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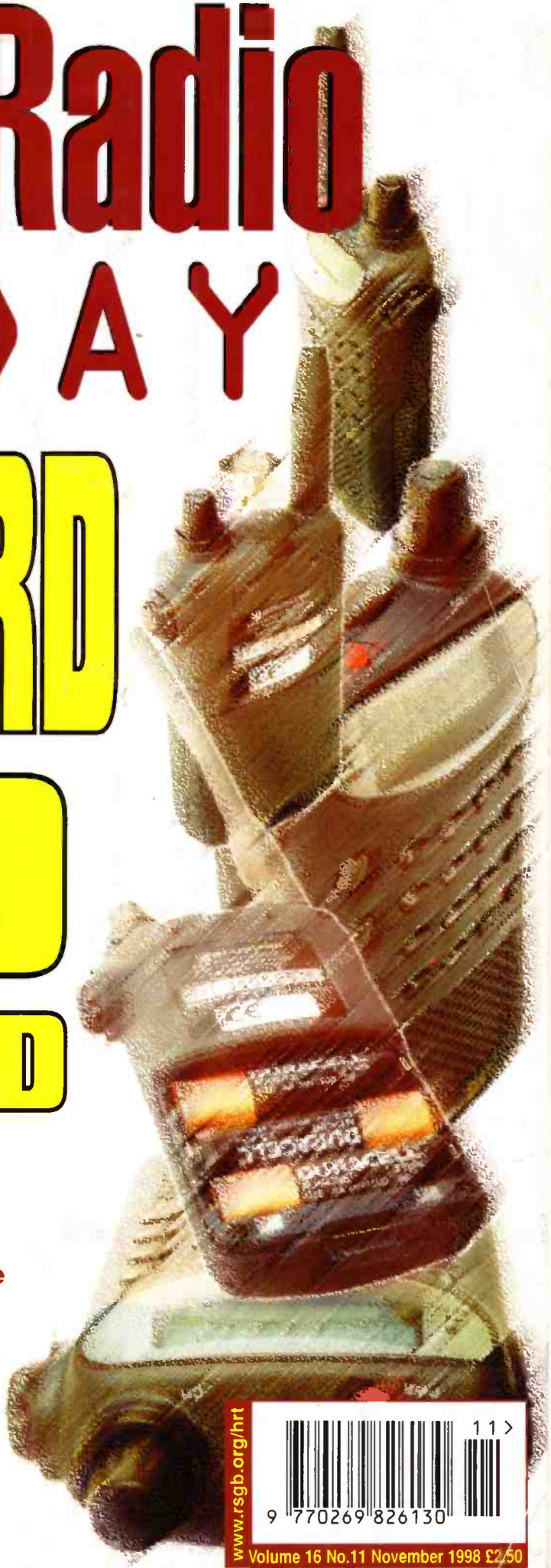

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Ham Radio TODAY

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making radio more accessible

Ham Radio Today Editorial by Steve Telenius-Lowe, G4JVG

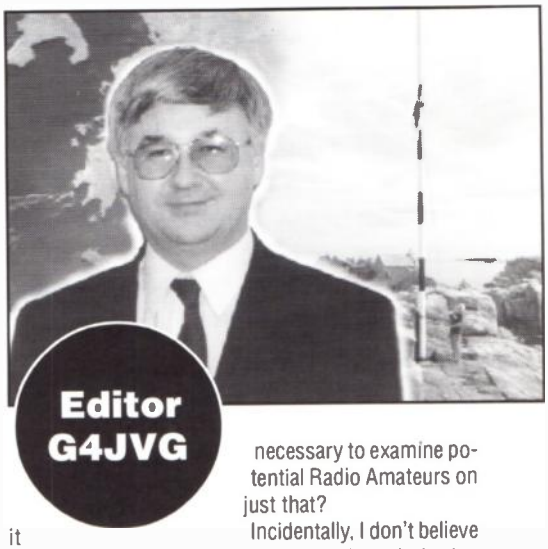
One advantage of *Ham Radio Today* being owned by the RSGB is that we can report on the 'inner workings' of the Society to readers without them having to be RSGB members. Of course, I would encourage anyone with a real, prolonged, interest in Amateur Radio to join their national society (no matter in which country they might live), but accept that many readers of *Ham Radio Today* may not yet be at that stage. After all, the *raison d'être* of the magazine from the RSGB's point of view is to reach people who may have a latent or potential interest in Amateur Radio and see the magazine on the bookshelves. We hope to make that latent interest grow into a real involvement with the hobby - and then hope that those who become well and truly 'hooked' join up and become members of the Society.

behind the scenes

One example of work going on 'behind the scenes' (reported on page 6 this month) is news of some advances to licensing conditions in this country. Such changes don't just happen, they are the result of lengthy negotiations with the RA.

I have hinted in previous editorials of work the RSGB is doing behind the scenes in order to make the process of obtaining an Amateur Radio licence a less onerous task than at present. One way of achieving this is the proposal of a new 'interim' licence with a Morse code speed much less than the present 12 words per minute, leading to the eventual abandonment of the obligatory Morse test for an HF licence.

However, for some the Radio Amateurs Examination (RAE), set by City & Guilds, is a more forbidding obstacle than even a 12WPM Morse test! I personally know of an 'old timer' who learned Morse during WWII and was a perfectly competent operator, but who failed the RAE three times before he eventually gained his G4 licence. He was a good home constructor and 'knew his stuff', but was not as quick as he used to be and became flustered when faced with an exam paper; he had not done any form of examination for 40 years and never quite mastered the technique! It was only due to his sheer bloody-mindedness and determination that he eventually gained his cherished callsign. How many others would have given up somewhere along the way? It's crazy that it should be that difficult to get an Amateur Radio licence.



necessary exam

I am not advocating making it as easy to get an Amateur Radio licence as it is to obtain a CB licence. The much higher power level and wide frequency range permitted by the Amateur Radio licence makes it necessary for hams to understand the EMC implications of the privileges granted with the licence. The universal availability of commercial amateur transceivers which are able to transmit outside the limits of the amateur bands (particularly on HF) makes it necessary for hams to have a detailed understanding of radio regulations, frequency limits, and the potential for interference to other services, particularly in shared bands.

Many Radio Amateurs enjoy home construction - it's always been a part of Amateur Radio and always will be (like CW, in a way). But it's only one of the many facets of this wide-ranging hobby. For the vast majority 'homebrewing' these days means making a simple accessory - an ATU or home-made antenna, or perhaps a simple QRP transmitter such as the one described by Dick Pascoe, G0BPS, in *QRP Corner* on page 42. It certainly does not mean an all-band, all-mode 100 watt transceiver. Most Radio Amateurs would never attempt the construction or repair of such equipment - so why should it be necessary to examine potential Radio Amateurs on just that?

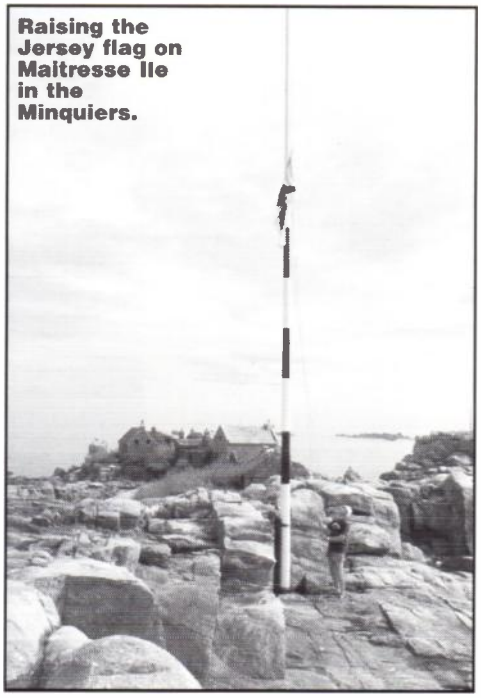
Incidentally, I don't believe that the reason for this is that Amateur Radio has been 'dumbed down' in any way - on the contrary, whilst G2s or early G3s used to build their own two or three valve CW or AM transmitters, even in their heyday very few would have attempted to build anything as complex as a modern transceiver. Amateur Radio technology has moved on, and so must we.

The RSGB will be working closely with City & Guilds to see if the content of the RAE can be made more relevant to the needs of today's potential Radio Amateurs. It will also be pressing for the RAE to be made available 'on demand', in the same way that Morse code tests are. When this is achieved we will be another step closer to the goal of making Amateur Radio accessible for all.

bigger & better

Finally, look out for some exciting changes coming up in *Ham Radio Today* very soon. From the January edition (due out on 9 December) we'll have a bigger, more colourful, magazine with more pages devoted to Amateur Radio and related topics. We'll also be continuing with the very popular series of cover-mounted CD-ROMs containing hundreds of Amateur Radio software programs - all absolutely free. More good reasons for taking out a *Ham Radio Today* subscription or placing a regular order with your newsagent.

radio amateur 'liberates' the minquiers



Raising the Jersey flag on Maitresse Ile in the Minquiers.

When *Ham Radio Today* subscriber Anne Mourant, MJ0BJU, planned a day trip to Les Minquiers Reef, south of Jersey, on 30 August, she did not expect to have to liberate the islands from a foreign occupying force.

The 'invasion' was apparently the idea of eccentric French writer Jean Raspail, who says he is a long-lost relative of a 19th century French adventurer who claimed to be the sovereign of the so-called Kingdom of Patagonia. In reality, Patagonia is a province of Argentina populated mainly by gauchos and descendants of Welsh-speaking settlers originally from Britain. Spurred on by M Raspail, two men and two women landed on Maitresse Ile, the main island of the Minquiers, raised the flag of the Kingdom of Patagonia, and nailed a number of plaques to the buildings on the island.

When Anne arrived at Maitresse Ile with her husband Peter and some friends, the first thing she noticed was the unusual flag flying. She replaced it with the Union Flag, and after a 'polite' conversation with the four self-styled Patagonian 'marines', they left the island.

Anne, who is Secretary of the Jersey Amateur Radio Society (JARS), told *Ham Radio Today* that the Minquiers were last 'occupied' at the end of July - but on that occasion it was a fully legal occupation by eight members of JARS, who were operating as GJ3DVC/P from EU-099 during the RSGB Islands on the Air (IOTA) Contest.

Whilst the recent occupation of the islands was little other than a light-hearted publicity stunt, there are more serious implications. The Minquiers were the subject of a dispute at the International Court in the Hague in the 1950s, when the French made a claim to the islands. The court confirmed British sovereignty, although the French have since hoisted the *tricoleur* on both the Minquiers and nearby Echrehou Reef in recent years and have had to be chased off the islands by Jerseymen.

radio today radio today

latest news on ham radio today

world's oldest ham dies

Harry Angel, VK4HA, who is believed to have been the oldest Radio Amateur in the world, died on 16 August at the age of 106. British-born Harry first went to Australia as a young sailor. After WWI he settled in Brisbane, and later opened a radio repair shop. He became a Radio Amateur in 1935 and was licensed for 63 years, remaining an active DXer until the age of 100. His QSL card reputedly showed a beautiful young lady on one of Queensland's beaches . . .

jota reminder

Jamboree on the Air - the 48-hour international Scouting Amateur Radio weekend - takes place this year on **17 / 18 October**.

operating from malta

Following the story in September's *Ham Radio Today* that Malta had now signed CEPT Recommendation T/R 61-01, Len Thompson, G4WZU, returned from Malta to report that the licensing administration there said that they hoped to implement the agreement by next year but, for the present, visiting amateurs still needed to take out a reciprocal licence. The information in the September issue was published in good faith and was based on information received from the RA. We checked again with the RA and they tell us that the information they have is that Malta *is* already a signatory to T/R 61-01 . . .

armageddon?

Astronomers are predicting that this year's **Leonid meteor shower** will be one of the most spectacular on record. Whilst this may be good news for VHF Meteor Scatter enthusiasts, it could be bad news for satellite operators.

The Leonids, which normally occur roughly between **15 and 19 November**, are usually a fairly minor shower for Meteor Scatter operators. However, *Ham Radio Today's* VHF guru, Geoff Brown, GJ4ICD, commented that last year's Leonids provided better reflections than the January Quadrantids - normally the most productive of meteor showers.

According to press reports, this year's Leonids would 'bombard' the earth for up to 90 days and would be the 'worst' for over 30 years. Why 'worst'? Well, commercial satellite operators are worried that the meteors may knock geostationary satellites out of orbit. Although tiny, around the size of a grain of sand, the meteors will be hurtling towards earth at 240,000kph - sufficient velocity to destroy a satellite if it receives a direct hit.

new 6m repeater

Another new 6m FM repeater has gone on the air. It is GB3SX near Stoke-on-Trent, which was switched on on 5 September. GB3SX operates on 50.79MHz (input on 51.29MHz) and a 103.5Hz CTCSS tone is required for access.

ra roadshow

The Radiocommunications Agency (RA) is running a 'roadshow' which gives radio users an opportunity to assess the full implications of the new Wireless Telegraphy Act, which became law in March. Visitors can question the RA's Chief Executive, David Hendon, and other senior RA staff on changes brought in by the Act.

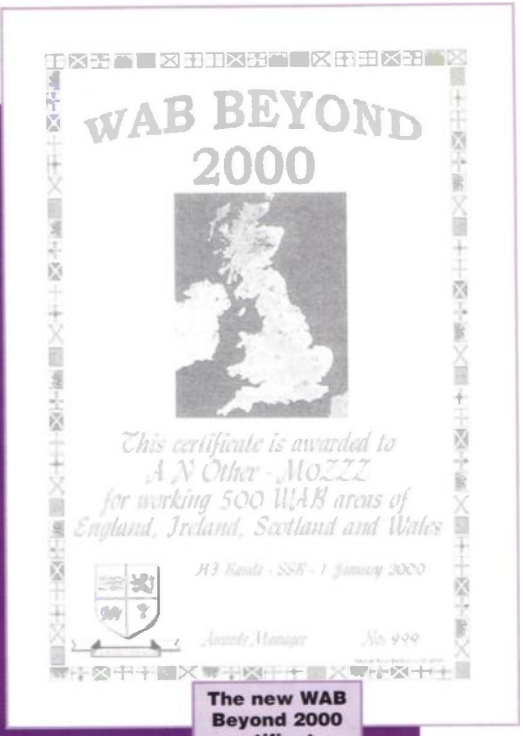
The roadshow started in September and will be visiting the following locations: Gatwick on 9 October; Milton Keynes 30 October; Perth 6 November; Leeds 13 November; Bath 27 November; and Cardiff 4 December. There is no charge for attendance but reservations should be made with the RA events office, tel: 0171 223 9006, fax: 0171 924 3964.

wab news

The results of the WAB 'LF' Phone contest, which took place on 17 May, have recently been announced:
Single Op Fixed G5LP 278960, G4JZF 109395, G3OKA 19270, M0BJM, 10395.
Single Op /M G4VJM/M 37840, G4NXG/M 4625.
Multi Op /M G3POD/M 45955.
SWL G7HSP 52020.
Overseas LY3BA 140.

The HF Phone contest takes place on **5 / 6 December**, 1200 - 1200UTC.

New WAB Record Books - including WAB areas formed by the new unitary authorities which have come into existence in stages since 1996 - are available from Brian Morris, G4KSQ, 22 Burdell Ave, Oxford OX3 8ED at £10 inc P&P (or £8 at rallies). Amateurs can decide whether to carry on with the old award scheme or work towards the new 'WAB Beyond 2000' award. Further details are on the WAB web site at: www.users.zetnet.co.uk/g1ntw/wab.htm



The new WAB Beyond 2000 certificate.

radio today radio today

latest news on ham radio today

licensing news

An important reason for being a member of the RSGB is to support the negotiations for enhanced licence privileges which it holds with the Radiocommunications Agency (RA) on a continuing basis. The following is a report on recent on-going discussions. As can be seen, there is some good news and some bad news.

Greetings Messages: The possibility of extending the greetings message facility, currently available to club stations, to all amateurs, has been under discussion with the RA since 1992. The RA has recently agreed to this change, but has said that it may take a year or two to implement, because of the need to obtain approval from the CII division of the Department of Trade and Industry.

Easing of Operation under T/R 61-01: Currently, the *Amateur Radio Licence Terms, Provisions and Limitations Booklet (BR68)* states that when operating in another CEPT country under T/R 61-01, you must operate to the more restrictive of the licence conditions in the country you are visiting, and the conditions of your home licence. The RA has agreed that the restriction to the *home* licence conditions is no longer necessary, so that you will just operate under the conditions of the country being visited, appropriate to your licence class. The change will be announced formally in due course.

Millennium Callsigns: The RA has agreed to allow the suffix **/2K** to be used for the month of January 2000 to celebrate the new Millennium. Details will be announced in due course.

Scottish Parliament Callsigns: The RA has agreed in principle to a special prefix for Scottish amateurs for use in January 2000 to celebrate the opening of the new Scottish parliament. Discussions of the details of the prefix(es) are still ongoing.

433.92MHz: In Europe, this band is used for a wide variety of low power short range devices. In December 1992, the UK agreed to allow this allocation to be used for a restricted application, ie car keys. At a meeting with the Low Power Radio Users' Association (LPRUA), a representative from the Low Power Devices section of the RA announced that they had decided to lift these restrictions and allow the full variety of applications to use this allocation; this fact was confirmed at a recent meeting between the RSGB and the RA. The RSGB is concerned that there will be serious difficulties with sharing this allocation between amateurs and the Low Power users, and has expressed its concerns to the RA - discussions continue.

Aeronautical Mobile: After initial approaches to the RA for the facility of Aeronautical Mobile operation, the Civil Aviation Authority (CAA) requested a meeting to discuss the issues. After seeking input from interested amateurs, the RSGB sent a paper to the RA in December 1997 in order to open discussions with CAA. However, at a recent meeting, the RA announced that the CAA would not have time to consider this topic in the near future, and the RA has removed it from the list of topics under discussion. The RSGB is disappointed that this proposal does not appear to have been given due consideration, but would like to thank those who provided input.

generous benefactor

How do you increase the exposure of Amateur Radio to the general public? Simon Lloyd Hughes, GW0NVN / N1XIH, has come up with a novel way. He has donated a *Ham Radio Today* subscription and joined up his local library as a member of the RSGB. Both *Ham Radio Today* and *RadCom* are now available in the reference section of Barry library for the general public to browse at any time. Simon told *Ham Radio Today*, "It's hoped that this will encourage an increased awareness and interest in Amateur Radio and associated electronics."

Sandra Wildsmith, Head Librarian, Barry, is presented with *Ham Radio Today*, *RadCom* and the library's RSGB membership certificate by Simon Lloyd Hughes, GW0NVN.

canadian amateurs respond to swiss air crash

Within two hours of the Swiss Air crash off the coast of Nova Scotia, the Halifax Regional Municipality Emergency Measures Amateur Radio Group was called out by Dave George, VE1AJP, the Halifax area emergency co-ordinator. Amateurs were dispatched to a 'command bus' established close to the site of the crash at Peggy's Cove and at a net control station in Halifax. The Canadian Red Cross Telecommunications Officer, VE1CH, also called in amateurs to operate the communications centre at the Canadian Red Cross HQ in Halifax. Amateurs at the command post acted as an interface between the on-site commander, the military and anyone else the site commander needed to talk to. Amateur operators were also asked to provide emergency HF links to the military and naval ships engaged in the search and established communications on the marine emergency frequency of 156.8MHz.

About 20 amateurs worked on the emergency communications and set up a shift system for 24-hour operation by the net control station. The response was fast and efficient showing that the extensive training over the past year had really paid off. Radio procedures were excellent and there were many reports from senior officials at the site about how well the Radio Amateurs performed.

Thanks to David Evans, VE6DXX / G3OUF, for forwarding this story.

waters & stanton catalogue

A free 16-page Waters & Stanton catalogue is included as a supplement to this edition of *Ham Radio Today*. If your copy of the magazine did not contain the catalogue, please call the *Ham Radio Today* sales department on tel 01707 853300, or e-mail: hrt.sales@rsgb.org.uk, for a free replacement.

radio today

latest news on ham radio today

The new Young Amateur of the Year is Mark Shepherd, M0AGQ, who is 17 years old and from Brighton. The runner-up is 16-year old Peter Evans, M0BOO, from Orpington. The Young Amateur of the Year competition is jointly sponsored by the RSGB and the RA, with support from the radiocommunications industry.

new rtty contest

The British Amateur Radio Teledata Group (BARTG) has announced a new RTTY contest, to be run this year on **31 October / 1 November**. The rules of the BARTG RTTY Sprint have been designed to give any station a chance of winning, by introducing a compulsory 'expert' class for previous contest top ten finishers.

The contest runs for 24 hours from 1200UTC Saturday on 80 - 10m (exc WARC bands). For a copy of the rules, please send an SASE to John Barber, GW4SKA, PO Box 611, Cardiff CF2 4UN or e-mail to: ska@bartg.demon.co.uk

rsgb company secretary

The Radio Society of Great Britain Company Limited (limited by guarantee) seeks a Company Secretary to take up appointment from 1 January 1999. Reporting to Council and working closely with the General Manager, duties will include:

* Provision of legal advice to the Council on administrative and corporate affairs and ensuring that the company meets statutory requirements.
* Organising and supervising the annual Council Elections.
* The provision of a secretarial and administrative service to Council.

The position would suit a retired Company Secretary, ideally holding an ICSA qualification and living in the Home Counties within easy travelling distance of the Society's Headquarters in Potters Bar. Amateur Radio experience would be beneficial but is not essential. This is a Honorary position that attracts travelling and subsistence expenses only.

Please write in strictest confidence, enclosing a full CV, to: The General Manager, Radio Society of Great Britain, Lambda House, Cranborne Road, Potters Bar EN6 3JE. Applications to arrive not later than 31 October 1998.

new dxcc entities

The Marquesas Islands and the Austral Islands have both been added to the list of DXCC entities. The additions will be effective for contacts made after 31 March 1998. Both groups of islands are located within French Polynesia in the Pacific [see the *HF Happenings* column in the August *Ham Radio Today - Ed*].

trade topics

ml&s open house

Celebrating his eighth year of trading, **Martin Lynch** and his team are having a two-day 'open house' this year instead of the usual Saturday bash. This year the London store will be attended by the chiefs of the 'Big Three': Yaesu, Icom and Kenwood, who will be displaying their new key products including the FT-100, FT-847, IC-746 and the VC-H1 camera.

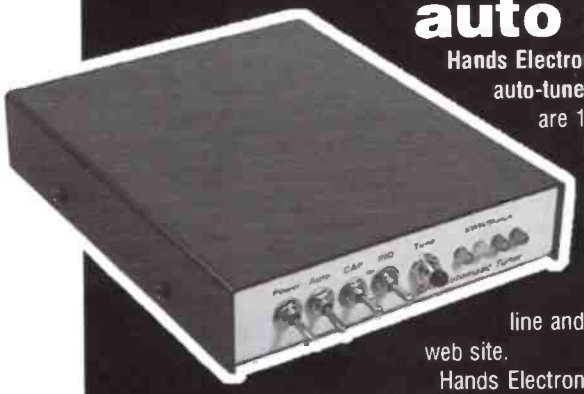
The London premises have recently had new antennas installed to allow multiple demonstrations, and once again 'shoot outs' between all of the top models will be available for test.

Representatives of *Ham Radio Today* will be there on both days, so come along for a chat!

The open house also features: live video feed on the Internet - view the open day from all over the world!; all the new rigs on demonstration and at very special prices; free rig check - offered on both days; enter the *free* 'win a rig' raffle; *free* refreshments.

The open days are from 9.00am to 5.00pm **Saturday 31 October** and 10.00am - 2.00pm **Sunday 1 November** at 140 - 142 Northfield Avenue, Ealing, London W13 9SB.

auto atu kit



Hands Electronics has announced the addition of the **LDG auto-tuner** to their range of products. The LDG tuners are 10 or 100 watt automatic ATUs, based on the L-Match format. MPU controlled, the L/C set offers over a quarter of a million combinations to get the match correct on most coax feed antennas.

These easy-to-build tuners come with the full Hands backup, including a telephone help line and full information is on the Hands Electronics web site.

Hands Electronics, Tegryn, Llanfyrnach, Pembs SA35 0BL; tel: 01239 698427; Internet: www.rf-kits.demon.co.uk

g3lll qrx

Harry Leeming, G3LLL, who writes the *All in a Day's Work* column for *Ham Radio Today*, has now retired from his 'day job' as proprietor of Holdings Amateur Electronics in Blackburn, Lancs. Harry told *Ham Radio Today*: "I regret that as I am moving house I will not be able to have access to my spare parts or workshop facilities for the next few months. As soon as we've moved and organise a new workshop I intend to do repairs to the older 'classic equipment' on a part-time basis." *Ham Radio Today* will let you know when Harry is ready to start his classic equipment repairs.

trade topics trade topics

the following information is based upon submissions by supp
we cannot be responsible for false or

waters & stanton's latest

Want to improve your performance on the higher HF bands but can't put up a typical 3-element triband beam? The **MQ-1** or **MQ-2 minibeams** could be the answer. The MQ-1 covers 6, 10, 15 and 20m, whilst the MQ-2 covers these bands plus 12m and 17m too. Both models have a boomlength of just 1.37m and a quad element height of 1.22m. Weighing in at approx 7kg, the MQ beams are light enough to be mounted on a chimney and rotated with a cheap 'TV' type rotator. Built in Canada to high-quality specifications, the MQ-1 costs £299 and the MQ-2 £379.

With the proliferation of tiny HF / 6m mobile transceivers such as the IC-706, DX-70 and - soon - the FT-100, many more amateurs are giving HF and / or 6m mobile a try. **Watson** have brought out a range of low cost **mono band mobile antennas** for these bands. Each has a 3/8in fitting and can be mounted on regular or heavy duty magnetic mounts, gutter or hatch mounts, all of which are also available from Waters & Stanton. The WHF range of antennas cost £18.95 per band from 6m to 40m, or £19.95 for 80m, or £49.95 for 160m.

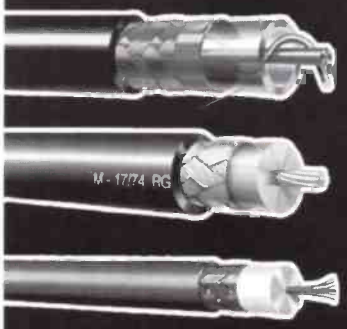
Optoelectronics new **Mini-Scout** is a 'frequency finder' which will lock on to a signal in less than 1 second. It will automatically tune receivers, including the AOR AR-8200, AR-8000, Icom R-7000, R-7100, R-8500, R-9000 and R-10, on to frequency (10MHz - 1.4GHz). The Mini-Scout costs £199. Also available is the Optoelectronics **Optotrakker** multimode decoder, which decodes CTCSS, DTMF, LTR and Motorola trunking. It is supplied complete with software and costs £299.

The MQ-2 minibeam (the MQ-1 is exactly the same, but has fewer spokes).

The latest MFJ product is the **MFJ-1028**, a **passive preselector** for 1.6 - 33MHz. It can be used with receivers or transceivers (max 100W through power) and will reduce overload from strong out-of-band signals. The MFJ-1028 costs £119.95.

All the above are available from Waters & Stanton PLC, 22 Main Road, Hockley, Essex SS5 4QS; tel: 01702 206835; fax: 01702 205843.

new from nevada



Alinco's latest transceiver is a tiny 70cm handheld, the **DJ-S41C**. It's described as a 'pager-sized' transceiver, which will give up to 0.5W out on the 70cm band. The DJ-S41C is an improved version of the earlier DJ-S41 and includes CTCSS encode and decode, 1750Hz toneburst, and a swivel antenna which makes the set even more portable. The set operates from three AA size batteries or 13.8V DC and costs £99.95.

Nevada is now distributing a new range of **low loss coaxial cables** from the Italian manufacturer Siva. Amongst them is RH100, an economical very low-loss (0.35dB per 10m at 100MHz) cable. RH100 is a 9.77mm diameter semi-airspaced double-screened cable with a screening efficiency of greater than 80%. It may be used with standard connectors and is suitable for use up to 1GHz. At 80p per metre (plus VAT), RH100 also represents excellent value for money.

Nevada, 189 London Road, North End, Portsmouth PO2 9AE; tel: 01705 698113; fax: 01705 690626.

new icom gear in japan

Following hot on the heels of the Yaesu FT-100 comes news of Icom's 'DC to daylight' answer: the **IC-706 MkII G**. It operates from 160m to 70cm, with 100W out on 160 - 6m, 50W on 2m and 20W on 70cm. The new rig made its debut at a recent ham fair in Tokyo. A 'satellite interface' is listed as an option; this is apparently a board allowing you to connect another rig, for example a 23cm transceiver, for satellite operation. The price in Japan is the same as the IC-706 MkII, 138,000 yen. [Thanks to Richard Limebear, G3RWL, for this information - *Ed.*] Icom UK was unable to confirm when, or if, the IC-706 MkII G would be introduced in Europe, but *Ham Radio Today's* best guess is that it will be! Wait and see. CE approval would, of course, be required and this always takes several months.

cushcraft technical support

Cushcraft Corporation, manufacturer of amateur and commercial antennas, recently introduced a new Internet-based technical support programme, called 'TechExpress'. It allows customers to place orders for parts, ask technical questions, review Frequently Asked Questions, locate part numbers etc. TechExpress enquiries received via e-mail are given top priority and answered within one business day. See **www.cushcraft.com** for details.

un-icom

After many years with Icom (UK), **Dennis Goodwin, G4SOT**, has teamed up with **Andy Rudd, G6MRI**, to set up their own Amateur Radio store in Kent. The new business, **UniCom** (Universal Radio Communications), will also sell CB, marine, PMR, airband and short range business radio equipment.

Dennis and Andy have a thorough knowledge of all amateur products, not just Icom, and are offering a full mail order service with delivery the next day in most cases, in addition to the retail shop in Herne Bay. More details can be found on their new Internet web site at www.cqdx.co.uk/unicom

UniCom, 112 Reculver Road, Beltinge, Herne Bay, Kent CT6 6PD; tel: 01227 749352; e-mail: unicom@cqdx.co.uk

spectrum display unit

After many years of good service, Kenwood have withdrawn the SM-230 Station Monitor from production. **AOR** produce a similar product, the **SDU-500**, and have recently evaluated it with the **Kenwood TS-870S**. AOR have found the SDU-500 to be compatible with the TS-870S and Kenwood is now promoting the SD-500 as a suitable accessory for this transceiver.

AOR have also produced a modification to the TS-870S which increases the IF output. This involves work which could affect the warranty, so please check with Kenwood before modifying any transceiver under one year old.

For further information please contact David at Kenwood Electronics on tel: 01923 655284 or Richard at AOR on tel: 01773 880788.

revco antennas

Revco has launched a new range of **VHF and UHF base station antennas** for hobby and professional use. The antennas are end-fed dipole designs, which do not require any groundplane radials, resulting in a slim, neat profile with low wind resistance - and which provide excellent low-angle DX performance.

Four types are available: for 2m (144 - 146MHz), 70cm (430 - 440MHz), VHF airband (108 - 140MHz), and a special broadband UHF airband model covering 225 - 400MHz. In addition, any frequency from 108MHz upwards can be provided on special order.

Further details may be obtained from Garex Electronics, 8 Sandpiper Court, Harrington Lane, Exeter EX4 8NS; tel: 01392 466899; fax: 01392 466887.

The Hora C-15

Super performance at a bargain basement pr

Minus the battery pack, the C-150 really is credit-card sized.

I first came across the name Hora early this year, when I reviewed the Hora C-408 transceiver for the first of the 'new look' *Ham Radio Todays* in March. The C-408 is a tiny 70cm handheld with a power output of 230mW. Hora's 2m handheld, the C-150, is not much larger - but can provide an amazing (given the size of the set) 5 watts output. It is also excellent value, at just £99.

description

The Hora C-150 covers 144 - 146MHz on transmit, and 130 - 170MHz on receive. Part of the secret of the economical price is that a rechargeable battery is *not* supplied: the rig comes with an empty battery case in which six AA dry cells or nicads can be fitted.

The C-150 provides two or three levels of power output, depending on the supply voltage. At the rated voltage of 7.2V, the C-150 puts out 2.0W in both the 'High' and 'Mid' power positions, and 0.35W at 'Low'. However, the C-150 can also be run from a 13.8V DC source, such as a mains PSU or car battery. It then provides no less than 5W in the high power position, or 2.5W mid and 0.35W low.

It is supplied with a short helical 'rubber duck' type antenna with BNC connector, making operation of the set with a mobile or base station antenna simple.

The C-150 minus its battery pack has a 'footprint' the size of a credit card, or - with the battery pack fitted - measures 124H x 55W x 31Dmm. With the battery pack and antenna, it weighs 300g.

There are some 18 buttons on the front panel, most of which have dual functions, depending on whether or not they are depressed at the same time as the 'Function' button.

20 memory channels are provided, 10 in each of two groups. 'Dual-watch' allows the C-150 to monitor the frequency selected on the dial and any memory frequency, or the selected dial frequency and each memory frequency in sequence. There is a 'Call' button which can be programmed to any frequency for virtually instant QSY from wherever you happen to be operating, to - for example - 145.550MHz for a rally talk-in. Semi-duplex operation is also possible.

The set has an 'SQL Off' (or Monitor) button which opens the squelch fleetingly to check the volume level or monitor for weak signals below the squelch threshold which would otherwise be inaudible. There is a frequency lock and PTT lock to prevent accidental transmission.

A 1750Hz tone burst is provided for repeater access, although a CTCSS board is an optional extra at £19.95. Whilst some repeaters are now incorporating CTCSS, all UK 2m repeaters can still be accessed by 1750Hz tone, so CTCSS encoding is certainly not essential.

A battery save function reduces current drain to as little as 35mA during receive standby, whilst the 'APO' (auto power off) function reduces it to a negligible 5mA if you simply forget to turn the transceiver off.

On the top panel are separate external speaker and microphone jacks, allowing you to connect a suitable speaker mic or headset with PTT.

scanning

A wide range of scanning choices is possible, including a 1MHz scan, a programmed scan either within or outside the limits of two of the memory channels, an 'all-band' scan, scanning specified memory channels only, and so on. Within each of these possibilities either 'pause' or 'busy' scan functions can be selected.

The 1MHz scan can be initiated with the push of a single button and scans the one megahertz of band specified by the single megahertz figure on the frequency display - in other words if you are anywhere between 145.000 and 145.999MHz it will scan that section of band. Many users will find this the most useful mode, scanning from 145 to 146MHz, without the set stopping on those CW, SSB, beacon, or packet transmis-

2m Handheld

ice. Steve Telenius-Lowe, G4JVG, looks at Hora's 2m 'handie'

sions below 145MHz.

Memory frequency scan can be operated with the battery save function as 'save memory scan'.

switching on

As supplied, the set tunes in 10kHz steps, but this can easily be set to 5, 12.5, 20, 25 or 50kHz; most UK users will want it at 12.5 or 25kHz.

Although not mentioned in the handbook, the C-150 receives over the range 130 - 170MHz. The frequency can be set either by turning the frequency knob on the top of the set, or by direct keypad entry. However, it is not possible to set the tens of megahertz by means of the keypad, only the final megahertz and hundreds and tens of kilohertz. This means that if you are tuned to a frequency well outside the 2m band but wish to move to, say, 145.550MHz, you have two choices. Either you have a *lot* of knob twiddling in order to get to somewhere between 140.000 and 149.999MHz, from where you can punch in 145.550; *or* you must alternate between entering '999' on the keypad and then turning the tuning knob up to the next decade of megahertz, then repeating the process several times, in order to work your way towards 145.550MHz.

on the air

A test with a very local station confirmed that the transmit audio of the C-150 was of perfectly good, very intelligible quality, perhaps slightly 'toppy'. The received audio level (quoted in the specifications as 250mW across an 8Ω load for 10% distortion) was perfectly adequate for listening in a reasonably quiet environment, though it was a little low for listening in a noisy vehicle. The miniature speaker in the set rattled a little at high volume levels.

I set the C-150 to tune in 12.5kHz steps, so was able to listen 'between' the standard 25kHz channels. This is always a good test of the receive filter performance! And here the C-150 really exceeded my expectations. During a test from the same local station, who was using 5kHz deviation (in line with 25kHz channel spacing), I could hear absolutely nothing when tuned 12.5kHz lower in frequency. There was a little breakthrough 12.5kHz higher in frequency, but only at a weak level. Don't forget that this local station, with antennas in direct line-of-sight, was providing an on-channel signal of around S9+60dB - 'end-stop' on the S-meter - so this was very impressive performance indeed.

The maximum power output of 5 watts, when used from a 13.8V DC source, is more than adequate for most uses and is a lot more than that provided by many comparable handhelds.

handbook

The user's manual is generally fairly clear, though there are several errors, some of which may confuse newcomers. As an example, when describing repeater operation, on one page of the handbook you are told that the repeater shift in the C-150 is initially set to 0.6MHz, but on the following page, describing how to change the repeater shift (it can be set to anything between 0.000 and 39.995MHz!), it says it is initially set to 5.0MHz. However, when I checked it, I found it was at neither of these, but 3.5MHz instead. Fortunately the C-150 does not transmit outside the range 144 - 146MHz, otherwise many beginners, and perhaps some more experienced users too, would accidentally transmit out of band. If you do attempt to transmit outside the 144 - 146MHz range, the single word 'OFF' appears in the frequency display.

One typographical error says that you should press button '3' in order to set the rig to 145MHz - in fact it is button '5', and, as mentioned above, this only works if the receiver is already somewhere between 140.000 and 149.999MHz.

The handbook says a belt clip holder and two battery cases are provided, one to hold six AA batteries and the other for four batteries. In fact there is only one battery case and the belt clip is a £3.95 option.

There is no mention of the 1750Hz toneburst in the handbook, but Waters & Stanton are now sending out an addendum sheet with every C-150 which describes how to enable this and addresses some of the other questions left by the handbook.

to summarise

Hora has another winner here: the C-150 has excellent performance, both on the receive and transmit side. The memory, scanning, dual-watch, battery-saving etc functions are no less than you would expect on a handheld costing twice as much. The only thing that lets down an otherwise excellent transceiver is the occasional lack of attention to detail in the handbook. However, what do you expect for only £99?! Far better that production money is put into getting the radio right. The Hora C-150 is the first 2m handheld available in the UK with a price of under £100 and it really is superb value for money.

The UK distributors, Waters & Stanton PLC, suggest that it would make an ideal 'second' rig, to be kept permanently in your car glove compartment or brief case. It's certainly small and light enough for the latter, and with its 5W output when powered from 13.8V, it only needs a speaker mic and mobile antenna to become a perfectly usable mobile rig which would only be a few dB down on dedicated mobiles costing four times the price.

For the budget-conscious amateur (and who isn't these days?) who wants a full-featured 2m handheld, the Hora C-150 should please everybody.

The C-150 comes complete with a 12-month warranty and is available from Waters & Stanton PLC, Spa House, 22 Main Road, Hockley, Essex SS5 4QS; tel: 01702 206835. Thanks to Waters & Stanton for the loan of the review model.

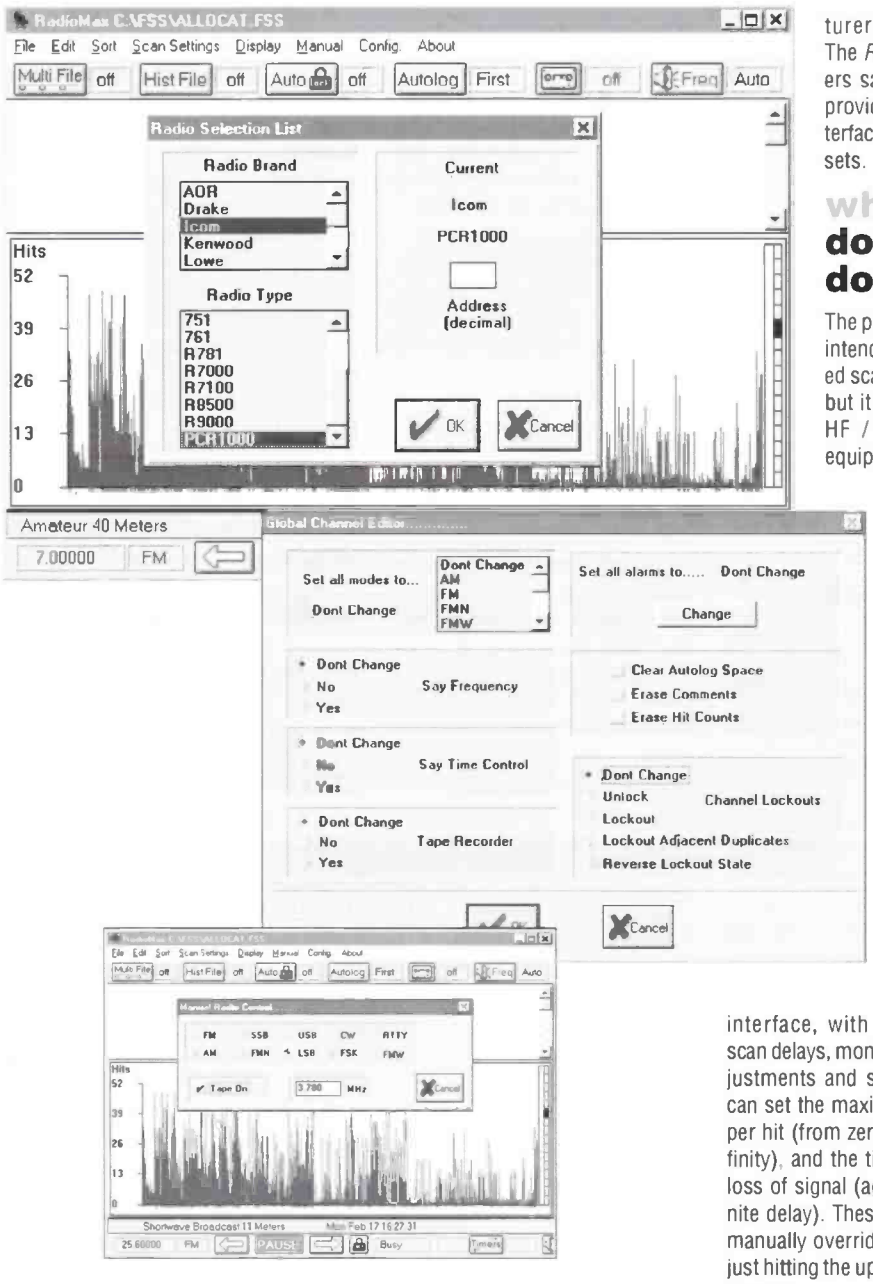
hora c-150 specifications

General		
Frequency range		144.000 - 145.995MHz
Operation voltage range		5.0 - 16.0V
Rated voltage		7.2V
Current drain	TX 13.8V High	approx 950mA
	TX 13.8V Mid	approx 650mA
	TX 13.8V Low	approx 350mA
	TX 7.2V High	approx 650mA
	TX 7.2V Mid	approx 650mA
	TX 7.2V Low	approx 350mA
	RX Standby	approx 35mA
	RX Save	approx 13mA
	RX APO	approx 5mA
Dimensions (inc battery case)		124H x 55W x 31Dmm
Weight (inc battery, antenna)		300g
Transmitter		
Output power 13.8V		High approx 5.0W
		Mid approx 2.5W
		Low approx 0.35W
Output power 7.2V		High approx 2.0W
		Mid approx 2.0W
		Low approx 0.35W
Max freq deviation		±5kHz
Spurious		Less than -60dB
Receiver		
Intermediate frequencies		1st IF 21.80MHz, 2nd IF 455kHz
Sensitivity (12dB SINAD)		Less than -117dBm
S/N (at 1.0μV)		More than 30dB
Output (10% distortion)		250mW across 8Ω load

review

RadioMax Radio Control

Computer rig control is nothing new, but this program provides



Many amateurs, including myself, like to listen a lot more than they actually transmit. Computer control of your radio gear is nothing new, but here's a program that can do your listening for you, whether you're next to your rig or not, and even record what you've missed if you wish.

The program in question is *RadioMax* by Future Scanning Systems in the USA, and it can control a number of receivers and transceivers. These include the AOR 2700, 3000, 3000A, 3030, 500 and 7000, the Drake R8 and R8A, the Icom R10, R71, R72, R726, R735, 751, 761, 781, R7000, R7100, R8500, R900 and (interestingly) the PCR-1000, any Kenwood radio, the Lowe HF-150, Uniden BC-895 when fitted with the Optoelectronics RS-232 interface, and the Watkins Johnson HF-1000. It'll also interface with the Optoelectronics 456, 535, Tracker, Scout and Xplorer detectors. On equipment not fitted with a dedicated RS-232 port you'll need a suitable interface unit, of which several are typically available (eg the Siskin 'Multi-CAT' as well as those from the manufacturers themselves). The *RadioMax* suppliers say they can also provide a suitable interface for a number of sets.

what does it do?

The program is mainly intended for channeled scanning receivers, but it will also control HF / VHF all-mode equipment. I tested it with a Lowe HF-150 receiver fitted with the IF-150 RS-2323 interface for PC control. Here's a quick summary of the program's features.

In 'scanning' use it allows a scanning speed in excess of 1000 channels per minute, depending on the radio and interface, with programmable scan delays, monitor time limit adjustments and scan speed. You can set the maximum listen time per hit (from zero seconds to infinity), and the time to wait after loss of signal (again zero to infinite delay). These delays may be manually overridden any time by just hitting the up / down or pause buttons.

A tape recorder with remote control capability can also be controlled by *RadioMax*, programmable on a channel-by-channel basis. A loss of signal for more than a second or so will stop the tape until the signal resumes, to effectively and usefully reduce 'silent' tape time.

If your PC is fitted with a sound card, the program can announce the frequency and time whenever it finds an active signal, and any combination of these may be programmed by the user for each channel. This 'time stamping' can be quite useful if you're using the program to listen in your absence, as you can use one track of a stereo recorder for the time / frequency, the other for the received audio.

A graphic screen constantly displays scan activity, with information on current frequency, locked out channels, number of hits, current squelch status etc. The height of each individual bar on the graph shows you the number of 'hits', ie occurrences of activity, on each channel, and you can scale the height of this either manually or let the program do it automatically for you.

On-screen buttons let you pause, single step, skip or reverse the direction during scanning. To find new activity on a band, an 'Autolock' mode can automatically lock out channels after they are first found and stored, to allow more in-depth searches over a given band without the receiver halting on previously-found channels.

installation & hardware

The program runs under Windows 3.1 or 95, and needs at least a 486 PC with 8Mb of memory. For the speech facility to function you'll also need a sound card, but the program will work fine without one. Depending on the radio an interface will of course also be needed, and the program supports com ports 1 to 8. For radios that use the CI-V format (ie most Icom rigs) an interface that has squelch detect and preferably tape recorder control capability may be required, like the OptoLinx CX-12 unit, a modified Icom CT-17 or a home-built type.

Installation is by clicking on the usual 'SETUP.EXE' file under Windows File Manager or Explorer. During installation the program will place files only in the directory you specify, and it'll only add a program group to Windows if you specify it, it won't change any Windows system to 'screw up' your PC for other programs. The program collection comes on two 1.44Mb disks, one containing the program itself and the other containing the user manual in both Microsoft Word and ASCII text formats.

Scanning Software

some really powerful features, as Chris Lorek, G4HCL, finds out

in use

To give a representative view for *Ham Radio Today* readers, I tested the program using a Lowe HF-150 multimode HF receiver with the optional IF-150 interface lead. Unfortunately the program wouldn't control any of the Yaesu radios I use in my shack - a pity, although if used with something like an Icom receiver with a suitable interface equipped with signal level detection it would have been even more powerful.

Setting the program to a communication speed of 1200 baud, and with my interface lead plugged into the HF150's keypad jack on the receiver's rear panel, the program gave perfect control of the radio, albeit 'one way', as reverse signal level and squelch wasn't supported by the set.

I used the program to control the receiver in 1kHz and 5kHz steps around the broadcast bands, the program giving useful control in these up / down steps that aren't otherwise supported by this receiver. Another useful facility was that I could scan around a number of frequencies, including 10m FM and LF band SSB net channels listening out for activity, with a quick button press on the PC's keyboard to stop the scan when a signal was found. This was quite handy as the program added these functions to what otherwise wasn't available on the receiver as standard.

The software provides a powerful facility and is excellent, for example, in finding little-used frequencies, such as short-duration broadcast transmissions, or for spotting short-lived Sporadic E openings on VHF, as well as for generating lists of channel occupancy.

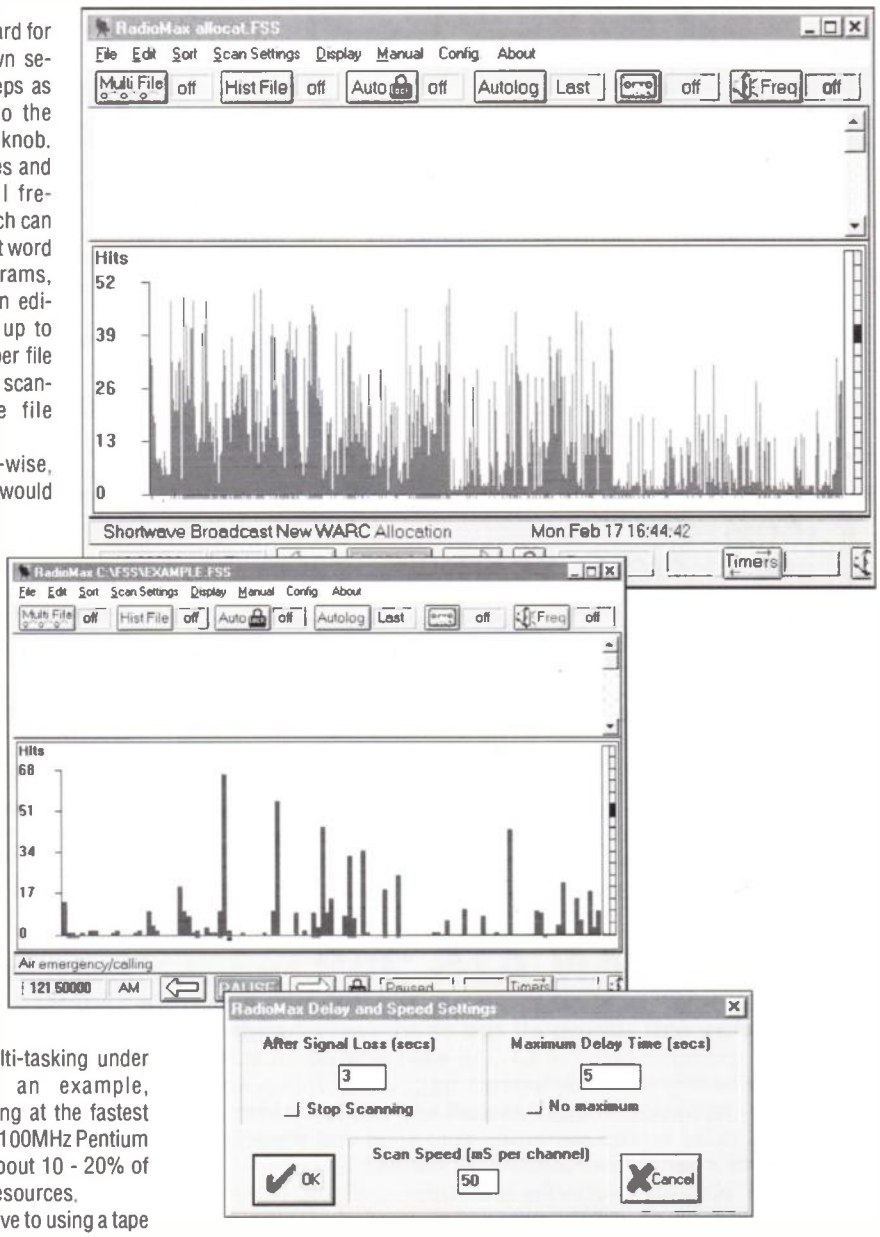
The *RadioMax* program contains a database of US-based bandplans across the entire HF, VHF and UHF spectrum, with the program indicating the frequency and bandplan allocation at each frequency you're tuned to. You can also add your own, which I did with my favourite HF frequencies. Using the mouse I could then 'point and shoot' to a given frequency on the displayed graph, and use the left / right cursor keys on the PC keyboard for tuning in my own selected tuning steps as an alternative to the set's front panel knob.

RadioMax uses and generates ASCII frequency files which can be edited by most word processor programs, or by the built-in editor. It supports up to 5000 channels per file and multiple file scanning for large file arrays.

PC hardware-wise, in use I found it would run fine using a 486SX25 running Windows 3.1, and a 486DX2/66 and P150 PC both running Windows 95. The amount of processor power and memory available in your PC will let you to run more programs at the same time as *RadioMax*, which is of course fully multi-tasking under Windows. As an example, *RadioMax* running at the fastest scan speed on a 100MHz Pentium machine uses about 10 - 20% of the machine's resources.

As an alternative to using a tape recorder, I found that, by using a program such as 'All Day Audio Recorder', I could simply use the PC's sound card to also record received audio to hard disk in compressed format, the frequency / time on one channel and the audio on the other. When I came back at the end of the day, I could then easily listen to what I'd missed.

Altogether, I found *RadioMax* a useful program for remote control of my radio, and I'm sure it'll be of even greater use for VHF / UHF scanning of various bands such as airband, marine, PMR etc, where individual country's laws allow this (which the UK's law currently doesn't).



availability

The complete *RadioMax* software, with example scan files and on-disk operator's manual is available for US $45 plus $10 P&P outside the US from Future Scanning Systems, 6105 SE Nowata Road, Bartlesville, OK 74006, USA, tel: +1 918 335 3318; fax: +1 918 335 3328, or on the web at: www.futurescanning.com Visa and Mastercard are accepted.

If you'd like to try *RadioMax* before buying it, there was an evaluation version of *RadioMax* on the front cover CD-ROM with last month's issue of *Ham Radio Today*.

The program is fully functional in every respect, apart from the fact that it will stop after about 30 minutes, although you will have more time available to save any data that has been accumulated, and you can restart the evaluation program as often as you like. If you have a radio connected, just use the configuration menu to set the serial port and radio parameters.

Our thanks go to Future Scanning Systems for the provision of the software for review.

1686 Bristol Road South
Rednal
Birmingham B45 9TZ

SRP TR

(COM213)
100 CHANNEL SCANNER

A high-specification scanner offering 100 channels in 10 banks, with 1 Priority Channel in each bank. For speed and ease of use it offers Jetscan, which can scan 100 channels per second, and also Jetsearch, which can search at up to 100 steps per second. It also features progammable band search, lock-out for up to 10 frequencies, channel look-out, 2 second scan delay, data noise/birdies skip, a key lock and a green back-lit display. 66-88, 108-174, 406-512, 806-956.

£119.99 + £5 P&P.

(COM102)
10 CHANNEL SCANNER

This state of the art 10 channel scanner is fully programmable and can receive a variety of PMR communications. It is robustly designed and offers a full frequency LCD display for ease of use. Also features an in-built circuit for recharging Nicad batteries. 66-88, 137-174, 380-512.

£49.99 + £5 P&P.

(COM205)
400 CHANNEL SCANNER

The B111 is the last word in programmable scanners. A free standing desk top unit covering nine radio bands in the 25-512MHz and 806-1300MHz ranges. Operates from AC mains or car cigar lighter via suitable adaptor. It incorporates a microprocessor avoiding the need to change crystals and gives special functions such as scan delay, memory back-up, priority channels and many more.

£249.99 + £5 P&P.

(COM215)
200 CHANNEL SCANNER

A highly-featured desktop scanner offering 200 channels arranged in 10 scanning banks, with one Priority Channel in each bank. For ease of use it offers Turbo Scan at 100 channels per second max with Autosort for maximum scan speed and Turbo Search at up to 100 steps per second. Other features include direct search programmable band search, auto station program mode, lock-out for up to 10 frequencies, manual frequency sort, programmable auto-recording and optional CTCSS tone squelch. The unit is powered by AC mains or 13.8Vdc. 66-88, 108-174, 216-512, 806-956.

£219.99 + £5 P&P.

SANGEAN ATS 909 FM-Stereo/MW/LW/SW PLL Synthesized receiver

The ATS-909 is a continuously tunable receiver from 153kHz-29999kHz. This receiver is capable of receiving and tuning all the short wave bands and any stations in between

- 307 memories (261 in SW, 18 each in MW/FM, 9 in LW plus priority station)
- Five tuning methods – direct frequency tuning, auto scan, manual tuning, memory recall and rotary tuning
- ATS (auto tuning system) – auto scan and preset in priority of signal strength in FM/MW/LW bands
- E2 PROM for memories back-up
- FM stereo via earphones
- 29 pages SW stations name memory, 9 memories in every page
- Automatic search strongest signal station within SW station pages
- SSB (USB/LSB) 40Hz/step on fine tuning
- AM RF gain control
- Built-in 42 world cities time plus D.S.T. device
- 3 individual timers
- Adjustable sleep timer
- Alarmed by radio or HWS (Humane Wake System) buzzer
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- AM wide/narrow filter and FM mono/stereo selector
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- RDS (Radio Data System) on PI, PS and CT for station name and clock time
- Size in mm: 215 x 133 x 37.5
- Weight: 850g without batteries

£169.95 + £5 P&P.

★ Free batteries
★ Free SW frequency book
★ Free SW antenna
★ Free headphones

RADING

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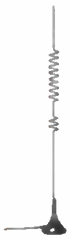
Super Syncro 1100 – 1100mAH Nickel Metal Hydride (NiMH) AA size rechargeable cells. No memory effect. Twice the capacity of NiCds. **£3.00** inc P&P.

Skyscan DX-V1300 base disconne – Most disconnes only have horizontal elements and this is the reason that they are not ideal for use with a scanner. Most of the transmissions that you are likely to receive on your scanner are transmitted from vertically mounted antennas. The DX-V1300 has both vertical and horizontal elements for maximum reception. Constructed from best quality stainless steel and aluminium and comes complete with mounting pole. **£49.95** + £3 P&P.



Wideband mini-mag antenna – Wideband (25-1300MHz) receive antenna featuring super strong miniature magnet and coax cable terminated in BNC connector. **£29.95** + £3 P&P.

Roberts R861 – compact digital world band receiver – Fully featured 153kHz to 30MHz (AM, SSB) and 87.5MHz to 108MHz (FM) portable digital world band receiver. Features include RDS, world time clock, 306 memories, RF gain control, direct frequency entry. Comes complete with free PSU, antenna, frequency guide and case. **£199.00** + £5 P&P.

Uniden Bearcat 9000 XLT – AM/FM/WFM switchable base station HF/VHF/UHF scanning receiver. Covers 25-550 and 760-1300MHz. Features 500 memories, auto sorting, backlit orange LCD display. Scan rate of 100/300 channels/sec. **£249.95** + £10 P&P.

Yupiteru MVT-7100 – All mode switchable handheld HF/VHF/UHF scanning receiver. Covers 0.5-1650MHz. Features 1000 memories, over 500 pass memories, 10 limit search banks, 12 step sizes. Comes complete with earpiece, belt clip, wrist strap, rechargeable batteries, PSU, in-car adaptor and telescopic antenna.

£199.99 + P&P. (10 only)

Skyscan Desktop Antenna Model Desk 1300 disconne – Built and designed for use with scanners. Coverage: 25 to 1300MHz. Total height 36" and 18" wide at widest point. Comes complete with 4m of RG58 coax cable and BNC connector. High performance antenna, ideal indoor or as a car antenna when vehicle is stationary. **£49.00** + £3 P&P.

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Commtel COM 206 – AM/FM handheld VHF/UHF scanning receiver. Covers 66-88MHz (FM), 108-137MHz (AM), 137-174MHz (FM), 380-512MHz (FM). Full civil airband coverage, comes complete with free case and rechargeable batteries. **£129.95** + £5 P&P.

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All in a Day's Work

This month Harry Leeming, G3LLL, looks at a newer rig than usual, the Y... equipment on fo...

I don't see much of the Yaesu FT-990, as up to now it seems to have been extremely reliable, but I recently had a 'simple' fault, which I found very confusing.

Matthew brought his rig in with the complaint that he had hardly used it, that it would only give about 2 watts out, and that as he had only had it a few months it was under guarantee. A quick check of my records showed that 'a few months' was actually just short of two years (I never cease to be amazed how customer's memories of time seem to be compressed when complaints are made about equipment, and how they stretch when the complaint is about how long repairs have taken!)

Testing the rig showed that it was faulty, and that the transmit signal was getting lost in the pre-driver stage, Q1022 on the RF board (see **Fig 1**). Q1022 should have been amplifying the signal, but there was very little gain, and the RF at the output, when measured with a diode probe, was not much greater than that at the input.

The first thing I did was to check all the voltages, but these were as indicated. I then took out Q1022, and tested this, but it was OK. Other parts such as the capacitors and the RF chokes were tested by substitution, but all to no avail; what fault would not upset the DC conditions, and yet kill the gain?

Eventually I found that R1132 had gone up in value to around a hundred ohms. This resistor is intended to stabilise the stage gain by providing RF feedback. Whilst it had not gone high enough to alter the DC operating conditions, it was producing almost 100% RF negative feedback. The offending component was a typical microscopic surface-mounted resistor, and when I had replaced this with a standard 1/8 watt component, power output returned to a full hundred watts on all bands. Apart from grumbling about the modest bill, Matthew was then happy to get his rig back.

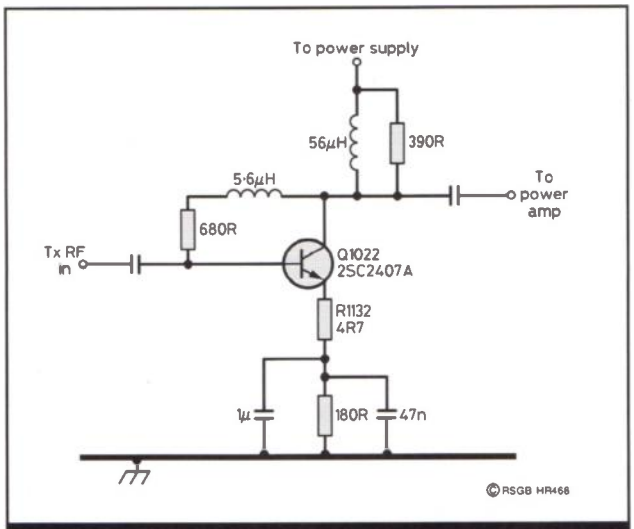

Fig 1: FT-990 pre-driver stage.

qrp with ft-990

John wanted to do something different, and so he decided to try a little QRP operation. He had quite a bit of fun with his FT-990, but was disappointed to find that its minimum power output was about 10 watts, and so he asked if I could do anything.

With most solid-state rigs it is possible to turn down the power by applying a negative voltage to the ALC circuit, but John didn't like that idea. I looked at the circuit and found that a 1k **ohm** resistor is connected in series with the power level control (R1166 in Yaesu's circuit diagram). Short circuiting this increased the range of the power control, and enabled the power output to be set as low as 2.5 watts. Doing this modification also slightly altered the power out setting, and so the ALC pot (VR1017) was reset to give 100W output at the power control maximum setting.

Since sorting out John's rig I have carried out the above modification on several FT-990s. The only snag is that the auto ATU will not tune at the 2.5 watt setting, which is possibly why Yaesu fitted the resistor in the first place.

cheap morse practice oscillator

I am often asked for a cheap Morse practice oscillator. My usual reply is to advise the enquirer to use their HF receiver. The circuit shown in **Fig 2** costs practically nothing to make, and works fine. All that is needed to produce the tone, is to tune the receiver into a steady carrier from a broadcast station with the BFO on until the desired beat note is produced. The modulation from the broadcast station does no harm - in fact it helps one to learn Morse under more realistic 'on air' conditions.

an eventful visit

David wanted a new boot mount for his mobile aerial, and left his wife sat on a chair in the shop while he went outside to see if what I had would fit. A few minutes later he was back. "Well, I've some good news and some bad news. The mobile mount fits perfectly, but I have locked my keys in the car boot."

While they drank coffee and waited for the RAC rescue service, David told me that he was rather accident-prone. He had recently erected a tower, which he had decided to bolt to the house wall. Rather than use screws and expansion plugs he had started to drill through the full thickness of the wall, so as to be able to use long bolts and nuts. Half way through his drill suddenly became wet and warm. By the time he had turned off the water, and the hot water cylinder had drained itself, tower erection had to be suspended for plumbing and redecorating. Shortly after this event he went to a rally and spotted a special offer on metal and pipe detectors - he bought one!

'faulty' mobile whip

"This 80 metre whip you sold me is faulty, I can't get the SWR down. It can't be my mag mount or coax because my CB antenna works perfectly." Jack was not happy, but it was far from the first time I had heard this story.

Not everyone seems to realise that a mobile whip is only half of an antenna system. Loaded quarter-wave antennas need a ground plane, and in the case of the mobile variety this is the car. The outside of the coax must somehow

All in a Day's Work

Zaesu FT-990, and gives advice on what to do if you haven't turned your r 10 years!

be connected to the roof of the car via a low reactance. In the case of a 10 or 11 metre whip the capacity coupling of a small mag mount is just about enough, but on the lower frequencies the reactance of this capacity is too high. I told Jack that either he would have to make a short direct connection from the mag mount to the metal of the roof, or use a much larger mag mount. To prove my point I pointed to the large three magnet Pro-Am mag mount that I use myself, and invited him to try it. He did, and the whip tuned up perfectly.

A fuse lamp should always be used on a signal generator if it is to be used in the vicinity of radio transmitters. It will reduce the output slightly, but this can easily be measured, and allowed for.

switching on old gear

Due to the pressures of business, Geoffrey had had to give up ham radio, but now he had taken early retirement. His first move was to rescue from the loft his Trio TS-515, which hadn't been switched on for over 10 years. Having been warned by a friend about the dangers of starting to use equipment that had not been energised for a long time, he came in for an opinion.

burnt sig gen

We all make mistakes, some are more expensive than others, but fuses can save a lot of time and trouble, in places other than power leads.

It was not long after starting to service ham radio equipment that I keyed a mic, and smelt burning. I had transmitted into my signal generator and had burnt out the resistors in the attenuator. However careful one is, it is pretty well impossible to avoid doing this at some time or other, but now at least I don't do any damage. The output of my generator feeds to what was a small cheap CB SWR meter. This has had one of the SO-239 socket centre pins disconnected, and a small 100mA pilot lamp is so'dered in series. If I make a mistake now, I only have to replace the lamp fuse.

The main enemies of unused equipment are dampness, corrosion, and poor insulation in transformers and electrolytic capacitors. Switching equipment on whilst it is below par in these departments can cause a great deal of damage. I advised Geoffrey to remove the cases and leave the rig somewhere warm such as an airing cupboard for about a week, and then once the dampness had disappeared, to brush out the loose dust. The next move was to switch the rig on when connected to an AC mains input of about 20 - 50 volts, and then to gradually increase this up to the full 230 volts over a few hours. Doing this would reform the insulation in the high voltage electrolytic capacitors, whereas applying the full mains voltage would be likely to blow them.

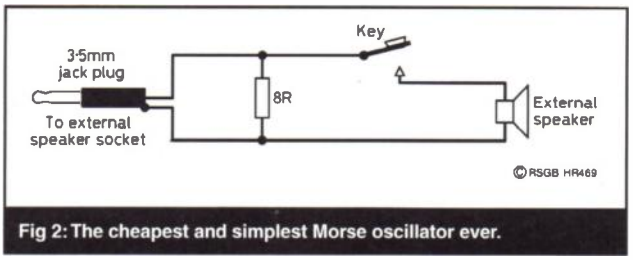

Fig 2: The cheapest and simplest Morse oscillator ever.

Geoffrey carried out this procedure using a variable voltage transformer he had borrowed from a friend, and all went well. The set still needed bringing into my workshop for a general clean-up of controls, switches and relays, and a peaking of the alignment, but at least the basic work was done, and it had not gone off with a bang.

be legal!

The Amateur Radio Licence requires that you check that you are not causing interference. One would presume that the authorities are even more concerned with protecting the emergency services, than they are in protecting the broadcasting services, and so under the conditions of our licence we have to carry out tests to ensure that we do not interfere. We must not of course listen to the conversations of the emergency services, but what better way is there of checking that we have no spurious emissions on the essential services' frequencies, than to tune a receiver to these frequencies while we are transmitting? Remember even a spectrum analyser is basically a receiver with automatic tuning, and on many of these you can actually demodulate transmissions.

This is not of course the only use of a scanner. Have you ever been trying to trace a fault and wondered if an oscillator was running, and was on the correct frequency? I confess, that to me fault finding in frequency synthesisers is extremely confusing. Chasing missing frequencies, and trying to understand how the whole thing works is somewhat of a nightmare. Fortunately about half the faults are caused by an oscillator which has either stopped, or has gone way off frequency. Poking about with a frequency counter is not always that productive as either you can't find the necessary test point, or one finds that connecting the counter upsets the operation of the circuit. (Or a test lead slips and it blows up!)

I find that the 'rubber duck' of my trusty AOR8000 can just be held near to the various oscillators, and when it is in the SSB mode it tells me in an instant as to whether they are operating and on frequency. Its frequency readout is not of course as accurate as a counter, but at least I know that making the test does not alter the operating conditions. If I want to make a 'spot on' measurement I simply check the AOR against the nearest harmonic of my crystal calibrator, and then add or subtract a few hundred Hz as necessary.

Distortion on transmit? You can play around with two-tone generators until the cows come home, but they still won't tell you what a rig sounds like. I still find that the best way to assess quality is to listen on a separate receiver using good-quality headphones.

I find that by poking my scanner antenna into various stages, after selecting the appropriate mode and frequency, I can check the audio quality right from where the double sideband signal is generated at the balanced mixer. I then follow it through the IF and RF stages, until I come to the driver and PA stages. To avoid overloading the scanner it is sometimes necessary to disable the rig's power amplifier, but even if one has to do this, the scanner provides a very simple method of finding out where the drop off in quality starts. You have to be good at talking to yourself of course, but most ham operators are quite practised at this.

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Private mobile radio (PMR) equipment rapidly appears on the surplus market and can be acquired very cheaply at rallies. Often it can be converted to amateur bands quite easily and without expensive test equipment. This book tells you what to buy and how to convert it.

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Guide to the theory and practice of Amateur Radio reception and transmission on the VHF / UHF bands including antennas, EMC, propagation, receivers and transmitters, together with constructional details of many items of equipment. One of the most complete guides around for VHF / UHF operators. See the review in *Ham Radio Today* December 1997!

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VHF / UHF DX is one of the growing points where Amateur Radio shows that it still has a real future - that's what this book is all about. See review on page 10.

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1st Edn, 76 pages **£5.74 (plus P&P)**

Radio Amateurs Examination Manual - NEW

by John Case, GW4HWR, and Hilary Claytonsmith, G4JKS

This edition has been completely revised to take account of the changes in the RAE. In addition, it now incorporates many sample questions originally published in How to Pass the RAE. See review in August issue.

16th Edn, 172 pages **£12.93 (plus P&P)**

Practical Wire Antennas

by John Hey, G3BDQ

A 'down to earth' guide to the construction of many different types of wire antennas, ranging from simple dipoles to ingenious multi-wire systems. Boring and unneccessary theory is kept to a minimum - instead the author shares his years of experience, offering advice for beginners and enthusiasts alike.

1st Edn, 96 pages **£8.92 (plus P&P)**

Practical Receivers for Beginners

by John Case, GW4HWR

Contains a selection of easy-to-build receiver designs suitable for amateur bands, together with simple 'fun' projects and test equipment. The theory and practice of receiving techniques is outlined to help with understanding the circuits presented. This book is of value to anyone who is building receivers for the first time, or who is considering moving up to microwaves.

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by Ross Bradshaw

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RSGB IOTA Directory and Yearbook 1998 / 99

edited by Roger Balister, G3KMA, and Martin Atherton, G3ZAY

The Directory lists thousands of islands group by continent and, new this year, indexed by prefix. It also details the award rules and contains the application forms needed. See review in July issue.

1998 Edn, 112 pages **£8.95 (plus P&P)**

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rallies

11 October
South Devon Radio Club 'Computercations 98' Radio & Computer Rally, Hillhead Camping, Kingswear Rd, Hillhead, Brixham. Details: G7FDC, tel: 01803 522995; or G4SSD @ GB7IPN.

North Wakefield Radio Club Radio & Computer Rally, Outwood Grange School, Potovens Lane, Outwood, Wakefield. Traders, bring and buy, special interest groups, Morse code tests on demand. Doors open 11.00am (disabled visitors 10.30am). Admission £1.50 (children 14 and under free). Details: Dave, G6TVA @ GB7SYP, tel: 01226 202151.

18 October
North Monaghan Hobby Radio & Computer Exhibition, Four Seasons Hotel, Monaghan. Doors open 11.30am - 4.30pm. All the usual retailers plus large displays of computer equipment and bring and buy. Details: Stephen Hand, GI7UIM / EI4FKB, tel: 013657 51479 (evenings) or e-mail: Stephen.hand@virgin.net

Hornsea Amateur Radio Club rally, Floral Hall, Hornsea, East Yorks. Trade stands, bring and buy, restaurant, licensed bar. Doors open 11.00am (disabled visitors 10.30am). Admission £1. Talk-in 145.550MHz. Details: J R Thompson, G0TPS, tel: 01964 532588.

24 October
Carrickfergus Amateur Radio Group annual rally, Downshire School, Carrickfergus, starts at 12 noon. Talk-in 145.550MHz. Details from GI8WBZ.

Rochdale QRP Convention, St Aidan Church Hall, Sudden, Rochdale (just off Manchester Road). Doors open 10.00am.

25 October
Wyton Wireless Rally, RAF Wyton, 4 miles from A14 in Cambridgeshire, 7 miles from A1. Accommodation in huge aircraft hangar, with power available. Refreshments and RAF security. Doors open 9.00am. Details from 1220 (March) Sqn ATC, Gas Rd, March, Cambs PE15 9HY; fax: 01354 660114.

1 November
Great Northern Hamfest, Metrodome Leisure Centre, Queens Road, Barnsley, 2 miles from M1 junction 37. Trade stands, bring and buy, components, kits, special interest / repeater groups, RSGB bookstall and membership information stand, Morse tests on demand (noon to 3.00pm). Free parking, good disabled access. Talk-in 145.550MHz. Details: Ernie Bailey, G4LUE, tel: 01226 716339; mobile: 0836 748958 between 6.00pm and 8.00pm.

Tir Conaill Amateur Radio Society annual radio rally, Co Donegal, Ireland (no venue announced). Trade stalls, bring and buy, auction, Morse tests, refreshments, bar. Doors open 12 noon. Note that the club's annual dinner dance takes place on 31 October; details of both events from Gerald Dykes, tel (from UK): 00 353 72 52598.

North Devon Radio Rally, Holsworthy Memorial Hall. Bring and buy etc. Doors open 10.00am - 4.00pm. Details: K J Nicholls, G8MXI, tel: 01409 241202.

Tyne & Wear Repeater Group annual auction, Great Lumley Community Centre, near Chester-le-Street, Co Durham. Doors open 10.30am for booking goods in, auction starts 12 noon. Details: Brian Corker, G8FBQ, tel / fax: 0191 388 2913.

7 / 8 November
North Wales Radio & Electronics Show, North Wales Conference Centre and New Theatre, Llandudno Promenade. Doors open 10.00am, admission £2.00 (children under 14 free). Over 65 exhibitors, large bring and buy. Details: Muriel Mee, GW7NFY, tel / fax: 01745 591704, or Greg Robbins, GW7NAU; tel: 01492 878288.

8 November
Midland Amateur Radio Society Birmingham 10th Radio & Computer Rally, Stockland Green Leisure Centre, Slade Road, Erdington, Birmingham. Doors open 10.00am - 4.00pm. Admission £1. Trade stands, local clubs, special interest exhibits, free draw. Details: Peter Haylor, G6DRN, tel: 0121 443 1189, traders please contact Norman Gutteridge, G8BHE, tel: 0121 422 9787.

14 November
AMS (All Micro Show) '98 Computer & Electronics Show, Bingley Hall, Staffordshire Showground, Weston Rd, Stafford (A518 Stafford - Uttoxeter Rd). Trade stands covering radio, computing and electronics, large bring and buy. Doors open 10.00am - 4.00pm. Details from Ray Gamble or Sharon Alward at Sharward Promotions, tel: 01473 741533; e-mail ray@sharward.co.uk, or see www.computerfairs.co.uk

22 November
Bishop Auckland Radio Amateurs Club rally, Spennymore Leisure Centre (*new venue*). Radio, computer and electronics dealers, bring and buy. Good parking and easy access for disabled visitors. Morse tests on demand. Lots to do at the leisure centre for family members! Doors open 11.00am (disabled visitors 10.30am). Admission £1 (under 14 free of charge with adult). Talk-in 145.550MHz. Details: Keith Hopps, M0BLN, tel: 01388 601401, mobile: 0374 417660.

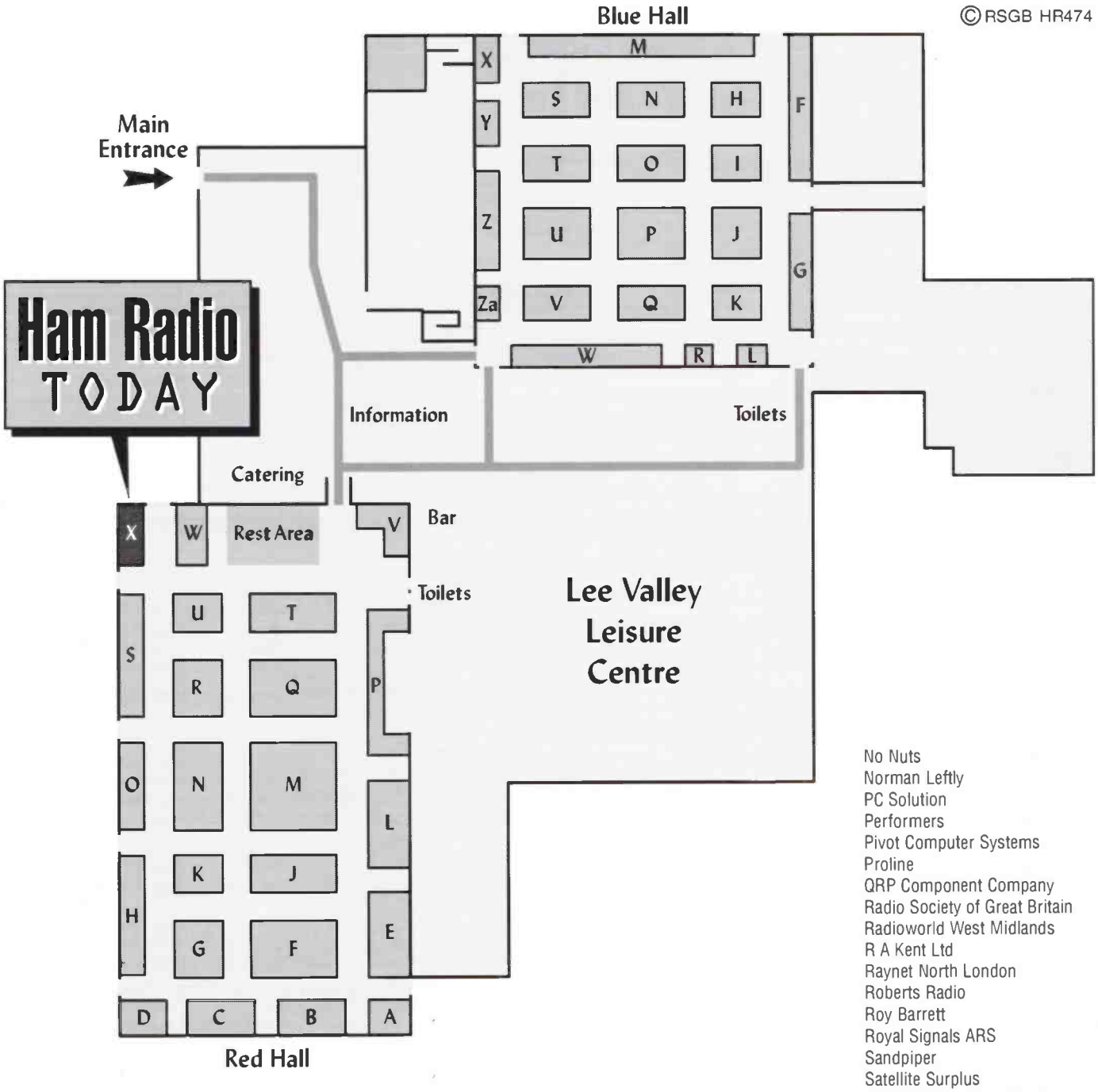
Bridgend & District Amateur Radio Club Radio & Computer Rally, Bridgend Recreation Centre. Complete radio / computer systems, software, electronic components, second-hand equipment, bring and buy. Restaurant and bar. Other facilities include indoor swimming pools. Doors open 10.30am (disabled visitors 10.15am). Talk-in 145.550MHz. Please note that due to extensive road works in the town it is recommended you approach from M4 junction 35, from where there will be signposts to the rally. Details: Maurice Randall, tel: 01656 864579.

West Manchester Radio Club Red Rose Rally, Horwich Leisure Centre, Horwich, Bolton, off M61 junction 6. Usual stands, bring and buy just £2 to enter and no sales fees. Doors open 11.00am (disabled visitors 10.30am), cost £1.50 (£1 OAPs). Details from Bob Lowe, G0FRL, tel: 01204 494308.

Coulsdon Amateur Transmitting Society November Bazaar, 4th Purley Scout Group, access via public car park in Lion Green Road, Coulsdon, Surrey. 10.00am - 1.00pm, more information at www.geocities.com/SiliconValley/Lab/7009

To include your rally in this section, please make sure you send us details of your event in time: the deadline for the January issue is 10 November; for the February issue, 7 December; and for the March issue 18 January. The address for submissions is: The Editor, *Ham Radio Today* (Rallies), RSGB Publications, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE; fax: 01707 645105. We would be grateful if *Ham Radio Today* readers would ask their local rally organiser to send information on their rally to this address. If you're travelling a long distance to attend rallies, we recommend you contact the organisers of the events first, to check if there has been any changes since this magazine went to press

ham radio today event news



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Bakewell Computers
Baylin Publications
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Bill Macdonald Ltd
British Citizens Band Confederation
CD Plus Distribution Ltd
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DCB Electronics
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London Amateur Radio & Computer Show 2 Preview-

28 / 29 November

The 'summer rally' season proper is over and we are now well into the 'exhibition and convention season', with the Leicester Show in September, the RSGB HF and IOTA Convention in October and now the **London Amateur Radio & Computer Show 2** on **28 / 29 November.**

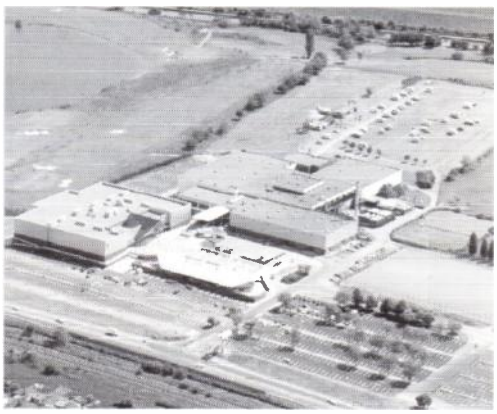
The show takes place at the same venue as the big London Show in March each year - the **Lee Valley Leisure Centre,** in **Picketts Lock Lane,** Edmonton, North London. Although only two of the three halls will be in use for the November show, the 'Red' Hall at around 18,000 sq ft and the 'Blue' Hall at 14,400 sq ft, still make this one of the biggest Amateur Radio and computing exhibitions in the country.

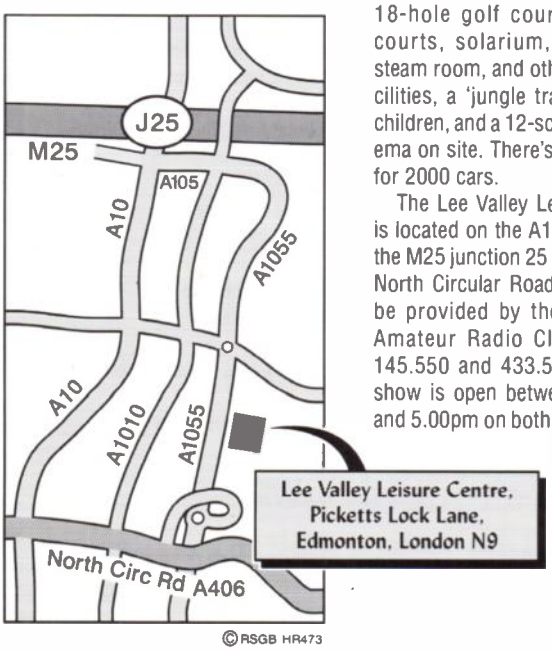
At the time of going to press, nearly 100 exhibitors had confirmed that they would be attending the show, and these are listed opposite. ***Ham Radio Today*** will be on **Stand X** in the **Red Hall,** close to the cafeteria and rest area. Come along and have a chat when you take a break for a cup of tea. We have a larger stand than at the March Picketts Lock show, and we look forward to meeting as many readers as possible.

In addition to the trade show, you can be sure of picking up a bargain or two from the large bring and buy stand in the Blue Hall, which as usual is being organised by the Southgate Amateur Radio Club.

Other facilities include RSGB Morse code tests on demand, a licensed bar, a cafeteria in the Red Hall and the Oasis Restaurant upstairs. For other members of the family, there's a swimming pool, 18-hole golf course, squash courts, solarium, sauna and steam room, and other sports facilities, a 'jungle trail' for small children, and a 12-screen UCI cinema on site. There's free parking for 2000 cars.

The Lee Valley Leisure Centre is located on the A1055 between the M25 junction 25 and the A406 North Circular Road. Talk-in will be provided by the Southgate Amateur Radio Club on both 145.550 and 433.550MHz. The show is open between 10.00am and 5.00pm on both days and the entrance fee is £3 for adults, or £2 for OAPs and children under 14. The London Amateur Radio & Computer Show 2 is organised by Radiosport Ltd, if you require further details please give them a call on tel: 01923 893929; fax: 01923 678770; or e-mail: bookings@radiosport.co.uk





other events

9 October	RA Roadshow, Gatwick. Details tel: 0171 223 9006.
9-11 October	RSGB HF/IOTA Convention, Old Windsor, Berks, details: 01707 659015.
16 October	RSGB 144MHz CW Cumulative Contest (2000 - 2230 *local time*).
16 - 18 October	AMSAT-NA Annual Meeting and Space Symposium, at Park Inn International, Vicksburg, Mississippi, USA. Further info at: http://pages.prodigy.com/DXHF93A
17 / 18 October	Jamboree on the Air (JOTA) (all bands, 0000 - 2400UTC).
18 October	RSGB 50MHz Fixed Station Contest (0900 - 1300UTC)
18 October	RSGB 21 / 28MHz CW Contest (0700 - 1900UTC).
24 / 25 October	*CQ* World Wide DX phone Contest (10 - 160m, 0000 - 2400UTC).
25 October	WAB LF CW Contest (0900 - 1800UTC). Details from G8UYD QTHR.
30 October	RA Roadshow, Milton Keynes. Details tel: 0171 223 9006.
4 November	*Ham Radio Today* December publication date.
6 November	RA Roadshow, Perth. Details tel: 0171 223 9006.
13 November	RA Roadshow, Leeds. Details tel: 0171 223 9006.
14 November	RSGB Club Calls Contest (160m SSB / CW, 2000 - 2300).
27 November	RA Roadshow, Bath. Details tel: 0171 223 9006.
28 / 29 November	*CQ* World Wide DX CW Contest (10 - 160m, 0000 - 2400UTC).

letters

Do you have something constructive to say on the state of amateur radio today? Perhaps you'd like to put your viewpoint to the readers, get some discussion going, or give an answer to one of the issues raised? We'll pay £10 for the best letter we publish each month (paid 6-8 weeks following the publication date). So write in with your views to; Letters Column, ham radio today, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE or send an e-mail to hrt@rsgb.org.uk We reserve the right to edit letters for length, grammar and clarity for publication. Letters must be original and not have been sent to any other magazines, and must include name and address plus callsign if held (name and callsign will be withheld from publication if requested). Reader's views published here are not necessaily those of the magazine.

Dear Ham Radio Today,

In your September editorial you comment on the lack of feedback from readers concerning the RSGB Morse test proposals, which you suggest indicates general approval. For my part I did not respond to the *RadCom* report because it appeared to me that the RSGB was bent on persuasion, not discussion, and did not want to hear contrary views. I hope this is not also true of *Ham Radio Today*. Fortunately the RA has come up with an alternative proposal which has to be taken seriously, so the subject is open again for consideration.

In my opinion the RA proposal has much to recommend it. It protects existing CW interests, and leaves scope for the future introduction of incentive licensing, both things the RSGB fails to do. We all recognise that Amateur Radio will change, but we do not know how, or how fast, or what will be the situation in 20 or 30 years' time, when many of today's amateurs, including CW operators, and perhaps some of today's journalists, will still be active. So the change has to be managed, but not rushed.

So I would accept the main thrust of the RA proposal, but with the following modifications: the new licensees should be allowed to operate all modes, including telegraphy, but they should be excluded from the important CW DX segments in the main DX bands. This means excluding them from the bottom 25kHz of each of the main HF bands, and would be in line with the US, where these segments and reserved for Extra Class operators. Perhaps they should also be excluded from parts of the 'phone bands, again as in the US.

With regard to the 8WPM proposed by the RA, the RA probably has it right, as 5WPM is too slow to be useful, but this could be discussed. The receiving test should be carried out using correctly-spaced computer-generated Morse; the sending test should be given up altogether, as in the US.

Bernard Bale, G2ACN / KQ4U

letters letters £10 for letter of the month letters

letter of the month letter of the month letter of the month letter of the month letter of the month letter of the month letter of the month letter of the month

Dear Ham Radio Today,

As a regular reader of Ham Radio Today even before taking out a subscription I felt I must reply to your Editorial and previous letters on the Morse code debate and other important matters. I have been interested in radio since about 1955 and this has gradually increased from CB, which I still take part in, and shortwave listening. All my amateur friends kept on at me to have a go at the RAE, so in September 1996 I signed up at our local college for a course every Thursday 6.00pm until 8.30pm - which at almost 59 was a bit tough.

The first evening I thought to myself, "just what have I let myself in for?", as it was all blackboard work and maths, which quite frankly was never my best subject. I stuck it out each week, but alas three menfolk regularly missed lectures and some even fell asleep!

I took the RAE in May 1997 and although paper one was quite promising, paper two was horrid and three of us failed. After this gruelling session I said to my amateur friends, "that is that". One day, though, I read through the Novice leaflet. At first I thought it was only for younger age groups, as depicted by the illustration, but on a further read I woke up to the fact this was just right for me, as it showed construction work was involved, which I had badly wanted to do with the RAE course. But this does not appear to be part of the RAE course (why not?)

I was most fortunate that my Amateur Radio club had a Senior Novice Instructor and some very experienced amateurs who took over my instruction and assessment work. The whole course was one of complete enjoyment (and my mediumwave radio even won points in one of our club construction evenings). I worked really hard and completed the course in time to apply for the December 1997 Novice exam.

Here I would like to point out I had great difficulty in getting the college to accept me, as I was to be the one and only candidate. Being an outsider they put problems in my way, until my RAE tutor managed to enter me for the exam, as I had already done an internal course and exam at the college that year. Thankfully I passed with a credit and this was very exciting for me.

Since my new callsign, 2E1GKY, arrived, a new interest has opened up for me and I am able to take part in the Wednesday nets, which I look forward to. I personally think that Novices should now be allowed some use of the 2m band, as the learning curve for the Novice is almost the same in relation to the rules and regulations. My main suggested points are as follows:

1. Novices should not need to take a full RAE. It would be more enjoyable if another syllabus was made up, with some construction and assessment work, but definitely no Morse, as this is now well and truly sunk.

2. Morse code could still be kept within the amateur bands, just for those who are still insisting it stays, but we others should not be forced to learn an outdated mode.

3. City & Guilds said the new RAE would be one paper, but this has not been so as they now insist Part A must be successful to obtain the balance of the exam. What a disappointment this has been to people who thought it was to be one paper only, there's no change whatsoever. A complete con.

New people into the Amateur Radio hobby are not interested in all the dull maths and circuit diagrams as they say, "That is far too much trouble, I will just use the Internet", and how often now this is mentioned.

Mrs Anne Reed, 2E1GKY

month letter of the month letter of the month letter of the month letter of the month letter of the month letter of the month letter of the month

Dear Ham Radio Today,

I am writing to say how delighted I was to win tickets to the Royal International Air Tattoo in Gloucester [in the *Ham Radio Today* June issue competition - *Ed*]. I had planned to take my grandsons along to the show, so as you can appreciate winning the tickets was a lovely surprise.

I went to the show with my son and two grandsons. We all had a most wonderful day going around all the aeroplanes and watching all of the displays. The weather was kind to us and we did not leave until the last plane had flown over.

Once again, thank you for a marvellous day.

P R O'Connor, G4SFG

Dear Ham Radio Today,

I thought I ought to put a piece of paper in the printer and write a letter to you. I have attended two rallies of late, one was the Truck Stop at Rugby, which in my own view was not a radio rally but a computer junk rally.

The other rally was the RSGB Mobile Rally at Woburn. What a sham, what was a good rally seems to be going downhill at a fast rate of knots.

Can this be the end of rallies as we know them? I do hope not, if nothing else you can meet old friends there.

Keith Goodchild

letters letters letters

£10 for letter of the month

Dear Ham Radio Today,

As a sole practical ground for the requirement of proficiency in Morse code is almost non-existent world-wide, then the legal requirement should also no longer exist. The proposals on a Morse requirement by the RSGB and the RA seem to be extremely childish.

These are many modes in use for communication on the Amateur bands and the use of Morse to perhaps tell someone "please desist old man, you are causing QRM" would certainly not work on any of the computer-generated modes, indeed it never did.

Morse is wonderful for those who wish to use it, however, at least 80% of Radio Amateurs have no interest in using it, ever. The surveys which have been done support this statement. Replace it with another barrier? Why? The Radio Amateurs Examination, which is an evolving entity, is surely the only stairway required.

I believe most of the "we need a barrier" exponents other those licensed prior to perhaps 1980 are talking "sour grapes".

R Johnstone, GM1YGV

Dear Ham Radio Today,

As an occasional reader and non-radio ham I must say that one of the reasons for the downturn in ham recruitment must be the public perception of hams. When ham magazines publish letters debating the rights and wrongs of putting /P on your callsign it really does make you look like a bunch of anoraks. The public regard a radio ham as a loner freak who sits in the cupboard under the stairs talking via the ship's rigging of antennas on the top of his house to some equally sad person on the other side of the planet.

Now I realise that is no mean feat, for ages the mysteries of radio communications have intrigued me, and still do. I have in the past found myself in remote locations such as the Moroccan Sahara or the Transylvanian alps and would have dearly loved the knowledge that in the back of the Land-Rover is a radio that I can bounce a message home on, or radio for help if things go pear-shaped.

But this is the 1990s, not the 1890s, and hams are not the pioneers of communications they were then. Given the choice between learning Morse at 5WPM and buying a relatively expensive HF transmitter, or paying a similar amount and hiring a satellite phone for the trip, which almost any member of the group can use effectively, which would you choose?

It may be nice to communicate with people from far-away places, but I do that now with the computer I am typing on, with little special skills and inexpensive kit.

I look forward to the day when the Morse requirement goes, I may even don my best blue nylon coat with fur round the hood and join you, although then again low earth orbit communications should be on line then, and affordable iridium phones won't be far behind.

If you want to keep the number joining up, you need to make ham radio accessible, useful and relevant, whether it be talking to space stations from schools (which can of course be done by e-mail too) or offering specialised licences for expedition teams or similar, I don't know. Proposing the dropping of the 5WPM Morse test is to my mind a step in the right direction. Unfortunately, I don't have any more bright ideas, but I've thrown in my two pen'orth and I'm sure your readers will have something to say about it.

Maybe someone will give me a yell when thing have changed, assuming there is somewhere around here running a ham licence course.

John Knights

The NCDXF / IARU Beacon Network

The International Beacon Project provides one of the most useful tools for listeners and licensed amateurs alike - if you know how to use it. Steve Nichols, G0KYA, guides you on a world-wide beacon tour, with additional information from Bob Fabry, N6EK

If you can't hear anything on an amateur band it's either because there is no propagation or because there are no stations on air. While this may seem like a daft statement it is surprising just how often communication is possible on the HF bands, if only somebody tried. This was the problem that the Northern California DX Foundation (NCDXF) tried to solve back in 1970.

background

Their first beacon was designed and built by K6OJO and operated as WB6ZNL/B on 14100.0kHz. Its success led to W6QHS designing a controller box that could work in conjunction with a Kenwood TS-120S transceiver, automatically adjusting the power output as the beacon transmitted. Between 1982 and 1985 nine other beacons were built and sent world-wide, giving amateurs around the globe a propagation snapshot every 10 minutes.

The network's success led the IARU to join forces with NCDXF to build and maintain a complete world-wide beacon network. NCDXF provided the constructional skills while the IARU liaised with international organisations to provide suitable locations and to process the lengthy paperwork.

It became apparent that a network of beacons transmitting on 14100kHz was useful, but if they could be persuaded to transmit on the other HF bands as well their effectiveness would increase many fold. It was also felt that a 10-minute cycle was too long and the latest Phase III network should not only transmit on five bands, but cycle in three minutes making the whole process much snappier. In the past two years the network has been upgraded and expanded to eighteen beacons.

beacons today

At the time of writing 15 beacons are on the air, although this changes regularly and a visit to the NCDXF web site at http://www.ncdxf.org/ is required for an up-to-date picture. You won't hear the Chinese and Russian beacons as they are not yet in position and in early August 1998 VE8AT was off-air and being moved. The resulting network lets you know what propagation is like from all four corners of the world and all within three minutes!

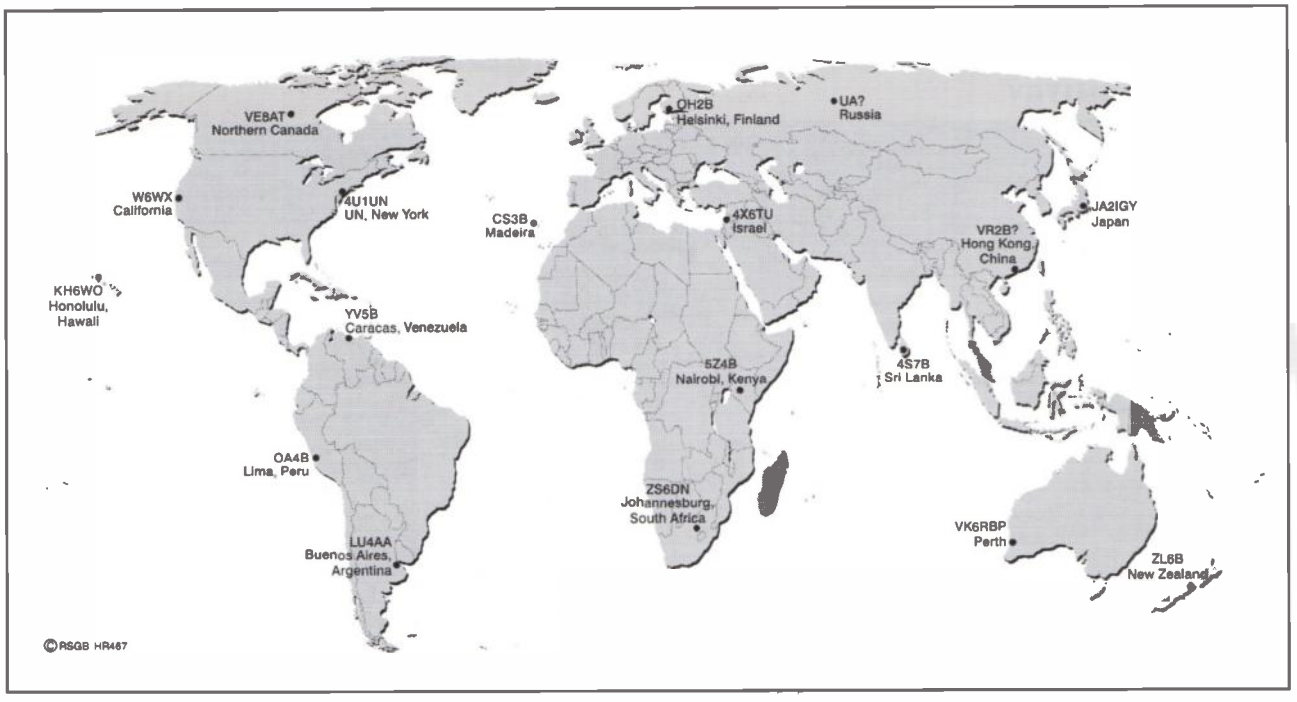
It operates on the 14, 18, 21, 24 and 28MHz bands and even a cursory listen can often take you by surprise as you find that, yes, a path is open to VK on 28MHz after all.

Each beacon costs an estimated $2500 with ongoing costs of about $1000. The equipment currently used at each site is a Kenwood TS-50S transmitter, a Cushcraft R5 vertical antenna, a Trimble Navigation Acutime GPS receiver (recently updated and renamed the Palasade) to provide the necessary timing signals and a controller unit built by NCDXF. The Cushcraft R5 was chosen as it provides no-tune coverage of all the required bands and GPS is used to provide highly accurate timing, as internal clocks were found to drift.

The network runs 24 hours a day from East and West USA, Hawaii, New Zealand, Australia, Japan, Sri Lanka, South Africa, Kenya, Israel, Finland, Madeira, Argentina, Peru and Venezuela.

do some monitoring!

To monitor the beacons you need a good HF set capable of receiving the bands previously mentioned. Antennas do not need to be monster sky hooks, though - I have done most of my 20m monitoring with a long wire and my dedicated 10m antenna is nothing more than a wire dipole in the loft (total cost about £1.20). What you also need is a very accurate watch or clock (set to the nearest second) and, if listening on 20 metres, some way of improving the selectivity of your set, either by way of filters or use of the IF



shift. This is because the 14100kHz transmissions can be completely obliterated by rogue packet operators. Although 14100kHz has been a 'guarded beacon frequency' by the IARU for some time this hasn't stopped some packeteers trampling all over it.

Getting back to the accurate clock, if it is set properly you don't even need to be able to read Morse code, as the time of transmission will tell you which beacon it is. Each beacon transmits in turn, first its callsign at a rather fast (even for a G0!) 22WPM, followed by four one-second dashes. The callsign and first dash are sent at 100 watts, while the others are sent at 10, 1 and 0.1 watts respectively as the transmit power is automatically reduced. The schedule of the beacon network is given in **Table 1**, which gives the minute and second within each hour of the start of the first transmission of each of beacon on each frequency (the actual starting time of each transmission is approximately 20ms after the nominal time, due to the keying delay of the transmitter). Each transmission is repeated every three minutes.

If you think the chances of hearing a 1 or 0.1 watt signal on HF are pretty slim I suggest you take a listen. In the UK, Finland's OH2B is usually the most reliable and can often be copied down to 0.1 watt on 20 metres.

As I researched this article on an August afternoon I could hear ZS6DN in South Africa on 28200kHz at S6 and it was copyable down to one watt with ease. To tell you the truth I had to check the callsign and time as I couldn't believe my ears. The strange thing is that there were no other amateur signals to be heard on the band, even though the 11 metre CB band sounded like the radio equivalent of a traffic jam! The day I hear KH6WO in Hawaii at 0.1 watt on 10 metres, though, is the day I crack open the champagne!

scheduling

Back to reality, the beauty of the network is that you can check propagation on any of the HF bands. The secret is in the way each beacon transmits in turn and then moves up a band to repeat the process. The easiest way to explain this is to take a live example - in this case the 4U1UN beacon in the United Nations building in New York.

Imagine it is almost midday and you are tuned to 14100kHz. At exactly 1200UTC (12:00:00) the beacon transmits its callsign, followed by the four dashes at varying power levels. At the end of ten seconds it shifts up to 18110kHz and repeats the process for a further ten seconds. Then it is goes on to 21150, 24930 and finally 28200kHz until it ends at 12:00:50. After a short break, the whole process repeats itself, starting at 12:03 precisely.

So if you hear a beacon on 14100kHz at 0, 3, 6, 9, 12, 15 and so on minutes past the hour you know it must be 4U1UN, even if you have no idea what Morse code is. If you had stuck to 14100kHz, while 4U1UN was transmitting on the other bands you might have heard VE8AT, W6WX and the other beacons going through their routines too.

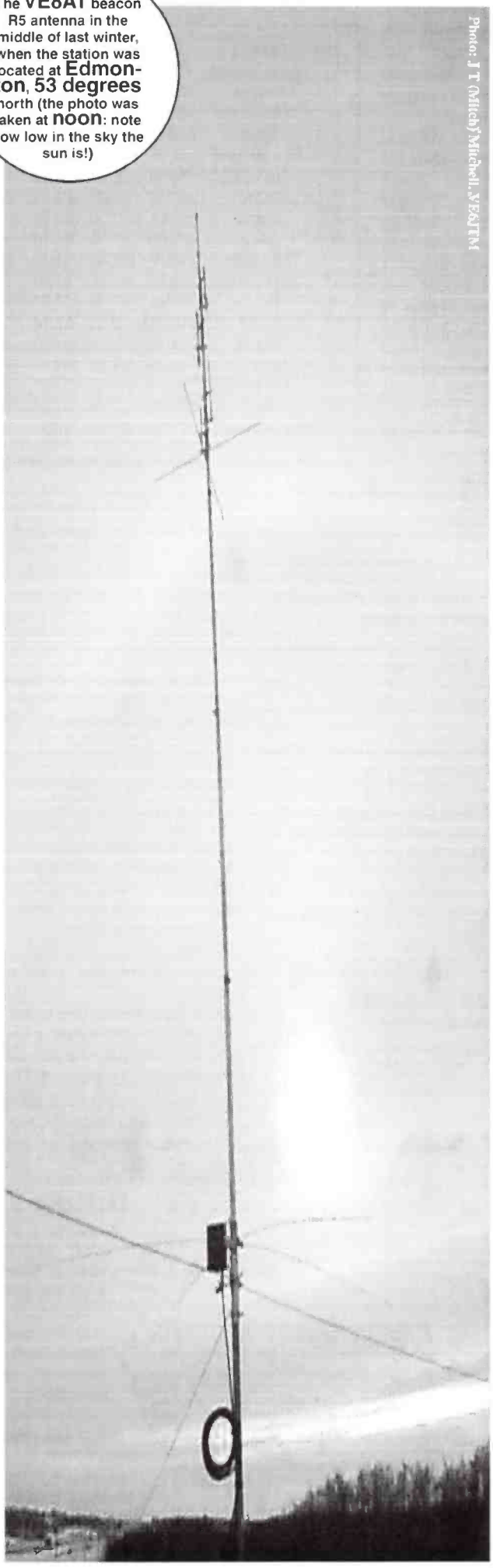
So in just three minutes you have the opportunity to hear beacons from every corner of the earth. Alternatively, and if you have programmed all the beacon frequencies into your rig's memory, you can get a snapshot of which band offers the best propagation to a particular part of the world by cycling through the spot frequencies every ten seconds.

It can be quite difficult to keep an eye on the time and on the beacon list and to ease the problem a number of PC programs have been written to simplify the process. Beacon Clock, available from a link at NCDXF web site at http://www.ncdxf.org/ not only tells you which beacon is transmitting in real time, but it also gives short-path and long-path beam directions from your QTH too.

Needless to say it does require you to set your PC clock very accurately, but at less than 300k in size it is a God-send. I use Beacon Wizard which works in much the same way and can also be downloaded via the NCDXF site. One word of warning though, many PCs are very effective HF transmitters and may blot out the weak beacon signals you are trying to listen for.

good news for dxers

The beacon network is probably the most useful tool HF DXers have at their disposal. While DX prediction programs help you to work out likely conditions, the network tells you what paths are actually open and how good those paths are. Surely this is better than being told that you have a 20%



The **VE8AT** beacon R5 antenna in the middle of last winter, when the station was located at **Edmonton, 53 degrees** north (the photo was taken at **noon**: note how low in the sky the sun is!)

Photo: J T (Mitch) Mitchell, VE8JTM

probability of a contact between G and VK on 20 metres at 1400UTC?

For instance, when XR0Y, the Easter Island DXpedition, was operating in 1995 the team was loaned a five-band beacon similar to that used in the network. The result was that hams copied the XR0Y beacon at S9 on 10 metres in San Francisco one afternoon when no other signals were present on the band. What a nice way to beat a pile-up! Other stories of beacon signals coming out of the noise for a few minutes before disappearing again are legion.

In 1997 the VK0IR DXpedition to Heard Island in the Antarctic also used a five-band beacon and listeners were asked to send reception reports to John Devoldere, ON4UN, who passed them on to the VK0IR operators. As a result, they were able to change their operating schedules to maximise band conditions. The photograph shows the beacon station on Heard Island: not a very polished installation, but it captures the flavour of expedition operation.

Slot	Country	Call	14100	18110	21150	24930	28200	Operator	Status
1	United Nations	4U1UN	00:00	00:10	00:20	00:30	00:40	UNRC	OK
2	Canada	VE8AT	00:10	00:20	00:30	00:40	00:50	RAC	Off air: moving
3	United States	W6WX	00:20	00:30	00:40	00:50	01:00	NCDXF	No output on 18 or 24 MHz
4	Hawaii	KH6WO	00:30	00:40	00:50	01:00	01:10	UHRC	No output on 18 or 24 MHz
5	New Zealand	ZL6B	00:40	00:50	01:00	01:10	01:20	NZART	OK
6	Australia	VK6RBP	00:50	01:00	01:10	01:20	01:30	WIA	OK
7	Japan	JA2IGY	01:00	01:10	01:20	01:30	01:40	JARL	OK
8	Russia	UA?	01:10	01:20	01 :30	01:40	01:50	SRR	Does not exist
9	China	VR2B?	01:20	01:30	01:40	01:50	02:00	CRSA	Does not exist
10	Sri Lanka	4S7B	01:30	01:40	01:50	02:00	02:10	RSSL	OK
11	South Africa	ZS6DN	01:40	01:50	02:00	02:10	02:20	ZS6DN	OK
12	Kenya	5Z4B	01:50	02:00	02:10	02:20	02:30	RSK	OK
13	Israel	4X6TU	02:00	02:10	02:20	02:30	02:40	U Tel Aviv	OK
14	Finland	OH2B	02:10	02:20	02:30	02:40	02:50	U Helsinki	OK
15	Madeira	CS3B	02:20	02:30	02:40	02:50	00:00	ARRM	OK
16	Argentina	LU4AA	02:30	02:40	02:50	00:00	00:10	RCA	OK
17	Peru	OA4B	02:40	02:50	00:00	00:10	00:20	RCP	OK
18	Venezuela	YV5B	02:50	00:00	00:10	00:20	00:30	RCV	Power doesn't reduce below 60 watts.

Table 1: Schedule (in minutes and seconds) of NCDXC / IARU beacon network.

scientific research

The NCDXF beacons are also used by professional scientists, including the HAARP (High Frequency Active Auroral Research Project) in Gakona, Alaska, which is currently monitoring seven of the beacons (4U1UN, VE8AT, W6WX, KH6WO, ZL6B, VK6RBP and JA2IGY) twice an hour and posting the results on the web in real time at http://www.haarp.alaska.edu/mon/bscan.html

The results are in the form of a waterfall plot of signal strengths received from the seven NCDXF beacons. Transmissions are monitored twice per hour and the strength of the received beacon signal is plotted in colour using a high-quality computer-controlled spectrum analyser and low noise RF pre-amplifiers. The analyser is set to take a single sweep of 60 seconds duration using a resolution bandwidth of 300Hz.

The beacons can really improve your understanding of ionospheric propagation. I used the earlier 20m network for a university propagation project a few years ago and was amazed to see the correlation between solar flux and conditions, although it did prove how important a low planetary A index number is too.

the future

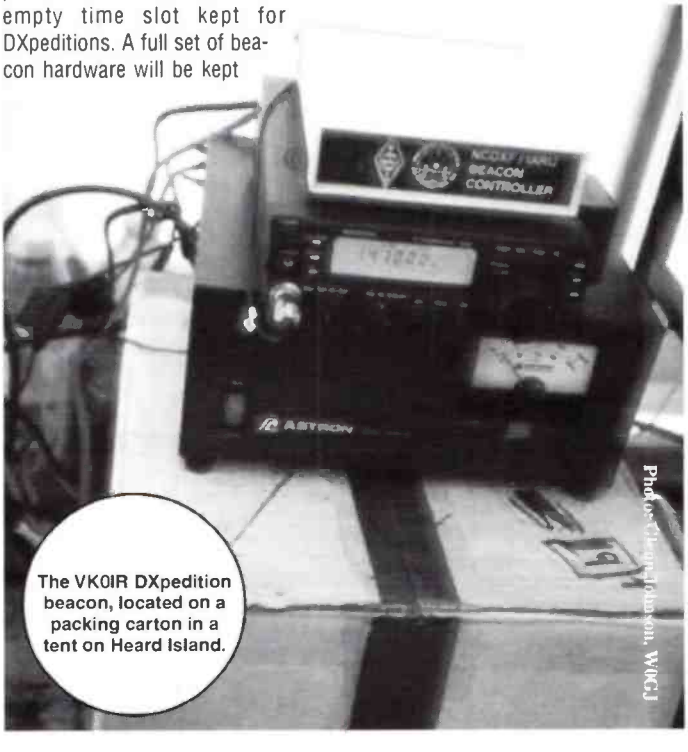
But is this as useful as the beacon network can get? Apparently not. The next stage is the development of automated beacon monitoring which can then feed propagation conditions on to the DX cluster or Internet. An article in the American *QST* magazine has even suggested that as the GPS timing is so precise it might be possible to work out how long it takes radio waves to travel from beacon to station, so helping to calculate ionospheric heights and movements.

A piece of late-breaking news is that progress is being made on the Chinese beacon. It will now be located in Hong Kong and is expected to eventually have the callsign VR2B, although it may initially operate as VR2HK. It is hoped that this beacon will be on the air by early 1999. The final beacon in the initial set will go to Russia, and licensing formalities are currently under way.

Future plans are for further expansion to the network, with an empty time slot kept for DXpeditions. A full set of beacon hardware will be kept ready to loan to DXpedition groups. Whatever happens, the beacon network has a very strong future - I suggest you give it a look straightaway, but be warned: it can be addictive!

For more information about the NCDXF / IARU beacon network, contact the Northern California DX Foundation, PO Box 2368, Stanford, CA 94309-2368, USA, or see their web site at: http://www.ncdxf. org

The author of this article, Steve Nichols, G0KYA, can be contacted on tel: 01508 570970 or e-mail: steve.nichols@infotechcomms.co.uk



The VK0IR DXpedition beacon, located on a packing carton in a tent on Heard Island.

Photo: Chris Johnson, W0CJ

Standard C710 2m / 70cm / 23cm Handheld

Chris Lorek, G4HCL, tests what is possibly the world's smallest triple-band handheld

Just over a year ago I was pleased to review Standard's C510 dual band handheld, this transceiver physically being virtually identical to the C710. But despite the outward similarities, Standard have now managed to cram yet another transceive band, 23cm, into the same package!

physical features

Measuring 58W x 104H x 27Dmm it'll fit into your top pocket nicely, or if you prefer you can attach the supplied belt clip and wrist strap and carry it around that way, in either case it's thin dimensions and light weight of 210g make it very portable.

Surprisingly for a set of this size, the front panel offers a full numeric keypad for direct frequency entry, together with eight additional control buttons. A click-step rotary control on the top panel lets you manually tune through the bands in your chosen channel steps, or between your programmed memory channels, of which 200 are available for storage of your favourite frequencies.

The C710 provides transceive operation between 144 - 146MHz, 430 - 440MHz and 1260 - 1300MHz, and the supplied review sample also had wideband receive enabled. This gave a receive tuning range in five switched bands between 100 - 200MHz, 300 - 400MHz, 400 - 520MHz, 700 - 1000MHz and 1200 - 1320MHz. AM receive is also available on the set, and this can be either switched in manually on any frequency, or selected to be switched in automatically when the receiver is tuned to the VHF and UHF airband sections covered in the switching range.

Each of the front panel keys are translucent, and a switchable backlight illuminates their legends as well as lighting the set's front panel LCD. Besides the LCD showing the usual frequency, memory channel etc indications, a bargraph S-meter is also provided along the lower section of the display. The LCD additionally acts as a pseudo-alphanumeric display for a menu-driven 'set' facility, where many of the transceiver's lesser-used parameters can be adjusted using the channel knob after an initial press of the front panel 'Set' button. A side mounted rotary knob is used for the receive volume control, with the squelch level being adjusted using the 'set' menu to one of five pre-set noise squelch levels. As an alternative, for use in busy strong-signal areas an 'RF Squelch' is also available, where the squelch can be set to raise at either S1, S3, S5 or S9 indicated levels. A front panel 'Moni' button also acts as a momentary squelch defeat to let you manually open the squelch to check for weak signals, this also usefully acting as a 'listen on input' check facility on repeater splits.

power

The transceiver operates from three AA-sized cells. You can use either normal dry batteries or rechargeable cells, as the set can operate over a voltage range of 3.3 to 5.5V. With standard dry cells fitted, the transmitter gives a power output of around 1W on 2m and 70cm and 280mW on 23cm, with a switchable low power level down to 300mW on 2m / 70cm and 170mW on 23cm. To give your batteries that bit more operating time, there's a selectable receive 'battery saver' fitted which periodically switches the main receiver circuits on for a fraction of a second to check for activity. The on / off ratio of this can be changed using the 'set' menu. Also, to save your batteries going totally flat if you accidentally leave the set switched on when you're not using it for a long period such as overnight, there's also a switchable auto-power-off facility available via the 'set' mode.

Although the transceiver doesn't have a dedicated external

laboratory results

All measurements taken with transceiver powered from a set of fully-charged AA nickel-metal-hydride cells, unless otherwise stated.

receiver

squelch sensitivity:

Noise squelch sensitivity level (note RF level S-meter squelch is also available):

	145MHz	435MHz	1297MHz
Threshold:	0.12µV pd (12dB SINAD)	0.16µV pd (12dB SINAD)	0.20µV pd (11dB SINAD)
Maximum:	0.19µV pd (26dB SINAD)	0.24µV pd (22dB SINAD)	0.32µV pd (24dB SINAD)

sensitivity:

Input level required to give 12dB SINAD:

145MHz	0.12µV pd
435MHz	0.16µV pd
1297MHz	0.21µV pd

adjacent channel selectivity:

Measured as increase in level of interfering signal, modulated with 400Hz at 1.5kHz deviation, above 12dB SINAD ref level to cause 6dB degradation in 12dB on-channel signal:

	145MHz	435MHz	1297MHz
+12.5kHz	32.4dB	33.9dB	29.2dB
-12.5kHz	29.5dB	28.2dB	28.8dB
+25kHz	65.9dB	58.7dB	54.1dB
-25kHz	64.8dB	58.0dB	53.6dB

s-meter linearity:

	145MHz		435MHz		1297MHz	
	Sig Level	Rel Level	Sig Level	Rel level	Sig Level	Rel level
S1	0.12µV pd	-20.6dB	0.28µV pd	-20.9dB	0.58µV pd	-20.1dB
S3	0.23µV pd	-14.9dB	0.52µV pd	-15.5dB	1.05µV pd	-15.0dB
S5	0.37µV pd	-10.8dB	0.98µV pd	-10.0dB	1.81µV pd	-10.3dB
S7	0.62µV pd	-6.3dB	1.67µV pd	-5.4dB	3.04µV pd	-5.8dB
S9	1.28µV pd	0dB ref	3.12µV pd	0dB ref	5.93µV pd	0dB ref

intermodulation rejection:

Increase over 12dB SINAD level of two interfering signals giving identical 12dB SINAD on-channel 3rd-order intermodulation product:

	145MHz	435MHz	1297MHz
25 / 50kHz spacing	56.2dB	65.5dB	62.1dB
50 / 100kHz spacing	55.7dB	65.0dB	62.0dB

maximum audio output:

Measured at 1kHz on the onset of clipping, 8Ω load:

145MHz	435MHz	1297MHz
78mW RMS	78mW RMS	77mW RMS

image rejection:

Increase in level of signal at 1st and 2nd IF image frequencies, and half 1st IF, over level of on-channel signal, to give identical 12dB SINAD signal:

	145MHz	435MHz	1297MHz
Half 1st IF	52.9dB	58.7dB	54.8dB
1st Image	84.3dB	72.3dB	75.2dB
2nd Image	57.6dB	54.9dB	55.5dB

blocking:

Increase over 12dB SINAD level of interfering signal modulated with 400Hz at 1.5kHz deviation to cause 6dB degradation in 12dB SINAD on-channel signal:

	145MHz	435MHz	1297MHz
+100kHz	76.9dB	72.1dB	61.2dB
+1MHz	91.6dB	89.0dB	73.6dB
+10MHz	93.5dB	92.6dB	81.8dB

transmitter

tx power:

Measured with set powered from 4.5V stabilised DC source connected to battery terminals:

Freq	High Power	Low Power
145MHz	1.12W	0.31W
435MHz	0.98W	0.32W
1297MHz	0.28W	0.18W

frequency accuracy:

145MHz	435MHz	1297MHz
+30Hz	+120Hz	+380Hz

harmonics:

	145MHz	435MHz	1297MHz
2nd	-74dBc	-71dBc	-
3rd	-78dBc	-79dBc	-
4th	<-90dBc	<-90dBc	-
5th	-89dBc	-	-
6th	<-90dBc	-	-
7th	<-90dBc	-	-

peak deviation:

145MHz	435MHz	1297MHz
5.65kHz	5.22kHz	5.43kHz

DC socket to let you use it from an external power supply or to charge the internal nicads, there are two charger studs fitted to the lower case lid for use with an optional pod-type charger.

What the C710 does have, however, and this is rather interesting, is the capability to connect with an optional external CPB710 mobile unit via a flying lead which plugs into a rubber-covered multi-way facility socket on the base of the C710. The CPB710 connects to 12V DC and to your external antenna system, and separately powers the C710 transceiver, as well as automatically boosting the 2m and 70cm transmit power level to typical mobile transceiver levels of 50W (2m) / 35W(70cm) and 5W low power, and the 23cm power level to 1W with 300mW low power, as well as amplifying the receive audio level to 2W to an external speaker socket. Thus, using this combination you can instantly transform the C710 into a fully-fledged triple-band mobile or base station rig.

tone calls

The C710 is fitted with full CTCSS encode and decode as standard, with any of the normal 39 sub-tones available which can be stored on a channel-by-channel basis in the set's memories, useful for quiet monitoring as well as repeater access if your local repeater supports this. As well as the front panel keypad acting as a DTMF ('touch tone') encoder on transmit, the set is also equipped with DTMF selective calling and paging facilities, using the same three-digit type of DTMF sequences as found on many other transceivers offering this feature.

The DTMF send and inter-digit speed can be pre-set to either 50mS or 100mS per digit to suit the decode time of other transceivers, DTMF memories are also available for storage of your commonly-used codes. Although the early review model I tested wasn't equipped with a 1750Hz toneburst for 'normal' repeater access, all those now being sold in the UK do have this fitted.

on the air

Opening the packing box revealed the C710 was indeed a small, handy size, one that I could fit into my palm very comfortably. The review sample I received was supplied ready-fitted with three Duracell AA batteries, although for most of the review period I used a set of rechargeable AA batteries

to try to emulate typical amateur use.

In normal everyday use, I found that 1300mAh NiMh cells always lasted me at least for a weekend's worth of listening, coupled with the odd contact or three - no need to keep changing batteries every few hours with this set!

The transmitter's 1W output was usually sufficient to get me into my local 70cm repeater but unfortunately not into my rather more distant semi-local 2m repeaters. Even so, I did manage a number of local 2m simplex chats when I was out and about in my locality.

The review period also coincided with a spell of superb weather here in the UK, and the C710 invariably joined me in the back garden, where I could enjoy the sunshine as well as joining in on-air activity!

Although it's a reasonably feature-packed set, I found the main controls quite easy to use - even one-handed, as I could use my thumb to adjust the side-mounted volume control and just my index finger for the channel knob. In use I often kept the transceiver in memory scan mode to listen out for new signals, although here I often found that I wanted to adjust the squelch to cope with differing reception conditions at any given time. Adjusting this was a multi-button pushing affair, by first pressing the 'Set' button, then holding down the small side-mounted 'F' button below the PTT whilst simultaneously tuning the channel knob to vary the squelch setting. I must say that I prefer Standard's 'other' idea which they use on their AX-400 handheld receiver, of a small side-mounted rotary squelch knob in addition to the other controls. But maybe I'm being too fussy!

signals

The set-top antenna pulled in 70cm signals well, although 2m signals were a little 'down' on

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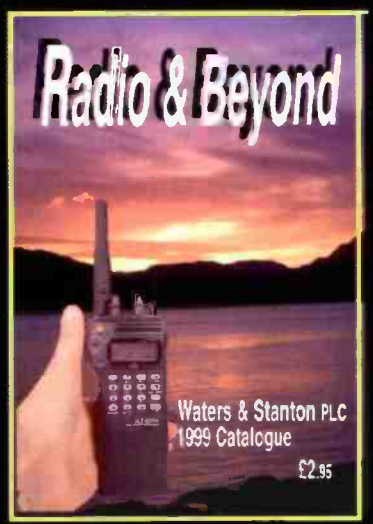

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- *3 x capacity of ni-cads*
- *Very low cost*

In stock now! * Note: you must use the special charger supplied with Starter Kit.

Starter Kit: Comprise 4 x AA cells and dedicated AC wall charger **£13.99 + £2 p&p**

4 x AA cells (ready charged)	£5.99 (£1.00 post)
8 x AA cells (ready charged	£10.99 (£1.50 post)
4 x AAA cells (uses standard charger)	£6.25 (£1.00 post)

YAESU FT-50R 2m/70cms Handy £279

Price Smash

- *Wideband Rx (AM Airband)*
- *FM Broadcast receive*
- *CTCSS & 1750Hz*
- *112 Alphanumeric Memories*
- *Dual Watch - Military rated*
- *5W from 12v DC input*
- *Ni-cads and AC Charger*

This is a very solid rig that is proving one of the most popular dual band handhelds

ICOM IC-T8E Dual Band handy £319

6m 2m 70cms

PRICE MATCH

All in one small package.

- *5W output (13V)*
- *25 / 12.5kHz ready*
- *Wideband Rx*
- *Nickel Hydride batt*
- *Wide FM broadcast*
- *AM for airband*
- *Rapid scanning*
- *Alphanumeric*

UK's largest Catalogue £3.95 inc. post

what I'd become used to from other handhelds. The C710 is fitted with an SMA socket for the antenna connection, and by using an adapter to a BNC socket I could also use my rooftop collinear with the rig as well as my mobile whip in the car.

The transceiver joined me on a number of trips around the UK, even to the beach one weekend, the wideband receiver capability adding an extra interest here.

Although I could hear the occasional 23cm repeater on my travels, I usually found the set's low power level here wasn't quite enough to 'get me in', although from my home area I found it received my local 23cm packet node extremely well. To cope with any frequency error problems on receive, the C710's 23cm section also has a manually adjustable RIT (Receiver Incremental Tune) facility of up to ±10kHz, although I invariably found the receiver to be virtually 'spot on', with no problems in decoding packet signals on this band.

From home, even with my rooftop antenna system connected, I found few problems in unwanted strong signals breaking through, although on 2m the occasional strong 12.5kHz-spaced signal did cause me the odd problem if I was trying to receive a much weaker signal on the next channel. However, this was the exception rather than the norm.

technicalities

In its tiny case, the C710 fits a three-band double-conversion superhet receiver, with IFs of 58.05MHz and 450kHz (the dual-band C510 having a different 1st IF of 23.05MHz), with roofing filters at the 1st IF and the main selectivity performed by ceramic filtering at 450kHz. On transmit, separate VCOs (Voltage Controlled Oscillators) are used for each band, and on 23cm the VCO operates at 630 - 650MHz and the signal is doubled just prior to the final amplifier stage to achieve the final 23cm frequency.

In the lab, the receiver section worked well on all bands, the sensitivity being particularly good on 2m, which I'm sure helped the performance of the physically small set-top whip antenna to a large extent. However, the performance on 23cm was a little down, noise-wise. This was possibly due to the doubling effect, but even so, for such a small handheld it was very commendable.

The measured 25kHz adjacent channel rejection was quite good, and the 12.5kHz-spaced signal rejection should be reasonably adequate in most current conditions without a filter change, although future trends could of course change this.

On transmit the frequency accuracy was excellent, the power regulation and harmonic suppression very good, I couldn't complain at all. Altogether, a very good technical performance indeed when you consider the size and price of the set. I often wonder what 'magic formula' (or which 'magic engineers') Standard have managed to get their hands on over the past years!

conclusions

In all, the Standard C710 was a pleasure to use and operated very well on air, especially so considering its size and selling price. After showing it to my local repeater keeper and letting him 'have a play' with it overnight, he was even tempted to revitalise our earlier idea of a city-based 23cm repeater, cross-linked to our local 70cm 'box', following the advent of this new affordable entry route to 23cm portable operation! Our thanks go to Martin Lynch & Sons for the loan of the C710 for review, which is currently priced at £199.95.

New Publications from the RSGB

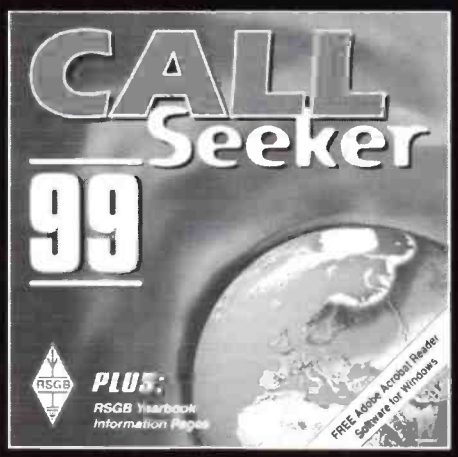
RADCOM '97 ON CD-ROM

If you would like to consolidate your copies of RadCom, or if you have recently joined the Society and did not get all the 1997 copies, then this is the ideal product! All copies of RadCom, including text, diagrams, illustrations and adverts, are included and are searchable, making finding that elusive article much easier to track down. The latest version of Acrobat Reader is included to enable you to search the text.

SYSTEM REQUIREMENTS:

- 386 (not recommended), 486 or Pentium personal computer with a CD-ROM drive
- 4MB of spare hard disk space
- Windows 3.1 or later with 4MB of RAM, or Windows 95 with 8MB of RAM, or Windows NT 3.51 or later with 16MB of RAM

Price: £19.95 plus P&P



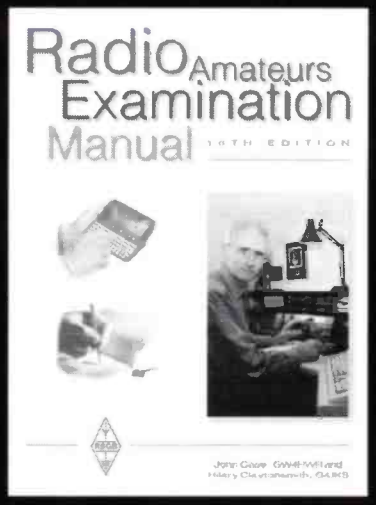
RSGB CALLSEEKER '99 CD-ROM

Complete 1999 UK callsign listing

Companion product to the 1999 Yearbook!
System requirements:

- PC with a 486 or higher processor and a CD ROM drive
- VGA or high resolution screen supported by Microsoft Windows
- 10 - 15 MB spare hard disk space
- Windows 95 or later with 8MB of RAM (16MB recommended) or Windows NT 3.51 or later with 16MB of RAM (24MB recommended)

Price: £14.50 plus £1.25 P&P



THE RAE MANUAL (16TH EDN)

by John Case, GW4HWR and Hilary Claytonsmith, G4JKS

This brand new edition of the main textbook sets the standard for those wishing to take the City & Guilds Radio Amateur's Examination, and is imperative to those studying an RAE course. Completely revised to take into account the changes in the RAE effective from May 1998. In addition it now incorporates many sample questions originally published in How to Pass the RAE. A complete sample paper from City and Guides is also included to familiarise the candidate with the typical examination format. All those studying for the RAE in classes or at home will find this book indispensable.

Price: £12.93 plus £1.25 P&P

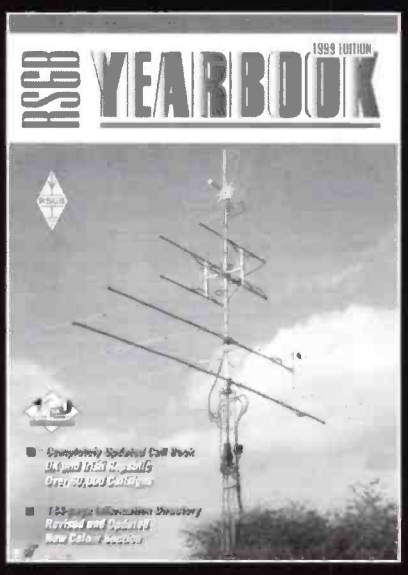
THE RSGB YEARBOOK - 1999 EDITION

edited by Mike Dennison, G3XDV

This new edition includes all UK and Eire callsigns, and a totally up to date information directory - a must for the amateur radio operator. The information section is further enhanced this year by the addition of a 16-page full colour section, providing committee and contest information.

If you have not replaced your copy of the RSGB Callbook and Information Directory for some time, then you will certainly be delighted with this publication.

Price: £14.50 plus £1.25 P&P



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Net Communica

unications, the Internet

Jeremy Boot, G4NJH, uses the most modern of telecomm

ments." Just think what you
d do to next door's TV with a

When Samuel Morse invented his code, he probably had little idea of either its impact or how long it would last as a mode of communication. Indeed, did famous inventors think that they had discovered *the* way to do whatever it was, or did they see themselves as pioneers of something which generations to come would build on? I would like to think it was the latter. Great men dream great dreams for humanity, but I doubt they are arrogant enough to feel theirs is the only way.

Whatever Morse thought, CW was to have a fundamental rôle for communications, telegraph and transport, the services and international commerce, to say nothing of ourselves. It proved the international standard, a common language and bond between nations and amateurs and an excellent survivor of bad lines, poor conditions, heterodynes, QRM, QRN and anything else you cared to throw at it. It also became the means of an amateur to obtain his A licence (or latterly limited HF access for Novices). The quotation above comes from the famous message of 24 May 1844 sent by Morse himself.

a real skill

I mention this at a time when there is a move to amend the Morse test, which somehow has degenerated into an administrative slapstick with the RA recommending such a licensee below a 2E0 (HF Novice) licence in effect, when the RSGB wanted a nominal 5WPM with all rights. It shows you, as our editor wrote just two months ago, how things have changed.

The one thing sure to make any old timer see red - or for that matter anyone who had had to undergo this initiation ritual of the CW test - was any suggestion that CW was outdated, or unnecessary, or that it should go or be modified. In an age where the hobby needs buoying up, the old arguments become foggier and less relevant. The 'sink or swim' approach to the hobby has never, in my opinion, been more relevant.

However, that is not to put down the skills and passion behind CW and its operating. If you have ever seen a CW operator in full swing, or been on the other end of his QSO, or indeed been yourself that operator, you will have the bug and eulogise this historic and far-from-dead mode of operating. So this month I pay tribute to this hardy mode: one which is historic and at the very heart of our hobby, and I wanted to see what Internet pages I could find to invite you to explore. My thanks this month go principally to Shane-Anthony D'Arcy, G6VYS (shane@g6vys.demon.co.uk), and, as ever, Andy Gayne, G7KPF, (kama@zetnet.co.uk) whose pages are a cornucopia of URLs.

an HF ticket at 8WPM but with no right to operate CW (!) - putting

history

Turning first to something about the history of the mode, and what better than an excellent page called **'Telegraph Lore'**. You could not wish for a fuller and more comprehensive set of pages. There are even anecdote pages. They take us through the status of the telegrapher (much envied) and his job as time co-ordinator (sending time signals), relaying horse race results, political rallies (there is a picture of Harrisburg) and newscasting. "Morse code was used then like television and radio are used today to cover all important events," one reads. The pages are US biased but none the worse for that.

blurred edges

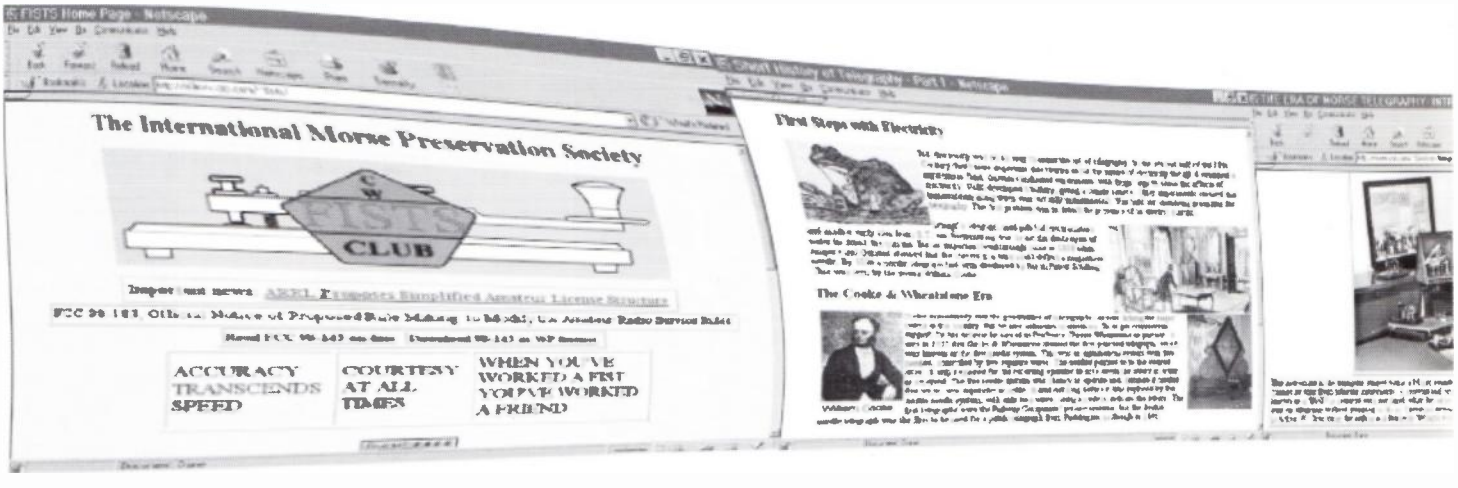
The telegraph is by no means special to Radio Amateurs of course and, as I found when looking at 'early radio', the overlap between commercial and amateur is considerable. Still on the history track, see the **K5RW Wire and Wireless Collection** for a good tour of amateur equipment to do with CW. "The K5RW Collection is a private museum of wire and wire-less telegraph instruments. The collection consists of approximately 300 pieces. Most are semi-automatic keys, or 'bugs' as they are more commonly called. There are 110 different bugs in the museum, making it one of the largest collections of bugs in the world. There is also an assortment of spark, radio-telegraph, landline Morse and submarine cable in-

spark transmitter! Also in the K5RW pages is a picture of the station at 8WY, Cambridge Springs, Pennsylvania, circa 1920: "Note tubular audions, loos coupler and Grebe receiver."

These pages form part of **The Telegraph Office** site, describing itself as: "A Tribute to Morse Telegraphy and Resource for Wire and Wireless Telegraph Key Collectors and Historians". See the picture of Radio Officer John George 'Jack' Phillips, senior wireless operator on SS *Titanic*. He lost his life when the *Titanic* sank on 14 April 1912.

A nice British page not to be missed is the **Short History of Telegraphy** by Alan G Hobbs, G8GOJ, and Sam Hallas, G8EXV. "Primitive man could keep hunting parties in touch about the movement of game by means of smoke signals. Military man was able to co-ordinate his armies. The ancient Greeks used mirrors to reflect the sun's rays at the battle of Thermopylae." Yes, it fires the imagination!

The Fists Club, founded by G3ZQS, although this is another US site, exists to promote CW: "When you've worked a Fist, you've worked a Friend." The site includes an interesting letter from the ARRL to its members proposing simplification of the US licence: they propose a reduction from five to four classes [see *Ham Radio Today* October edition, page 7 - *Ed*]. "Where reductions in Morse code requirements are proposed, there would be a corre-



, to look at one of the oldest, Morse code, and asks "What Hath God Wrought!"

sponding increase in written examination standards," it says. ARRL President Rod Stafford comments: "I don't think there are many people who see CW as the future of Amateur Radio. If they do, in my opinion, they are looking backwards and not to the future of ham radio." Gosh, I can feel the heat from here!

Morsum Magnificat - an eclectic name if ever there was one - is soundly UK-based. Be assured, "Morse is not a dull subject", we are told. Did you know about the unique Japanese 5 yen postage stamp, issued in 1954 which, apart from depicting an old Japanese Morse telegraph tape inker, contains examples of katakana Morse in different formats? No? Nor did I. I liked the enthusiasm and solidity of these pages: sure, positive and informative, and British too. There is some excellent guidance for the beginner and a whole series of articles from editions of *MM*. Needless to say, they too have an opinion of the UK CW change proposals.

Now to the **Morse Enthusiasts Group of Scotland**. "MEGS is a group of Radio Amateurs and short wave listeners with a common interest in Morse code" which offers the following advice:

- Throw away your pencil! Learn to read Morse in your head, and jot down essential details only to jog your memory.
- As soon as you can read 70 - 80% of Morse at a particular speed, move on to a higher speed. Exercise your brain and you will soon learn to recognise common words and groups automatically.
- Practise often. Listen to Morse as often as you can, even if it is only running in the background.
- Enjoy your hobby. Your brain works best when alert but relaxed. Sound advice. Useful pages with useful advice and links.

You would be hard put to better for sheer style the **PA3BWK's Ultimate CW** web site. Web pages should catch the eye. This one does and is packed with good stuff. Read the poem about CW by VA2CK and this by WA1TBY:

"To carry the torch,
Long after we're gone,
To send Morse code
Through the air like a song.
When at last,
Silent keys pull that lever,
We can rest in peace,
It's CW forever."

Not exactly Shelley, but deeply felt. Building projects, cartoons, articles, CW Doctor, links: it's all here.

Jeremy Boot, G4NJH, e-mail asperges@innotts.co.uk; web site: http://www.innotts.co.uk/~asperges/
Shane-Anthony D'Arcy, G6VYS: http://www.g6vys.demon.co.uk
Andy Gayne, G7KPF: kama/hamlinks.htm
Telegraph Lore: http://www.cris.com/~Gsraven/history.html
The K5RW Wire and Wireless Telegraph Key Collection: http://tohnix.metronet.com/~nmcewen/poop.html
The Telegraph Office: http://tohnix.metronet.com/~nmcewen/ref.html
A Short History of Telegraphy: http://ourworld.compuserve.com/homepages/sam_hallas/telhist1/telehist.htm
Fists club: http://n9nvv.qrp.com/~fists/sprints.html
***Morsum Magnificat*: http://www.morsum.demon.co.uk**
The Morse Enthusiasts Group of Scotland: http://www.joates.demon.co.uk/megs/
PA3BWK's Ultimate CW Web Site: http://www.dutch.nl/wilbwk/
Pile Up Software: http://www.babbage.demon.co.uk/pileup95.html
NuMorse: http://www.btinternet.com/~tony.lacy/
Morse V2A: http://ourworld.compuserve.com/homepages/Martin_R_Sturgess/morsev2a.htm
Morse Code Translator: http://www.soton.ac.uk/~scp93ch/refer/morseform.html
WWW Morse Code Generator: http://www.proximity.com.au/~tom/morse.html
Guy Fawkes Pages: http://www.innotts.co.uk/~asperges/fawkes/

Table 1: URLs referred to in the text.

cw software

We had better not overlook software pages. ***Pile Up* Software** by Richard Everitt, G4ZFE, is "a program which simulates a Morse code pileup using a Sound Blaster card... The idea is based on tapes used at Amateur Radio conventions to test people's CW skills. I find that *Pile Up* is good practice before a contest and also helps improves keyboard skills."

It's also good to see another British Page, **NuMorse** and NuTest. See also the free **Morse V2A** program.

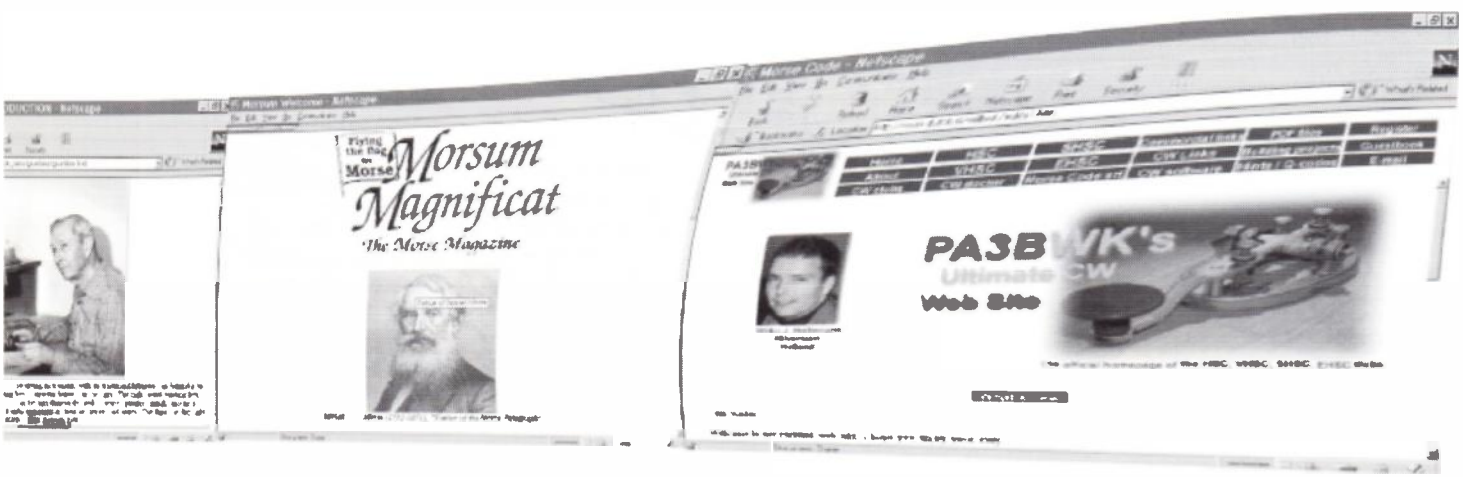
Please note I haven't tried these or any other programmes, I leave that to the reader.

hands on

Fancy some hands on stuff? I was looking for pages which translated text to CW. Here is one: the **Morse Code Translator** by Stephen Phillips, and another: **WWW Morse Code Generator** from Australia. Fun, and useful to a point.

finale

I hope you have enjoyed the tour, proving again how thoroughly useful the Internet is to us. As this article will appear in the November edition of *Ham Radio Today*, I hope you enjoy your bonfires. If you don't know the full story of Guy Fawkes, you will find a site listed above to enlighten you. Meanwhile, happy surfing until next month.



regular

Data Connection Data Con

Chris Lorek, G4HCL, shows how multim

As I write this, the summer rally season is coming to an end, the 'exhibition' season of autumn with Donington and Picketts Lock is forthcoming, followed by the traditional winter season of homebrewing (of the electronic type!), staying in the shack over the dark evenings, operating on air, building, and maybe experimenting with some new modes.

An increasing number of amateurs are becoming equipped with a PC for their shack, an 'old' cast-off PC sometimes being used here when the family PC gets upgraded with a new one to handle the latest multimedia family learning tools and power-hungry applications. I also know of a number of senior amateurs who've been equipped this way by their grown-up children. My 486DX2/66 served me well for many years as a shack workhorse, this has now been replaced with a P150 with the 'main' PC upgraded to a 450MHz PII.

If anyone would like a 486DX2/66 main unit with 8Mb memory, CD-ROM drive, sound card, 1Mb VESA SVGA video card etc, drop me a packet message to arrange to come and take it away - it's now just sitting in the garage before being taken down to the dump if no-one wants it.

This leads me on to a question I'm often asked, which is what software is available as a low-cost start for getting going on HF data modes, ie a type which doesn't need an expensive external multimode terminal unit. For this there are many freeware and shareware offerings. The July issue of *Ham Radio Today* came with a free cover-mounted CD-ROM with a data communication theme, which featured a wide variety of these.

ftv program

I received a query from a reader via the Editor that there weren't any programs for CW on the CD-ROM, so I thought I'd give a brief mention here to one of the lesser-known programs currently available for multimode use with a sound card, 'FTV'. FTV is a shareware program written by Brian, 9H1JS, and supports WEFAX, FAX, SSTV, RTTY and CW reception together with FAX and SSTV transmission. No external hardware, other than a radio, is required, as all the necessary signal processing is implemented in software. Version 1.0 of this was included on the front-cover CD-ROM, and version 1.0k (July 1998) with improved operational facilities and performance has now been released. The program uses a PC's SoundBlaster compatible sound card as the interface, with DSP (Digital Signal Processing) techniques for modulation and demodulation - there's just a one second DSP 'time lag' here. To use the program as well as a sound card you'll need a minimum of a 386 PC with 256k of extended memory (preferably 4096k or more), and an SVGA graphics card with VESA support (at least 640 x 480, 256 colours). In other words, something you'd be able to pick up for virtually nothing, certainly less than a 'tenner'. As well as decoding off-air data modes from the amateur bands (including CW, useful if you're trying to get practice from off-air listening) the FAX mode also supports APT signal recognition and scheduled reception from orbiting VHF weather satellites. So as well as impressing the neighbours with live satellite pictures, it can be useful if you'd like a change from Amateur Radio reception, or even just to see what the weather's likely to be like during the day to help you decide whether to stay in and play radio or going out for a walk!

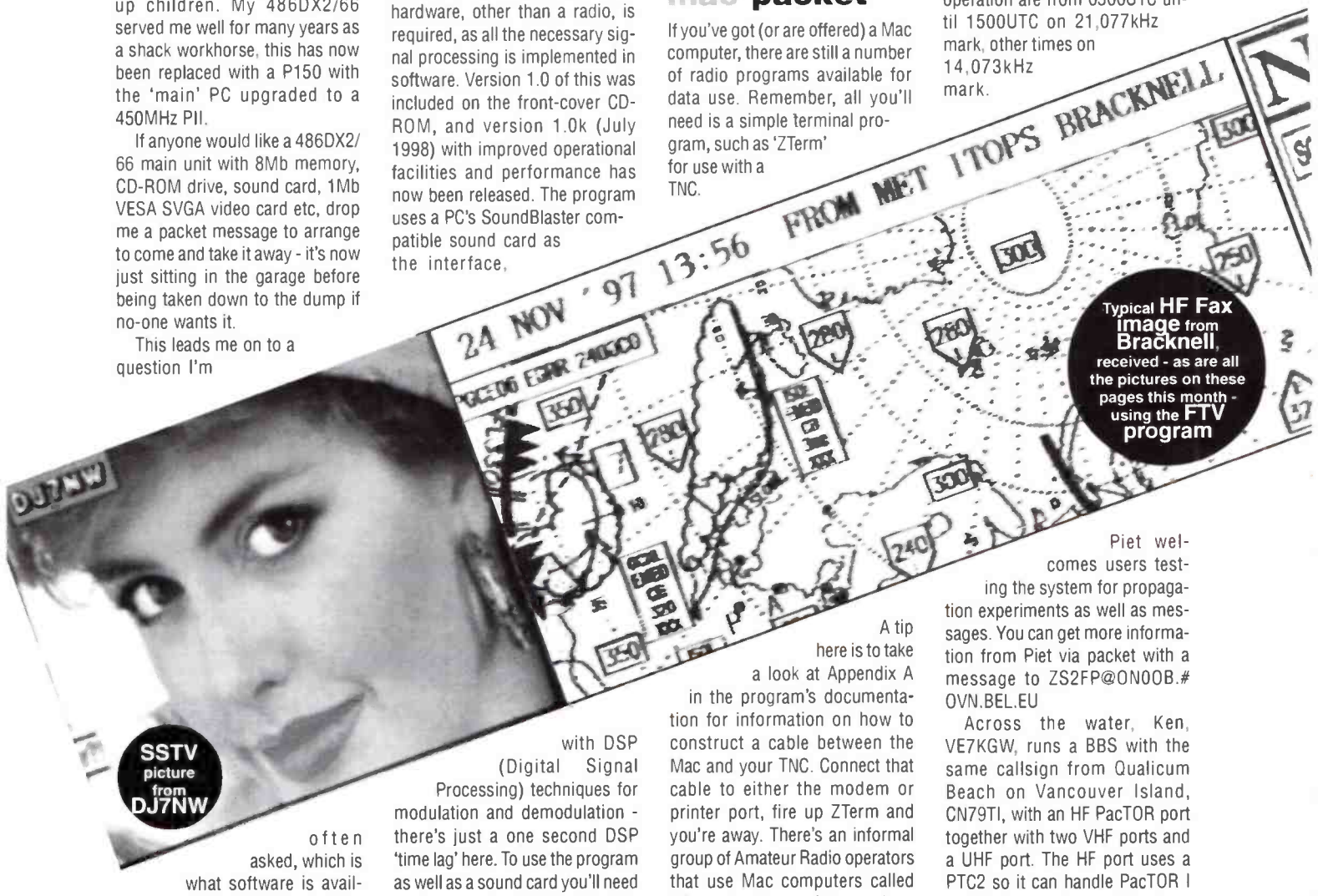
mac packet

If you've got (or are offered) a Mac computer, there are still a number of radio programs available for data use. Remember, all you'll need is a simple terminal program, such as 'ZTerm' for use with a TNC. A tip here is to take a look at Appendix A in the program's documentation for information on how to construct a cable between the Mac and your TNC. Connect that cable to either the modem or printer port, fire up ZTerm and you're away. There's an informal group of Amateur Radio operators that use Mac computers called 'Macnet', with over 850 members world-wide, who stay in touch with each other via packet and the Internet. One of their members, John, WD1V, has an Internet home page with plenty of radio-based Mac programs available for download, including packet terminal and TCP / IP software. Point your browser at http://www.mv.com/ipusers/wd1v/ for more details and downloads.

pactor II bbs

With HF conditions improving, if you've just upgraded to PacTOR II - or if you'd like to try it out to make a comparison with PacTOR I before making a commitment - Piet, ZS2FP, reminds us that his FBB BBS which has PacTOR II capabilities is still fully operational on 20m and 15m. It uses an Alinco DX-70 with 50W output into a three-element TH3 beaming north from Port Elizabeth. The hours of operation are from 0500UTC until 1500UTC on 21,077kHz mark, other times on 14,073kHz mark. Piet welcomes users testing the system for propagation experiments as well as messages. You can get more information from Piet via packet with a message to ZS2FP@ON0OB.#OVN.BEL.EU

Across the water, Ken, VE7KGW, runs a BBS with the same callsign from Qualicum Beach on Vancouver Island, CN79TI, with an HF PacTOR port together with two VHF ports and a UHF port. The HF port uses a PTC2 so it can handle PacTOR I and II. It operates on 20m from 0500 to 1000UTC, and on 80m the remainder of the time. On 20m the



SSTV picture from DJ7NW

Typical HF Fax image from Bracknell, received - as are all the pictures on these pages this month - using the FTV program

nection Data Connection

ode HF data needn't be expensive

BBS scans centre frequencies (actual frequencies are +2.3kHz with mark / space tones of 2100 / 2300Hz) of 14,077.68kHz, 14,068kHz, 14,070kHz, 14,072kHz, 14,074kHz and 14,076kHz. On 80m, if you fancy grey-line DX PacTOR tests, the centre frequencies are 3595.7kHz and 3609.65kHz. More details by packet from VE7KGW@VE7KGW.#NVI.BC.CAN.NOAM or e-mail: kwalker@island.net

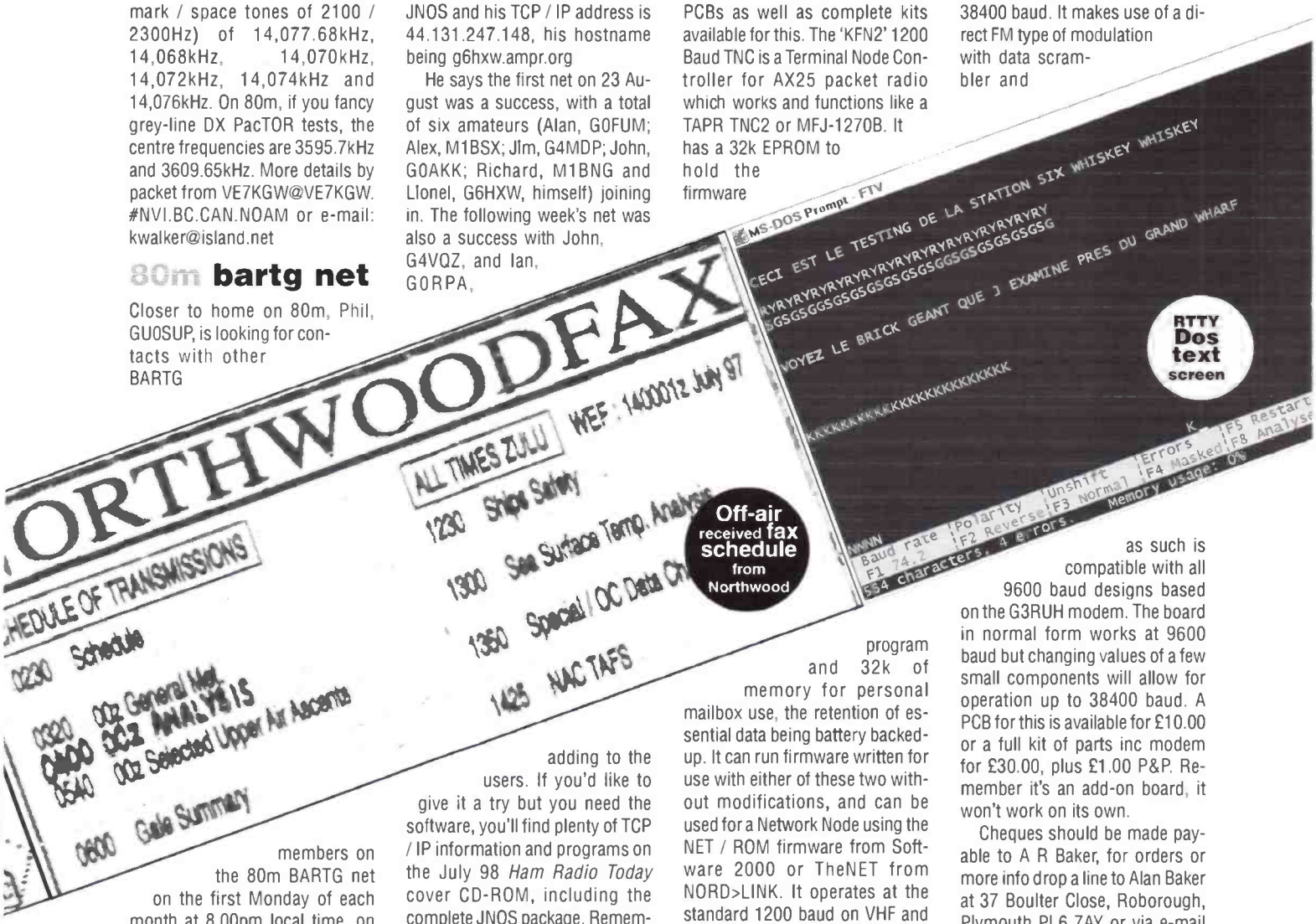
80m bartg net

Closer to home on 80m, Phil, GU0SUP, is looking for contacts with other BARTG members on the 80m BARTG net on the first Monday of each month at 8.00pm local time, on 3584kHz ±QRM. He'll be calling "CQ BARTG" and plans to listen for as many calls as possible, then pass round to the first caller, who will pass it to the next on the list. Phil says he hope it will become a regular net, and has been initiated partly due to the demise of GB2ATG with the news. Any suggestions, ideas, or requests can be sent to Phil by packet GU0SUP@GB7GSY.#47.GBR.EU or by e-mail to pcooper@guernsey.net

2m tcp / ip net

In order to generate a little more interest in TCP / IP in the central southern area of the UK, Lionel, G6HXW, who's the Remote SysOp of GB7WRB in Worthing, is running a net on 144.925MHz on Sunday evenings, starting at 8.00pm local time. Lionel runs JNOS and his TCP / IP address is 44.131.247.148, his hostname being g6hxw.ampr.org

He says the first net on 23 August was a success, with a total of six amateurs (Alan, G0FUM; Alex, M1BSX; Jim, G4MDP; John, G0AKK; Richard, M1BNG and Lionel, G6HXW, himself) joining in. The following week's net was also a success with John, G4VQZ, and Ian, G0RPA, adding to the users. If you'd like to give it a try but you need the software, you'll find plenty of TCP / IP information and programs on the July 98 *Ham Radio Today* cover CD-ROM, including the complete JNOS package. Remember to contact your local TCP / IP co-ordinator for a TCP / IP address so you can join in the fun.



tnc kits

If you're building a TNC and having problems getting hold of an AM7910 modem chip, one solution is to use an FX614 modem IC with suitable additional circuitry. To make life easy here, Alan, G3KFN, has designed the 'KFN7910 adapter board', which uses the FX614 modem chip. Alan says that the adapter board simply replaces pin-for-pin the AM7910 in all TNCs, and is easy to build and install. It's priced at £13.00 plus £1.00 P&P for the PCB and complete kit of parts, including the modem.

If you'd like to build your own TNC, or upgrade your 1200 baud TNC to a 9600 type, Alan also has PCBs as well as complete kits available for this. The 'KFN2' 1200 Baud TNC is a Terminal Node Controller for AX25 packet radio which works and functions like a TAPR TNC2 or MFJ-1270B. It has a 32k EPROM to hold the firmware program and 32k of memory for personal mailbox use, the retention of essential data being battery backed-up. It can run firmware written for use with either of these two without modifications, and can be used for a Network Node using the NET / ROM firmware from Software 2000 or TheNET from NORD>LINK. It operates at the standard 1200 baud on VHF and 300 baud on HF (switch selectable) and has a header socket on the board which allows the connection of add-on modems such as the G3RUH type for higher speeds. The PCB is priced at £14.00, or the PCB plus full kit of parts (inc AM7910 modem adapter) at £62.00, each plus £1.00 P&P.

A further board, the 'KFN96 High Speed Controller', is a daughter board add-on which is compatible with all TNC2 clones such as the KFN2, TAPR TNC2, MFJ 1270B etc. The completed KFN96 PCB is designed to fit on to the modem disconnect header of a TNC2 compatible TNC, and it's compatible with all existing software that operates on the TNC2. The KFN96 uses a single FX589 modem chip, which will allow for half and full duplex operation of speeds from 9600 to 38400 baud. It makes use of a direct FM type of modulation with data scrambler and as such is compatible with all 9600 baud designs based on the G3RUH modem. The board in normal form works at 9600 baud but changing values of a few small components will allow for operation up to 38400 baud. A PCB for this is available for £10.00 or a full kit of parts inc modem for £30.00, plus £1.00 P&P. Remember it's an add-on board, it won't work on its own.

Cheques should be made payable to A R Baker, for orders or more info drop a line to Alan Baker at 37 Boulter Close, Roborough, Plymouth PL6 7AY or via e-mail to alan@g3kfn.ndirect.co.uk (not via amateur packet as it's a commercial offering), or see Alan's home page at http://www.ndirect.co.uk/~thebakers

ctrl-z, end of message

If you came along to my talk at this year's DataStream at the BARTG rally I hope you found it informative. I was pleased to be able to attend, as a last minute business trip to Central Africa may have caused me to miss the event (Colin Thomas, G3PSM, went instead of myself). I'm always pleased to hear from readers, so do get in touch, my contact details are given in the Regular Contributors section of the magazine on page 58 each month.

regular

Satellite Rendezvous

Richard Limebear, G3RWL, looks at the latest Amateur Radio

Photo: TMSat web site

Wide-angle view of Greece and the southern Mediterranean; one of the first images provided by TMSat-1.

Amateur Radio's two newest satellites, TMSat-1 and TechSat-1B, are doing very well following a successful joint launch from the Russian Baikonur Cosmodrome in July. TMSat / Oscar-31 commissioning has been proceeding rather slowly and they have been operating the downlink transmitter only over certain parts of the globe, mainly Bangkok and Surrey. The satellite is performing a number of new tasks that have not previously been used, and this is taking some time to get fully operational.

On 7 August the gravity gradient boom was deployed. Telemetry data from the deployment showed that the 6.2m boom deployed perfectly, with less than 1.5 degrees of oscillation from vertical.

At the end of August the command team tested the imaging system aboard the spacecraft. TMSat has five cameras on board: a wide-angle camera (WAC) similar to UO-22, three narrow angle cameras, and a video camera which will be used for taking still images. The first image was a test over India under manual control from Bangkok, and other images have been taken automatically under control of the on board computer. They next targeted the Red Sea area: "it is generally free of cloud formations, which is useful for sensor calibration", said Chris Jackson, G7UPN. "For the first few images we only used the WAC, and also took the first set of images using the narrow angle cameras (NAC) over Greece. Due to the size of the images this took some time to download, along with other housekeeping and commissioning functions that were scheduled."

Two of the WAC images have been uploaded to the TMSat web site. One is the first image over the Red Sea, and the other the image taken over Greece and the southern Mediterranean which is shown above. To view these images, point your browser to the following URL: http://www.ee.surrey.ac.uk/CSER/UOSAT/amateur/tmsat/index.html

4X1AS reports TechSat-1B (henceforth to be known as Gurwin-Oscar-32) is also responding well to ground control commands. The satellite recently took its first picture from space, centred over the French Riviera near San Tropez. The image is available for viewing on the world wide web using the following URL: ftp://ftp.amsat.org/amsat/images/TechSat/Cam2.jpg

Both satellites are expected to be available for general amateur use shortly.

oscar numbers

The assignment of consecutive Oscar numbers to new Amateur Radio spacecraft is a tradition that dates from the launch of the very first Amateur Radio satellite, Oscar 1.

In order for an Oscar number to be assigned, the satellite must successfully achieve orbit and one or more transmitters must be successfully activated in the Amateur Radio bands. Then, the builders / owners of the satellite must formally request that a consecutive Oscar number be assigned to their satellite once the first two requirements are accomplished.

phase-3d

DB2OS reports that the current version of the official AMSAT P3D Bandplan for uplink, downlink and beacons can be found on: http://www.aball.de/~pg/amsat/p3dqrg.html These frequencies, which are shown in **Table 1** opposite, have been carefully selected to minimise mutual interference with other satellite projects and are also co-ordinated with IARU bandplans. One interesting point to note among the listings is that there is now a beacon on 2m (none were allocated before) in the middle of the passband at 145.880MHz. In fact there are beacons in the middle of most passbands, not just 2m, as well as at each end.

The possibility of providing a page or two of near-real-time data on the AMSAT-NA web site is being discussed. This would be gathered off the downlink by one or more stations using software which would automatically decode the data and update the web site via the Internet. The pages could range from simple lists of channels and values to dials, gauges, thermometers, etc.

amsat-uk news

Well, the AMSAT-UK Colloquium is over for another year. The event took place at the University of Surrey in Guildford over the weekend of 31 July - 2 August. Personally, I think this was one of the best Colloquiums we have ever had, but I was very dis-

Delegates at the recent AMSAT-UK Colloquium held at the University of Surrey.

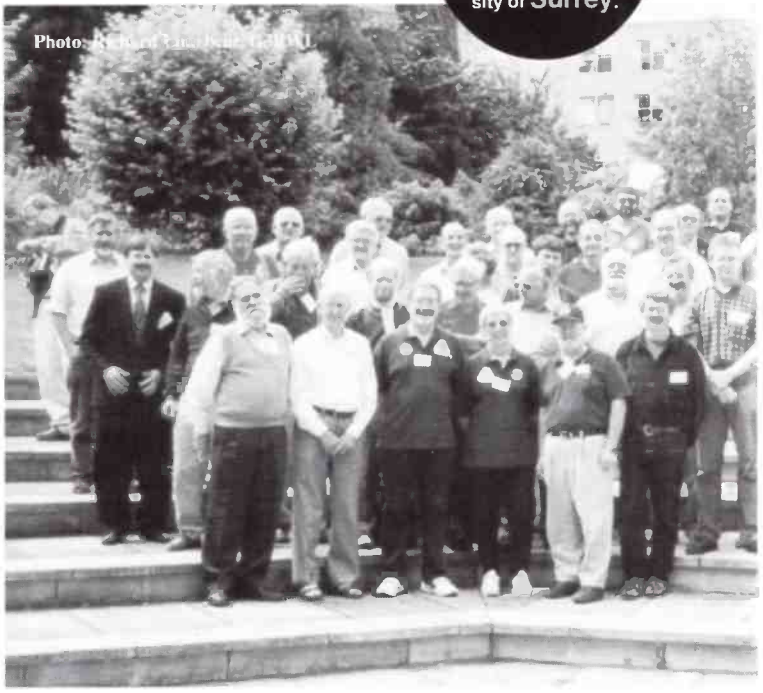


Photo: Richard Limebear, G3RWL

appointed by the lack of support from the AMSAT-UK membership. Certainly I put quite a lot of work into organising the program, but this is nothing compared with the work done by Fred and Jenny Southwell in 'the office'. We are all wondering if it's worth all the hassle when the membership doesn't support us.

A picture of the delegates at this year's Colloquium is shown below.

Some extensive testing and subsequent modification to the popular Drake 2880 downconverter took place during the Colloquium. Three modifications were finally adopted, which resulted in a steady decrease in noise figure and increase in conversion gain. Full details of the modifications are detailed at: http://www.qsl.net/g3pho/drake2.htm

space station news

On the two days prior to the AMSAT-UK Colloquium, Amateur Radio delegates representing seven of the eight countries involved in Amateur Radio aboard the International Space Station (ARISS) met to continue plans to establish the first permanent Amateur Radio presence in space. The session was chaired by Space Amateur Radio EXperiment (SAREX) Working Group Chairman Roy Neal, K6DUE.

On hand or patched in via a teleconferencing hook-up were 16 representatives from the United States, Japan, Italy, Germany, Canada, the United Kingdom and Russia. The representative from France was unable to attend because of a prior commitment.

ARRL Educational Activities Department Manager, Rosalie White, WA1STO, and AMSAT-NA Vice President for Human Space Flight Programs, Frank Bauer, KA3HDO, served as the US delegates for the meeting. Participants to the sessions included AMSAT-NA President Bill Tynan, W3XO; Space Shuttle Payload Specialist Ron Parise, WA4SIR; and RSGB President Ian Kyle, GI8AYZ. The IARU Satellite Frequency Co-ordinator Graham Ratcliff, VK5AGR, and IARU Satellite Advisor, Hans van de Groenendaal, ZS5AKV, were also on hand.

The delegates formed two permanent working groups. The Hardware Group, chaired by Lou McFadin, W5DID, is charged with designing and building space station equipment. The Administrative Group is charged with setting up ground rules for operation, finding financing, and handling all other administrative details.

Frank Bauer, KA3HDO, said ham radio will be part of the ISS right from the start of construction. "What we're going to do is develop this in stages," he said. The first flight of hardware aboard STS-88 (at the end of this year) will include a 2m handheld and packet TNC capability provided by the US team that will be coupled with an antenna system that will be a co-operative effort of the Italian and Russian teams.

The ISS service module, due to be launched next summer, is the section of the ISS in which astronauts and cosmonauts will live during construction. The interim station for the first ISS crew at that point would add a US-supplied 70cm capability, a German-designed 'digitalker', and eventually a transportable station that could include SSTV and full-duplex VHF / UHF. The first crews to actually live aboard the ISS will graduate to mobile-type transceivers.

Bauer says the final ISS equipment complement is still in the conceptual stages but is likely to include all-mode capability from 10m up to 13cm. He was quite excited about the teamwork exhibited by the international partners, stating that "as an international team, we were able to quickly put together an interim station - leveraging developments already in progress by Will Marchant, KC6ROL, and Lou McFadin, W5DID, in the US, Thomas Kieselbach, DL2MDE, in Germany and Sergei Samburov, RV3DR, in Russia."

Surrey ARISS delegates also discussed time-sharing and scheduling of the ham stations, crew training, educational opportunities, fund-raising, callsigns, and frequencies. Details on these issues remain to be decided.

P3-D Uplink Frequencies

Uplink	Digital	Analog Passband
15m	None	21,210 - 21,250kHz
12m	None	24,920 - 24,960kHz
2m	145.800 - 145.840MHz	145.840 - 145.990MHz
70cm	435.300 - 435.550MHz	435.550 - 435.800MHz
23cm (1)	1269.000 - 1269.250MHz	1269.250 - 1269.500MHz
23cm (2)	1268.075 - 1268.325MHz	1268.325 - 1268.575MHz
13cm (1)	2400.100 - 2400.350MHz	2400.350 - 2400.600MHz
13cm (2)	2446.200 - 2446.450MHz	2446.450 - 2446.700MHz
6cm	5668.300 - 5668.550MHz	5668.550 - 5668.800MHz

P3-D Downlink Frequencies

Downlink	Digital	Analog Passband
2m	145.955 - 145.990MHz	145.805 - 145.955MHz
70cm	435.900 - 436.200MHz	435.475 - 435.725 MHz
13cm (1)	2400.650 - 2400.950MHz	2400.225 - 2400.475MHz
13cm (2)	2401.650 - 2401.950MHz	2401.225 - 2401.475MHz
3cm	10,451.450 - 10,451.750MHz	10,451.025 - 10,451.275MHz
1.5cm	24,048.450 - 24,048.750MHz	24,048.025 - 24,048.275MHz

P3-D Telemetry Beacons (IHU)

Beacon	General Beacon (GB)	Middle Beacon (MB)	Engineering Beacon (EB)
2m	None	145.880MHz	None
70cm	435.450MHz	435.600MHz	435.850MHz
13cm (1)	2400.200MHz	2400.350MHz	2400.600MHz
13cm (2)	2401.200MHz	2401.350MHz	2401.600MHz
3cm	10,451.000MHz	10,451.150MHz	10,451.400MHz
1.5cm	24,048.000MHz	24,048.150MHz	24,048.400MHz

Table 1: Phase 3-D satellite uplink, downlink and beacon frequencies.

Satellite Rendezvous

Images from space in his regular round-up of news from AMSAT-UK

regular

This is the final call for the G-QRP Club mini-convention to be held at Rochdale on 24 October in the church hall of St Aidan's, Manchester Road, Rochdale. Doors open to the public at 10.00am and the entry fee is just £1.00. The usual attractions will be there, such as the G-QRP Club stand selling lots of club goodies, membership services, books, ties, T-shirts etc.

Gus Taylor, G8PG, will have his antenna help desk available and most of the other club officers will be there to offer assistance and answer any questions members may have. Other club experts such as Ian Keyser, G3ROO, and David Stockton, GM4ZNX, offer construction help to anyone asking, often sitting at a table with a stream of people stopping to chat.

The bring and buy stand is always a popular stopping point. Organised by the local Rochdale radio club, it often has a bargain or two to be snapped up.

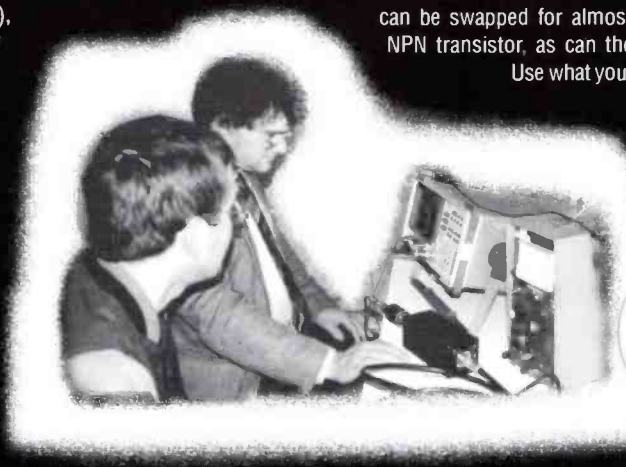
The photos show David, GM4ZNX, working with his latest spectrum analyser testing some equipment, whilst Ian, G3ROO, is seen explaining a circuit to a builder.

There are always a few of the regular QRP traders such as JAB Electronics, Hands Electronics, G3TUX with his keys and kits, several members with goods and quality junk for sale, and, of course, Kanga Products.

The series of talks in the church are always of interest, starring various members but always ending with David, GM4ZNX, and his Q & A session. It's normal for us to have to drag him out of the chair to lock the building at the end of the day.

For those who wish to stay over there are several bed and breakfast establishments around the area as well as a few hotels. Visitors have often included Americans, Canadians, Germans, Swedes (Johnny always brings lots of Swedish fish - yummy!), Czechs, Dutch and occasionally a few other nationalities.

There is, of course, an opportunity to join not only the G-QRP Club but, by popping over to me on my stand, you can also join the American QRP Club, the QRP Amateur Radio Club International (QRP ARCI), the NorCal Club or the OK-QRP Club. You don't have to go to Rochdale to join ARCI, though, you can do this by post to me at home. The membership fee is £13.50 when paid by cheque (payable to the G-QRP Club) or £14 when paid by Visa or MasterCard.



David, **GM4ZNX**, testing some equipment on his latest **spectrum** analyser.

QRP Corner QRP Corner

What do you do when you have water in your coax? All in

wet antennas

Winter is fast approaching and we must consider the state of our antenna systems. The nasty weather can often cause havoc with antenna elements' feed points and feeder. Even the joint between two points can cause problems when the weather gets in.

When water gets into joints it can cause havoc. The best answer is to ensure that any joint is waterproof. There are several ways of achieving this, but by only using insulating tape on many joints, proper waterproofing is almost impossible to achieve.

The only way to achieve proper proof against water damage is to use commercial materials such as self-amalgamating tape. The correct use of tape of this type is essential. Unless it is stretched and pulled tight as it is wound around the joint it may still leak. The tape must be moulded by hand to fit tightly and then this should ensure a dry joint.

If, however, there is *already* water in the coax outer there may still be an answer. If there is water in the inner core there is little that can be done. But for those cables with water within the outer shield there is a way forward. By making a cut-away section in the feeder we can stop water getting into the connector. Cut away a small section of the outer covering and waterproof the two edges of the removed section; this can stop the water gaining access to the connector and thus our equipment. See **Fig 1** for more explanation. This method can ensure longer life for cables that might otherwise be of no use.

Some of the **huge** selection of **'junk'** for sale at the **G-QRP Club** Rochdale mini-convention.

junk box special

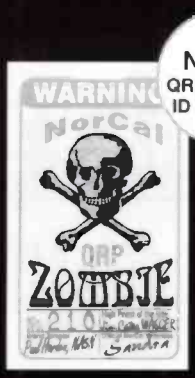
There have been a profusion of simple transmitters for many of the HF bands, but relatively few for the 30m (10MHz) band. The little beast in **Fig 2** will put out something over a watt, or if you are really lucky even as much as 1.5 watts. The 2N2222 transistor can be swapped for almost any NPN transistor, as can the PA. Use what you have in the junk box and experiment.

It is up to you where to key the transmitter; you can put the key in the supply line, the negative line, or even in the emitter of the PA.

Although this circuit will oscillate with almost any fundamental crystal in the circuit, this design has been put together specifically for 10MHz; to change bands the output filtering would need to be changed.

C1 is optional and, of course, an inductor can also be added in series with C1 to pull the crystal a little before the capacitor adds the 'swing'. C1 can be any value up to 100pF. The inductors are made up as follows; L1: 13 turns 24SWG on T68-6 (yellow) toroid, L2: 30 turns of 30SWG on T37-63 ferrite toroid, RFC: 100µH choke. Note the ferrite bead fitted to the base of TR2. This transistor will get very hot in use, so a heat sink should be fitted. There are no difficulties in building this small unit and it should 'fire up' first time.

Any receiver can be used with this 30m transmitter, but remem-



The NorCal QRP 'Zombie' ID badge.

ber that all the time that volts are applied to the oscillator it will produce a signal that will be heard in a nearby receiver. The output of the oscillator may only be a few tens of milliwatts but I know of one operator (G3ROO) who worked 'over the pond' with just 23mW into a quad antenna.

to cw or not to cw

Few amateurs will have missed the debate on Morse over the past year or so. The debate on the merits or otherwise of the mode have recently caused a rift within the G-QRP Club, some members feeling strongly that the 12 words per minute Morse test must be retained at all costs, whilst others declare that an 'antiquated mode' should not be retained as we near the 21st century.

Without doubt whatever happens, those that love to use Morse code will continue to do so and in their way will ensure that the mode continues to live. It is without doubt the most efficient mode available to amateurs which can be decoded without the aid of machines. Morse will get through where most others will fail.

What does make for interesting reading is that within the amateur community most will accept without question the statement "I hate cheese" or perhaps "I detest wasting time watching TV". None of these causes problems with anyone. But change that to "I hate Morse" and all hell breaks loose! Some immediately shout "foul" and others scream for the executioner. Why?

Whatever the personal feelings of amateurs a total agreement will never be achieved. I have listened to the arguments, both for and against the retention of the code for access to the HF bands. In my part of the hobby it is seen that QRP *is* CW. This is patently not true, as there are many operators who use SSB, as well as those who without thinking use their handhelds on FM at power levels of under five watts.

Whatever happens to the Morse test there will be those who will be unhappy about it. Let us hope that whatever happens, the end result not only ensures that the hobby continues, but perhaps gains a little bit more respect as we approach the millennium.

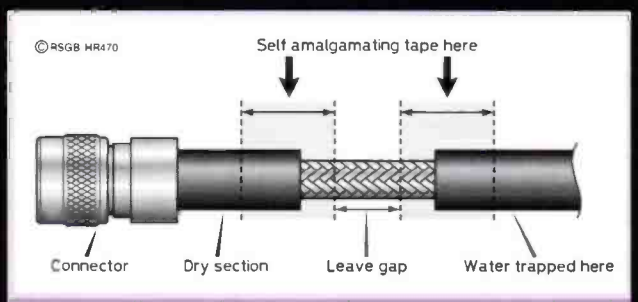


Fig 1: How to protect the connector - and equipment - if there is water in coaxial antenna feeder.

cheap formers

I was asked recently about winding inductors for VFOs. The chat revolved around the difficulty of finding the ¼ inch (now 6mm) formers that were so easy to find in years past. I was lucky; when KW Communications closed down at Maidstone they had a component clearout, £5 for a carrier bag of components. I parted with a few notes and one bag contained a few dozen formers.

But, although my luck has helped a few locals, the dearth of cheap formers is still a problem in other parts of the country. There is an answer! Another of my hobbies is shooting. I have a couple of shotguns, one of which is a 410 gauge. Now this cartridge is almost precisely ¼ inch diameter. It has a brass covered base and if the centre firing pin is removed (it pops out) there is the facility for connecting one end of your wire to the case and the other through the centre hole. It works! You will find a source of these by asking at any gunsmith's shop, they will know who buys that size of cartridge and where they may be found. Often lady clay shooters use them.

If you have any similar hints or ideas for the newcomer (or old timer) I would love to hear about them and share them with readers. Please drop me a line.

g0oky sk

It is with regret that I have to announce the death of Ian Wye, G0OKY, the G-QRP Club sales officer. I first got to know Ian whilst he served in the army. He did several year's service in Germany and other countries. On his return to the UK he became the Club officer dealing with all the club sales of small items, a job he did for several years. A keen QRP operator who will be missed by all who knew him. He leaves a wife and a four-year old daughter.

Club sales are now being handled by Frank, G3YCC, 8 Westland Road, Kirkella, Hull HU10 7PJ. Please add an SASE with requests for details.

"and finally..!"

The NorCal Zombie badges hit the UK! The Northern Californian QRP club is known for its affection of the unusual. Several members often (just) go into the forbidden 'Area 51', where three state borders join, to operate, as they can claim extra points in competitions. 'Grand Templar' Paul Hardin, NA5N, has now produced a small identity badge showing an 'official' Area 51 entry pass and the 'official' Zombie ID.

A harmless bit of fun, that has taken the American QRP-L Internet reflector by storm. Apparently NorCal members are wearing them to hamfests (or rallies) and using them to identify the wearer as a member of the QRP-L list and also of NorCal. Several hundred of these badges have been made and given away by Paul.

Several UK members of the NorCal club have obtained badges and will be proudly wearing them at radio events; all badge owners attending Rochdale *must* wear theirs. On a final note, what is the UK equivalent to 'Area 51'?

That's it for another month. News and views to me via the editor or direct to Seaview House, Crete Road East, Folkestone CT18 7EG, or via packet to GB7RMS or e-mail to Dick@kanga.demon.co.uk

QRP Corner QRP Corner

not necessarily lost, as Dick Pascoe, G0BPS, explains

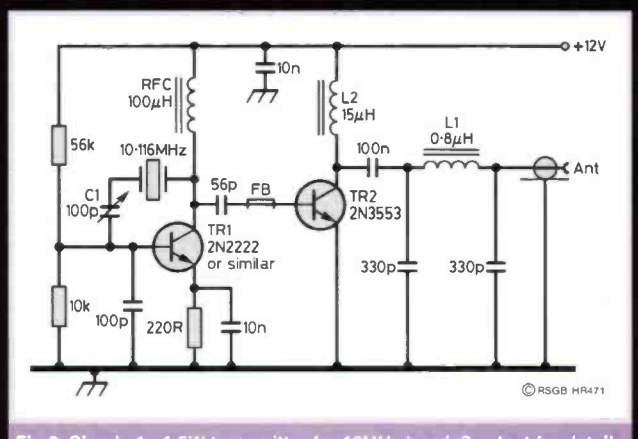


Fig 2: Simple 1 - 1.5W transmitter for 10MHz band. See text for details.

VHF / UHF Message

Geoff Brown, GJ4ICD, says "there is life on 432MHz and

It has been quite a while since any real DX has been reported on 432MHz, but Keith, G4FUF, in Essex worked EB1GEQ (IN52) on 19 July on FM. That contact was around 1200km. He also worked EA1YV (IN52) on SSB the same day.

Don Hayter, G3JHM, in Hampshire also had a path down to EA on 19 July and reported working several EA stations. The opening was due to a large high pressure system sitting over the English Channel and extending down through France to Spain.

The following day (20 July) as the high pressure system moved east it produced a duct from PA0 to the UK on 10GHz. Wim, PA0WWM, reported working G3KEU (IO81), G4BRK (IO91), G3JHM (IO91), G8ACE (IO91) and G4LDR (IO91).

John Tye, G4BYV, in Norfolk sent in an update for his GHz-band activities. John, through dedication, has worked 90 grid 'squares' and 21 countries on 1296MHz, 60 grids and 14 countries on 2320MHz, 27 grids and seven countries on 3400MHz, 19 grids and seven countries on 5760MHz and 31 grids plus 11 countries on 10GHz.

144MHz Es

I had lots of mail about the Sporadic E (Es) season in general for 1998. It was reported by many as being "the worst year on record". My radio was parked on 144.300MHz most of June / July, but the only DX heard was one IT9 (Sicily), one 9H (Malta) and EH9MH (Spanish North Africa), with just one new square added throughout the whole of the Es season. Even the European DX Clusters reported Es extending only up to 90MHz. In previous years I have logged hour-long openings to YU, YO and LZ. From time to time I also checked the USA clusters and they reported similar conditions, with very few openings compared with previous years. The Mediterranean area also lacked its usual 'mega openings', although Henry Suchet, 9H1CD, had a brief opening on 21 July into France and Spain, and was also heard briefly in GJ.

F6FLV (JN18) had a short Italian opening via FAI (Field-Aligned Irregularity) at the same time. 9H1CD reported another Es opening to EA3 and EA6 on 22 July, but only two stations were worked.

Another major Es event was on the morning of 9 August when 9Hs were worked by GU7DHI and GJ0JSA. G4FUF (Essex) and G4SWX (Suffolk) were also in on the action.

144 & 432 tropo / aurora

The anticyclone in early August produced very good conditions to Spain. Don, G3JHM (IO91), reported EA1DDU (IN73) very strong on 6 August on both 144 and 432MHz SSB. G4VPD (IO92) also reported good 144MHz conditions to Spain.

An aurora was also in action on the same day, when the K index shot up to '6', but no real DX was reported.

7 August produced a nice sea duct on 144MHz to EA8 (Canary Islands). Dennis, GW8OQV (IO81), reported working EB8AE at 1942UTC, whilst the next day at 0848UTC G4LOH worked EB8BTV at a distance of 3026km. On 11 August G8TIC/P at Lizard Point (IN79) also worked down to EA8 on 144MHz via sea ducting due to the high pressure system in the Atlantic Ocean.

70MHz news

Ken, G3LVP, reported that S57A (Slovenia) was worked by a number of UK stations on SSB on 21 July at around 1900 - 1930UTC. He also put out a few calls on 70.450MHz FM and was copied in the UK. S57QQD was also heard but did not appear to have much success.

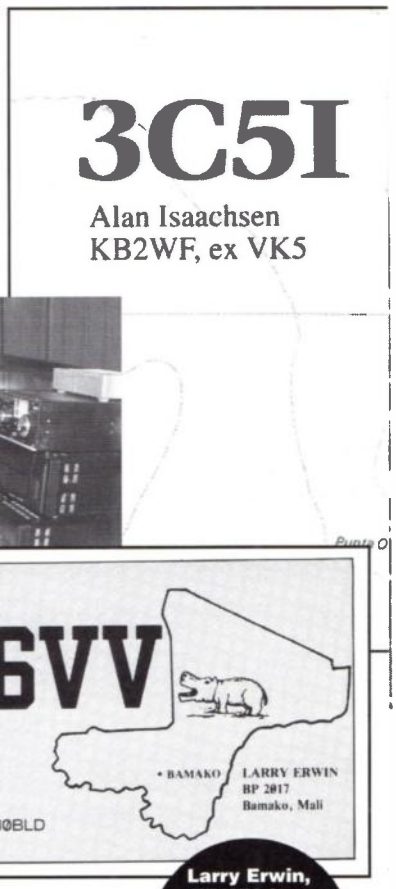
Speaking of FM QSOs, Jon, G0IUE (Wilts), had his first contact with Slovenia on 70.450MHz on 21 July with S57A: signal reports were 59 both ways!

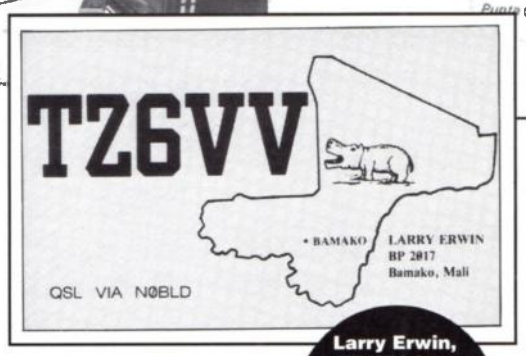
Sheldon Hands of Hands Electronics is currently making a transceiver kit for the band. It will be based around his well-known 50MHz transceiver, the RDX50. Power output will be around 5 watts, with a possible 'add on' amplifier of 25 watts. The kit will also offer the user an option of SSB or CW / SSB as two IF units are currently available. A digital display is also offered as an option. It is hoped to receive a kit from him in the near future for a review in *Ham Radio Today*, and if it is anything like his RDX50 kit, I am sure it will create some much-needed activity on the band.

usa to japan on 50MHz

As briefly reported last month, Dave, N5JHV, worked into Japan (JA1 / JA4 call areas) on 20 July. It took a little time to gather the full information via the Internet on this incredible opening. Dave's full grid square information is DM62OF and the JA4 he worked was in PM64RO, which, according to my calculations, is a distance of 10,263km.

Kazu Ogasawara, JA1RJU, one of the lucky few JAs to work W5 on 6m.





Larry Erwin, TZ6VV, has recently become active on 6m and has already worked into Europe.

Although not a world record Es contact, it comes a close second to the contact in 1981 when WA5LIG and K5PTG worked a JA1 station on 9 July. According to Hatsuo, JA1VOK, no W5 area contact to Japan has been reported for 17 years, although W6 / W7 have been worked quite frequently by multi-hop Es since June 1977.

The existing world record Es contact with WA5LIG in EM12 from JA1 (PM95) is calculated at about 10,400km, which is just further than N5JHV's recent JA4 contact.

There was much discussion in the USA about the propagation mode, but it does seem certain that multi-hop Es was involved (four or five hops). Some suggested that it was both Es and F2, but looking carefully at the geometry and time of the contacts it is very unlikely to be F2 on an east / west path at these latitudes, especially during the summer months and when solar flux levels are well down compared to the cycle peak. Even during a cycle peak, F2 has not been known of during the summer months on an east / west path: the peak for such propagation is in October / November / December and February / March.

Dave, N5JHV, had another opening to Japan on 30 July. This time he worked JA1RJU, JI1UHZ, JR2HCB and JA2EMQ. Although Dave's QSOs were not new world records, they were the best distance 50MHz Es contacts for 17 years!

6m reports

Alan, 3C5I, in Equatorial Guinea reported the following contacts on

VHF / UHF Message

10GHz!" and reports on some of the best 50MHz contacts in a year.

the band on 20 July: G4HBA, G3IBI, G3NSM, GW3JXN, G4SIU? (could be G4SEU?), G4UPS, GW0GIG, G3KOX, G6ION on CW and G3GIQ, GW7SMV, GW0GEI, G4ASR and MW1BGE on SSB. Alan was also S9+ on SSB at GJ4ICD. QSLs go via Alan Isaachsen, MEGI, PO Box 139082, Dallas, TX 75313, USA. Alan's QSL card is absolutely brilliant, and shows a detailed map of Bioko Island in Equatorial Guinea.

Equatorial Guinea is one of the rarest countries on 6m, but is being well activated by Alan, 3C5I.

Alan also asks that if you have worked him, please don't call again, as this will give others a possible chance of working such a rare country. He may be QRT at the end of this year, due to logistical problems.

Jon, OY9JD, in the Faroe Islands copied Alan working GW3JXN and other Gs during the opening via a strange mode which Jon reported as a mixture of Es and FAI. The distance is around 6000km.

26 July produced more Es, even though the season was nearly over. 1A0KM (at the Sovereign Military Order of Malta villa in Rome) made 84 contacts with nine countries on the band that day, including several Gs in the north of England.

Alan, 3C5I, reported his best opening into Europe on 27 July, with SM7WDS, IW2AET, DL4IBD, DL6AMI, DF5LQ, SM7FJE, SM7AED, IK4FMT, ON7TN, PE1PZS, IZ4BEZ, OZ8RW, DJ4SO, IK3HHJ, OZ1LO, IK4GME, DL9USA, DL0KCT, DL3HRM, DL3DXX, and EI7GL being worked. 7Q7RM (Malawi) was also coming into Europe the same day and managed contacts with SM and PA0.

On 28 July Alex, TL5A (JJ49), in the Central African Republic worked five SM7 stations and one SP6 station, and he was reporting 4Z5JA (Israel) almost on a daily basis. He is active after 1700UTC during weekdays and after 1500UTC at weekends.

Also on the 28th, David, MM0AMW (IO75) reported working KP4EIT (Puerto Rico) at 2015UTC. Alan, GI0OTC (IO65) also managed a contact. Prior to this opening, EH8BPX and the CN8LI/B beacon on 50.027MHz were very strong via Es in the UK. A little later in the evening, Peter, PY5CC, had a contact with 4Z5JA via F2 / Es.

Neil, G0JHC (IO83), reported a contact with 7Q7RM on the 30th. The contact was via F2 with Es on the top end.

Larry Erwin, TZ6VV, returned to Mali in early August and is now active on the band. He is using an Alinco DX70TH radio into a five-element beam. This is the first time Mali has been operational on 50MHz and so he will be a new one for everybody - Larry's previous operations in Mali were on HF only.

Dave, G4RGK, reported good signals from Ron, 7Q7RM, on 5 August. Dave said, "Ron was up to S7 on SSB", and again the mode was via F2 and Es on the top end.

The 3C5I beacon on 50.107MHz was extensively heard in the UK on the morning of 6 August at up to 599, but sadly the owner, Alan, was at work! Also, on the other side of the world, several stations in Japan were spotting an opening into the VK4 and VK8 areas.

On 8 August the solar flux index hit 145 and this produced a fantastic day on the band. In the morning, Alan, 3C5I, made 41 QSOs with Europe, with signals up to S9+. Later in the day, 7Q7RM, Z22JE, PY5CC and the ZD8VHF beacon (50.0325MHz) were all heard or worked in Europe. On 9 August the flux index climbed to 154 with 95 sunspots, and there was also a massive Es opening throughout Europe.

DX worked included 'Sid', ST2SA, in Khartoum, who was worked by stations in DL, SV, I, S5 and EA. Sid was also heard in ON, F and GJ. From 1700UTC onwards the following were reported in the UK: Z22JE, 7Q7RM (599 in central England), 3C5I, and then the propagation switched to South America with several LUs being worked by G3VOF (Essex), G3IBI (Hants) and many others in the UK. The mode was clearly F2 with Es on the top end. Most of the LUs were worked on SSB. The following night, 10 August, the DX was repeated, with 7Q7RM and Z22JE coming into the UK. At 1900UTC, PY5CC (GG54), PY2XB (GG66), PP5BC and ZP6CW were having a ball working into Europe and PY5CC was heard as far north as SM0 (JO98). Graham, G8HVY (Hants); Peter, G3IBI (Hants); and Martin, G3VOF (Essex), were some of the UK's lucky ones in Peter's log. A total of 19 countries and 101 contacts were made, including EA, 9A, I, T77, DL, S5, YU, OE6, ON, F, IS0, HB9, G, CT1, 9H, OZ, GJ and GU. US5 (Ukraine) was Peter's 159th country on the band.

It didn't take long to work newcomer to 50MHz, Larry, TZ6VV, in Mali. On the 13th, several UK stations had an Es pipeline into Africa, and Larry made 13 QSOs with Europe for his first-ever opening on the band.

Later on the 13th, there was another opening into Brazil at around 1900UTC and again Peter, PY5CC, had a massive European pile-up. This time many G stations were able to work him during the hour-long opening. This time he was copied as far north as GM, with MM0AMW hearing him for three minutes. The distance from PY5CC to MM0AMW is around 10,000km.

Finally this month, a report from GM. Not many reports are received from this part of the world, or as somebody once said, "the best side of Hadrian's Wall". John, GM1ZVJ, reports on his 50MHz activity from Fife (IO86). His working conditions are 100W to a five-element beam. So far John has notched up 155 grid squares and 36 countries on the band - but he still needs GJ!

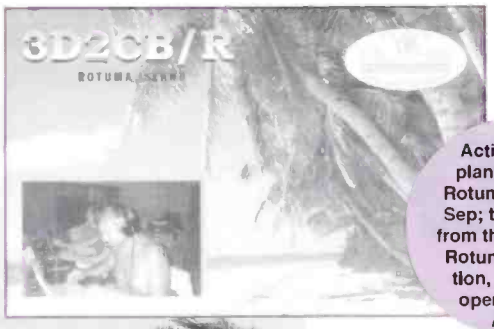
beacon news

Updated information on 50MHz beacon K5BTP. It is in EM40 and operates on 50.071MHz with 8 watts to a dipole. The JW (Spitzbergen) beacon has closed down. Apparently this is due to local problems, so it may not return to the air. ZS6TWB/B on 50.044MHz is operational as from mid-August. GB3BUX on 50.000MHz returned to service on 9 August.

A 70MHz beacon is now operational in South Africa: ZS5MTL is on 70.005MHz and runs 50W to an omni-directional antenna. The grid square is KG50IG, and other beacons are planned for the ZS6 area in the near future.

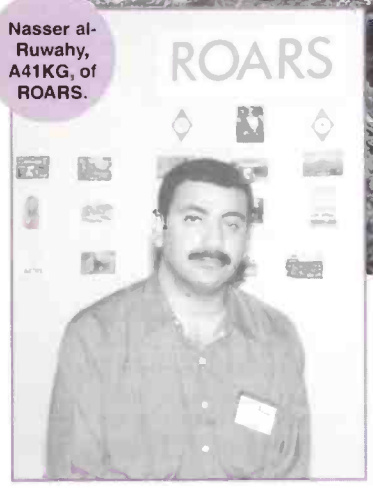
News, views and especially photos are welcome, but if you have any long reports please send them via e-mail or via disc. The 'snail mail' address is: Geoff Brown, TV Shop, Belmont Rd, St Helier, Jersey JE2 4SA, or via e-mail to: equinox@itl.net. Next month we may well have news of VHF openings into South Africa, as the real F2 DX season begins on 50 / 70MHz with solar flux levels rising fast. Also, keep a lookout in the early mornings for a possible opening to VK on 6m.

3B7RF
ST. BRANDON 1998



Activity was planned from Rotuma in Aug / Sep; this QSL is from the previous Rotuma expedition, by Czech operators, in April.

Karl Graetzer, HB9JAI, is to give a presentation on the May '98 3B7RF DXpedition at this year's RSGB HF Convention.



Nasser al-Ruwahy, A41KG, of ROARS.

By November good winter conditions should have arrived on the LF bands. You can expect to hear the Far East coming in from around sunset until about midnight, and North and South America appearing from the west from midnight until shortly after dawn.

Australia (VK) will be audible short path in the evening and long path in the morning. From the UK, the VK / ZL / Pacific evening short path can be a struggle because the Eastern European stations are closer and tend to have much stronger signals at the distant end. But the situation is reversed with a vengeance on the morning long path. We have a small distance advantage which helps a bit, but the real bonus is that the rising sun effectively switches off propagation on the lower-frequency bands from the east and with no DXers further west than Ireland we and the Els have the path to ourselves for about 45 minutes.

On 7MHz the central Pacific openings can be quite short and tend to occur between 0715 and 0800UTC.

The HF bands will be closing early to mid-evening, but 14MHz should never be entirely abandoned before about 2200UTC. From November to January there can sometimes be a dead period around 1930UTC with the band re-opening to South America for a while around 2000.

The long summer openings are now just a memory, but back in August there were signs of great things to come in 1999 when the flux peaked over 140 for several weeks and 21MHz opened up to VK and ZL over the pole around midnight.

new dxcc entities

We narrowly missed getting a new DXCC entity back in August when Nevis voters rejected independence from St Kitts. All is not lost, however, as the Quebec separatists are gaining support and could yet vote to leave Canada - though this wouldn't create a rare one on any band given the large number of VE2 licences.

A more intriguing possibility is the island of Socotra off the coast of Somalia by the Horn of Africa. It belongs to the Asian country of Yemen and would appear to just meet the new separation requirements introduced by the American Radio Relay League earlier this year (though I haven't checked on an accurate map). The problem, and there is always a problem, is that getting a valid licence in Yemen has been nigh on impossible for the last few years. The good news is that members of the Royal Omani Amateur Radio Society recently met Ahmed Al-Ri, the Minister of Communications for Yemen, to discuss the possibility of new licences. Apparently the minister was an amateur some 40 years ago and is still a CW enthusiast. Let's keep our fingers crossed on this one. The Omanis stand the best chance of any group, as they can count on the support of their Head of State, Sultan Qaboos bin Said al Said, A41AA.

other activity

A group of German and Austrian operators plan to operate from the Gambia, C5, between 14 and 27 October. The group includes Dieter, DF4RD; Chris, DL5NAM; Uwe, DL9NDS; Wolf, OE2VEL; and Karl, OE9MON. They will be active on all bands, on CW and SSB, and will try to get permission to be on 50MHz.

Uwe, DL2YAK, plans to operate from Cuenca, 400km south of Quito, Ecuador, from 25 October to 22 November. He will use either HC5UK or HC5/DL2YAK and plans to be active on 1.8MHz. He can also be found on or near 14140kHz for schedules.

Herman, DJ2BW, is planning to operate as D68BW from the Comoros from 25 October to 7 November. He will be operating CW on 28MHz through 1.8MHz, with an emphasis on the low bands. QSL via DJ2BW.

According to a posting on the Internet, the Pitcairn Amateur Radio Club will be mounting a DXpedition to Ducie Atoll (IOTA Reference OC-182) from 22 to 27 October. This is a rarely visited, uninhabited, island which is only activated every five or 10 years, so keep a sharp look-out. Pitcairn itself is an intriguing DX location. The population of around 50 permanent residents, many descended from 'Mutiny on the Bounty' crewmen includes quite a number of amateur operators who can sometimes be worked on 7 and 14MHz around 0800UTC or on 21 and 28MHz in the afternoon when the bands are open.

The Lyon DX Group is supporting an operation by F5PFP and F5SIH from Amsterdam Island (FT5Z) in late November / December. They are taking two stations with amplifiers, a monobander for 14MHz, a tribander for 14 / 21 / 28MHz, and a Titanex vertical for

HF Happenings HF Happenings

Winter propagation conditions return as Martin Atherton, G3ZA

1.8 / 3.5 / 7MHz, and hope to have another beam for 10 / 18 / 24MHz. Gil Gautier, F5NOD, (f5nod@easynet.fr) will be the pilot station so once the operation begins let him know if you think they are missing any important openings or bands / modes. The DXpedition's web site is at http://perso.easynet.fr/~f5nod/

KJ9I, NF9V, and NZ9Z will operate as T88II from Belau (or Palau) between 8 and 17 December. They will be active on 1.8 - 28MHz, WARC included, but will give topband special emphasis. QSL via David Schmocker, KJ9I, N7298 County Trunk Highway F, Oconomowoc, WI 53066-9040, USA. For further information you can contact David at DSchmocker@Supernews.com

pratas

Paul, BV4FH, commented in August that "we are very close to getting the OK to return to Pratas Island, BV9P, between 30 and 60 days from now". A 10-operator team might operate from Pratas as soon as October. Paul can be reached at bv4fh@ms2.hinet.net

Norried, H44NC, is currently working on New Georgia Island (IOTA OC-149), in the Solomon Islands until the year 2001. He is active with just 50 watts and a dipole on 3.5, 7, 14, 21 and 28MHz, but with some good conditions should be audible on the three HF bands. QSL to Norried Chaisson, PO Box 68, New Georgia Island, Munda, Western Province, Solomon Islands.

Last month I mentioned the possibility of licences being issued in the Himalayan kingdom of Bhutan. Jim Smith, VK9NS, is reportedly considering a visit to the country in October / November to investigate developments and offer assistance to "a well-known Bhutanese" to establish a station. (One assumes Jim must mean one of the two operators who used to be QRV in the '70s: A51PN or A51TY.) There is a possibility that Jim could be active with the Ministry of Communications club callsign A51MOC during his visit, so be alert for this one also.

And now one definitely not to be missed! The Kermadec DX Association DXpedition to Campbell Island - ZL9CI - in January 1999, represents possibly the last chance for many years for a QSO with this DXCC entity and IOTA island (OC-037).The New Zealand Department of Conservation is restricting access to the island and it is only with representation at the highest level of New Zealand government and continued hard work by team leader Ken Holdom that permission to visit the island has been secured. Added to this of course is the remoteness of Campbell Island in the sub-Antarctic ocean.

The team lineup includes Ken Holdom, ZL2HU, who led the very successful ZL8RI operation in 1996 and cut his DXing teeth on a lightweight trip to Puka Puka Island in ZK1 in 1995. Other members are Ron Wills, ZL2TT; Lee Jennings, ZL2AL; Chris Hannagan, ZL2DX; Brian Biggings, VE3XA; Al Hernandez, K3VN; Declan Craig, EI6FR; Michael Mraz, N6MZ; Jun Tanaka, JH2RHF; Andrew Williamson, GI0NWG, and (representing the Department of Conservation) Jason Christensen, ZL2URN.

The team expects to arrive on Campbell on 9 January and remain on the air until the 25th. Pilot stations are AC7DX, N1DG, and GI0KOW. The total budget for the ZL9CI DXpedition will be in the region of $85,000 including $65,000 for the boat charter and donations will be welcomed by the team.

p ot stations

It seems to be standard practice these days for expeditions to appoint 'pilot' stations in the major population centres of the world. The rôle of these pilots is primarily to provide the expedition with a regular summary of incoming comments, complaints, and bouquets from DXers gathered over Internet e-mail and packet. They may also act as a channel of communication from the expedition to the DX community. I took this rôle for the H40AA Temotu and CDXC's 9M0C Spratly expeditions and found that in addition to the rôle described above I was also asked to confirm that certain QSOs were recorded in the log or even to edit the logs to correct callsign copying errors.

There is an increasing trend to put expedition logs on the Internet in a searchable form while the activity is still taking place. 9M0C generally had logs up within 24 hours, but the group heading for St Pierre and Miquelon (FP), which I mentioned last month, is talking about 'real time' transfer of log information, so that QSOs are available for searching within minutes. It will be interesting to see how they achieve this without massive phone bills.

Note that I refer to search facilities rather than a straight list of QSOs, as there is a consensus amongst expeditioners that if the logs are published in a raw form it will encourage people with calls similar to those worked to apply fraudulently for cards. Such cheats might allege that the operator made a mistake and misheard a phonetic or a single dot or dash on CW. To get around this problem most log servers allow you to enter your callsign and return a list of QSOs for that call. Of course you could always enter a range of calls similar to your own and see what comes back - but most cheats won't bother as it would be easier to make the QSO!

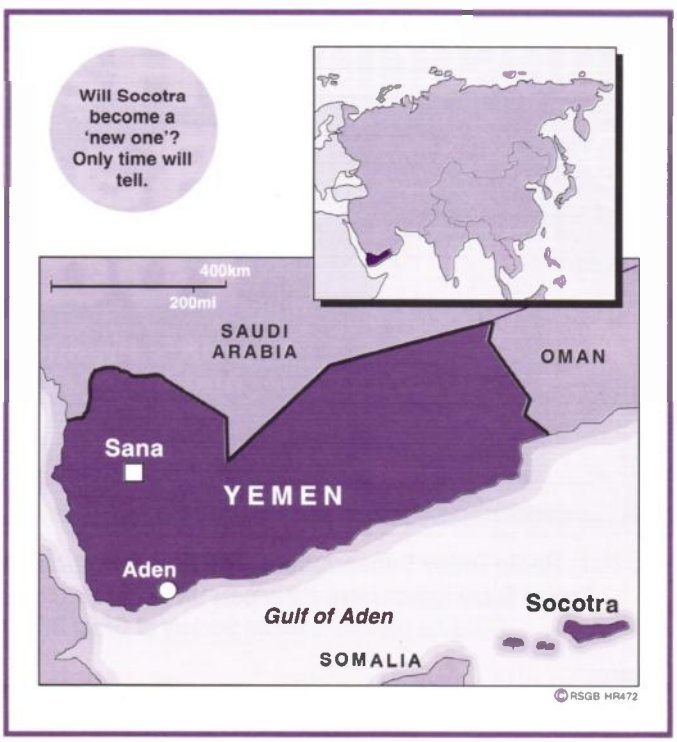
funding

Major DXpeditions, like the Campbell Island trip above, can be enormously costly and most DX clubs around the world make it a point of principle to assist by making contributions to help defray the costs. In the UK the Chiltern DX Club (CDXC) and the RSGB HF DXpedition Fund have each made significant contributions to the following DXpeditions: 3D2DX, Rotuma Island, August / September 1998; FT5ZH, Amsterdam Island, November / December 1998; T88II, Palau, December 1998; ZL9CI, Campbell Island, January 1999.

For details of CDXC, which is open to anyone with 100 countries worked or heard and provides a range of social events and an excellent Newsletter [edited by former *HF Happenings* columnist Don Field, G3XTT - *Ed*], readers should contact Barry Cooper, Secretary CDXC, 1 Strouds Meadow, Cold Ash, Newbury, Berks RG16 9PQ.

rem nder

Don't forget the *CQ* WW SSB and CW contests that I mentioned last month. These are scheduled for the last *full* weekends of October and November respectively for 48 hours from 0000UTC on the Saturday. Respite is available for non-contesters on the three WARC bands of 10, 18 and 24MHz.



penings HF Happenings

looks at the possibility of some new DXCC entities appearing

The Help Files

Ham Radio Today's guide for beginners to Amateur Radio

All hobbies have their own jargon, and Amateur Radio is no exception. *The Help Files* are designed to help beginners understand some of the terms and unusual 'Amateur Radio-ese' used in *Ham Radio Today*. We hope you find this page useful.

This month in *The Help Files*, instead of looking at each article separately, we concentrate on two aspects of Amateur Radio which beginners often ask about - the Amateur Radio frequency bands and 'propagation'. We have received some queries about how 2 metres relates to 432MHz and what has this to do with HF or VHF? And how does 'shortwave' fit into the scheme of things? I hope the table below answers all these questions and more - *Ed.*

Page 44 - VHF / UHF Message. In this month's column, Geoff Brown, GJ4ICD, refers to many of the types (or 'modes') of propagation commonly encountered on the VHF and UHF bands. Here is a brief and simplified explanation of these - *Ed.*

Sporadic E (abbreviated **Es**) is one particular mode of propagation by which signals on the higher HF bands (eg 28MHz) and lower VHF bands (eg 50 and 70MHz, occasionally also 144MHz) travel longer distances than under 'normal' conditions. Signals are reflected from the E layer of the ionosphere, and this mode of propagation is not possible to predict - hence the name 'Sporadic E'. Es conditions last from a few minutes up to several hours, with the longer-duration events tending to be at lower frequencies. It does, however, occur during specific seasons. In the northern hemisphere this is roughly May to August.

Field-Aligned Irregularity (FAI) is another type of E-layer propagation which tends to occur in southern Europe. Signals do not follow a direct path between stations, but appear to originate from an area where there is a *field-aligned irregularity* in the distribution of free electrons in the ionosphere. Signals received by FAI are invariably very weak.

'**Tropo**' is the common term used for **tropospheric propagation**. Here, signals are reflected in the troposphere, the lowest layer of the atmosphere, at a height of around 4 - 5km above the earth. 'Tropo' tends to occur during anticyclonic weather conditions, which often coincide with hot sunny weather in summer or foggy days in autumn. It can provide considerable enhancement (strengthening) of what are normally very weak distant VHF and UHF signals, and can extend the range of communication up to about 2000km. Radio Amateurs often refer to there being "a bit of a lift on" during tropo conditions, which can last for a few hours up to about a week.

Auroral propagation is exactly what is suggested by the name: reflection from the auroral curtain ('northern lights' or aurora borealis in this hemisphere). However, there does not need to be a visual aurora taking place in order for there to be auroral propagation; indeed a visual aurora in the southern UK is a very rare phenomenon, whereas radio auroras occur on a few days each year in southern England, becoming more common further north, ie in Scotland and in particular Scandinavia. Signals do not follow a direct path between stations, but are worked by beaming the antenna towards where the auroral disturbance is taking place (usually between north-west and north-east from the UK).

Finally, **F2** propagation refers to reflection from the F layer of the ionosphere. This is the 'normal' means of propagation for signals on most of the *HF* bands, but it does not normally extend far into the VHF range (ie above 30MHz). However, either side of the peak of a solar cycle, F2 can provide world-wide propagation on the 50MHz (6 metre) band. Solar cycles peak roughly every 11 years, with the next expected in 2000, so we can expect some F2 propagation on 6 metres in the next year or so, and for it to last - on and off - for a few years more.

Page 46 - HF Happenings. Staying with the propagation theme, Martin Atherton, G3ZAY, refers to '**short path**' and '**long path**' propagation to Australia (VK), New Zealand (ZL) and the Pacific. From the UK, these parts of the world are almost at the antipodes - the opposite point on the earth's surface. Radio waves tend to follow the '*great circle*' path (the shortest distance between two points on a globe), but - like a long-haul aircraft flight to the other side of the world - they can travel either way around the world. Radio waves travel in different directions at different times of the day, and depending on the frequency band being used. For example, a long-distance signal on the 40m (7MHz-band) requires a signal path mainly in darkness in order to propagate. This means that, in order to contact Sydney, Australia, a signal from the UK would travel roughly north-east, across Europe and Asia, during the European evening period, ie from around sunset in the UK until sunrise in Sydney. This is the 'short path'. However, at certain times of year sunrise in the UK occurs after sunset in Sydney, and then, in the morning, signals can travel *south-westwards* from the UK, into the darkness zone, across the Atlantic, over South America and the Pacific before arriving in Sydney. This is called the 'long path', because it is a longer distance than the path from the UK across Europe and Asia to Sydney.

Band wavelength	Frequency band	Frequency limits (in the UK)	Spectrum	Notes
2205 metres	136kHz	135.7 - 137.8kHz	LF	
160 metres	1.8MHz	1810 - 2000kHz	MF	This band is often called 'topband'
80 metres	3.5MHz	3500 - 3800kHz	HF or 'shortwave'	
40 metres	7MHz	7000 - 7100kHz	HF or 'shortwave'	
30 metres	10MHz	10,100 - 10,150kHz	HF or 'shortwave'	One of the 'WARC bands'
20 metres	14MHz	14,000 - 14,350kHz	HF or 'shortwave'	
17 metres	18MHz	18,068 - 18,168kHz	HF or 'shortwave'	One of the 'WARC bands'
15 metres	21MHz	21,000 - 21,450kHz	HF or 'shortwave'	
12 metres	24 or 24.9MHz	24,890 - 24,990kHz	HF or 'shortwave'	One of the 'WARC bands'
10 metres	28MHz	28,000 - 29,700kHz	HF or 'shortwave'	
6 metres	50MHz	50.0 - 52.0MHz	VHF	
4 metres	70MHz	70.0 - 70.5MHz	VHF	
2 metres	144MHz	144.0 - 146.0MHz	VHF	
70 centimetres	430MHz	430.0 - 440.0MHz	UHF	
23 centimetres	1.3GHz	1240 - 1325MHz	UHF	

Table of most commonly used Amateur Bands in the UK (there are also nine bands higher in frequency than 1.3GHz). By convention, in *Ham Radio Today* spot frequencies below 30MHz are usually referred to in kilohertz (kHz), and above that in megahertz (MHz). But whilst we normally say 14,123kHz or 145.525MHz, we could equally well refer to 14.123MHz or 145,525kHz - they are the same.

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Test Equipment has come a long way over the last few years. Traditional `benchtop' instruments such as oscilloscopes are giving way both to smaller hand held units and, more recently, to PC based instruments. Pico Technology is at the forefront of these developments and we are giving Ham Radio Today readers the chance to save 15% off the purchase price of this high quality test equipment. You can order either the ADC200 or OsziFOX oscilloscopes using the order form below. This offer is valid until the 15th Dec 1998.

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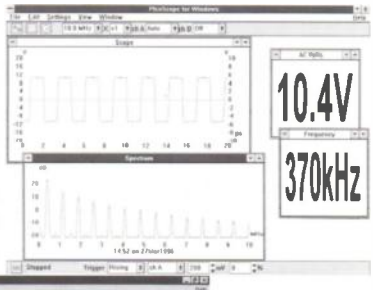

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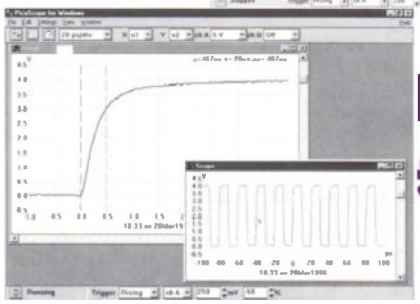

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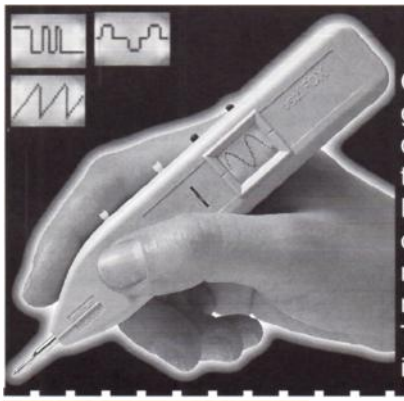

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To include your club in this section, send your club event details to: The Editor, *Ham Radio Today* (Club News), RSGB Publications, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE; fax: 01707 645105. The deadline for the January issue is 10 November; for the February issue, 7 December; and for the March issue 18 January.

This Month at the Clubs

ham radio today latest club news

Aberdeen ARS

Meets Fris. 9 Oct building competition. 16 Oct talk by winner of building competition. 23 Oct 'how I got involved in Amateur Radio', Bob Irvine, GM3EWC, Maurice Hateley, GM3HAT, Graham Knight, GM8FFX. 30 Oct '52 yrs of AARS', Bill Mitchell, GM3FRI. 6 Nov junk sale. 13 Nov AGM. 20 Nov address by AARS new president. Details from Robert Duncan: 01224 896142.

Appledore &DARC

7.30pm 3rd Mon of month at the Appledore Football Club room. 19 Oct bring & buy. 16 Nov quiz. Hon Sec Brian Jewell: 01237 473251.

Aylesbury Vale RS

8.00pm on 1st & 3rd Wed of month at Hardwick Village Hall, 3 miles north of Aylesbury on A413. 21 Oct discussion evening. 4 Nov computers and how they work. 18 Nov discussion evening.

Bromley &DARS

7.30 for 8.00pm on 3rd Tue of month, at Victory Social Club, Kechill Gardens, Hayes, Kent. 20 Oct surplus equipment sale. 17 Nov Internet, Graham, G4NPD, & Alan, G0TLK. Alan Messenger, G0TLK: 0181 777 0420; e-mail: alangm@clara.net

Bromsgrove ARS

8.00pm on 2nd & 4th Tue of month at Lickey End Social Club, Alcester Rd, Burscot, Bromsgrove. 13 Oct rig test with spectrum analyser. 27 Oct quiz. 10 Nov video. 24 Nov Christmas meal. A Malcolm, G8DEC: 01527 875573.

Bury Radio Society

7.45 for 8.00pm Tues at Mosses Centre, Cecil Street, Bury, Lancashire. 13 Oct construction competition. 10 Nov surplus equipment sale (biggest ever!). Keith Rothwell, G8EAP, keith@g8eap.demon.co.uk

Chester &DARS

8.00pm 1st, 3rd & 4th Tues. 13 Oct medical electronics. 20 Oct practice night, G3PYU. 27 Oct talk, Peter Swanson. 10 Nov bring & tell. 17 Nov surplus equipment sale. 24 Nov club DXpeditions. G Landen-Turner, G0OXA, 0151 608 3229.

Cornish RAC

7.30pm on 1st Thu of month at Perranwell Village Hall, near Truro. 6 Nov surplus sale. Robin Worsley, G0MYR: 01209 820118.

Coulsdon ATS

7.45pm on 2nd Mon of month at St Swithun's Church Hall, Grovelands Road, Purley. 12 Oct military comms, Mike O'Beirne, G8MOB. 9 Nov digital TV, Tim Trew, G8JXV. Andy Briers, G0KZT, 01737 557198.

Coventry ARS

8.00pm Fris at Binley Church Hall, Brinklow Road, Coventry. 9 Oct night on air. For further details contact the Secretary, Robin Tew, G4JDO: 01203 673999.

Dunstable Downs Radio Club

8.00pm Fris at Chews House, 77 High Street South, Dunstable, Beds. The club has 'library nights' on 1st Fri of month, plus: 30 Oct constructors' competition. 13 Nov Junk sale. 27 Nov on the air / open night. Paul McVay, G7TSJ: 01582 861936.

East Cleveland ARC

7.00pm Fris at Jubilee Hall, Gurney St, New Marske. 16 Oct voice procedures. 23 Oct QSLs. 30 Oct construction evening. Alistair, G4OLK, 01642 475671.

Exeter ARS

7.45pm 2nd Mon of month at Moose International Centre, Blackboy Road, Exeter. 3rd Mon is committee / open meeting. 12 Oct AGM. 19 Oct on air. 9 Nov TBA. Theo, G3EQM: 01392 875498.

Fareham &DARC

7.30pm Weds at Portchester Community Centre. 14 Oct video. 28 Oct St Tudwel, talk / slides, Martin, G0UKI. 4 Nov 'Know your Ferrits', Andrew, G0AMS. 11 Nov Restoring the Marconi 52 Set, Steve, G7HEP. 25 Nov review of year's RAE / NRAE questions, Dave, G8IOJ. Andrew Sinclair, G0AMS: 01329 235397.

Felixstowe &DARS

8.00pm at Orwell Park School, Nacton, Ipswich. 2 Nov RIS. 16 Nov Internet home page competition. Paul, G4YQC: 01394 273507.

Gloucester AR&ES

Mons. 12 Oct on air. 19 Oct vintage gramophones. 26 Oct Morse practice. Tony Martin, 01452 618930 office hours.

Goole R&ES

7.30pm Fris at West Park Pavilion, Goole. 9 Oct BC listening. 16 Oct video recording. G6YYN: 01757 638539.

Guildford &DRS

9 Oct packet radio, Simon Curry, G7HHI. 23 Oct 'celebration of CW'. Tim Dabbs, G7JYQ, 0181 399 5125.

Hambleton ARS

7.30pm at Allertonshire School, Northallerton. 15 Oct construction. 12 Nov TBA. 26 Nov ATV demo. John Secretary Gerry, G7VFV: 01296 432234.

Bangor &DARS

8.00pm on 1st Wed of month at Clandeboye Lodge Hotel, Bangor, Co Down. 4 Nov annual surplus sale (no traders). Roy, GI0WVN: 01247 460716.

Barry ARS

Tues at Sully Sports & Leisure Club, South Road, Sully CF64 5SP. 13 Oct aircraft comms & flight simulation, Pete, GW4JOG & Henry, GW6RCK. 27 Oct AGM. Richard Montimore, GW4BVJ, Hendre, Colwinston, Cowbridge CF71 7NL.

Bristol (RSGB) Group

7.15 for 7.30pm last Mon of the month at Avon Combined Services Club, St Pauls Rd, Clifton, Bristol. 26 Oct AGM. 30 Nov homebrew competition. Robin Thompson, G3TKF: 01225 420442; e-mail: robin@g3tkf.demon.co.uk

Bristol (South) ARC

7.30pm Weds at Whitchurch Folkhouse Association, Bridge Farm House, East Dundry Road, Whitchurch, Bristol. 14 Oct video. 21 Oct VHF workshop. 28 Oct Amateur Radio software demo. Jean Fletcher, G0AWX: 01275 834282 (24hr answerphone).

Buxton Radio Amateurs

2nd & 4th Tue of month. 27 Oct pre-AGM. 10 Nov AGM. 24 Nov video. Derek Carson, G4IHO: 01298 25506; G4IHO @ GB7DAD

Cardiff RSGB Group

2nd Mon of month. 12 Oct AGM. David Thomas, GW3RWX: 01222 620939.

Chelmsford ARS

1st Tue of month. 3 Nov junk sale. Charles Shelton, G0GJS: 01245 256654.

Cheltenham ARA

7.45 for 8.00pm on 1st Fri of month at Prestbury Library, The Burgage, Prestbury, Cheltenham. 6 Nov Richard, G4ERP, head of electronics Benetton Formula on radio & motor racing. Mrs Patricia Thom, G1NKS: 01242 241099 (9.00am 9.00pm); e-mail: g1nks@g3nks.demon.co.uk

Cheshunt &DARC

8.00pm Weds at the Church Room, Church Lane, Wormley, Herts. 14 Oct early radio video. 21 Oct members' forum. 28 Oct open. 4 Nov night on air. 11 Nov open. 18 Nov AGM. 25 Nov members' forum. Details John Crabbe, G3WFM, 47 Torrington Dr, Potters Bar EN6 5HU or at GB7HSN.

Crystal Palace &DRC

17 Oct aerials and ATUs, G3OOU, G3WDY. 4 Nov valve receivers, G3OOU, G1PKS. 21 Nov surplus sale. V H Johnston, G1PKS; tel: 0181 653 2946; e-mail: vjohns653@aol.com

Denby Dale (Pie Hall) ARS

8.00pm Weds at the Pie Hall, Denby Dale. 14 Oct surplus sale. 21 Oct constructors' competition. 4 Nov 'Yorkshire from the Air', Trevor Cunningham. 18 Nov talk & slide show by Huddersfield Astronomical Society. 25 Nov visit Huddersfield Observatory. Tony, G4LLZ, 01484 664360.

Dundee ARC

7.00pm Tues at Dundee College. Graham St, Dundee, *unless otherwise specified*. 13 Oct club night (Morse, construction, natter, operating). 20 Oct Collingwood Museum of Naval Radio, Tom Harrison, GM3NHQ. 27 Oct club night. 3 Nov 'new technology in antenna design', Maurice Hateley, GM3HAT, at Melrose Terrace Lecture Theatre. 10 Nov club night. 17 Nov Cameron McKinnon telephone systems. 24 Nov club night. Ray Bennett, GM0PTP, 01382 817206.

Hampson, G0VXH: 01845 537547, or packet: G0VXH @ GB7CYM.

Harlow &DARC

Tues at Mark Hall Barn, First Avenue, Harlow. Novice course Mons at same venue. Len, G7UFF, 01279 832700.

Hastings Electronics &RC

7.30pm on 3rd Wed of month at West Hill Community Centre, Croft Road, Hastings. 21 Oct auction. 18 Nov I K Brunel, Keith Ellis, G8GM. Doug Mepham, G4ERA: 01424 812350.

Hereford ARS

Fris. 6 Nov repeater logic, Geoff Anderson, G3NPA. Eddy, G0UDF: 01432 263575.

Hoddesdon Radio Club

8.00pm alternate Thus at Conservative Club, Rye Road, Hoddesdon, Herts. 15 Oct RSGB President Ian Kyle, GI8AYZ / MI0AYZ. 29 Oct Open forum. 30 Oct Club dinner, guest speaker Peter Kirby, G0TWW. 12 Nov *Ham Radio Today* Editor Steve Telenius-Lowe, G4JVG. Don, G3JNJ, 0181 292 3678.

Horndean &DARC

7.30pm 1st (social evening) & 4th Tues at Lovedean Village Hall, 160 Lovedean Lane, Lovedean, Hants. 27 Oct AGM. Stuart Swain, G0FYX: 01705 472846.

Leicester Radio Society

Mons. 26 Oct Dutch music, food, language & radio contacts. 2 Nov WWII signals intelligence, John Alexander, G7GCK. 16 Nov quiz, Ken Kaminskyj, M1BWY. 23 Nov collecting & caring for books, David Siddons. 30 Nov constructors' competition. 'On air' nights are held on Mons not shown above. John Alexander, G7GCK: 0116 231 3194.

Leiston ARC

7.30pm Leiston Town Athletic Association, Victory Rd, Leiston. 3 Nov AGM. John Rabson, G3PAI: 01394 460298; fax: 01394 420795; e-mail: word.factory@zetnet.co.uk

Lincoln Short Wave Club

7.45pm Weds at Railway Sports & Social Club, Ropewalk, Lincoln. 21 Oct chiropody, Tony Barnes, G7VIG. 28 Oct surplus equipment sale. G1TSL, 01522 793751.

Liverpool &DARS

8.30pm Tues at Churchill Club, Church Road, Wavertree, Liverpool. 13 Oct on air. 20 Oct AGM. 27 Oct surplus sale. 3 Nov Q&A night. 10 Nov on air. 17 Nov amateur satellites. 24 Nov surplus sale. Publicity Officer, Ian Mant, G4WWX: 0151 722 1178.

Lothians Radio Society

7.30pm on 2nd & 4th Weds of month at Orwell Lodge Hotel, Colinton Road, Edinburgh. 14 Oct visit to GEC Marconi. 28 Oct junk sale at St Fillans Church Hall. 11 Nov slide show. 14 Nov Indian meal. 25 Nov mini talks. Tommy Main, GM4DCL: 0131 663 8501.

Loughborough &DARC

Mons at Science Lab, Hind Leys Community College, Forest St, Shepshed (when college open) for general meetings & Tues as follows: 13 Oct quiz puzzle. 20 Oct skittles at The Beacon, bring your partner. 28 Oct (sic - 27th?) AGM. 3 Nov talk by AOR. 10 Nov on air. 17 Nov computer workshop. 24 Nov video evening. Ian, G8SNF, 01509 218259.

Loughton &DARS

9 Oct quiz at Silverthorn club (TBC). 23 Oct electromagnetic launchers, John, G0VEH. 6 Nov Ordinary General Meeeting. 20 Nov 'where silicon meets quartz', Marc, G0TOC. Marc Litchman, G0TOC, 0181 281 0886 (evenings); g0toc@ndirect.co.uk

Louth &DARC

8.00pm 1st Wed of month at Woodman PH, Eastgate, Louth, Lincs. 4 Nov furniture restoration, Julie Wilson. Roger Wilson, G4IPE: 01507 602220; e-mail: g4lrc@lincom.demon.co.uk

Malvern Hills RAC

8.00pm 2nd Tue of month at Town Club, 30 Worcester Road, Malvern. 13 Oct chassis bashing the simple way, Dave, G4IDF. 10 Nov receivers, Roger Dixon, G4BVY. Secretary Dave Hobro, G4IDF, 60 Linksview Crescent, Newtown, Worcester WR5 1JJ; 01905 351568 (evening / weekend), e-mail: DHobro@aol.com

Mansfield ARS

7.30 for 8.00pm 2nd & 4th Mons of month at Debdale Sports & Recreation Club, Debdale Ln, Mansfield Woodhouse. 12 Oct talk by Peter Kirby, G0TWW, RSGB General Manager. 26 Oct shack construction. 9 Nov audio-visual evening with Horace Dove. 23 Nov shack construction. David Peat, G0RDP, 01623 631931.

Mid Sussex ARS

Fris. 16 Oct AGM. 23 Oct EMC, Peter, G8DCZ. 13 Nov Basic Packet, Darren, G4VTQ. 27 Nov photo competition. Philip Baldwin, G3LCF, 01273 557878.

Mid-Warwickshire ARS

13 Oct programme discussion. 27 Oct amateur satellites, Brian Slatter, G4DF. 10 Nov slide show, Bill Ford. 24 Nov introduction to DAB, Ken Turner, G7RYO. Don Darkes, G4CYG, 01926 424465.

Nunsfield House ARG

Fris at Nunsfield House Community Association, 31 Boulton Lane, Alvaston, Derby. 9 Oct Customs & Excise. 16 Oct on air. 23 Oct SOCO, Andrew Watling, Scientific Support to the Police. 30 Oct video link to G0RRW. 6 Nov 'This is Your Life?' 13 Nov junk sale. 20 Nov Ernst Krenkl, RAEN, talk by Mike Hewitt, G4AYO. 27 Nov packet radio for beginners. Neil Davison, M1AFB: 01332 736362.

Oulder Hill Amateur Radio Society

7.30pm at Oulder Hill Community School, Rochdale OL11 5EF. 23 Oct *Practical Wireless*, Rob Mannion, G3XFD. Beryl Lord, G7UCT, 01706 658278.

Poldhu ARC

7.30pm 2nd Tue of month. 10 Nov tricks with diodes, John, G0GUO. David Barlow, G3PLE: 01326 240738.

Reading &DARC

8.00pm 2nd & 4th Thus at the Pavilion, Woodford Park, Woodley, Reading. 12 Nov linear amplifiers, Peter Chadwick, G3RZP. Chris Nunn, G0MZN: 0118 987 4870.

Salisbury ARC

2nd & 4th Tues. 13 Oct HF listening

This Month at the Clubs

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Hornsea ARC

14 Oct rally preparation. 21 Oct rally PM. 28 Oct, Hull then & now, G4UOZ. 4 Nov 'activity'. 11 Nov debate. 18 Nov new PC technology, G8EQZ. 25 Nov AGM. No details of venue given. Contact secretary J R Thompson, G0TPS, 01964 562258 for details.

Horsham ARC

8.00pm on 1st Thu of month at Guide Hall, Denne Road, Horsham, West Sussex. 5 Nov digital video, Tim Trew, G8JXV. Details from David Miller, G4JHI, tel: 01403 252101, e-mail: g4jhi@dmiller2.force9.co.uk Internet: http://www2.prestel.co.uk/jelley/harc

Itchen Valley ARC

2nd & 4th Fri. 9 Oct 'Great Egg Race', Brian, G0UXB. 23 Oct SSTV, G8LES. D C Symonds, G0PRZ, 01703 813827.

Keighley ARS

8.00pm Thus at Ingrow Cricket Club, Hainworth Rd, Ingrow, Keighley. 1st Thu is on air night, except where shown. 8 Oct film night. 15 Oct used equipment auction. 22 Oct Internet night, Tony, G7HJT. 29 Oct bus preservation, why? Jim Pickles. 12 Nov natter night. 19 Nov video. 22 Nov Keighley Christmas, Ian Dewhirst. Ann, M0BLZ: 01274 499733.

Newbury &DARS

7.30pm on 4th Wed at Memorial Hall, Upper Bucklebury, near Newbury. 28 Oct EGM: updating constitution plus test & measurements, Paul Stafford, G8MWU. 25 Nov Newbury repeater, Roger Beck, G6IBI. Ian Trusson, G3RVM, 01635 826019, g3rvm@compuserve.com

Newquay &DARS

7.30pm 1st & 3rd Fri at Treviglas School. 9 Oct computer demo, Alex, G4DEO & Mike, G4WVD. 23 Oct inter club quiz. 6 Nov CW / repair evening. 20 Nov HF evening. Clive, M0BGA, 01637 875848.

Norfolk ARC

7.00 for 8.00pm Weds at Ugly Bug Public House, Colton. Informal evenings, including night on air, construction QRP, & Morse practice, on 1st, 3rd & 5th Weds, plus: 7 Oct the development of the autogyro, W/Cdr K H Wallace MBE. 21 Oct Yaesu night, Paul Bigwood, G3WYW. 4 Nov science for all, Arnold, G3PTB. 18 Nov library night: bring your favourite radio book and explain why. Hon Sec, Sandra Simpson, 2E1FOF.

North Wakefield RC

8.00pm Thus at East Ardsley Cricket Club, Wakefield. 15 Oct rally debrief. Further details: 0113 253 9087.

contest prizes. 27 Oct RSGB General Manager Peter Kirby, G0TWW. 10 Nov microwave operating, Martin, G8OFA & Neil, G4LDR. 24 Nov HF operating, mock RAE. E J Donaghy, G7WAA, 01722 334935.

South Birmingham Radio Society

8.00pm 1st Wed of month at West Heath Community Centre, Hampstead House, Fairfax Rd, West Heath, Birmingham. The club is "generally" open Mons, Thus & Fris from 8.00pm. 7 Oct talk by John Badger formerly of Badger Boards. 4 Nov AGM. Secretary Don Keeling tel: 0121 458 1603.

Southdown ARS

First Mon of month. 2 Nov 'have radio - will travel', Alastair Turner, G4RUL. Brian Gauntlett, G4LYU: 01323 840530.

Southgate ARC

7.30pm on 2nd & 4th Thu of month at Winchmore Hill Cricket Club, The Paulin Ground, Firs Lane, Winchmore Hill, London N21. 8 Oct junk sale. 22 Oct on air. 12 Nov G6QM construction contest. 26 Nov demonstration of construction contest winners. Bernie Godfrey, G4AOG, 01923 674542.

South Manchester RC

Fris. 9 Oct film night, G7NND. 16 Oct

Amateur Radio :the way forward, G4HON. 23 Oct European cellular comms, G3SVW. G E Spark, G7FQY, 0161 969 1964.

South Normanton &DARC

7.30pm Mons at New Street Community Centre, South Normanton, Derbyshire. No details of meetings supplied. Russell Bradley, G0OKD, 01773 863892.

South Notts ARC

7.00pm Weds at Fairham Community College, Farnborough Rd, Clifton, Nottingham. 14 Oct PCB production, Gary, G0WUG. 21 Oct on air. Vice Chairman tel: 01509 672846.

Spalding &DARS

7.30pm Fris at Old Fire Station, Spalding, Lincs. No details of meetings supplied. Tel: 01775 750382 or 0976 271796.

Stevenage &DARS

7.15pm Tues at the Day Centre, Chells Way, Stevenage. 13 Oct Stevenage planning officer. 20 Oct Martin Lynch. 27 Oct video. 3 Nov HF operating 20m. 10 Nov TBA. 17 Nov TBA. 24 Nov video. John Churchill, M0ARQ, 01462 684962.

Stourbridge &DARS

8.00pm on 1st & 3rd Mon at the Radio Shack, Oldswinford Hospital, Heath Lane, Stourbridge. 2 Nov on air. 16 Nov surplus sale. Gordon Bryant, G0TZV: 01384 395206.

Stratford upon Avon &DRS

7.30 for 8.00pm 2nd & 4th Mons at Home Guard Clb, Main Road, Tiddington, Stratford-upon-Avon. No details of meetings supplied. Jeff Porter, G4OHJ, 01789 773286.

Stroud RS

7.30pm alternate Weds at Minchinhampton Youth Club, nr Stroud, Glos. 14 Oct bring & buy. 28 Oct AGM. 11 Nov video. Stuart, G0GNM: 01453 752411; e-mail: stuart.g0gnm@gifford.co.uk

Sudbury &DRA

1st Tue of month at the Old School on junction of Head Lane, Wells Hall Rd, Great Cornard, & 3rd Tue of the month, at The Brook PH, Bures Road. No details of meetings supplied. Mark Bean, G7UTC, 01787 377493.

Sutton & Cheam RS

7.30 for 8.00pm on 1st Thu (natter night) & 3rd Thu (formal meeting), at Sutton United Football Club, Borough Sports Ground, Gander Green Lane, Sutton, Surrey. 15 Oct D-day radio aids, Walter Blanchard, G3JKV. 19 Nov junk sale. John Puttock, G0BWV: 0181 644 9945.

Swansea ARS

19 Nov radio & the Spanish civil war, GW3INW. D Williams, GW4BNJ, 01792 519046.

Swindon &DARC

8 Oct Linears -Ants or Amps? Build or Buy? Peter Chadwick, G3RZP. 15 Oct RSGB Q&A General Manager Peter Kirby, G0TWW. 22 Oct video. 29 Oct bring & show. 5 Nov RTTY, Ian Dredge, G4DIE & Ben, M1CWN. 19 Nov used equipment sale. 26 Nov computing, Den Forrest, M0ACM. Den Forrest, M0ACM, tel / fax: 01793 822705.

Taunton &DARC

No details of meetings supplied. Bill Lindsay-Smith, G3WNI, e-mail: w.lindsay-smith@virgin.net

Thornton Cleveleys ARS

Meets Mons. 12 Oct DSP, Charles, G4FWM. 19 Oct AGM. 26 Oct on air. Jack Duddington, G4BFH, duddington@wavenet.co.uk or 8 The Grove, Thornton Cleveleys, Lancs FY5 2JD.

Torbay ARS

7.30pm Fris at ECC Social Club, Highweek, Newton Abbot. Informal meetings most Fris & talk / event once a month. 23 Oct Walford Somerset kits, Tim Walford. 20 Nov steam trains, A Matthews. Peter Tanner, G4VTO: 01803 864528 (working hours).

Trowbridge &DARC

8.00pm 1st & 3rd Wed of month (3rd Weds usually 'natter nights') at Southwick Village Hall, Southwick, on A361 Trowbridge / Frome road. 21 Oct early methods of communication, Dennis Goacher, G3LLZ. 4 Nov constructor's cup. Ian Carter, G0GRI: 01225 864698 (evenings / weekends).

Vale of White Horse ARS

8.00pm 1st Tue at The Fox, Steventon. 3 Nov TBA. Ian White, G3SEK, 01235 531559.

Verulam ARC

7.30 for 8.00pm at RAF Association HQ, New Kent Road, St Albans. 24 Oct Easter Island DXpedition, Wes Lamboly, W3WL / M0BLA. Walter Craine, G3PMF, 01923 262180.

Wakefield &DRS

8.00pm Tues at Community Centre, Prospect Road, Ossett, West Yorks. 13 Oct talk by Rae, G4JMT. 20 Oct rally meeting. 27 Oct on air. 3 Nov Pie & Pea supper. 10 Nov Talk by Bob, G3WWF. 17 Nov on air. 24 Nov TBA. Ian Roberts, M0BFO, 01924 216502.

Welland Valley ARS

7.15pm 1st Tue of month at Great Bowden village hall, The Green, Great Bowden, Market Harborough. 3 Nov 6m activity with Spain. Maurice Goodwin, G3WKR, 01536 730809.

Weston-Super-Mare RS

7.30 for 8.00pm 1st & 3rd Mon at Woodspring Inn, High St, Worle, Weston-super-Mare. 2 Nov preparation for AGM. 23 Nov workshop night. Graham Pinder, G8WAR, tel: 01934 415700.

West Somerset ARC

7.30pm 1st Tue of month in Room GB7, Gibbs Block, West Somerset Community College, Minehead, Somerset. 3 Nov the deer hunter. Alan Elliott, M0AOJ: 01643 707207.

Wimbledon &DARS

2nd & last Fri of month at St Andrews Church Hall, Herbert Rd, Wimbledon SW19. 9 Oct QRP. G0KRT. 30 Oct AGM. 13 Nov surplus equipment sale. J Gale, G4WYJ: 01737 356745.

Wirral ARS

8.00pm at Club Room, Ivy Farm, Arrowe Park Road, Birkenhead, opposite Landican Cemetary. Activity nights 1st & 3rd Weds; 'natter nights' Tues from 7.30pm; Morse tuition Thus. 7 Oct AGM. Arthur Aspinall, 0151 678 8956, G0NDM @ GB7OAR.#16.GBR.EU

Wirral &DARC

8.00pm Weds at Irby Cricket Club. No details of meetings supplied. Andy, 0151 677 4448; packet: CLUB @ GB7OAR; www.merseyworld.com/wadarc

Wisbech AR&EC

8.00pm at RAFA club, Old Market (next to the TSB). No details of meetings supplied. Bill Felton, G3XZF, 01945 588102.

Wolverhampton ARS

8.15pm Tues at Wolverhampton Electricity Sports and Social Club. 13 Oct video, German VIs. 20 Sep social. 27 Oct AGM. Joy Smith: 01902 751936.

Worthing &DARC

Weds. 21 Oct AGM. 28 Oct discussion. G4GPX: 01903 753893.

Yarmouth RC

7.30 for 8.00pm Fris exc no meeting 1st Fri of month, at Bradwell Community Centre, Church Lane, Bradwell. 9 Oct operating & construction. 16 Oct quiz. 23 Oct operating & construction. 30 Oct talk on Charles Wheatstone, Tony, G3NHU. 13 Nov AGM. 20 Nov talk TBA. 27 Nov operating & construction. Tony Besford, G3NHU, 01493 721173.

Yeovil ARC

7.00pm Thus at the Red Cross Centre, Grove Avenue, Yeovil. 15 Oct IC-706 in operation, Joe, G3KSK. 22 Oct open discussion on recruitment. 29 Oct on air / committee meeting. 5 Nov 5 foreign phrases for QSOs, G3KSK. 12 Nov the Langport transceiver, Tim Walford, G3PCJ. 19 Nov station controls, G7SDD. 26 Nov on air / committee meeting. Mike Smith, G7SDD, tel: 01963 250594.

This Month at the Clubs

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National and International Groups

Amateur Radio Caravan and Camping Club (ARCC)

For further details please contact the Hon Sec, Mrs Norma Jackson, 41 Creswell Farm Drive, Stafford ST16 1PG.

British Amateur Radio Teledata Group (BARTG)

has a quarterly magazine, *Datacom*, and holds a rally and HF RTTY contest each year. For more details about the group contact Membership Secretary Bill McGill, G0DXB, 14 Farquahar Road, Maltby, Rotherham, S.Yorks S66 7PD, tel: 01709 814010 (Tues, Thurs & Fri, 7.00pm to 9.00pm. Sat/Sun before 9.00pm), or via GB7WRG. Internet: http://www.bartg.demon.co.uk

British Amateur Television Club (BATC)

produces a quarterly magazine, *CQ-TV*, and holds its own rally each year. BATC has an Internet site at http://www.batc.org.uk For detailscontact: Dave Lawton, G0ANO, Grenehurst, Pinewood Road, High Wycombe, Bucks HP12 4DD.

CDXC (Chiltern DX Club) - the UK DX Foundation

membership is open to all amateurs and SWLs who have worked (or heard) more than 100 DXCC countries. It is the UK's first and largest grouping of amateurs interested in HF DX / contesting. Internet site: http://www.cdxc.org.uk For prospectus and further details please contact the Secretary, Barry Cooper, G4RKO, 1 Strouds Meadow, Cold Ash, Newbury RG16 9PQ; e-mail: cooperb@g4rko.demon.co.uk

G-QRP Club

publishes a quarterly journal, *SPRAT*, devoted to low power communication, and holds regular get-togethers at their rally stands throughout the country. For membership details, contact their Secretary, Rev G Dobbs, St Aiden's Vicarage, 498 Manchester Road, Rochdale, Lancs OL11 3HE; tel: 01706 31812 or see their web site at http://www.btinternet.com/~g4wif/gqrp.htm

International Short Wave League (ISWL)

who, as well as running an international QSL bureau for amateurs and SWLs, has a monthly magazine (*Monitor*) and regular get-togethers at their rally stands plus on-air nets on HF and VHF. For more details send an A4 sized SAE to: ISWL HQ, 267 Pelham Road, Immingham DN40 1JU. Internet: http://www.aber.ac.uk/~srj5/iswl.htm

Irish Radio Transmitters Society (IRTS)

publishes regular newsletters giving details of local activities, and the yearly IRTS Callbook. They also have a video library. For further details of IRTS, contact Joe Ryan, EI7GY; tel: (Eire) 01 2854250 or by e-mail: jryan@lol.ie Book Sales: Dave Moore, EI4BZ, 12 Castle Ave, Carrigtwohill, Co Cork; tel: (Eire) 021 883555.

Radio Amateurs' Emergency Network

can be contacted at Hunters Moon, Newton-le-Willows, Bedale, N Yorks DL8 1SX. 24hr emergency national contact line: tel: 0141 621 2121; Raynet supplies enquiries: tel: 0141 620 1000; Training Team, PO Box 2, Chinnor, Oxon OX9 4SR; Packet BBS: GB7NRC; Telephone BBS: +44 (0) 1296 393737; Internet web site: http://www.sgi.leeds.ac.uk/raynet/; HF news net: Sun 0830 local, 3663kHz.

Radio Amateur Invalid and Blind Club (RAIBC)

is a registered charity which raises money for radio / computer equipment, and audio cassette courses for home study, for blind, deaf and disabled amateurs. The club attends rallies throughout the year, and collects surplus equipment for resale. Please contact Honorary Treasurer / Membership Secretary Mrs Shelagh Chambers, 78 Durley Ave, Pinner, Middx HA5 1JH. Web site address: http://www.gurney.co.uk/raibc

Radio Amateur Relief Expeditions (RARE)

is a registered charity made up of radio amateurs and friends who take aid to Eastern Europe and organise summer camps for young people to learn about amateur radio, English language and life in the UK. New members are required to support this work both at home and by taking part in expeditions. Please contact: The Secretary, RARE, 1 Allfield Cottages, Condover, Shrewsbury SY5 7AP; tel: 01743 873815; fax: 01743 874729; packet: G6FHM@GB7PMB; e-mail: rare@donsun.demon.co.uk

Radiocommunications Agency (RA)

is the licensing authority for all UK radio amateurs. They have a large number of free publications, including the booklet *How to Become a Radio Amateur*, and their *Novice Licence Information* sheet and can offer advice on many aspects of licensing. New Kings Beam House, 22 Upper Ground, London SE1 9SA. Amateur Radio line, tel: 0171 211 0160. General enquiries, tel: 0171 211 0211. Answerphone service, tel: 0171 211 0591.

Radio Society of Great Britain (RSGB)

is the internationally-recognised national society, which has been representing UK Radio Amateurs and short wave listeners for 85 years. Members of the RSGB receive a 100-page colour magazine sent to their home each month, and also have the advantage of free QSLing, automatic entry in RSGB contests, and help in obtaining planning permission for antennas, and much other technical support. A network of over 2000 volunteers is on hand to help the Radio Amateur and short wave listener with any enquiry. Address is: Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE; tel: 01707 659015; Internet site: http://www.rsgb.org and e-mail: into@rsgb.org.uk

Subscription Services Ltd (SSL)

handles the issuing of amateur licences in the UK on behalf of the Radiocommunications Agency. SSL can help regarding enquiries concerning individual licences (rather than general licensing matters, which the RA handles, see above). Contact details: The Radio Licensing Centre, SSL, PO Box 884, Bristol BS99 5LF; tel: 0117 925 8333.

United Kingdom Radio Society (UKRS)

is a new society for UK Radio Amateurs. They can be contacted at Box 100, Meadow Street, Northwich, Cheshire, CW8 1FA. tel: 01606 783270, or 0115 925 6597, packet: UKRS@GB7OAR, or e-mail: admin@ukrs.org; Internet: http://www.ukrs.org

This Month at the Clubs

ham radio today latest club news

free readers' ads

for sale

● **STANDARD C7800** UHF FM rig works OK but needs small repair, £20. Transverter 144 in 28 out £15. VHF spectrum analyser good condition £60 buyer to collect. Pete, tel: 0117 963 3306 (Bristol).

● **IC-706 MK 1** with AT-180 matching auto ATU. CW filter, voice unit, balance of ML&S 5 year g'tee. £700. TS-700G with VOX unit. £200 HF-225 keypad. AMS unit £250. Yaesu FC-757 auto ATU. Buyer collects. Tel: 01453 765406 (Glos).

● **BEGINNER'S SWL** set-up. Radio, mains PSU, Datong indoor aerial plus books. All in excellent condition. £110 ono. Tel: 01702 600406 (Southend on Sea).

● **HEATHKIT COLLECTION** vgc with manuals. Laboratory HF signal generator IG-42. £25. Multi speed servo chart recorder IR-18M £30. Transistor tester TT-7400 £20. Buyer inspects and collects. Tel: 01705 255459 (Hants).

● **AOR3000 SCANNER** 100kHz to 2036MHz. Multi mode computer interface. Boxed as new with manual and power supply. Cost £699, sale £375. Tel: 01705 255459 (Hants).

● **YAESU FT-290 RII** as new. Boxed with matching FL-2025 25W linear £270. John, tel: 01366 384968 (Norfolk).

● **YAESU FT-1000MP** tcvr, DC model, very little use and complete with manual, box etc. £1100. MFJ-1786 mag loop aerial £150. Heath HW-9 QRP tcvr with matching ATU and SWR meter £250. Tel: 01452 741036 (Glos).

● **KENWOOD TL-922** recent overhaul, new valves, all in mint condition, with handbook £1250 ono. Tel / fax. 01758 740712 (Pwllheli)

● **KW2000A TCVR** complete with PSU, manual and Shure mic. In vgc mechanically, but electrical condition unknown £100. KW-107 ATU vgc £100 with instructions. Tel: 01452 741036 (Glos).

● **KENWOOD TS-440S** with internal ATU. MC-60 desk mic. £475.

● Yaesu FT-757GX £350. Icom IC-706 £475. Trio R-2000 with VHF narrow filters £125. Sangean 803A £50. Chris tel: 01708 767602 (Romford).

● **KENWOOD TS-690S** HF plus 6m vgc £795. AT-230 £140. YK88SN SSB filter £25. Yaesu VX-1R new £198. Sony SW-7600 new £99. Bob, G8ZGI, tel: 01245 495230 (Essex).

● **YAESU FT-707,** FC-707, FP-707 all in gwo, complete with all cables, manuals, also mobile mount, £375. Price includes faulty FV-707DM. All units in original packing. Tel: 01624 832037 after 6.00pm (Isle of Man).

● **CLP-5130/2 LOG** periodic antenna 105-1300MHz £40 plus P&P. Tel: 01603 410229 (Norwich)

wanted

✱ **WANTED CIRCUIT** diagram and handbook for Trio R2000. Will pay cash. Tel: 0151 709 5493 evenings (Liverpool).

✱ **THIRD TRY!** Wanted: *Practical Mechanics* from 1933 to 1963 in any condition. Please search your loft, shed, garage. If any found, please tel: 0181 505 6303 (Essex) or e-mail 106574.1725

✱ **ICOM SM-20** mic. ATU AT-180. SP-21 spkr. CT-17 CI-V level converter unit. Wanted rotator with mast clamps. Cash waiting. Also 50MHz vertical wanted. Mike, 2E1FCG (QTH IO93GM), tel: 01226 742971 (S Yorks).

✱ **WANTED HF** transceiver with FM and model considered, will pay cash or swap for music records, midi equipment, computer equipment. Also wanted 2m and 70cm base aerial and mobile aerials, also batteries for IC-2E, TR-2300. Rotator also needed. Tel: 01884 257487 (Devon).

✱ **UT31 TONE** encoder decoder for IC-V200T. Tel: 01851 830494.

exchange

◆ **OPTI XPLORER** complete 6 months old. Exchange for clean AOR8000 and Scout plus manuals and chargers. Postal swap. Tel / fax: 01473 785203 (Suffolk).

◆ **TH-79E QUALBAND** tcvr vgc c/w spkr mic, swap for Lowe HF-150 rcvr or similar, or HF QRP gear, or GPS. Tel: 01624 618368 evenings.

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2 These advertisements are offered as a free service to readers for the sale, exchange, wants, or help with, privately-owned amateur radio and electronics equipment. Ads from traders, or apparent traders, will be rejected. Readers should use our Retail Network and Classified Ads section for ads not fulfilling these conditions, our Advertising Department (tel: 01202 777852) will be pleased to accept prepaid ads.

3 All submitted free ads must be on a recent form printed in Ham Radio Today. Photocopies are not acceptable. Include your name and / or callsign, and either a contact telephone number (with STD code) and location (eg town or country) or a full address, or both, for readers to reply. These details must be included within your advertisement. Advertisements must be no longer than 40 words. Only one advertisement per section ('For Sale', 'Wanted' etc) per reader per month. Each advertiser must also fill in their name and address in the space provided (these details will not be published), and must sign the form to indicate acceptance of these conditions.

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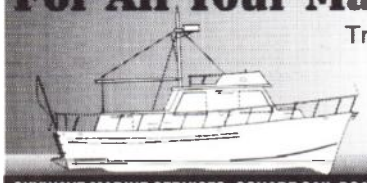

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