP across 50 ohms develops a peak voltage of 200 at a current of 200 V divided by its reactance. A good quality mica capacitor or a large air dielectric tuning capacitor could be suitable.

The series inductor should be made to have a high Q. Its loss resistance causes further power loss and if sufficient in value, compared to the antenna resistance (Ra), its value should be added to all calculations involving Ra. Network calculated values should then be reassessed. To check the inductance and loss resistance, the noise bridge can again be utilised.

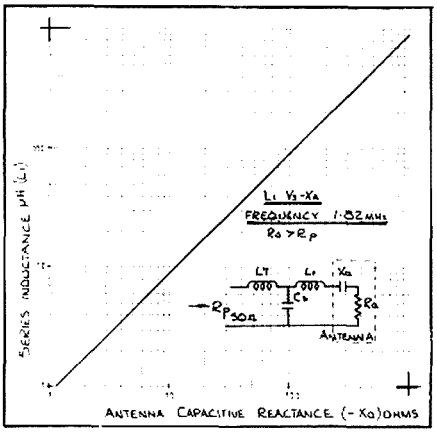


Figure 10b — Li Vs -Xa (Ra > Rp)

TESTS

If everything has worked out right, the input of the network should look like a resistance equal to Rp (50 ohms) with negligible reactive component. This can be checked by the further use of our valuable noise bridge. If Rp value is correct, our transmitter can be connected and we are ready to transmit.

At this point, with the aid of an RF ammeter and the measured values of Ra and Rp, we can check our matching efficiency. Connect the RF ammeter in series with the transmitter output and, with the transmitter on tune, record the current (It). Reconnect the RF ammeter in series with the antenna and for the same transmitter setting, record antenna current (Ia).

Transmitter power output is equal to It Rp and radiated power is equal to Ia Rr.

Efficiency of the matching network is calculated as:

$$\frac{100\ Ia^2\ Ra}{It^2\ Rp}\ \%$$

Efficiency of the whole aerial system is calculated as:

$$\frac{100\ Ia^2\ Rr}{It^2\ Rp}\ \%$$

A possible inaccuracy is the value of Rr, taken from Figure 2 and based on antenna length. Its value for a given length could vary with other physical features of the antenna.

TRANSMISSION LINE

Previous discussion has assumed that the transmitter is connected directly to the antenna tuning network within the radio shack. A disadvantage in doing this is that high RF current flows in the antenna and earth conductors within the shack, causing a high local RF field. Apart from its nuisance value, considerable radiated power could be wasted in absorption in the building structure.

To eliminate this problem, one might choose to place the tuning network external to the shack, directly between the antenna wire and earth or counterpoise and feed via a transmission line, such as a 50 ohm coaxial cable (refer Figure 11).

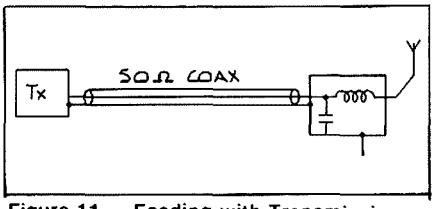


Figure 11 — Feeding with Transmission Line

A point worth noting is that you should not get too concerned at poor standing wave ratio (SWR) on the line at this frequency (1.8MHz). The loss in coaxial cable at 1.8MHz is quite low and even for an SWR of as high as 3:1, the net loss is a fraction of a dB per 100 feet. If the transmitter loading is satisfactory, precise SWR can be ignored.

In conclusion, it can be said that power radiated might not mean power in the direction you would like it to go and that is another subject. However, it is hoped that the information here will be of some help with those loading problems.

APPENDIX 1

Expansion of Figure 4
Put Xi = Xt + Xa

$$\frac{i}{Ra + jXi} = \frac{Ra - jXi}{(Ra + jXi)(Ra - jXi)}$$

$$= \frac{Ra - jXi}{Ra^2 + Xi^2}$$

$$= \frac{Ra}{Ra^2 + Xi} - \frac{j\ Xi}{Ra^2 + Xi^2}$$

Hence R + jXi is equivalent to a parallel network:

Resistance component Rp =

$$\frac{Ra^2 + Xi^2}{Ra} \quad ....(1)$$

Inductive component

$$X2 + \frac{Ra^2 + Xi^2}{Xi} \quad ....(2)$$

From (1)

$$Xi^2 = \frac{RpRa - Ra}{}$$

$$\& \ Xi = \sqrt{(Rp - Ra)Ra} \quad ....(3)$$

Xs is made resonant with Xi and Xs = -X2 ....(4)

From (2) and (3)

$$Xs = \frac{-(Ra^2 + Xi^2)}{Xi}$$

$$Xs = \frac{Xi + Ra^2}{Xi}$$

(capacitive) ....(5)

APPENDIX 2

Expansion of Figure 5
Xa is cancelled by making Xi = Xa leaving Xs in parallel with Ra

Admittance

$$\frac{1}{-jXs} + \frac{1}{Ra} = \frac{Ra - jXs}{-jXsRa}$$

Thus the parallel result of Xs and Ra is impedance:

$$\frac{-jXsRa}{Ra - jXs} = \frac{-jXsRa\ (Ra + jXs)}{Ra^2 + Xs^2}$$

$$= \frac{RaXs^2 - jXsRa^2}{Ra^2 + Xs^2} \quad ....(1)$$

The resistance component $Rp = \frac{RaXs}{Ra + Xs^2}$

hence

$RaXs^2 = RpRa^2 + RpXs^2$

$RaXs^2 - RpXs^2 = RpRa^2$

$Xs^2 =$

$$\frac{RpRa^2}{Ra-Rp}$$

and $Xs =$

$$\frac{\sqrt{RpRa^2}}{\sqrt{Ra-Rp}} \quad ....(2)$$

From (1), the reactive component $X2 =$

$$\frac{-jXsRa^2}{Ra^2 + Xs^2}$$

Xt is made resonant with X2, i.e. $Xt = -X2$
hence $Xt =$

$$\frac{jXsRa^2}{Ra^2 + Xs^2}$$

AR

TRY THIS

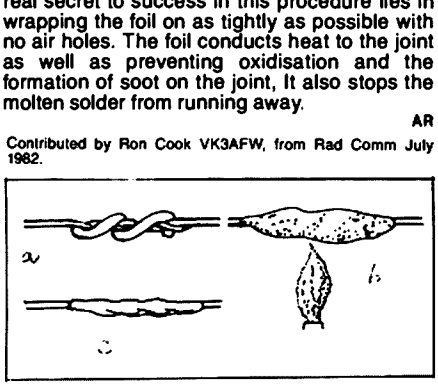
EMERGENCY SOLDERING TIPS

The following technique can be used for soldering two wires together without using a soldering iron that can be used, for example, when repairing outside antennas.

The requirements are: a *short piece of aluminium foil, and a box of matches or a cigarette lighter.* The procedure as shown in figure 1 is: *(a) clean the wire ends, twist them together, and then wrap a short length of cored solder round them; (b) cover the whole with several layers of foil, close up the ends, and place a lighted match or lighter flame under the wrapped joint and move it slowly backwards and forwards; (c) allow a few seconds for the joint to cool, remove the foil and* "surprise yourself with a perfectly soldered joint". The real secret to success in this procedure lies in wrapping the foil on as tightly as possible with no air holes. The foil conducts heat to the joint as well as preventing oxidisation and the formation of soot on the joint, It also stops the molten solder from running away.

AR

Contributed by Ron Cook VK3AFW, from Rad Comm July 1982.



CLANDESTINE HOT WATER

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Since the publication of the two "Clandestine" articles, in March 1985 and February 1985 Amateur Radios, there have been suggestions that another article could be written, based on the circumstances which spawned the previous two, which were the result of activities in the prisoner of war camps at a sugar factory in south east Germany. Hence, Clandestine Mark Three.

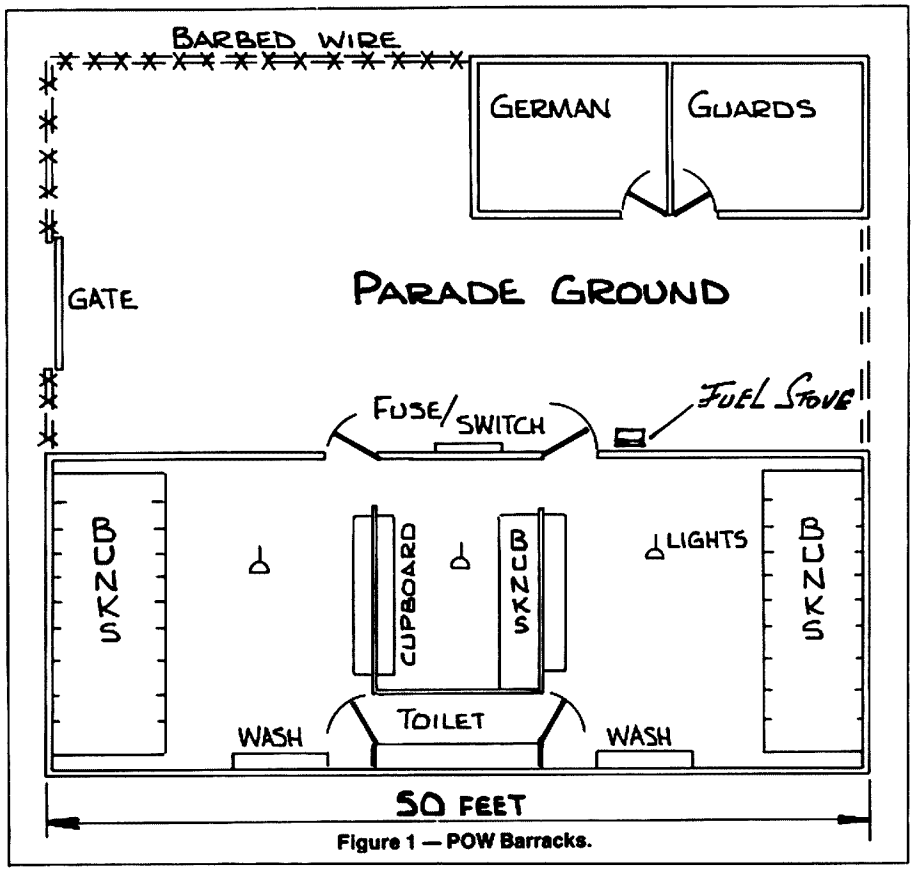


Figure 1 — POW Barracks.

These barracks were built circa 1939, as open fronted garages to house the pending arrival of the Volkswagon, the Peoples Car, for German workers who had ordered them. Delivery was to be made, when the cars were paid for. Payment was made by weekly deductions from the workers pay packets.

The onset of hostilities curtailed this ambitious scheme, but the vehicles subsequently proved a military boon, as the garages were simple to convert to POW barracks. The roof of the barracks was constructed of pine planks which were covered with heavy bituminous paper, single brick walls and a thin concrete floor. They were cold in winter and stifling in summer. The barbed-wire compound was locked at all times but the barracks' doors were open until 8 pm, for exercise, but NONE of us needed that!

Prisoners work was either out-of-doors, shovelling snow, sugar beet or coal or in a factory, which was humid with steam and heat. The work roster for most of the year was, 12 hours per day, 84 hours per seven day week. Consequently, the inmates were a somewhat dishevelled and languid lot by the end of the shift each day.

Outside the barracks, exposed to all weathers, was a coal fuelled hot plate, approximately 610 x 305m is size, which was the only means of heating food or drink. Despite rosters, the congestion around this stove between seven and eight in the evenings defies description, particularly when it was cold and wet. Consequently, many prisoners invariably retired after a cold supper, with cold feet.

Red Cross parcels, containing small quantities of tea, coffee, cocoa and powdered milk, arrived on a semi-regular basis. However, the limited stove access was an obstruction to the intended benefits of the drinks.

Shortly after the fabrication of the Shortwave Receiver, (AR, March 1984) prisoners were each issued with an enamelled metal can with a tapered top, lid and carry handle. Capacity was about one and a half pints (about three-quarters of a litre), with the primary function being for the daily factory ration of "ERSATZ" coffee. A friend suggested, "Sparks, (this was my nick-name in the camp), now that we have these cans, could you devise a hot water heater for use after our eight o'clock curfew?"

Much had been learned from 'Operation Receiver', and I was now aware of the possibilities, and pitfalls, of extra-curricular activities so decided to investigate the probabilities of electrically heating water. NO PROBLEMS? ?

CONSERVATION OF ENERGY

Briefly the factors were, vigilance of the order necessary during the construction of the radio, and later, the compass, could be somewhat relaxed as contravention of German internal propaganda security and escape would not be involved. The guards would not be unduly interested as maintenance of the party, intact and working, was their role. The factory para-political management hierarchy would be the stumbling block as the conservation of energy, particularly electrical, was almost of fetish proportions. Power outlets were rare — none at all in our barracks and light points were limited and of low wattage. I hence decided to build an immersion heater, designed to drop into our cans, powered from one of the Edison screw base (ESB) light sockets.

Friends were sent to surreptitiously check factory salvage bins for light sockets, light globes, flex, stiff wire to support an element and, most importantly, heater element wire with a profiled ceramic former.

The latter proved a problem. A fortnight elapsed before a broken element was located. Alas, how much was missing? What was the remaining resistance? Without tools or instruments the formula would again be trial and error.

Lighting was controlled by the guards at an external switch box which held the sole fuse, no internal switches. Lights out was 10pm except for a single toilet light, which remained on all night. The barracks were locked and barred at 8pm, so clandestine activities had to be carried out in these two hours.

Each area of the barracks was serviced by only one light, which we could not afford to lose, so the first need was an ESB double adapter, one outlet for the globe and the other for the heater. As could be anticipated, all manner of guile failed to produce one of these, so it was into the junk box. Two ESB female sockets were wired in parallel to a globe male thread, taking care that the exposed external threads were isolated from the neutral.

I worked in the factory's electrical workshop charging batteries, painting switch boxes, etc. Soldering jobs were only possible when the two German electricians, friendly types, were absent.

WORRYING TIME

All testing of the element had to be done immersed. Easy you say! Try it sometime. The power could not be switched off and it was difficult to screw in the connection whilst standing on a flimsy table. As the wires to the element were exposed, this caused current leakage through the water and enamel defects and partially charged the enamel can. Also, not blowing the sole fuse was a top priority.

The 240VAC supply (there was also 110VAC and 210VDC in parts of Germany) to our barracks was via a heavy gauge copper wire, which continued on to the guards quarters. The internal wiring in the barracks was only light gauge aluminium. Therefore, the 'operation heater' voltage drop effect should be less noticeable on the guards lights than in the barracks. This was a bonus, as the variation in light intensity was the only indication we would have of the heaters current consumption. Theoretically, the 20 amp fuse should cope with 4000 watts, but the aluminium wiring would not.

Testing heater Mk1 produced a dramatic drop in the lights in our barracks, so obviously the broken junk element was too short. (Next day one of the guards mentioned the drop in the lights and I suggested it was possibly a momentary drop in RPM of the steam turbine driven alternator, that supplemented the factories power.

A week later another short section of element was found, but over several nights of painstaking work, the old brittle wires refused to be joined. By now, optimistic members of our party could 'taste their hot cuppa' and subtle pressure on 'Sparks' to complete the project increased. However, another month of searching still failed to locate a suitable element.

I then vaguely remembered the use of two metal plates, either as a water heater or variable resistance, that I had seen in Australia. This led me to a completely different approach.

I had no idea of the optimum area or spacing between the plates necessary for our needs, other than the dimension limitations imposed by the coffee pot neck. Because of the limitations of usable current, I decided to commence with small plates, approximately 1x.75 inches (25x19mm) and spaced 1.5 inches (38mm) apart.

Once again the scrap bins arose to the allied cause and yielded more battered copper sheet, which was duly flattened, shaped and soldered to the stiff wires used previously in the Mk 1 version. My New Zealand friend, a worker in the carpenter's shop, cut a spacer from pine wood. See Figure 2.

When tested, this version proved inefficient — after 30 minutes only a slight water temperature increase was discernible and, there was no visible lighting drop. A wattage increase was necessary so, back to the drawing board. Slightly larger plates were cut and fitted.

Of course, practicality dictated that we should have commenced with large plates and progressively reduced their area to save the necessity to return to the workshop to cut and solder larger plates. However, I was not prepared to risk using excessive current initially because of the predictable repercussions.

Two further increases in plate size and a decrease in spacing spanned many days because of lack of convenient periods in the workshop. Finally, Eurekal After about 25 minutes the water was hot, about 80 degrees, accompanied by only a minor drop in lights. Great! We were there, now only the trifling last step to boiling point.

ALMOST THERE!

Just prior to boiling, the water turbulence in the container rose and the lights dimmed — what now? Several repeat tests verified this behavior so, obviously, under these specific conditions, the water resistance to AC was a converse situation. Increase in temperature caused a resistance decrease but with an increase in current flow.

It was now relatively easy to reduce the plate area by folding back a 3/16th inch (5mm) strip down one edge of each plate with the two folds

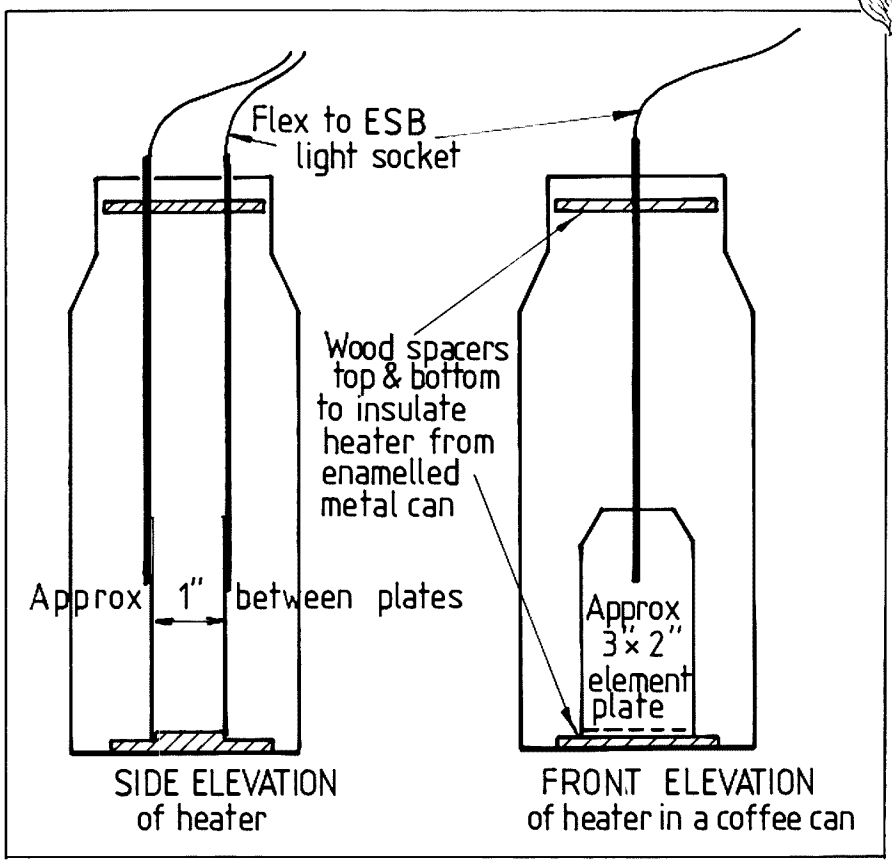


Figure 2 — Side Elevation.

Figure 3 — Front Elevation of the Heater positioned in the Coffee Can.

made outwards to avoid any reduction in plate spacing.

This version appeared to be the best compromise — a slight increase in the time required to reach boiling point and a decrease in the lighting intensity drop; although the latter still caused some concern at the point of boiling. This was eventually overcome by slowly lifting the heater clear of the water at the first sign of the lights dropping.

SUCCESS

During the following few nights, an operational procedure for water boiling evolved. Immediately our doors were locked at 8pm, our makeshift double adaptor was screwed into the light socket, which was not visible outside from the two small windows. The globe was replaced in one outlet, the heater in the other, exposed and alive. The heater was held by the flex and gently lowered into the filled can, taking particular care not to allow the element wire to short against the can. The guards were not noted for their alacrity in replacing the fuse if it blew. When positioned in the can, the upper wood spacer prevented a short circuit.

The damp concrete floor was a permanent earth and during the heating process, the can was partially charged — the operator adopting a permanent state of qui vive. A small price to pay for a hot drink? ?

The entire operation was quite hazardous and normally would not have been perservered with but, the relative psychological and physical well-being values of a regular hot drink, procured under clandestine conditions, amply compensated the risk. Personal safety was not highly rated.

The coffee cans were five cup capacity, so the party rostered themselves into groups of five and each group rotated in sequence nightly. The groups were always ready and waiting.

During the two hours available between lock-up and lights out five cans could be brought close to boiling, hence 25 cups for 30 guests.

The electrical characteristics of the heater were now relatively stable and predictable, with only an occasional deviation stemming from an operators error. After some weeks of basking in our new found, up-market living standard, an abrupt change in heater characteristics occurred. An increase in water turbulence was visible and current drain increased, noticeable by a drop in the light. Either the voltage or spacing between plates had altered and there was no change in the wooden table that isolated the can from the concrete floor. Where do we go from here?

Then an enlightening remark from one of the inmates that "It must be the water Sparks, the tea tastes lousy!" His nationality had been tea connoisseurs for over 300 years.

That winter, the nightly temperatures had dropped to about -10 degrees Celsius and the water reticulation to the barracks had fractured. We had to carry water from a well, attained by an Armstrong powered pump. Could the status quo have been altered by this water change?

That evening after work, a can of the usual water was brought from the factory and magically the heater reverted to its former behaviour. Therefore the well water must have been mineralised to the extent that its resistance was lowered and its heating design characteristics were disturbed.

FINALE

The heater was in use for 18 months, which made possible, over 7000 cups of tea, coffee and cocoa. This generated a morale boost beyond all proportion to the simplicity of the device. The arrival of the Russians on the German eastern border terminated, after four years, this rather debilitating and neurosis prone existence.

Electricity is presumed, and expected, to be ever available to serve man's needs, irrespective of location or circumstance. Pre-war radio and electrical experience, once again made it possible to harness this energy to, at least, slightly alleviate the depressed conditions for 30 people.

To obviate a possibility of the 'Clandestine' theme becoming hackneyed, this is a definite FINAL! To minimise connotations of egotism, endeavours were made over the three articles to use second or third person grammatical form, but it seemed to cause a loss of realism.

It is not recommended that 'home brewers' see this device as a low cost water heater — it is the absolute antithesis of safety.

AR

TEMP RISE	PLATE SIZE 1.5"x1.25"	3.25'x2'
10-20 deg C	18mins	9mins
20-30 deg C	14mins	8mins
30-40 deg C	8mins	6mins
40-50 deg C	4mins	3mins
50-60 deg C	3mins	1min
60-70 deg C	2.5mins	.5min
70-80 deg C	2mins	.25min
80-90 deg C	1.5mins	12secs
90-99 deg C	1min	8secs
TOTAL	54mins	28mins

Water Temperature Rise related to approximate Elapsed Time with the Plates one inch apart.

The approximate resistance between the plates with water at 10 degrees Celsius was 1150 ohms and at 95 degrees Celsius, 200 ohms.

Prior to producing this article, a quirk of curiosity prompted the writer to carry out a re-enactment in his workshop, to substantiate the heaters characteristics, which were dependant on a nebulous memory. Taken for granted, workshop facilities, ie: thermometer, multimeter, clock with a second hand, etc, were a dramatic contrast to the vicissitudes of 1943!

The table above summarises the findings — note the rapid and simultaneous temperature increase and time span decrease above 70 degrees — the problem phenomenon in the barracks.

One experiment was made with the plate spacing reduced to .75 inch but this had to be curtailed above 80 degrees because of the massive water turbulence, apparently caused by steam pockets between the plates. Once aluminium plates were used which formed an insulating film,obviously an electro-chemical reaction.

LET'S LOOK BACK

Now that the Bi-centennial year is fast approaching, and thoughts are being given to ways and means by which the amateurs of Australia may celebrate this important occasion, it is fitting perhaps, to just look back to the 150th year.

On that occasion, the IRE of Australia donated a most impressive trophy to the WIA, to go to the person *"for the best work done in making known internationally the World Radio Convention and Anniversary Celebrations"*.

A DX contest was organised for Australian amateurs and at the 14th Annual Convention of the WIA, Sir Ernest Fisk announced that Mr D H Fisher of York Street, Launceston was the winner.

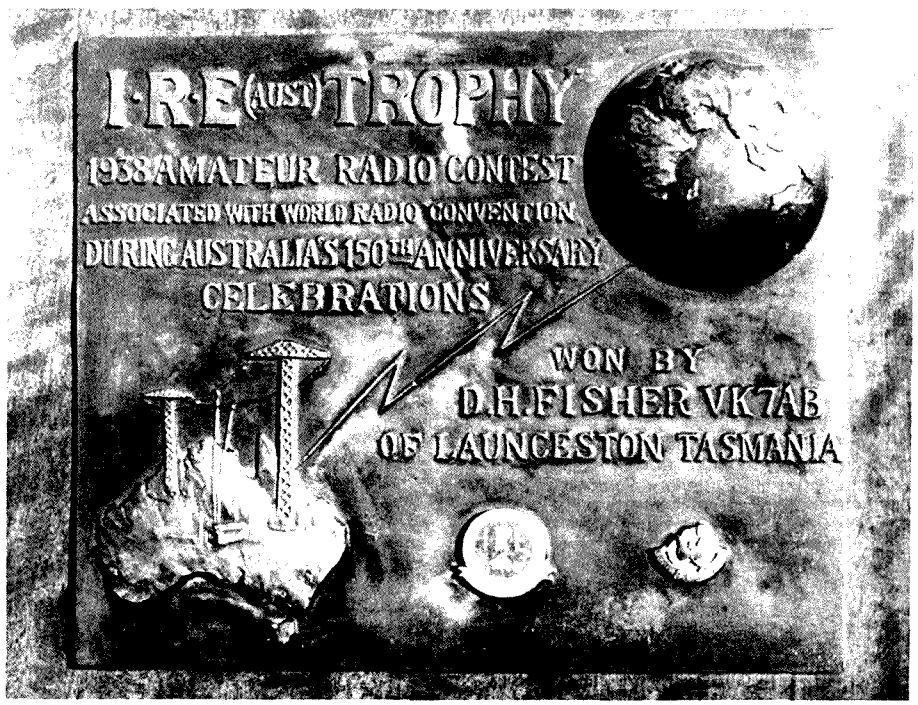
The plaque is of bronze, mounted on polished wood — a very impressive trophy, indeed.

The equipment used by the late Doug Fisher VK7AB, was naturally home-brew. The transmitter was AM with a 35T in the final. The receiver was also home-brew — a well built superhet, the 'Cernutt' nine valve, designed by W6BAY. A photograph of the receiver is in 'Jones Handbook' of 1937/38. The antenna was a 138 feet (41m) flat top and a 'loop' on 10 metres. Doug's widow Val says it was the 10 metre operation that won the day for Doug.

The trophy was presented at the Annual Dinner, Hobart in 1938 by Sir Ernest Fisk.

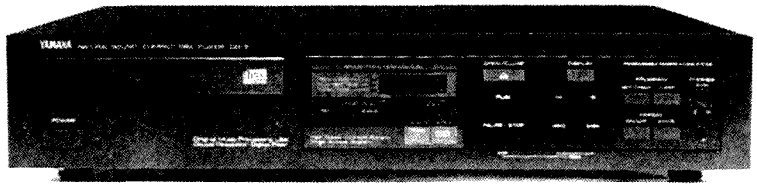
Contributed by S W 'Bill' Carter VK7AK

AR



THIS MONTH

Electronics Today LOOKS AT CD PLAYERS



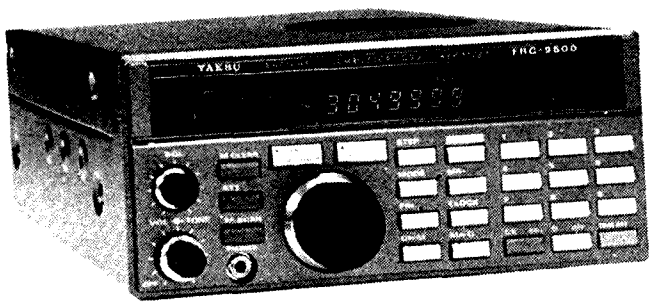
Electronics Today has picked what it expects will be six of the most popular CD players for this definitive comparison review.

ALSO IN DECEMBER

* ETI looks at scanners
* Starting Electronics, the beginners' series, covers active components
* RTTY/FAX decoder to build, Part 2
* Electronics Today reviews Sony's 'friendly' 2001 receiver

Just when you thought you'd seen it all . . . .

Latest Generation Receivers from Yaesu!



FRG9600 Scanner

Never Before! A scanning receiver that has so many features, offers so much. And it's absolutely ideal for the amateur, too! It offers continuous coverage between 60 and 905MHz, in all modes (SSB up to 460MHz), with FM and AM in both wide and narrow bandwidth. But that's not all:

You get 100 keypad-programmable memory channels, full rotary dial tuning as well as push-button tuning, fully programmable scanning in various modes . . . and much, much more.

PLUS it's a CAT unit: with the optional interface you can control its operation from most micros! Virtually unlimited customised control functions in software are possible!

Impressed? Not half as impressed as you will be with one in your shack!

Specifications:

Range: 60 — 905MHz (SSB 60 — 460MHz)
Modes (3dB bandwidth)

	FM (N): 15kHz 0.5uV Sens (12dB SINAD)
	FM (W): 180kHz 1.0uV Sens (12dB SINAD)
	AM (N): 2.4kHz 1.0uV Sens (10dB S+N/N)
	AM (W): 6kHz 1.5uV Sens (10dB S+N/N)
	SSB : 2.4kHz 1.0uV Sens (10dB S+N/N)
Conversion:	Triple for FM (N) AM & SSB, Double for FM(W)
IFs:	45.75MHz, 10.7MHz and 455kHz
Image rejection:	60-460MHz — 50dB typical
	460-905MHz — 40dB typical
Memory Channels:	100
Power Supply:	12-15V DC 550mA (lithium cell back-up)

LIMITED STOCK! (Includes power supply) **$799**
Cat D-2825

Orders taken now at your nearest DSE store

DICK SMITH ELECTRONICS
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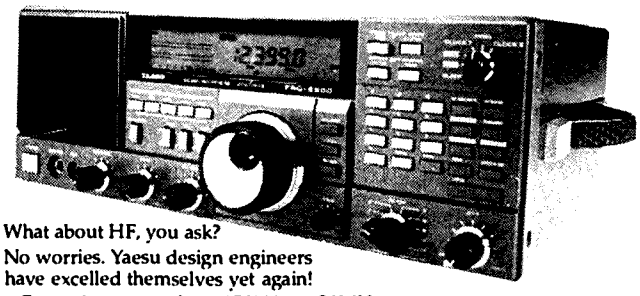
B-052

FRG8800 Receiver



What about HF, you ask?
No worries. Yaesu design engineers have excelled themselves yet again!

- General coverage from 150kHz to 30MHz
- All mode, including AM wide and narrow and FM narrow
- 12 internal memories (push-button) with scanning functions
- Selectable AGC rates, noise blanking widths & tuning rates
- Dual digital clocks (great for different time zones)

And so much more!

PLUS, it's also a CAT system: add a microcomputer and the optional interface and you can transfer function to your micro!

And even more: with the optional VHF coverter (fits completely inside) you also get 118 - 174MHz.

It also uses the '7700' series of accessories: active antenna, and antenna tuner.

Specifications:

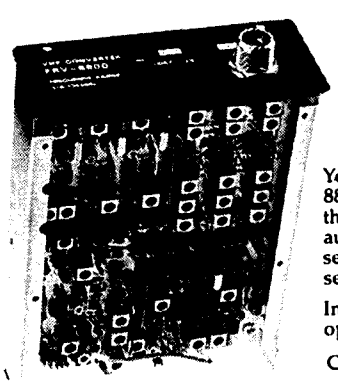
Modes:	AM, SSB & CW in both wide and narrow; FM (N)
Sensitivity:	AM, SSB & CW: 10dB or better (S+N/N)
	FM (N): 20dB or better (S+N/N)
Selectivity:	AM (W) 6kHz (−6dB), 15kHz (−50dB)
	AM (N), SSB, CW 2.7kHz (−6dB), 8kHz (−50dB)
	FM (N) 12.5kHz (−6dB), 30kHz (−40dB)
Antenna Imp:	50 ohms and 500 ohms (VHF conv 50 ohms)
Power:	240V AC

Cat D-2820

Alternative: FRG-8800 SW — 2MHz to 30 MHz range, otherwise identical $829.00
Cat D-2821

$899

LIMITED STOCK!



Optional VHF Converter

Yes! 118-174MHz from your FRG-8800. And it fits completely inside the set — operation is completely automatic. Full dial or pushbutton selection, same features as standard set.

Incredible versatility - and full CAT operation too.

Cat D-2823 **$189**

MEXICO QUAKE DISASTER AND AMATEUR RADIO

Jim Linton VK3PC
4 Ansett Crescent, Forest Hill, Vic. 3131

An earthquake measuring 8.1 on the Ritcher Scale sent shock waves through the City of Mexico causing death, injury and damage, on the 19th September 1985. The actual death toll may never be known, but estimates ranged from 5 000 upwards, with 40 000 injured.

The heavily populated city was isolated because major communications centres were knocked out. Mexican amateurs were the first to give details of the quake, via the United States.

While horrifying accounts of the earthquake became known, Sam Voron VI2BVS, was operating portable in Sydney suburban Willoughby Park, as a public relations exercise for amateur radio. Sam, with a radio display station as part of the Willoughby Fair, Carnival 85 and IYY celebration, planned just to do as he had on numerous other occasions, *expose the general public to the hobby of amateur radio.*

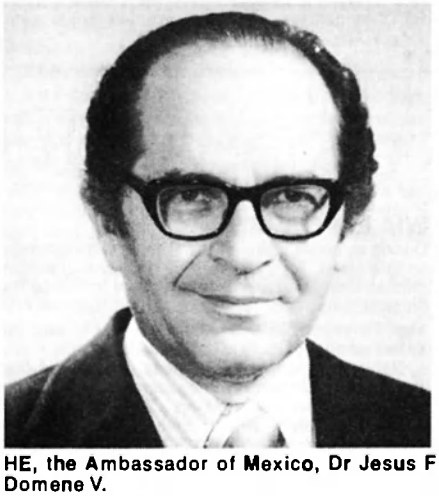
The Australian Traffic Net (ATN) Co-ordinator was told by someone visiting the Fair about news reports of US radio amateurs being the only link Mexico had with the outside world after the quake. Sam, with a group of helpers, found himself ideally situated for public access should there be a demand for third party traffic.

After the news media was told, on Saturday, 21st September, about radio amateurs being able to send welfare messages to Mexico, many distraught Mexicans began arriving at Willoughby Park. By 9pm, Sydney's radio and television stations had carried news of what amateur radio was doing.

A Mexican, Jose de la Vega travelled from Wollongong to Willoughby Park to see if he could help, and Sam explained that a third party agreement with Mexico could be useful.

Mexico was one of a number of countries the WIA had sought, through DOC, to have formal TPT agreements with Australia, but it had not responded to the request. Traffic for Mexico could however be routed via the USA or Canada, both of whom had TPT agreements with Australia and Mexico.

Jose, together with Martin VK2PJW, went to the Mexican Consulate to discuss the matter, and the Mexican Ambassador contacted a senior DOC official, who granted TPT approval for the disaster.



HE, the Ambassador of Mexico, Dr Jesus F Domene V.

Photograph courtesy North Shore Advocate

Sam VK2BVS, sends a welfare message to Mexico for Julia McLaren, during the Earthquake Disaster

On learning ot the TPI approval, Sam sent a priority message from Mr Jesus Domene, Mexican Ambassador, to television channel 13, in Mexico City — the only station on the air. The message read: *"All Mexicans that have relatives in Australia can send messages through amateur radio operators. Permission granted 21st September 1985, at 1300UTC for Third Party Traffic between Mexican and Australian amateur radio stations"*.

Next day, word came back that television was being used as a notice board and the Ambassador's message was being periodically flashed on the screen.

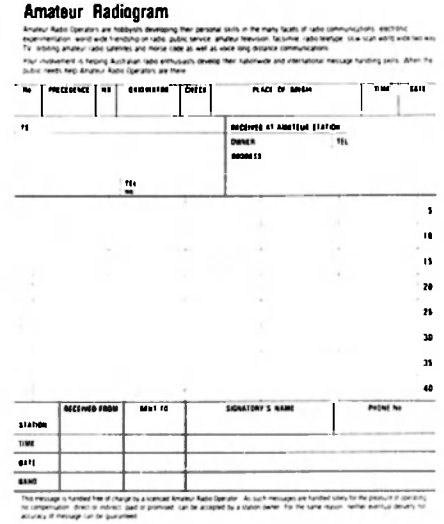
News of the VK/XE TPT agreement was phoned to WIA Sunday morning broadcasts from the WIA ACT Division following a request from DOC. By this time the ATN was in full operation with stations in, at least, VKs 1, 2, 3, 6, and 7. Some of the stations included VKs 2BBT, 2ATZ (Westlakes Radio Club), 3HP, 3CUG, 3CKK, 6MQ, 6AGG, and 7RH (apologies to other who participated, or offered help, but whose call signs are omitted).

Telephone numbers of participating stations, along with a story of their community service involvement, was given to the news media in Melbourne. The media, in turn, were clamouring for more details about amateur radio's involvement — it gave radio, television, and newspapers a local angle on an overseas disaster.

Radio news bulletins throughout Australia carried the story, and in Melbourne, at least three TV stations had it in the evening news services.

Meanwhile, Sam had a queue of people consoling each other, as they waited to fill in Amateur Radiogram forms for messages to their loved ones, in Mexico. The Mexican Consulate was directing people, wanting to get a message to Mexico, to Willoughby Park.

Telephones were ringing hot throughout Australia in the shacks of participating radio amateurs. One difficulty they faced was in trying to understand the callers, both due to their emotion-filled voices and Spanish accents.


Amateur Radiogram

PRECEDENCE

RECEIVED AT AMATEUR STATION

RECEIVED FROM

SIGNATORY'S NAME

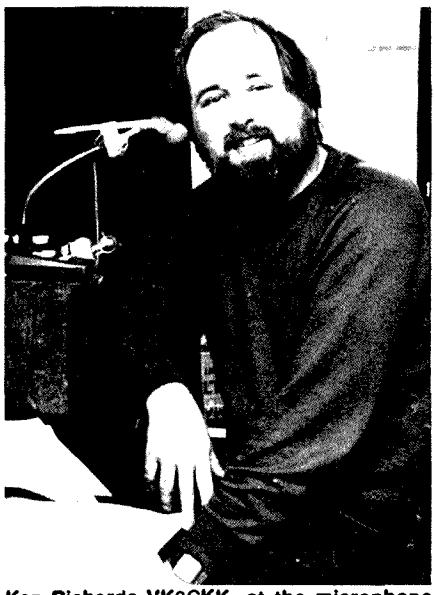
PHONE No

STATION

TIME

DATE

BAND



Ken Richards VK3CKK, at the microphone during his marathon effort to help Australians contact relatives and friends in devastated Mexico City.
Photograph courtesy Knox-Sherbrooke News

With the considerable number of messages tor Mexico being put in at the Australian Traffic Net, poor propagation to the USA, and a growing backlog of Amateur Radiograms, the WIA Victorian President, Jim Linton became concerned.

On the Monday he contacted Telecom to see if three co-ordinating radio amateurs could have free International Subscriber Dialing (ISD) from their phones, so they could pass messages direct to US radio amateurs. Help of the Australian Red Cross was also enlisted, to approach the Overseas Telecommunications Commission (OTC), to obtain free ISD access.

Both Telecom and OTC responded favourably, and the first to use the free overseas calls was Ken VK3CKK, on Tuesday, 24th September. Between 1400 and 1700UTC (midnight and 3am local time) he passed 90 messages to Dick Hoppe N5T, in New Mexico, USA. Ken had help from a group called the Knox Community Volunteers, who manned his phone, and the two additional phones installed by Telecom.

Members of the Eastern and Mountain District Radio Club, including John VK3DP, Gwen VK3DYL, and David VK3UR, assisted Ken and put up a better 80 metre dipole for use on the ATN's 80 metre frequency.

Ken originated about 150 messages to Mexico received from throughout Australia.

A second radio amateur to be given free ISD access was Fred VK2DZL, who collected 120 messages from Sam, and passed them, via the telephone, to Bill Smith W7GHT, in Idaho.

The third was Alan VK3CUG, at Barkers Creek, central Victoria, who passed some 60 messages to Troy Grimshore K7OVK, in Oregon. Alan also managed, on air, to pass about 20 pieces of traffic to KH6SP, at Pearl Harbour, who then relayed them to the US West Coast National Traffic System Net.

Alan had been involved in the operation from the Saturday evening, when the first messages for Mexico were received on the ATN. His telephone rang hot with calls from people throughout Australia, all wanting to get a message to Mexico, and also the news media seeking information on his activity.

Later, due to continuing poor propagation, messages from Mexico City were received from the USA using the ISD telephone facility provided to the three participating radio amateurs.

During the telephone calls it was learned that just one US radio amateur had reported handling 4 000 welfare messages for Mexico. Another snippet of information was that the US State Department had airlifted five fully equipped radio amateurs into Mexico City to help with emergency communications.

Overall, an estimated 600 messages for Mexico were passed, via the ATN. The community service it provided received unprecedented media publicity, and left a good and lasting impression about the hobby with the authorities, and the general public.

On 24th September, the Mexican Ambassador, Dr J F Domene V., sent a letter of appreciation to the President of the WIA, on behalf of all Mexicans. The letter stated:

In the name of the Embassy of Mexico, and all the Mexicans in Australia, I wish to express to you, and by your kind mediation, to all the amateur radio operators in Australia, our most grateful thanks for the time and effort they so generously gave in aid of the relatives and friends of the people of Mexico City, who were left without means of communication following the tragic earthquake of 20th September. Your kindness and solidarity will not be forgotten.

AR

LETTERS OF APPRECIATION

The following letters were received by Sam Voron VK2BVS.

Council at its meeting on 23rd September 1985, received a Mayoral Minute on the tireless efforts of the Willoughby Amateur Radio Group in assisting families and friends make contact with Mexico City in the wake of the recent tragic earthquakes.

Council subsequently resolved to convey its congratulations and thanks to you and the members of the Willoughby Amateur Radio Group for your dedication to the services of others during this emergency.

It gives me great pleasure to convey Council's decision to you and to also add my personal thanks for the compassion you have shown in assisting numerous Mexican families during their time of great emotional stress.

Yours faithfully,

A J Payne,
TOWN CLERK,
The Council of the Municipality of Willoughby.

Once we have been able to obtain information about almost the total number of personas who have consulted this Consulate-General (Mexicans and Australians), I wish to express to you our recognition for your valuable assistance which came just in time, specially during the first most tragic days.

Thank you very much.

Yours sincerely,

Hugo DiazThome,
Consul-General of Mexico.

AR

We sincerely thank Sam Voron and his friends for the wonderful support and hard work following the Mexico City Earthquakes.

It was an anxious time for the Mexican Community in Australia, and we appreciate all the time spent making contact with Mexico.

Yours sincerely,

Alfonso and Louise Cardenas,
27 Greenhill Crescent,
Saint Ives, NSW. 2075.

AR

BILL HAS A GO AT RTTY

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

Building a RTTY modem proved to be a little beyond Bill Blitheringtwit, mainly because it was not possible for him to utilise anything suitable from his vast store of junk. He figured that if he had to go and buy all sorts of parts he might just as well buy a ready made modem. Better be safe than sorry — an attitude unique to him.

Now the modem was connected in position to his dipole and into the Model 100, which was still sitting on the floor. From somewhere or other he had managed to scrounge a reel of teleprinter paper. An earlier experiment with some of his wife's kitchen paper towels had proved to be a dismal failure. It had provided some temporary entertainment when it had come apart in the machine and required picking out, fragment by fragment, with tweezers. However, it now really looked as though Bill was at last in business.

He turned the machine on and it gave out a satisfying humming sound. Then he turned on his FT 101E and tuned around on 40 metres. He was in luck, somebody was warbling away and Bill fiddled about until little lights on the modem began to blink. It gave him quite a start when the Model 100 suddenly started chattering away.

Bill was delighted. At last he had got something to work! He realised what Columbus must have felt like when he discovered America. The printer reached the end of its line and stayed at one spot, busily hammering away at the edge of the paper, making a sort of black blob.

What was this? Bill was mystified. There had to be something wrong with the machine. He kicked it but the thing still hammered away in one spot. Then, just as suddenly as it had started, the warbling sound ceased and was replaced by a similar sound, somewhat lower in pitch. Bill felt triumphant. He knew what that was! He adjusted the frequency on the FT 101E and once more the Model 100 began to tap happily away. However, when it reached the end of the line it made the same sort of blob again.

There had to be something wrong with the dratted thing. The message up to the blob seemed to have been typed by somebody using his feet, but, apart from that, it had a slight resemblance to english. But the blob business puzzled Bill. He grabbed a screwdriver and started poking, ending up dropping the tool into the machine's bowels. That finished his first attempt at RTTY, as, by now he was slightly bored by the whole business. Leaving the screwdriver still in the machine, he ripped open a beer can and drank thoughtfully.

Nobody had told him about the lack of carriage returns sometimes experienced with people who sent RTTY by computer and received their messages on TV screens.

AR

WIA EXPOSURE

During a recent "Sale of the Century" programme on television, Tony Barber, the host and questionmaster, displayed a WIA badge, sent to him by the Federal Secretary. Tony commented that the WIA was 75 years old this year, and that it was the oldest society of its kind in the world.

Delvene Delaney, his hostess, mentioned that the film star Marlon Brando was an amateur. This fact was also reported in '73' magazine of September 1985, which gave a call listing as follows: *Martin Brancheaux FO0GJ.*

The "Sale of the Century" programme was good exposure for the WIA and amateur radio.

AUSTRALIAN RADIO JOURNALS BEFORE 1939 — A SURVEY

Chris Long,

6 Torring Road, East Hawthorn, Vic. 3123

Historical matters have come to the fore during the WIA's current 75th Anniversary celebrations. The July issue of Amateur Radio contained a good deal of historical writing, though no references were given to the sources of the material. Such facts and dates are unsubstantiated. Anecdotal material passed on through the spoken word is valuable for fleshing out the dry bones of history, but definitive facts and dates can only be positively ascertained with reference to written or printed records.

In July's issue of Amateur Radio Jim Linton gave us an outline of G W Selby's work, but I question the source of some of the dates he provides. Selby himself did not claim to be working with wireless telegraphy earlier than 1897, according to the RADIO EXPERIMENTER article published in February 1924. An alleged reference to an article on Selby's wireless experiments in THE AUSTRALASIAN of 22nd November 1897 is plainly wrong, as that newspaper was not published on that date. A search of the newspaper for the whole of November and December of 1897 failed to find any reference to Selby. Does any evidence exist to confirm Jim's suggestion that.

"In 1896 he sent a wireless telegraphy message from Brighton to Caulfield?"

Further research is certainly necessary on this matter. It would be nice to say that Selby, a Victorian experimenter, was the first Australian radio amateur, but proof of such a claim is necessary first.

During my recent appointment as the Acting Curator of Electronics at the Museum of Victoria, I had access to the closed storage stacks of the State Library of Victoria. I took advantage of this excellent opportunity to compile a rough list of local radio literature in the pre-war years, up to 1939. During the 1920s and 30s, a surprising number of local radio magazines were published and preserved in the State Library. Most of these journals have been forgotten. A layer of dust confirms that few have been used for research in recent times. I hope that this article will rectify the situation.

Before the First World War, most of the literature on wireless telegraphy was only available in books which were difficult to obtain. There were few specialist journals on the subject, and none locally published. References to local experiments were scattered through newspapers, or reported in the transactions of engineering societies. G W Selby's work can be found in print in the Melbourne ARGUS of 29th April 1899.

By 1900, H W Jenvey of the Victorian Post Office, as chief telegraphist, began a series of experiments into wireless telegraphy, particularly with a view to its practical application. He had been the author of an exhaustive two-volume book on local telegraph systems in the early 1890s, which was the standard Australian text of its time. Assisted by M H Fitzgerald and F W Chambers, he initially set up stations at the Melbourne Observatory and the Melbourne GPO. A circuit

Pat Wilson, the Empire's champion baby, listens to bedtime stories in 1925.

diagram of one of these stations, dated September 1900, is held by the manuscripts section of the La Trobe Library. The Museum of Victoria also holds a telegram sent from Chambers in Doncaster to Jenvey in the city, confirming reception of wireless telegraph messages during the latter part of 1900.

In May 1901, Jenvey set up a temporary station at Elwood to communicate with the Duke of York's escort ship, St George, during the Royal Visit for the opening of Australia's first Federal Parliament in Melbourne. Lieutenant Trousdale controlled the Marconi equipment aboard the escort. The complete Morse tape record of the Jenvey/Trousdale communication of 18th May 1901 is held in the La Trobe Library's manuscripts section in Melbourne. About six weeks later in Hobart, Trousdale conducted a similar experiment with the pioneer Tasmanian amateur F W 'Pop' Medhurst. These were the first confirmed ship-to-shore wireless communications in Australia, though there are rumours of earlier tests conducted by G W Selby to the HMVS Cerberus which have not been confirmed.

Jenvey's wireless telegraph experiments were cut short by a new Director of Posts and Telegraphs in about 1902. The new director saw wireless telegraphy as 'unproven', and directed Jenvey to activities which seemed more likely to produce immediate revenue. A complete account of Jenvey's experiments was not published until the LISTENER IN revealed the sad details on 19th June 1926. Jenvey's coherer detector is in the collection of the Museum of Victoria.

The next local wireless event which was sufficiently important to gain press coverage was the opening of the Queenscliff-Devenport link across Bass Strait on 1906. The Marconi Company sent its engineer, Captain L Walker, to set up the apparatus. Massive masts were erected at Queenscliff, near the football ground, and a special excursion train from Geelong loaded with dignitaries was chartered. Jenvey is believed to have been involved with the Victorian side of the installation. The GEELONG ADVERTISER, 13th July 1906 (p4) and the Melbourne AGE, 13th July 1906 (p3), published lengthy accounts of the opening ceremonies. The receiver, a 'magnetic detector', together with the three-circuit aerial tuner used on that occasion, are both held by the Museum of Victoria.

In 1908, a Postal Electrical Society of Victoria was formed with H W Jenvey as its first president. Technical papers were read at each of their monthly meetings, and wireless telegraphy must have been the subject of some of these. I cannot locate any transactions or proceedings for the Society in its early years, though some sort of journal may have been privately circulated. The story of the founding of the Society is told in the TELECOMMUNICATION JOURNAL OF AUSTRALIA, June 1938, (pps2-4).

Experimental licences were first granted under the Wireless Telegraphy Act in 1905. Prominent among the radio amateurs of the pre-First War period was Victor Nightingall of Glenhuntly, an inveterate experimenter in all things electrical. He was deeply involved with professional X-ray work, and held many patents in fields as diverse as slow combustion stoves and sound recording machines. A scrapbook of his experiments is held by his son in Warrandyte, Vic. The Museum of Victoria holds some of his X-ray gear, but no radio equipment.

The minutes of the Wireless Society of Victoria have miraculously survived. These document the activities of the local amateurs from 1910 to 1914. A few weeks before the declaration of war they published the first Australian radio call book. A copy is held by the State Library of Victoria. Photostat copies of the early minutes are held by the Federal WIA Historian, Max Hull VK3ZS.

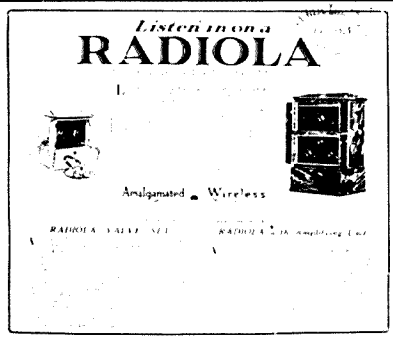
All amateur radio activities were suspended during the First World War, though many former amateurs extended their radio knowledge in the services, particularly in respect of the provision of communication with the troop transports on ships. Amateur communication, as a pastime, went into recess until the early 1920s.

Cover 20th May 1923. 'The smile of a deaf man who hears for the first time through radio receivers'.

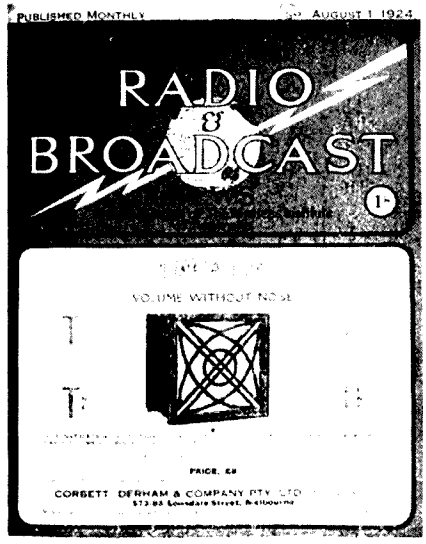
In 1922, the first issue of a Sydney wireless journal, SEA LAND AND AIR, was put on the market. A few years later this became the 'Official Journal' of the NSW Division of the WIA, but the official journal of the Federal Convention and the Victorian Division has always been published in Melbourne, as we shall see. By 4th April 1923, SEA LAND AND AIR was absorbed into a fortnightly periodical, RADIO IN AUSTRALIA AND NEW ZEALAND, which was first published on that date. This continued as a fortnightly journal until 13th April 1927 when it became a monthly, still published in Sydney. The last copy of RADIO IN AUSTRALIA AND NEW ZEALAND (sometimes known more simply as RADIO) held by the State Library of Victoria is dated 15th December 1928. WIRELESS WEEKLY, the Sydney journal which had been running parallel with RADIO since the mid-20s then absorbed its rival, and the first WIRELESS WEEKLY incorporating RADIO was published on 28th December 1928. WIRELESS WEEKLY ran through to the early months of 1939, and then seems to have been re-organised as the monthly RADIO AND HOBBIES IN AUSTRALIA, first published in April 1939. It continues today as ELECTRONICS AUSTRALIA.

The Wireless Institute's own 'official journal' was initially the RADIO EXPERIMENTER, a Melbourne-based monthly, first issued in December 1923. The Wireless Institute ceased to be involved with this journal after June 1924, though it continued under private ownership as the RADIO EXPERIMENTER AND BROADCASTER until July 1925.

After the split from the RADIO EXPERIMENTER, the Wireless Institute's official journal became EXPERIMENTAL RADIO AND BROADCAST NEWS, which appeared in August 1924 and ran monthly until February 1925. From the March 1925 issue it was renamed RADIO



Radio sets available in 1923.



A Speaker of Excellence in 1924.

BROADCAST. This was an expensive-looking magazine, printed on glossy art paper with a cover

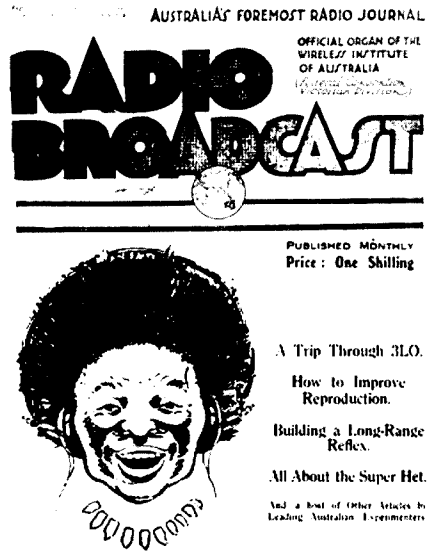
of dyed and textured cartridge paper. It was lavishly illustrated throughout, usually in inks of several different colours. It provides a wealth of written and pictorial documentation for the radio historian. The Melbourne-based RADIO BROADCAST continued in monthly editions as the WIA's official journal until January 1927, and then went into a swift decline. There was no February 1927 issue. March and April were published in a reduced size. Then a 'new series' of RADIO BROADCAST was issued weekly, with no cover — virtually an eight page pamphlet. The State Library of Victoria has only one issue of this pamphlet format for 10th June 1927.

From the 10th June 1927 to the first issue of AMATEUR RADIO in October 1933, there is a mysterious gap in the printed record of WIA activities. There must have been some sort of 'official' WIA publication during this time, but I am not sure that any publication that I have sighted could be the one in question. The front page of a printed 'WIA BULLETIN' for February 1932, 'Vol 3, No 8', is reproduced in the WIA BOOK. This 'Bulletin' seems to have been printed in Western Australia, and with the issue numbers given it could have filled the gap quite nicely. But is this merely a state bulletin? As the State Library of Victoria holds no examples, I am unable to comment on its content.

Another possible 'official publication' of the WIA is RADIO MONTHLY (Sydney) of which I've seen only a few isolated issues in private collections. This was a voluminous production published by 'Amateur Radio and Broadcast Monthly Pty Ltd'. The two copies sighted were for September 1932 and December 1933. The latter is held by Peter Wolfenden VK3KAU, and is numbered 'Vol 2, No 10'. Assuming one volume per year, it was probably established at the start of 1931. It continued well into the 1930s.

From October 1933, amateur radio events have been reported in the WIA's own monthly AMATEUR RADIO magazine, and a complete set is held by the Victorian Division. The State Library's set is incomplete, having only a few odd issues before 1946. The story of Amateur Radio, the magazine, was told in the Golden Jubilee issue, October 1983.

But it would be wrong to assume that amateur radio activities were ignored by magazines not possessing the WIA's official sanction. Some of



1st July 1925.

the most fascinating and detailed descriptions of early amateur activities are to be found in seemingly unpretentious hobbyist magazines. During the 1920s and early 1930s, the Melbourne firm of Homecrafts (P H McElroy) either published or was associated with a series of hobby journals which encouraged sales of their radio components. They published articles of a very high journalistic and technical standard and helped the hobby along extremely well in its early years. The uninspiring titles of these magazines discourages many researchers from using them as references, but they should not be underestimated.

The earliest of these journals, of which I am aware, was the HOME CRAFTSMAN, a monthly journal published between September 1923 and June 1924. The advertising for Homecrafts is certainly included, but the articles are not overtly commercial and are written by various amateurs who obviously 'know their stuff'. There are fascinating advertisements for early radio components, lists of stations and reports of amateur activities. The magazine is of about A4 size and is lavishly illustrated with photographs and diagrams. From June 1924 to June 1925 there is a gap, as either the magazine folded or a volume may have gone missing from the State Library shelves.

In June 1925, Homecrafts published the first monthly edition of THE HOMECRAFT MAGAZINE. This had radio as its principal thrust, with occasional additional articles on model making. Stan Hosken 3MP, was the Technical Editor of this excellent tabloid, which was slightly smaller, but thicker in format than the earlier HOME CRAFTSMAN. The HOMECRAFT magazine published lists of stations heard in Melbourne which provide an interesting insight into the number of broadcasters who briefly occupied the bands in these early experimental days. Its content is otherwise reminiscent of RADIO TELEVISION AND HOBBIES in the John Moyle era. The HOMECRAFT magazine ran until October 1926. A magazine of much larger format, POPULAR HOBBIES, then took its place. This was one of the best Australian electronics monthlies of its era, running until the economic depression knocked it out in 1932. POPULAR HOBBIES published the first local constructional article on the design of a working closed circuit television system, in 1928!. It described the operation of such

1st February 1927.

new inventions as radio facsimile, and even had in-depth descriptions of broadcast studio design by 3AR's chief engineer, Donald Macdonald. A truly creditable effort, and a very good read. What a pity it is that Homecrafts no longer serves the radio component trade.

Many commercial radio journals of the late 1920s and 30s carried amateur radio news. The Melbourne weekly LISTENER IN, first published on 10th January 1925, the southern equivalent of Sydney's WIRELESS WEEKLY, had regular amateur notes by Max Howden 3BQ. His column of intelligent comment and dry wit was constantly accompanied by technical articles and constructional information. The paper slowly changed into a radio entertainment guide during the 1930s. A particularly humourous touch is added to some of the editions from 1928, which include programme notes for broadcast band music transmissions by 3BY, 3EF and others. This 200 metre activity of the early amateurs kept our hobby in the public eye, and its value in maintaining public relations must have been great. Anyway, it must have been fun to play 'deejay' each Sunday on your own transmitting gear. LISTENER IN continues today as the TV SCENE.

The LISTENER IN had healthy competition during the 20s from the Melbourne-based POPULAR RADIO WEEKLY, a tabloid of smaller format than its competitor, but printed on better glossy paper. POPULAR RADIO WEEKLY began on 25th February 1925, six weeks after the LISTENER IN, and continued until 20th June 1928, when competition forced it to change its format. On the latter date, it became POPULAR RADIO MONTHLY, with more discursive, lengthier articles. Then on 1st November 1928, it changed its name to POPULAR RADIO AND AVIATION, with a mish-mash of material from both spheres of interest. The last issue of the magazine held by the State Library is for 1st May 1929, and I assume that it folded.

Continued next month . . .

SCHOOLGIRLS TARGETS BY SCIENTISTS

Women CSIRO scientists, and technical staff are to tour Australian high schools to encourage more girls into scientific careers.

Science Minister Barry Jones, and Education Minister Senator Susan Ryan said the scientists would encourage girls to study science. Only about four percent of Australia's tertiary students in engineering and technology were female and girls were under-represented in "hard science" subjects in secondary schools.

OSCILLOSCOPE SET FOR WORLD MARKETS

An Australian firm is hoping for big export orders after developing a new form of oscilloscope.

Melbourne-based BWD Industries is confident of tripling international sales in the next 12 months with its 8811 Powerscope 11. This model is a high performance oscilloscope which provides accurate measurements of voltage, current, power, phase, and time.

Unlike conventional oscilloscopes, this one can simultaneously display multiple in-circuit power control measurements up to 1000 volts. Additional features allow it to operate as a conventional oscilloscope for measurements up to 50MHz.

BWD describe it as the most versatile and universal test tool available.

Peter VK3KAU (standing), with (from left) Michael VK3KI, Cynthia Wolfenden (XYL VK3KAU), and Max VK3ZS.

FROM LEFT: Mavis VK3BIR, Ruth Cook (XYL VK3AFW), Roger VK2ZTB and Anne VK4KZX.

Alan VK3BBM, Pat Noble (XYL VK3BBM) and Alan VK1KAL.

FROM LEFT: Nao N1CIX/JH1VRQ/VK3DYM, Mavis VK3KS and Ivor VK3XB.

VK4 representatives, Anne VK4KZX, and Guy VK4ZXZ.

FROM LEFT: Shinjiro JA1TZK, Earl VK3BER and Hideo Agawa.

ABOVE: Nan Owen (XYL VK3KI), Harold VK3AFQ, and Judy (XYL VK3ADW).

ABOVE: The (Right) Honourable Michael Duffy MP. FAR LEFT: Ross VK3CRB, and his XYL Phil chat to an overseas guest, Tadao JA1G JE. LEFT: Peter VK3YRP, Allen VK3AE and Jack VK3SP.

On Saturday, 9th November, a Special 75th Anniversary Dinner was held at the Southern Cross Hotel, Melbourne.

Guests met for cocktails and a get-together, prior to enjoying a sumptuous meal in the Alpha Ballroom, ably presided over by Master of Ceremonies, Max Hull VK3ZS.

During the evening, at Max's suggestion, menus were circulated around the room so that all guests could sign them as a memento of the auspicious occasion.

Messages of congratulations were received from The (Right) Honourable R J L Hawke, Prime Minister of Australia, Mr Ronald Reagan, President of the United States, and Senator Barry Goldwater. (See page 3).

At the conclusion of the meal, the WIA Federal President, David VK3ADW, was the recipient of many gifts from the overseas guests, presented on behalf of their organisations to mark the Institute's Anniversary.

SOME FACES AT THE WIA'S 75TH ANNIVERSARY DINNER

Bill VK3ABP (Editor of AR) and his XYL Margaret.

ABOVE: Menus were autographed by each guest present as a memento. LEFT: Dick W1RU proposes a toast to the WIA. RIGHT: Ross Ramsay spoke on behalf of the Department of Communications. Ross composed some limericks for the occasion, much to the amusement of the audience.

FAR LEFT: The Chinese Radio Sports Association presented the WIA with a colourful wall hanging. LEFT: An engraved plaque was presented on behalf of the Radio Club Venezolano.

BELOW LEFT: Some of the gifts received. BELOW: A magnificent gold clock (set on GMT), presented by David G3OUF, on behalf of the RSGB.

Photographs courtesy Ken McLachlan VK3AH

ANNUAL INDEX for AR — 1985 ..... Vol 53

ARMADILLOS

Armadillos will run again in 1986.

In 1983, the members of the Texas DX Society decided to try their hand at county hunting, by activating all 254 Texas counties during a County Hunters CW contest. Fewer than 60 amateurs covered 262 000 square miles in less than 48 hours to accomplish the feat.

In 1984, the club expanded the "Armadillo Run", as it became known, to include the states of Arkansas, Louisiana, and Mississippi.

For 1986, the group has even bigger plans — a national Armadillo Run! They will attempt to activate *every county in the United States* during the County Hunters phone and CW contests in May and July.

From 73 for Radio Amateurs — August 1985.

AR

POLYCHLORINATED BIPHENYLS

The serious health hazard represented by contact with polychlorinated biphenyls (PCB) has been mentioned several times in this magazine. This man-made chemical was widely used, from the 30s to the 70s, for such common applications as oil filled capacitors and transformers; these ranged from very large industrial transformers to fluorescent lamps capacitors. It was only as a result of a series of human disasters that led to the recognition (in some countries) of this very real hazard; PCB compounds can be absorbed through the skin or ingested (since it does not break down in food chains), and it has been linked with liver cancer, deformed babies and skin diseases. It was not until 1977 that manufacture of these chemicals was abandoned by British firms. Such compounds provided excellent insulation and coolants and reduced fire hazards; and were much cheaper than the silicones now commonly used to replace this dangerous material.

PCB compounds are still likely to be found in large high voltage transmitting capacitors and transformers.

Precautions should be taken when dealing with (or disposing of leaky oil filled transformers and capacitors unless it is known, for sure, that they do not contain this chemical. British amateur, Brian Castle G4DYF commented: "Recently I came across a leaking transformer and wondered whether it was necessary to dispose of this with great care. An industrial chemist suggested the following test to detect the presence of PCB compounds: 'Take a piece of plain copper wire. Put in a gas flame and burn off all dirt until the flame becomes clear. Allow the wire to cool. Dip it in the oil. Return the wire to the gas flame. If it burns *yellow* it is ordinary oil. If it burns *bright green*, then these compounds are *probably* present. It is not a 100 percent positive test, but if the flame burns bright green it will be wise to assume that the oil contains the compounds — deal accordingly, as it is better to be safe than sorry'."

Contributed by Ron Cook VK3AFW, from Rad Comm July 1982.

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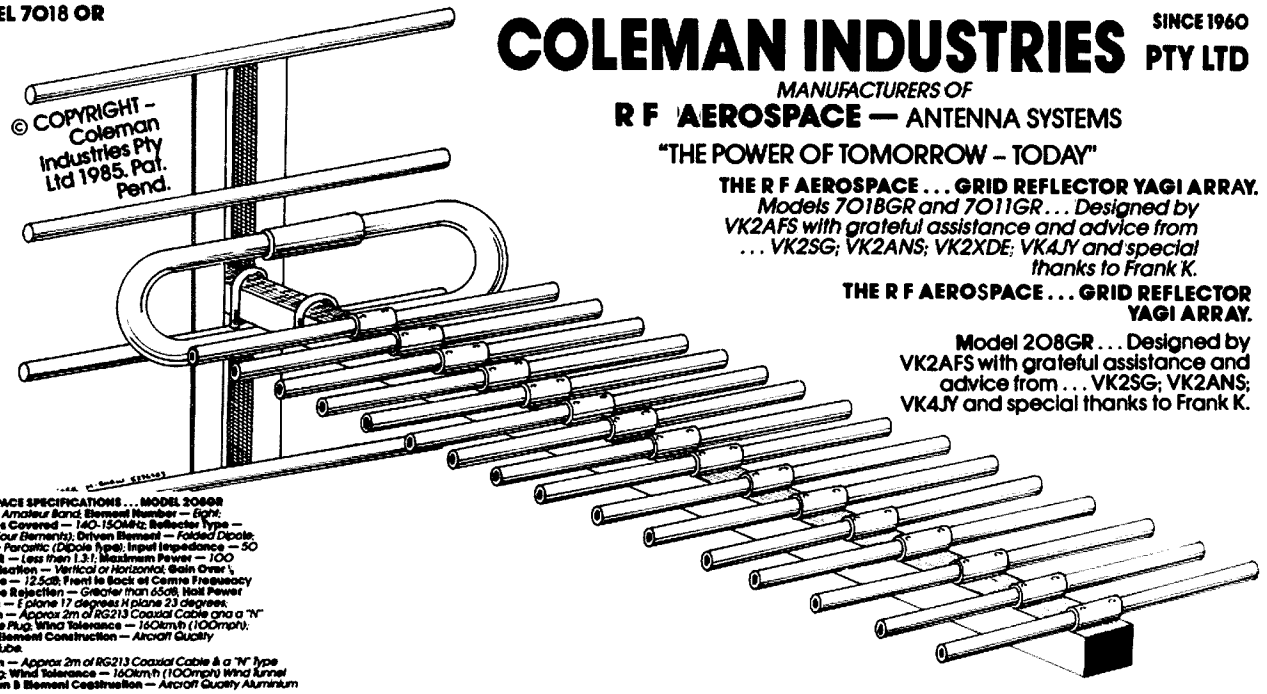

THE R F AEROSPACE . . . GRID REFLECTOR YAGI ARRAY.

Models 7018GR and 7011GR . . . Designed by VK2AFS with grateful assistance and advice from . . . VK2SG; VK2ANS; VK2XDE; VK4JY and special thanks to Frank K.

THE R F AEROSPACE . . . GRID REFLECTOR YAGI ARRAY.

Model 208GR . . . Designed by VK2AFS with grateful assistance and advice from . . . VK2SG; VK2ANS; VK4JY and special thanks to Frank K.

R F AEROSPACE SPECIFICATIONS . . . MODEL 208GR
Band — *2m Amateur Band;* **Element Number** — *Eight;* **Frequencies Covered** — *140-150MHz;* **Reflector Type** — *Grid type (Four Elements);* **Driven Element** — *Folded Dipole;* **Directors** — *Parasitic (Dipole type);* **Input Impedance** — *50 ohms;* **VSWR** — *Less than 1.3:1;* **Maximum Power** — *100 watts;* **Polarisation** — *Vertical or Horizontal;* **Gain Over ½ wave Dipole** — *12.5dB;* **Front to Back at Centre Frequency** — *35dB;* **Side Rejection** — *Greater than 65dB;* **Half Power Beamwidth** — *E plane 17 degrees H plane 23 degrees;* **Connection** — *Approx 2m of RG213 Coaxial Cable and a "N" type Female Plug;* **Wind Tolerance** — *160Km/h (100mph) Wind Tunnel Tested;* **Boom and Element Construction** — *Aircraft Quality Aluminium Tube.*

Connection — *Approx 2m of RG213 Coaxial Cable & a "N" type Female Plug;* **Wind Tolerance** — *160Km/h (100mph) Wind Tunnel Tested;* **Boom & Element Construction** — *Aircraft Quality Aluminium Tube.*

R F AEROSPACE: AUSTRALIAN ANTENNA SYSTEMS
MODELS: 7018GR and 7011GR 70cm YAGI ARRAYS.
MODEL: 208GR 2 metre YAGI ARRAY.

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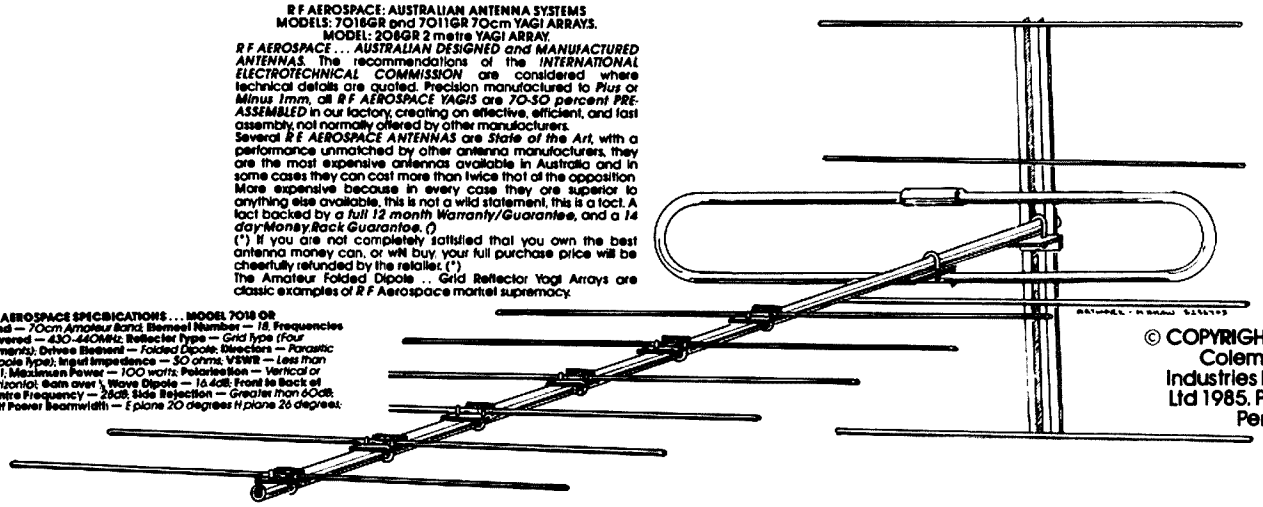
Several *R F AEROSPACE ANTENNAS* are *State of the Art,* with a performance unmatched by other antenna manufacturers, they are the most expensive antennas available in Australia and in some cases they can cost more than twice that of the opposition. More expensive because in every case they are superior to anything else available, this is not a wild statement, this is a fact. A fact backed by a *full 12 month Warranty/Guarantee,* and a *14 day Money Back Guarantee.* (*)
(*) If you are not completely satisfied that you own the best antenna money can, or will buy, your full purchase price will be cheerfully refunded by the retailer. (*)
The Amateur Folded Dipole . . Grid Reflector Yagi Arrays are classic examples of *R F Aerospace* market supremacy.

R F AEROSPACE SPECIFICATIONS . . . MODEL 7018 OR
Band — *70cm Amateur Band;* **Element Number** — *18;* **Frequencies Covered** — *430-440MHz;* **Reflector Type** — *Grid type (Four Elements);* **Driven Element** — *Folded Dipole;* **Directors** — *Parasitic (Dipole type);* **Input Impedance** — *50 ohms;* **VSWR** — *Less than 1.5:1;* **Maximum Power** — *100 watts;* **Polarisation** — *Vertical or Horizontal;* **Gain over ½ Wave Dipole** — *16.4dB;* **Front to Back at Centre Frequency** — *28dB;* **Side Rejection** — *Greater than 60dB;* **Half Power Beamwidth** — *E plane 20 degrees H plane 26 degrees.*



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7018 GR $229	HD1011O3 Full Size..... was $199 special $99	203 Full Size. was $65 special $35	*AVAILABLE UNDER THE*
7011 GR..... $179	LD1011O3 Short..... was $139 special $79	204 Full Size was $75 special $45	**MOBILE ONE**
ATV7018 GR $239	HD1011O4 Full Size..... was $239 special $129	205 Short.. was $79 special $35	*LABEL IN: INDONESIA AND MALAYSIA*
ATV7011 GR..... $189	LD1011O4 Short..... was $169 special $99	205 Full Size. was $89 special $59	**OR — SERIES ANTENNAE GUARANTEED COMMERCIAL QUALITY, & STANDARD**
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Folded Dipole – 70.....$90	Gamma Matches Available from $17 Separately, if Desired	2011 Full Size was $169 special $129	
Folded Dipole – ATV $100		208x8 Full Size was $209 special $149	
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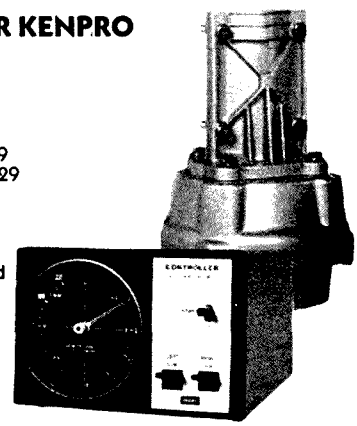

CHIRNSIDE beams, **CA.33** 3el triband $309, **CA.35DX** 5el triband $379, heavy-duty tri- banders on 4m and 6m booms, respectively.

CA 42 4el 15/10m duo-bander on 4m boom $179

CA.5S5 80-10m vertical $129. 80 or 40m helicals $35 ea, 20, 15, or 10m helicals $30 ea.

CORONA/JUMBO HP-240DX 10-200 + W 3-30MHz HF Solid-State Linear Amplifier features: 2x2SC-2097 transistors, four power levels, adjustable preamp gain **$219**

WELZ meters, **SP-220** 1.8-200MHz 2/20/200W $99, **SP-420 140-525MHz 4/20/200W $109, SP-122 1.6-60MHz 20/200/2 000W $119.Compare to Kenwood and others.**

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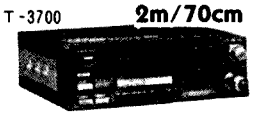
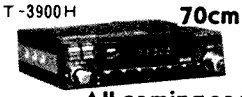
FT-3700 2m/70cm



FMP-1

FT-3900H 70cm



FT-2303R 2m

. . . All coming soon

IC-26 2m

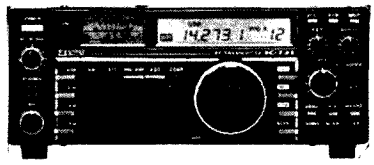
YAESU FT-726 (R)

SAVE! ~~$1599~~ SAVE!

VHF/UHF all mode transceiver. 10 watts output, AC/DC, 0.15uV sensitivity on SSB, LSB, USB, CW, FM. Repeater reverse. IF shift & width controls. RF speech processor. 10 channels memory store mode, frequency & searches. Full cross band, cross mode duplex possible with satellite unit. Supplied with 2m module & mic.

Full 12 months warranty!

70cm ..... ~~$475~~
6m ..... ~~$375~~
Satellite ..... ~~$105~~



ICOM IC-731

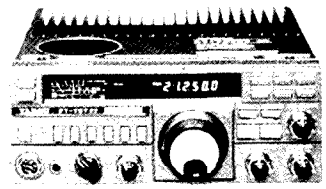
HF SSB, CW, AM, FM transceiver with 100 watts RF o/p. 160-10m transmitter, 100kHz-30MHz receiver. 12 tunable memory channels with memory scan & programme scan functions. PBT & notch tuning. NB, etc. Inc mic. Sensitivity 0.15uV SSB. Compare to the FT-757GX and save

(Available soon will be the IC-731S 10 watts for only $1125, inc mic).

Why pay more?

$1245 Full 12 months warranty.

PS55 ..... $299
AT150 ..... SCall



YAESU FT-757GX

~~$1295~~

We guarantee to better any competitor's genuine advertised price on Yaesu amateur radio models we normally stock, providing the competitor has the goods available at the advertised price. SO! WHY PAY MORE?

inc mic & CW filter. Compare to Kenwood TS-430S.

Full 12 months warranty!

FP700 ..... ~~$245~~
FC700 ..... ~~$109~~
FC757AT ..... ~~$449~~
MD1B8 ..... ~~$109~~

TOKYO HY-POWER

- HL-120U 10-100W, GaAsFET, 70cm $599
- HL-60U 10-60W, GaAsFET, 70cm $379
- HL-160V 3/10-160W 2m linear $589
- HL-160V25 25-160W 2m linear, Jan del $499
- HL-110V 3/10-110W 2m linear $449
- HL-85V 10-85W GaAsFET, 2m $349
- HL-62V 10-60W GaAsFET, 2m $229
- HL-35V 3-30W GaAsFET, 2m $149
- HL-725D 10-60W 2m/70cm, Jan del $529
- HL-66V 10-60W 6m GaAsFET $229
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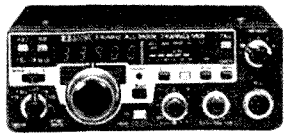
- HL-121OU, 23cm 1-10W linear .... Coming Soon!
- HC-200, 200W tuner w/3 pos ant sw $199
- HC-400L, 350W tuner, 160-10m, 4 pos $339
- HL-200E, 10-200W, HF linear, 12V $229



ICOM IC-390

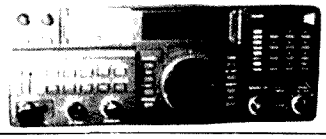
(equiv to IC-490A) 430-440MHz 10W, all-mode UHF mobile transceiver.

Compare to lesser units . . . **$699**

12 months warranty. Limited stocks.

ICOM IC-R7000 SCANNER

Covers 25-1 000MHz continuously. All-mode reception. Call for further details.



Best price in Australia guaranteed.

YAESU FT-2700RH

Full cross-band duplex, 2m/70cm, 25W, 10ch mem, PMS, etc. ~~$945~~

YAESU IS STATE-OF-THE-ART

- YAESU FT-209R 2m 3.5W hand-held ..... ~~$500~~
- YAESU FT-209(R)H 2m 5W h/h ..... ~~$550~~

Above w/FNB4, c/case, chgr, whip, belt clip.

- YAESU FT-2700RH 2m/70cm 25W full cross- band duplex FM transceiver ~~$945~~
- YAESU FT-770(R) and (R)H ..... coming.
- 12 months warranty on our YAESU, of course.
- YAESU FT-270(R) 10W 2m FM mobile transceiver $499
- YAESU FT-270(R)H 45W 2m FM state-of-the-art mobile transceiver ..... ~~$699~~

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SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY NSW

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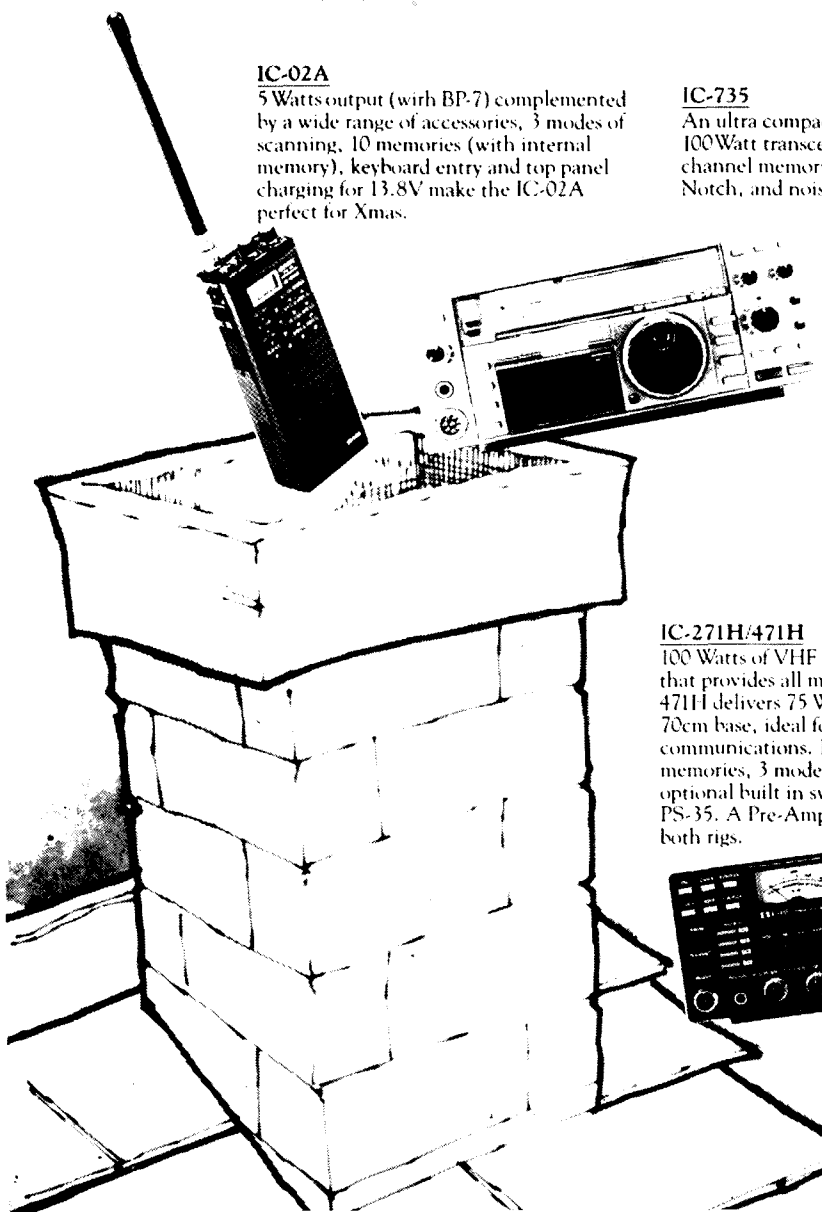
Is Santa Clau

If he is ... He wou

IC-02A
5 Watts output (with BP-7) complemented by a wide range of accessories, 3 modes of scanning, 10 memories (with internal memory), keyboard entry and top panel charging for 13.8V make the IC-02A perfect for Xmas.

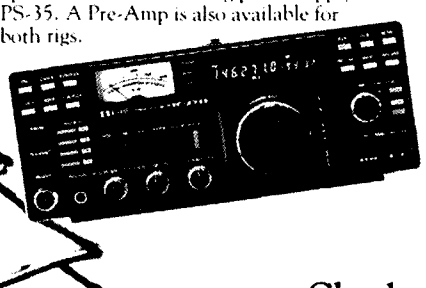
IC-735
An ultra compact HF, SSB/CW/AM 100Watt transceiver. Features include 12 channel memory with scanning, PBT, Notch, and noise blanker, etc.



IC-290
25 Watts output for a versatile VHF mobile that transceives FM/SSB/CW. Dual VFO's, 5 memories and 3 scanning modes make using it a pleasure.

R71A
An HF rec
channels.
an option
voice frequ
magnificer

IC-271H/471H
100 Watts of VHF power in a transceiver that provides all modes. The companion 471H delivers 75 Watts for the ultimate 70cm base, ideal for sarelite communications. Both radios have 32 memories, 3 modes of scanning, and an optional built in switching power supply PS-35. A Pre-Amp is also available for both rigs.



IC-751
A unique built in switching p
(opt PS-35) delivers all in on
performance for this 100W
SSB/AM/CW/RTTY/FM tra
Dual VFO's, 32 memories wit
notch, and NB enhance the t
the general coverage receiver

Check out these and other fab
at your local authorized IC

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ver that has 32 programmable
SB/CW/AM/RTTY/FM (opt)
fra red remote control and
ncy readout (opt), a
radio.

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PBT,
ning for

IC-27A/47A
These ultra compact mobiles deliver 25Watts offer voice frequency readout (opt), 9 memories with back-up, scanning, and feature a built in loudspeaker.

IC-3200A
Ultra compact dual bander (VHF/UHF) with a built in duplexer, 10 tunable channels, 4 scanning modes and an advanced LCD readout, great for the car.

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NOVICE NOTES

BASIC METALWORKING - "CHASSIS BASHING"

Drew Diamond VK3XU
Lot 2, Gatters Road, Wonga Park, Vic. 3115

Have you ever wanted to have a go at an electronics project, but have been discouraged by the metal- working prospects? Nowadays, there are plenty of handsome factory-made cases available, but their cost can sometimes be a bit prohibitive, especially for the poor student. With a few tools, and a little skill, it is possible to make some very presentable boxes to house your projects. Firms such as Alcan and Comalco sell sheet aluminium by weight, so the amateur can buy a selection of off-cuts at reasonable cost.

An investment in good tools is never wasted money, for they will hold their value, and prove their worth, time and again. It is the intention of this article to describe the use of some basic tools, and illustrate the fabrication of a simple box for a QRP transmitter project.

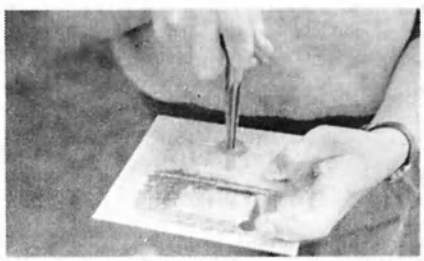
FILING

Of the hundreds of different files available to the amateur, we only require about three or four types at first to carry out basic operations. These would include a 'flat' second-cut file for finishing straight edges, and removing burrs, a round or 'rat-tail' file for enlarging holes (but see later), and a half round, for finishing meter holes and the like. Never use a file without a handle, as there is always the danger of "spearing" oneself with the pointed tang.

DRILLING

Some kind of drill is essential. For radio and electronic work, a manual 'egg-beater' type is fine, and allows firm control over the drilling operation. A set of twist drills, ranging from 1.6mm (1/16") to about 6.4mm (¼") will be found satisfactory for most work. Avoid cheap drills, as they blunt and bend easily, and are therefore not economical in the long term.

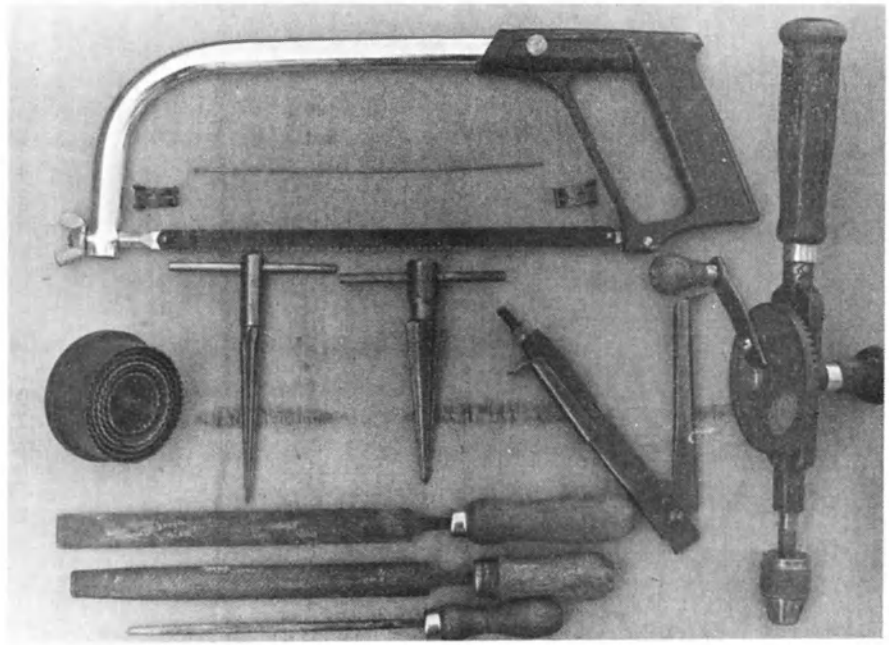
Before a hole is drilled, the spot should be marked with a centre punch to prevent the drill from drifting, and when drilling holes of more than about 3mm in sheet metal, a small pilot hole, of about 1.6mm should be made first to prevent drift. When a hole is completed, the burrs should be removed with a counter-sinking bit, or a drill of larger diameter than the hole. To prevent damage to the workbench, a scrap of wood should be placed under the work during all drilling operations.

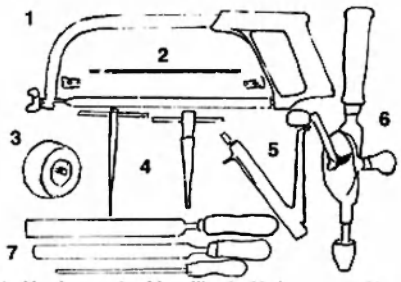


Handy sheet metal worker — the tapered hand reamer.

One of the handiest tools for the sheet metal worker is a tapered hand reamer. For holes of greater than about 6mm, a hole of that diameter is drilled first, then carefully enlarged to the required diameter with the reamer. It produces a rounder and smoother hole than can normally be obtained with a drill and/or round file.

For making larger holes in sheet aluminium, a set of hole-saws is ideal. They are rather expensive however, and must be used in a drill press with the work firmly clamped, and goggles worn by the operator. This operation is not recommended to the beginner, but is mentioned here for future use as skill and confidence increases.





1. Hacksaw 2. Abrafile 3. Holesaw 4. Hand Reamers 5. Nibbler 6. "Egg Beater" Drill 7. Files — note the handles.

CUTTING

The hacksaw is useful for cutting small areas of sheet metal. A blade with at least 24, and preferably 32, teeth per inch should be used. A not so well-known device is the Abrafile, which fits into a hacksaw frame. Being a toothed rod of small diameter, it is more manoeuvrable than an ordinary hacksaw blade, and so is useful for making odd shaped holes in sheet material.

The 'nibbler' has become very popular. It is a sort of miniature guillotine, and is useful for cutting round and square holes in sheet metal up to about 16 gauge.

The Nibbler.

BENDING

There are one or two amateur type benders available, but probably not worth the investment if only small projects are planned. With a selection of L-section angle iron of different sizes, a vice, hammer, and some scraps of wood, it will be possible to make boxes of reasonable quality.

MAKING A BOX

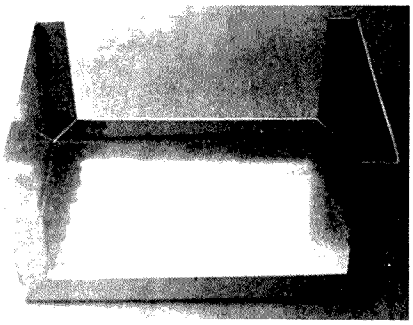
1 Cut out sheet to the required size. Felt-tipped pen stain will provide a background for scribing the marking out lines.

2 Drill a 2mm hole at the apex of the cut-outs, as shown. This allows the bends to be done without crushing at the meeting edges. Nibble or hacksaw the 90 degree cut-outs. Smooth the edges and remove burrs with a flat file.

3 Sandwich the narrow edge of the job in a vice between two lengths of angle iron. G-clamp the ends together if the job is significantly longer than can be accommodated by the vice. Apply a block of wood to the edge to be bent, and with a hammer, carefully dress the metal to a right angle. Do the same with the other side.

Dress the metal with a hammer to form a right angle.

4 Select, or cut, a piece of angle iron to fit into the bends which will form the front and back panels of the finished box. The metal is dressed to form a right angle for these two bends as for step



The bent body of the chassis.

5 Carefully measure the width and height of the front and back panels now formed. We can now cut to size, mark out, and make a lid to suit. The height of the lid will have to be about 3mm greater than was actually measured, and this should be allowed for in the marking out. Test the lid on the box after making the first bend. This will allow you to make the second bend in precisely the right place irrespective of the marking out line, so allowing for any inaccuracies that have crept in.

6 With the lid complete, mark out where the securing screws are to be placed so that self-tappers may be inserted into the folded up edges formed in step 3. Drill the holes in the lid. It will now be possible to put the lid in place and mark the spots where holes must be drilled to take the screws. These should have a diameter equal to about ⅔ that of the screws.

References:
Novice Notes; (Ron Cook) AR August 1980.
"Little Boxes"; AR May 1979.
Radio Handbook; (Bill Orr).

AR

Oh! the satisfaction of building your own aluminium box.

TRIVIA DEPARTMENT

WHY? ? ?

40 metres is 7.496MHz..... (outside the band)
20 metres is 14.993MHz..... (outside the band)
15 metres is 19.990MHz..... (outside the band)
10 metres is 29.985MHz..... (outside the band)
6 metres is 49.975MHz..... (outside the band)
2 metres is 149.925MHz..... (outside the band)

And, the WARC bands ——

30 metres is 9.995MHz ..... (outside the band)
17 metres is 17.638MHz ..... (outside the band)
12 metres is 24.986MHz..... (just INSIDE the band)

Check them! The speed of radio waves is 299 851 km/sec or 186 319 miles/sec (one mile equals 1.60934km).

Contributed by Mervyn Eunson VK4SO

THE RADIO PHONETIC ALPHABET

Maxwell Hull VK3ZS, WIA Federal Historian

Phonetics is the doctrine of sounds, the science which treats of the sounds of the human voice and the art of representing them by writing. It pertains to the representation of sounds and it is this aspect which interested early 'wireless operators' in making clear to the receiving parties those words (or figures) in the transmission which were difficult to understand because of weak signals, fading, atmospherics, electrical interference, interference from an adjacent transmission (even sometimes from a harmonically related band!), poor audio response in the modulation equipment or a poor quality microphone, or just plain inability of the operator to articulate clearly for one reason or another.

One could probably trace the necessity for the use of phonetics back to when man first commenced to communicate by the spoken word (or grunt!). It certainly would have been used occasionally by public speakers in bad acoustic conditions before amplification of the voice became possible.

In the early days of 'wireless' operators used whatever word seemed suitable to make clear the meaning of that part of the context of their transmission needing clarification. Hence, around the amateur world in particular, a somewhat of a 'hotch-potch' of words came into use not all of which were necessarily good.

The problem didn't escape the world Governments responsible for the developing communications in their respective countries. In 1947 at the Atlantic City conference of the International Telecommunications Union a phonetic alphabet was incorporated which proved to leave much to be desired. Thus by the 1956 Geneva Conference of the ITU it became necessary to use up a lot of hours deliberating on the problem. The result was the adoption of the phonetic alphabet which had been used by NATO Forces and civil airlines prior to this Conference.

When the Geneva Regulations came into force in May of 1957 the following approved phonetics came into general use.

A	***Alfa***	*Able*	*Amsterdam*
B	*Bravo*	*Baker*	*Baltimore*
C	***Charlie***	*Charlie*	*Casablanca*
D	***Delta***	*Dog*	*Danemark*
E	***Echo***	*Easy*	*Edison*
F	***Foxtrot***	*Fox*	*Florida*
G	*Golf*	*George*	*Gallipoli*
H	***Hotel***	*How*	*Havana*
I	***India***	*Item*	*Italia*
J	***Juliet***	*Jig*	*Jerusalem*
K	***Kilo***	*King*	*Kilogram*
L	***Lima***	*Love*	*Liverpool*
M	*Mike*	*Mike*	*Madagascar*
N	*November*	*Nan*	*New York*
O	***Oscar***	*Oboe*	*Oslo*
P	*Papa*	*Peter*	*Paris*
Q	***Quebec***	*Queen*	*Quebec*
R	*Romeo*	*Roger*	*Roma*
S	***Sierra***	*Sugar*	*Santiago*
T	***Tango***	*Tare*	*Tripoli*
U	***Uniform***	*Uncle*	*Upsala*
V	***Victor***	*Victor*	*Valencia*
W	***Whisky***	*William*	*Washington*
X	*X-Ray*	*X-Ray*	*Xantippe*
Y	***Yankee***	*Yoke*	*Yokohama*
Z	***Zulu***	*Zebra*	*Zurich*

The Geneva Regulations still permitted individual countries to use any other phonetic alphabet recognised by their own administration for communication between themselves.

The first column is the NATO/ICAO phonetics adopted at Geneva with the syllables emphasised in heavy type, then the well-known Able-Baker-Charlie list which is still used between British ships and British coast stations, and finally the third column lists the cumbrous words which had been approved at Atlantic City and which were used until the Geneva Regulations were introduced. Amateurs have tended to use some phonetics from all three systems.

The method of identifying numerals 1 to 0 respectively utilises the first ten words of the Geneva list, (Alfa, Bravo, Charlie, Delta, Echo, Foxtrot, Golf, Hotel, India, Juliet); and that of 'comma', 'fraction bar', 'break sign' and 'full-stop' the next four letters (Kilo, Lima, Mike, November). When transmitting figures they are preceded and followed by the words "as a number" spoken twice. As an example the figures 1985 would read "as a number as a number, Alpha India Hotel Echo, as a number as a number". The method of identifying numerals in this way is not used by operators in British ships and coast stations. The GPO "Handbook for Wireless Operators" gives the following rules for the pronunciation of numerals —

*O — **zero**; 1 — **wun**; 2 — **too**; 3 — **thuh-ree**; 4 — **fo-wer**; 5 — **fi-yuv**; 6 — **six**; 7 — **seven**; 8 — **ate**; 9 — **niner**.*

Each transmission of figures is preceded and followed by the words — "as a number" spoken twice. Amateurs usually don't follow that part of the procedure. There is no adamant compulsion for amateurs to specifically use the Geneva endorsed phonetic alphabet but it assists to be uniform.

*This is **Victor Kilo** Thuh-ree **Zulu Sierra** signing off. This is a number this is a number, **Sierra Charlie**, this is a number this is a number". **Ditdahditdahdit.***

AR

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

OSCAR-10 APOGEES
DECEMBER 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
1st December										
335	1857	0902:36	-24	215	329	76	28	76	80	59
2nd December										
336	1859	0821:38	-24	206	15	78	55	70	86	50
3rd December										
337	1861	0740:41	-24	197	50	73	70	62	92	41
4th December										
338	1863	0659:43	-24	187	68	65	79	53	96	32
5th December										
339	1865	0618:46	-24	178	78	56	86	45	100	24
6th December										
340	1867	0537:48	-24	168	85	48	92	36	104	15
7th December										
341	1869	0456:54	-24	159	91	39	97	28	109	8
341	1870	1636:25	-24	334					249	4
8th December										
342	1871	0415:56	-24	149	96	30	101	19	113	0
342	1872	1555:28	-24	325					253	11
9th December										
343	1873	0334:59	-24	140	100	22	106	12		
343	1874	1514:30	-24	315			248	2	257	20
10th December										
344	1875	0254:01	-24	131	105	14	111	4		
344	1876	1433:33	-24	306	246	-1	252	9	261	28
11th December										
345	1877	0213:04	-24	121	109	6	116	-3		
345	1878	1352:38	-24	297	250	6	257	17	266	37
12th December										
346	1879	0132:09	-24	112	114	-1				
346	1880	1311:40	-24	287	255	14	261	25	270	45
13th December										
347	1882	1230:43	-24	278	259	22	266	33	276	54
14th December										
348	1884	1149:46	-24	268	264	30	271	42	283	64
15th December										
349	1886	1108:48	-25	259	268	39	277	50	296	72
16th December										
350	1888	1027:51	-25	250	274	48	285	59	326	80
17th December										
351	1890	0946:56	-25	240	280	56	297	68	27	80
18th December										
352	1892	0905:59	-25	231	290	65	319	75	62	74
19th December										
353	1894	0825:01	-25	221	307	73	1	78	76	65
20th December										
354	1896	0744:04	-25	212	343	79	42	75	84	56
21st December										
355	1898	0703:06	-25	202	33	77	64	67	90	47
22nd December										
356	1900	0622:12	-25	193	61	71	76	59	94	38
23rd December										
357	1902	0541:14	-25	184	74	62	84	50	99	29
24th December										
358	1904	0500:17	-25	174	83	54	90	42	103	21
25th December										
359	1906	0419:19	-25	165	89	45	95	33	107	13
359	1907	1558:51	-25	340					246	-1
26th December										
360	1908	0338:22	-25	155	94	36	99	25	111	5
360	1909	1517:53	-25	331					250	7
27th December										
361	1910	0257:27	-25	146	99	28	104	17	115	-2
361	1911	1436:58	-25	321			244	-2	254	15
28th December										
362	1912	0216:30	-25	137	103	20	109	9		
362	1913	1356:01	-25	312			249	5	258	23
29th December										
363	1914	0135:32	-25	127	107	12	113	2		
363	1915	1315:04	-25	302	247	2	253	12	262	31
30th December										
364	1916	0054:35	-25	118	112	4				
364	1917	1234:06	-25	293	251	10	258	20	266	40
31st December										
365	1918	0013:37	-25	108	117	-3				
365	1919	1153:09	-25	284	256	17	262	28	271	49

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS
AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS
Contributions this month have been from Bob VK3ZBB, and the ever reliable UoSAT Bulletins.

UOSAT BULLETINS
In recent weeks Bulletins have commenced publication on the UoSAT-2 (OSCAR 11) in addition to OSCAR 9. Albeit of slightly different format they are an excellent addition to the service provided by the University of Surrey.

G3RUH COMPUTER PROGRAMMES.
Jim Miller G3RUH, known world-wide for his excellent series of articles in Wireless World, has also written some excellent computer software related to spacecraft orientation, eclipse calculations, etc for OSCAR 10. Although written for the BBC computer, in BBCBASIC, they are easily converted to other systems. Conversions to TRS Models 1 and 3, and CP/M3 have already been made.

For those interested in the complexities of spacecraft attitude determination, an SASE to Graham VK5AGR will provide a listing of those programmes available for general release.

FUTURE SATELLITES FOR THE 90s
The following item was posted on a recent UoSAT Bulletin and discusses future proposals for the Amateur Satellite Service. The article originated from Amateur Satellite Report (ASR).

GEO-SYNCHRONOUS SATELLITE SYSTEM
Progress is being made on several fronts towards a geo-synchronous amateur radio satellite capability, according to AMSAT. The geo-synchronous satellites, often called Phase 4 satellites, have been the subject of keen interest recently as a result of several unrelated developments. These developments were said to be three-fold.

First was the recent National Aeronautics and Space Administration (NASA) announcement of its Advanced Communications Technology Satellite (ACTS) Programme, and the suggestion that it could conceivably include amateur radio interfaces.

Second, it was recently learned, by W3GEY, that there is a possibility of AMSAT flying its own transponder/s aboard the ACTS spacecraft.

Thirdly, Arianespace has told AMSAT it is currently developing a so-called "piggy-back" pricing policy for small payloads on its Ariane 4 launcher.

Thus, according to these officials, there are three avenues to a Phase 4 system currently under active study.

An ad hoc AMSAT ACTS study group suggested ACTS was in fact out of reach of AMSAT. The group thought the 30/20GHz uplink/downlink combination and the very high speed digital switching involved would tax our technical resources beyond the projects worth. While no one was willing to say 'impossible', several pointed to

other projects and noted that all available resources would have to be devoted to ACTS at the expense of most other development activities. The cost in these terms, the group seemed to say, would be too high. On the other hand, a number of the AMSAT ad hoc ACATS study group suggested that ACTS offered an excellent possibility for gateway access to a geo-synchronous spacecraft. AMSAT is seeking individuals to work on a proposal to this effect and has dubbed this access to the geo-synchronous capability the P4A1 option (Phase 4A, option 1).

The launch is currently slated for fourth quarter, 1988, according to W3GEY.

W3GEY reported that he received cautious encouragement from NASA and RCA. A preliminary concept would place a Mode L and a Mode S transponder aboard the ACTS payload. AMSAT's transponder would advantage itself of conditioned power, station keeping, and thermal control provided by the host.

AMSAT would provide transponders, control, and its own antennas. The antennas on ACTS appear unsuitable for any antennas AMSAT might use.

The key incentive for including AMSAT aboard ACTS, barring any fundamental technical constraints, was for NASA to perceive a positive technical innovation and a public service aspect to any such proposition. Thus, AMSAT is now soliciting concrete suggestions as to how amateurs might benefit society either directly through communications services or indirectly through technological innovation in connection with ACTS — we should be mindful of the nature of ACTS, that is, it is a communications technology experiment. An ACTS proposal team is to collect ideas and codify them in the form of a formal proposal to NASA.

According to preliminary concepts discussed by W3GEY and WA2LQQ, three types of service might be provided by the Mode L and S transponders. First would be a Mode L linear transponder, similar to that on AO-10 and Phase 3C. Second would be a packet radio repeater, or perhaps even packet switch. Finally, a third service might include a capability to both link selected terrestrial repeaters and group address repeaters for bulletins, training, educational materials, and, of course, emergency communications on a hemispheric basis. Given the opportunity, AMSAT might also propose a more ambitious amateur C-Band transponder, as well.

The suggestions by W6KAG were made, based on his examination of the NASA ACTS documents, and on his independent contacts in the space industry. It was W6KAG who established that there might be payload accommodation sufficient for AMSAT's interests. The idea of placing an amateur radio transponder aboard a commercial, or scientific geo-synchronous spacecraft has been discussed by AMSAT for nearly a decade, and builds on the SYNCART (Synchronous Amateur Radio Transponder) concept of AMSAT Canada and Project OSCAR. More recently, a proposal was made by Cablesat General of Florida, and its President, WA4OHK, to place a C-band amateur radio transponder aboard a proposed commercial spacecraft. The FCC recently eliminated Cablesat from competition for the orbital slot in which Cablesat was to place its satellite.

AMSAT will be working this possible Phase 4 option as its P4A2 option. Concepts for use may be sent to AMSAT President, WA2LQQ, PO Box 177, Warwick, NY. 10990. Similarly, individuals interested in writing portions of AMSAT's proposal to NASA, or in participating in a proposal team should contact WA2LQQ by mail at the same address.

A third avenue to a geo-synchronous system could be a two satellite system launched by an Ariane 4. Arianespace is known to be working on a low-cost, "piggy-back" system which seems ideally suited to carry an AMSAT payload to a geo-synchronous transfer ellipse. A two-satellite system with one placed over the Equator at 47 degrees west, and another over 148 degrees west, would provide coverage for virtually all of North America to Western Europe, and most of Africa on the eastern satellite (AMSTAR East), and most of North America to the Pacific Basin, including New

SATELLITE ACTIVITY FOR PERIOD 1 AUGUST TO 29 AUGUST 1985.

1. LAUNCHES.

The following Launching Announcements have been received:-

1985-064A	Cosmos 1670	Aug 1	USSR
1985-065A	Cosmos 1671	Aug 2	USSR
1985-066A	Oscar 24	Aug 3	USA
1985-066B	Oscar 30	Aug 3	USA
1985-067A	Cosmos 1672	Aug 7	USSR
1985-068A	Cosmos 1673	Aug 8	USSR
1985-069A	Cosmos 1674	Aug 8	USSR
1985-070A	Raduga 16	Aug 8	USSR
1985-071A	Cosmos 1675	Aug 12	USSR
1985-072A	Cosmos 1676	Aug 16	USSR
1985-073A	Planet A	Aug 18	Japan
1985-074A	Molniya 1-64	Aug 22	USSR
1985-075A	Cosmos 1677	Aug 23	USSR
1985-076A	STS-51I	Aug 27	USA
1985-076B	Aussat 1	Aug 27	Australia
1985-076C	ASC 1	Aug 27	USA
1985-076D	Syncom IV-4	Aug 29	USA
1985-077A	Cosmos 1678	Aug 29	USSR
1985-078A	Cosmos 1679	Aug 29	USSR

Notes on these satellites:-

Planet A was launched by the Institute of Space and Astro-nautical Science (ISAS) from the Kagoshima Space Center, Japan. The spacecraft is cylindrical with a 1.4 meter diameter and 0.7 meter height and weighs 139.7 kg. On board is an ultraviolet imaging camera to observe the hydrogen corona around the coma of the comet Halley and an energy analyser of ions and electrons to measure solar wind and probably cometry charged particles. The spacecraft transmits on 2293.89 MHz with 0.07/5 Watts with coherent/non-coherent modes for ranging/telemetry.
The orbit parameters are epoch 04h 10m 32s August 22, 1985(UTC), incl'n 0.888°, perihelion 100.480 million km, aphelion 151.467 million km, period 282.2 days. The closest encounter with comet Halley will be 1256Z March 8, 1986, distance 211,000km.
The spacecraft is now renamed "Suisei" (the Japanese for comet).

STS-51I orbit elements were period 92.0 min, incl'n 28.5°, apogee 385 km, perigee 355 km.
On board were J.H.Engle, R.O.Covey, J.D. van Hoften, W.F.Fisher, and J.M.lounge. Payload included Aussat 1, ASC 1 and Syncom IV-4. This Discovery mission also included the repair of a fuel laden Leasat satellite.

2. RETURNS.

During the period fortythree objects returned or decayed including the following satellites:-

1982-111A	OPS 9627	Aug 13
1983-102A	Cosmos 1502	Aug 29
1985-039A	Cosmos 1654	Aug 7
1985-062A	Cosmos 1669	Aug 30
1985-063A	STS-51F	Aug 6
1985-065A	Cosmos 1671	Aug 16
1985-067A	Cosmos 1672	Aug 21

3. GENERAL.

1966-100A ATS 1 was located at 133.120°West at 1305 UT on Aug. 15, 1985. Inclination 11.872°.
1984-033A Cosmos 1547 and 1984-107A Cosmos 1604 are reported to have beacons operating on 2304 MHz. Both satellites are in range of Australia and the South Pacific for several hours each day. Updated Keplerian Elements are available for a SASE sent to VK3ZBB, QTHR.

OSCAR-10 APOGEES
JANUARY 1986

DAY	ORBIT	APOGEE U.T.C	SATELLITE CO-ORDINATES LAT	LON	BEAM HEADINGS SYDNEY AZ	SYDNEY EL	ADELAIDE AZ	ADELAIDE EL	PERTH AZ	PERTH EL
#	#	HHMM:SS	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG
1st January										
366	1921	1112:14	-25	274	260	25	267	37	277	58
2nd January										
367	1923	1031:16	-25	265	264	34	272	45	285	67
3rd January										
368	1925	0950:19	-25	255	269	42	278	54	301	76
4th January										
369	1927	0909:22	-25	246	275	51	287	63	346	82
5th January										
370	1929	0828:24	-25	237	282	60	301	71	47	79
6th January										
371	1931	0747:27	-25	227	293	69	330	78	71	71
7th January										
372	1933	0706:32	-25	218	315	76	20	78	81	62
8th January										
373	1935	0625:35	-25	208	3	80	54	73	88	53
9th January										
374	1937	0544:37	-26	199	48	76	71	65	93	44
10th January										
375	1939	0503:40	-26	190	69	68	80	56	97	35
11th January										
376	1941	0422:42	-26	180	79	59	87	47	101	26
12th January										
377	1943	0341:48	-26	171	86	51	92	39	105	18
13th January										
378	1945	0300:50	-26	161	92	42	97	30	109	10
378	1946	1440:21	-26	337					247	3
14th January										
379	1947	0219:53	-26	152	96	33	102	22	113	3
379	1948	1359:24	-26	327					251	10

Zealand. Eastern Australia and Japan would be on the western satellite (AMSTAR West). Further trade-offs could be made in coverage and a terrestrial relay might be invoked to allow double-hop communications such that Australia, for instance, could work England. AMSAT is working this option as P4A3. W3GEY and WA2LQQ were planning to discuss these options at the Space Symposium and Annual General Meeting on 9th November, in Vail, Colorado, and the following day with AMSAT's Directors. Comments and suggestions are solicited.

However, neither AMSAT's officers nor its directors are precisely certain what is in the greater interest of its members, and the amateur radio community, for future projects.

The view from AMSAT DL is that a follow-on to Phase 3C next summer should naturally be phase 3D, a 1.2 scale version of Phase 3C with a super power Mode L transponder aboard (in the 200 to 300 watt class). Meanwhile, JAS-1 will be launched next summer, as well. AMSAT UK and SA AMSAT are both interested in satellite projects with the latter now supporting the Mode S transponder project of Phase 3C.

AMSAT-OSCAR-10 OPERATIONS (ZL1AOX)

A new Mode B transponder schedule was put in place on the 17th October. A review of this schedule was to be considered about the 12th November 1985. The new schedule is:

MA 055 to 119 ..... Mode B
MA 120 to 136 ..... Mode L
MA 137 to 203 ..... Mode B
MA 204 to 239 ..... OFF
MA 240 to 019 ..... Mode B
MA 020 to 054 ..... OFF

The main reason for this schedule is to reduce the continuous Mode B time during poor sun angles, which will occur again when the attitude in moved to LON 185, LAT -2. This started on 20th October. It will also give the Northern Hemisphere stations the opportunity to work during perigee passes. I request that during perigee operation, and also when AO-10 is oriented at 185, -2 that stations **please reduce their power** so that they are not more than one S point above the General Beacon.

The present attitude is approximately LON 165, LAT -26 degrees, which means that when standing behind the S/C at apogee looking towards the Earth, the S/C antennas are pointing to the right 15 degrees, and upwards towards the Northern Hemisphere 26 degrees. All systems seem normal in the S/C at present.

Operators should monitor the bulletins on the General Beacon of Mode B, 145.810MHz, for the latest developments.

The following item is presented after the event so to speak, however, from an historical point of view, it is extremely well worth presenting.

MANNED MISSIONS

During the seven-day Spacelab Mission D1, in October 1985, the science astronauts R Furrer DD6CF, E Messerschmid DG2KM, and Dr Wubbo Ockels PE1LFO operated an amateur radio station, located in the Spacelab on board the Space Shuttle COLUMBIA — the call sign being DP0SL. The amateur activity started on day three and continued until 12 hours before landing. Therefore, five days operation, with the astronauts active as radio amateurs in there (free) time.

TECHNICAL INFORMATION

The station on board the Spacelab consisted of the following items: *VHF/UHF Transceiver, Antenna, DC/DC Converter, Various Cables, Headset Container with 10 micro-cassettes.*

The VHF/UHF transceiver is a special development, designed and constructed by Bosch/Germany according to the D1-mission specifications, and using components out of the normal mobile transceiver programme of Bosch. RF power output of this transceiver is 10 watts, which is reduced to one watt for automatic (beacon) operation. Frequency range of the transmitter is 144 to 146MHz with F3e (FM) modulation.

The receiver is a double-superheterodyne receiver, frequency ranged from 430 to 440MHz. Sensitivity for S+N/N=12dB is 0.45 microvolts.

Selection of operating frequencies is provided by a ROM, programmed for four VHF transmitting frequencies and six UHF receiving frequencies, within a 25kHz channel spacing. The transceiver is provided with a built-in micro-cassette recorder.

The antenna was designed and constructed by a group of radio amateurs at the antenna laboratories of the University of Bremen. This special antenna, which was mounted outside the Spacelab, is an aluminium whip, approximately 50cm in length. It shows quarter-wave resonance for VHF, and 5/8 lambda resonance for UHF

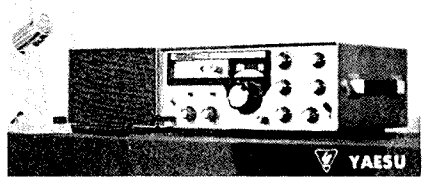
Electrical power (28V DC) was applied to the transceiver from the Spacelab utility power lines, via a DC/DC converter, to provide line isolation from ground, for the Spacelab power lines.

SEASONS GREETINGS

Perhaps it is a sign that I am getting older at a faster rate, because it only appears that last Christmas was just last week. Nonetheless, may I offer Seasons Greetings to all the readers of this column and trust that the year to come will provide you with all the pleasures that you missed out on in 1985.

de Colin VK5HI
AR

KNOW YOUR SECONDHAND EQUIPMENT



YAESU FT-200 TRANSCEIVER

Perhaps one of the more famous of the Yaesu transceivers. First arrived in Australia in mid-1969. The 200 covered amateur bands from 80 to 10 metres in 500kHz segments, but only 28.5 to 29MHz was provided as standard for the 10 metre band. The circuit was a single conversion set-up with a 9MHz IF and tubes were used for most functions. However, like the FTDX-400, transistors were used in the VFO and other ancillary circuits. Unlike the FTDX-400, the 200 did not have a built-in power supply. AC and 12 volt DC power supplies were available as optional extras. Most were sold with the AC supply but many amateurs built their own. There are three models of the FT-200. The original can be identified by the dummy switch between the meter and tuning dial. The knob is there but no switch behind the panel. The second model had the internal/external VFO selector switch in this same position and the third model was in an all black colour scheme. The earlier models had a silver front panel and a grey cabinet. Many modifications were published in AR over the years and I would have to say that most were quite unnecessary.

If you are looking for a second hand FT-200 beware of one that has had lots of mods. The new price of the FT-200s varied between $400 and $450 with AC power supply. Second hand price tends to be variable. Late models with matching AC supply $300 down to about $175, for an early model, perhaps with a home built power supply. Some home built power supplies are more of a liability than an asset. A good FT-200 can perform very well indeed. Most of the tubes used are still easy to obtain and the FT-200 can be recommended as an excellent rig for the beginner.

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

DECEMBER

7- 8	*ARRL 160 metre Contest*
14-15	*ARRL 10 metre Contest*
14	*Ross Hull Memorial VHF Contest begins (Rules October AR)*
31	*UBA SWL Competition 1986 (Rules October AR)*

JANUARY

1	*UBA SWL Competition 1986 (Rules October AR)*
6	*Ross Hull Memorial VHF Contest concludes*
11-12	*Michigan QRP Club CW Contest*
18-19	*Hungarian DX Contest*
18-19	*White Rose SWL Contest (Rules this issue)*
24-26	*CQ WW 160 metre CW Contest*
11	*40 metre World SSB Championship Contest**
12	*75 metre World SSB Championship Contest**
18-19	*160 metre World SSB Championship Contest**
25	*15 metre World SSB Championship Contest**
26	*20 metre World SSB Championship Contest**

FEBRUARY

1- 2	*RSGB 7MHz SSB Contest*
22-23	*RSGB 7MHz CW Contest*
21-23	*CQ WW 160 metre SSB Contest*

MARCH

8- 9	*Commonwealth Contest 1986*
8- 9	*CW Contest (Tentative)*
15-18	*John Moyle Memorial Field Day Contest*

** Denotes World SSB Championship Contests sponsored by 73 magazine. Rules for these contests appear in this issue.*

It would seem like a very busy start to the New Year with all the contests listed. I would hardly imagine that even the most dedicated contester would be able to enter all the contests listed. It certainly allows the 'faithful' to keep themselves well occupied, and at the same time, provides a wide variety of operations.

REMEMBRANCE DAY CONTEST

As I write these notes in October, all the logs have been collated and sorted into batches for checking. It is certainly the most popular contest in VK, and entails me in a fairly heavy workload. I had hoped to have the results completed for publication in this issue, however, the pressure of other matters has not allowed as much time as I would have wished. I can certainly promise that, completely unforeseen circumstances barred, the results will appear in January's magazine.

As stated in my notes last month, the standard of log entries has certainly improved, however, there are still a number which leave something to be desired. Whilst it is not a perfect world, and I do not expect to see that situation ever occur, I cannot understand why some operators are just too downright lazy to read the rules properly, and go to at least reasonable lengths to try to comply with them.

It certainly was obvious, to the majority, that there were two categories, namely HF and VHF, in this years Remembrance Day Contest, and as this was the case, two totally separate logs together with separate front sheets should be provided.

In an endeavour to try and indicate just where problems exist I am considering taking the liberty of listing such problems and indicating against particular entries where some shortcomings apply. This would be done not in an attempt to embarrass anyone, but merely to try to assist and encourage those prepared to submit entries to improve their standard of entry.

Incidentally, it may interest some members, that two logs submitted showed the post-marked date of 3rd October. The latest due date was 27th September!!! Unfortunately, both logs were from club stations, so it is anticipated members of the clubs concerned will express some dissatisfaction in the right areas about their logs not being submitted in time. In such instances I cannot, in all conscience, accept such entries as being valid.

I would not wish to finish my notes for this year on anything which sounds like a sour note. To that end, I wish to express my thanks to all who supported my efforts throughout the year, by entering the contests conducted by me, on behalf of the WIA, and I wish, in particular, to thank those who took the time and trouble to write and express your opinions on contest matters, as well as make suggestions as to where things can be improved. I have said previously in this column, I cannot undertake to answer all the letters I receive, but I can assure you, even though you may not receive a personal reply, your thoughts and comments are properly considered. There are times where I would find it most difficult, if not impossible, to implement completely the suggestions made.

In the position of FCM, I find there are not always simple answers available, so I believe I must try and function in a manner which is fairest to the majority, and keep in mind the interests of amateur radio as a whole, not just look at things in isolation. I most particularly appreciate the instances when members bring up matters concerning contests at Divisional meetings, or at their club. This promotes a wider discussion, than would otherwise be the case. I would encourage an increase in this approach.

As far as I can see, 1985 has been a fairly successful year on the contest scene. I would like to think, with even more experience under my belt, I will be able to play my part to help make the coming year even more successful.

With the Christmas season coming, and another New Year in sight, it is traditional that we look back over the past 12 months and review just what has occurred. It seems, for some reason, to be easier to adopt a spirit of goodwill to others, as well as a happier outlook, at this time. I would, as I have done for some years now wonder why we cannot maintain such a healthy attitude right throughout the year. Perhaps I can say a word, through these pages, to encourage you to try and adopt such an approach, and, at the same time, remind myself to heed my own words and instincts.

I feel that we can learn quite an important lesson if we stop and look back over, not just over this past year, but rather to consider what has occurred during this last century. Without doubt, it has been a century of incredible advances in technology. Our current day capabilities in modern sciences, physics, and technology of all kinds are nothing short of amazing, and who can say just how much further we can progress. I may ask though, whether we have really come from out of the dark ages. Just think about it briefly.

We have devised more scientific ways of devastating the world, and all creatures that share this planet with us. Many of our new-found capabilities could be put to better use, to benefit all.

The point of my philosophising in this manner is that if we are to see a change for the better, it is up to us all, as individuals, to do something about it. Just the way we live our daily lives can play a big part in making this a better world to live in. Need I point out, that we as amateur radio operators, with world-wide communications capability at our fingertips, have an amazing potential to influence things for the good and betterment of mankind.

I make no apology for writing in this vein, as I strongly believe every opportunity should be taken to try to better things, and that if every person tries to do some good, we must all benefit, as a result.

May I suggest that you all fall into the habit of wishing each person you come into contact with to *'have a nice day'* (and maybe give them a smile). You will be amazed at the responses you receive. Also let us carry this approach into our contacts on the air, with fellow amateurs,

I would like to take this opportunity to say; "Have a nice day", and wish you, on behalf of my wife and myself, a very happy and blessed Christmas. May we look forward to a New Year of much happiness and peace in the world.

I would also wish that those away on holidays will have a pleasant and safe time. Drive carefully on the roads, as accidents hurt many more than those directly involved.

Best wishes, and 73 — Ian VK5QX

WORLD SSB CHAMPIONSHIP CONTESTS

These five separate contests are sponsored by 73 magazine for radio amateurs.

Fifth annual 40 metre test will be held from 0000-2400 UTC, 11th January 1986.

Fifth annual 75 metre test — 0000-2400 UTC, 12th January 1986.

Seventh annual 160 metre test — 0000 UTC 18th January to 2400 UTC 19th January 1986.

Second annual 15 metre SSB test — 0000-2400 UTC, 25th January 1986.

Second annual 20 metre SSB test — 0000-2400 UTC, 26th January 1986.

BASIC RULES — Stations may be worked only once per event. All contacts must be two-way SSB. All stations may operate for the entire contest period.

CLASSIFICATION — a Single operator, Single transmitter, SSB only. b Multi operator, Single transmitter, SSB only.

EXCHANGE — Stations within the continental 48 US States, and 13 Canadian Provinces or Territories transmit RS report, and State, Province, or Territory. All others, including Alaska and Hawaii, transmit RS report and ARRL DXCC Country.

POINTS — Five QSO points for contacts within your own continent, 10 QSO points for contacts outside your own continent.

MULTIPLIERS — One multiplier point is earned for each continental US State (48 maximum), Canadian Province or Territory (13 maximum), or ARRL DXCC Country (excluding the US or Canada).

SUGGESTED FREQUENCIES — 21.250-21.350; 14.175-14.250; 7.050-7.080 (DX); 7.175-7.250 (W/VE); 3.760-3.790; 3.805-3.875; 1.830- 1.850, and 1.855-1.900MHz. (Australian amateurs note that some of these frequencies are outside our allocations).

FINAL SCOCOm RE — Total QSO points X Multiplier points = the Claimed Score.

ENTRIES — Must include Contest Log, Dupesheet for 100 or more contacts, List of Multipliers, and Summary Sheet as outlined below. Be sure to include your SOAPBOX COMMENTS, and a black and white photograph for possible publication.

SUMMARY SHEET — Must contain Contest Call Sign, ARRL DXCC Country, Station Owners Name and mailing address, List of Station Equipment and Antenna/s, Operator's Class, Total QSOs, Total QSO Points earned, Total US States Worked, Total Canadian Provinces/Territories Worked, Total DXCC Countries Worked, Total Multiplier Points, and your Claimed Contest Score.

DEADLINE — Entries should be mailed to the appropriate Contest Chairman, and postmarked no later than 20th February 1986. Late entries will be registered as check logs.

DISQUALIFICATION — Usual disqualification criteria applies. Stations disqualified this time will be barred from these events for one year

thereatter.
PENALTIES — A penalty of 100 QSO points will be assessed for each duplicate contact counted in a contestants claimed score.
AWARDS - A minimum of 100 QSOs must be worked in an event to be eligible for a contest award. Plaques will be issued to the World Championship Stations. Awards will be issued in each operator class, in each DXCC Country represented.
CONTEST RULES AND FORMS — Your own set of rules, and official contest forms, may be obtained from Billy Maddox KA6JJK/3, 1162 Bayview Vista Drive, Annapolis, MD. 21401.
CONTEST CHAIRMEN —
15 *metres* ... Gary Vest WA3KCY, Star Route, Box 34, Holliday, TX. 76366.
20 metres ... Chuck Ingram WA6R, 44720 N 11th Street East, Lancaster, CA. 93535.
40 metres ... Dennis Younker NE6I, 43261 6th Street East, Lancaster, CA. 93535.
75 metres ... Ron Johnson KC7PA, 68 South 300 West, Brigham City, UT. 84302.
160 metres ... Harry Arsenault K1PLR/4, 704 Curtiss Drive, Garner, NC. 27529.

WHITE ROSE AMATEUR RADIO SOCIETY — SIXTH SWL LOWER FREQUENCY BANDS CONTEST

From 1200 UTC 18th January to 1200 UTC 19th January 1986. Up to 18 hours logging may be done during the period.

The contest is open to anyone in the World, and there will be two sections — Phone and CW. No mixed modes allowed. Transmitting amateurs holding a VHF only licence (LAOCP) can participate.

The 1.8, 3.5 and 7MHz bands are to be used.

The practice of logging a series of contacts made by one station is deprecated. Log entries must not include the same call sign in the 'Station Worked' column more than 10 times on each band. A station appearing in the 'Station Worked' column can only be claimed once for scoring. Duplicate entries will incur penalties if not shown as such.

The object of the contest is to log as many stations, in as many countries as possible. Scores should be compiled as follows:
one point for each station heard on each band from one's own continent, and five points for each station heard on each band outside *one's continent. Total points on each band to be multiplied by the total number of countries heard. The final score is the total of the three bands. A list of countries heard* must *be furnished and a separate log must be submitted for each band.*
The call areas of the USA, Canada, Australia, and New Zealand will count as a separate country; ie VK1, VK2, VK7, ZL1, ZL2, W1, etc — separate countries. All other countries will be determined by the ARRL Countries List.

No CQ, QRZ, or similar calls will be allowed to count for points. /AM or /MM stations are not to be included in the entries.

Log sheets to show the following information: Date; Time UTC; Band; Station Heard, Station being Worked; Report at SWL's QTH. Points may only be claimed for stations actually heard, and the call sign must be shown in full. If points are claimed for both stations, the call sign must appear in the Station Heard column.

Entries should be sent to the Contest Manager, John Hart G3ZGA, White Rose Amateur Radio Society, 146 Street Lane, Leeds, LS8 2AD, to arrive not later than 24th February 1986.

Certificates of Merit will be awarded at the discretion of the White Rose ARS. and its decision will be final. **AR**

RESULTS 1984 CQ WW DX CONTEST

Following are the call signs and scores of Australian stations that competed in the Single Operator section of the 1984 CQ WW DX Contest.

VK1RJ 108 452; VK1WB 54 390; VK1LF 2 992; VK2DVJ 125 496; VK2WU 594 000; VK2OE 2 856; VK3DVT 22 815; VK3CJW 64 932; VK3SM 20 331; VK3FY 100 056; VK4OX 7 380; VK4NX 1 026; VK5BJA 244 387; VK5QX 199 485; VK6DU 417 261; VK6MD 323 635; VK6IR 208 748; and VK6HD 1 007.

VK6DU was zone winner for Zone 29, and VK2WU was winner for Zone 30. A check log was received from VK3XB.
From CQ, September 1985.

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Most columns at this time of the year conclude with Christmas greetings ... but I will start the column by wishing all readers a very Merry Christmas, and a Happy and Prosperous New Year, and once again, many thanks to those who supported the Intruder Watch during 1985.

Particular thanks to those who sent in reports for August last: *VKs 2BQS, 2DEJ, 2PS, 2QL, 4AKX, 4BG, 4BHG, 4BTW, 4KHZ, 5GZ, 5BJF, 7RH and Mr G Bradford.*

STILL AROUND

The end of the year brings to a close the WIA 75th Anniversary celebrations, and, no doubt, it will seem no time at all until the Institute is making plans for the celebration of their Centenary. I hope I will be around to see it!

On the bad news side, the USSR Naval Intruder, "UMS", has once again returned to his summer spot on 21,032MHz, **DESPITE assurances from the USSR Administration** that the offending stations would be removed from the 21 and 14MHz bands.

WILL WORK THIS WAY!

An interesting letter was received recently from Bob ZL1BAD, the IARU Region 3 Intruder Watch Co-ordinator. Bob was recently in Geneva for a 'Study Group' on Intruder Watches, which was held at the ITU building. Amongst other things, Bob reports that, in future, the IW system will work this way:

The National Amateur Radio Society (in our case, the WIA) will continue as usual with monthly summarisation of reports, with copies going to local Administration (DOC) and the Regional IW Co-ordinator (Region 3 for Australia). The Regional Co-ordinator will then forward information to the International Co-ordinator (new appointment), who will forward the information to the International Frequency Registration Board (IFRB) through the IARU Executive Committee.

The IFRB has indicated that it is in favour of the change to the system, and should be good news for all intruder watchers. Formerly, the IW had no direct access to the IFRB.

Bob also mentioned that, while he was in the USA, he visited the Ferndale FCC monitoring station. This station is able to get a bearing on a signal in 90 seconds, which is computer-linked to other remote stations for the cross-bearing. **They can pin- point a transmitter to within one square kilometre in five minutes.**

STATISTICS

Statistics for August are — 346 Broadcast Intruders, 130 CW, 51 RTTY, and 20 other modes. Intruders identified were 48.

INTRUDER NOTES

The 'V' Beacon-like signal is still being heard on 7.003.5MHz; SSB stations operating from the South American continent are still causing a problem on the lower end of 40 metres, and are thought to be **NON-AMATEUR**; The North American Armed Forces Net, which operates just under the 40 metre amateur allocation has been spilling over into the amateur allocation of late; VK8s, in Darwin, are plagued by Indonesian CB operators on the 28MHz band, and, when the solar cycle comes good, we will be looking at a new problem, because the taxi-cab operators, in Hong Kong are using the 28MHz band, with apparently little concern shown by their administration. Actually, it appears that a lot of the intruder problems on the amateur bands are a direct result of the apathy (ignorance?) displayed by the Administrations of various countries, which is a sad state of affairs.

Thanks to Col VK4AKX, and Henry VK8HA for the above notes.

Anyway, let us try to put these problems aside for this month, and HAVE A VERY MERRY CHRISTMAS! See you next month.... **AR**

"Yes Kris, OM — and a linear, and a new rotator, and ....." — VK5COP

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

FREQUENCY	CALLSIGN	LOCATION
50.005	H44HIR	*Honiara*
50.008	JA2IGY	*Mie*
50.060	KH6EQI	*Honolulu*
50.075	VS6SIX	*Hong Kong*
50.109	JD1YAA	*Japan*
51.020	ZL1UHF	*Mount Climie*
52.033	P29BPL	*Loloata Island*
52.100	ZK2SIX	*Niue*
52.200	VK8VF	*Darwin*
52.250	ZL2VHM	*Manawatu*
52.310	ZL3MHF	*Hornby*
52.325	VK2HHV	*Newcastle*
52.370	VK7RST	*Hobart*
52.400	VK0MA	*Mawson*
52.420	VK2RSY	*Sydney*
52.425	VK2RGB	*Gunnedah*
52.440	VK4RTL	*Townsville*
52.450	VK5VF	*Mount Lofty*
52.460	VK6RPH	*Perth*
52.470	VK7RNT	*Launceston*
52.490	ZL3SIX	*Blenheim*
52.510	ZL2MHF	*Upper Hutt*
144.019	VK6RBS	*Busselton*
144.400	VK4RTT	*Mount Mowbullan*
144.410	VK1RCC	*Canberra*
144.420	VK2RSV	*Sydney*
144.465	VK6BTW	*Albany*
144.550	VK5RSE	*Mount Gambier*[1]
144.565	VK6RPB	*Port Hedland*
144.480	VK8VF	*Darwin*
144.800	VK5VF	*Mount Lofty*
145.000	VK6RPH	*Perth*
147.400	VK2RCW	*Sydney*[2]
432.057	VK6RBS	*Busselton*
432.160	VK6RPR	*Nedlands*
432.420	VK2RSY	*Sydney*
432.425	VK3RMB	*Ballarat*
432.440	VK4RBB	*Brisbane*
1296.171	VK6RBS	*Busselton*
1296.480	VK6RPR	*Nedlands*
10300.000	VK6RVF	*Roleystone*

1 The Mount Gambier two metre beacon is now back on the air, and has been heard both in Melbourne, and at VK5LP It appears not to be as strong as previously being at the threshold of noise more consistently John VK5DJ, wrote to me and advised of the reopening of the beacon, following more than a year of being out of service due to water entering the vents in the enclosure, which damaged the identifier and caused instability in the exciter strip. Peter VK5BKF repaired the identifier and made up a waterproof cover, while John VK5DJ, repaired the exciter and amplifier stages. The final result is a very stable beacon, with further pulse shaping to produce a cleaner signal, but currently running 12 watts output rather than the former 20 watts. In due course, full power will be available.

John and his group are not sure whether to increase the height of the antenna from the present chimney position where it is largely not arousing much interest by vandals, but may well do so if raised. Personally, I believe reliability is the most important parameter, and the relatively weak signal being transmitted means any improvement in propagation conditions produces a more readable signal. I believe it should be left as is, I can still read it all the time, even if I do have to now wait for a minute or two for the signal to come out of a fade whereas, before it was always audible, despite QSB.

2 I understand there is a possibility of a frequency change for VK2RCW to 144.950MHz. October 1985 Break-In has a note from Tim VK2ZTM, advising of this and the possibility of an 80 metre outlet on 3.699MHz for a trial period of six months, until early 1986, using a crystal locked FT-7 with 15 watts into a long wire antenna. The beacons are sponsored by the Hornsby and District Amateur Radio Club, PO Box 362, Hornsby, NSW. 2077, and reports are sought.

VK2RCW is a Sydney based, continuous Morse transmission station, and is transmitter fed from a memory store with about an hour of text, which is changed at intervals. A wide selection of text is used, including foreign languages, and can be sent backwards to prevent the listener from journalising. Transmission speeds are 5, 8, and 12WPM, and operation is continuous.

VK2RCW started transmissions in 1976, on 147.400MHz using (mostly) a VK3 carphone, with five watts into a ⅝ whip on top of the tin roof of its host building, on the Upper North Shore in Sydney, where it has a good view of the city, and the southern and south western suburbs. (Also, see page 34, Amateur Radio for further details).

Whilst on the subject of beacons, I note also in the October issue of Break-In in "The VHF Scene" columns, on 23rd May VK2s copied the VK9ZR beacon on six metres, from Willis Island. I was not aware such a beacon existed but, it may have been an attended keyer used when the operator was in the shack. If anyone has more details they would be appreciated, but in any case it indicates a very distinct possibility of six metre operation from there this Es season.

SIX METRES

This band is being reported as being very quiet in all areas of the Southern Hemisphere. ZL3ADT said the winter Es were very poor indeed, Jim VK3AZY says much the same thing, and I am doing likewise. There appears to have been some contacts between VK2 and ZL, around June and July, but little has come through of later contacts. From my viewpoint, the present equinox has been very quiet.

SIX METRES OVERSEAS

From "CO ham radio", Japan, the Northern Hemisphere summer Es produced plenty of contacts, but not covering any great distances, it seems. In the lists provided are contacts from Japan to HL1ASS, HL1QW, HL5BAS, HL2DCE, VS6ZMT, JD1BCD, VS6EL, VS6XNF, HL2GS, HL1ADN, HL2ICB, HL1ICM, HL5BMA, HL2ASH, HL2AFG, JD1BBE, HL1AJY, HL2PQ, HL1EJ, HL5BFM, HL5BAS, plus another 10 or more HL stations, DU1GF, VS6XPZ, BT1HHL, BY4AA, VS6TE, BT4RJU, HL3ARA, BY5RA, K7RWT, BY1PK, and with the VS6SIX beacon on 50.075MHz being heard almost on a daily basis, but this being the only beacon to be heard there! Contacts have been made on SSB, CW, FM, and AM, with the latter mode being as high as 50.610MHz.

Television sound signals have been heard in Japan from Russia on 49.750, 9M — TV on 53.740, BY — TV on 51.250, 9M — TV on 48.240 and 48.250MHz. The stations which have been worked on FM all appear to be above 51.000 and no SSB operation appears to be taking place below 50.100MHz. CW signals also keep above that frequency, judging by the lists. It seems reasonable to assume that generally the beacons operate below, or around 50.100, and for the present time at any rate, all other operation above 50.100, with most up to 50.200, but some beyond.

SIX METRES — USA TO EUROPE

The opening up of new areas to six metres for the first time must be quite an event if you are an avid six metre operator, and within range of those new areas. The increasing availability of stations in the UK, and with good Es band conditions, allowed many stations in the US their first trans-Atlantic contacts. Bill Tynan W3XO, in October 1985 QST 'World above 50MHz' says it all . . .

"The 30th July Es opening between the East Coast (USA) and the British Isles certainly ranked as one of the greatest thrills in this conductor's 37 years on six metres. Prior to this, in my wildest dreams, I had hopes that maybe, about 1990, F2 and longer operating hours for the G stations, might team up to let some of us North American Six Metre Enthusiasts add a few UK countries to our 50MHz DX rosters. I even harboured a faint glimmer of hope that some of us in the mid-Atlantic States might be able to work one or two G stations on a fleeting Es opening. As reported last month (See November AR), one such Es opening took place on 2nd July. But, who would have thought that a much bigger one would occur again so soon, and so late in the season? On top of that, it was a long opening, lasting upwards of two hours, and very wide-spread, stretching from New England to northern Florida.

"Those in the mid-Atlantic States fared best, W4CKD in Virginia, a suburb of Washington, made his first six to 10 metre cross- band contact at 2152, and went to work four G stations prior to 2230, when those with special six metre permits are allowed to begin transmitting on 50MHz. After that he worked another 14 UK stations. W3XO, after being alerted by a phone call from WA3DMF, worked eight Gs plus GJ3YHU and GW4BCD. Further south, W2CUK worked VP9GE (Bermuda) at 2302 and then eight Gs, the last at 2327. At 0130, W2CUK, N0EAO, and KA0NNO in Denver, and at 0138 W6RXQ. Quite an evening — working from Europe to California via six metre Es in the space of a few hours!

"From the other end of the contacts, G3COJ reports nine W QSOs between 2230 and 0005, to W4CKD Virginia, K2MUB New York, K3ACR and W3JO Pennsylvania, KB3QM Delaware, W2HFI New Jersey, W2CUK/4 South Carolina, W3XO Maryland, and KA4DVH Florida, which is quite a wide coverage.

"On 6th August, about 2245, six stations in the W1 and W2 areas worked EA4CGN in Spain, six to 10 metres, during a very intense Es opening."

I suppose there are reasons for it, but one would have thought that with the opening on 30th July being so strong, that more actual contacts would have been made across the Atlantic. Possibly, one of the reasons more contacts are not made is that there are not a lot of operators at the moment in the UK, and the time differential has to be taken into account; there are probably thousands of W stations capable of putting a signal into Europe under good conditions, so I would imagine it to be something akin to a good JA opening to Australia, when so many stations are calling from one end that the rate of contacts becomes slow due to massive QRM levels. If there are other reasons, then I expect Bill W3XO will tell me in due course!

"The Shortwave Magazine" for August 1985, carries the following under the heading of 'Six Metres'.

"28th June 1985 was an historic day for UK VHF operators. In the House of Commons, Mr Geoffrey Pattie, Minister of State for Industry and Information Technology, made a statement concerning the future planning of Bands 1 and 3. Part of this statement was : '. . . I am conscious that the interim Merriman Report recommended that the radio amateur service should be given an allocation in the band — ie Band 1 — and I am therefore proposing to fulfill that recommendation by allocating the band 50 to 50.500MHz to radio amateurs'."

I am sure we are all very happy for the UK amateurs, who, for some time, have had a restricted usage of the 50MHz band, and we all hope that this will lead to a much greater six metre population in that country, with more possibilities for all to work someone there, even from VK. But, more importantly, isn't it great to be able to read of a positive statement being made by the appropriate Minister, and that is something not too often heard in todays political arena.

Norman Fitch G3FPK, who writes the 'VHF Bands' columns for 'The Shortwave Magazine', has this to say: *"Behind that simple statement lies years of hard work by the RSGB, which has*

resulted in the UK becoming the first country in Europe to grant its radio amateurs a 50MHz band . . . It seems likely a Gazette announcement could appear by the end of September.

"It is to be hoped that the Society will keep the band plan simple with these out-moded calling frequencies largely omitted. SSB and CW calling frequencies are unheard of on the HF bands, so why bother with them on six metres? Perhaps we should consider not using FM mode on this band, since it is a spectrum wasting system, better suited to UHF/SHF.

"Of great significance was the reception at 0200, on 23rd June, of GB3NHQ by K7KV, in Auburn, Washington, on the West Coast, a distance not far short of 8 000km. What kind of propagation was that at this low point in the sunspot cycle? Quite obviously, there is much to be researched about 50MHz propagation".

About the only additional comments I wish to make about the above couple of paragraphs is that, despite the abuse of calling frequencies by some operators, leading to the frustrations of others, there is ample evidence that the use of calling frequencies has, in the past, resulted in contacts being made that might otherwise not have eventuated. One needs only to look at a possible situation where an operator could be in the shack building some equipment, and monitoring say 52.050, and being on hand to answer a call from a station in a distant area. If you have 50 operators doing nothing else but monitoring, there exists the chance for some contacts being made. And what of 28.885MHz during Cycle 21? World-wide usage of that frequency certainly alerted a lot of people as to band conditions and many useful contacts resulted. I think the people of Europe will eventually see the wisdom of some nominated frequency to monitor, and this wisdom will come with their now given ability to make greater use of the band with all its strange happenings.

On the question of the 8 000km hearing, it could be very similar to that which prevails here when JA signals come down as far as North Queensland and they are given further help down to, say VK5, over an additional 2 000km due to Es existing between here and Queensland. 8 000km is a long way I know, but most things have an explanation when Es is around. Let us now hope the G operators can share in some of these strange, but interesting, happenings, and so add to the knowledge being built up all over the globe as a result of six metre operating.

CALIFORNIA TO HAWAII ON TWO METRES

They have done it again! A tremendous duct formed between the Californian Coast and Hawaii, from 12 to 14th July, and stretched from the Mexican border to well north of San Francisco, and also up to 100 miles or so (200km) inland, when previously the ducts stopped near the shoreline.

Both KH6IAA and KH6HME were 8 000 feet up on the side of Mauna Loa, about half a mile (.8km) apart, which restricted their operating to some extent as they had to take turns operating on the band. Bill KH6IAA, had 40 QSOs using an IC-211 to a 100 watt amplifier, and an eight element Quagi about 12 feet (4m) above the lava flow. One of the highlights of the operation was the contact between KH6HME and N6CA on 23cm, SSB. Paul had worked Chip last year for a new world record on the band, but on CW only.

K6QXY, near Santa Rosa, 50 miles (80km) north of San Francisco, and 2 000 feet (610m) above sea level, says both KH6IAA and KH6HME had strong signals for 36 hours with the latter especially strong on 70cm. W6YKM is 100 miles (161km) inland from the coast and had contacts on two metres, obviously helped by his location 3 000 feet (914m) above-sea-level. The most inland station was K6PVS, and it is thought he may now hold the DX record for the W6 to KH6 path with a distance of approximately 2550 miles.

The whole thing repeated on 28th July, but did not last so long, however, signals again penetrated quite a distance inland. KH6IAA again worked some 40 stations, and added that the polarisation of the signals was preserved, when the Quagi was turned vertical the SSB stations were weaker. The band opened again on 14th August, but confined to northern California, the southern stations hearing nothing. Once again, KH6HME's two metre signals were heard first, then the 70cm beacon. WA6LHD, at Fairfield was able to make a two metre contact with KH6HME, despite having three mountain ranges in the pathway!

The above information was again extracted from 'The World above 50MHz' October 1985, and it looks as though the W6s are consolidating their hold on the two metre, and 70cm records by extending the contact distances further than just their coastline. This makes it all the harder for VK to snare the record again, but Albany to New Zealand might just do it, so you never know!

THE AUSTRALIAN SCENE

John VK4ZJB, has written with details of the DXpedition to Lord Howe Island by Nev VK4ZNC, to operate on six metres. He will arrive on 20/12 and leave on 30/12. He will operate with the call sign VK9LC, with 70 watts PEP into a three element Yagi. QSL information as per the current Call Book — QTHR. Nev is requesting a nominal donation of $5 for a QSL in an effort to help with some of the costs of mounting the DXpedition to give many operators a new country. The primary frequency will be 50.050, and suggests *". . . lots of listening and CQ VK9L, not QSQs on the frequency to clutter it up!"*

John also confirms that Chris ZL7OY has been chosen to be with the meteorological team going to Raoul Island for one year, commencing October 1985. Raoul is part of the Kermadecs, and Chris has been allocated ZM8OY to 31st December, then from 1st January 1986 until the end of his stay he will be ZL8OY. QSL via Chris' XYL, Mrs C Hannigan, The Terrace, Warrington, Otago, NZ. Chris proposes operating 'all bands CW and SSB', and John is hoping this includes six metres. In the light of previous contacts from the Kermadecs, it seems very likely some six metre operation would be scheduled.

As I write this information, *another note has* come from John confirming Chris was definitely taking six metres with him and will operate on all ZL and VK common frequencies, and the departure date from ZL was 3rd October 1985.Thanks for the letters John, they contained good news for the six metre gang.

Eddy VK4KAA ex VK4ZEZ, has now returned to Townsville after spending some time in Melbourne, Ipswich, and Mount Isa after leaving Townsville previously. At the moment, he is trying to get his station in order again, and so far is monitoring OSCAR 10, and also six metres, but no signals on the latter band so far.

Eddy reports that recently a larger inversion over the Coral Sea produced a good two metre path to Port Moresby, and it was possible to have contacts through their repeater, using a hand-held transceiver. On two metres he also uses the VK5 pre-amp, and has had successful AMTOR RTTY contacts to Cairns on two metres. So it looks as though we will have another station from Townsville, this summer.

432MHz EME

Doug VK3UM, continues to have considerable success with his mostly random EME contacts. The following is a resume of recent QSOs with the first report being that sent from Doug, and the second being the report he received.

7/9: This was a sched weekend; 2145 DL9KR 559 559; 1709 VE4MA 439 339 with bad libration fading; 2325 DJ6MB 449 439; 2357 JA4BLC 339 349.

4/10: 2000 DL9KR 559 559; 2023 YU1AW 559 559; 2040 G3LQR 439 439; 2112 LX1DB 439 439, this contact with Luxembourg was a new country for Doug.

5/10: 1452 N4GJV 439 449, again bad libration; 2022 DJ6MB 449 339; 2115 G3SEK 339 339; 2140 DF3RU 449 439.

Scattered amongst the libration fading there are some very good signal reports listed above, good enough for SSB, one would think.

In addition to the above, Doug has maintained contacts on the path to Sydney, with Canberra on the way. Sunday 1/9 on 432 produced contacts with VKs 1ZT, 1BUC, 1ZQS, 2BE, 2QP, 2DVZ, and 2ZAB. Don VK3YV also worked into Sydney, while Lionel VK3NM heard VK2ZAB. On Saturday, 5/10: VKs 1BG, 1VP, 1AU, 1BUC, 1ZZT, 2ZAB, and 2ZRU. These type of contacts always seem to be possible when the various parties are home and available. On Sunday 6/10 Ross VK2ZRU was worked by VK3UM four times using aircraft enhancement!

Doug also indicates he will be signing VK75A for contacts via the moon during the prescribed time the call sign can be used. Thanks for the info Doug.

ROSS HULL CONTEST

This memorial VHF contest is scheduled to commence at 0001 UTC on Saturday, 14th December, and conclude at 2400 UTC on Monday, 6th January 1986. Again there have been some rule changes which is bound to bring some flak, but one would have to feel sorry for the succession of contest managers who have tried to arrange the rules of this contest to be fair to as many people as possible. One important change has been the shortening of the period to about three weeks, and another, the one contact per station per band per UTC day. Such changes have resulted from the pressures applied to the Contest Manager by correspondence from contestants. Before knocking these two changes too much, why not try it for this year and see what the results are. Incidentally, it would not have taken much more correspondence to have all Ross Hull contacts not less than 200km for all bands! Such a rule might have caused some interesting situations, especially at the higher frequencies. Perhaps contestants might like to comment to the FCM on that when submitting their logs.

Looking at the revised scoring I am sure there will be some grumbles, but if you are fair-minded you would have top concede there is no hope of a scale of points which will suit everyone, and there must be some give and take. After all, even VK5LP has to operate under the same rules, and I would give a lot, at times, to live in some of the great VHF locations that some operators enjoy, when compared with my poor location, but I have not used that as a reason for not operating. To live in the metropolitan area of a city, with its inevitable large VHF/UHF population, is not all detrimental when you go up in frequency — try doing some UHF operating from out in the sticks, particularly if the sticks are not located between two capital cities.

All the above paragraph simply means is *". . . let's give it a try this year, see how the changes shape up, but send any helpful comments to the FCM with your logs"*. Also, if you care to go to a little more trouble, why not send me a copy of your log front sheet, and your comments so they could be aired throughout the year, rather than they be held by the FCM until it is time for another contest. I am prepared to extract anything from your comments, which is reasonable and generally constructive, and give it some mileage through this column. See you in the Ross Hull.

OTHER NEWS

A new Region 1 23cm record was established on 29th June 1985, between David G6LEU, and EA8XS, between 1940 and 2012 UTC, with reception apparently in 10 to 15 second bursts. The distance has been calculated as 2620km. The world record for this band is held by KH6HME and N6CA, on 24th June 1984, with a distance of 3997km. This note is recorded in 'The Shortwave Magazine', August 1985.

From the same source is the news that a new world record for 144MHz EME was established on 26th May 1985, between G3POI and ZL2BGJ, with a distance of 18 821km, which is only 1 184km short of the maximum possible distance which could be achieved with someone in Spain. G3POI used a 160 element collinear array and ZL2BGJ, an array of four Yagis and a Henry 2002 amplifier. Congratulations to both operators.

The Annual VHF/UHF Table of 'The Shortwave Magazine' shows the top scorer being GW4TTU, with 19 countries confirmed on two metres, eight on 70cm, and five on 23cm. The second top station, G4TIF, incidentally has 12 countries on

70cm. I suppose that is one advantage of having so many countries within the range of your station in the UK. One wonders what some of the scores must be for European mainland operators, right in the centre of Europe, where distances between countries are even shorter? Perhaps mutual QRM is a limiting factor under these circumstances. I also note that G4TWD had 350 QSOs on CW for the year, on 144MHz!

Mark VK0AQ, at Mawson, continues to pile up contacts via OSCAR 10, judging by the exotic QSL cards arriving here, from time to time. Mark suffers quite a deal from local QRM at his base, which can make 20 metre contacts difficult at times, hence the OSCAR operating. The VK0MA beacon appears to be still running on six metres.

Gil VK3AUI, recently returned from an extended round-the-world trip, has provided this photograph of Johannes LA6HL. Johannes was operating portable in Iceland and is pictured at his location in a Reykjavik camping ground. Johannes has visited Iceland a number of times, and works 144 and 432MHz meteor scatter. He also has 50MHz equipment. A two metre beacon is being installed in Iceland by Johannes, with the help of a group he is associated with. Thanks Gil, for the photo and information.

Johannes LA6HL.

Johannes' Meteor Scatter Antenna.

Local news on VHF is scarce this month, maybe the Es will start to come along soon and help the situation. With this issue I commence my 16th year of compiling these notes. Thanks once again to those people who write to me and send information, and to the Clubs who send their bulletins and journals.

As it is December, I wish everyone the compliments of the season, and plenty of useful DX in 1986 — the year of South Australia's 150 Jubilee.

Closing with the thought for the month — *"PUSH may get you anywhere in this world — except through a door marked PULL."* 73 The Voice in the Hills.

AR

HIGHLIGHTS OF AMATEUR WIRELESS HISTORY IN AUSTRALIA

APRIL 1935: Mr Kenna (ex VK4FK) and Mr Billin of the PMG Research Department demonstrated 56 MHz equipment in the Queen Street rooms of the Victorian Division of the Wireless Institute of Australia. Two-way 'phone communication was established with a portable-mobile transceiver below the rooms in Queen Street and by means of a loudspeaker in the meeting room progress of the mobile station was followed as it moved along Queen Street. At this time there were not many VHF enthusiasts so this demonstration inspired great interest and brought into being the WIA 56 MHz Group. The late John Moyle VK2JU, was an early 56 MHz experimenter.

1934-1935: Amateur Radio magazine carried an — "Operating & Experimenting Section — covering 28 MHz, 56 MHz, 112 MHz and 224 MHz. The Gadsden Trophy was awarded to the Group for outstanding work on these bands over the period from June 1935 to June 1936. It was the first Experimenters Trophy for annual presentation. The Queensland group notched up the Australian distance record of 70 miles (113 km) in the 56-112 MHz region in 1935 and in May of that year were setting up for tests over a 150 mile (241 km) path. The Queensland Group also achieved duplex contacts between two flying aeroplanes and two moving cars; one plane directed one of the cars around the suburbs in which the tests were conducted.

SEPTEMBER 1935: First organised 56 MHz Field Day arranged in Victoria following the success of VK2 and VK4 tests from aeroplanes and motor cars. Twelve sites selected were at Mt Dandenong, Mt Macedon and Arthur's Seat. Geelong amateurs were alerted in case Port Phillip Bay was spanned! Distances of 45, 70 and 80 miles (72, 113 and 129 km) were achieved.

OCTOBER 1935: First 28 MHz contact between New South Wales and Europe made between VK2LZ and F8VS. First 28 MHz contact between Queensland and Europe was between VK4EI and ON4AU in the same month.

1935: The first transmitter for the WIA Victorian Division using the call sign VK3WI was constructed by Bill Gronow VK3WG, for the Institute's activities at the Essendon Aerodrome. It was later rebuilt by VK3WG and Bob Cunningham VK3ML and operated from Law Court Chambers at 191 Queen Street, Melbourne, In the post war years after WW2 it was again reconstructed for use at the same site by the late George Glover VK3AG.

1935: The Lakemba Radio Club in New South Wales published a successful official Club paper — The Lakemba Review.

1935: The Tasmanian Division of the Wireless Institution of Australia staged its first State Field Day in March of 1935, held at Campbell Town 80 miles (129 km) from Hobart at which the northern amateurs met the southern amateurs.

OCTOBER 1934: The Victorian Division of the WIA staged Australia's first DX Contest on the occasion of Victoria's Centennial Celebrations. The Contest Manager was Bob Cunningham VK3ML. Prizes were presented by the Chief Inspector of Wireless, Mr J Malone, in the studios of the commercial station 3DB Melbourne. The Centenary DX Contest was the forerunner of the first VK-ZL Contest held in October of the following year.

SEPTEMBER 1934: The Amateur Radio Association (NSW) set up an amateur station at the "Gentlemen's Hobbies Exhibition" held in aid of the Industrial Blind Institute. It was organised by VKs 2UX, 2FQ and 2HZ.

OCTOBER 1933: The Melbourne amateurs gave a dinner to the country amateurs.

1935: The Wireless Institute of Australia celebrated its Silver Jubilee as the oldest amateur organisation in the world having been founded in New South Wales in 1910 by a group of wireless experimenters.

OCTOBER 1934: First contest organised by the WIA titled — The Five Point Contest. The second contest was the — The Fisk Trophy Contest in 1935 run on a six monthly basis for interstate contacts with cypher interchange with each QSO. The trophy was presented by Mr Ernest Fisk (later Sir Ernest Fisk) of AWA Ltd. The suggested call in the contest was — CQ Fisk. Sir Ernest Fisk was also an early President of the WIA in NSW and also of the Australian Radio Amateur Transmitters League (ARATL).

1928: 'Phone Section of the WIA in charge of frequency allocation of crystals for the 200 metre 'Amateur Broadcasters'. Stations had to meet a technical standard before crystals were allocated. The quality of some transmissions were frequently superior to the commercial transmissions of the day. In October 1934 a 'Phone Contest was held in which the quality of recordings and speech were judged. Some authorised stations utilised YL announcers.

OCTOBER 1933: The first issue of the WIA's own magazine — Amateur Radio — was published in octavo format by the Victorian Division of the WIA. The Federal Council of the Institute endorsed it as the Official Organ of the Institute. During World War II the printed publication ceased due to costs and the temporary cessation of amateur radio on the air. It was replaced with a 'roneoed version' until 1945 when reprinting commenced in a quarto format.

1933: The licensee of the famous station A3BY, OA3BY, VK3BY, (Mr Holst) tells the story of how, in 1912, he used a spark transmitter to work out school lessons with his pals!

AR

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

The writing of the last column for 1985 has come around again, seemingly very quickly and the year has flown past.

Unfortunately, the solar cycle on its downward trend has not been conducive to enthusing the newcomer to seek DX, however the DX is still there, if you are in the right place at the right time. When one tunes across the band, it appears 'dead' but, what one does not know is, there are also possibly others tuning and not calling at the same time. As New Year resolutions are coming up, why not make it a practice every time you switch the transceiver on, to give at least three calls.

Next months column will present another amateurs view point of DXing, as she has known it for in excess of half a century, which has allowed her to join the ARRL DXCC Honour Roll, to the best of my knowledge the only VK YL to achieve this honour. Incidently, this amateur has been a member of the WIA for 56 years.

To all readers, I would like to extend Seasons Greetings for 1985, and I hope that 1986 bestowes health, happiness and of course lots of good DX, even if the conditions are not what they could be.

QSLING

A chore, to us all at times but a necessity, as in my opinion a card compliments a contact that you have made with a new station, a friend you have just made and may never have the pleasure of meeting, yet will meet from time to time in the ensuing years.

Jan and Jay O'Brien, KH6HHD and W6GO respectively, in their invaluable publication the W6GO/K6HHD QSL Managers List, issue number 67, have written an excellent article termed 'Successful QSLing'. I have decided to reproduce this article in an adapted form to suit conditions applicable in Australia which I am sure will be of interest to all who QSL, either directly or through the bureaus.

Jan and Jay state *"Gelting OSLs is important to you. Otherwise, if it wasn't you would have little interest in this publication. Our goal is to help you get those important OSL cards. We have been gathering information from many sources and have presented several columns for you with hints on QSLing."*

Here is a recap of the most important points.

THE BASICS

At all times use 24 hour UTC time and UTC date, this will then agree with the DX stations log and save the operator, or if he is lucky enough to have a manager, the precious commodity of time. Many operators and managers place the cards that do not agree with the log into a separate file to be attended to when they get around to it, which may be a week, month or never in some cases. It is easy to see the importance of the use of a universal time. Even in Australia with the advent of daylight saving time, there can be a huge variance, particulary if a station is working 60 stations per hour, a conservative figure for a good operator.

COMPUTER GENERATED CARDS

If one uses a computer, as I do, it is convenient to place the year, month, day, and time in that sequence when keying the log in for sorting purposes. Some countries place the month first, followed by the date and year, eg: The 1st of April 1985 on my card becomes 1985/04/01 and on an American card it could be written as 04/01/1985. Imagine yourself in the recipients shoes. *When did this station work me? Or did he or she work me?* So into the too hard file, therefore on those special cards, write or print the month in or programme the 'wonder box' to do it for you. The same applies with time. A five minute incorrect time could mean five contacts difference, not much to look for but it may be over a page, which becomes time consuming. So precise time in the log is essential.

THE CARD

Cards should not exceed the dimensions of 140mm x 90mm and be on a card not heavier than 250 grams per square metre, if one intends to use the bureau. The reason — economics!

It is essential, when filling in a card, that the information is clear and accurate and that there are no alterations. If you unfortunately make a mistake, destroy the card and start again. An altered card will not be accepted for DXCC accreditation or most awards and therefore becomes pasteboard, nice to behold but heavy on the wallet, particulary if you are sending it direct instead of using the bureau facilities.

SENDING DIRECT

If it is a rare station in a country that you have not received accreditation for, my advice is to QSL direct, if you can afford it. As your chances of receiving a card fairly promptly are quite high. It is essential that one sends a self addressed envelope (SAE), accompanied by adequate International Reply Coupons (IRCs) or a 'green stamp'(one American dollar), the latter is valueless in many countries and in some cases cause the recipient many problems.

SENDING BY THE BUREAU

Each VK bureau has its standards, and it is advisable to check — but, to make it easier for all, the following ground rules will assist.

Remember, volunteers run the bureaus, and time is precious, so pre-sort the cards alphabetically, and numerically, after having placed the recipients call sign in 12mm high, legible lettering at the top right corner of the card. This can be on either side, whilst viewing it in a horizontal position.

If there is a manager involved, it can be placed underneath in smaller lettering.

Your attention to the above will be greatly appreciated by all bureau personnel throughout the world — and, of course, expediate your card to the recipient.

MAIL CENSORSHIP

According to media reports, Pakistan AP2, has begun censorship of all incoming mail, except those of a diplomatic nature. Currency is strictly taboo, so please don't embarrass the recipient.

It is believed there is evidence of mail being inspected also in the Peoples Republic of China, particularly if photographs are included and it has been proved that material of an offending nature is confiscated and destroyed. Again please beware of embarrassment to your fellow amateur, and the image of our country.

PROFILE OF A MANAGING EDITOR

I read, amongst many other magazines, World Radio, and quote a lot of their material. This excellently presented monthly, that is entirely devoted to amateur radio, is edited under the management of Christine KA6TAL, who gained her Technician Licence three years ago at the age of 27. This lady, apart from being a housewife for five years, does freelance journalism, and is involved in a little public relations work for a nature centre.

Christine, a person with boundless energy, is heavily committed with church work and has other hobbies including reading, playing the guitar, hiking, photography, and her duties at the local nature centre. Christine, keep the excellent standard up. It is known that all your readers appreciate your untiring efforts, as do the folk at this QTH.

Chris at work.

NEW TAIWAN AMATEURS

BV2DA Feng, ex XW8BP, BV2FA Shane Tang, an ex HS operator, BV2GA Randy Wan, ex KA6LGA, BV5HA G T Chang, BV6IA W L Chen, BV7JA C L Soo, BV7KA S L Teng, BV7LA C M Tsai. Congratulations and welcome to the above newcomers who will take the 'heat' off Tim BV2A/BV2B, who has given so many a new country for their DXCC over so many years. Incidentally Taiwan is divided into nine different call areas with the 0 being reserved for visitors.

Further examinations are expected to be held in the near future.

SMOM

It is reported that Mario will be active with 1A0KM in February. If you have not worked it place a note on next years diary as Mario I0MGM, would like to keep it on the 'much' wanted list! I Hence, very few operations per year can be expected.

CONGRATULATIONS

Isao JH1RNZ, also known as 3D2RN and other calls pertinent to the Pacific area, has a smile from ear to ear, since he had a QSO with the US Space Shuttle CHALLENGER, on both two metres FM and colour SSTV on the 4th and 5th of August. Congratulations Isao on being the first and probably only JA operator to succeed.

BEREAVEMENT

It is sad to relate that confirmation has been received of the deaths of JI3USA, JF3NAK, and also JO1PSU, with her two children. These amateurs were killed in the tragic Japan Air Jumbo Jet air crash in the mountains of Gunma on the 12th of August. From all amateurs, condolences to the families, not only of the amateurs, but to the other passengers involved in this unfortunate disaster.

Also, it would be remiss of me not to mention the disaster in Mexico City, where amateurs, played a magnificent role in assisting in rescue operations and the transmission of emergency traffic. Again condolences to all who lost loved ones and friends in this horrific natural disaster.

KNOW YOUR COUNTRY

Bob Winn W5KNE, has written an excellent article on the much sought after Galapagos Islands, which is reproduced for the interest of all readers.

The Galapagos Islands, or Archipelago de Colon as they are officially known, are astraddle the Equator, 960 km west of South America and 1250km southwest of Panama. The islands were named by early visitors for the large tortoises that inhabitated the islands. The Spanish word for tortoise, is Galapago.

The Galapagos, which includes 13 main islands and many smaller islets and rocks, has an area of 7800 square kilometres. The largest island, 130km long Isabela has five major volcanic peaks, the highest having an elevation of 5600 feet (1700m).

The islands are the tops of large volcanoes. Some volcanic activity (fumaroloes) is still evident on the islands of Isabela, Fernandina, Pinto and Marchena. The last volcanic eruptions occurred in 1963 (Isabela) and 1968 (Fernandina).

Even though the Galapagos are somewhat isolated they have a long and rich history. The first known visit to the islands was by Fray Tomas de Berlanga, Bishop of Panama, in 1535. However, the islands were relatively unknown for another 200 years.

By the late 1700s, whalers and fur seal traders visited the islands for food and water. The hunters slaughtered the fur seals, iguanas and giant tortoises were often taken alive on board for food

and sport as they could survive for long periods without food or water.

Before being claimed by Ecuador in 1832, the islands were often the base for pirates and generally ships from many nations. During the war of 1812, the US frigate ESSEX used the islands as a base. It wasn't till after Ecuador claimed the islands, that they became permanently inhabited.

Probably the most famous visitor to the Galapagos was Charles Darwin, the father of evolution. Darwin visited the islands in 1835 with the HMS BEAGLE. Many of his ideas concerning 'evolution' originated from studies made while visiting the islands.

In 1959, the government of Ecuador proclaimed all uninhabited areas of the island group as a National Park and enacted laws to protect the native wildlife.

I know Bob, and his XYL Bonnie, put considerable research into this article and it is trusted that you will have something to chat about with your next QSO to that part of the world.

DISAPPOINTMENT

It was a disappointment as to the number of replies that I received for the survey of wanted countries, as requested to readers in a previous issue. The Post Box wasn't crowded to say the least.

Out of the number I received, the following countries predominated: 3Y0 (St Peter 1 Island), 3Y0 (Bouvet Island), 7O, ZA, S9, CE0 (San Felix Island), PY0 (Trindade), SV (Mt Athos) and 1A0KM (Knights of Malta).

This is not by any means a true evaluation of the needed countries required by VK amateurs and SWLs, as it does not include any SWLs or Novice operators figures. The reason is that none were submitted.

No one included their interest in the WARC bands, even though they don't count for awards or DXCC, so no figures are available. This column was not the only one to suffer a lethargic response. The same happened from European operators, with only 30 submitting their 'wanteds' to the 'DX Bulletin', out of a total of 582 returns. The overall figure was 768 last year. My question to all readers — is DX what it used to be? Has it become a 'black box' operation, or is it a lack of interest due to the propagation conditions which are nearly at the bottom of the Solar Cycle.

A LADY OF NOTE

Many VK CW operators have worked Liz W3CDQ, over the last half century, and they have the card to prove it. However, very few of these operators realise that Liz still uses a 1922 hand key and will celebrate her 87th birthday on the 11th of this month. Quite an achievement for Liz as she has been on the air 62 years.

Liz remembers, and talks quite often about, the time in 1917, when, as a young girl, she took a radio course with the hope of becoming a ships operator, after her completion and passing of the course. Her hopes were dashed due to World conditions at that time, but before long, with her new commercial licence, she was teaching code to hospitalised veterans wishing to update to new positions in the forces.

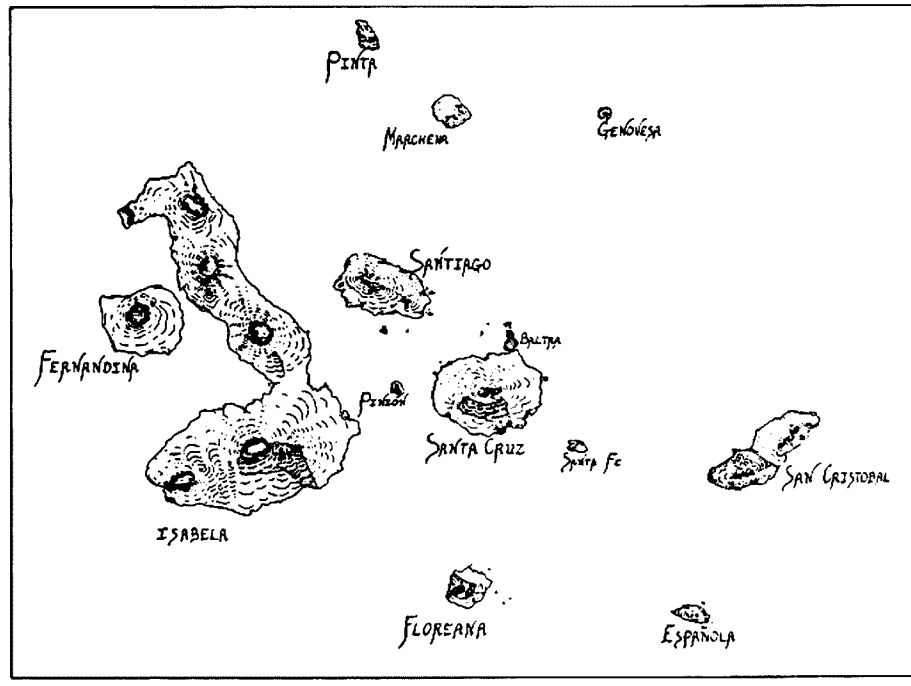
In 1921, Liz obtained a position with the Bureau of Standards, as the only lady in its staff of 21 radio personnel. Her duties were varied to the extent of taking measurements, the winding of coils, making receivers, translating items from foreign magazines, to assisting in the publication of a book titled 'How To Build A Crystal Set From An Oatmeal Box', of which 20 000 copies were sold.

This lady built a five watt, one valve transmitter, and also a one valve receiver, after gaining her amateur licence in 1922. Since then she has made innumeral friends throughout the world and is continuing, since her retirement from the Bureau of Standards, with a rig running 100 watts to an indoor multi-band dipole antenna that is located between the roof and ceiling.

Liz, has been a member of her national society, the ARRL, for 55 years, and belongs to many clubs and the Society of International Radio Engineers. In a letter to a VK friend, she remarks that she recently attended a YL convention, where some 200 attended, and had the privilege of meeting some of the friends she made on air in the very early stages of her amateur career. This lady always maintains that the hobby we enjoy, has meant friendship to her.

Happy birthday and many more healthy and happy birthdays in the future Liz Zandonini, from all your friends in Australia and the amateur fraternity in general.

Adapted from World Radio, September 1985, with assistance from her many friends in VK.



ODDS AND ENDS

The WARC 10 MHz band is now available to Italian operators. I3BLF has achieved 27 countries on all continents. ** Rudi DJ5CQ, is quite active from Lord Howe Island. QSL to his home QTH. ** 4U1UN quite active on 20 metres. ** Watch for XT2AU who hopes to be active from 5U7 this month. ** SEA Net starting to be heard again in the eastern states. Time 1200UTC Frequency 14.320 MHz. Don't miss an excellent net where everyone is made welcome. ** Zone hunters watch for UZ9OWB/0, located on Shitokan Island, which is in Zone 19. ** Gary VO1OC/S2 does not hold acceptable credentials for DXCC. ** Bernt A24BJ, quite active. QSL Private Bag 7, Francistown, Botswana. ** Listen for Chris VK0CC, ex VK2BCC who is on Heard Island. It is unlikely that he will be very active due to the workload. Listen between 14.210 and 14.150 MHz. ** John S79JW quite active, with strong signals. QSL to PO Box 487, Victoria, Seychelles.

CARDS ROLL IN! I

Stephen VK2PS, reports that he is still flying with the 'VI' prefix and running his 'commercial' regarding the WIA's 75th Anniversary. It apparently brings a lot of DX out of the 'woodwork' that would not normally appear.

Stephen has had another batch of cards from the Bureau, including 25 SWL cards from the USSR and pasteboard from BV0AC, BY1SK, HB0NL, PP8JJ, PT2VE, TI2ANL, TI8CBT, YO3CD, YOP8WCY and ZS1OU.

The way Stephen is working the DX, I recommend to him that he buys up on pens, to fill in the onslaught of cards he is going to receive.

Karen KA0CDN, has found a way of quick returns to get a J5WAD card. Karen used the three envelope trick. In her own words she says *"I put our cards in one envelope along with 2 IRCs and a SAE and wrote the QSL Managers call on the envelope. Do not seal the envelope. Send along with other cards to Box 88. Cards were returned in our SAE with Soviet postage stamps and rubber stamped from U QSL Bureau, Moscow, Box 88".*

QSL MANAGERS YOU MAY NEED

3A5EE:FE9RM, 3B8FP:IK8DYD, 3D2RN:JH1RNZ, 3D6AJ:WB3CQN, 3D6AK:G3WPF, 4N3E:YU3HAM, 4S7NMR:KZ8Y, 4X73ID:4X4HQ, 5B4LP:KA3FIB, 5Z4DU:KE4DA, 5Z4ED:JH8FMU, 5Z4MX:SM3CXS, 7S2SSA:SK2AU, 7S0SSA:SM5KF, 8J1XPO:JARL, 8J2ITU:JARL, 8Q7MA:OH2BH, 9J2YM:JF3KLB, C21BD:WB0TEC, C30CAH:F6GXP, C30LBK:EA3TJ, C30LBS:I1FOU, CG9WF:VE1WF, CY0SAB:VE1ASJ, DX1N:JH3OII, EL1G:WD9IDS, EL2AL:KW9Z, FE5RV/TK:F5RV, FM5WD:W3HNK, GB0SGD:G4KHF, GV2TW:GM2TW, GV2VER:G3GKS, GV3RAF:G8FC, GV4MRS:G3YOA, GV4PIE:G4STH, GV4VE:G4KIE, GV4VIE:G3NBC, GV0FYO:G4KHF, GV0IPA:G4TRE, GV0NRG:G4BCP, GV0SLH:G4SLH, HG40A:HA5KDB, HG40M:HA7KLJ, HG40Q:HA8KAX, HG40X:HA4KYN, IY4FGM:I4IKW, J28EI:FC1JEN, JT0APE:UZ3AZO, JV1UB:JT1KAA, JW6VDA:LA5NM, JW0EQ:LA5NM, JY1:WA3HUP, JY8AD:A71AD, JY9CL:G3MUL, JY9MG:JR3XMG, LG5LG:LA2ZN, LZ40B:LZ2VP, LZ9MAY:LZ1KDP, OX3AX:OZ5DX, P29KY:JR1EMT, SO9FY:LA9FY, SV0DV:WB4TDB, SV0DW:WB4TDB, SV1RP:SV1NA, T30DB:J6LDB, V2A:W2JT, VK0GC:P29JS, VK0YL:VK3AH, XX9LL:DL9LL, Y40BUC:Y2IQI, Y40POT:Y57ZD, Y40SEE:Y52SE, Y85HUB:Y24OO, YB0ARA:WA6AHF, Z21AO:VE3HK, Z21GN:KV3D, ZD8JP:G3ATK, ZD8LJ:G4LGF

WANTED KNOWN: DL3BE is NOT the QSL Manager for 4X4II!

WORKED ON THE EAST COAST

21MHz

KA7DSL* and KH6IM*.

14MHz

4K1A, 4N2D, 4X6KA, 5N8ZHN, 5W1DZ, 6Y5AC, 8R1RPN, 9M8GH, 9Y4GR*, 9Y4NN*, 9Y4NW, AP2AU, AP2ZA, BY1SK, BY5RF*, C21RK, CN8CC, CN8MB, CT4NH, EA7TU*, EA8ANR, FO8JB, FW8AF, G0BSD*, G3EDM, G3YSV, GD4PVT, GJ3AWR, HA5OG*, HB9CJH*, HL9JJ, HS1ER, IS0CPU, J28E, JW5E, LA6WEA, LA8PF*, LZ2PO, OA4OH, OE6EEG, OH6AD, OK3EY, OZ4BO, PA3CZO*, PA3DSM, PP8HL, SV1DO, SV1OL, TA1E, UC2ABF, UC2LCC, UH8EA, UQ1GWW, V85HG, VK0AK, VK0DJ, VK9NI, VK9NM/LH, VK9NM/LH*, VR6JR, VS6CT, VU2CK, YV5ANE, Z21BP, ZK1RE, ZL7PA, ZM7PM and ZS2OM.

1.8MHz

FK8DK*, VK6HD and W0ZV.

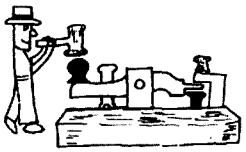
** Denotes CW operation.*

THANKS

Sincere thanks are extended to the following: The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, BARG NEWSLETTER, CQ-QSO, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST, KH6BZF REPORTS, LONG ISLAND DX BULLETIN, NEWSLETTER of the NATIONAL INSTITUTE OF HYDERABAD, OLD MAN, QRZ DX, RSGB DX NEWS, THE WESTLAKES AMATEUR RADIO CLUB NEWSLETTER and the PAPAKURA RADIO CLUB NEWSLETTER. Magazines including, BREAK IN, cqDX, JA CO, JARL NEWS, KARL NEWS, QST, RADCOM, VERON and WORLD RADIO.

Members who have contributed include VKs 2PS, 3YJ, YL, and G3NBC. Overseas amateurs include DK9KD, G1EOD, KB6OAW/KH2, ON7WW, W3CDQ, WB6GFJ, ZL1AMM and ZL1AMN. To all readers good DXing and Seasons Greetings from this OTH to your QTH. Sincere thanks are also extended to all subscibers who have taken the time to assist in making this column possible throughout the year.

de Ken VK3AH.
AR



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

ODDS 'N' ENDS

This month, I'd like to catch up with some of the correspondence, and I'll start with a subject that is dear to my heart — the unofficial, unsponsored, and no-prizes-but-self-esteem competition to find the World's Biggest Key. We have two more entrants! I hope they will stimulate competitive activity out there, but it's necessary to remind you once again of the rules of the competition. . .

". . . there are no rules. It is difficult enough to determine what constitutes a key, without worrying about terms like 'biggest' ".

First entrant is our friend Bill Martin VK2COP, the Federal Intruder Watch Co-Ordinator, who wrote to comment on my column about intruders. Bill says, *"Rarely have I ever undertaken an endeavour which has proved to be so frustrating, and lacking in finalisations. But the rain finally wears down the stone, and, even if we have the occasional success, then the effort has been worthwhile."* I am sure all of you are grateful for Bill's efforts on our behalf, and will continue to give him your support.

Bill says he is not a contender for 'keeper' of the World's Biggest Key, *"but let me tell you this. . . Sometimes, when I am tired, and the conditions are bad, my key SEEMS to be the largest key in the world, HI"*.

A flattering and welcome letter from Douglas VK4VLJ/MM, aboard the JAVELIN enclosed the artwork for a proposed QSL card. I am not too sure of the degree of accuracy with which the drawing represents the actual communications facilities on the JAVELIN, but, as Doug quite rightly points out — *". . . as you have taken a 'no rules' position (most wise, et diplomatic (thanks, Doug)) I believe that a theoretical key is as valid as a physical one"*. That's true, I think, or at any rate appears to be within the spirit of the competition, but what we lack here is a scale. Without the measurements of the theoretical key, or at least of the actual JAVELIN, it is difficult to assess a ranking. I mean, how do we know this nautical scene isn't inside a theoretical bottle?

Well, much as I would hate to take the grand prize away from Doug on a technicality, you must remember that I am by birthright a genuine American, and we learned a thing or two about technicalities in the process of losing a certain nautical mug. I am fore-shadowing a grand effort by the Adelaide Hills Amateur Radio Society, and ask you to bear in mind that, as the author of the rules, I am in a very good position to exploit them to our own advantage.

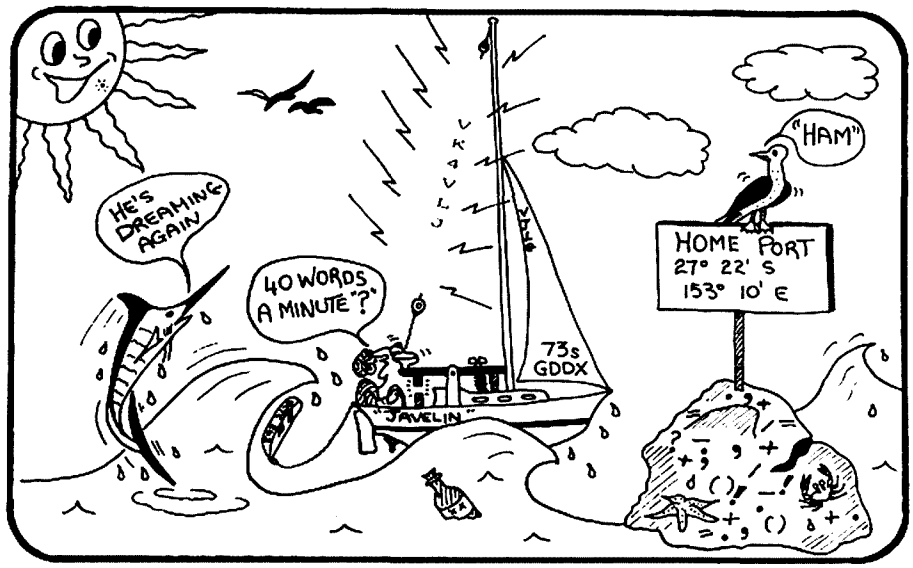
Any other takers?

Changing the subject, the balance of opinion as to whether Novices could or should be granted CW-only privileges on other bands, judging by my correspondence, is just that — balanced. Some very strong points of view were expressed on both sides of the issue, but I think overall there was a sufficient level of interest to justify a look at it by Federal WIA. To this end, I will write to them at my earliest convenience (as we say in the business), and ask them to consider the matter.

Opinion was not divided on the subject of a handbook for CW operators. The response was unanimously in favour, and those of you who wrote will, I trust, be pleased to learn that the negotiations are under-way.

My article on standards drew a lot of correspondence, and I was pleased that there are others who feel strongly about the future of CW. On that note, I would like to quote a large portion of the letter from Ken VK5PKP. . .

"Obviously, you are one who perceives CW as an integral part of amateur radio. I would suggest that the majority of license holders today see it merely as a nuisance to obtaining a particular level of license, especially from Novice to Full Call. On the other hand, it can be seen as both a status symbol, ie; 'I can work 20WPM,' or by the amateur association as a covert way of keeping amateur radio 'pure'. The latter I suspect. There is no real reason for needing CW qualifications, nor for that matter is there reason for more than the barest theoretical knowledge in order to become licensed.



"In fact, I would say that todays advanced technology caters to the amateur in such a way as to require only a basic understanding in order to operate. Latest equipment requires knowledge equal to that of a microwave oven or video recorder. It is easy then to understand the amateur service's paranoia about CW and exams. As for regulations, they are legislated to prevent interference with other radio services, and with an exam, are an obvious way in which a government can regulate the amateur service. CW today is an adjunct to that regulation. My apologies for these old arguments.

"In any case, CW is not the popular force it should be, and to some, is only an interest in, perhaps, the same manner as ORP. So what is to be done to convince newcomers to our hobby that CW is equally as important and fulfilling as any other aspect of amateur radio? One thing, keep the mystique, but get rid of the mystery. The mystique of Morse code, enabling the world to establish communications early this century, is worth promoting; the fear that it is highly skilled and difficult to master should be denied.

"Perhaps we could look at CW more in terms of the international scene rather than just locally. That is, code skills are a common requirement to most amateur services and because of different frequency allocations, could be the only way to communicate with select licensees abroad. I would support the idea of individual awards or certificates, but to me this might be 'preaching to the converted.'

"What I personally would like to see is wider privileges for CW. I see no good reason why any licensed amateur should be restricted to any band here in Australia, but at the same time, appreciate both the DOC and WIA views on this. What about allowing, for example, those with Novice licenses wider access to bands, CW only? It would be more rewarding to the Novice, and possibly stimulate them to further study. It may be the means by which limited calls might also become more involved. On the other hand, if I could work 20 and 40 metres CW I might never consider upgrading to full call. Oh well. . ."

A thought provoking letter. Especially since we brass pounders must be concerned, not merely with getting amateurs interested in CW, but in getting non-amateurs interested in radio in the first place. The CB boom is over, and we will have to get our act together if we want to preserve the hobby. Get someone interested today!

One last light touch — the smiling chap's arch-rival sent me a brochure recently containing this high-tech description of a 'field-strength/SWR meter'. 'Reads SWR, both forward and reflected, to 1kW'. (!) CU next month.

AR

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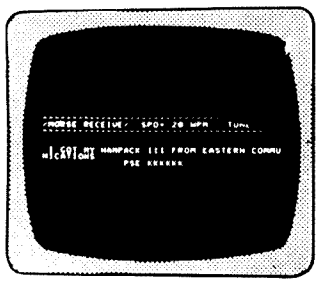

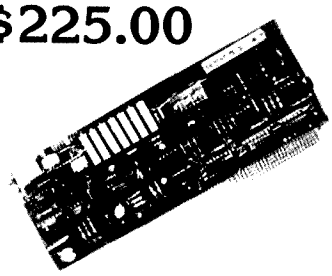

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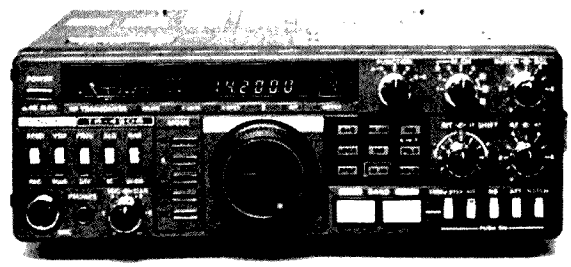

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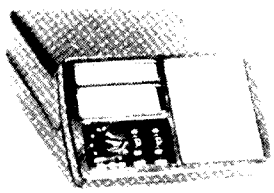

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ARAS

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Well, it is that time of the year again as Christmas has come around once more. On reflecting over the spectrum during the past 12 months, I can state that it has been extremely frustrating, due to the poor propagation on the higher frequencies. The maximum usable frequency has been often very low, sometimes as low as 13MHz. The usually crowded 20 metre amateur allocation has been, at times, completely devoid of any signals, which is a little unusual.

On the other hand, the lower frequencies have been very good, especially the 49 and 60 metre broadcasting allocations. Although there were fewer Latins observed this winter, there were some interesting signals heard, nevertheless. The propagation paths appear to be north-south as plenty of signals coming from Asia are being easily heard. In fact, I have been surprised to hear Asians on 11 and 15MHz at fair to reasonable strengths during local daytime hours. This seems to emphasise the fact that propagation does indeed favour this path.

NEW STATIONS

During this year, several new stations came on the air, such as Radio Marti. This station is within the VOA, although separate from it and broadcasts in Spanish to Cuba. It mainly uses a powerful MW sender in Marathon, Florida, but also the VOA transmitters at Greenville, North Carolina on HF are utilised. R Marti is easily heard here on 6.075MHz at 0930UTC. Then another station was launched later in the year called 'R Free Afghanistan'. It is primarily in the Dari language and uses the RFE/RL studios and facilities in Europe, with a 15 minute programme daily.

We saw some stations remove some of their long-running services. For instance, Radio Australia discontinued their special Antarctica programming on Fridays during October. Radio KGEI, in San Francisco, discontinued their Japanese programming from their schedule.

We also witnessed the unusual event of the BBC External Services going on strike in July for 24 hours, the first time in history. This was due to the banning of a television documentary on political extremism, which resulted in all radio and television networks being blacked out in protest. Our own Radio Australia also had some programme disruption caused by industrial disputes within the ABC.

Also on the 17th October, a radio station was put off the air as a result of terrorist action. The religious station 'Voice of Hope', which is precariously situated in 'no-man's land' on the Israeli-Lebanese border, was put off the air by a suicide mission. The 'Voice of Hope' broadcasts on MW and SW, and has been heard in Australia, but on the unusual frequency of 6.550MHz, in Arabic.

EXPERIMENTAL TRANSMISSIONS

Over the next few month, several new stations are scheduled to commence broadcasting on shortwave. These are mainly within the continental United States of America, and are either commercial or religious in content. Radio KCBI in Dallas, Texas, has commenced an experimental transmission between 1700 and 2100UTC in the 25 metre band. Radio Earth International has been using their facilities for a three hour slot, on a weekly basis.

Radio NDXE, in Birmingham, Alabama, should be commencing soon. It will be commercial and reportedly transmit in AM stereo. I regard this information with a pinch of salt as AM stereo is questionable, both from the commercial and technical stand-points. There are no HF receivers with AM stereo capabilities, so presumably they haven't a large audience to make it feasible. Also the fickle nature of QSB on a normal AM (DSB) signal on HF would presumably render AM stereo useless. *And, what stereo format are they going to use?* There are three different systems, and the Khan system would be the most feasible, as the programme information is channelled into the lower and upper sidebands. Another hassle would be the congested bands and the amount of splatter from adjacent channels plus the "Woodpecker" pulses to contend with.

OVER-THE-HORIZON

And while I am on about the Woodpecker, during October I did participate in a survey of the behaviour on-air of the Over-the-Horizon Radar (OTHR) pulses. I was allocated a frequency range of 17 to 20MHz, from 0900 to 1200UTC on a particular date. Unfortunately, I didn't hear one signal during my sweeps because the MUF was down around 13MHz during that time frame. So it was very frustrating to only tune around and continuously hear a hiss. 'Woody Woodpecker' was about though, but on the lower frequencies that were not on my brief. OTHR pulses were observed causing severe QRM to several broadcasters, including the BBC World Service, and these were also reported.

EXPANDED OUTPUT

Some international broadcasters have recently expanded their output. For example, the VOA recently launched 'VOA- Europe' with a continuous English service. However, you will not find it on MW or SW, for it is a satellite feed for various European cable broadcasters. Also, Radio Finland commenced an experimental service in German, as well as Radio Moscow commenced in Scandinavian languages.

Reception of the BBC World Service has been difficult lately here, especially since Radio Moscow started to use their frequencies at the same time. For example, the frequency of 9.640MHz usually provides good signals from 0545 UTC to Australasia, but now a Soviet station is on that channel till 0600 UTC, drowning out London completely. Because of the indifferent propagation from the UK site, I have often relied on the BBC Mediterranean Relay from Cyprus on 9.580MHz. This is on about 0500 UTC, but is virtually unusable because Moscow is now co-channel with their 'World' service, and Scandinavian programming.

The Caribbean Relay on 9.510MHz is fair until 0645 when Algiers come up on 9.509MHz in French, leaving a nasty heterodyne on the channel. COupled with that, I am having difficulty hearing the BBC Far Eastern Relay from Singapore from 0900 UTC, on 11.750MHz, because Radio Beijing is 5kHz higher, broadcasting to Australia until 1025 UTC. Fortunately 15.070MHz is becoming reliable again, but at variable levels.

The experimental transmission from the BBC Eastern Relay, to this area at 0600 UTC on 21.550MHz, has not been observed very often. This is because of poor propagation from Masirah Island. Also, the usually powerful Irkutsk sender, carrying Radio Moscow's World Service, on 21.530MHz, is well down. I rarely have heard many JAs either on the 15 metre amateur band. It is interesting to note that no broadcasters are now using the 11 metre allocation. I guess that they are waiting for the minima to pass before they operate there once more.

YULETIDE MESSAGES

Around the Christmas period, many stations schedule special programming in keeping the Yuletide spirit. As I am writing this in mid-October, I have not received any advance information, so I am unable to give any details. I can say that the BBC World Service is likely to have the annual "Festival of Nine Lessons" from King's College, Cambridge, at approximately 0935 UTC, after The Queen's Christmas Message. It will be on the usual World Service frequencies.

The Vatican Radio will broadcast Midnight Mass on Christmas Eve at 2230 UTC, from Saint Peter's Basilica. No frequency details are at hand, but my recommendation is the 25 metre band, where it will probably be heard *in* Australia.

Well, it only leaves me to wish you, and your families, all the best for Christmas, and hope that 1966 will be happier than this year has been. All the best of listening, and best 73 — Robin VK7RH. AR

TECHNICAL REVIEW
Amateur Packet Radio

An article entitled "Packet Radio in the Amateur Service", has appeared in the journal of the Institute of Electrical and Electronics Engineers. The IEEE is an American society with membership drawn from the ranks of people involved in the various electrical, electronic, communications, and computing professions. Its members reside not only in America, but around the world, wherever there is serious interest in things 'electrical'.

It is a tribute to the authors, Philip Karn KA9Q, Harold Price NK6K, and Robert Diersing N5AHD, that such an article on 'amateur' activities has been accepted for publication in such a 'professional' journal.

The article briefly describes the hardware used — both the VADCG and TAPR Terminal Node Controllers — and then goes on to discuss the development of appropriate software for the amateur radio environment. This is followed by some comments on modems and modulation methods.

Following brief comments on various experiments and examples, there is a section on the use of satellites for packet radio. This section includes comments on OSCARs 9, 10, and 11, PACSAT, and JAS-1, and finally a brief comment on Phase 3-C.

The article is illustrated by a series of well prepared diagrams and appeared in the May 1985 copy of the IEEE Journal on Selected Areas in Communications, VOl SAC-3, No 3, pp 431-439. Many libraries carry the IEEE Journals and copies should be obtained through any library.

This article was brought to our attention by Peter O'Connor VK4KIP, who is a member of the IEEE.

Condensed by Peter Gamble VK3YRP AR

QSP

VERSATILE NINE-IN-ONE HF ANTENNA KIT

An easily portable multi purpose antenna kit from Britian contains all the components that are necessary to permit any of nine different antennas, covering HF bands, to be erected by one man in as little as ten minutes.

The multi-purpose tactical antenna kit covers the frequency range, 1.6-30MHz, and is said to be far more versatile than other antenna kits of similar design. Components can be selected to provide omni-directional or directional characteristics for short, medium or long range communications and everything is contained in a small canvas bag.

By using trees or available buildings, dipole, delta, base-fed vee, inverted 'L' or sloping vee configurations can be rigged and the dipole arrangement can be made directional by using one element as a reflector.

Transmitter power of up to 500W can be used.

From Information Technology from Britian, 19th August 1985.

NEW LOOK! !

A5 ATV Magazine has changed both its format and its name. The new SPEC-COM JOURNAL features a larger page size, and an expanded focus on all forms of specialised amateur communications.

Complete details of this new magazine may be attained by writing to *Spec-Com Specialized Communications Journal, PO Box H, Lowden, IA. 52255.*

From 73 for Radio Amateurs — August 1985. AR

LISTENING AROUND

Joe Baker VK2BJX
Box 2121, Mildura, Vic 3500

It's me again, and of course I have missed several deadlines. I will start my column this time with a riddle.

He's at a location, which has 14km of sea-front on about 4000 hectares of land near Victor Harbour and Cape Jervis, overlooking Kangaroo Island. I was speaking to him on 80 metres in mid-September and he spoke of hordes of tourists from Adelaide, anxious to get away from "The Big Smoke", who do not realise the folly of dropping a used cigarette butt in the tinder-dry bushland. *Who is he?* Non other than Pat VK5PAT. Pat had taken time off from milking 250 cows, and building a fowl pen to speak with me.

MAN-MADE BEACH

I told Pat that I was an ex-Sydneyite, and I haven't seen a wide stretch of ocean for more than a quarter of a century. Pat replied that he could not stand to live too far away from the ocean, and the wide-open spaces. (For those who may not know, Buronga, where I live, is very much inland, and the next best thing to a beach around here is a man-made strip of sand by the Murray River). So, I envy Pat his nearness to the sea, especially on the blistering hot summer days when the temperature can hover around 44 degrees Celsius.

BUSHFIRE SEASON

Much of our talk concerned the lush undergrowth, which is now so evident, both here and at Pat's QTH, and of the coming bushfire season.

Buronga is not really prone to bushfires, the last fires being about a decade ago when almost the whole of the far western region of New South Wales was on fire. The fires at that time were so bad, fire engines from Sydney and suburbs were sent to this area to assist the local brigades, a distance of the best part of 700 miles (1126km). Many of the fires were thought to be deliberately lit, and at one point of time, there were as many as 17 fires raging on both sides of the Murray. Spotter aircraft and Army helicopters were also used in the battle.

Some valuable lessons were learned at the time. It was found that radio equipment aboard some of the vehicles could not operate on common frequencies. (I was not an amateur at the time, so could offer no assistance of worth, and only observe). It was the most devastating sight to behold to see kilometre upon kilometre of burnt country-side when the fires were finally extinguished. Many fires are caused by the careless, thoughtless act of dropping a cigarette butt on a day when the undergrowth is tinder-dry, and the winds and temperature are just right for a major conflagration.

LISTENING AROUND

Recently, on 80 metres, someone remarked that this column was one of the first things they read in AR, and asked why it wasn't in September's magazine. I had to explain that I had missed the deadline, and that it was about time I got in from of my typewriter again. Gordon VK5HM, who is fond of correcting me, informed me that I should have said *"when I get the typewriter in front of me"* not *"when I get in front of the typewriter"*. Pardon me Gordon, but you must be right, as usual. Gordon is always jibing me about my New South Welsh accent, and pronounciation.

Over the past few weeks, nightly conditions on 80 metres have been atrocious, to say the least. There have been times when I could hear Des VK3BSB in Gippsland, whilst Alan VK3BRG in Shepparton could not *hear* him or vice-versa. Also, communication between VKs 5HM, KV, GJ and myself, normally regarded as a short distance haul, was impossible. Yet, Paul VK2VJR, in Armidale NSW, could hear all three. Another time, a Hobart station that I could copy very well *informed me* that whilst he *could speak* with me, he could not communicate with any other VK7 stations. Odd conditions, indeed.

Matters have not been improved at all by CW interference of plague proportions, however, we will leave that matter to another place, and time! I

NO PHONES (Tele-type)

Gordon VK5HM, is a person who does not like telephones — he say he has never had one, and never will. Therefore, in the early hours of the morning, when Tom VK6TR was mobile on a highway between Mount Barker and Albany, and called for assistance, Gordon could not help. It was then left to me to ring Tom's wife in Albany and ask her to venture out to pick Tom up as his vehicle had broken down. Within 45 minutes she was at his side, and they were both very grateful. The sequel to the story was, Tom had only installed the radio in the car a few hours prior to departure and had not tested it on-air. Tom is an engineer at a television station at Mount Barker and was on his way home after working his shift.

AND AMATEUR RADIO DOES IT AGAIN!

Several weeks ago, I just happened to switch on when I heard Walter, in Parkes, NSW, calling me. It was pure chance that we happened across each other at that time, but we have spoken many times before and he knows my usual haunts on 80 metres.

Walter wanted me to try to catch up with a mini-bus, which had just passed through Mildura but, as they were not equipped with amateur radio, I could not see how I could help. It appeared that a person on the bus needed to be contacted by relatives in Hoxton Park, near Sydney, about a death in the family.

However, Walter thought I may be able to pass a message into South Australia, where the bus was destined for, in the hope that someone may spot it. I felt the chances of this happening were very remote, so I would instead ring the Mildura police. Upon ringing them I was told that the bus had been located in Berri and the message had been passed on via police channels. I was then able to call Walter back and he passed the message back to Hoxton Park that the relative was now informed. Meanwhile, an amateur in Adelaide who had intercepted the initial call from Walter and had duly notified the Adelaide police. Oh well! It doesn't matter if we double up on these things, just as long as the message gets through.

The telephone is often an invaluable asset in conjunction with amateur radio. On Friday 13th September, about 1710 UTC, I made a casual contact with Neville VK5NNH. Neville and his XYL Norma, were operating portable from between Cobar and Wilcannia, en route from Queensland to South Australia.

Neville told me that during their trip they had maintained regular scheds with another amateur, 74 years old Eddie, at Gonns Crossing on the Murray River. As it was some time since they had heard from him they were concerned of his welfare. After Neville locating Eddie's telephone number, I was able to ring Eddie and had him come up on air to talk to Neville. How pleased they both were, and I was pleased that I had the facilities to help. Eddie had been working on a 1906 chaff-cutter that his son had brought around for him to fix, and not only did Eddie manage to fix it, he also found a 1906 engine to power it!

A person I often speak with is Ken VK3DSK, of Geelong. Ken is troubled with atmospherics and arthritis, neither of them are very welcome.

One morning, I was talking my head *off*, when right in mid-sentence, the lights flared very brightly, dimmed, flared again and then they were gone completely. I was in complete darkness, and, of course, off-the-air.

Pandemonium! No torch, and where was the candle which was last used about six months ago? I did find a box of matches, but where was the phone book so I could ring the electricity authority at 2am on a very wet, and wintry morning. I couldn't find the phone book, even after finding a glimmer of light with a stump of candle. I knew I should have written a number like that on the wall near the phone for emergencies.

I sat and listened to a portable, battery radio for about two hours in the hope of the lights returning, but it wasn't to be and about I retired after turning on the mains operated radio so that it would wake me as soon as the power was back on. This it duly did at 5am. I never did find out why Mildura still had power and Buronga was in darkness, as we get our power from VK3.

In the morning, I received a phone call from Ken in Geelong. It seems that Gordon VK5HM was concerned about my sudden departure from the air, and was worried I may have had a 'bad turn', or worse. Thanks Ken, for ringing and caring. We radio amateurs certainly take care of each other, don't we?

As I have just made the deadline for the December issue of Amateur Radio, I would like to wish all my readers and friends a very Happy Christmas, and may 1986 be a very happy, and productful year.

Cheers for now, and 73 until next time . . . Joe VK2BJX.

AR

Due to the fluctuating A$, an incorrect price was included in the GFS Electronic Imports advertisement in November magazine.

Radio Amateur Old Timers Club

Can any Old Timer identify the missing name and call signs in the accompanying photograph? The photograph was supplied by Ray Carter VK2HC. As far as can be ascertained they are, from left — Matt O'Brien VK4MM, — Norville, Trevor Evans VK2NS, Howard Love VK3BM, Ray Carter VK2HC, Alderman J Jackson Lord Mayor of Sydney, Phil Renshaw VK2DE, Ernest Fisk, Leo Feenaghty, Arthur Walz VK4AW, D G Lindsay VK2DY, Bruce Hardie Federal Secretary of the WIA, and Oswald Mingay.

The photograph was taken by a Sydney Morning Herald photographer, on the balcony above the entrance to the Sydney Town Hall, circa 1931. The occasion was the WIA Federal Convention, held in New South Wales.

LETTER FROM FATHER CHRISTMAS TO HIS BANKER

I'm sending this letter to tell you
That credit restrictions today,
Have robbed me of all my equipment
My workshops, my reindeer, my sleigh.

I'm making my rounds on a donkey,
He's old, and decrepit and slow,
So you'll know, if I miss you this Christmas
I'll be out on my mule in the snow.

REPLY FROM HIS BANKER TO FATHER CHRISTMAS

Your message has caused us much sorrow,
A sorrow we can't drown in beer,
But wait till we really get going
On credit restrictions next year.

You're lucky to still have a donkey,
On which to proceed on your round.
If things don't improve by next Christmas,
Your mule will be flat to the ground!

DO YOU REMEMBER?

Latest Dance Hit! Roll up the Rugs! Sway to the pulsating lilt of your favourite Metropolitan Orchestra.

Dance in unison with ten thousand other gliding couples. Tap the limitless ether for the rhythmic harmony that awaits your 'tuning in'.

Cunningham Radio Tubes give that bell-like clearness, that perfect re-creation of tone which you must have for the utmost in radio enjoyment.

Since 1915 — Standard for all sets. Types C301A, C300, C11, C12 in the Orange and Blue Cartons.

This, and similar advertisements, told the reader of Hugo Gernsback's magazine, RADIO NEWS in 1925, how magnificent was the sound reproduction of wireless. We even thought so ourselves, 60 years ago!

LOSS OF ASSISTANT SECRETARY

It is with sadness we record the passing, on 6th October, of the RAOTC Assistant Secretary, Clem Day VK3GY.

Clem was a lovable character who carried out a tremendous amount of work for the Club behind the scene in conjunction with the Secretary, Harry VK3HC. Never wanting the limelight, but getting on with the job was his philosophy, and this he did in fine style up to the end, despite having lost his very beloved wife a few months ago, and himself under treatment for a serious illness which was to claim him.

Heartfelt sympathies are extended to his family and friends. His work experience will be difficult to replace. His amiable nature will always be remembered.

SILENT KEYS

We regret the passing of the following RAOTC Members since March 1985.

Bill Bullivant VK2BC; Ronald Ride VK2BQF; Jim Blackwood VK3ABL; Norman Chapman VK3ANC; Cliff Pickering VK3ATP; Arthur Wilson VK3DGA; George Turner VK3GN; Clem Day VK3GY; Denys Ayre VK3KP; Frank Nolan VK4FN; Ted Hudson VK4MH; J P Rosewarne VK5MN; and Harry Simmons VK6KX.

If readers are aware of the passing of a member who is not included in these notes, please notify the Secretary, Harry Clift VK3HC, in order that condolences can be sent, and records kept up to date.

VICTORIAN ANNUAL RAOTC LUNCHEON

The Annual Luncheon of the RAOTC in Victoria was held at the City and Overseas Club, on the 25th September. It was a most enjoyable function with 60 members present, gossiping about the early days. Many apologies, for non-attendance, were received.

When members sat down to lunch, they found a *Who am I?* sheet in front of them describing part of the life of one of our Club members and inviting them to read the document and name the person concerned. When collected and vetted, 17 members had judged correctly, so a winner was 'drawn from a hat'. Bob Cunningham VK3ML, was the mystery man and Ed Manifold VK3EM, was the lucky winner who received the President's prize of an air-wound inductor.

Amongst the answers were — *'It might have been me'; 'Fred Nerk'; 'Is it, I don't know'; and 'Search Me'* — which added some merriment to the occasion.

The highlight of the luncheon was an audio-visual display, presented by Chris Long, a former Acting Curator of Electronics at the Melbourne Museum, and well-known researcher into early wireless, sound recording, and amateur radio.

The display of sounds and stills intrigued everyone, commencing with the story of George Selby's very early experiments in the 1890s with Morse code spark transmissions, and paper tape recordings of these signals carried out between South Yarra and Brighton, in Victoria. The clockwork paper tape printers and coherer detectors were viewed and described. Crystal detectors and the use of headphones early in the 20th century led to recording fast Morse on wax cylinders.

A broadcast by King George V was recorded and transmitted on the BBC's first station in England In 1924, and a copy of this was included in tne presentation.

The luncheon programme by Chris Long also included pieces from the early days of radio broadcasting and recording in Australia, the advent of 'electric recording', talking pictures, amateur transmitters on the broadcast band, and much more.

A hearty vote of thanks was extended to Chris for his valuable and highly interesting presentation. A lengthy discussion and question time finally concluded another very successful Old Timers Luncheon.

AR

AMATEURS SPAN THE ATLANTIC ON 10 METRES

Plunging ahead with an increasing amount of enthusiasm in the exploration of the unknown radio territory in the vicinity of 10 metres, amateur radio operators have already accomplished trans-Atlantic communication on this wave-length.

With the opening of this territory, dozens of amateurs hastened to construct transmitters and receivers to operate at this extremely low wave, with encouraging results.

The first actual trans-Atlantic two-way communication on 10 metres was affected between C K Atwater NU2JN, in New Jersey, USA, and Pierre Auschitzky EF8CT, France. These stations engaged in conversation for nearly half-an-hour with good signal reports, both ways. Neither station was using high power.

The above report has been condensed from Ham Notes, Radio, 16th July 1928, and was contributed by Peter Alexander VK2PA.

OLD TIMER IN 1928

Mr Crocker 2BB is one of the oldest transmitters in Australia. He first got a licence in 1911, when experimental listening-in tickets were issued, but were cancelled when war broke out. When peace was signed he took out an amateur experimental transmitting licence. At that time there were only a handful of others operating, amongst them 2CM, 2JR, 3BQ, who were the most enterprising.

In the old 240-metre days, when there was not any broadcasting stations on air, 2BB, with 2CM, transmitted some great Sunday night concerts, and 2BB claimed to be the first amateur to put phone signals across to New Zealand.

Condensed from Ham Notes, Radio 16th July 1928, and contributed by Peter Alexander VK2PA

ALARA

Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER FOR ALARA
PO Box 22, Yeoval, Vic. 2868

Kay GM6KAY.

Akiyo JH1GMZ and Fumio JA1BAR.

Well, our birthday year has been a memorable one, with more YL activity than ever, and get-togethers, parties, and luncheons to celebrate. It has been a good opportunity for ALARA members, OMs, and families to get to know each other personally, and put a face to the voice!

One thing that distinguishes those involved with amateur radio is that they have no difficulty finding a topic of conversation. None of those 'awkward' pauses on meeting for the first time. After all, we already know each other, don't we!

It is good to see so many really keen YLs. One (who shall remain nameless), having shifted to another location, was so anxious to get back on-air that, with the OMs help, the 80 metre aerial was strung from the highest available point — in this case the mast of a boat moored on the back of a trailer in the driveway. It did the trick until something more permanent could be arranged.

Mary KB6CLL.

ALARA CONTEST

Our thanks to all who were active in the ALARA contest, especially the OMs who joined in. Without participation, of course, there is no contest, and the ALARA Contest is noted for its friendliness.

Logs should be sent to Marlene VK2KFQ, 31 Cadell Street, Wentworth, NSW. 2648, prior to the ***31st December 1985.*** Novice YLs — please mark in ***RED or otherwise indicate*** your CW score for the Mrs McKenzie CW Trophy Award.

WEEKLY NET

Don't forget the official Monday night net, which is held at 1000UTC during daylight saving. The frequency is 3.580MHz +/- QRM.

There will be no monthly general meeting in December. So many other activities claim our attention at this time of the year that it was unanimously decided it should be cancelled.

ALARA AWARD

A slight alteration has been made to the ALARA Award Rules. They should now read:

VK/ZL — 10 members to be contacted and to include five Australian call areas

DX — Five members to be contacted and to include four Australian call areas

SUBSCRIPTIONS DUE

It is that time of the year again, and subs are now due. This year it is $6 for VK members; $6 for DX sponsorships with the newsletter going airmail and $4 for it to go surface mail.

Whilst on the subject of sponsorships — sponsoring an overseas YL is a wonderful way to make new friends. If you don't know anyone yourself, please write to the Sponsorship Secretary, Jessie Buchanan VK3VAN, 4 Milford Crescent, Karingal, Vic. 3199. Jessie will be able to assist you. Frequently sponsorships are reciprocal.

NEW MEMBERS

Welcome to new members — Betty VK4BET, who joined on 24th September, and Muriel VE7LQH, who joined on 10th October. Muriel was sponsored by Helene VK7HD.

From lusty infancy in 1975, ALARA has grown to be quite a big girl by her tenth birthday. May 1986 see even better things.

A very Happy Christmas to one, and all.

33/73, Joy VK2EBX

AR

QSP

WARNING ON ELECTRICAL SAFETY

An average of 80 Australians die each year in electrical accidents — many of them occurring in the home.

The Australian Consumers' Association (ACA) said the growing use of hair dryers, do-it-yourself power tools and power boards containing extra electrical sockets, was creating new hazards.

In a special guide on living safely with electricity, in its journal 'CHOICE', the ACA said extension leads and other lead accessories were the biggest killer group, accounting for nearly one third of the deaths.

A number of people, most of them young, had been killed when hair dryers fell into baths.

RESTRAINTS REMOVED ON 24 HOUR BROADCASTING

Television and radio stations can now broadcast 24 hours a day without the need to seek specific permission from the Australian Broadcasting Tribunal.

Under amendments to the ABT policy statement on "Hours of Service" a licensee may transmit programmes at any time. However, if there was a reduction of more than 25 percent in its average weekly hours of service, the licensee is required to explain the reduction.

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

Here we are at the close of 1985, and we can now look forward to 1986, hopefully a very good year for everyone.

I would like to extend, to all amateurs and SWLs, the very best for the Festive Season, and a special thank you to those clubs, and individual amateurs who have provided me with copies of their awards throughout the year. Good hunting in 1986.

Are Australian awards easy, or hard to obtain? There has been a lot of on air discussions about poor propagation, etc, but Ivan ZL1AQO, has collected 77 Australian Awards, all on 80 metres. Congratulations Ivan.

P S CUMBEROONA AWARD

At the turn of the century, there were over 300 paddle steamers, and steam boats operating on the Murray, and Darling River systems. Presently, only a few are operating, and provide an opportunity for tourists to travel the River Murray.

A new paddle steamer has been designed, and is being built at Albury by Warwick Hood. This will be the first designed and built since the decline at the beginning of the century.

To commemorate the launching of this vessel, the Twin Cities Radio and Electronic Club are sponsoring an award, to be called the P S CUMBEROONA Award.

Award requirements are: *All HF bands, except 160 metres, for a 24 hour period only. One contact to be made with VK2EWC — SWLs to log the information of the station working VK2EWC.*

Log extract to be forwarded, together with $2 to: *The Awards Manager, PO Box 396, Albury NSW 2640.*

Unfortunately, the format and printing of the award, nor the date have yet been finalised, however it is anticipated to be sometime in later this month.

Arrangements will be made by the Club to inform amateurs and SWLs of the date, per medium of WIA Sunday Morning Broadcasts.

INTRUDER WATCH CERTIFICATE

Over the years, many dedicated amateurs, and SWLs, have devoted many hours logging intruders in our bands. Now their efforts may be rewarded with the issuance of an award, in the form of a MERIT CERTIFICATE, as some recognition of the work they have performed on your behalf. I hope that this may encourage many others to take part in intruder watching.

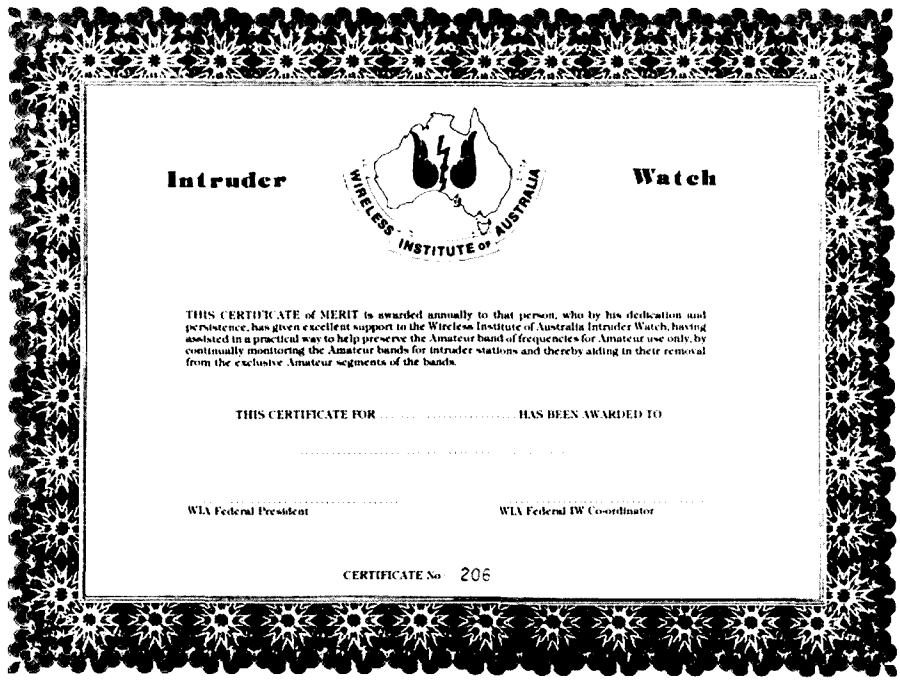
The Certificate measures 335 x 255mm, with the WIA logo in red and blue, a blue border and black printing, on good quality white paper.

The Certificate marks the acknowledgement of the WIA on a Federal level, to the good work done by individual amateurs, and SWLs, to further the cause of the Intruder Watch, ie *to endeavour to monitor, and cause removal, of offending Government, Military, and Commercial radio stations who continue to offend by transmitting their signals on radio frequencies where the amateur service has been allocated primary, or exclusive rights.*

The Certificate is allocated on a once only basis, and any individual amateur, or SWL can only qualify once. It will be awarded annually to the individual amateur or SWL in each Division, who has demonstrated outstanding support to the Intruder Watch, with consistency being more of a criterion, than quality.

It will be signed by the Federal President of the WIA, and co-signed by the Federal Intruder Watch Co-Ordinator of the time. Certificates will be consecutively numbered.

Help preserve your bands by submitting reports to your Divisional Intruder Watch officers, or to the Federal Co-Ordinator. Listen around the bands, and as there is mainly poor propagation, there seems to be many more intruders. If they are not removed, imagine the effect when we once again have good conditions.



Intruder Watch

WIRELESS INSTITUTE OF AUSTRALIA

THIS CERTIFICATE of MERIT is awarded annually to that person, who by his dedication and persistence, has given excellent support to the Wireless Institute of Australia Intruder Watch, having assisted in a practical way to help preserve the Amateur band of frequencies for Amateur use only, by continually monitoring the Amateur bands for intruder stations and thereby aiding in their removal from the exclusive Amateur segments of the bands.

THIS CERTIFICATE FOR ..... HAS BEEN AWARDED TO

.....

WIA Federal President ..... WIA Federal IW Co-ordinator

CERTIFICATE No 206

ALARA AWARD (revised)

Rules for the ALARA Award have been revised. Following are the new rules.

The Award is available to all amateurs and SWLs (YLs and OM).

Australian and New Zealand amateurs are required to contact 10 ALARA members, and to include five Australian call areas.

Overseas amateurs require contact with five members, and include four Australian call areas.

All contacts must be made with members on or after 30th June 1975, and no repeater contacts will be accepted.

Applicants must submit a complete extract of log entries, which is to be verified and signed by two other amateurs. In the event of an applicant in an isolated location being unable to obtain verification, OSL cards should be forwarded in lieu.

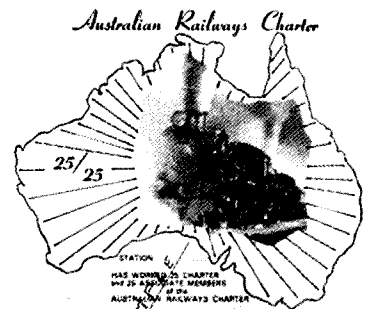
The log should show Date/Time UTC; Band; Mode; Call Sign of ALARA Member Contacted; Report Sent; Report Received; Name, and must include applicants Full Name, Address, Signature, and Call Sign.

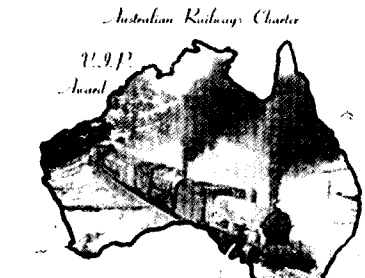
All contacts must be made from the same call area.

Official ALARA Net contacts do not qualify.

Special endorsements are available for Mixed, All CW, All Phone, All 28MHz, etc. Endorsement stickers are available for each 10 additional members contacted for VK and ZL stations. DX stations require five additional member contacts.

Applications should be forwarded to: *ALARA Awards Custodian, Mavis Stafford VK3KS, 16 Byron Street, Box Hill South, Vic. 3128, and accompanied by A$3, 7 IRCs, or equivalent for initial award, and A$1 for additional stickers. (No fee for stickers awarded with the original issue of the Certificate, only additional stickers applied for later).*





AUSTRALIAN RAILWAYS CHARTER

The Australian Railways Charter offer amateurs, and SWLs, a number of very attractive awards. So far, 63 Charter Certificates, and 142 Associate Certificates have been issued. Surplus moneys from the issue of these certificates have enabled the Charter to donate $300 to the National Heart Foundation.

A group of railway employees, all radio amateurs, of the railways of Australia, and retired employees, joined together to form the Australian Railways Charter on 9th March 1980. There are four certificates available which any amateur or SWL may apply for. These can be obtained by working Charter members, or award holders, on any band or mode. These contacts may be hard to

AUSTRALIAN RAILWAYS CHARTER

WHISTLE STOP AWARD

obtain due to the varying shifts worked by railway employees.

For membership of the Charter, members must be present or retired railway employees, and need only to apply to the Awards Manager, giving details of employment. Honorary membership is extended to retired, or serving members of overseas railways. Membership is the issue of the BASIC AWARD from which the Charter number is obtained.

Associate members are non railway employees who qualify, and apply for the certificates.

BASIC AWARD
Six contacts comprising three Charters in three different states, plus three other award holders. DX stations require three contacts, comprising one Charter, plus two other contacts.

WHISTLE STOP AWARD
Basic Certificate must be held, plus 50 points.

VIP AWARD
Requires 200 points.

25/25 AWARD
Work 25 Charters and 25 Associate Certificate holders.

GOLDEN SPIKE AWARD
To obtain this award the operator must hold the VIP Certificate, and must contact 10 members on one band or mode; ie 10 metres or 15 metres, or CW, etc, or make contact with five overseas members on one mode. These stickers may be placed on the VIP Certificate. There is no charge for these Spikes, but a SASE is a must.

Golden Spike is available for Net attendance. These are for every 25 nets attended.

Logs must show Certificate number, points, station, name, location, date, and frequency.

Fees - All Certificates $3 (DX add 2 IRCs), except 25/25 which is $2 (DX add 2 IRCs).

Points value — Charter . . . five points (or one contact towards Basic). Associate . . . two points. Whistle Stop . . . two points. VIP . . . to points. 25/25 . . . one point.

The Australian Railways Charter holds a weekly net every Sunday at 1030UTC, on 3.608MHz +/- QRM.

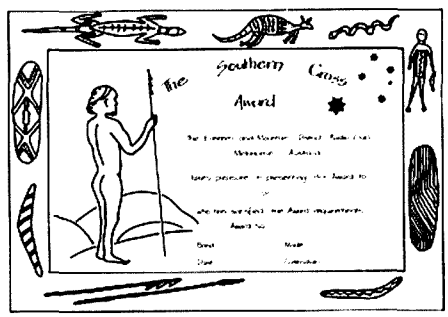
Inquiries and award applications to: *Harry Frundt VK5NHF, Box 87, Tailem Bend, SA. 5260.*

SOUTHERN CROSS AWARD

The new version of this Award, issued by the Eastern and Mountain District Radio Club, is available to licensed amateurs, and SWLs, who obtain the required number of points. Applicants must hear or work Club members. Contacts on or after 1st September 1985 are valid.

VK stations require a total of 10 points.

DX stations, including VK9 and 0, require five points.



Each Club member is worth one point, and one only of the Club call signs is worth two points, with the other Club call signs worth one point each, if included in the same application.

A member can only be claimed once per application regardless of upgrading their call sign. The only exception is the person operating the Club call sign, who can be claimed under that call, as well as under their own personal call sign.

Cross mode and cross band operation can be claimed, but not repeater contacts.

A list of current members call signs will be forwarded to anyone requesting same, upon receipt of a SASE (foolscap size) for VK stations or 2 IRCs from DX stations for airmail return.

QSL cards are not required, but an applicant must submit log extracts, certified correct and signed by two licensed amateurs. Full name, address, call sign, and signature of the applicant are required, together with the necessary fee, which is A$2 (or equivalent), or 5 IRCs. DX stations to add 2 extra IRCs if return by airmail is desired.

All correspondence to: *The Awards Manager, EMDRC, PO Box 87, Mitcham, Vic. 3132.*

Club Nets are held Wednesdays on 3.572MHz +/-, at 1000 UTC, and Sundays on 28.475MHz +/- at 1130 UTC.

LABRE AWARDS

The Liga de Amadores Brasileiros de Radio Emissao — LABRE, to encourage interest in the Brazilian, American, and Atlantic Ocean areas, and DX on the lower bands, sponsors the following awards for radio amateurs. *WAB (Worked All Brazil), WAA (Worked All America), WAO (Worked All Oceans), and the DBDX (Diploma Brasileiro de DX — Brazilian DX Award).*

THE WAB AWARD is available to amateurs that confirm contacts with Brazilian stations in all 23 States, and the City Capital — Brasilia (PT2). A special ribbon (TBT) will be attached to the award to confirm contacts with the two Brazilian Federal Territories (Amapa and Roraima).

THE WAO AWARD is available to amateurs that confirm contacts with all nine Brazilian Geographic Regions (First Region — PY1-PP1; Second Region — PY2-PP2-PT2; Third region — PY3; Fourth Region — PY4; Fifth Region — PY5-PP5; Sixth Region — PY6-PP6; Seventh Region — PY7, PP7, PR7, PS7, PT7; Eighth Region — PY8, PP8, PR8, PS8, PT8, PU8, PV8, PW8; Ninth Region — PY0, PT9, PY9), and 21 countries of the Atlantic Ocean.

THE WAA AWARD is available for confirmation of contacts with 45 countries in the American Geographic Area. One of them must be with Brazil.

THE DBDX AWARD is available for confirmed contacts with a minimum of 20 different countries, as shown in the official DXCC list. One of the countries must be Brazil. Special stickers are available for additional countries in groups of 10, to be attached to the Award. All contacts must be in the 160, 80 and 40 metre bands only. There are three different kinds of Certificates for this award. One for Phone/CW, one for Phone Only and one for CW only. All awards issued will be kept on an Honour Roll and are numbered sequentinally.

All applicants must be licensed amateurs, operating in authorised amateur bands.

All contacts must be from the same location except when a station moves from one call area to another, then all contacts must be made from within a radius of 150 miles (241km) from the initial location.

All contacts must be with land-based stations. Contacts with ships, anchored or otherwise, and aircraft are not allowed.

Contacts over a period of years are valid providing they have been made under the provisions of the current rules and with the same station license.

All confirmations must be submitted exactly as have been received from the worked station. The log must be verified by the Awards Manager of the applicant's country. Where there are no managers available, the log may be checked and signed by two licenced amateurs.

Compliance with international conventions, national laws, and the rules in force, fair play and good sportsmanship in operating are required by all operators applying for these Awards.

All applications must be sent to LABRE Headquarters, Awards Manager, PO Box 07-0004, 70000 — Brasilia, DF, Brazil, enclosing 10 IRCs for handling cost.

The decision of the Awards Division of LABRE shall be final.

FEDERACHI AWARDS

The "Federacion de Clubes de Radioaficionados de Chile" has three awards available for amateurs.

Send a GCR list showing Station, Date, Time, Band, and Mode certified by any official radio club in the applicants country. Similar rules apply for SWLs on a heard basis.

Cost is 10 IRCs for postage.

All correspondence to *The Awards Manager, FEDERACHI, PO Box 2545, Concepcion, Chile.*

ABCE AWARD (All Band CE Award) — Proved communications with at least one CE station in each of the 80, 40, 20, 15, and 10 metre bands.

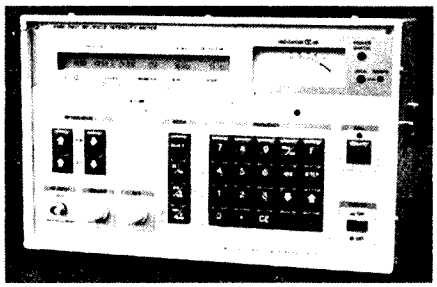
CE AWARD — Confirmed communications with 100 CE stations in the same mode.

The third award is for six metre operation which is not applicable for Australia. **AR**

SPECIAL EVENT

On 1st December 1985, the Ninth Annual Pasadena Parade will be operational. They will be operational from 2000 to 2200UTC on the lower 15kHz of the 20 metre band. QSL to WA6MUK, 932 N Lake Avenue, Pasadena, California, USA. SWLs are also welcome to send a listening card.

AR SHOWCASE



INTENSITY EQUIPMENT

The Vicom Group has announced it now represents Kyoritsu of Japan with their range of specialised EMI and Field Intensity equipment.

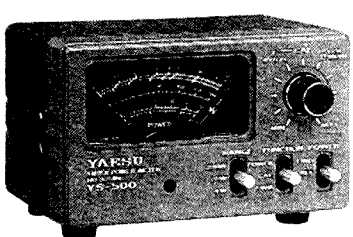
Kyoritsu was established in 1948, and is a respected leader in the industry with products including RFI Field Intensity meters to 1.5GHz, EMI meters to 1GHz, Disturbance Analysers, plus a range of broadband and tuned dipole antennas.

They also have considerable expertise in shielded room design and manufacture a number of sizes.

Full details of the Kyoritsu range of products may be obtained from the Vicom Group Offices in Melbourne, Sydney, Brisbane, and Wellington, or telephone (03) 62 6931.

AR

YS-60



YS-500

IN-LINE SWR/POWER METERS

The new Yaesu YS-60 and YS-500 are handsome, compact, multi-function instruments for monitoring both average and peak transmitter power output and reflected power, and voltage standing wave ratio (VSWR) of antenna systems in two-way radio stations from 1.6 to 60MHz (YS-60), or 140 to 525MHz (YS-500).

The small size and colour co-ordinated cabinets make these units ideal additions to any Yaesu transceiver. Three functions provide monitoring of either forward or reflected average transmitter output power for CW, AM, FM, and FSK modes, or peak envelope power (PEP) for SSB modes, and VSWR for testing and monitoring the performance of transmitting antenna systems.

The efficient, linear circuit design assures accurate measurements with minimum insertion loss over the entire specified frequency range, even at low power levels.

For more information contact Bail Electronic Services, 38 Faithful Street, Wangaratta, Vic. 3677.

AR

STEREO SYNTHESISER

A stereo synthesiser, the MFJ-1501, designed to provide high quality synthesised stereo from a television or video recorder, is now available in Australia.

The unit simply connects between the audio output of a VCR or across a television speaker and the AUX input of a stereo system. The technique used to derive the stereo is similar to that used by most TV stations when operating from a mono source. It is also the same as record manufacturers use when they produce a stereo record from an old mono recording.

The effectiveness is so good that a sense of spaciousness is conveyed, which puts the viewer right into the middle of the movie scene without having to outlay the many hundreds of dollars required for a new stereo television or video.

The MFJ-1501 is equipped with two mono inputs which are switchable, and allow for other sources to be used, such as a portable electronic organ or AM radio. Operation is from 240V AC or 12V DC for portable/mobile operation.

The unit is finished in egg shell white with walnut grain sides, and measures 126 x 50 x 152mm. Price at $305 including postage within Australia, the MFJ-1501 is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

AR

LARGE THEATRE SOUND AT HOME

GFS Electronic Imports have announced the availability of a unique 'add-on' device which provides the illusion of large theatre sound to a video recorder, television, or Hi-Fi system in the home.

The MFJ-1500 provides this sound by electronically processing the source signal, including the introduction of variable time delay and reverberation, the characteristics of a large listening environment.

The unit accepts a mono or stereo input and produces single processed, as well as unprocessed outputs, both of which can be fed into the two channels of a stereo amplifier.

For users who do not have a stereo system the MFJ-1500 has its own built-in two watt amplifier. A single speaker is connected to the MFJ-1500 speaker terminals, and placed behind the viewing position. This speaker, in conjunction with the TV's speaker then provides viewers with the illusionment of big theatre sound.

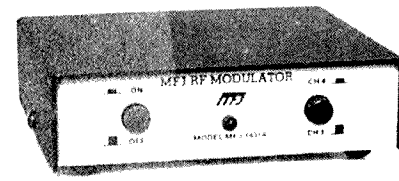
A special price of $250 plus $14 p&p is applicable if this article is mentioned.

Contact GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

AR

RF VIDEO MODULATOR

A new RF Video Modulator, the MFJ-1431A, converts video and audio signals to Australian VHF Channels 1 or 3. These video/audio signals (from units which do not have a built-in RF modulator, such as computers, video cameras, VCRs, image enhancers, or distribution



amplifiers, etc) can then be monitored on a standard PAL colour television set.

The MFJ-1431 is set to accept standard level video and audio signals, although internal level controls are provided to cater for the situation where non-standard levels are presented to the modulator. Input and output impedances are 75 ohms, via RCA sockets, or 300 ohms may be achieved by using a balun/switch, which is supplied. All the necessary cabling is provided with the unit. Operation is from 12V DC, or from an optional 12V, 300mA AC adaptor.

The price of the MFJ-1431 is $215 plus $7 p&p and is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

DIFFERENT NOISE BRIDGE

Most antenna noise bridges on the market today provide only a limited reactance measurement range up to 300 or 400 ohms. Some others don't even give their user individual inductive and capacitive reactance readings, only a combined total reactance.

The MFJ Enterprises Model MFJ-202B provides the ability to measure both measurements up into the thousands of ohms range. It can also measure resistance over a similar range.

These wide performance parameters have been achieved by incorporating a switchable range expander in the MFJ-202B. With the range expander switched in, measurements of resistance up to 3 800 ohms, and both inductive or capacitive reactance up to 1 900 ohms may be made. Frequency range extends from 1 to 100MHz.

Each MFJ-202B noise bridge is individually calibrated and provided with a calibration chart prior to leaving the factory. A comprehensive manual, which is also supplied, covers such subjects as 'Finding Antenna Resonant Frequency', 'To Cut a Half Wave Dipole to Resonance', 'Tuned Circuit Adjustment', 'Measurement of RF Amplifier Impedances', 'RF Transformers and Baluns', as well as 'Capacitance and Inductance Measurements'.

The MFJ-202B simply connects in series with the receiver, or transceiver antenna line, and the circuit under measurement. Power source for the bridge is an internal nine volt battery.

Priced at $193, plus $7 p&p, the MFJ-202B is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

AR

PART TIME!

A man with all the earmarks of a laborer was smoking thoughtfully and watching a large building In the process of construction. A foreman approached and asked:

"Hey, want a job?"

"Yes," was the reply, "but I can only work mornings."

"Why can't you work all day?"

"Every afternoon I gotta carry a banner in the unemployment parade."

From The Victorian Railways Magazine, September 1927, Vol 4 — No9.

AIMING HIGH WITH COMMUNICATIONS ACCESSORIES FROM GFS

SCAN THE BANDS WITH OUR NEW SX-155

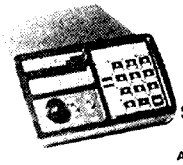
PROGRAMMABLE POCKET SCANNER

This new unique scanner provides coverage of 26-32, 68-88, 138-176 and 380-514 MHz with a sensitivity of less than 0.5 uV. Four banks of 40 memory channels, total of 160 memories. High scan speed of 16 CH/SEC. Auto search and store mode. Priority channel. 4 hour life on supplied Nicad batteries 24 Hour clock. Selectable Scan/Search delay of 0.1 or 2 seconds. Includes Nicads, charger, carrying-case & antenna.

SPRING SPECIAL

$399 + $14 P & P

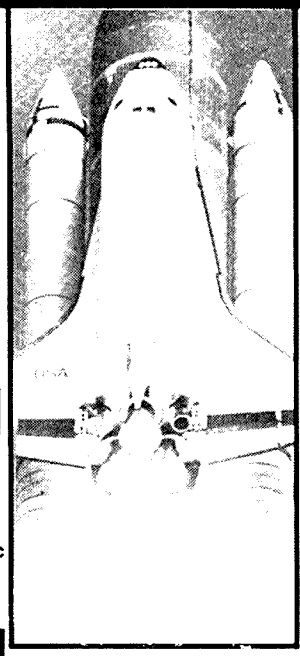
AR-2001 CONTINUOUS COVERAGE 25-550 MHz SCANNER



If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2001 from GFS

SPECIAL $599 + $14 p&p inc AC adapter

AR-RS232 Computer Interface for AR-2001 $399 - $8P & P



LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

LOSS IN DB/30 METRES

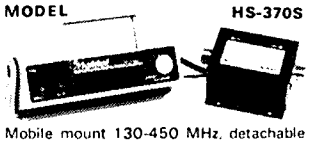
TYPE	100 MHz	200 MHz	400 MHz	900 MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8/U	1.95	N/A	N/A	7.44
LDF-450	0.75	1.40	1.80	2.50

FB SERIES CABLE & N CONNECTORS

CABLE		N-CONNECTORS	
5D-FB	$2.90 m	NP-5DFB	$12.00
8D-FB	$4.20 m	NP-8DFB	$12.40
10D-FB	$6.30 m	NP-10DFB	$12.80
12D-FB	$8.70 m	NP-12DFB	$13.70

VHF-UHF SWR-POWER METER

MODEL HS-370S



Mobile mount 130-450 MHz, detachable pick-up head,100W CW, 200W PEP, lighted meter.

ONLY $99 + $8 P & P

HF-VHF SWR POWER MODEL HS-260

3.5 – 150 MHz,0-12 and 0-120 watts, Twin meters, small size

$65 + $8 P & P

RTTY/SITOR & FAX FOR TRS-80C

DCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR.

RBA provides transceive on RTTY (BAUDOT) ASCII.

(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programe.

DCM $75 + $5 p&p
RBA $55 + $5 p&p

FAX is a high resolution weather facsimile programe for displaying weather maps etc. received on shortwave. It does not need a modem.

Morse $55 + $5 p&p
FAX $75 + $5 p&p

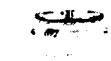
MORSE is a unique program for sending & receiving Morse code 1-99WPM

ANTENNA MATCHER FOR CONTINUOUS HF COVERAGE - MFJ-941D

Apart from being extremely versatile the MFJ-941B includes a 6-position coax switch SWR power meter 4:1 Balun and will feed balanced line single wire and coaxfeed antennas

$334 + $14 P&P

2 KW DUMMY LOAD



MFJ-250 Low SWR to 400 MHz, 2 KW PEP, supplied with transformer oil.

$89 + $14 P & P

EXPANDED RANGE OF HF-VHF-UHF ANTENNAS

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LOG SP 65 to 520 MHz
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New T2-FD series provides continuous HF coverage

200 WATT MODELS

3.5-30-T2-FD-200 is 25m long 3.5-30 MHz.
1.8-30-T2-FD-200 is 30m long, 1.8-30 MHz, **both priced at $149 + $14 p&p.**

2KW MODELS

3.5-30-T2-FD-2KW is 40m long 3.5-30 MHz.
1.8-30 T2-FD-2KW is 50m long, 1.8-30 MHz, **both priced at $189 + $14 p&p**

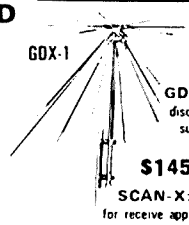
RF NOISE BRIDGE WITH BUILT-IN EXPANDER

MFJ-202B

These individually calibrated noise bridges read both inductive & capacitive reactance over a much wider range than the others. Simple to use and covers 1 to 100 MHz

$193 + $14 P&P

BROADBAND OMNIDIRECTIONAL ANTENNAS FOR SCANNERS



GDX-1: 16 element discone 80-480 MHz suits transmitters and receivers

$145 + $14 p&p

SCAN-X: 6 element discone for receive applications 65 520 MHz

$92 + $14 p&p

2 metre RINGO

This antenna for 2 mx FM work 3dB gain omnidirectional

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GIVE YOUR RINGO ANOTHER 1.5dB

with our RK-1 decoupling radial kit

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MDK-17 (KIT) MOD-DEMOD

A high performance RTTY CW modem kit for use on a computer or teletype. Offers high noise immunity on receive. **$142 + $6 p&p (Kit) or $219 plus $8 p&p (assembled).**

MFJ-1224

Versatile RTTY CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64 **$345 + $14 p&p**

Great Circle Map

Now point your beam in the correct direction using this Great circle Map! Centred on Melbourne **$2** + $3 P&P

What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

	DB-4 (4mm)			DB-5 (5mm)		
	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)
Debeglass	2.5	3.9	430	3.0	5.4	580
Steel wire	2.5	9.6	370	4.15	9.1	700

DB-4 (4mm) $0.55m. DB-5 (5mm) $0.78m. DB-6 (6mm) $1.29m. Debclip Termination Clip to suit DB-4, DB-5, DB-6, $4.50 each.

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CLUB CORNER

DEVIL NEWS FROM THE NW BRANCH

Hello once again to all, and to all the people on the North West Coast that read this column each month, it is hoped that it fills you in on some of the activities of the Branch, especially those unable to attend meetings.

At the last meeting, 25 people attended, plus some students from the Devonport High School, including one YL. The visit was part of their Activities Week, and they were made very welcome.

Much discussion was held, continuing from last month, regarding the problems involved in the erection of towers in the town area.

There were 85 QSL cards inwards and 110 outwards this month. Any member unable to attend a meeting to collect their cards may send a SASE to Max, QTHR as VK7KMF, and he will post the cards to you.

A request has been received to again provide communications for a horse trial. This is a worthwhile exercise and will be a combined WICEN exercise.

Unfortunately, the 70cm ATV aerial has to under-go a re-build, as it has had an altercation with the wind.

VK7NW RTTY Broadcasts have been heard in Hobart, with a good report received from VK7HV.

The Group's WICEN Officer gave a brief lesson on map reading, which proved very popular, and it is anticipated to have another one shortly.

Bob VK7KAB and Kirby VK7KC operated from Guilford during JOTA, whilst Ron VK7RN, with a group of Guides and Brownies, operated from Devonport.

There are several members of the Group showing an interest in Packet Radio. VK7s AX, KDR, ZAP, WP, WN and WZ are starting to get this medium on the air, so if there are any other members interested, please contact Tony VK7AX.

Welcome to new member — John Clayton.

A picnic was planned at Bells Parade, Latrobe for the fourth weekend in November. Hopefully it was a success (as these notes are being compiled in mid-October), and another picnic trip on the Pieman River Ferry is being planned for later this month/early next year.

The Clanger Award for the month was presented to Bill, an SWL, for lending a rig to monitor a news broadcast, without a power lead. It was then necessary to explain the Clanger Award to the visiting students.

Tony VK7AH, a teacher at the High School, as well as attending the Branch meeting, took his electronics class to the East Devonport Ferry Terminal where they were conducted on a tour of the Able Tasman Radio Room. The students have their own call sign, VK7DHS. Members of the Branch have attended the school to speak to them about amateur radio.

VK7SF recently returned from a trip to England, spoke of his visit to the location where the first Spark Transmissions took place. Following this talk, a video was shown of Hamfest 85 and the Spark Transmission re-enactment by DOC at Hobart earlier this year.

Contributed by Max Hardstaff VK7KY
AR

ANNIVERSARY CELEBRATIONS

The VK4 Disabled Persons Radio Club, VK4BTB, celebrated its Second Anniversary in September, with on-air activities from the QTH of Roley VK4AOR.

Amateurs were in attendance from Toowoomba, and the Darling Downs, as well as Mount Tamborine. Margaret VK4QK, a White-Stick operator from Brisbane, helped to make the day a great success.

Disabled members of the Help Handicapped Enter Life Project (HHELP), the parent body of the Club, also joined in the celebrations.

Contacts were made with amateurs in New Zealand, Suva, Japan, Europe, all Australian states, and some of the smaller Pacific islands. Margaret was also able to speak with man counterparts in New Zealand and Australia.

From left — Des Orr, Margaret VK4QK, and Graeme VK4NYE.

The Club worked on all HF bands, making in excess of 50 QSOs. Ray VK4ACU made a few CW contacts, and Ron VK4AGS had a computerised RTTY system operating when conditions permitted.

Following the death of Tony Burge VK4BAC, a young man suffering from Muscular Dystrophy who derived great enjoyment from amateur radio, his family donated his equipment to HHELP The Radio Club was then formed.

Since its opening on 24th August 1983, the Club, with the main aim is to introduce and involve disabled persons in the hobby, has had a steady membership growth. Today there are over 100 members, approximately 40 of whom are disabled.

Regular weekly contacts on the Friday evening Net (3.590MHz +/- QRM) are kept with disabled operators from all states of Australia, as well as New Zealand.

Types of disabilities encountered include Blindness, Multiple Sclerosis, Quadriplegia, Cerebral Palsy, Polio, and even severe speech impediments. When speech become difficult to understand, or embarrassing, CW can be used to great effect.

The Club is considering the possibilities of asking all disabled individuals, clubs, and other interested operators to participate annually in 'on-air' activities on a suitable date close to the Club's anniversary. It is also pondering the feasibility of circulating a questionnaire, with the idea of compiling lists of amateurs prepared to help disabled people with their study, as well as general assistance for disabled persons. By centralising such information, it is felt more people could become involved thereby not only achieving more operators on air, but a greater awareness of disability, which can only lead to more people participating equally.

Any comments from amateurs Australia-wide would be appreciated. Write to the Club at Box 3126, Town Hall, Toowoomba, or phone Roley VK4AOR on (076) 96 7587, or Graeme VK4NYE (076) 30 8323.

Contributed by Roley Norgaard VK4AOR
STATION MANAGER VK4BTB
AR

WESTERN SUBURBS RADIO CLUB

On 7th September 1985, the Western Suburbs Radio CLub and the North East Radio Group combined to present the "Lakeside Hamfest".

The Hamfest was held at the Western Suburbs RC meeting rooms, at picturesque Edwardes Park Lake, Reservoir.

With perfect weather, and a wide variety of activities, it was the ideal setting for many amateurs and their families to meet others in a relaxed social atmosphere. Attendees had a chance to view a wide selection of equipment provided by a comprehensive trade display.

Hamfest traders and buyers were kept busy trading in pre-loved equipment, with many buyers clutching prized acquisitions, whisking them off to the safety of their motor vehicles, then returning for more goodies.

Photograph courtesy Fred Taylor VK3KLL

Bargains were plentiful at the Pre-Loved Display.

One special guest was Her Worship, the Mayor of Preston, Councillor Helen Davis. Councillor Davis, together with her husband Chic, strolled casually around the displays, asking questions, and mingling with the many other visitors. Councillor Davis expressed keen interest in the work of both radio clubs, and the hobby of amateur radio. Although not initially aware of the value of amateur radio in its many guises, and the popularity of the hobby, Councillor Davis gained invaluable knowledge through visiting the Hamfest, and has pledged practical support for any future ventures the clubs may undertake.

Icom Australia, Am-Comm Electronics and Werner Wulf kindly donated some equipment to the clubs for use as prizes, with Ted VK3ZKP and Geoff VK3XUK being the eventual winners.

Photograph courtesy Mick Van Geyzul VK3KMV

Tom VK3AGH has another budding amateur in tow. The little T Shirt reads; 'My grandpa is VK3AGH'.

Photograph courtesy Mick Van Geyzul VK3KMV

Part of the Trade Display.

Photograph courtesy Mick Van Geyzul VK3KMV

Geoff VK3XUK proudly hold his prize aloft, whilst his daughter is horrified of 'more junk around the shack'.

Photograph courtesy Fred Taylor VK3KLL

John VK3KJW was active in 'calling-in' visitors on 2 and 80 metres, using the WSRC call sign, VK3AWS.

Photograph courtesy Mick Van Geyzul VK3KMV

Mark VK3PI, explains antenna systems to the Mayor of Preston and her husband.

Undoubtedly, the highlight of the day was the 'Radio Throwing Contest'. Ten ladies entered this prestigous event, and the judges, Richard VK3CRH and Mark VK3PI were forced to modify the rules as the event proceeded. The results were:

Longest Distance . . . Gayle Stephenson, XYL of VK3PI.
Largest Divot . . . Pamela Gill.
Smallest Divot . . . Val Henderson.
First to Break the Radio . . . Marg Baxter, XYL of VK3DBQ.
First to Make a Piece Fall off the Radio . . . Betty Page, XYL of VK3AGH.

Throwing styles were unorthodox, to say the least, but all participants, and amused spectators, enjoyed the event. Winners were presented with WSRC/NERG Certificates.

The Hamfest was a great success, and plans are already being made for another one next year. Thank you to all for making the day such a success.

Contributed by Mark Stephenson VK3PI

AR

BOOK REVIEW

MICRO AND TELEVISION PROJECTS

John Ingham VK5KG
FEDERAL VIDEO TAPE CO-ORDINATOR

Is there an amateur television enthusiast in Australia who has not yet heard of the British Amateur Television Club and their magnificent publications? Well, if YOU are such a person, read on!

For more than 32 years, the BATC have published their quarterly magazine 'CQ-TV', and over the years it has become the 'ATVers Bible'. While there have been other magazines available, which feature ATV, CQ-TV has consistently provided more construction articles than any other.

In 1981-2, the BATC produced volumes one and two of the 'Amateur Television Handbook', each having almost 100 pages crammed full of completely new projects designed by a team of engineers headed by Trevor Brown G8CJS. Every aspect of ATV was addressed and while the two volumes were universally recognised as the definitive works on the subject, they were recently updated by 'The Revised Amateur Television Handbook'.

And yet, in 'Micro and Television Projects', Trevor has again produced, what is, except in name, Volume 4 of the series. This time, reflecting the current ATV trends, he has expanded the scope of work to include circuits which allow micro-computers to become integrated into the ATV shack.

Following is a list of the topics examined within the booklet:

***CHAPTER 1:** A Simple ATV Station*
*Test Pattern and Sync Generator**
*Electronic Caption Writer**
*Simple Vision Switcher**

***CHAPTER 2:** The Best of the Handbook*
*Electronic Testcard**
*PAL Encoder**

***CHAPTER 3:** SECAM Encoder*

***CHAPTER 4:** The Home Computer*
A technical description of the Sinclair 'Spectrum'
*Spectrum User Port**
Computer Controlling Character Generators
*Spectrum EPROM Programmer**
RS-232 EPROM Programmer
Spectrum Picture Freezer
*Teletron Hamshack Micro-Controller**
Teletron VDU.
Ham Text — an Amateur Teletext-like System

Printed Circuit Boards (PCBs) are available for the projects marked *

As compared to the very wide range of topics covered in the handbooks, (Aerials, Feed-lines, Tuners, Receivers, Transmitters, Modulators, Processing Amplifiers, RF Probes, Character and Test Signal Generators, Cameras, Aperture Correction, Video Switchers, Colour, Slow Scan TV, Teletype, and Microwave), the scope of this new work is more specialised. Certainly, beginners in ATV would be well advised to first start with the 'Amateur Television Handbook'.

But, if you are looking for a new challenge in ATV, 'MICRO AND TELEVISION PROJECTS' could well be the stimulus you are looking for! Certainly there is a place for this publication on the book-shelf of every ATVer.

The booklet contains 86 pages in total, 44 pages of text, eight block diagrams, 27 circuits, 10 PCB 'top view' overlay diagrams, five illustrations and nine software listings, and is laid out in the competent manner in A5 size pages familiar to readers of CQ-TV.

MICRO AND TELEVISION PROJECTS is written by Trevor Brown G8CJS and published by the British Amateur Television Club. It will shortly be available from Divisional Bookshops.

AR

USER TRAINING MANUAL

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060

This manual is designed to accompany a basic three-lecture User Training Course presented by IPS personnel. Introducing the Ionosphere; Formation of the Ionosphere; Production, Loss, and Redistribution of Electrons; Deflection and Absorption of HF Radio Waves; Ionospheric Variations; Solar Cycle Variations; Oblique Propagations; Predictions; Sun-Earth Environment; Solar Activity; Effects of Solar Activity; IPS Services are some of the topics covered in this book.

There are 125 pages with plenty of diagrams, Glossary, etc.

This book is highly recommended to those who wish to know more about propagation, and is available for $12 posted from IPS, PO Box 702, Darlinghurst, NSW. 2010.

AR

ERITH ISLAND

Ken Gott VK3AJU, plans to operate again from Erith Island, located in the Kent Group in Bass Strait, from around 22nd December, for one month. Dates are approximate as sailing conditions may delay the arrival on Erith, which is uninhabited. Equipment will be an IC745 and G5RV, at 30 feet (9m).

Ken operated from Erith, as VK3KGX/7, during the Christmas period of 1982-83, and again in 1983-84, as VK3AJU/7. Operation then was mainly on 3.5MHz at night, with occasional visits to 7 and 14MHz.

The group that ventures to Erith each year has some 20 years continuity, and most members have been aquaintances even longer, The island is not known for its *great* DX location, but the island allows plenty of time for operating, and, with its ample growth of ti-tree and scrub, some opportunity for experimentation with wire antennas.

DEFINITIONS

AUTOMATIC LEVEL CONTROL . . . a magazine used to prop up the front of the rig so you can read the dial more readily.
ANTI-TRIP DEVICE . . . a really short microphone cord.
RESTING CURRENT . . . what you get when you touch the HT terminal on your linear.
MODULATION ENVELOPE . . . the one your telephone bill comes in.
ENVELOPE DETECTOR . . . a letter box.
PRODUCT DETECTOR . . . the name plate on the rig.
PTT . . . noise of a fuse blowing.

From BARG News, August 1985.

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

Photograph courtesy Les Pall VK2KCP

From left: Maurine Lavery (Administration Secretary), Peter VK2PJ (President VK2), Roger VK2ZIG/NWH (Vice- President), Jeff VK2BYY (Secretary), Peter VK3KAU (Federal Executive), Steve VK2PS (Federal Councillor), Tim VK2ZTM (Alternate Federal Councillor), Wally VK2DEW (Alternate Federal Councillor), Lyle VK2ALU (1984 Ron Wilkinson Award Winner). In the foreground are the 75th Anniversary Cup and the RD Trophy. The Cup was won by Peter VK2PA in the 1985 WIA CW Contest, and the Trophy was won by VK2 in 1984.

Photograph courtesy Henry Lundell VK2ZHE

Lyle VK2ALU.

Photograph courtesy Henry Lundell VK2ZHE

Lyle VK2ALU, receives the Ron Wilkinson Achievement Award from Peter VK3KAU, at the VK2 Anniversary Dinner, October 1985.

Photograph Henry Lundell VK2ZHE

Peter VK3KAU, presents Tim VK2ZTM, with a 75th Anniversary Medallion.

Photograph courtesy Henry Lundell VK2ZHE

Keith VK2AKX, Founder of Westlakes Amateur Radio Club.

Photograph courtesy Les Pall VK2KCP

Peter VK2PJ, presents Peter VK3KAU, with a VK2 produced WIA Car Badge. In the foreground is Jeff VK2BYY.

VK2 ANNIVERSARY DINNER

On Saturday, 12th October 1985, members and wives attended the Division's Anniversary Dinner.

Special Guest for the evening was Peter Wolfenden VK3KAU, representing the Federal Executive and a past-Federal President of the WIA.

Peter presented Lyle Patison VK2ALU, with the 1984 Ron Wilkinson Achievement Award Certificate, which Lyle won for his dedication to the Moonbounce Projects.

Photograph Henry Lundell VK2ZHE

Peter VK2PJ.

Photograph Henry Lundell VK2ZHE

Peter VK3KAU, Wally VK2DEW, and Tim VK2ZTM.

Photograph Henry Lundell VK2ZHE

Peter VK3KAU, Federal WIA Representative addresses the Dinner.

Photograph Henry Lundell VK2ZHE

Bill VK2COP, Federal and VK2 Intruder Watch Co-ordinator discusses the new Intruder Watch Certificate with Peter VK3KAU.

Photograph Henry Lundell VK2ZHE

From left: Peter VK2PJ, Peter VK3KAU and Steve VK2PS.

Photograph courtesy Henry Lundell VK2ZHE

The VK2 Anniversary Dinner was at time for many get-togethers. From left: Stephen VK2TQ, Roger VK2ZTB, and Wally VK2DEW.

Photograph courtesy Harry Lundell VK2ZHE

The RD Trophy and the 75th Anniversary Cup together in VK2. It is hoped the awards will meet again in VK2.

Roger VK2ZIG, Master of Ceremonies for the evening.

Photograph Henry Lundell VK2ZHE

Peter VK3KAU and Wally VK2DEW.

It had been some years since a dinner had been held by the Division. The 70 people who attended the dinner all agreed it was an excellent night. Perhaps dinners of this type can again become a regular feature of the Divisions activities.

ANNUAL GENERAL MEETING

Members are reminded that the Division's administrative year ends on 31st December. This is the date to close off the books, submit reports, etc for the AGM, which will be held on the Saturday after Easter.

HOME-BREW CONTEST

Have you something to enter in the Home-Brew Contest? Entry forms are available from the Divisional Office, which is open between 11am and 2pm weekdays, and Wednesday evenings from 7 to 9pm. Ring (02) 689 2417 or write to the post box address shown at the top of this column. Entries will close at the end of February 1986.

HOLIDAYS

The VK2 Divisional Broadcasts will cease over the Christmas holiday period, and will resume in mid-January. The last broadcast will be on 22nd December.

PLEASE WRITE!

Have you been using the 80 metre transmissions of VK2RCW, on 3.669MHz? If so, would you please write your comments and send them to HADARC, PO Box 362, Hornsby, NSW. 2077. The six month trial period on HF is nearing the review time — see report in September's AR.

PAGERS

Previous mention has been made in these notes that the two metre band, and the repeaters in the top megahertz have been having a problem with the adjacent pager band. An extensive discussion paper has been prepared and was ready for distribution in October, when there were delays in the postal service.

It is hoped that all repeater groups within this State, as well as all other Divisions will have received their copy by now, and your replies to the enclosed questionnaires are starting to be returned. We would like to have these at hand before the end of the year. A few copies of the paper are available if any member would like to contact the Divisional Office. An article on the problems is being prepared for inclusion in AR next year.

REPEATERS

While on repeater matters — interest has developed in the Sydney region during this year to establish ATV repeaters. The terrain of the region makes its difficult to provide a single site coverage. This means that more than one system is likely to develop. To date, the Sydney ATV Group have submitted an application to establish an outlet in the lower Blue Mountains. Gladesville ARC, who have been conducting simplex transmissions on Wednesday evenings, have relocated their site to the upper North Shore.

They have advised that they wish to develop the facility into a repeater. There are also those who wish to use the allocation in a simplex capacity. So that all requirements can be looked at, would any other group, or person, with an interest to develop a repeater, or conduct simplex operation, using the 50cm-channel 34 segment, please advise the Divisional Office, in writing.

A system will have to be devised of time-sharing, or similar, for all interests to share the allocation. The Newcastle region has an ATV repeater to the operational stage, but their operation is unlikely to be affected by the requirements of the Sydney region.

PACKET RADIO

Packet Radio has continued to develop. Interest has been to develop repeating facilities, which provide range extending. The Oxley Region ARC have advised that they will be adding packet, as well as UHF voice repeaters to their existing VK2RPM system.

ERRATA FOR CONFERENCE OF CLUBS

The Conference of Clubs was not held last month, as announced in November AR. It will, instead, be held on 8th December 1985, same location . . . Westlakes ARC.

THE END!

It is almost to the end of the Institute's celebrations of its 75th year. The VK2 Division will not conclude its period until March 1986. Material is still being collected for the 'Time Capsule' — see March 1985 AR.

On behalf of the Council, and all its Office Bearers, may I wish one and all the Season's Greetings, and the very best for 1986.

de Tim VK2ZTM
AR

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

MEETINGS FOR 1986

There will be no VK1 Divisional meeting in December, due to the Christmas holidays. The next meeting will be on the 20th January 1986, at the Griffin Centre, Civic. Doors will open around 7.45pm, for the bookstall and QSL bureau, with the meeting commencing at 8pm. At the time of writing, the topic had not yet been confirmed, but will most probably be a video-tape evening.

The Annual General Meeting for 1986, will be held on Monday, 24th February, at the Griffin Centre, starting at 8pm. One of the functions of the AGM is to elect office bearers for the 1986 year. All members of the VK1 Division are eligible to strand for election to any committee position, and it appears that a number of long serving members may not stand for re-election. Any member interested in standing for a committee position should contact the Public Officer, Alan Hawes VK1KAL, for nomination forms and further details. Serving on the committee can be very satisfying, and need not be an onerous task if all pull their weight. This could be your chance to put something back into our hobby of amateur radio, and can be a very enjoyable, and rewarding experience.

JOTA 1986

The VK1 Division operated three stations on the JOTA weekend, from all reports with great success. While propagation could have been better, all stations reported reasonable interest from the Scout and Guide Movements. Thanks must go to Alan VK1KAL, Karl VK1KCM, and Adrian VK1NYA, who co-ordinated activities at the three stations, and to the many other amateurs who provided their time and equipment for the weekend.

One of the stations, VK1BP, operated from Camp Cottermouth, where almost 400 Scouts participated. Most Australian States, and New Zealand were contacted, and all those on the camp had a great time. A more detailed report on the VK1 activities in JOTA should be forthcoming shortly.

That is all from me for this year. Thanks to all those who provided information to me for inclusion in the column, and for those taking holidays over the next few months, have a good time, take care, and we will see you next year. I take pleasure in wishing all members, a very Merry Christmas, and a prosperous New Year, on behalf of the VK1 Division.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Have you ever had one of those days when you felt you should go back to bed, and start again tomorrow? Well, I've had a whole month like that!

Last month, in this column, I gave the Picnic a big "plug". I then received a telephone call to say that we would not be able to hold it at Bridgewater Oval in November, as the Oval is being dug up for drainage and sprinkler systems installation. Of course, by this time, everything else had been booked out. It has now been decided to postpone the Picnic until the first or second week in March 1986.

And, if that wasn't enough. I was informed that the RSL Hall, in which we hold our Christmas Social, was having some urgent repair work done, and may not be finished in time to hold the December meeting. I am expecting news on this one at any minute (or hoping, at least!).

The third major outside venue is the Parnanga Camp-site for our Clubs' Convention — *what could go wrong with that?* Well, they had us double-booked with another group for the week-end of the 11-13th April 1986, and we are still trying to sort out who will go where.

OUTSIDE BROADCAST

There were some brighter spots in the month, though. Bob VK5ADR, restored my faith in human nature when he volunteered to set up a station at Hectorville Primary School, for their Communications Day. Bob volunteered within half an hour of my request on the Broadcast. We shared the day with 5EBI, the Commercial Radio Station, who had their Outside Broadcast van set up in the playground.

LIBRARY SHACK

When I arrived at midday, I found the school library looking more like an amateur's shack. Peter Koen had done his usual excellent job with various displays around the walls. Bill Gill VK5NVM, whose son was on the cover of October's AR, had lent his display of old valves, etc. Lindsay VK5GZ, was fascinating the children with his CW contacts, and Bob VK5ADR was kept very busy typing the children's names into a teletype machine, which in turn, relayed the information to a second machine, which produced a punched tape. Each child got his or her name, and relevant piece of punched tape to take home.

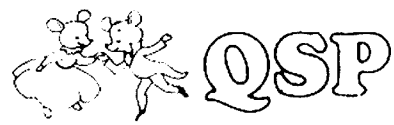
During the lunch break, we managed to keep a pre-arranged sched between one of the teachers at the school and her brother, Kevin P29KM. The teacher was delighted to be able to speak with him, and is now considering sitting for a licence herself, in due course. Colin Ralph VK5KCR, was officially with 5EBI, but came in to have a chat with us, and then took me back to have a look at their gear and meet the crew.

Thanks must go to Bob VK5ADR, and the others for a most successful day.

DIARY DATES (what optimism!)

Tuesday, 10th December — Christmas Social with speaker Geoff Taylor VK5TY. Geoff will speak on the First Burra to Broken Hill Wheelbarrow Race. Bring your YL/XYL/OM and a plate of supper.

AR



PLANNING FOR AUSSAT

AUSSAT's space and communications manager, Dr Wayne Nowland has stated that, due to rapid technological development designing the next generation of satellites, it is necessary to estimate communication needs of the 1990s.

Plans are to be completed by 1987, and the new AUSSATs launched in 1992. To be taken into account, was the expected increased demands for personal communications, using small earth stations.

Satellite technology will be the catalyst for inventiveness and entrepreneurial activity to develop the necessary new person- to-person services.

VK3 WIA NOTES

WHERE WE STAND

By now most members will have received their annual WIA membership renewal notice.

The fees have been frozen at last years level, with the exception of the Student Grade, which has been reduced to $15.

Increased membership in the Division has been a factor enabling the fees to be kept to a minimum.

Another year of membership growth has been experienced in VK3 with about 70 percent of active radio amateurs in Victoria being WIA members.

A brief explanation, may be pertinent, about the 40 percent decrease in the Student Grade. This step has been taken, as part of a Youth Development Programme, to encourage more youngsters into the hobby.

Your Division has three main sources of income — the Divisional portion of subscriptions, sale of disposals equipment, and book sales.

Following is a brief resume of the last four years operation.

The Division had a very difficult period from the late 1970s to 1982. Many serious problems had to be faced by Council, which had to make tough decisions to overcome the difficulties.

That crisis period is now behind us, but it is worth looking at the Council's achievements. In 1982, it paid off the Victorian Divisional Headquarters mortgage of $12 727 (current market value of the building is $120 000), which gave financial stability and enabled Council to embark on other projects.

During the four years, 1982-85, the VHF/UHF repeaters have been substantially upgraded, and many new ones installed. The small group of radio amateurs who install, and service the repeaters deserve the credit for the standard of repeaters now available for general use, and in times of emergency.

However, many radio amateurs, particularly non-members, take repeaters for granted, do not contribute to them, and are among the first to complain if a repeater is off the air.

In the past four years, the VK3 Council has used $28 000 of members funds for repeater Installations and repairs. There is site costs, insurance, power, and licence fees to be paid each year on repeaters.

The all-up capital worth of repeaters in Victoria would be in excess of $33 000 — this asset belongs to you, the WIA member.

Other major expenses incurred during the past four years by the Division include:

Office Postage	*$4 000*
Rates	*$3 628*
Insurances	*$7 732*
QSL Bureau	*$9 342*
Office Typist	*$15 600*

Without the efforts of a small group of members responsible for the revenue through disposals equipment, and book sales, the Division would not have had $15 000 to spend. There efforts are making cheap services available to members, and at the same time, contribute to the Division's financial well-being.

The VK3 Divisional Council looks forward, with confidence, that the number of members will continue to grow. After all, this Division is recognised as having the best range of membership services, including a free QSL Bureau for members. At 75 cents per week (even less for pensioners, students, and family members), WIA membership is value for money in terms of service provided, and as an insurance policy for your hobby.

AR

VK4 WIA NOTES

Bud Pounsett VK4QY Box 638, GPO, Brisbane, Qld. 4001

Nearly every Sunday, the Divisional President, John Aarsse VK4QA, speaks to members on the weekly broadcast from VK4WIA. Here is one such script from September.

Communications is the key to our hobby, so it is said by many But do we communicate effectively? Looking around, one would say, communication skills are the worst in any communication organisation, be it in the hobby field or professionally.

Too often, many details are taken for granted. Council, when it has made an announcement, assumes that members will remember it forever. . .members assume that a mere mention of a problem will automatically be followed up by a solution.

Unfortunately, this is not the case and, while attending the Townsville Amateur Radio Club Convention, this was brought home to me in no uncertain way And I am thankful that it was brought to my attention, and that is part of our communication exercise.

So, here is a summary of a reasonable communications solution, applicable to our Division. If you have serious problems, say with non-receipt of AR, or cannot find out how to form a local radio club, or your club wants to put up a repeater, contact, in writing, the WIA Q Secretary. He/she will direct it to the right person, who will then answer you direct. In this manner, you have a written record and you are able to study your question, and the answer you receive, at your leisure. But, as all of our Council Members are volunteers, and thus have certain family commitments, you will not always receive an answer by return mail. If you wish to have such a service, even within the WIA Q, the expression "the user pays" applies. In other words, the fees will have to rise to allow your Division to employ staff. This other method will cost you the price of a postage stamp.

Another method is to use the telephone. This is not always recommended, as the person may not be at home and, if one lives outside the particular call-area, it may become an expensive exercise.

The last method is more in line with our hobby . . . use the airways. It may not be a private line, but there may be others who always wanted to ask the same question, but were afraid to do so.

As far as this Division is concerned, the following ON-AIR possibilities are as follows:

Tuesday evenings, from 0930UTC on approximately 3.605MHz, VK4AWI and the Queensland Radio Club Net. It is primarily intended as a contact line between Council and representatives of the VK4 Radio Clubs. If time permits, individuals can check in, but for them there is another net, believe it or not. By the way, VK4AWI is presently operated by Council Member, Bill VK4UB.

Thursday evenings, from 0930UTC on approximately 3.605MHz, the Queensland Net. Unfortunately, a lot of operators think that this net is there solely to amass Cities, Towns, and Shires for the Queensland Award. This is not so. Its primary aim is to be a contact point between Council and members and non-members alike, on a regular basis. In the past, many problems have been solved, either on the spot, or after one week. Only one or two tricky questions required a longer waiting time as it involved checking with, either DOC or Federal Executive.

After some time of operations, there were no questions forthcoming, and it became a meeting point for those wishing to contact the many Shires, Cities, and Towns, in Queensland. But please remember, the purpose of the Queensland Net is still primarily a contact net, and those with questions to ask will have priority. Often, if an important item is available, this will often be announced at the start and repeated later in the net. After all, the Queensland Net was the first to officially announce the extension of the 80 metre segment for Novice operators, some years ago.

Further, since this is a regular net, any portable, mobile, or fixed station should know it is possible to squeeze a possible emergency call through at this point in time.

The net controllers are John VK4QA, Max VK4BMW, or Val VK4VR. Of the three, John and Val are Council Members. If Max has control, a Council Member is usually on the side listening. If there are no questions, the Queensland Net will happily chase all those elusive Shires, etcetera. By the way, 3.605MHz is the WICEN frequency in Queensland for state use.

The final method of getting a message through, with some reservations, is during the Call-Back after the News Broadcasts.

This is not recommended, as it could be time consuming, and many would like to get on with their Sunday chores. Also, it could put extra pressure on the Call-Back controllers if they are not Council Members. They may forget the message, or cannot get in contact with a Council Member in time for the next Call-Back.

So, unless you know that the Call-Back-Controller is a member of Council, do not use the Call-Back to ask questions or put forward suggestions. It will not always reach Council, the very people who you want to consider your proposals.

So, in conclusion, a recap of methods of communication between members and council:

Do it in writing to GPO Box 638, Brisbane, Qld. 4001. If you know to what section it should be directed, put that on the envelope, you may save valuable time.

Use the airwaves, as a Club Representative each Tuesday at 0930 UTC, on around 3.605MHz, with VK4AWI as controller.

As a member, or non-member, use the Queensland Net, each Thursday, at 0930UTC, on or around 3.605MHz, with either VK4QA, VK4VR or VK4BMW as net controllers.

During call backs, after the news, but this method is not guaranteed to give immediate results, unless a Councillor on the Net is willing to offer some of his/her Sunday time.

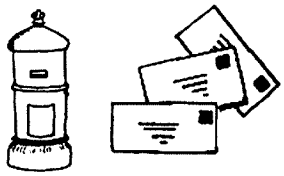
I hope this has given you some insight on a possible effective communications system within our hobby in VK4. This information may be repeated from time to time to alert new licensees of the recommended types of communications with their Division.

AR

On the eve of the Queensland Radio Club Conference, 1985, at the North Brisbane Radio Club, three presidents were together, representing the WIA structure. From left: Bill Donovan VK4AKV, North Brisbane Radio Club President, David Wardlaw VK3ADW, Federal WIA President, and John Aarsse VK4QA, Queensland Divisional President.

SEASONS GREETINGS from VK4

Photography courtesy Ken McLachlan VK3AH



OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

THE ROSS HULL CONTEST

It is not so distant past when this was a marvellous contest when every VHFer,'worth his salt', was out there changing reports.

Since then, the so called 'Big Guns' (many of which I would consider friends), have cramped the style of the smaller operators. It seems we now may need modification to the contest layout. Where-as, before if you worked three or more bands, your points score from multipliers soon soared pretty high.

Consideration needs to be given to a possible 'single band' section of the contest, where an amateur can select a favourite band, (in my case six metres), or the band on which the operator is best equipped to compete.

I have discussed this with many fellow VHFers throughout Australia and feel that this may give the Ross Hull a new breath of ionosphere. I realise this may complicate a once simple, but dying contest. So maybe someone will win the 10GHz section with a single contact, but at least someone was active, which is the whole essence of the contest.

What do others think?

See you on six metres during the contest.

Best wishes,

Peter Sumner VK8ZLX,
Alice Springs, NT. 5570.
AR

PHONE PATCH

Telecom Australia would appear most unsympathetic to Australia's most diplomatic, law-abiding, and best international ambassadors .... a group which has neither the political power nor the finance with which to protect itself or its interests, ... I refer to the Amateur Radio Service.

Telecom's answer to a request, from the Amateur Service, for phone patch privileges is contained in their document, "Interconnection of Mobile, Amateur, and Citizen Band Radio Communications" with the Public Switched Telephone Network, Policy, and Conditions, Issue 2, June 1985. This document is so restrictive that it makes the use of the telephone system, by the Amateur Radio Service, unbelievably difficult. Also, Telecom want us to pay a surcharge (in addition to the regular telephone charges) for no more facilities than normal use of the telephone. The Department of Communications makes no extra charge for third party privileges!

The Amateur Service cannot, by DOC regulation, make any form of profit whatsoever, and cannot recover any costs — not even the standard telephone charges.

Please help us to encourage Telecom to modify their unnecessary rules and regulations, and remove their demands for unwarranted surcharges on the Amateur Radio Service.

Yours sincerely.

Tony Tregale VK3QQ
38 Wattle Drive,
Watsonia, Vic. 3087.
AR

WHERE ARE THE YOUNG ONES?

With the assistance of Amateur Radio, I would like to call the attention of the younger members of the fraternity.

As part of a small group of young, radio orientated people, I would like to hear from any others in the same position. My primary aim is to come up on air in a net to chat on our own wavelength (so to speak!).

I am aware of the presence of other young amateurs, but unfortunately cannot seem to catch up with them. I also realise that there are some school groups around.

So, how about a national, or perhaps international 'under 18s/21s' net. If things work here in Australia, I will send similar letters to overseas magazines.

If you are interested, or know of anyone who may be interested in the idea, please contact me.

Yours sincerely,

Nick Morgan-Hobbs VK6EU,
7 Eltham Place,
Kingsley, WA. 6026.
AR

75th ANNIVERSARY

Greetings and congratulations on the 75th Anniversary of the Institute. May there be many more with the passing years.

The kind thought of the Anniversary Gift is much appreciated, and rest assured much more activity will be heard on the WARC bands in the future.

Best regards,

Noel Lawton VK4NL,
50 High Street,
North Mackay, Qld. 4740.
AR

WARC BANDS

Many thanks for the WIA gift pack, presented as a result of me being heard on the WARC bands — 18 and 24MHz. I feel that a resume of these bands may enlighten all on the happenings on these two bands.

I commenced operation in these bands on 2nd January 1983, and on 24MHz have worked GW, G, Germany, and VKs 2, 3, 4, 5, 6, and 7. I am also active on 10.1MHz.

On 18MHz, I have worked 20 countries including; G, GW, GM, I, C21, F, VU, A35, LA3, HB9, FR7, VP9, YU, OZ, OE, T30, ZL, many stations in Germany, ZS, and LU1/MM in the Indian Ocean. All VK States have been worked except 1, 8, 9, and 0.

For about the past 2 years, I have had the advantage of a home brew programmable CW CQ Caller (used on eight HF bands), on 18MHz. The Caller keys my transceiver as a 100W manned beacon, while I am busy writing out OSL cards, filing QSOs into a filing card system, or building up another CQ Caller.

It is sad to say, but 18MHz has also gone down, with DX contacts being very rare. But, as some say, this band will be a really good one, when propagation improves.

73,

Lindsay Collins VK5GZ,
VK5 Intruder Watch Co-ordinator,
12 Park Avenue,
Rosslyn Park, SA. 5072.

Lindsay, you may care to write-up the construction of your Caller for publication in AR — Ed. **AR**

NOW IN TOUCH

Congratulations on an excellent magazine, and I especially like the Pounding Brass column. The magazine is my only contact with the WIA, so I really appreciate it a lot.

Would any readers be interested in an interface to drive the rig with CW taped on a recorder? I am building my third prototype now.

73,

Gil Brownrigg VK3CGG,
7 Church Street,
Bright, Vic. 3741.

Are there any members interested? If so, drop Gil a line and encourage him along the author's path. — Ed **AR**

OBITUARY TO THE VHF/UHF/SHF AMATEUR BANDS

I read (with a feeling of sorrow at having lost a good friend) the paragraph in the October 1985 issue of AR, entitled 'A Woodpecker on 427MHz' (VHF UHF — an expanding world). What has been forecast by myself, and others that watch the amateur scene overseas, has come to pass. The commercials have commenced to take over amateur frequencies that offer great potential for the future.

I can now throw away the equipment I have spent so much time and money building, and improving. Nobody in their right mind would want it now.

Warnings that *at all costs* exclusive segments must be secured in all UHF and SHF amateur bands have fallen on deaf ears, and now it is too late. The head in the sand attitude of 'it won't happen in Australia', aided by a lack of support by some groups has lost us our VHF, UHF and SHF bands.

Some of us will mourn their loss.

G Wiseman VK5EU,
19 Washington Street,
Hilton, SA. 5033.
AR

SCOUTING

This photograph was taken in 1922, a year before I came to Australia. I am now 81 years of age, so I would have been about 18 at the time.

I was in the Sixth West Hampstead Troop, and met Sir Baden-Powell many times, also King George IV and King Edward VIII, as they used to visit our camps.

This was the time also, when I first became interested in radio, as I learned Semaphore and Morse signals.

I can still remember the first crystal and valve sets that I built with Mullard valves and honeycomb coils.

Yours sincerely,

Albert Shire VK3OZ,
173a Eighth Street,
Mildura, Vic. 3500.
AR

Help Save Amateur Radio Language

The Macquarie Dictionary defines the word ***LANGUAGE*** as *"Communication by voice in the distinctively human manner, using arbitrary auditory symbols in conventional ways with conventional meanings".*

Amateur radio has a long established language of its own which adds to the hobby's character and uniqueness. But the language has, unfortunately, been overlooked by some newcomers, particularly in the last decade.

A few old hands are also to blame for not using the language correctly, or failing to encourage others to speak it as it should be spoken.

The vocabulary of some radio amateurs includes phrases like 'come-back'. Everytime this is used on a repeater I, and others mumble to ourselves *'come-back from where'.*

Another phrase gaining popularity is *'I've got to*

Silent Keys

It is with deep regret we record the passing of —

MR WILLIAM N BULLIVANT VK2BC
10th September 1985

Obituaries

BILL BULLIVANT VK2BC

It is with deep regret I advise the passing of Bill Bullivant VK2BC, on 10th September 1985, following a short illness.

Bill, who was in his 77th year, became interested in amateur radio during his early teens, at Albury, and obtained his licence in 1925 under the call sign VK2WB.

Upon taking up residence in Sydney, Bill obtained his First Class Certificate and, at one stage, was stationed at Rose Bay as a base station operator in connection with the Flying Boat Service. At the demise of the Aeradio Service he was transferred to the Sydney GPO, as a telegraphist, and soon gained promotion to the position of Traffic Officer.

Prior to Bill's retirement from the work-force he held the position of Senior Traffic Officer (OIC) Telegraphs.

When Bill renewed his licence, he was allocated VK2BC, and became a keen DX fan, having contacted some 300 countries. Besides his innate skills in radio and electronics generally, he had other great hobbies including clocks, tape recorders, and photography. Furthermore, he was a talented musician, not only on the saxophone, but also other various instruments. One of my happy memories of Bill was his rendition of the 'Happy Birthday' tune, played on his saxophone.

Over the past nine years Bill conducted a net on 40 metres telephony which included some fifteen amateurs.

Being such a personality, Bill will be greatly missed by his friends and fellow amateurs, especially for his jovial and generous nature. We were the richer for knowing him.

To his wife Joan, and family, deepest sympathy.

Laurie Sinclair VK2MH

HAROLD GEORGE SELMAN VK3CM/ex 3GN

It is a sad task to report the sudden death of Harold VK3CM on 18th September 1985.

Born in 1907, Harold could have been classed as an 'old-timer' in amateur radio, however his enthusiasm and active nature gave no impression of his senior years. He was a Life Member of the Geelong Amateur Radio Club, and served as treasurer for a number of recent years in succession. His kindly nature, and sense of humour, were respected, and enjoyed by all club members, young and old alike.

Over the years, Harold developed a special rapport with the younger generation of radio enthusiasts by encouraging, and assisting them, to construct their equipment. His generosity benefited many with those 'hard to get' components, of which he seemed to have a ready supply from his 'junk collection'.

Harold was well known on the HF bands, in particular in the CW segments. His true love was for the 160 metre band, on which he had confirmed contacts with approximately 30 countries. With modest transmitting equipment, and a highly efficient long wire antenna system, he achieved remarkable results; his name often appearing prominently in contest result listings. These results were achieved with a minimum of fuss, but with quiet dedication and enthusiasm.

Harold had an involvement with radio communications from its very beginnings. He operated under the VK3GN call sign prior to World War Two, served in New Guinea during the War as an instructor and technician, and then continued his interest in amateur radio, post war, under the call sign VK3CM.

Harold was well-known for his enthusiasm and active participation outside of amateur radio circles, also. He had an intense interest in motor bike racing and participated in Sporting Motor Bike Club scramble and road racing events, right up to the age of 64 years.

Harold was known to all by his gentle nature, his sense of humour, and his unfailing goodwill. He will be sadly missed by all and deepest sympathy is extended to his immediate family, Graeme, Rita, Max, Mervin, Stanley, and Marlene, and to his grand, and great-grand children.

Alan Bradley VK3LW

Over to you continued

get out of here' when in fact what is meant is *'I want to go clear'*. I'm sure if you think about it you will have heard other examples of non-amateur radio phrases on air. Perhaps like *'What is your handle, OM?'* which has been replaced by some people who say 'What's the name that way?'

The Q-code is also being abused. For example *'I'm going QRT for a second'* when in fact the radio amateur plans to go QRX. *'What is your QTH'*, never *'what's your 10-20 there'*. But listen long enough and you will hear the 10-code on the amateur bands.

It is enough to make any *'old man'* or *'YL'* take the top off a *'gaseous 807'*.

73, never 73s, de VK3PC.

Jim Linton VK3PC,
4 Ansett Crescent,
Forest Hill, Vic. 3131.
AR

FAMOUS NAMES

Many well-known people enjoy the hobby of amateur radio, and it is true to say that you never know who you may talk to. Following is a short list of some, can any members add to this list?

King Hussein of Jordan JY1 and EP1JY; Arthur Godfrey K4LIB (SK), American entertainer; Howard Hughes 9CY (SK), had this call sign in the 1920s; Owen Garriott W5LFL, first amateur-in-space; son of the late Shah of Iran EP1MP; Anastacio Somoza YN1AS (SK), former Nicaraguan dictator; Barry Goldwater K7UGA, US Senator; Sir Alan Fairhall VK2KB, former Australian Minister for Defence; Percy Sara VK2QV (SK), father of the famous "Sara Quads" who were born in the 1950s; Stu Gilliam WD6FBU, US actor and comedian; Donny Osmond KA7EVD, singer of the Osmond family; Jean Shepherd K2ORS, US author and humourist; Marlon Brando FO0GJ, US actor; Rajiv Gandhi VU2RG, Prime Minister of India, and his XYL Sonia VU2SON, Bernie Abramson W6PJX, a director of photography in Hollywood. (Bernie worked on some of the late John Wayne's films, so there is no doubt he extolled the virtues of amateur radio to Mr Wayne, off camera.

THE BENJAMIN FRANKLIN METHOD

Lindsay Lawless VK3ANJ
Box 112, Lakes Entrance, Vic. 3909

Nobby was a natural born experimenter, nothing deterred him from trying new ideas; if his theoretical knowledge discounted the chances of success he would proceed regardless. *"The theory is probably right"* he would say *"but it will do no harm to prove it."* The latest fixation was implanted by someone on air saying that the secret of good aerial construction was to get as much wire into the air as possible. Nobby's aerial farm therefore encompassed an area bounded by the palm tree near the wash-house (laundry to city folk), the old gum tree at the dairy, another at the creek and returning to the wash-house palm via the defunct windmill near the stables. In all, the length of wire was about two wavelengths at 80 metres. Results were somewhat patchy and according to the experts on the zone net a vertical would produce better results. Nobby admitted that it would be beyond even his considerable skills to get the same amount of wire into a vertical but it would be worth trying to see how much he could raise with a balloon or a kite or several of these.

A kite would be an interesting experiment. After all many top scientific people and other experimenters had contributed beneficial developments to engineering as a result of messing about with kites. *"It would amuse the kids too"* said the XYL *"and you have always been interested in aviation."*

Many designs have been tried, kilometres of baling twine expended, all the magpies have moved to other territories free of terrifying tethered hawks and the kids have retrieved their BMX bikes from the temporary storage in the barn. Not a metre of wire has been lifted vertically. *"I think balloons will be the shot"* says Nobby.

Balloons are easy to get but they must be filled with Hydrogen or hot air to get them off the ground and keep them there. Hot air is out because it has to be kept hot. Hydrogen has to be the answer. With the problem thought this far Nobby gave it a rest awaiting inspiration or technical advice from the experts on the net. He didn't know of a source of supply of Hydrogen which would cost little or nothing.

The final solution was almost a final for Nobby and a severe shock to other members of the Nobby household. The blue heeler bitch refuses to come out of her kennel except for meals, the bay mare bolts to the far end of the horse paddock on hearing any unusual sound and the XYL is considering a long holiday at "mums". Hydrogen you see is a by-product of battery charging; a suitable arrangement of inverted plastic funnels and plastic tubing will direct this by-product into an inverted jerry can.

To test this apparatus a 24 hour charging of the tractor battery was arranged and the result taken to the middle of the cowyard and a lighted match applied to the mouth of the jerry can. The bay mare in spite of being harnessed to the Furphy leapt the fence into the pig yard leaving the Furphy behind. The heeler which had been sniffing around the jerry can fled yelping, cleared the creek in one bound and disappeared into the scrub. Nobby escaped unhurt and except for a sort of chirpy CW affecting his hearing, is almost ready for the next experiment. He optimistically predicts a deep fade of the chirpy CW in only a few days. The jerry can will remain at the top of the dead gum in the pig yard until the tree is needed for fuel for the kitchen stove.

There is a sequel to every notable event. The XYL did take that holiday and returned with a gift for Nobby from "mum"; one Cimbidium orchid in a pot and a book entitled "How to Raise Orchids for Pleasure and Profit". Nobby thinks this is a great idea but "I will need a Commodore 64 or similar to record my orchid growing experiments" "Yes" said the XYL to herself "and for AMTOR experiments I suppose".

AR

Unfortunately, due to an industrial dispute, there are no IONOSPHERIC PREDICTIONS this month.

SOLAR GEOPHYSICAL SUMMARY: AUGUST 1985

SOLAR

Solar activity was very low during August, with no energetic flares being observed. The active region which raised the 10cm flux levels in recent months has now decayed. The remnants of this region produced the slight rise in the flux levels early in the month.

Even with this rise, the monthly averaged flux value was the lowest since the last solar minimum period.

10cm daily readings were 1,2=78, 3,4=77, 5,6=76, 7=77, 8=76, 9= 73, 10=71, 11=67, 12=68, 13=67, 14=68, 15=67, 16=67, 17=66, 18=67, 19=68, 20,21=69, 22-26=71, 27-29=72, 30,31=73. Average 71.6 and the Sunspot monthly average was 10,4. Sunspot yearly average 1/85=20 2/85=19.1.

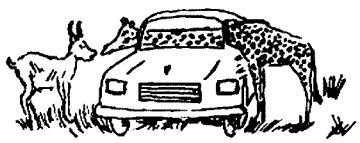
GEOMAGNETIC

August was a disturbed month, in general. There was an extended period of mildly disturbed conditions from the 18th through to the 30th. The most disturbed days were the 13th A=41 and the 31st A=32.

1st August . . . Field unsettled to active A=17
12-15th August . . . Field became disturbed after 1800 UTC on 12th and was at major storm levels until around 1200 UTC on 13th. It was disturbed again between 0500 and 1000 UTC on 14th, and between 0600 and 1400 UTC on 15th. A=20,41,22,16
18-19th August . . . Field was at active levels between 2200 UTC on 18th and 0600 UTC on 19th. A=14,16
22nd-23rd August . . . Field was at active levels with periods of minor storm levels. A-18,18
25-26th August . . . Field was at unsettled levels with periods of active conditions. A=19,17
29th August . . . Field at active levels between 0600-1900 UTC. A=16
31st August . . . Field at storm levels between 0900 and 1900 UTC. A=32
Quiet days . . . 5 A=4; 6=3; 7=4; 11=4

From data supplied by Department of Science, IPS Radio and Space Services.

AR



DEADLINE

All copy for inclusion in the February 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday, 2nd January 1986.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- Please insert STD code with phone numbers when you advertise.
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

#TRADE ADS#

AMIDON FERROMAGNETIC CORES: Large range for all receiver & Transmitting Applications. For data & price list send 105x220mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, Plaza. ACT.

#WANTED — NSW#

NUMBER 19 ARMY SET, CW CABLE, POWER SUPPLY, CONTROL BOXES, ETC.For restoration of Bren gun carrier. Details to VK2ANW, 20 Stanley Street, St Ives, NSW. 2075. Ph:(02)44 1932.

#WANTED — VIC#

ANTENNA TUNER: YAESU FC-102 or similar, 1000W, with power & SWR meters. VK3MW, QTHR. Ph:(03) 560 5278.

BENCHER OR BROWN BROTHERS PADDLE: Please contact Geoff VK3CGH, QTHR. Ph:(03) 288 6019.

COPY OF 0-15V BENCH POWER SUPPLY: from April 1962 issue of "RTVH" (preeursor of 'Electronics Australia'). Hepburn. Ph:(03) 596 2414.

YAESU FL-110 LINEAR AMP: for use with FT7 tcvr. Ring with price and details to Ross VK3CBL. Ph:(03) 836 0073.

#FOR SALE — ACT#

DECEASED EQUIPMENT — VK1XX: Kenwood TS-520 tcvr (early model); Drake TR-4C tcvr; Drake AC4 power supply; Trio CO-1303A oscilloscope; Katsumi electronic keyer, model EK-150; Tokyo Hy-Power Labs, universal antenna coupler, model EK-150 3.5- 28MHz. Offers to Mrs G Domjan. Ph:(062) 58 2623.

TELEPRINTER — SIEMENS MODEL 100: complete with tape reader, tape reperforator, built-in loop supply, circuit diagrams & spare papet tape. EC. $100. Ph:(062) 68 5354 BH or (062) 58 3384 AH.

#FOR SALE — NSW#

HAL VIDEO COMMS TERMINAL — MODEL DSR-2050 KSR: For RTTY & CW, complete with monitor, model 15 teleprinter, & service manuals. $650. System 80, blue label computer with software & manuals. $300. Dual beam oscilloscope, Tektronix type 502 with manuals, trace not working. $50. Peter VK2CZX, QTHR. Ph:(02) 631 2472.

ICOM IC-4E: 70cm h/held & standard equip (in box), & 12V PSU & 240V PSU (work from mains), & gutter grip ant, with cable and whip. $350. Colin VK2JCD/exPIJ. Ph:(02) 498 4158 AH.

KENWOOD TR-2500: 2m h/held tcvr, complete with helical ant, 240V 50Hz charger, user manual, orig packing. $250. Other access avail — SMC-25, spkr/mic. $22. PB-25 spare batt pack. $30. BT-1 AA batt case. $10. MS-1 mobile mtg case inc 12V charger. $30. Leather case. $30. Service manual. $10. Laurie VK2AQW, QTHR. Ph:(02) 938 5035 BH or (02) 969 2160 AH.

KENWOOD TR7200G 2 METRE TCVR: 1W/10W, channels 1-8, plus 40, 50, 51. $145 ONO. Hygain 204BA, 4el, 20m beam. $250 ONO. Yaesu FT-101 tcvr, manual, mic, in fair cond. $250 ONO. Akashi RF thru line 144-430 watt meter. New $65. Ph:(02) 467 1784.

KENWOOD TS-120V: Ideal novice tig, in very good condition. $375 ONO. VK2AXS. Ph:(02) 520 2828 AH.

KENWOOD TS-520: Good condition. $375. HC-500 ant tuner. $75. Yaesu RSM-2 gutter mount. $25. RSE 2A 2m stub. $10. RSL 35MHz 80m resonator. $25. RSL7A, 40m resonator. $25. Martin VK2BMH. Ph:(042) 67 3836.

KENWOOD TS830S TCVR WITH MANUAL: 3 extra valves & packing. $850. Swan TBA beam ant. $155. CDE HAM II & rotator, with control. $150. Antenna mast with cables (54' high). $150. Adigawa PM2H power/SWR meter. $65. Zephyr 21ZA mic in grey handpiece. $15. Ph:871 7758.

YAESU 901DM HF TX: with FM, ext VFO, auto scan, 40 mems, auto CW chip, 240/12V ext spkr, desk & hand mics, manuals, extender board, orig pkg. $650 ONO. Ron VK2DBH. Ph:(065) 54 2105.

#FOR SALE — VIC#

FT-230R 2M TCVR: 10/25W output, 10 mems, 2 VFOs 5/10 steps, priority chan, auto scan mic. Complete with mic & manual. $335. Little use, as new. VK3ALT. Ph:(059) 41 1248.

ICOM IC-502 H/HELD 6M SSB TCVR: Covers 52-54MHz. Ex cond. $150. Also 6m, 4el beam. $50. Bob VK3ZBB, QTHR. Ph:(03) 379 4242.

KENWOOD TS930S: in VGC with auto tuner, WARC bands, & h/held mic. $1650. Rotator SAY-103, near new. $210. Jim VK3NR. Ph:(03) 367 6920.

MARCONI TF-867 STANDARD SIG GEN: 15kHz to 32MHz in 11 bands. GC. $150. VHF Sig gen type AN/USM-44. 10-420MHz in 5 bands. GC. $250. Both above instruments are professional grade, with h/books. Hepburn. Ph:(03) 596 2414.

REALISTIC DX-300 COMMS RX: Digi read-out, in GC. $230. Ross VK3CBL. Ph:(03) 836 0073.

SHACK CLEARANCE: Yaesu FT-101E tcvr. GC. $420. Yaesu FV-10B ext VFO. $80. Yaesu FL2100B lin amp. $400. Please contact Paul VK3AJJ. Ph:(03) 435 3643 AH or (03) 267 3399 BH.

SIEMENS 100 MK2 TELEPRINTER C/W READER: Tape punch, paper, tapes, inbuilt power supply. ETI modem in instrument case C/W tuning LEDs and meter. Active switched filter, relay PTT switching. Excellent HF operation, worked RTTY DXCC, all in perfect cond. $175 ONO. Ken VK3MW, QTHR. Ph:(03) 560 5278.

YAESU HF EQUIPMENT: Yaesu FT7 mobile tcvr, fitted with 10A & 10B preamp & processor. $370. Yaesu FT-110 lin amp to match FT-7, or similar hi-power finals. 15W drive, delivers 150W. $210. Yaesu FT-107V ext VFO, grey external, 150mV @ 50 ohms/5-5.5MHz. $40. Reel-reel tapes. 4x7" & 4x3". $10. Spider Hub, Bandit Spider quad hub (new). $40. VOM Heathkit IM-16. 0- 1500 AC/DC & 0-1000Mohms. Line or bat pwr. Very good test unit. $40. Valves — Mullard 2 x CV788 (RF). $12. Mullard 1 x 803 & pore base (RF). $30. VK3KSA, QTHR. Ph: (03) 726 8752.

YAESU EQUIPMENT: FRG-7. $250 ONO. FT-620B in VGC. $275. FT-200. $200 ONO. FT-75B with AC/DC power packs. $300 ONO. FT-7 in VGC. $350 ONO. FL110 linear, new. $250. Ph:(055) 69 2320.

YAESU FRG-7 COMMS RX: In exc cond. $185. Also modified Marconi R-1155 aircraft rx. $30. Both for $200. VK3AMT, QTHR. Ph:(059) 86 2601.

YAESU FLDX-2000 LINEAR AMP: All new 6KD6 tubes in exc cond. Circuit & instructions. $100. VK3CLM. Ph:(03) 542 3487 BH or (03) 794 8432 AH.

#FOR SALE — QLD#

YAESU FT-290R 2M MULTIMODE: NiCADs, charger, ¼ wave stub, ½ wave whip, 11 el beam. All in VGC. $550 the lot. George VK4BGR, QTHR. Ph:(071) 95 4057, evenings 7-9pm only.

#FOR SALE — NT#

GOING OVERSEAS — MUST SELL: Shure 444D desk mic, Hi/Lo impedance in EC. $95. RTTY/ASCII terminal: Xitek SCT-100, Keytronics keyboard, case, complete documentation, extras. $125. Tokyo HL-30V, 30W, 2m linear amp. $69. Dick Smith M-9517 small NiCAD charger. $8. Larsen LM-MM mag mnt VHF antenna, new. $69. RAK balun, 20-15m parallel dipole, insulators. $25. Nick VK8DE, QTHR. Ph:(089) 52 3692.

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KENWOOD

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Using our simple, inexpensive "Listening Post" project and software published in the magazine, you can use your receiver with your Commodore 64 to decode RTTY transmissions or radio FAX picture transmissions.

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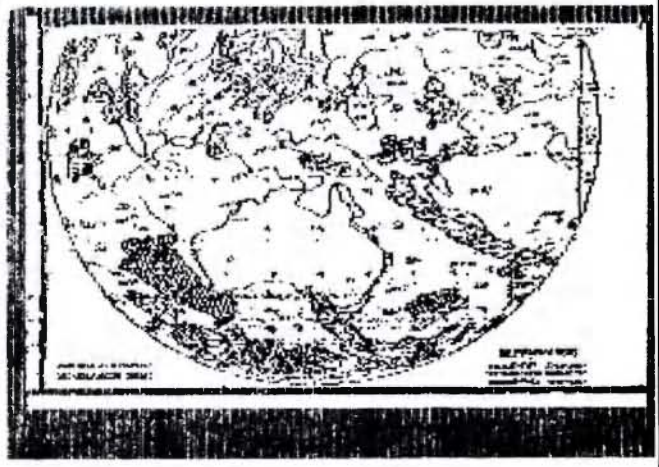

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