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By Colin Redwood, G6MXL

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To order any of the above books, or for a complete list of RSGB publications, contact the RSGB Sales Office on tel: 01707 660688; fax: 01707 645105; or E-mail: sales@rsgb.org.uk

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Caring CARA

I ran out of space in the last 'Keylines' - and as I wanted to pay tribute in a full fashion - I've left it to this issue to say a big 'Thank You' to the Cheltenham Amateur Radio Association (CARA) in Gloucestershire following the wonderful welcome they extended to me on Friday 7th of August.

Not only did we all have a wonderful evening - somewhat delayed because I got caught up with holiday traffic - but CARA also raised £50 on behalf of the Radio Amateur Invalid & Blind Club. Well done CARA, I've passed the cheque on to the RAIBC and have no doubt it will be very useful indeed!

Also useful was the kind offer of beautifully made fresh sandwiches for me to eat when homeward bound. Made specially for me by kind friend Patricia Thom G1NKS - Wife of Derek G3NKS of Four Metres News magazine fame...which is well worth reading if you're keen on 70MHz!

Knowing I was in for a late night trip home (the sandwiches were marvellous) I thought at least I should bake Patricia one of my 'home-brewed' loaves in exchange. She survived the tasting - and the photograph shows Patricia and I, accompanied by John Clayton G4PDQ, Chairman of CARA, still laughing from the surprise presentation of the loaf! So, thank you all.

I look forward to meeting you again in the future.

Data Cards

This issue carries the first of our new series of up-dated and redesigned Data Cards. And as we’ve had very many requests to update the popular h.f. Amateur Band chart we’re launching the new series with the latest version - The Lo-Bands Data Card. Thanks to the support of our publishers it will be followed by a v.h.f., u.h.f., s.h.f. and microwaves version - the Hi-Bands Data Card next month (December).

As a keen h.f. bands operator I’m particularly pleased with the design that Tex Swann G1TEX has come up with. It’s particularly useful because (try as I might) I can never seem to remember the band edges for the WARC Bands. But armed with the new card I’m going to be very happy with the information that’s now available in such a useful format and I feel sure you will be just as pleased!

Hopefully, our new cards will also encourage operators and s.w.l.s to listen for the h.f. beacons - making use of the helpful guide to propagation conditions they provide in such an effective and simple fashion. The information on beacons will appear on the back of the card, as will the beacon information on the Hi-Bands Data Card.

Perhaps - with more interest being taken in the beacon service on the bands - more people will react (particularly with regards to the h.f. service) when unnecessary interference appears on the allocated frequencies. By acting together - we may even discourage thoughtless QRM from packet radio transmissions directly on or very near 14.100MHz and the s.s.b. transmissions on 18.110MHz thus enabling the beacons to operate for the benefit of Amateur Radio throughout the World.

So, along with providing you with as much good radio reading as we can in the magazine - there’s a bonus this month with the free Data Card - plus a 16-page catalogue from Waters & Stanton Electronics PLC. Altogether a good read - with lots more in the pipeline as we stride together towards the future.

Finally, I’m pleased to announce that the Internal E-mail problem has now been overcome and I’m ‘back on the net’. My apologies to the (unfortunately!) great number of readers waiting for a reply - and I promise I’ll do my best to catch up with the ‘electronic post’ as soon as I can.

So, good reading, and I look forward to chatting to you next month.

Rob Mannion G3XD
Dear Sir

I would like to make a point in regards to amateur radio jargon. I believe many of us have had the experience of working stations, especially in Europe, who speak to us in a manner that seems to be incomprehensible. This can be annoying, especially when the offenders have no knowledge of your background, be it radio related or otherwise. If it wasn’t for fresh blood coming into the hobby, they would have very few people to speak to, wouldn’t they?

As for the Morse debate, I learned it up to a speed of 12wpm in less than six weeks in the Royal Navy. I never used it and I never want to. Why should I have to get up to speed just to use f.m.? It’s not a hardship, but nor should it be a means to an end.

Well done on the extra page of letters. It’s one of the best sections of the magazine. I’m sure that most would agree.

Gordon MW1CLS
Denbighshire

Editor’s comment: Our pleasure Gordon! We could fill half PW with letters at times...but occasionally we HAVE to make space for the times when the post-bag threatens to burst when there’s a big response to a particular topic!
Callsign Number Plates

Dear Sir

with reference to the 'G' series of callsign number plates recently auctioned off by the DVLA. I cannot help feeling that British Amateurs have been 'ripped off'.

Let's look at the facts. If these series of registrations didn't happen to coincide with the callsigns of Amateur Radio license holders, hardly anyone else would have given them a second glance (unless they corresponded with an individual's initials, for example), whereby the DVLA would have sold them for a much lower price.

But no! As soon as they discovered the potential market for them, they auctioned them off at, what I personally feel is an exorbitant price.

For those amateurs who may feel the same way, I have found what I consider to be a much more attractive, but far cheaper, alternative to the callsign number plate. They made the callsign within the hour and fixed it inside the rear window of my car.

Positioned close to the top, it does not obscure my view through my rear view mirror. I have also made and fitted G-QRP-Club and RSGB Badges too. I enclose a photo showing the final result. What do you think?

The total cost - less than £5!

Duncan Walters G4DFV, Mansfield

Editor's comment: I'm going to do the same Duncan!

Letters to the Editor

examiners of today. He nearly failed me - because I sent it too fast! He really read the riot act and made me send the passage he had chosen more slowly.

Despite some pessimism more than twenty years ago that I was a Royal Navy operator, I was not and had to sit both the RAE (written, not multiple choice) and the Morse test. We did not receive a certificate from the City and Guilds, London Institute in those days, just a tiny yellow pass slip (marked 'P' or 'F'. So, if I ever allow my license to lapse, I would have to do everything again! I can now send at 35wpm and receive the same. Declining years and ill health has not impaired those abilities.

I have absolutely no objection to all who pass the RAE being let loose on all the h.f. bands, but I would like to see a test for those with all singing and dancing rigs often come up as much as one kHz high or low. I have often found s.s.b. nets on 3.5MHz that spread over 3kHz because people leave their RIT in instead of switching it off before joining a net.

So my test for any operator would include: familiarity with their equipment, knowledge of the band plans, an ability to recognise some other languages than English, knowledge and use of the phonetic alphabet, to be able to speak clearly and distinctively, to be able to net correctly, politeness and good behaviour.

From another loyal reader and a member of the RSGB and many other clubs.

Don Walmesley G3HZL, E44HM, Stoke-on-Trent

Dear Sir

May I ask for help from your readers in the letters column?

Over a period of time, I have bought radios from various car boot sales, a Pye Cambridge transceiver for £1 (it does receive), Kolster-Brandes 'Rhapsody Deluxe' (four valves) mainsbattery. A chunk is missing from the dark brown case (is it plastic?), the material thickness is approximately 2.5mm. How can it be repaired?

Perido 'Town and Country' (transistor) missing carrying handle. Finally, is there such a thing as a wall chart of old battery types giving sizes, voltages and plug connections?

I G Bennett

44 Haig Avenue
Whitley Bay
Tyne & Wear NE25 8JG

Editor's comment: We've provided the full address so that readers who can help can do so directly. I'm also passing the letter onto Phil Cadman G4JCP - as it will be of interest in his 'Valve & Vintage' column. I've no doubt readers - and Phil himself - will help. Converting p.m.r. transceivers (such as the Pye 'Cambridge' is dealt with in the RSGB's PMR Conversion Handbook.

Practical Wireless, November 1998
Radiocommunications Takes To The Road
From Friday September 25th, the Radiocommunications Agency will be taking to the road as their roadshow gets under way. When you read this, they will already have done two stops - one in Manchester on September 25th and one at Belfast on October 2nd.

The aim of the roadshow is to offer businesses and organisations who depend on radio a chance to discuss the implications of the Wireless Telegraphy Act 1998, which reached the statute book in March this year.

Chief Executive David Hendon and other senior staff will also be available for any questions and concerns that Radio Amateurs may have concerning the Act.

The opportunity for people who are involved in, or affected by, radio to air their concerns face-to-face very rarely comes along and Practical Wireless suggests that if you do have any questions about how the new act will affect you or your company, then you should really try to make it to one of the roadshows.

Roadshow '98 is free of charge but if you want to attend one, you must make a reservation. In order to do so, please get in touch with the Event Office on the Reservations Hotline. Tel: 0171-223 9006, FAX: 0171-924 3984, or E-mail: abra102092@aol.com

As from October 9th the roadshow will be going to Gatwick (October 9th); Milton Keynes (October 30th); Perth (November 6th); Leeds (November 13th); Bath (November 27th) and Cardiff (December 4th).

Transmitting Thoughts of Sympathy
King Hussein of Jordan, JY1, has recently been attending the Mayo Clinic in Rochester, Minnesota and is undergoing chemotherapy for lymphatic cancer. He is a Radio Amateur and, as we know that he does see a copy of Practical Wireless, all here would like to extend to him our best wishes for a speedy recovery.

Press reports have suggested that the King is responding well to early treatment and is showing signs of an early recovery. Editor

Kenwood SM-230 Discontinued
Kenwood have informed us that their SM-230 Station Monitor was discontinued a while ago. Do not panic, however! AOR are said to have a similar product - the SDU-5000 and they have also evaluated the TS-870S for use with the SDU-5000 and Kenwood are pleased to announce that AOR feel that the two models are compatible.

Kenwood are, therefore very happy to be promoting the SDU-5000 as a suitable accessory for the TS-870S. On the technical side of things, AOR have modified the TS-870S which will increase the TS-870S's level.

RAE Courses - Late Listings
Ron & Shirley Ray will be holding RAE and Morse classes at the White Hill Centre, Chesham, Buckinghamshire. The RAE classes will take place from Tuesday September 15th at 7:30pm, c.w. (all speeds) from Thursday September 17th at 8pm. You can Tel/FAX: Shirley G4HES or Ron G3NCL (01494) 776420 for more information.

Bury Radio Society are running a course leading to the RAE in May 1999. It will be held every Tuesday, starting in September from 7-8:30pm. There isn't a fee for the course, but candidates will be expected to join the society (at a reduced charge). For further details, please telephone the secretary, Mike Bainbridge on 0161-761 5083.

Maplin Electronics Goes Electronic!
September 1st saw the launch of the updated Maplin Electronics catalogue. Together with the traditional printed version is the new and improved double CD-ROM.

The CD-ROM has all of the features that come in the traditional written form, including the new semiconductor guide listing an additional 17000 new products, price reductions on over 2000 products and an additional 1000 new lines due to range extensions. As well as all that, there are a number of unique features: a free copy of MacAfee anti virus software, a free 30 day Internet trial with Demon (including software) and over 1000 datasheets.

Maplin claim that the beauty of the CD-ROM is that not only can you browse through the catalogue with ease, but ordering is very easy. When you find a product which you require, all you need to do is press the 'add to order' button and the CD will place the item in your "shopping basket".

Available in PC and Macintosh versions, the new CD-ROM can be ordered from Maplin Electronics and from any of their stores. You can also telephone (01702) 554000 to order your catalogue or obtain further information. Maplin Electronics also have a Website address: http://www.maplin.co.uk

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of i.f. output. Owners of the TS-870S should be warned that the modification involves work which may affect the warranty, so please check with Kenwood before doing any modifications on radios under one year old. You can telephone Dave Wilkins G5HY at Kenwood Electronics on (01923) 655284 or Richard at AOR on (01773) 880788 for more information.

And More...

News also of new products from Optoelectronics with the release of the new Mini Scout (see fig. 2) which carries on the very good work of the previous Scout frequency finder. Priced at £199, Optoelectronics say that it is bound to be 'a hit'. Still with Optoelectronics, there's news of the new Opto Trakker (see Fig. 3) multi-mode decoder at £299 complete with software, which will be music to the ears of some Radio Amateurs. The MQ-1, MQ-2, Watson mobile h.f. antenna, MFJ-1048, Mini Scout and Opto Trakker are all available from Waters & Stanton.

A Good Sport!

Roberts Radio have just released a personal stereo with a difference. Roberts say that it will be a sports fanatic's dream, the new Sportsman has everything you would need to listen to all your favourites - and apparently, it's smaller than a pack of cards! The new radio has l.w. as well as m.w. and f.m. stereo so you should be able to pick up the latest from Radio 5 Live and Test Match Special on Radio 4 long wave. The Sportsman comes with stereo earphones and costs £29.99. For details of where you can buy it, telephone (01709) 571722.

Waters & Stanton Re-releasing

Waters & Stanton are releasing the MQ-1 and MQ-2 Mini Beams (see below) after a period of about 20 years. First sold in the mid 1970s by a company which is now extinct, they were such a hit that they are being brought back to life by a Canadian company. The beams are extremely compact and Waters & Stanton feel that they have great potential considering the improvements in the sun-spot cycle.

The Essex-based company also bring me news of the new Watson range of mobile h.f. antennas and the new MFJ-1048 both of which are expected to fill a gap in the market. The MFJ costs £119.95 and is a pre-selector suitable for use with receivers and transceivers.

Walford Electronics Make Three Additions

Walford Electronics of Somerset are designers and suppliers of kits for radio enthusiasts and have announced three new major projects: the Langport - a two band c.w. and s.s.b. 'phone superhet transceiver for 3.5 and 14MHz; the Wellington - a 5W c.w. transceiver for any single or pair of bands from 1.8-28MHz and the QRP Booster - produces 20W on a 13.8V supply with around 1.5W drive over the range 1.8-14MHz with direct or r.f. sensing control.

Tim Walford says that all three projects are based on 100/160mm double sided high quality p.c.b.s and supplied complete with all parts and hardware for building (see photo). You can send an SAE for further details to Tim G3PCJ at Walford Electronics, Upton Bridge Farm, Long Sutton, Langport, Somerset TA10 9NJ.
Hopefully you’ve now got all the bits and pieces you need and a car radio to use with the converter. So - let’s get started!

The circuit for the converter project is shown in Fig. 1. As usual, I’ve based the project on one type of transistor, the MFP102 field effect (f.e.t.) type for simplicity and a pin-out diagram for this device is also provided.

One MFP102 acts as the r.f. amplifier - it’s the same circuit as we used in the tuned radio frequency (t.r.f.) receiver. This amplifies the incoming 3.5MHz signal which is tuned by the coil L1 and capacitor C1.

Coil L1 is wound on a paper tube wound over a pencil. (All coils are wound using 0.3mm diameter enamelled copper wire in the same fashion as all the t.r.f. receiver).

The coil is made up from 80 turns of wire, with a tapping at 40 turns. It will resonate within the 3.5MHz Amateur Radio band with a 100pF fixed capacitor. However, if you have a 100pF trimmer capacitor this will allow for adjustment.

The amplified 3.5MHz signal is fed via C4 to the coil L2a via L2b. Be prepared to experiment with the value of C4 for best results. The value can be anywhere between 100 and 700pF.

Wind L2a first onto the paper tube you’ve already prepared. It should be of 80 turns. Again, the resonating capacitor can be a 100pF fixed type or a 100pF trimmer type. When you wind L2b over the main winding (spread the winding - 20 turns - over two thirds of the main coil) and make sure you can identify the separate windings.

Be especially careful that you connect the start of both windings to the chassis (0V) and the tops (the ends you finish up holding after you’ve completed the coils) to the end of C4 and to the gate of the mixer MFP102 respectively.

The type of mixer used is called a ‘gate injected’ type. The oscillator uses another MFP102 and the crystal is usually employed as the colour reference source for the PAL television system - chosen because it produces a useful ‘difference’ signal and it’s cheap!

Take care to only use the ‘gimmick’ capacitor (GC) specified. This is formed by two short pieces of pvc insulated wire twisted tightly together over approximately 15mm, providing a very low capacitance.

Amongst other ‘mixer’ products our wanted medium wave intermediate frequency (i.f.) signal appears at the drain end of the mixer transistor. Again the necessary coil is wound onto a rolled paper tube. Wind 160 turns for L3a (to ‘peak’ at around 800kHz) and 30 turns for L3b.

You can get away with just a 500pF fixed capacitor across L3a - or even nothing...as indicated on the circuit. But using one of the 1250pF trimmers I suggested last month - provides useful adjustment and it will ‘peak’ nicely.

One end of L3b goes to earth (0V) and the other - via the printed circuit board track to the...
Gate
Source
Drain

coaxial cable feed to the receiver. The beat frequency oscillator (b.f.o.) is the only 'hit and miss' part of the circuitry. So as to minimise any 'tinkering' inside an otherwise working radio, I found the best results were obtained by injecting the 'beat' note via C10 (experiment with a value between 100 to 500pF or more) with an oscillator covering from around 600 to approximately 900kHz.

The variable capacitor, C9, is a standard Polyvaricon (both halves are automatically paralleled with the p.c.b. track design). Coil L4 is wound on a paper tube. For the smaller type size polyvaricons only require 200 or so turns (tapped at 80 turns) to cover the required frequency.

One of my prototypes (for last month. There's a 10mm paper tube. For the smaller type size polyvaricons only require 200 or so turns (tapped at 80 turns) to cover the required frequency.

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Hello once again! And I hope you all had an enjoyable summer at all the rallies and shows. I did...and it was very nice to meet those who came over and had a chat.

Stepping out of my uniform this time, I'm starting with an interesting combination that found its way onto my operating table. The arrivals consisted of the GEC BRT-402 receiver and the Heath DX-20 transmitter. So, let's take a look at them.

The GEC BRT-400 series of receivers were very popular in the 1970s. In fact, I remember that the late Tom Douglas G3BA used to operate with one of these sets and I was always in awe of it. Eventually, later on, I acquired one and found that although it is a nice set, it's not really anything special.

Recently I was very kindly given two of the BRT sets, both in need of restoration. However, after a short period of work on one, a few open resistors and leaky capacitors later, it was coaxed back into life.

**Single Conversion**

The receiver is an 11 valve single conversion superhet with an i.f. of 455kHz. It has two r.f. amplification stages and two i.f. amplification stages with a variable selectivity at 6dB down from 13kHz to 50Hz in six steps using a crystal filter for the last three.

The sensitivity is quoted as less than 1μV at 30% modulation to give 1.5W of audio out. (This may have been true when the set was new but certainly in my previous set and the latest acquisition, the claim seems a bit optimistic).

Incidentally, the desk top model with a case is called the BRT-402D, and the rack mounted version is classified as the BRT-402D. The BRT-402E or 402E are identical but with the addition of a crystal calibrator, a BRT-403 (with the addition of an N, i.e. 400EN or 402DN) means it has a 9kHz audio rejection filter fitted in place of the normal 1kHz audio filter.

**Biscuit Tin Radio**

How about a radio in a biscuit tin? That's how the MCR1 (Miniature Communications Receiver) was described due to the box it was issued in which resembled a biscuit tin of the time. This clandestine radio (I'll not call it a Spy set as it's only a receiver) was in great use throughout Europe during the Second World War.

In action the MRC1 was used by resistance
workers to receive messages confirming drops of supplies, etc., always shown in films by the weird little agreed code phrases broadcast by the BBC after the nightly news such as "The cow jumps high tonight", extracts from poetry and similar.

The five valved set covered 100kHz to 15MHz in four ranges using small plug in coil packs. It could run off either a battery pack or a universal a.c./d.c. mains power supply.

Although used during the Second World War, I noticed in another radio publication recently that a Belgian post-war produced version is available. This raises the question of just how long these sets were in use.

Fig. 4 (right): The French produced Second World War R30 receiver. Note the tuning dial, marked in Metres, and the antenna socket on the right (see text).

Reading & Reference

Some interesting reading and reference now. The book I'm suggesting will perhaps be added to those Christmas Present lists!

The third edition of *Shortwave Receivers Past & Present. Communication Receivers 1942 - 1997* by Fred Osterman which is now available. This popular receiver index goes much further in the number of receivers described, the number of illustrations and the number of pages.

With 473 pages Fred Osterman's book details over 770 receivers manufactured between 1942 and 1997, from numerous manufactures in many countries. American produced sets dominate the book, but British, Japanese, German, Norwegian, Dutch and various others are also covered.

Amateur, military and commercial sets are shown. British sets covered include Eddystone, Racal, Marconi, KW and Murphy. Also included are such Japanese sets as Trio, Kenwood and Yaesu.

Each receiver has a black and white photograph and a detailed description of specifications. The book is a treasure of information, an ideal reference book and a very enjoyable read regardless of being a collector or not and is available from the *PW* Book Service.

And finally

Just to prove that this column has other qualities apart from great pictures (yes, we agree your photographs are good *Ben* Editor), I featured a letter a while back from Keith Soutter. It seems John Collins GODHU spotted the name and wondered if it was the same person he knew years ago. After making contact via yours truly it turned out Keith was the long lost friend and they have now restored contact and friendship! (All part of the service chaps!).

During subsequent meetings John twisted Keith's arm to have a go for the RAE and I can now happily report that Keith is indeed M1CCE, well done John, well done Keith.

As always, I can be contacted at 62 Cobden St, Kidderminster, DY11 6RP, or E-mail on G4BXD@compuserve.com or via the *PW* offices. So best regards till the next time.
J. BIRKETT

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midsummer Sunday saw 144MHz enthusiasts taking to the hills for the 16th annual PW 144MHz QRP Contest, and by all accounts those taking part had a most enjoyable day. Although in most areas, neither weather nor propagation conditions were particularly good, many exceptional contacts were made using just 3W of output power.

The group achieving the best performance and winning the PW QRP Contest Winner's Cup is the Oldham Radio Club, G1ORC/P. This club have been entering the contest for many years, and have gradually climbed the results table. After reaching second place last year, Oldham's well-deserved win was achieved by operators G700D, G1GKR, GOKUY and G0WPO, plus five other club members helping to carry all the equipment and antennas up to their portable site on top of Kinder Low. Their first place also wins them the special prize of an Alinco DJ-190 144MHz hand-held transceiver, kindly donated by Mike Devereux G3SED of Nevada Communications. The Oldham Club's result pushes last year's winners, the North Wales Wefflers GWONWR/P, into second place, winning them the special prize of either a portable battery pack or a portable solar cell equipment, kindly donated by Bob Keyes GW4IED of Key Solar Products.

The leading single operator is again Dave Hewitt GW8ZRE/P, with his impressive one-man operated and transported station high up on Halkyn Mountain, near Flint. Amongst the Scottish stations, the leaders are again the Cockenzie and Port Seton Amateur Radio Club, GM0CLM/P, who for the fourth successive year win the Tennamast Trophy in Memoriam to Frank Hall.

GM8BZX, donated and sponsored annually by Norrie Brown GM4VHZ of Tennamast (Scotland) Ltd.

A midsummer Sunday contest in Eire and Northern Ireland resulted in three stations within 150 points of each other. After careful scrutiny of the logs, Peter Lowrie GI7JYK/P comes out just on top, to win the PW EI/GI Trophy Clock sponsored by Rob G3XFQ.

Congratulations to all groups and individuals in the "Leading Stations" table, who each receive a PW QRP Contest Certificate, as do all stations in the table of locator square leaders.

In addition to the summary results tables presented here, a full detailed results list will be automatically sent to all who submitted an s.a.e. with their entries (or if you send an s.a.e. now to the PW offices at Broadstone). The full results list will also be available on the contest Web site soon after this issue is published, the address is http://home.neill.org/contest.

Propagation Conditions

In the majority of areas, propagation conditions seem to have been 'flat' for most of the day. The main exception to this was in the south of England, where several stations enjoyed a period in the middle of the day with very good contacts far south into France.

One operator making the most of the good conditions was Peter Thompson, G8DDY/P, on the Isle of Wight. His impressive list of 35 locator squares worked includes all squares directly south of him as far as IN93 (excepting IN95), and seven JN squares including JN03.

Elsewhere, a lift in conditions was spotted very early in the contest, or even just before the start. Tony GO0VA/P, for example notes "great conditions at the start of the contest to the south of France, regret not a lot of them showed up during the contest time"!

Arthur GW3LNR/P also writes: "at the beginning of the contest for about 15 minutes I heard DL, F, ON and PA, but after that no Europeans were heard". (This has also happened frequently in previous contests; is there a lesson for operators here? Maybe ferreting out continental DX in the first hour of operation would be more profitable than the mad rush to accumulate a high tally of G stations worked? Or perhaps we should consider starting the contest one hour earlier? Comments welcomed!).
But at many locations in the British Isles, there was no enhancement in propagation. David G3NP8, for example describes the: "appalling flat conditions" at his location, there were three of us in Cornwall operating for the full seven hours, and we enjoyed calling each other from time to time to commiserate on the lack of contacts".

Alastair G4RUL/P (J000) writes "despite our closeness to the continent there were very few contacts with French stations" - which is strange considering the successes of stations a little further to the west - maybe this was something to do with his new "larger home-built antenna (10 metres long), finished on Saturday night and tested for the first time 15 minutes before the contest".

Commenting on the level of activity, Peter G17JYK/P writes "it was good to see more stations on from this side of the water". This was a remark echoed by Dave GW6ZRE/P, who said it was "nice to see more EI/GI stations on the air".

Dave GW6ZRE/P was also pleased: "to work 1089 square for the first time ever (GMB8FB)". His comment proving that even for a seasoned contest there's always something new to be achieved. He also says that "EI/G7ANV/P in IO5EO deserves a mention for giving away this valuable multiplier".

Whilst continuing to provide a challenge for regular contest operators like Dave GW6ZRE, the QRP contest of course provides the ideal introduction to those having a first taste of v.h.f. contests. "This was the first contest that I have entered and I have to say that it was very enjoyable", writes Colin M1BUP. With an FT-290R and five-element yagi he says "I was very surprised at what could be achieved with such a simple set-up of borrowed equipment I had never done any v.h.f. s.s.b. work before today and was amazed that I was able to contact amateurs in Scotland, Wales, Northern Ireland and the Republic of Ireland".

Novice Radio Amateurs

Novices were amongst the operators at several stations. For example at GWOPZO/P, Sue 2E1GMW and Dominic 2E1GPG had their first experience of v.h.f. contests at Youlbury Scout and Guide Amateur Radio Station, G0REL/P. This station is established at the Youlbury International Scout Campsite, near Oxford, where operation is usually as GB4YOU. A number of visiting Cub Scouts were interested to observe the Amateur Radio activity, and of course introducing the hobby to young people is the main purpose of this station.

Visitors Welcome

Other portable stations found that they had visitors, too. At "Dr. Jazz" GT15E/P, visitors were particularly welcome. "I forgot my teabags so I had to drink hot water" until a local CB enthusiast visited the station to see what was going on. After about an hour he went away, but then came back with a 2 litre bottle of cola, and a kettle which plugged into a cigar lighter socket, and proceeded to make two mugs of hot coffee. (If the CB enthusiast reads this I'd like him to write, identifying himself so I can provide a further inter-hobby 'thankyou'. Editor).

While visitors were bearing beverages to G1JGE/P, it was the opposite story at the Oldham Radio Club portable site. G1ORC/P Steve G0KUY writes "we were visited by the usual procession of park rangers all asking to see our letter of permission... we think that this is just an act over the years so that we will give them a can of ale to make them feel better!"

Sixteen Years

Over the 16 years that the PW QRP Contest has been running, some aspects of Amateur Radio operation have changed. For instance, there has been a gradual but steady decline in the number of entrants since the peak of 234 in 1984.

The decline in entrants has been paralleled in other v.h.f. contests and can probably be blamed on various factors reflecting the popularity of Amateur Radio in general as a hobby. That's why I think the efforts at promotions such as the Youlbury station already mentioned are important. But perhaps the time is ripe to take another look at the format of the PW QRP Contest to see if it's still providing what we want.

To start off - it's worth first recalling the two main aims of the Contest as originally conceived. These were to provide a contest for the serious v.h.f. ORP enthusiast, and to offer the newcomer to v.h.f. contests a friendly fun event as an introduction. The 3W output power limit satisfies both these, and the simple scoring system was intended to make it easy for logs to be entered.

Secondly, there are no 'sections' in the contest, because we did not want to
This paper discusses the results of the PW QRP Contest, a radio amateur event. The text highlights the importance of the contest and the challenge of maintaining a simple yet effective format. It mentions the effort required for a truly "one-person" entry and the use of antennas in the contest, noting the appearance of single and multiple antennas. The text also touches on the logging software used, where a significant number of stations are making use of logging software to keep and/or score and print the log. It notes that this has happened in a PW QRP Contest because the wrong type of print-out had been requested from the software, which did not list contact serial numbers or locators.

Logging Software

An increasing number of stations are using computers these days, perhaps we should review the scoring system used for the contest. I suggest this because the present simple scheme was devised to make it easy in the days when very few people had access to computing facilities.

Of course, over the years many entrants have given me their comments along with their logs which have let me know that most people seem content with the contest format as it is. At the same time, some have suggested changes.

Because so many people have been happy with the complete contest formula the way that it is, I have been reluctant to change anything. But now I would like to invite debate on all the issues mentioned above (and any others that you may like to raise). Please let me have your views (preferably by E-mail to ntaylor@rmplc.co.uk, or by post to: Neill Taylor G4HLX, 46 Hunters Field, Stanford in the Vale, Faringdon, Oxfordshire SN7 8LX, or better still by visiting the Web site at http://home.neill.org/contest, where you will find an online forum to discuss these issues.

Third Sunday in June

One thing that will not change, however, is the scheduling on the Third Sunday in June. And although some clash with other events is inevitable, this date has long proved suitable for the QRP Contest, within the calendar of other VHF and UHF contests, and the co-ordination with the second session of the RSGB 144MHz Backpacker's Contest has also worked well.

Furthermore, it's the Sunday closest to the longest day, giving maximum daylight for those with a long climb to mountain-top portable sites. What's more...the date often coincides with another important event, as Mike GW7LQD/P remarks: "Father's Day! - What a treat, allowed out to play radio all day!"

So the 17th PW 144/Hz QRP Contest will take place on Sunday 20th June 1999. It's never too soon to start preparing, so mark your diary and start planning now...and good luck everyone!
Leading stations in each locator square

<table>
<thead>
<tr>
<th>Square</th>
<th>Name</th>
<th>Callsign</th>
<th>No. entrants in square</th>
</tr>
</thead>
<tbody>
<tr>
<td>IO52</td>
<td>Pat Keough and Michael Kiley</td>
<td>E6DH/P</td>
<td>1</td>
</tr>
<tr>
<td>IO63</td>
<td>Declan Lennon</td>
<td>E6HQ</td>
<td>1</td>
</tr>
<tr>
<td>IO70</td>
<td>Comish Branch RAFARS</td>
<td>G0FHR</td>
<td>3</td>
</tr>
<tr>
<td>IO71</td>
<td>Cleddarn ARS</td>
<td>GW5SY/YP</td>
<td>2</td>
</tr>
<tr>
<td>IO72</td>
<td>Abergavenny ARC</td>
<td>GW5BZ/P</td>
<td>1</td>
</tr>
<tr>
<td>IO74</td>
<td>Peter Lowrie</td>
<td>GW5JY/P</td>
<td>1</td>
</tr>
<tr>
<td>IO75</td>
<td>Ayr Amateur Radio Group</td>
<td>GM0AY/P</td>
<td>1</td>
</tr>
<tr>
<td>IO76</td>
<td>Mid Argyll ARC</td>
<td>GM4YY/YP</td>
<td>1</td>
</tr>
<tr>
<td>IO78</td>
<td>Scottish VHF Alliance</td>
<td>GM4VX/P</td>
<td>2</td>
</tr>
<tr>
<td>IO80</td>
<td>Torbay ARS</td>
<td>G6JNJP</td>
<td>1</td>
</tr>
<tr>
<td>IO91</td>
<td>Stroud Radio Society</td>
<td>G4GSR/P</td>
<td>5</td>
</tr>
<tr>
<td>IO92</td>
<td>North Wales Walkers</td>
<td>GW6NHR/P</td>
<td>7</td>
</tr>
<tr>
<td>IO93</td>
<td>Dave Hewitt</td>
<td>G3WZ/P</td>
<td>1</td>
</tr>
<tr>
<td>IO94</td>
<td>Julian Ross</td>
<td>G6LBE/P</td>
<td>1</td>
</tr>
<tr>
<td>IO95</td>
<td>Cockenzie &amp; Port Seton ARC</td>
<td>GM6CN/P</td>
<td>3</td>
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<tr>
<td>IO96</td>
<td>Menstrie Morse Group</td>
<td>GM6MN/P</td>
<td>1</td>
</tr>
<tr>
<td>IO97</td>
<td>Horsham ARC</td>
<td>G4HRP/P</td>
<td>1</td>
</tr>
<tr>
<td>IO98</td>
<td>Tony Crake</td>
<td>G4VAP/P</td>
<td>5</td>
</tr>
<tr>
<td>IO99</td>
<td>John Rudd &amp; Kevin Porter</td>
<td>G8GCP/P</td>
<td>8</td>
</tr>
<tr>
<td>IO01</td>
<td>Warrington Central Group</td>
<td>G3CRR/P</td>
<td>7</td>
</tr>
<tr>
<td>IO05</td>
<td>Harbortown ARS (6l Group)</td>
<td>G3FAP/P</td>
<td>1</td>
</tr>
<tr>
<td>JO01</td>
<td>Asolate Turner &amp; Peter Hutchins</td>
<td>G6GUR/P</td>
<td>4</td>
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<tr>
<td>JO05</td>
<td>Dragonslayers ORP Club</td>
<td>G6BBS/P</td>
<td>12</td>
</tr>
<tr>
<td>JO02</td>
<td>Mark Tuttle</td>
<td>G6QTM</td>
<td>3</td>
</tr>
<tr>
<td>JO11</td>
<td>Ian Clesher</td>
<td>ON1B8C</td>
<td>2</td>
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</table>

Leading stations using a single antenna

<table>
<thead>
<tr>
<th>Pos</th>
<th>Name</th>
<th>Callsign</th>
<th>Antenna</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Dave Hewitt</td>
<td>G3WZ/P</td>
<td>2L-special 7-element</td>
</tr>
<tr>
<td>7</td>
<td>John Rudd &amp; Kevin Porter</td>
<td>G0GCP/P</td>
<td>Maspo 10-element</td>
</tr>
<tr>
<td>11</td>
<td>Peter Lowrie</td>
<td>G3KJY/P</td>
<td>141-element Param Loop</td>
</tr>
<tr>
<td>12</td>
<td>South Essex ARS</td>
<td>G6RSE/P</td>
<td>G3A/P</td>
</tr>
<tr>
<td>14</td>
<td>Frank Carter</td>
<td>G67AU</td>
<td>19-element</td>
</tr>
<tr>
<td>15</td>
<td>Tony Crake</td>
<td>G0JW/P</td>
<td>Tonna 3-element</td>
</tr>
<tr>
<td>16</td>
<td>Horsham ARC</td>
<td>G4HSRP/P</td>
<td>15-element</td>
</tr>
<tr>
<td>17</td>
<td>Julian Ross</td>
<td>G5LBP/P</td>
<td>Tonna 3-element</td>
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Leading multi-operator stations

<table>
<thead>
<tr>
<th>Pos</th>
<th>Name</th>
<th>Call</th>
<th>Score</th>
<th>QSO</th>
<th>Sgu</th>
<th>Loc</th>
<th>Ant</th>
<th>a.s.l.(m)</th>
<th>RX/TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Warrington Contest Group</td>
<td>G3CR/P</td>
<td>12160</td>
<td>326</td>
<td>38</td>
<td>IO63</td>
<td>4x17Y</td>
<td>455</td>
<td>LTB52</td>
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<tr>
<td>2</td>
<td>North Wales Wafflers</td>
<td>G6WNR/P</td>
<td>9108</td>
<td>253</td>
<td>36</td>
<td>IO62</td>
<td>2x17Y</td>
<td>560</td>
<td>FT4R0</td>
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<tr>
<td>3</td>
<td>Oldham Radio Club</td>
<td>G10CH/P</td>
<td>6899</td>
<td>241</td>
<td>29</td>
<td>IO62</td>
<td>2x9Y</td>
<td>639</td>
<td>FT2S0</td>
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<tr>
<td>4</td>
<td>Hereford VHF Contest Group</td>
<td>G3YX/P</td>
<td>6132</td>
<td>219</td>
<td>28</td>
<td>IO62</td>
<td>13x10Y</td>
<td>610</td>
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<td>Torbay ARS</td>
<td>G6JNJP</td>
<td>5010</td>
<td>167</td>
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<td>17Y</td>
<td>350</td>
<td>TS711</td>
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<td>6</td>
<td>John Rudd &amp; Kevin Porter</td>
<td>G6GCP/P</td>
<td>4811</td>
<td>159</td>
<td>29</td>
<td>IO62</td>
<td>10Y</td>
<td>770</td>
<td>FT4H2</td>
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<td>7</td>
<td>Stroud Radio Society</td>
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<td>4446</td>
<td>171</td>
<td>26</td>
<td>IO61</td>
<td>2x16Y</td>
<td>315</td>
<td>FT22R</td>
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<td>8</td>
<td>Dragonslayers ORP Club</td>
<td>G6BBS/P</td>
<td>4369</td>
<td>157</td>
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<td>JO01</td>
<td>2x2Y</td>
<td>200</td>
<td>I2 CW</td>
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<tr>
<td>9</td>
<td>S.J. Malpass &amp; A.R. Cooper</td>
<td>G6GCP/P</td>
<td>4350</td>
<td>179</td>
<td>26</td>
<td>IO62</td>
<td>12Y</td>
<td>250</td>
<td>FT2W0</td>
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<tr>
<td>10</td>
<td>South Essex ARS</td>
<td>G6RSE/P</td>
<td>3950</td>
<td>158</td>
<td>21</td>
<td>JO01</td>
<td>19Y</td>
<td>55</td>
<td>IC7E1</td>
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Leading single operator stations

<table>
<thead>
<tr>
<th>Pos</th>
<th>Name</th>
<th>Call</th>
<th>Score</th>
<th>QSO</th>
<th>Sgu</th>
<th>Loc</th>
<th>Ant</th>
<th>a.s.l.(m)</th>
<th>RX/TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Dave Hewitt</td>
<td>G3WZ/P</td>
<td>5122</td>
<td>197</td>
<td>26</td>
<td>IO63</td>
<td>72</td>
<td>275</td>
<td>TR751E</td>
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<tr>
<td>11</td>
<td>Peter Lowrie</td>
<td>G6JNJP</td>
<td>4266</td>
<td>156</td>
<td>27</td>
<td>IO71</td>
<td>12Y</td>
<td>150</td>
<td>FT293R</td>
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<td>12</td>
<td>Peter Thompson</td>
<td>G6BDX/P</td>
<td>3413</td>
<td>160</td>
<td>24</td>
<td>IO62</td>
<td>12Y</td>
<td>105</td>
<td>FT293R</td>
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<tr>
<td>15</td>
<td>Tony Crake</td>
<td>G4OAP/P</td>
<td>3450</td>
<td>133</td>
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<td>IO62</td>
<td>13Y</td>
<td>295</td>
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<td>Julian Ross</td>
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<td>3048</td>
<td>127</td>
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<td>IO64</td>
<td>9Y</td>
<td>600</td>
<td>FT22R</td>
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<tr>
<td>30</td>
<td>Mark Tuttle</td>
<td>G6GTM</td>
<td>1572</td>
<td>101</td>
<td>21</td>
<td>IO60</td>
<td>2x1Y</td>
<td>240</td>
<td>FT22R</td>
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<tr>
<td>32</td>
<td>Bob Rayce</td>
<td>G6GTP/P</td>
<td>1347</td>
<td>97</td>
<td>23</td>
<td>IO60</td>
<td>13Y</td>
<td>200</td>
<td>FT250</td>
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Leading Stations

<table>
<thead>
<tr>
<th>Overall Winners</th>
<th>Warrington Contest Group</th>
<th>G3CR/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runners Up</td>
<td>North Wales Wafflers</td>
<td>G6WNR/P</td>
</tr>
<tr>
<td>Leading Single Operator</td>
<td>Dave Hewitt</td>
<td>G3WZ/P</td>
</tr>
<tr>
<td>Runner-up Single Op.</td>
<td>Peter Lowrie</td>
<td>G3KJY/P</td>
</tr>
<tr>
<td>Leading Fixed Station</td>
<td>Dragonslayers ORP Club</td>
<td>G6BBS/P</td>
</tr>
<tr>
<td>Leading English Station</td>
<td>Warrington Contest Group</td>
<td>G3CR/P</td>
</tr>
<tr>
<td>Leading Welsh Station</td>
<td>North Wales Wafflers</td>
<td>G6WV/P</td>
</tr>
<tr>
<td>Leading Scottish Station</td>
<td>Cockenzie &amp; Port Seton ARC</td>
<td>G6MCl/P</td>
</tr>
<tr>
<td>Leading N. Ireland Station</td>
<td>Peter Lowrie</td>
<td>G3KJY/P</td>
</tr>
<tr>
<td>Leading Eire Station</td>
<td>Declan Lennon</td>
<td>E6HQ</td>
</tr>
</tbody>
</table>

Just a reminder that the 17th PW 144MHz QRP Contest will take place on Sunday 20th June 1999.
**The MFJ HF & 50MHz Versa Tuner II**

John Goodall
GOSKR takes a look at the MFJ HF & 50MHz Versa Tuner II - and enjoys himself 'on the air' using what he considers to be a truly versatile antenna tuning unit!

Disneyland has several, Alton Towers has an enormous one...what on earth (you may ask) am I talking about? Well hang on to your hats...as the answer is a Roller Coaster but of course it's a 'radio type' rather than a fun ride!

The MFJ-969 is an extremely versatile 'roller coaster' type tuning unit. It operates a 'T' matching network and the manufacturers claim it will tune almost any known antenna from 1.8 to 50MHz.

Designed for the modern shack the a.t.u. can operate from three separate antenna inputs. Two 50Ω coaxial feeds and one separate wire feed can be connected to the tuner. It also has within its 250mm x 265mm x 90mm case, a useful dummy load. (Almost a legal requirement within the station...but how many actually own one?).

The front panel, as you would expect from the MFJ stable carry the essential controls for the unit. In the centre of the front panel, two rotary tuning capacitor controls for transmitter and antenna, together with the multi-way switch for the various antenna selection.

Additionally, towards the lower edge of the front panel there are three push on/push off buttons. One red button, to the extreme left being the main On/Off control for the unit. Another button controls the power levels settings of, 30/300W and a PEP/Average button.

To the left of the front panel, there's a large easy-to-read, 85mm x 45mm dual cross needle SWR/Power meter. Also on the right hand of the front panel can be found the large diameter rotary control for the roller coaster.

Above the rotary control can be found the three digit mechanical numerical display for the number of turns counted on the roller coaster. Fully clockwise being identified as 000 and fully counter clockwise as 118.

Operation of the unit couldn't be simpler. Once you have whatever antenna you desire connected to the rear connections, coupled the unit to 13.8V d.c. - the 'world's your oyster'! (An internally mounted PP3 provides power for the 'peak power' measuring circuitry when an external supply is not available. This must be disconnected when the external supply is used).

Incidentally...I do wish MFJ would include a suitable external d.c. plug and lead with this and other units...which they don't!

**In Use**

In use, the operator selects the Dummy Load through the tuner, via the multi position switch on the front panel, and then sets up the rotary transmitter and antenna controls, roughly as per the supplied Instructions. Next, setting the rotary inductor control (again roughly as per the instructions) everything will be ready to fine tune the system.

With a low power setting on the transceiver, the next stage is to put a c.w. carrier into the tuner's dummy load. Then, by watching the twin cross needle meter, the rotary transmitter and antenna controls are adjusted until the lowest v.s.w.r. and highest power readings are obtained.

If the v.s.w.r. is found to be still a little high, the rotary inductor control can be adjusted and the v.s.w.r. will go to almost zero. Next, the antenna selector switch is turned to the antenna required and the simple instructions previously mentioned are repeated.

When happy with the results, the settings should be noted for future use, including of course the Band, Transmitter, Antenna and Roller Coaster Inductor positions.

The settings I used for 1.8 through to 28MHz with my end fed long wire, I have kept just in case (you never know!) - I may just own one some day. The Roller-Coaster position is simply read off the digital display.

**On The Air**

On the air - using my 'long wire' antenna and concentrating on h.f. (as nothing was happening on 50MHz I had great fun. Normally, using such a simple form of antenna on the h.f. bands (particularly the higher frequency allocations) when it comes to working the DX you'll be competing against beam antennas. But despite this I did very well indeed - particularly to the USA.

On 18MHz I found that the excellent matching provided by the unit enabled me to squeeze every last drop of r.f. 'up the spout'. This resulted in many good long QSOs with North American stations with consistent reports of '5&8' (both ways) being given. And I was often using less power than the other end!

So...I've no doubt you're asking 'what's his opinion'? And in reply and to answer the question I've got to say the Versa Tuner is a very powerful and useful unit, and at the supplied price, I feel it's a snip. And again...I'm wondering - do I really have to send it back?

My thanks go to Waters & Stanton PLC, of 22 Main Road, Hockley, Essex SS5 4QS, Tel: (01702) 206835, FAX (01702) 205843, for supplying the review unit. The MFJ Versa Tuner II (model No. 969) costs £139 plus £4 p&p.

John Goodall GOSKR

Practical Wireless, November 1998
Please mention Practical Wireless when replying to advertisements

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Q-TEK ACCESSORIES

Q-TEK PENETRATOR

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Q-TEK INTREPID - Half waves

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NEW Q-TEK INDUCTORS 80mtr inductors. Add them to your 70cm and convert it to a full size: £22.95 P&P £2

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NEW Q-TEK INDUCTORS

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Q-TEK TRAPS

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Q-TEK WINCHES

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TELESCOPIC MASTS

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<td>5 section telescopic mast. Starting at 2&quot; in diameter and finishing with a top section of 1/4&quot; diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and stainless steel pins for securing the sections when erected. The closed height of the 8 metre mast is just 5 feet and the 12 metre version at 10 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.</td>
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D-308 BLACK DELUXE DESK MIC

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GUY WIRE KITS

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MAST HEAD PULLY

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<td>Easy to fit puller with mast clamp (up to 2&quot;)</td>
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SECTIONAL MASTS

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END FED HALVE WAVES

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<td>4in Length 92&quot; (SO239)</td>
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<td>6in Length 129&quot; (SO239)</td>
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<td>2m Length 92&quot; (SO239)</td>
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<td>76cm Length 26&quot; (N-type)</td>
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Carrying on the Practical Way

The Rev. George Dobbs G3RJV has something up his sleeve for short wave listening this month. It comes in the form of an 'active antenna' or as George says: "...A useful little box for the listener" - accompanied by the compulsory quote of course!

"aerial: adj. belonging to the air: existing in the air: ethereal - n. (often aerial) any exposed wire capable of radiating or receiving an electromagnetic wave. [L. aer, air]"

Chamber's Etymological Dictionary

The Circuit

The circuit of the Active Antenna is shown in Fig. 1. It's a two-stage amplifier using a field effect transistor (f.e.t.) followed by a bipolar transistor. The f.e.t. stage offers a high impedance to the small antenna. I chose not to use the usual telescopic whip but mounted a socket for a short wire antenna. Apart from saving the cost of a telescopic whip, this has several advantages: for example the length of wire can be varied according to the desired amount of signal pick-up, the wire can be moved around for best reception and the unit is smaller.

In the circuit, Tr1 is biased by choice of the source resistor and a 1mH r.f. choke which provides a load at the f.e.t.'s drain. Although no large signals are involved here, it's wise practice with these f.e.t. amplifiers to keep the input physically away from the output.

The bipolar r.f. amplifier, Tr2, uses shunt

Fig. 1: Circuit of G3RJV's 'Active Antenna' project.
feedback between the base and collector and the non by-passed emitter resistor also provides some degenerative feedback. Most common transistors will serve for Tr1 although it should have a fairly high frequency gain.

Matching Output

A small r.f. transformer provides the matching for the output of Tr2 to the typically low impedance found in receiver input circuits. I opted for a very simple choice, a transformer wound on a small 'pig nose' ferrite former. The ferrite formers are those little things with two holes that look rather like a pig's nose when viewed end on (often referred as 'binocular ferrite cores'). Mine was out of the junk box collection but if you have to buy one, JAB Electronics sell small Fair-Rite two hole beads, which should serve the purpose.

The diagram, Fig. 2 (above), shows the winding of the transformer. The primary is 12 turns of 30swg enamelled copper wire and the secondary is 2 turns wound from the opposite end. The diagram also shows how the connections are made to the transformer. (More sophisticated constructors might like to make a trifilar wound 4:1 r.f. transformer but the simple arrangement I used appears to work well).

Ugly Style

My prototype was built 'ugly' style, as you can see from the photograph in Fig. 3. The circuit was made up on a small piece of blank printed circuit board (p.c.b.) material.

The transistors are mounted 'legs-up' (in 'dead bug' fashion) and they, with the decoupling capacitors, provide the anchor points for the other components. Point-to-point wiring and short leads follow the rules of good radio frequency (r.f.) practice.

The board is soldered to the bottom of a tobacco or other suitable tin, with 3mm socket for the antenna wire and a phono socket for the output. There is room inside my box for a PP3 battery with a small on-off switch. I bent some copper wire and soldered it in place to hold the battery away from the electronics.

I tried the Active Antenna, with success, on my Davco DR-30 Receiver, an exceptionally beautiful receiver of around the same vintage. It was the first receiver to use f.e.t.s and it's built into a beautiful compact case with the band-switching arrangement mounted in milled aluminium.

The DR-30 sold for over £300 in the 1970s and I coveted them at the time. Again they are quite rare beasts but I managed to find one a few years ago. Rick Campbell, K77B, says of his DR-30 that it confirms his father's advice about women: "the most beautiful are not always the best"!

I think the performance of the DR-30 is inferior to many receivers I have owned. However, it certainly is a fine piece of machinery and it seemed to like the Active Antenna.

Recently I acquired a very well built valve tuned radio frequency (t.r.f.) receiver from a 'Silent Key' sale. It was 'The real thing': a 1-v-2 well built in a handsome steel case with Denco plug-in coils. I bought it for old times sake and it's great fun to use. And although t.r.f. receivers can be very fussy about what they have attached to their inputs...the Active Antenna yielded amateur signals on 3.5MHz and a good range of broadcast stations.

So this simple little circuit appears to be at home with a variety of receivers and is a useful extra item to have for casual listening without resort to a larger antenna. By following my success...by getting busy with that soldering iron you too could have your own 'Active Antenna'. Good listening!

Fig. 2 (left): Details for preparing the r.f. transformer (T1) for use in the project. (See 'Component Suppliers' for information on obtaining 'pig nose' ferrite cores).

Fig. 3: Internal view of the project illustration the 'Ugly' style of construction adopted by G3RJV (see text).

First Test

My first test was with the Atlas RX110, an unusual but interesting receiver of the late 1970s. Quite advanced for its age, it has a diode first mixer and excellent bandpass filtering on the input. Incidentally...I came by mine in a rather odd manner!

The RX110 has a matching TX110 Transmitter Converter, a small add-on which converts it into a c.w. and s.s.b. Transceiver running about 15W output. I found one of the TX110 units on a stall at a radio rally and bought it for the power amplifier.

After buying it I then wondered if I could get the matching receiver and a request on the Internet yielded three people who were willing to sell one - odd because not a lot were made. I managed to obtain a good one at a very reasonable price and it works remarkably well for its age.

My second test was done on my Davco DR-30 Receiver, an exceptionally beautiful receiver of around the same vintage. It was the first receiver to use f.e.t.s and it's built into a beautiful compact case with the band-switching arrangement mounted in milled aluminium.

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Component Sources

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Tel: 0121-682-7045.

Syon Trading of 16 the Ridegway, Fetcham,
Leatherhead, Surrey KT22 9AZ: (see their advert on page 19 in this issue) can supply the MPF 102 f.e.t.s fur 45p each, and the BC182 transistors for 10p each plus postage (usually 35p or so for six MP102s). Suitable ferrite cores are also stocked.

( Please mention you saw the reference in PW. Editor).
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73 from Dave G4KQH, Technical Manager.

Practical Wireless, November 1998

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The now well established Icom IC-706 has long been the topic of conversation in radio stores, at rallies and in many radio clubs across the land. And I'm pleased to say that GORSN is the proud owner of an IC-706 Mark I and has had the pleasure of reviewing both the Mark 1 & 2 for PW.

So, my interest was more than stirred when I heard people talking about the 'base station' version of the IC-706. A few carefully placed questions revealed that the radio they were referring to was the Icom IC-746. The IC-746 was said to have the versatility of the IC-706 but more functions and more power on 144MHz. Could this be true? I asked myself? Fortunately, the statement turned out to be true and I was also asked to review the new transceiver for PW!

The Icom IC-746 is a very promising bit of kit. It boasts transmit capability on Amateur Radio bands from 1.8MHz to 144MHz (including 50MHz, but excluding 70MHz). It receives from 300kHz to 60MHz and 144-146MHz.

Also on offer from the IC-746 is a completely adjustable power output from 5 to 100W on all bands and modes, except amplitude modulation (a.m.) where the highest output that can be achieved is 40W! It also has digital signal processing (DSP) and an automatic antenna tuning unit (a.a.t.u.) built in. After reading the details... I could not wait to get it out of the box and see if it lived up to my expectations!

Base Station Version

The Icom IC-746 is referred to as the base station version of the IC-706. It's powered by 12V d.c. and measures 287mm wide by 120mm high by 316.5mm deep, thus retaining a certain portability and even has a built-in carrying handle.

The first thing that struck me when I opened the packaging was just how good the transceiver looks. The display is huge, the frequency read-out is very clearly and plainly displayed and I thought that information provided on the display was well set out.

I think that the transceiver's front panel is also well thought out and controls are clearly labelled and spaced to allow easy operation. Owners and/or operators of the IC-706 will definitely see some similarities here, as the way in which frequency steps and fast tuning is achieved, memory writing and retrieval and menu operation are all basically the same.

However, for those unfamiliar with the use of the IC-706 the controls are easy to get to grips with. The radio is certainly in the very 'user friendly' class.

The rear panel carries the power socket and several sockets for accessories such as linear amplifiers and external a.a.t.u. It also has three SO239 type antenna connections, and one of these is a dedicated 145MHz (v.h.f.) antenna.

The other two antenna sockets are both h.f. and 50MHz connections. They are labelled '1' and '2' respectively and can be switched from the front panel by the touch of a button. (The a.a.t.u. will work on either of the h.f./50MHz sockets but does not work on the 145MHz socket.

Digital Signal Processing

Let's now look at the digital signal processing facilities on the radio. The DSP function digitally transposes receive audio components in all modes of operation, and is done at the 'digital i.f.' stage of the radio.

Included in the IC-746 are the following DSP functions:

Noise reduction: This automatically reduces various different types of background white noise and at the same time identifies and enhances
received signal.

Audio Peak Filter/Auto Notch Filter (APF):
The APF is used in the c.w. mode only. It changes the receive frequency response by boosting a particular frequency for better reception. Using this function, three ‘booster’ pass bands are selectable, these are 80/160/320Hz. The actual centre peak frequency is fully adjustable from 300 to 900Hz manually.

The Automatic Noise Filter (ANF) is used in s.s.b., f.m. and a.m. modes. It will eliminate three beat tones, such as tuning whistles... even if they are moving (changing frequency).

Some of this may seem a little daunting or confusing to the less technical operator... however, in simple terms DSP functions, when mastered are fantastic! And from experience I can tell you that both of these functions proved to be wonderful when operating.

Another ‘interference busting’ weapon in the IC-746 armoury is the Twin Pass Band Tuning (PBT) facility. This adjusts the bandwidth on both of the receiver’s i.f. filters, and when both are used in separate directions the pass band can be shifted to move away from a close but undesired signal. When used both in the same direction it acts as an i.f.s shift. (Incidentally, there’s a rather useful visible graphic representation of how the filter is working on the front panel display).

Where To Start?
It’s so difficult to decide where to start a review with radios like the IC-746. It offers the operator so much... for example there’s VOX, voice compression and electronic keying, a monitor switch so that you can monitor your own transmitted audio or c.w. and shifted transmit/receive.

There is of course the a.a.t. u., pre-amplifier and level control. The Automatic Antenna Tuning Unit (a.a.t.u.) built in.

“It also has digital signal processing (DSP) and an automatic antenna tuning unit (a.a.t.u.) built in”.

...and automatic level control (ALC) readings. On other transceivers I’ve owned and operated it was necessary to select them individually, so in this case I found it useful to be able to monitor all three at once.

It’s very simple to move to an amateur band on the IC-746. All of the bands are pre-programmed into a keypad on the front panel. But Icom do not stop there and apart from giving the operator 99 memory channels, one call channel and two scan edge memories, the manufacturers have also assigned three memories to each band that they call ‘stacking registers’. They are overwritten on a rotational basis, remembering the last three operation frequencies and modes in each band.

An example of using the stacking registers took place when I selected the 14MHz band by pressing the button. The frequency of 14.325MHz u.s.b. was then displayed.

There was an interesting station but I wanted to quickly tune the band so I pressed the same button a second time. I used this setting to tune around, before pressing it for a third time I checked 14.150 in RTTY mode, for any RTTY activity.

Having found nothing I pressed the same button again, this took me directly to 14.350MHz u.s.b. It sounds rather like a mouthful, but it really is super if (like me) you do more listening than talking. (Although some of my listeners may not agree!)

The IC-746 also has a Band Scope. Icom describe it as "a simple band scope". This description is accurate. It’s a bit of fun and can be set to continuously sweep a given width of frequencies using different steps, or to do one complete sweep and then stop. It gives a visible representation of the activity found. However it cuts off the received audio while it is sweeping, thus its practical use is, in my opinion, greatly reduced.

The automatic a.a.t.u has got to be the next thing I mention in detail. These things never cease to amaze me!

Although there is a certain satisfaction in twiddling and tuning, it can be rather frustrating. Especially when that really interesting station says "... now going QRT" just as you have managed to tune the antenna system, having been locked in mortal combat with it for over 10 minutes!

With the IC-746 you touch a button, which is followed by a whirr, a click and then a few moments later you’re in business!

Here in my Bournemouth QTH I have a long wire of about 22m long, fed with 50Ω coaxial cable via a balun. The a.a.t.u successfully tuned this from 1.8 to 29MHz, although it did struggle at 29MHz... but since I never achieved a match using my manual a.a.t.u. I’m not complaining!

On The Air
When I went on the air I was more than a little surprised that the a.a.t.u tuned my bit of wire on 1.8MHz. I enjoy ‘Top Band’ but have never really had the time, space or patience to erect a decent...
antenna system for the band. Still, as the transceiver's a.a.t.u. had kindly matched my antenna I felt obliged to at least give it a go!

So, I listened around 1.960MHz and found two very strong signals, Mike GM0CME and Philip G4FBG. I called 'Break' (a little difficult to do with my tongue in my cheek...but I managed it!). To my amazement, Mike gave me an excellent report from Fraserburgh in the Grampian Region, in the north east of Scotland and Philip was also able to give me a good report from Stockport.

Both Mike and Philip were complementary about the audio from the IC-746. I was pleased with this result considering I am situated in Bournemouth on the South Coast and I was running about 10W!

I also had some fun on 7MHz. Here I worked GB2HWG, the International Girl Guide Station...real DX at Foxlease in the New Forest near Lyndhurst (approximately 20km away). I also received a 5 and 9 report from Alan GI3WWM, in Belfast and had a very nice chat with Mickey who was operating GB4FCF, which was a special event station for Fingringhoe Church Fete near to Colchester. Mickey told me that my audio was "very nice indeed".

While operating on the 7MHz band I encountered a QRM problem. This is when c.w. stations move up the band into the s.s.b. portion. It's a very crowded band and when you are talking to a marginal station a huge c.w. signal is perhaps not what you want when you're in the s.s.b. section.

So, I decided to put the Auto Notch Filter (ANF) to the test. I pushed the button and the 59+ 18w.p.m. c.w. station that had been there had gone! Thinking he had just stopped transmitting I switched the ANF off, there it was again.

The ANF worked extremely well and, when I had mastered all the DSP features and used them together, operating on 7MHz s.s.b. was almost like working n.b.f.m. on 144MHz!

On 14MHz I worked further afield, working Dave W3KDD, and then Bill W4CSV in West Virginia. Bill was very kind, as the contact was not too easy.

I also had good success on 18 and 21MHz and decided it was then time to try some v.h.f. contacts.

Switching To VHF
Switching to v.h.f. and starting on 50MHz, I got two contacts, a feat in itself in my area! Alan M0BKW in Southampton and Gordon G7BCR Practical Wireless, November 1998
both gave me good reports and everyone I spoke to passed
comment on the good, clean audio. Southampton is not a great distance
away, some 60km. but the contact was good and it was a nice chat.

On 144MHz I managed to speak to several stations engaged in a
contest on s.s.b. It was during this period that I discovered that it was
to switch the voice compression off on v.h.f. unless it
was really necessary. It was not needed as much on the 144MHz
band as it’s not as busy and noisy as the h.f. bands.

I also manage a contact with my
father, John G8EAM in Minehead
on 144MHz s.s.b. We can’t usually
work each other on v.h.f. due to the
difficult pathway between us, so the successful contact was a good
indication of the receiver on the IC-
746 and illustrates that on the odd
case 100W does help.

Next, I had a little ‘play’ on the
local repeater, GB3SC (in
Bournemouth) and got a good
report from Steve G1YNY.

Incidentally, I’ve heard people say
that they are disappointed with the protracted way
the IC-746 is put in repeater mode and, although I
concede that it’s not the easiest radio I have ever
used in this respect...don’t forget it’s not a
dedicated v.h.f. mobile n.f.m. transceiver, frankly
I would have been a little disappointed if Icom had
given this aspect of its operation priority.

Any problem setting up for repeater operation is
easily overcome by programming all the repeater
frequencies with their offsets into memories.

on the 144MHz band. However the IC-746
provided a very good account of itself when
receiving v.h.f. Air Band and Marine Band
transmissions.

In my opinion the Icom IC-746 is not a mobile
radio by modern standards. However, when I first
started working h.f. mobile I used a Trio TS-120V,
not dissimilar in size to the IC-746. The IC-746 is
quite definitely a portable radio.

The 12V d.c. supply, coupled with the fact the
IC-746 is small and light and has an extremely
versatile a.a.t.u., makes it just as ideal for camping
and caravanning, together with sitting proudly in
any shack.

I think the IC-746 is a well-made and versatile
radio with excellent transmitted and received
audio. But give yourself time to get used to and
get the best out of the DSP. **It is different ...but
‘by George’...it is very, very good!**

My thanks go to Icom (UK) Ltd of Sea Street,
Herne Bay, Kent CT6 8LD, Tel: (01227)
741741, FAX: (01227) 741742, for the loan of
the review unit, the selling price of which is £1695,
including VAT.

---

### Side By Side

I put the IC-746 side by side with my Icom IC-706
Mkl. The 746 (imagine - if you will - my gritted
teeth) outperformed the 706 on h.f., and it was
more selective and more sensitive.

When I employed the DSP features on the IC-
746, something my IC-706 does not have of
course, the ‘746 “blew the 706 out of the water”
performance wise.

On v.h.f., both transceivers were comparable

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### Manufacturer’s Specifications

#### General

<table>
<thead>
<tr>
<th>Frequency coverage</th>
<th>Balanced</th>
<th>a.m., l.s.b., u.s.b. modulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive 300kHz to 60MHz</td>
<td>Variable reactivity</td>
<td></td>
</tr>
<tr>
<td>144 to 146MHz</td>
<td>n.f.m.</td>
<td></td>
</tr>
<tr>
<td>Transmit 1.8 to 1.99MHz</td>
<td>Spurious</td>
<td></td>
</tr>
<tr>
<td>3.5 to 3.99MHz</td>
<td>emissions:</td>
<td></td>
</tr>
<tr>
<td>7 to 7.3MHz</td>
<td>Less than -50dB (r.f.)</td>
<td></td>
</tr>
<tr>
<td>10.100 to 10.150MHz</td>
<td>Less than -60dB</td>
<td></td>
</tr>
<tr>
<td>14 to 14.35MHz</td>
<td>(50/144MHz)</td>
<td></td>
</tr>
<tr>
<td>18.068 to 18.168MHz</td>
<td>40dB</td>
<td></td>
</tr>
<tr>
<td>21 to 21.45MHz</td>
<td>Carrier suppression:</td>
<td></td>
</tr>
<tr>
<td>24.89 to 24.99MHz</td>
<td>55dB</td>
<td></td>
</tr>
<tr>
<td>26 to 29.7MHz</td>
<td>Unwanted sideband:</td>
<td></td>
</tr>
<tr>
<td>50 to 54MHz</td>
<td>600Ω</td>
<td></td>
</tr>
<tr>
<td>144 to 146MHz</td>
<td>Microphone impedance:</td>
<td></td>
</tr>
</tbody>
</table>

#### Modes

<table>
<thead>
<tr>
<th>l.s.b., u.s.b., c.w., a.m., f.m. and RTTY</th>
</tr>
</thead>
</table>

#### Memories

| 99 regular, two scan edge and one call |

#### Antenna

| Three S0239 connectors, 50Ω impedance |

#### Usable temp range

| -10°C to 60°C |

#### Frequency stability

| Less than ±200Hz from 1 to 60min after power on. |

#### Frequency resolution

| 1Hz |

#### Power supply

| 13.8V DC (± 15%) negative |

#### Current drain

| Transmit = (max. power) 20A |
| Standby 1.8A (Max. audio 2A) |

#### Dimensions

| 287 x 120 x 316.5 (w x h x d) |

#### Weight

| 8.5kg |

#### Transmitter

| Output power: |
| h.f (50MHz 5 to 100W (a.m. 5 to 40W)) |
| 144MHz 5 to 100W (typical) and (a.m. 5 to 40W) |

---

*Practical Wireless, November 1998*
October 10: The Ballymena Amateur
Radio Club will hold its Annual
Rally at the Ballymena High School from
1200 until 1700. More information from
Jeffrey Clarke G4HCH on (01266) 658769.

October 18: The North Monaghan
Hobby Radio & Computer Club will
hold its 10th Radio & Computer
Show at the Lee Valley Leisure Centre,
Pickens Lane, Lee Valley, Hertfordshire.
W300 for disabled visitors. Tel: 01388
299222.

November 1: The Tiv Corraul Amateur
Radio Society Annual Radio Rally, at
Jackson's Hotel, Ballybofey, County
Donegal. Attractions will include trade
stands, B&B, restaurant and a
licensed bar, entrance fee, etc. Tel.: 01365
522988.

November 24: The Cirencester Amateur
Radio Group welcomes everyone to its
annual rally, which takes place at 1200 at
the usual venue which is a Downside
School, Caddington, Nr. Dunmow, Essex.
Talk-in on 145.550MHz (V4/S23).

November 3: The Great Northern
Hamfest takes place at the Metrodrome
Leisure Complex, Queens Road, Barnsley,
S. Yorkshire. A five minute walk from the
centre of Barnsley bus and train, less
than two miles from the M1 junction 37.
Talk-in on 144.350MHz (B7/A150) or
01226 716339 and (0836) 748958.

November 4: The Bangor & DARS are
holding a Surplus Sale at the Cladonboye
Lodge Hotel, Bangor in Northern Ireland,
at 2000 (1945 for disabled visitors). Free
parking is available for both traders and
disabled as it boasts good parking and easy
access to large ground floor hall. There will
be the usual radio, computer, electronics
and Bring & Buy stalls as well as catering
and bar facilities. Moro tests will be available
on display. Admission is £1, under 14s go free of charge, if accompanied by an
adult. Talk-in on 1.25, Keith /ME1N on
(01388) 671041 or (0374) 417660.

November 8: The Midland Amateur
Radio Society (MARS - Birmingham) are
holding their 10th Radio & Computer
Rally at Stockland Green Leisure Centre,
Stede Road, Erdington, Birmingham.
Doors open at 1000 and admission is £1.
There will be a free car park, a free
hampers draw plus many trade stands,
local clubs and special interest exhibits.
For trade details contact Norman
GIBBIE on 0121-422 9787 or for
general information, contact Peter
GEDRON on 0121-443 1189.

November 14: The SAMS '98 Computer
and Electronics Show is to be held in
the Bingley Hall, Staffordshin Showground,
Weston Road, Stafford (AS18 Stafford-
Uttoxeter Road), signposted from
junction 14 on M6, (bus shuttle from
Stafford Railway Station). Doors open
1000 to 1600, Admission for adults is £3,
children 14 and under 14s 50p, OA PBs,
GSB Members, Student Card, £2.50.
Advance Tickets £1.75 s/a., there
will be masses of free parking, a licensed
bar from 1100 and refreshments, meals
and a cafeteria. A great day out
Sharon Alward, Sharward
Promotions. Knightsbridge Business
Centre, 3 Knightsdale Road.
Ipswich, Suffolk IP1 4JL. Tel: 01473
741533. Fax: 01473 741631 or E-
mail: services@sharward.co.uk.

November 22: The Bishop Auckland
Amateur Radio Clubs (BARAC) Rally will
take place at Spen narrowly Leisure Centre.
Please note that this is a new venue,
identically suited for both trader and
disabled as it boasts good parking and easy
access to large ground floor hall. There will
be the usual radio, computer, electronics
and Bring & Buy stalls as well as catering
and bar facilities. More tests will be available
on display. Admission is £1, under 14s go free of charge, if accompanied by an
adult. Talk-in on 1.25, Keith /ME1N on
(01388) 671041 or (0374) 417660.

December 3: The Verulam Amateur
Radio Club will hold its annual rally at the
Watford Sports Centre, Watford HP2 7LN,
Garston, Watford, Hertfordshire, Ian
FORSYTH G0PAU on (01923) 265572.

December 10: The North Essex Mobile
Amateur Radio Group is to be held at the
Queen Elizabeth Hall, Civic Centre, West
Oldham, Oldham, Lancs. Doors open at
1100 for any disabled visitors. The event features the usual traders and a Bring & Buy stall.
More tests are available on demand.
Talk-in on 1022 via GB4CMC beginning at
0730. There will be refreshments and free
delivering. Tel: 01706 844143 or 0181-
652 4164.

February 7: The 14th South Essex
Amateur Radio Society Radio Rally is to
be held at the Paddocks, Long Road,
Canvey Island, Essex. The Paddocks is
situated at the end of the A130. Doors
open at 1030. Features include Amateur
Radio, computer and electronic
component exhibitors, Bring & Buy, RSGB
Morse testing on demand (two passport
photos required, home-made refreshments, free parking, disabled space outside main doors for disabled visitors.
David G4UV on (01268) 697975.

February 14: The 14th Northern Cross
Rally is to be held at Thornes Park
Athletics Stadium, Wakefield. There is
one large hall, just out of town on the
Horton Road. Easy access from M1 junctions 39 & 40 - well signposted and with
a talk-in on 2m and 7cm. Doors open
1100/11030 for disabled visitors and Bring & Buy.
Tickets £5.00 in advance or £7.00 on
the day. Tel: 083231 or packet GOSBY@B7/VRG. E-
mail: rally@aveg. fantec.co.uk or visit the
web page http://www.veveg. demon.co.uk/rally.

February 21: The Barry Amateur Radio
Society Radio and Computer Fair has
changed its venue. The new and
improved venue will be held at the
Holmview Leisure Centre, Skomer Road,
Barry. Facilities include lounge bar,
catering and parking. Admission is £5.00
and doors open at 1000 for disabled
visitors and 1030 for general public. Brian
G0GUP on 01742 832263 or (01742)
3379. Combined telephone and FAX number:

May 9: The Drayton Manor Radio &
Computer Rally is to be held at Drayton
Manor Park, Fazeley, Tamworth, Staffs on the
A440. The usual traders and free parking
will be in four marquees with a large outside
traders flea market. There will also be a
Bring & Buy stall, local clubs and special
interest stands. Open from 1000 onwards.
Trade Information from Norman
on 0121-784 3210 or via Peter GEDRON on
0121-443 1189.

---

We need to know if any of you are having problems obtaining Practical Wireless. If you can’t find a regular outlet, then let us know. Please contact Distribution Complaints by telephone (01202) 569910.

By post: Distribution Complaints, PW Publishing Ltd., Arrowsmith Court
Station Approach, Broadstone, Dorset BH18 8PW.

Practical Wireless, November 1998

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FINANCE EXAMPLE
All examples do not include P&P

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<th>Description</th>
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<td>Price £349</td>
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<td>Nothing to pay for 6 months</td>
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<td>Pay within 6 months at ZERO APR</td>
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The U.K. Morse test is available on Saturday 31st October between 10.30 and 2.00pm. Please bring two passport photos and the £20 fee - best of luck.
Book At Bedtime

I find nothing more effective to help me relax after a hectic day, than sitting down and reading a book. What more topical in A-i-A than to mention the ARRL Antenna Book (18th Edition) in this context. I find that at least one of the 28 chapters has most, if not all, of the answers to any problem that I may be 'mulling' over.

The topics covered include antenna fundamentals, loops, low frequency antennas, multi-band as well as multi-element antennas, broadband arrays, Yagi antennas, log periodic and quad loop antennas, long wire and travelling wave antennas as well as antennas for portable and direction finding work. These are in the 'front half' of the book. In the 'back half' are chapters dealing with masts and supporting systems, materials and accessories, propagation, transmission lines and matching to the transmitter.

As an aide-memoir, there's a glossary of terms that sets out most of those terms which everyone uses and that we sometimes abuse. As Christmas is 'almost' upon us, why not buy one for your Xmas stocking? To help you 'make up your mind', Michael, in the Book Department, has a special offer for you. His special price, to be held up to Christmas, is just £20 inclusive of post and packaging - a saving of £5 over the normal price.

Phone Home

I have an apology to make to G2DYM, the supplier of traps and antennas. In the news section of A-i-A (September 1998), I gave the wrong 'phone number for G2DYM after the items about his new 'E2 series' of antennas. For those who had difficulties contacting him about antennas or traps he that he can supply, the 'phone number is (01398) 361215. Or by mail to R.Benham-Holman G2DYM, 'Cobhamden', Beerdown, Uplowman, Tiveton, Devon EX16 7PH.

Static AKD

Recently, I had to contact AKD to verify the price of band-pass filter, shown in their list dated 1996. I was pleasantly surprised to find that their prices had been held static ever since then. The list contains a series of ten filters covers most of the problems of TV and interference that may be encountered by Radio Amateurs and their neighbours. Test equipment manufactured by AKD includes the 'WA' series of wavemeters covering h.f. to u.h.f. For instance, the WA3 covers from 1.8-92MHz, the WA1 covers 120-450MHz while the WA2 covers 50 and 70MHz. For more details of these items and their receivers and transceivers, contact AKD at Unit 5, Parsons Green Estate, Boulton Road, Stevenage, Herts SG1 4QG. Tel: (01438) 351710.

Can You Help?

Do you know of a supplier of roof mounted mast support? Christophe Pierre 6FIVT is looking to mount an antenna on his roof, but is stumped because he cannot find the type of mounting system he's looking for. In his letter asking for help, Christophe mentions a 'tripod' to mount an antenna on his roof, but that isn't the only method that may be used. I've seen 'folding plate' mounting systems in American and Japanese magazines, but not in European ones. With this 'folding plate' system two heavy frames fold down over the ridge of the roof, forming a stable mounting point for a short stub mast. Do you know of a similar system, or who supplies anything like this? Answers please to 'Antenna in Action' at the editorial address and I'll pass them on to Christophe.
Station earthing is often low in the order of priorities for many Radio Amateurs. But, for that so important protection against lightning strikes, outdoors earthing is essential. The only exception might be at the home of the chap who only uses indoor antennas. A good earth system is also a must when using Marconi type antennas, i.e. those antennas that are single conductors under a half wave in length, which rely upon the conductivity of the ground.

In this article I shall not be discussing ground plane antennas, for they rely upon resonant elevated radials and not ground systems. If you just operate on the higher frequency bands using Yagi or cubical quad beam antennas, dipoles or other Hertzian based designs, then a low resistance earthing arrangement is then not necessary.

**Earth Rods**

An earth rod will be useless as the image of the ‘missing’ quarter wave of a Marconi antenna, but it will certainly help to protect, you, your family and your property from those Megavolts in the storm clouds. The illustration of Fig. 1, shows a typical earth rod arrangement. The rod must be positioned not more than five metres from the house. The rod should penetrate at least one metre into the ground and have a very low resistance heavy connection to the horizontal clamp position. Two lengths of the wide woven copper braid used for earthing electrical installations are ideal as connecting wires. Similar connecting braid can be made from the outer screening conductor of old heavy duty coaxial cable. It can be flattened and at the earth rod end soldered and drilled to fit the earth rod's connecting bolt.

Using a pair of such leads will lower the overall resistance and allow the conduction to earth of heavier ‘strike’ currents should they unfortunately take place. Churches and other high buildings use heavy solid copper straps as conductor down leads. I recently noticed solid copper conductors when fuel tanks were being installed at a new filling station.

The earth rod may be of solid copper plated steel rod, or perhaps the stout Dural tubing used for scaffolding. I use Dural tubes, as they’re cheap and strong. Aluminium ‘greenhouse’ nuts and washers should be used to minimise corrosion due to dissimilar metal contact at the connection points. To help reduce corrosion, all the junctions are liberally coated with silicone sealant. Some of the connections made in this way have remained in fine condition for more than ten years at my QTH.

Some writers have suggested ‘watering’ around earth rods with saline (salt) solutions. My advice is not to bother, for the soil resistance will be lowered just around area of the rod, and it will not reduce the overall ground resistance much. Also a salty patch in the ground can give rise to corrosion, not to mention destroying plant and other soil life in the vicinity.

**Simple Measurements**

Before writing this article I carried out some simple earth resistance measurements in my garden. Two copper plates (actually two pieces of double-sided printed circuit board material) each with a surface area of 140mm square, were pushed into the moist loam of my vegetable plot and separated by 100mm. My first measurement indicated a resistance of 650Ω and a second made a metre away showed a resistance of 85Ω. Use of a polarised meter for this work. The very high voltages around at the time of a lightning strike have no difficulty in penetrating normal soils, but the ‘punny’ r.f. voltages and currents from an antenna system cannot be conducted very far.

A commonly held fallacy, is that higher frequency bands and, when operations extend over, or under, the available garden area. A temporary arrangement used by many DX-pedition stations on a distant Island might include many lengths of aluminium kitchen foil held down by stones and sand. Such a kitchen foil earth should perform very well on the lower bands and when operations cease, may be screwed up and disposed of. Some overseas ‘Top-band’ DXers are reputed to have used very thin kitchen foil. But the vast majority of us may not have the space to lay out such lengths of wire.
HE SAYS IT CAN MAKE IT BOTH SAFER, AND MORE EFFECTIVE.

antennas in action

So, how can we maximise our laid-out earth system? The plan of a 'typical' suburban garden is shown in Fig. 2. Some gardens may be larger or smaller than the one illustrated, but whatever size garden you have, the concept stays the same when planning a ground wire system.

Convenient Length

The wires can be of any convenient length and either bare or insulated wire can be used. Many short wires will be more effective than a few long ones. A radial ring of 50 or 60 wires, each no longer than eight metres will be better than a few wires several times that length. When the layout of the wires is decided, slots made with a spade can be made in either the soil or the lawn and the wires pushed down into the slot using a flat thin piece of wood.

Some judicious jumping and stamping will close the slots up again and they will soon disappear. The common central earth point can be an earth rod, or a copper ring about 100mm diameter. This point can then be connected to the main station earthing rod near the house. Any lumps of metal can be connected to the system, I once used an old galvanised water tank.

Another common item, found in many gardens, is an aluminium framed greenhouse. As with the one in my garden it can also be connected to the earth wires. The wires can be above ground, but of course they are then a hazard to both people and pets, but often there are ways of running wires above ground in most gardens. I have washers running in my boundary hedges.

More Effective

An 'earth-mat' is more effective than a layout of radial wires, and at its simplest, is a criss-cross series of interconnected wires covering an area. A cheap, but effective earth-mat, can be made with galvanised mesh fencing (sometimes known as 'Chicken wire'). Even quite a large mesh will appear as a solid metal mat at our amateur frequencies, for the holes are tiny in terms of wavelength. New netting can be soldered into position, and if the matting is tinned before laying it down, soldering the earth wires to the earth-mat will be quite easy.

As usual I personally coat any joints with sealant. The wire will eventually rust but I have had earth-mats down for more than ten years and they are still in good condition. The soil in my garden is quite benign, but some soils may be acid and this will quicken corrosion of the mesh if this is the case. The lengths of newly laid galvanised netting may look odd lying on top of the turf, but the grass grows quickly and the accumulation of grass cuttings, together results in the 'disappearance' of the netting quite quickly.

If it is only possible to arrange buried wires or earth-mats, running in one direction away from the antenna base, you may find that signals are stronger to-and-from that direction. In my location, I find little in the way of directional effects and I can manage to work stations in the 'wrong' direction quite easily.

Looking Ahead

I have always been fascinated by new ideas and technologies so, on reading recent reports of an electrically conductive concrete* my imagination was stirred. It seems that the Flare Group, a London company, seem to be marketing this new material which can be arranged to have a predetermined conductivity (i.e. resistance). Applications include heated airport runways, heated underground station platforms and as a building material to provide electromagnetically screened rooms or buildings to house sensitive apparatus or computers. Perhaps we will soon be able to lay down driveways, paths or patios around our homes which will then be perfect r.f. grounds and obviate the need to lay down buried wires and metal earth mats!

* A search of the Internet using the 'Yahoo' search engine and the key words 'concrete, conductive' found the following page reference:
http://www.usher.ca/CENTRES/beton/bulletin/mai97/ecc-e.html

On reading the page, it would appear that the concrete is a Canadian idea developed by Jim Beaudoin and Ping Xie. If you do not have internet access, but would like to see a copy of the web page, send a self-addressed label (marked 'Concrete') and a stamp to me at the editorial address, marking your envelope 'Concrete' as well. G1TEX
BRIAN SMITH GOIER, SAYS HIS MIGHTY-WIDE DIPOLE IS SIMPLE, EASY TO BUILD AND GIVES AN EXCELLENT STANDARD...
the antenna feedpoint impedance (at the junction of the 50Ω coaxial cable and the 300Ω feeder) down to 50Ω. I had a ceramic trimmer capacitor in the junk box (these items are very useful and I feel you should always add a few to your order when you’re leafing through the Cirkit or other electronic supplier’s catalogue Ed.).

The trimmer capacitor is soldered across the ribbon cable as shown in the inset diagram of Fig. 2. I used the same sparng technique detailed earlier to expose the ribbon cable conductor. Remember to leave a length of ribbon cable below the trimmer capacitor. The 5Ω coaxial cable from the transceiver is attached to the ribbon cable at a point 292mm below the trimmer capacitor connection point.

I’ve found that a two-connector section of ‘choc-block’ (more properly known as electrician’s terminal block) makes an ideal connector for attaching the coaxial cable to the ribbon cable. After building the Mighty Wide dipole I mounted the completed unit in the loft.

I adjusted the trimmer capacitor for the best standing wave ratio with the transceiver tuned to 51MHz. I was delighted to find that after adjustment the s.w.r. hardly varied across the whole of the UK and European 50MHz band allocation of 50-52MHz. I tried the antenna in several positions. This included using an inverted-V mounting. The trimmer capacitor did not need to be re-adjusted for any of the positions tried.

**Within Loftspace**

The photograph of Fig. 3 shows the Mighty-Wide dipole mounted within the loftspace. The radiating element is partially visible running parallel with the roof ridge. The downlead can be any length but the 30pF trimmer capacitor must be attached at a point 292 millimetres above the ribbon to coaxial cable connection.

The trimmer capacitor may not be visible in the photograph, but it’s about half way up the vertical section of ribbon cable. In the background on the left-hand side, can be seen the Practical Wireless ‘Suspend-a-Loop’ antenna for the 144-146MHz band - this excellent antenna design, featured in the September 1996 edition of PW!

All in all I’ve found it to be an extremely useful antenna. I can now cover the whole band with no antenna tuning unit required. In fact I think it’s such a good antenna I’m now considering relocating the device for use on the WARC bands of 18MHz (12m) and 24MHz (17m). I may even put one up for use on ‘ten’ (28MHz) when things improve! Have fun building the antenna and see you on six metres chaps!

---

**A CASE OF TVI, ON CHANGING TO A ZL SPECIAL AND AN UPDATE TO THE DX-BUSTER ANTENNA**

### A TVI Problem

I’ve had a letter from Graham M1CMF, saying that he has built a 144MHz band ‘ZL Special’ antenna (designed by the late Fred Judd G2BCX). Graham says that although the antenna works well, a neighbour is now suffering TVI as a result of this new antenna. He asked if I thought that a balun would cure this TVI. In my reply I said, that I felt that a balun wasn’t the definitive answer to the problem, although it might help. I feel that the TVI was a result of the greater field strength due to the forward gain of the new antenna. I have a few ‘rules’ to follow to find the true cause of TVI so, let me point them out again here (assuming you have a neighbour with a TVI problem.)

Under what conditions does your neighbour suffer TVI? Is it all the time? Is it when your antenna is ‘pointing’ at his antenna? Is it on v.h.f. f.m. radio or on his TV? Does he have a video recorder in-line? (most likely) What happens when the video recorder isn’t in-line - does the interference still happen? Does the TVI ‘go away’ when you use f.m. or is it constant when you transmit?

If you have changed or improved your antenna, I would expect that the increased field strength from your transmission is the major...
In the September 1998 issue of Practical Wireless, Gordon King G4VFV wrote an article on this topic (Invisible Power). And in it he showed the signal field strengths that a transmitting station can create.

I think the most effective answer may be a 144-146MHz filter in the TV(f) downlead (before the video recorder) of your neighbour’s system. The equipment suppliers A&K can supply suitable filters, it might be worth contacting them and asking about their ‘HPFS’ filter. This unit would be fitted at the point where the downlead from the TV antenna goes into the TV system (Video recorder / distribution amplifier or cable system input etc.). At a little over £10 including post and packing this might be the best, and fastest, answer. Please let me know how you and your neighbour get on with the TVI.

**Bemoaned The Loss**

In the September 1998 issue of Antennas in Action (A-i-A) Roy Ratcliffe GW3KZW bemoaned the loss of his ‘DX-Buster Antenna’ which he described. This really was a ‘brute’ of an antenna, in that it consisted of two full-wave delta loops for the 3.5kHz band. Roy has sent me a letter, with some additional information, and to correct what he said was “possibly in translation from the original Swahili”.

The major problem that Roy has highlighted, was that the information about the capacitor coil combination (to alter the electrical length of the reflector loop) could have been a little more expansive. He has provided a circuit diagram of the switching unit that he used, Fig. 1, to change the direction of transmission of his antenna.

In an extension of the original article Roy wrote “To ‘lengthen’ one element some inductance needs to be added to that element to achieve the desired effect. In practice I found that it was not possible to ‘hit’ the exact amount of ‘L’ accurately enough to get the result I was looking for. Had I had a roller inductor available, this would probably have been used, but I didn’t”.

So, Roy opted for a fixed amount of ‘L’ (positive reactance) and then, by means of a series connected variable capacitor, introduced a variable amount of negative reactance (capacitance) to offset the inductor (so, effectively vary the amount of ‘L’). This variable inductance then reflects to the feedpoint of the antenna via the electrical half-wave of coaxial cable.

Roy mentioned that the technique he had developed for tuning the system for front-back ratio, was to listen on position three of SI, then switch to either position one or two of SI, and tune the capacitor C1a/b for a minimum signal. On switching to the other operating position (positions two or one on S1) you should now find the signal has become a maximum.

In the final words in his letter, Roy says “For goodness sake don’t let the ‘experts’ take over the magazine and start ‘improving’ it. In particular producing long boring list of people that took part in the ‘World Wide Pickled Onion Producers Contest’. We like it as it is”. I have to admit to liking the magazine myself too Roy (well I wouldn’t), And remember - too many pickled onions give a warm southerly wind that is, in spite of its warmth, still obnoxious! So we aim for a good all-round ‘diet’ to suit almost everyone.

Well I’m afraid that’s all there’s space for this month so I’ll take my leave of you and I look forward to our next meeting in the January 1999 issue of A-i-A.

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**Further reading**

- ‘ZL Special 144MHz Antenna’ by Fred Judd G2BCX appeared, along with many other antenna and related projects in More Out Of Thin Air.

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Ben Clegg G7RER gives his in-depth account of a project which was deemed impossible to begin with but turned out to be a major success for everyone involved. It resulted in one of the biggest international global link-ups ever and took place on the Isle of Wight in December 1997.

At 0800, the winds hit force nine, sweeping in from the Needles Headland, driving the rain horizontally into the faces of a damage control party led by Dave Cramp G7RSD. (See Fig.1). He had commandeered members of the public to assist him in his attempts to make major repairs to a triband beam antenna that was spinning like a rotor blade atop a 12m Clark mast, sited less than three metres from the edge of a 83m cliff.

A G5RV antenna had broken away. Whipped up by the wind, it thrashed like a snake as valiant attempts were made to regain its mooring point. Coaxial feeders had snagged in trees which, as they swayed, tore them away from their fixings. A long line had become three short lines.

The rain turned the entrance walkway into a sea of mud. And this was how Saturday 6th December 1997 ushered in the centenary of the establishment of what Marconi called the “The World’s First Permanent Wireless Station”.

The Needles Wireless Telegraph station at Alum Bay was built in 1897, in the grounds of the Royal Needles Hotel. This was situated on the Western tip of the Isle of Wight and had long since disappeared into the sea.

Close Rs Possible

The West Wight Radio Society (WWRS), Fig. 2, has its clubhouse in two rooms of a large derelict bungalow situated on cliff tops as close as possible to the original site, overlooking the famous coloured sands. It holds the permanent special event callsign GB2GMM. This International Heritage site is owned by Leisure Great Britain PLC, trading as The Needles Pleasure Park.

By mid October 1997, it was apparent that this significant date in communications history might go unrecognised. This left the six active members of the WWRS with both the moral and historical duty to celebrate their club station’s 100th birthday.

The fine weather of the previous day had seen the work of the first combined operations by the WWRS, Binstead ARS, and the Essex based Dengie 100 ARS come to fruition. It had taken only a week by volunteers from the two Island clubs to complete the transformation of this abandoned building into the world’s most modern amateur radio station.

It was this background effort, especially by members of Binstead ARS who had travelled 80 kilometres a day, that I was particularly thankful for. Without their commitment the event would have been a non-starter.

The Operations Room, directed by Mark GOZGN, incorporated six h.f. sets. The primary transceiver was the very rare 200W Icom IC-775, fed into 100m of Nevada’s Low Loss Coaxial to a 31m Clark Mast located in the car park. This loaded a steerable Jaybeam Triband.

The other five Icom IC-756s, had individual masts and various antennas sited near the cliff edge. These were all switchable to 1.2kW output from a £1600 Linear Amps (UK) Explorer 1200. With another two IC-751s as back up, we had the capacity to monitor a frequency on every amateur band.

The v.h.f. room had three Icom IC-821Hs running 144 and 430MHz, with the 144MHz SSTV linked into an Isle of Wight College computer, one of their six Pentiums was located in another room displaying exhibits donated to the club’s museum.

We had no idea how many of the general public would turn up, but expected around 30-40 visitors throughout the day. By 1100, a staggering 400 visitors had braved the elements to see us and we had only been open for an hour! Although mainly locals, some had travelled from Luton, Oxford, and parts of Kent after hearing the National broadcasts on Radios Two and Four that morning.

This amazing response from the public, although very welcome, caused chaos to repair crews and the timetable. At 1200, a BBC TV film crew joined the operators and the 69 members of the public crushed into the h.f. room! We had no option but to temporarily vacate the station of all but vital personnel.

Practical Wireless, November 1998
I Wireless Link-up

GB100 IOW
Alum Bay

"The world's first permanent wireless station"
G. Marconi

This breathing space enabled repair teams, now swelled by volunteer amateurs from all over the country, the opportunity to relay new feeders and construct temporary antennas. Their previous attempts of running the now shortened coaxial feeders along corridors cramped with people queuing to enter had been impossible.

Reception Rooms

Everyone was steered towards the large reception rooms kindly set aside for our use. Here, Mr Tim Wander C.Eng. Head of Engineering, Telematics and Advanced Systems at GEC Marconi, delivered a fine talk about Marconi’s work at Alum Bay.

Radio and TV personality Mr Shaw Taylor of ‘Police Five’ fame gave an entertaining dissertation relating to the importance of wireless in the arrest of the infamous Dr Crippen and his accomplice. He presented to the WWRs, a framed copy of the Telegram from the SS Montrose to Scotland Yard, advising of their arrest.

After a “Thank you” address by myself to the sponsors, the Park’s General Manager Mr Tim Belgrove, opened a superb buffet, donated by site owners Leisure Great Britain PLC, for all in attendance.

Now fed and watered and filming completed, the station building was again mobbed by the public. It became so difficult to transmit by voice because of the background noise and chatter, that operators had no alternative but to switch to Morse. (Who says it’s dead? And I’m a G7!)

By 1450, the station was heaving with reporters, cameramen and enthusiasts, all waiting in anticipation for the final transmission from the Royal Yacht to GB100 IOW. (See Fig 3). Three attempts failed to lay extension speakers to the outside of the building so that everyone could hear. The crowds were so dense that the cabling became fouled.

At 1500, Mr Jim Barlow G3VOU, Chief Radio Operator from the QE2 and with the co-ordination by Communications officer: Warrant Officer Mark Sabin RN. made contact with HMY Britannia using her own callsign GQXC on 3.56Mhz. A greetings message from the Queen’s Naval Commodore stated that after 43 years of service, Britannia was shortly to be decommissioned and that this was to be her final transmission. This was without doubt the climax of the day. Everyone was swept up in an atmosphere of nostalgia and pride.

At 1505, Mr John Francis G3LWI MBE, Senior Morse examiner for the Isle of Wight, repeated on

Main Photo: Alum Bay, Isle of Wight GB100. “The World’s first permanent wireless station”

Fig. 1: The Needles Headland (courtesy of RSGB)

Practical Wireless, November 1998
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Practical Wireless, November 1998
all amateur bands, the first transmissions of 1897 of George Kemp from the Royal Needles Hotel at Alum Bay, to Marconi aboard a tugboat located five kilometres away in the Solent. Then the DX piled in. Rare stations from Afghanistan, The Ukraine, Yakutsk, Kamchatka and the Russian Polar Ice Cap all came up on c.w. The wall-mounted world map became covered in coloured stars.

Tribute To Operators

I must now pay tribute to all the operators who worked h.f. throughout that weekend. It needed (and we had) the best ‘professional’ amateurs able to cope under intense pressure, in a unique environment with unfamiliar state of the art equipment and with antennas crashing down about them. Swamped by an inquisitive public, who crushed in and bombarded them with questions under the ever-watchful eye of the media. No one was prepared for this invasion and as such, operations became shambolic.

We had the top five operators from the Dengie 100 ARS, who had travelled down at their own expense, combined with the best from the Island, Cunard, and the Royal Navy. I defy anyone to have done better in those circumstances. On one occasion, Jim Barlow was talking to some visitors and inquiring upon why he was playing with the ‘flapping thing’ (paddle). He replied that he was communicating in c.w. to a mobile unit in Hawaii! How he could hold a conversation in that noise, with three people and take and send Morse in his head at the same time truly staggered me.

As the day drew to a close and while contact with Concorde, Cunard, P&O and Royal Naval Warships was attempted with renewed vigour, I reflected on how we had come so far. Six weeks earlier, the South of England regional officer for the Radio Communications Agency, Mr Roger Schofield, had sat at my kitchen table. His rule book open and his face aghast as I had outlined my plans.

"Forget it Ben, there’s no way they’ll let you do it." He then spent the next hour working out how it could be done! It was this attitude that pervaded the whole event. It was agreed that a modern day global link up would be either impossible on a practical basis, or so expensive in equipment, time and effort, that no one would consider it.

Personal Challenge

I then took the event on as a personal challenge, which triggered a telephone and FAX marathon, overtaking my family and life. Working days and often through the night, I sent over 250 letters, 180 E-mails, some 2100 pages of FAX and made over 800 telephone calls.

The work resulted in the help of over 60 companies and many hundreds of their employees. All went out of their way to donate time and money, in true Marconi spirit, to participate in a unique special event which had begun as an attempt to replicate his first experiment and which snowballed to become a world-wide land, sea and air multi-band radio link-up.

At sea were the Royal Naval Aircraft Carriers HMS Illustrious, (Portsmouth) and the HMS Invincible (Mediterranean). The Warships HMS Nottingham (Far East), HMS Brave (Falklands), HMS Newcastle (Barbados), HMS Monmouth (South Africa), RFA Fort Grange (Adriatic), and vitally HMY Britannia (Portsmouth).

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All Prices Plus £5.00 P&P, per order.

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Practical Wireless, November 1998
Queen Elizabeth II (Nassau, Bahamas) MV Royal Viking Sun (Los Angeles), MV Sea Goddess I (St Thomas, Caribbean) MV Sea Goddess II (Seychelles) and the MV Vista fjord (Tenerife).

The P&O Cruise Liners MV Oriana (Lisbon enroute Bahamas), and the MV Victoria (Antigua, Caribbean).

Numerous land-based stations contacted, included the RMS Queen Mary International Complex (Longbeach); The Marconi stations GB2GM Poldhu, Cornwall. The GEC Marconi GB2MWT station at Chelmsford, Essex, and our experimental predecessors at the Marconi site at Lavernock Point GB100LP, South Wales.

Mr Schofield's diligence in going around, over, under and, if necessary, through the layers of bureaucracy and red tape was rewarded with the issue of all the required licence exemptions from the R.A.

A Success

As an attempt at a project, priced at some £200,000, requiring the liaison of many multinational companies and individual bodies, on a budget of just 80p, I consider that the event was a success!

Despite the early scepticism, cynicism, and some disbelief amongst the Amateur Radio fraternity and the total failure of information to reach amateurs in time for the event, even though the Press received the full details well in advance, the aim of the project was achieved. This was solely because of the unbelievable support from all the sponsors and everyone who said they would come and help actually turning up!

It was a shame that we missed a lot of the prime targets, but other stations globally recorded quite high tallies and our contact with HMS Brave down in the Falklands was a veritable achievement. Our score of 1571 QS0s was a station record.

Despite the damage early on, repairs were carried out in extreme weather conditions with the public both helping and hampering operations. As a Public Relations exercise, Amateur Radio and Marconi were featured in live and recorded interviews on 21 different radio stations including Radios Two, Four and Five. A full page in The Southern Daily Press Practical Wireless, November 1998 (11/12/97) and write-ups in The Times and The Guardian, pre-empted a full exposure on the BBC National news at 2230 (6/12/97) featuring Icom's Dennis Goodwin G4SOT. (Since this article was written Dennis G4SOT has of course left Icom to form his own company, Universal Radio Communications, in partnership with Andy Rudd G6RMI. Editor). This broadcast was relayed globally and seen in Australia by John Miller VK3DJM lex G3WITI.

The support of the Royal Navy and the enthusiasm of their Public Relations Officer Lt. Heather Tuppen RN, underpinned the event. The £1000 worth of marvellous QSL cards and programmes printed free for us by West Island Printers. The local hotels, The Lismore, The Highdown, and The Sandpipers that gave £450 worth of free board & lodgings to our guests from Cunard and Essex.

There was also the back up support of Nevada Communications, who saved us at the last minute by stepping in to supply vital equipment at a moment’s notice. The loan and professional rigging of £60,000 worth of masts by Clark Masts Texas and who, with Icom UK Ltd £25,000 worth of radios, combined to make an impressive sight. The visit by the Chairman and Directors of the board of LGB PLC who allowed the full use of The Needles Pleasure Park complex, which had been given over to us in its entirety for the day, and permitted free car and coach parking.

Even though not all aims were achieved, I feel we raised the level of public awareness in Amateur Radio and its general perception of the hobby. It was a marvellous forging of links between Amateur Radio and commercial business, and everybody enjoyed themselves.

PW
Television Nostalgia

Larry Coalston G7TDJ, takes a walk down memory lane with his account of studio operations and maintenance in the BBC. Having just retired from the business, he is more than qualified to uncover the finer details of BBC Engineering.

It's over 60 years since the BBC began high definition television transmissions and my memories were jogged by the death, early this year, of T. H. Bridgewater OBE, a former assistant to John Logie Baird, aged 88. He joined the BBC in 1932 and during his distinguished career was in charge of Television Outside Broadcasts and later appointed Chief Engineer BBC Television.

I was privileged to work under 'Bridgey', as he was affectionately called. He was the doyen of British Television and a true pioneer and I am pleased to devote this story to his memory.

Regular Programmes

Regular television programmes began in November 1936 from Alexandra Palace in North London. For the first week, all programmes went out on the Baird 240 line mechanical system using an intermediate film scanner, any pictures and sound were delayed by four minutes.

The second week's transmissions were from electronic cameras in a second studio using the EMI 405 line interlaced system. This studio alternation continued until February 1937 when the Postmaster General announced that the EMI pictures had been judged superior and so the use of the Baird apparatus would be discontinued.

Fig. 1: Simplified 'Emitron' Pick-up camera tube.

Fig. 2: Simplified diagram of 'Emitron'.

Practical Wireless, November 1998
Because German aircraft could home in on the v.h.f. transmissions from Alexandra Palace, the television service shut down in 1939 for the duration of the Second World War. When the service reopened in June 1946, I was ready to view on a home brew TV set put together from ex-RAF radar units.

The sensitivity of the Emitron pick up tubes (see Fig. 1) varied due to production methods and this often meant a difference of about two F stops in the iris setting of each camera lens. (Fig. 2 & 3). Any uneven lighting also gave rise to secondary emission.

Secondary emission appeared as a spurious brightness on the right and bottom of the picture - viewers often phoned to complain that the "footlights are too bright!" To cancel this 'fuzz', a saw-tooth and parabolic wave form known as 'Tilt and Bend' was added to the output. I once tried the 'Tilt and Bend' controls during the showing of an excerpt from a play called Journeys End and didn't find them very easy to operate.

In 1948 new Pye Photicon cameras were supplied to Television Outside Broadcasts and Lime Grove studios. I remember that the Photicons also required a high level of light for good pictures.

**Image Orthicons**

It was not until the mid 1950s that more sensitive tubes using a low velocity electron beam came into use. These were known as Image Orthicons. Two senior BBC engineers: Don Brothers and Ben Palmer, devised a detailed camera line up procedure. The cameras had to be modified for remote control of the lens iris. Parameters for "lift and gain" (Lift = Black level [0.3v] = brightness. Gain = Contrast Peak white [1V]) were specified together with a sensitivity requiring the lens aperture to be within one F stop. (See Fig. 4).

All operational controls were grouped on a panel in front of high grade 14in Pye monitors. At that time I was a vision engineer at Bristol and returned several out of spec. tubes to the English Electric Valve Co. The Image Orthicons were on hire and charged for each hour of use. They cost £1000 to buy - a tidy sum in the 1950s.

In 1960, Studio Three Television Centre opened with new 4in image Orthicon cameras. After a number of co-ordinated studio tests using the new line up, it became known as "One Man Vision Control".

Eager for promotion, I applied for a job in London studios as Vision Operator. At Riverside studios in Hammersmith where I went to work, there was another innovation as well as "One Man Vision Control".

The intensity of each studio light could be adjusted from a central console. All Studio control areas eventually used this arrangement. In the late 60s, TV pictures could be compared favourably with black and white films and photographs. When colour came about in 1970, I transferred to installation work on EMI 2001 Colour Cameras at Pebble Mill Birmingham. However, it was some time before a standard line up could be devised for the plumbicon photo conductive tubes used in these cameras.

There was a problem with the prism used for filtering the image into primary RGB colours. This problem was referred to BBC Research Department. The result was that many of the colour wedges had to be returned to EMI for modification.

Those were the days... brought back to the forefront of my memory by the recent death of Tony Bridgewater OBE.
Are You Sitting Comfortably? - The PW Team Suggests You Do....With One of The Books On Offer This Month - Especially As Those Dark Evenings Are Well On Their Way!

**Book Profiles**

**The Tesla High Frequency Coil**
George F Haller & Elmer Tiling Cunningham

By now, you should be getting used to the longer, colder nights and are probably dreaming of the "good old days" when we had hot, or at least warm, summers! So, while you are in the mood for nostalgia, the PW team suggests that you take a step back in time with us and remember the works of Nikola Tesla.

This book covers the construction and uses of the Tesla Coil and aims to offer a "practical working manual on the construction of high frequency coils" for the more advanced, historically minded amateurs among you. Not one for the faint-hearted this book is, in actual fact, a reprint of a rare Tesla coil construction manual, which was first published way back in 1910.

The Tesla High Frequency Coil was rediscovered by George F Haller and Elmer Tiling Cunningham when they got their hands on the seven inch standard coil which is covered in the final chapter of the book. There are various illustrations including diagrams, circuits and photographs. Chapters include: 'Theory of the Coil'; 'Uses of the Coil'; 'The Transformer'; 'The Condenser' - to name just a few.

An interesting read if you feel confident enough to tackle it. Recommended to those of you who have a particular interest in historical features.

**Tesla Coil (Third Edition)**
George Trinkaus

A small pamphlet of 24 pages, this book is a good basic introduction to the subject of Nikola Tesla and building Tesla coils. It features instructions for building a good sized coil using a neon transformer and a spark gap to drive the primary. **But not for use on the air of course!**

As the size of the book may indicate, there is not much detail but it is an adequate source for those of you interested in a quick reference source on Tesla Coils and most aspects and techniques of coil building.

George Trinkaus' book follows a clear, concise format and hence, is easy to follow with plenty of illustrations from diagrams to black and white photographs. **Recommended.**

**Double Tesla-Oudin Coil**
Various Authors

This book is a collection of five articles from The Experimenter Magazine and its derivatives of First World War vintage.

The first article is "Seeing the Unseen" by Joseph B Branch (1925). It describes the building of a double coil high voltage generator which was a cross between a Tesla coil and an Oudin coil.

The second article is "Wireless Transmission of Power Now Possible" by Thomas W Benson (1925) and is a well illustrated article about the developments at that time in wireless transmissions of power.

"Home-Made Geisler Tubes"
(1925) by F Castro is the third, 'Testing High Voltages With Spark Gaps' (1917) the fourth and 'US Blows Up Tesla Radio Tower.' (1917) is the last article. They are all fairly rare and make interesting reading. Recommended.

Tesla - The Lost Inventions
George Trinkaus

This book follows George Trinkaus' usual style. It is only 33 pages long yet it is an adequate information source on Tesla's later inventions which were patented between 1890 and 1921.

As he mentions in his preface to the book: "This work is, simply one person's distillation of the existing Tesla literature". He states that he drew on Tesla's patents, published notes and lectures, his magazine articles and biographies.

Some of the inventions discussed are the disk-turbine rotary engine, the Tesla-coil electric energy magnifier, high frequency lighting systems, the magnifying transmitter and the free-energy receiver.

As it is such a small booklet, be warned that it might not answer, in full, all of your questions regarding these lost inventions, but it's recommended nonetheless.

Radio Tesla - The secret of Tesla's radio and wireless power.
George Trinkaus

This book, again in a similar format to his other books mentioned on this page, is a short (37 page), soft cover format publication detailing the "peculiar radio technology of Nikola Tesla" - in the words of the author himself.

The author uncovers the secrets behind a topic that is taboo in official science. All aspects of Tesla's work in the field of radio and wireless power are discussed in this booklet.

Some examples of what you will find beneath the covers of this book are:

- 'High Voltage, Sudden Pulse'; 'Low Frequency', Conduction Through The Ground', 'Resonance' and 'Aerial Capacity'. All chapters are, once again, well illustrated. Good information source.

How To Build Your Radio Receiver.
Edited by Kendall Banning & L M Cockaday

This particular book, was initially a 'freebie' from Popular Radio (circa 1924!) and carries the sub title: Popular Radio Handbook No. 1. It contains some of the best construction articles from that magazine.

Eight various receivers are covered: a Haynes DX receiver; a crystal receiver; and a two-stage audio-frequency amplifier, to name but a few.

Other chapters cover:
- putting up an antenna,
- how to read radio diagrams
- and about 50W and over Broadcasting stations in the USA.

If you have old radios to repair, or want to 'do' up some old bits, this could be the book for you. Another considerably well illustrated book, it uses circuits, diagrams, drawings and photographs to enrich the wealth of knowledge that it contains.

Highly Recommended.
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### MOBILE/BASE HF/VHF TRANSMITTERS

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### RECEIVERS/SCANNERS

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### RECEIVERS/SCANNERS

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### HF TRANSMITTERS

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### SHORTWAVE SHOP

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**Disclaimer:** Advertisements from traders for equipment that is illegal to possess in Britain. We cannot guarantee the accuracy of the information in this table, as the advertisers will give whatever assurance they can. Some of the advertisers have complained, under no circumstances will the magazine accept liability for non-receipt of goods ordered, faulty delivery or faults in manufacture.

Please mention Practical Wireless when replying to advertisements.
It came as quite a surprise when I discovered it was nearly two years since I had the Kenwood TS-570D on loan from Kenwood. In fact it was just after the October 1996 Leicester Show that I had the chance to evaluate what was immediately referred to as the 'friendly' rig.

I had the rare privilege (for the Editor of an Independent Amateur Radio magazine) of being the first journalist to get his 'hands on' the new transceiver. And, as often happens with new equipment, I didn’t have access to the manual and Instructions!

Writing the original review I said that in addition to being 'friendly' I thought the TS-570D was also a very 'visible' transceiver - in all senses of the word. The large, very clear display was uncluttered and easy to read in all lighting and operating conditions. Altogether it was a very nice rig indeed. It was also very easy to get on the air without the manual - surely a good indication of just how 'friendly' it is?

Now that Kenwood are producing a new version of the TS-570D I thought it best to provide an 'up-date'. Especially as quite a few friends bought the transceiver - at first I didn’t have access to the manual - following my review - and one person in particular comes to mind...Brian Tansey EI5HV from Midleton in County Cork. When not busy working in the local distillery (A very rare job that Brian!) - he was often to be heard telling me and others he bought the TS-570D on loan from Kenwood on my recommendation. So, I feel duty bound to provide the 'up-date'!

What's On Offer?

So, what's on offer with the new version of the transceiver? Well for a start, the designation for the new model is the TS-570DG and Kenwood inform me that there's quite a list of additions and improvements.

One of the main new features is a new Central Processor Unit (CPU) i.e. a new Digital Signal Processing (DSP) software EPROM. Together, Kenwood say that these provide nine new or revised function and all future shipments will be of the new DG model. New features also include a transmit sound quality monitor. The nine step monitor provides comprehensive control over voice quality.

There's also an operator adjustable Noise Reduction System - the NR1 available on s.s.b. The new NR1 system can be controlled in nine step increments and input signal strength can also be tracked automatically.

The original model had nine DSP c.w. filters - this has now been increased to a total of 11 - with 80, 150 and 50Hz. Settings of the NR1 and NR2 'track' with mode changes. The noise reduction settings can be re-configured automatically when changing mode groups (for example...s.s.b./a.m./f.m. to c.w./f.s.k). There's also an equaliser function on transmit and receive - so the operator can equalise the receive signal and use different settings for both transmit and receive.

Another - (extremely useful in my opinion) facility is the 'One Touch' DSP filter wide mode' control. This literally allows the operator to 'resurface' from the filtering and check surrounding band conditions around the frequency of operation while the receiver is working in narrow mode. And once you've had a quick look around - you can 'submerge' into the DSP again. All done by a single touch of a button. Nice one Kenwood!

Another change is the modifications to the built-in electronic keyer. The operator now has manual control over setting the 'weighting' setting (the relative length of the dots and dashes) which can now be set in 16 steps ranging from 1.25 and 1.40 by turning off the 'automatic weighting' function.

On The Air

In my original tests I'd been most impressed with the Kenwood TS-570D and I was keen to try the new version on the air, I wasn't disappointed!

As I've already briefly mentioned - I found the 'One Touch' filter wide mode control to be a delight to use. It's such a clever little idea - and very useful when operating on a cluttered frequency or to see if that incredibly powerful 5-9 c.w. signal has gone elsewhere - confirming that the station you're working will be finding it easier to copy.

On s.s.b. I found that the receiver seemed to be just as sensitive - but quieter when operating in DSP mode.

Whether or not this effect has come about because of the change to the DSP software - I don't know but it does seem to have made some difference.

However, I should point out that even though I heard reports - after I'd written the first review in the January 1997 PW - that some operators had noticed a faint audible 'warbling' coming from the speaker (due to some problem in the DSP stages) I can honestly state I did not hear them myself.

A Better Buy?

So, is the new version TS-570DG a better buy? In reply, I've got to say very firmly - YES! It's a superb value-for-money transceiver. Especially when you consider it first cost around the £1500 mark and now only costs around £995 - complete with new software and additions. Real value for money I think!

Tox Swann G1TEX, our Technical Projects Sub-Editor, needed the writing and one or two readers and owners of TS-570D transceivers wrote to me. However, the vast majority of operators did not notice the problem - which certainly seems to have been overcome on the new version. I know - I checked by having six pairs of different ears listen to the receiver In action!

Much of my operating during the 'second look' was on 7MHz, with some action taking place on 14 and 18MHz. On '40' the performance on 'close in' s.s.b. reception was exceptional and was - in my opinion - absolutely superb on c.w. Kenwood improved this aspect so much I thought for a moment I was using a TS-870! The new 'best cancer' function also worked well - it cancels intermittent beat QRM extremely effectively. Ideal for s.s.b. use of course, and the s.s.b. 'automatic gain control' (a.g.c.) 'pumping' which seems to occur with some DSP equipped transceivers.

As I've already briefly mentioned - I found the 'One Touch' filter wide mode control to be a delight to use. It's such a clever little idea - and very useful when operating on a cluttered frequency or to see if that incredibly powerful 5-9 c.w. signal has gone elsewhere - confirming that the station you're working will be finding it easier to copy.

On s.s.b. I found that the receiver seemed to be just as sensitive - but quieter when operating in DSP mode.

One challenge for any receiver is to listen to the International beacon frequency on 14.100MHz. Here, packet radio transmissions are often very close (and sometimes right on) to the beacon frequency. However, the new DSP software filtering really helps and despite the often very strong packet transmissions I could listen to the beacons. Try it for yourself - and you'll find that listening to the beacons on 14.100MHz can be very difficult sometimes!
If you find a lower price somewhere else, give us a ring and we’ll usually offer you a better one.
VHF REPORT

REPORTS & INFORMATION BY THE LAST SATURDAY OF EACH MONTH.

DAVID BUTLER G4ASR, YEW TREE COTTAGE, LOWER MAESCOLD, HEREFORDSHIRE HR2 0HP
TÉL: (01873) 860679
E-MAIL: butlerd2@boac.bt.com
Packet Radio @ G8TMAD
UK DX CLUSTER @ G87DXC

THIS MONTH DAVID BUTLER G4ASR TAKES A LOOK AT DX WORKED RECENTLY ON THE 144MHz BAND.

Although v.h.f. propagation was very good during July, it appears that events during August were even better. On the 144MHz band, for example, the 3000km tropospheric path from the UK to the Canary Islands (EA8) was open on a number of days, with contacts being made from as far north as Scotland. Also on the 144MHz band there were sporadic-E (Sp-E) openings to eastern Europe and the Mediterranean area whilst the Pete's meteor sounder produced predictably good results with contacts being made with stations up to 2000 kilometres away.

In the dying days of August an excellent aurora occurred allowing contacts to be made on the 144MHz band into northern Europe and the Baltic Republics. There's also been more activity from Slovenia (S5) on the 70MHz band with the stations of S51DI, S51UF, S51LUID, S53X, S57A and S58Q all being worked during August. Conditions on the 50MHz band were also very good and I've got reports of all continents (except Australia) being worked in a single day! Some of the stations reported included CN8AW, KP3A, KP4EI, LU13MK, NS1HF, OD2RAY, PSYCC, T6ZVW, Z22JE, 1ADKM, 3C5I, 4X1IF and 7Q7RM. DX conditions on the v.h.f. bands are definitely improving.

Turning first to your reports of contacts made between the UK and the Canary Islands on the 144MHz band. As explained last time, this 3000km path normally opens up once or twice every summer. This year however has been particularly good with openings to both July and August.

Although openings to the north coast of Spain are relatively infrequent (being only 1000km from central England) this sea path was open on a total of nine days between August 5-10 and August 15-17. On four days during the period (August 7, 8, 9 and 15) the marine ducting extended even further to the south-west to encompass the Canary Islands. A number of EA8 stations were logged in the UK, all of them being v.h.f. class licensees. These included the stations of EBBALZ, EBBEBE, EBB8TR, EBB8TV, EBB8BTZ and EBB8YR.

Jeremy Kenwyn G7TBJ (IO20) located near Penzance. Cornwall has written in for the first time. Welcome to the club Jeremy! He mentions that he uses a Kenwood TR751S transceiver modified to run 3W into a Jaybeam 6-element Yagi. Under normal conditions Jeremy has difficulty working anything outside of the county, but during the period August 6-10 some very good s.s.b. contacts were made on the 144MHz band. His QRP contacts included EA1CBY and EAI1CN (both in IN52), EA1DKW (IN53), EA1DTR (EA1BE), EA1KE, EAI1YO and EBI1HO (all situated in IN73), EA2LY (IN93) and maritime mobile station EA2AXO/DMW (IN75 and IN84). His best contact was over a 2600km path to EBB8TV (IL18). Jeremy contacted this station on two occasions, at 0535UTC on August 7 and at 1125UTC on August 9. Although signals were quite weak, Jeremy receiving 51 and 52 reports, it just shows what can be worked with low power when the band is open. Stations located in the southern part of the Irish Republic (EI) are always in a good position to benefit from this type of sea duct, John Desmond EI7CL (IO51) reports that the stations of EA9AK, EABBPV, EBB8ME and ECA3UZ were all heard working through the Cork repeater on 145.750MHz. Several local stations could also hear the EA8 stations on the repeater input frequency. Note that very modest equipment was used, typically 10-20W into a vertical antenna. Not bad for a 2700km path.

Many of the contacts between the UK and Canary Islands took place in the period August 7-8 with QSOs being made on and off throughout each day. On August 7, for example, the first reported contact took place at 0930UTC and the last at 1815UTC. Similarly the first record I have of a contact being made on August 8 was at 0635UTC by G3W2ZT (IO81) and the last around 1800UTC by GM4JJ (IO86).

The opening in the UK was fairly widespread but generally favoured stations located to the west of the county. Your reports show that contacts were made from locator squares IO70, IO80, IO81, IO82, IO83 and IO93. The longest distance contact however was by the station of David Anderson GM4JJJ located in File, Scotland. During the afternoon of August 8 he heard the EA1 VHF beacon, 1464km away, peaking 519. Some hours later, at 1754UTC, he heard EBB8TV calling the station of GW3MPP (IO72) and making a short contact.

David waited for the QSO to be completed before calling the station on 144.300MHz at 1805UTC. Reports of 51 were exchanged on s.s.b. over a path of some 3253km! Unfortunately this QSO was 11km short of the existing record! Reports of 52 were also heard on the Sp-E band on the 17th.

Several events during August were successfully attempted via Sp-E, the first being successful on the 10th with GM4JJ reaching 2600km path to EA1/CT. On the 15th the station of G4CQM (1070) claims to have worked 31 stations in the same period. Admittedly these Sp-E contacts were in the wrong direction but so are the tropo contacts to the south.

The question is, which is more likely, a high pressure system developing over the North Atlantic (like the regular Aures high which creates the G-EA8 path) or a multi-hop transatlantic Sp-E event? And why is the Sp-E event on 50MHz reaching to the 144MHz band. Geoff reckons he'll plumb for the latter, even if it will be brief.

LAST OF SEASON?

No sooner had I written last time that the Sp-E event on July 15 was the last of the 1998 season then up pops another event on the 144MHz band exactly one month later. From reports received there were three separate events on August 15, the first being confirmed via Sp-E at 0935-1000UTC with the other openings later in the day at 1658-1700UTC and 1815-1830UTC.

The morning event produced 59 signals from stations located in Bulgaria, Greece, Romania and Yugoslavia but you had to be situated in southern England (IO90, IO91, IO92, IO01, IO02) to catch any of the action. Some of the stations known to have been worked from the UK included LZ1FG (KN12), LZ1XK (KN14), OVE8BM, YU1MV (KN03) and YU7DP (KN05).

Dave Dibley G4RGK (IO91) was listening on the s.s.b. calling frequency 144.300MHz at 0940UTC when LZ7AG (KN12) suddenly appeared in a very strong signal. Dave then went on to work YU7KB (JN94), YU7ON and YZ7NOU (IN95). Ten other YU station were heard on s.s.b before the band faded out at 1000UTC. Located on the south coast near Bournemouth Jim Smith G0FEO (IO90) contacted YG7VS (KN14) and YU7EV (KN05) and heard an LZ station. The 144MHz band was open with him between 0940-0955UTC.

Pista YU7EV reports that at his QTH there were four discrete events during the Sp-E opening on August 15, between 0845-0903UTC he worked seven stations in Norway (LA) and Sweden (SM). At 0934UTC
METEOR SHOWER
0957UTC.

Contacts being made with the stations of G106E and P71AU (both in I00) and with 1107UTC but reappeared again at 0925UTC having swung round to the north again. Contacts were then made with the Danish stations before the 5P-E finally faded out at 0957UTC.

The later events were rather brief and as a consequence I have received very few reports. All I can gather is that the bulk of the action extended over Spain and Portugal and that the stations of E77ALL (I1M4) and CT1FOH (I1NSO) were worked by operators in both the north (I093) and south (I01) of England.

PERSEIDS METEOR SHOWER

The Perseids meteor shower is an annual event with maximum activity in the period August 12-13. Because of its predictability many v.h.f. DXers rate it as one of their major annual events.

I missed this year's shower (being in the Algarve was a much better alternative!) so I'm relying on reports of the event from the DX Cluster and the SSB packet radio network.

Ray James GM4CXM (I057) mentions that he had little time to operate in this year's shower and that he concentrated on s.s.b. random for most of the time. He uses an 8CK000-Ampingar 9354 into two 16-element Yagis at 25m above ground. During the morning of August 12 he contacted the stations of DA3ND (I1K4), F1GMBI (I1ND4), F5DRO (I1DJ5) and SP1DFO (I093). Ray noted that unlike previous years the shower didn't produce any really long bursts. However he did manage to receive m.s. signals from ES2NA, EA7AI, HA5KQD, G3M1V, G4AEP, G4UF, G4TYL, G4YTL and G4YX.

Rytis LY2BL passes the enthusiasm along that after five previous unsuccessful attempts the stations of LY2WR (K2O4) and LA5KLP (I088) finally made a complete QSO via m.s. on the 430MHz band. The test was carried out during the peak of the shower on August 12 and took 3.5 hours to complete. At the station of LY2WR a total of four reflections were received (7 seconds, 6 seconds and two at 0.35 seconds) with signal strength around 54-5. The distance of 1935km also broke the existing IARU Region 1 record (some 1869km set by the stations of PA3DZL and CM2CCEW on August 12 1989) and may also be a new world-record. Congratulations to both stations.

LEONIDS METEOR SHOWER

If you want to join in the m.s. action this year you will have to try your hand during the forthcoming Leonid meteor shower. Past observations of the Leonids meteor shower have shown that approximately every 33 years the shower reaches storm proportions. The last peak was in 1966 and for the past few years each succeeding year has seen the zenith hourly rate (z.h.r.) of the shower steadily increasing. Although we are not quite at the 33 year cyclic maximum until 1999, the shower, which will peak on Tuesday 17 November, is going to work well for the experienced m.s. operator. I expect there to be some excellent DX contacts with the Leonids. For some of you who may be new to meteor scatter operation it may be worth looking up some of the previous activity which is recorded in the SWL Journal starting with the article in Volume 79 Number 11 dated November 1997.

Last year in Europe, the maximum activity was noted to be between 0700-1100UTC. Adding six hours to these figures gives a theoretical time of 1100-1500UTC for the Leonids. This year, however, there is a problem with the Leonids since the shower will be active during the day. The Leonids will be visible in the evening? If you look at all the predictions (mostly based on the visual peak) you will see many alternatives. I like to use the method based on the actual peak time of the previous years shower. As the earth intercepts the shower orbit every 365.25 days, you simply add six hours to the date and time of the previous year's radio peak. For example you may have to subtract one day for all shower dates after February 29.

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Although not a working season, the Leonids shower is a good opportunity to test your meteor scatter equipment and practice your technique. It is also important to have a copy of the reporting system in your area ready. However, I guarantee you'll get tongue-tied during your first s.s.b. QSO.

I mentioned earlier that the shower will peak on Tuesday November 17 but determining the best time is always problematic. Will it peak in the evening? Will it peak in the morning? Will it peak in the afternoon? If you look at all the predictions (mostly based on the visual peak) you will see many alternatives. I like to use the method based on the actual peak time of the previous years shower. As the earth intercepts the shower orbit every 365.25 days, you simply add six hours to the date and time of the previous year's radio peak. For example you may have to subtract one day for all shower dates after February 29.

AURORAL OPENING

Now, turning to the auroral opening event on August 27. This was not totally unexpected to internet and packet observers as a warning of a major auroral opening had been posted a few days beforehand.

Reports from Scotland that the SK4MFIP (7P70) beacon was being heard via aurora at 0800UTC on August 27 was also a very good sign! The main event in the UK took place between 1300-1800UTC with a

The location of the SY3G is active on meteor scatter mode.
much smaller phase between 2015-2130UTC. Beam-heading from central England on the 144MHz band ranged between 40-70° (signifying a good aurora) with contacts being made on both in DLS, HA, 891, LY, OK, OZ, S/M and 9A.

Some of the c.w. DX worked by David Johnson G4DHF (IO9J) included H6A/B (IO9J), H6S/K7I (IO9J), H6A/B, H6S/JP (IO9J), H6A/BV/P (IO9J), H6C2 (IO9J), H6A/EW (IO95), H6A/C5L (IO96), 9A2S5 (IO95) and 9A3V/D (IO75). David used 400W and eight 11-element Yagis to make these auroral contacts. On the east coast John Regnault G4SIXV (IO9D) reported the stations of 31TTQ (IN35), LY2/MW (K024), LY2SA (K014), SP1/QQ (IO84), SPBUFT (K011) and 9A2/AE (IN8J). Only managed to catch 20 minutes of the event between 1640-1700UTC working 14 stations in GM, DL, HA and PA. Best DX was HABVV (IN97) at 1690km.

DEADLINES

That's it again for another month. Sorry, no room this time for all your 50MHz reports. I'll try to squeeze in some next time. Please forward any news, views and especially photographs to the address and by the date given at the top of this column. Alternatively a simple telephone call is all it takes.

THANKS FOR YOUR LETTERS AND GOOD LUCK WITH THE DX!

SEE YOU AGAIN NEXT MONTH.

73 David G4ASR.

For the relative newcomers to the hobby, in other words, those licensed over the past couple of years, the coming increase in sunspot numbers should provide something to look forward to on the higher bands!

The 28MHz band in particular is a band that's full of surprises. When conditions are favourable it's possible to work all parts of the globe regularly with very low powers and some of the simplest antennas imaginable.

I was licensed in 1989, just prior to the last peak and consequently, spent most of my early years as an amateur operating on 28MHz. All my antennas for this band have consisted of simple homemade dipoles, ground mounted and loft mounted verticals. At one point, even the aluminum guttering of my house was 'loaded up' via the station a.u. to work DX very effectively on the band!

Antennas for 28MHz can be easily constructed and used virtually anywhere, and it really is amazing just what you can get away with on 'ten' metres!

The 28MHz allocation is also the widest of our high frequency bands, being 1.7MHz wide. So there's plenty of room compared to the crowded lower frequency bands.

Included within 28MHz is the satellite downlinks, the beacon allocations, the repeater inputs and their related outputs (in the USA) et al.

'Ten' is also a very good 'local' chat band. Although it must be said that 28MHz is much more widely used in this respect in other countries than compared to the UK, which is a great pity. However, there's already a marked increase in band occupancy as conditions are improving, which is a good thing in itself I reckon!

NEWS SNIPPETS

Now it's over to the RSGB's DX Newsheet for some DX snippets. And to start, there's news that Steve NE4Z, is regularly active from Chile as CE3/NE4Z using 40W. During the hours of 2200 - 0000 on 21.340 and 28.340MHz, and also at 0145 on 14.188MHz (QSLs should go to AJ44Y, at PO Box 1207, Highland City, Florida 33846 - 1207, USA).

From the Solomon Islands, Norried H44NC is operational until the year 2001, while working on New Georgia Island. He operates on 3.5 - 28MHz (no WARC bands though) with 50W and a dipole antenna. (QSL to PO Box 168, New Georgia Island, Munda, Western Province, Solomon Islands).

On Fox Island (KL7), Tim NO7F, will be active "for some time to come as my work allows" as K/77/KO7F. (QSLs to Tim Tilleman NO7F, PO Box 921194, Dutch Harbour, AK 99669, USA.

Peter V63PD, is now active from Micronesia (Chuuk Island) often at 1100 on 50MHz c.w. (QSL via VK4AAR).

Meanwhile, from the Marshall Islands, Eric Marshall V73UX says that the following stations are now active: Tim V73AT on 28MHz, and JA3FCA operating as V73Z0 on Bikini Islands on 21MHz s.s.b.

YOUR REPORTS

On your reports now, starting with the 7 and 10MHz bands. I'm sure our reporters have not surprisingly, spent most of their radio time on the higher frequency bands, and judging by conditions, who can blame them?

However all - our 'c.w.' man Ted Trowell G2HUK to the Isle of Sheppey in Kent (A 'vintage' shot of his station appears in Fig. 1 this month) offers a couple of contacts on the 7MHz band. In the form of EA8/C73FN (Canary Islands) and 9M2T0 (Western Malaysia) at around 2100 using around 70W and a HF vertical antenna. Operation on the 10MHz band. Ted reports working S01DXP (Wolvin Island) at 1500, and H8F/P (Antarctica) at 2100UTC. A single 7MHz report comes from Sean Gilbert G4GUC of Milton Keynes in Buckinghamshire, who lists a two-way QRP contact with F7/W8MV (St. Pierre Island) at 0007.

Down in Wales Carl Mason GW8VSV from Skewen in West Glamorgan used a mobile station with his 15W KX3 transceiver with K7LSE (New Zealand) at 0520 (just how does he do it?) who himself was using a slightly less massive 3W KX2 and a dipole contact with Z84Z (Gibraltar) at 0545UTC. Carl uses a vertical antenna for this band.

THE 14MHz BAND

Conditions on the 14MHz band have been relatively solid recently, apart from a few days where they dipped slightly. The band is remaining open later and later into the night and early morning these days, which is of course a good thing for those amateurs who are constantly burning the midnight oil!!

I'll start the 14MHz report with the log from John Constance GW6GVD who hails from the town of Aylesford in Kent. He says he's: "Lapsed into radio silence" recently, due to a blown power amplifier stage, but is now glad to be back on the air. John uses a Kenwood/Trio TS-530S transceiver and a simple G5RV dipole on the band, and this month used the c.w. mode to hook up with LUCAS90 (Argentina) at '11335, VE3GWM (Canada) at 2000, K0CBE (Michigan, USA) at 0155, and UR53K (Ukraine Republic) at 1815, along with W2/HPJ/FH (Cape May, NJ) at 1324UTC.

Next up is low power 'adventures' in the form of Ian M2/MI from Worcester Park in Surrey, who is as pleased as punch this month, after working Ron VK3OM and Ken G4RHE with just 3W of s.s.b. and his W3EDP wire antenna! This was a new country and a new continent for Eric, and he's rightly pleased with the achievement. Well done Eric! That's one to be proud of!

Eric also noted that VK3OM is active on a regular basis around 14110 to 1420 around 0600 to 0645UTC. Ron is regularly trying to work QRPers from the British countries, so it may be worthwhile you low power buffs having a listen out there too! For contacts on the 14MHz band are listed as Y7A (Yugoslavia) at 2206, and 9K9KH (USA) at 0645UTC. Coordinate information from Ed G4BE (Tookefield M0AJ) of Milton Keynes, has been busy with his mobile station on 14MHz, using 100W and an EFHW vertical on the roof of the car, cranking up contacts with Chris V2/GM4UK2 (Antigua Island) at
THE 24 & 28MHz BANDS

Sean G4UCI warns us to watch out for pirates! He says "the 24MHz pirates are using the 24MHz band now, and offers 24MHz s.s.b. contacts with 9A3LE (Crete), and 320AIR (Poland) at 1800, while 28MHz saw a contact with 4X600 (Tel Aviv, Israel) at 1400UTC. Yours truly GWOLBI spent quite some time this month both monitoring and transmitting on the 28MHz band, using a wire dipole and 20W s.s.b. I managed to work LU4EF (Argentina) at 1453, XE1JK (Mexico) at 1430, K4CGH (USA) at 1400, ZS6FRV (South Africa) at 1304, and 9G2AS (ghana) at 1539UTC.

Argentina was the only DX contact for John GOIUE, in the shape of LUS MAD (Mendoza, Argentina), while Ted G2HKU tried 24MHz c.w. and came up with PY2NB (Brazil), and 4Z5LF (Isreal) at 1500, while the 28MHz band provided a chat with PY2KB (Brazil) at 1500 and LU1EVL (Argentina) at 1800UTC.

SIGNING OFF

Well that's it for this month folks...it's signing off time! Keep a keen eye (or ear) on the higher bands as we approach the winter, as they should be producing some decent DX over the next couple of months. Mind you, having said that, don't neglect the lower bands...but I wouldn't advise holidays get in the way of some decent DX...but I wouldn't advise holidays get in the way of some decent DX!

65
Radio 'scape

Mike Richards G4WNC
PO Box 762
Ringwood
Hants
BH24 2ZD

E-mail: mike.elaine@btinternet.com

Web site: http://www.btinternet.com/~mikespage

This month, Mike Richards G4WNC, will be taking an in-depth look at some interesting Web sites.

Whilst just about every Internet Service Provider (ISP) provides free Web space, making use of this space can be quite a challenge. (I've covered setting up your own Web page in another column, but the trick is to use a graphical Web editing package.)

One of the best packages for this, in my view, is Netscape Communicator or Netscape Gold if you have a Windows 3.1 based machine. Using this system, you can pinch interesting backgrounds and graphics from other people's Web sites and very quickly create an interesting personal Web site.

When it comes to adding information to the site, generally the best plan is to concentrate on information related to your slant on the radio hobby. It's also worth creating a page of useful links containing all your favourite sites - this can be very popular with other Web surfers.

Once you have your Web site, there are a number of different ways to make your site easily visible to the rest of the world. You register your site with a number of Internet search engines to get the widest possible coverage. Up-to-date instructions for doing this are usually provided by your ISP. The only snag with this option is that it does tend to result in your receiving lots of junk mail.

The other way of becoming known to a specialist group is to announce your site on the appropriate radio news group. The only problem here is that there's such a huge volume of messages around, that you're may only be seen by a few people. Probably the best method is to make use of the Amateur Radio WebRing.

The Amateur Radio WebRing is an easy to use Web organisation that was set-up in 1997 specifically to provide a way of communicating and collating Amateur Radio Web sites. To join your site to the ring all you have to do is download the WebRing graphics and code from their site and build it into one of your main Web pages. Once this is done you simply E-mail the Ringmaster with your site details and he will add you to the ring.

There is a degree of checking to ensure your site meets the rules for the ring, but that's all there is to it really. Once this is done, not only can other amateurs easily find you, but you can use the ring yourself to find lots of useful sites.

If you want to have a go and join-in, the Web address for full details is: http://www.bigdeez.com/amateur/

Get The Rules

If you want to find out what's going on with the major regulatory bodies that influence our hobby then the International Telecommunications Union site in Switzerland has got to be worth a visit. This can be found at http://www.itu.ch and contains a wealth of useful data. There's even a search engine and typing in 'amateur radio' will take you straight to loads of data containing all manner of proposals and recommendations for our hobby.

Another really good site is the American Federal Communications Commission. Again, there's loads of information on a very wide range of communications related issues. They can be found at http://www.fcc.gov/

Star Gazing

If you want to try something completely different, take a look at the main Joderel Bank site at Manchester University. It appears the Joderel Bank radio telescope (now called the Lovell telescope) is still going strong and is packed with lots of information and data. You can even go into their live site and see exactly what all the antennas are up to. If I wonder if they'd let me borrow one for some moonbouncing! The site details are:

http://www.jb.man.ac.uk/

There's also a very good visitor centre, so if you find yourself in the area why not drop in and see what they get up to. The story of how the first antenna was built is fascinating.

WEATHER EYE

It seems that weather watching is always popular in the UK, probably due to our highly variable weather patterns. Anyway, if you want to know what's going on, there's loads of data on the Web. For quickly checking the current weather around the world you'd have a job to beat Weather Underground. They can be found at http://www.underground.com

Here you will find detailed current weather reports from around the world. You just select your area and you can get details right down to individual towns - providing there's an observation site there. The other vital site for UK listeners is the Met Office. They can be found at http://www.metoffice.gov.uk If you want to get straight to the latest satellite pictures you need to add /satpics to the address and you can get the very latest infrared and visual Meteosat images.

Really Fast Internet

Just as I expected, the delivery of high speed data to you and I is really starting to heat-up. The latest to arrive is BT's Home Highway that provides ISDN2 access specifically designed for home users. What you get with this is a really flexible and easy-to-use digital communications link. Your existing phone line is converted to an ISDN2 line and the box of tricks that's fitted gives you four possible links of which any two can be used at the same time.

For example, you get two ordinary phone lines and two digital phone/computer lines. You could therefore connect your computer to one and get Internet access at a real 64kb/s and use the other for your ordinary phone calls. Of course, when the rest of the household go out you can hook into both digital lines to get really fast 128kb/s access to the Internet!

In addition to the conversion to Homel-highway, you will also need a terminal adapter to take advantage of the ISDN connection - these cost from around £100.

Farewell

I've finally decided to hang-up my PC and stop writing the Radio 'Scape column. The reasons are simply too many. Interests, a very busy job and a demanding young family! So the time has come to leave this particular task to someone else.

I would like to thank those readers that have supported me with valuable contributions and ideas and wish you lots of...
happy hours surfing the ever expanding Web.

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If you’d like a copy of Hamcomms/VWX, etc. I’ve arranged a very special offer with the Public Domain and Shareware Library (PDSL). They have put together a library set of all five disks for just £12, all inclusive.

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73 Mike GW4NC

Editor’s comment: We’re very sorry indeed to lose Mike GW4NC as a regular contributor. Please see next month’s ‘Keylines’ editorial for further comments. G3XFD.

**GOOD OR BAD NEWS?**

The time change in Europe due at the end of October means frequency changes too, some news which may please broadcast listeners in the USA, while disappointing some in Europe. The latest agreement between Radio Netherlands and Radio Vlaanderen *International* means that the Belgian station secures a prime-time short wave transmission from Radio Netherlands’ Bonaire site (see Fig. 1) for an hour of medium wave for Radio Netherlands on RVI’s 1512kHz transmitter. As a result, the 1730UTC English broadcast will no longer be available on medium wave, although the two later transmissions at 1830 and 2100 will both be on 151kHz.

**PIRATES IN OUR MIDST?**

A brand new US short wave broadcaster was due on the air in late September. The WBCQ station is owned by sometime pirate broadcaster and entrepreneur Allan Weiner. He has secured permission from the US authorities to build a new 50kW transmitter at Montecello, in late September. The WBCQ transmitter. As a result, the medium wave for Radio Bonaire at 1512kHz will no longer be available on medium wave. Although the two later transmissions at 1830 and 2100 will both be on 151kHz.

**OTHER FREQUENCY NEWS**

**Greek Radio’s international service is now carried on world wave from transmitters which used to broadcast local ERA programmes.** A total of six channels are now in use for Greek international programmes, including 765, 927, 1008, 1404, 1494 and 1512kHz. The three highest frequencies are radiated from 50kW transmitters. Other frequency news now. French-financed pop music station Africa No. 1 in Gabon can be heard 0500 to 0700 on 9.58MHz, 0700 to 1600 on 17.63 and 9.58MHz, 1600 to 2100 on 15.475 and 9.58MHz and 2100 to 2300 on 9.58MHz.

**Radio Singapore International** has a daily English-language programme for Asia on 1100 to 1400 on 6.015 and 6.15MHz.

Radio Pyongyang has English: 0000-0700 on 11.845, 13.65 and 15.23MHz, 0300-0600 on 11.71 and 13.79kHz, 1100-1200 on 3.56, 9.975, 11.335, 13.65 and 15.23MHz, 1500-1600 on 3.56, 9.64, 9.975, 11.335, 11.735 and 13.65MHz, 1800-1900 on 4.405, 6.575, 9.335, 11.71 and 13.76MHz, 1900-2000 on 6.25, 9.60 and 9.975MHz, 2100-2200 on 4.405, 6.575, 9.335, 11.71 and 13.76MHz, 2300-2400 on 11.335, 13.76 and 15.23MHz.

**The Irish National Broadcasting Corporation (RTE)** in Dublin uses transmitters in Germany, Singapore, Ascension Island and the USA to beam programmes in English, including: 0900-0930 weekdays on 5.07MHz (via USA), 1000-1030 weekends on 5.07MHz (via USA), 1000-1030 daily on 5.07MHz (via USA). 1730-1800 daily on 17.885MHz (via Ascension), 1830-1900 weekends on 12.16MHz (via USA), 1900-1930 weekends on 12.16MHz (via USA). Finally, a UK-based short wave broadcaster, the Voice of Hope based in Hereford, is hiring time on a transmitter in Germany to broadcast daily to Asia at 1330 to 1530 on 15.715MHz to Asia and at 1800 to 2200 on 6.015MHz for Europe. That’s all for this month. Keep me up-to-date with what you hear so that all readers of PW can share in the broadcast listening experience.

73! Peter
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