reviewed:
- Icom IC-Q7 miniature
dualband handheld
- DSP add-on for IC-706 Mk II
- MFJ-969 NF / 6m ATU

plus:
- Multimode
  interface unit
- Dayton report
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- Variable Tuning
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- Sleep Timer
- RTTY Fine Tuning

What Chris Lorek, G4HCL says about the NRD-545*

"sometimes has a dream, and it came true when he tried the NRD-545 in his shack"

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"exceptionally good filter responses"

**"Ham Radio Today Review", April 1998**

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Editor
G4JVG

Undoubtedly the single biggest topic of Amateur Radio conversation throughout the world during the last ten years or so has been the Morse debate - in other words should it, or should it not, be necessary to have to take a Morse code examination before being let loose on the bands below 30Mhz? I have no personal axe to grind - I passed my Morse code test nearly two decades ago, but nevertheless I have long held the view that the days when an obligatory Morse code test was necessary have long since gone.

As you will see from the news story opposite, the Radio Society of Great Britain now also supports this point of view. This is a change of policy, as the RSGB has for many years been pro-Morse testing. Of course the decision on whether or not we need to have a Morse code test is not the RSGB's to make - but the UK licensing authority, the Radiocommunications Agency (RA), does do it. Accurately careful to the RSGB's opinions before making its decisions. Because a Morse code examination, in one form or another, is an international requirement, laid down in the ITU Radio Regulations, it is not possible for the RA simply to withdraw the requirement. However, 80% of the examination is not laid down anywhere in the Regulations: hence the RSGB proposal of a 5 words per minute (WPM) Morse test to allow full access to the HF bands in the UK.

No Change

The earliest the requirement could be withdrawn completely is the year 2001, when the Radio Regulations are discussed at a World Radio Conference (WRC). However, it is possible that the conference may be postponed by a year, to become WRC-2002. It is also possible that there may be insufficient time to discuss this particular subject at the conference, whether it is in 2001 or 2002, in which case it would be put on the agenda for the following WRC, in 2003 or 2004. And at present it is still far from clear what the opinion of the majority of administrations would be. So the Morse requirement not going to disappear overnight - this could still be five or six years away, or even longer.

The RSGB's proposals, therefore, is to be seen as an interim measure - an opportunity to give existing class B licensees (some of whom have 25 or more years operating experience on the VHF / UHF bands) who can pass the Novice 5WPM test the opportunity to experience the HF bands. It is also a giant step towards an eventual full code-free HF licence.

Fears Unfound

The news of the RSGB's change of policy 'leaked' whilst the President, Ian Kyle, G4BAYZ / M1OAYZ, and General Manager Peter Kirby, G4TWK, were representing the Society at the Dayton Hamvention in Ohio. Whilst there, they were interviewed by the ARRL on the subject and took the opportunity to dismiss some misunderstandings. "We're not trying to get rid of Morse! No way!" insisted Ian. The RSGB will continue to support Morse code and the CW subbands on HF as core elements of Amateur Radio globally. However, he said, "Mandatory testing of Morse is going to go, whether we like it or not." Peter Kirby said there no longer is any good reason to insist that applicants pass a Morse code test to operate on HF. "It's stopping growth in the hobby," he added, explaining that those who think HF will be an end to the hobby or would lead to lower operating standards. Peter, a former Royal Navy professional CW operator, said that making someone pass a 12WPM test "doesn't make one a good operator." In my first editorial, in the March 1996 issue of Ham Radio Today, I stated that the magazine would continue to portray Amateur Radio as a young and exciting hobby for all, and that includes continuing the campaign started by Sheila and Chris [Lorek] to make it easier and more rewarding to hold an Amateur Radio licence. Certainly if the RSGB's proposal is agreed by the RA it would make it easier to hold an HF Amateur Radio licence. There will be opposition, though, in the immortal words of Sir Humphrey in Yes, Prime Minister, it is a "courageous" move, and there will be many who view it as the beginning of the end of Amateur Radio as they know it.

I think their fears are unfounded and that, on the contrary, making it easier to gain an HF licence will encourage new people into the hobby. This is how the hobby will grow, not by preserving a redundant requirement which, whatever the merits of CW as a mode, is certainly turning people away from the hobby. Personally know of two people who use communications equipment professionally, and know quite a lot about Amateur Radio, but who have never taken up the hobby simply because of the need to learn the Morse code to get on to the HF bands.

It is ironic that, far from spurring an end to Morse code, the proposal is bound to encourage thousands more to learn Morse, at least to the 5WPM level, in order to gain access to HF.

I am sure Ham Radio Today readers will be quick to inform me of their opinion. It is interesting to note that the RSGB statement also says that it is "seeking ways of making the qualifications for the amateur licence - be this the RA's or a new qualification - more accessible and less expensive." What do you think? Have you been put off taking the RA because it is too expensive, or because there is no examination centre near you? More fundamentally, do you think the RA is too difficult for you to master? Or perhaps not too difficult, but simply asking the wrong sort of questions? Do let us know what you think.

Steve Telenius-Lowe, G4JVG
A Leader article published over the name of Ian Kyle, G1AYZ/M0AYZ, President of the RSGB, and published in the June issue of RadCom, outlines a change of thinking by the Society on the subject of mandatory Morse testing. We can do no better than quote from the article:

"At its meeting in April, Council (RSGB Council, the governing body of the Society - Ed) agreed that it would open discussions with the Radiocommunications Agency to begin a process of liberalising access to the HF amateur bands. Council sees the first step in this as an additional licence category giving full access to the HF bands to existing Class B licensees, subject to a 5WPM Morse capability. The Society hopes that the RA will support this approach. If agreed, however, this licence would only be available for use within the United Kingdom, and would not grant privileges on HF bands in other countries under the CEPT arrangements.

"The maintenance of Morse as a mandatory requirement for access to the HF bands is IARU policy. Council, however, now believes that this position cannot be sustained in the longer term and will be opening discussions with IARU societies and other interested bodies to reconsider the position to be adopted at the WRC in 2001, when the matter of Morse as a necessary qualifier for access to HF bands is likely to be considered. The current IARU policy was determined some years ago, since when circumstances have changed and will no doubt change further by the time of the next WRC at which Amateur Radio will be discussed.

"Our hobby is in need of stimulation. The numbers of Radio Amateurs are falling in many parts of the world and this trend is an unhealthy one for the future of Amateur Radio. We must be seen as progressive and forward looking. We believe that this position will be welcomed by the majority of radio amateurs in the United Kingdom who share the view that the Society should take a forward looking and progressive stance on the future of our hobby."
A new Amateur Radio antenna law in the state of Virginia made a major story in the influential US newspaper the Washington Post on 4 May. According to the article, "Virginia Hams to Reach New Heights," a new Virginia law allows amateur radio owners to erect towers of up to 75ft in residential areas, while rural counties must let them go as high as 200ft. The writer, Dan Eggen, says the new legislation "makes Virginia the most permissive state in the nation when it comes to Amateur Radio antennas."

However, Frank Mackey, K4EC, is quoted in the article as saying that, "darn few hams" can afford to put up a 200ft tower. "All anybody was looking for was an reasonable solution, and I think this is reasonable," he says.

Thanks to Ham Radio Today reader Derek Thom, G3NKS, for sending in the press clipping.

The International Amateur Radio Union (IARU) Executive Committee has appointed Julian Gannaway, G3YGF, and Peter Chadwick, G3RZP, as members of the IARU Group of Experts. This will enable the IARU to make use of their expertise in the various areas of their expertise.

The Radiocommunications Agency (RA) has agreed to automatic or synthesised voice announcements on UK voice repeaters. Two identification messages and four information messages have been authorised for use, and the first such officially-recognised announcements will be made on the 2m Bristol Channel area repeater, GB3BC, in the near future.

The agreement was made after negotiations with the RSGB's Repeater Management Committee. Repeater groups wishing to make use of the voice announcement facility should contact the Amateur Radio Department at RSGB headquarters (tel: 01707 659015) to obtain the necessary amendment to the keeper's NOV (licence Notice of Variation).

Congratulations to Kevin Nice, who has been appointed as Editor of Short Wave Magazine, Kevin, who was formerly the Assistant Editor, takes over from Dick Ganderton, who is retiring. Zoe Crabb also receives promotion and takes on the role of News and Production Editor.

The Northern VHF Activity Group, perhaps better known as the 'Ugly Expedition Group' (the name comes from the callsign, not for any other reason) is off on its travels again. G7BXA, G7HSP, G4YQW and GONES will be activating G57UEG/P from the Isle of Barra, the most southerly inhabited island in the Western Isles, between 5 and 12 July. They will be based at I066HX, but plan to also set up a portable station in 1067, as well as activate several WAB squares. This year, the group will also be active on HF, using its new callsign MSOBPG/P. Equipment consists of 100W on all bands to two 13-ele Yagis on 2m, 5-ele Yagis on 6m and a 3-ele triband beam, verticals and wire antennas for HF.
A series of special event stations are commemorating battles of the English Civil War, 350 years ago. G8350BOP will operate from a number of locations including the site of the final battle at Fishwick Bottoms in Preston. The first event took place in May, and other stations in the series are: 18 July, from the flag market, Preston town centre; 25 July and 3 August Priory Club, Leyland; 2 August Fishwick Bottoms; 8 / 9 August from Grimsargh Hall battle site, Preston; 15 - 17 August from Brownedge St Mary's High School, Bamber Bridge, Preston.

The Society of the Sealed Knot will be re-enacting battle scenes at some of the sites, which will provide an interesting backdrop to the Amateur Radio operations.

The events are being run by the Central Lancs Amateur Radio Club. and more details are available from Peter, G3UCA, tel: 01772 494474.

The lucky winner of the joint Ham Radio Today / Lowe Electronics JRC NRD-545 DSP receiver competition, which was in the April issue of the magazine is Thomas Bates, G4MZS, of Wallasey, Merseyside. When told of his success in the competition, Mr Bates said he was overwhelmed and that he'd "have to pick myself up off the floor". He said he never won any competitions - well, there's always a first time and you know the saying, "it could be you!" Mr Bates 59 and had promised himself that he would buy a "decent" receiver when he retires shortly. Well he just saved himself nearly £1600 by winning the Ham Radio Today / Lowe Electronics competition prize. Congratulations - the receiver has already been despatched to Mr Bates.

All Ham Radio Today readers who completed the readers' survey form with the competition are thanked for their input.

To help celebrate the 50th anniversary of the Council of Europe, the Council of Europe Radio Club has issued a new award. It's open to all Radio Amateurs and SWLs who have confirmed contacts with all 40 member countries of the Council of Europe, plus club station TP2CE. For full details of the award, contact Francis Kremer, F6FDK, 31 rue Louis Pasteur, 67490 Dethwiller, France, or e-mail: f6fdk@ref.tm.fr.
**New Contact Number for SMC**

South Midlands Communications (SMC), the Amateur Radio and communications dealers based in Eastleigh, Hampshire, have new telephone and fax numbers: 01703 246222 for the Amateur Radio shop; 01703 246200 for general enquiries, and fax: 01703 246205. The old Amateur Radio shop number (01703 251549) will work in parallel with the new number for a while, but will soon be phased out.

**Ham Radio Antenna**

**Powabeam Antenna**

PowAbeam Antennas have launched the 2M-2.5WL Ultra Max, a 144MHz nine-element beam with a claimed 14.9dBi gain. The boomlength is 5.3m and the manufacturers say that it offers an outstanding null pattern, suitable for EME as well as terrestrial DX work.

Priced at £84.95 (plus £10 carriage in UK), full technical specifications are available from PowAbeam Antennas, Hazeldene, Bridgerule, Holsworthy, Devon EX22 7EW; tel: 01288 381289.

**Kenwood SSTV**

Already out in Japan, but yet to be seen here in the UK, is the Kenwood VC-H1 ‘Interactive Visual Communicator’. This is a handheld miniature SSTV unit, which includes both a colour camera and a tiny monitor. It can be used on any mode or with any transceiver, from a VHF FM handheld to SSB HF rigs.

**Chelcom ANTENNAS**

The Chelcom LP270 is a 12-element log periodic antenna which covers the 2m and 70cm bands. Designed for amateurs who are looking for directional dual-band coverage from a single antenna, the LP270 offers remarkably good forward gain (8.5dBi claimed) and front-to-back ratio (19 - 25dB) for an antenna of its size. For those not needing the ultimate DX performance that two large, monoband, high-gain Yagis would provide, the LP270 could be the answer. It's easy to install, requires only a lightweight rotator, and because it's a single antenna, it has low visual impact and requires just a single coax feed ('N' type connector).

The boom length is 1.44m and longest element 1062mm. It will handle 500 watts and the LP270 costs £79.99 inc VAT.

Also new from Chelcom is the CL80, a centre-loaded quarter-wave vertical for 80m, tuneable for the CW or SSB ends of the band. The aluminium antenna is 11.5m (37.5ft) long, weighs 12kg, and will handle up to 2.5kW. No section is longer than 2m, making it ideal for DXpeditions or field day use.

The centre high-Q loading inductor is wide-spaced wound on a heavy fibreglass former. A capacitance hat is incorporated in the inductor design, to reduce the number of turns needed, thus keeping losses to a minimum. An impedance matching transformer is housed in a weatherproof box on the mounting assembly, providing a near perfect match when the antenna is used with four raised, quarter-wave wire radials (recommended installation), or when mounted at ground level with a good earth radial system (full size, and pre-tuned loaded half-size, quarter-wave groundplane kits are available).

Phasing units for two and four antenna arrays should be available from Chelcom soon. The CL80 comes supplied with mounting "V" bolts etc and costs £175.

Chelcom have also recently released the FS40 and FS30 full-size (unloaded) quarter-wave verticals for 40 and 30 metres. They each cost £175.

Coming soon is the Chelcom TL80, a capacitance hat top-loaded (no coil) quarter-wave vertical for 80m, also 11.5m (37.5ft) long. Chelcom describe it as "a big hefty antenna, with a performance to match!"

Chelcom, Riverside House, Homecroft Drive, Cheltenham, Glos GL51 9SN; tel: 01242 680653; Internet: www.chelcom.com
The AMS '98 Computer & Electronics Show takes place on Saturday 14 November at Bingley Hall, Staffordshire Showground, Weston Rd, Stafford. Organisers Sharward Promotions wish to expand the Amateur Radio side of this mainly computer show. There are already a number of Amateur Radio traders at the show, but Sharward Promotions are prepared to offer some great deals to new traders who wish to exhibit at this event. Contact Ray Gamble or Sharon Alward at Sharward Promotions, tel: 01473 741533 or e-mail ray@sharward.co.uk for further details.

dsp-rtty

A new RTTY program has been released by Timewave for existing owners of the Timewave 599zx and 59Y DSP units. DSP-RTTY and the DSP-599zx dig into the noise for really weak signals, to reduce errors by up to a hundred fold. You can operate 'contest-quality' RTTY with just the DSP-RTTY program and DSP-599zx or DSP-59Y, Windows 95 PC, and radio. Minimum specifications are 486PC, Windows 95, 98 or NT 4.0, 5MB free disk space and 8MB RAM (16MB recommended). This is a full-featured package which costs £79.95. Further details can be obtained from Nevada, 189 London Road, North End, Portsmouth, Hants PO2 9AE: tel 01705 662145; fax: 01705 690626.

lowe's enter antenna sites business

Lowe Electronics Ltd, based in Matlock, Derbyshire, have acquired the antenna sites business formerly operated by Relcom Communications Ltd. The 20 prime nation-wide sites range from hilltop locations in Scotland to the roof of the Park Lane Hilton Hotel in Mayfair. Several of the sites are ideally situated to give coverage of the City and Metropolitan London, and all have expansion space available to permit the addition of further customers. The acquisition represents a further diversification for Lowe, who after many years in the Amateur Radio business have recently expanded into the supply of a range of low-cost branded communications accessories to PMR companies and the emergency services. For further information, contact Steve Quarmby, Aerial Sites Manager at Lowe Electronics; tel: 01629 580800.

new GM for Yaesu uk

Yaesu UK have a new General Manager: David Peaty who is the former Sales Director of SMC. He took up his new position on 20 May.

STOP PRESS:
The Yaesu FT-847s have arrived in the UK and there will be a full review in the next issue of the magazine.

w&s's silver anniversary

Congratulations to Waters & Stanton PLC, who celebrate 25 years of trading this month. To celebrate this milestone, they are holding a special anniversary sale in their store at 22 Main Road, Hockley, Essex, between 9.00am and 6.00pm on 25 July. Some "fantastic offers and massive discounts" are promised.

It may not be generally known amongst Amateur Radio enthusiasts that Waters & Stanton PLC are also actively involved in the supply and installation of commercial radio equipment. Their most recent success is the completion of an order to supply 400 Motorola handheld radios to a national retail chain. This side of the business is growing significantly and Waters & Stanton have plans to launch a new range of products aimed at the commercial user.

cushcraft r6000

We received news of Cushcraft's new vertical for 20, 17, 15, 12, 10 and 6m, the R6000, just in time for last month's magazine - but there was no picture available then. The picture has now arrived, as has news that the antenna is available from Waters & Stanton PLC in Hockley, Essex, in addition to Nevada. The Cushcraft R6000 is a 5.5m long vertical with no traps on 6, 10 and 15m for maximum efficiency. It weighs 5.6kg.

w&s

Icom have just released details of their new 160 - 6m 1kW solid-state amplifier, the IC-PW1. It has a detachable desktop control console which measures just 205 x 82 x 75mm, whilst the remainder of the unit, which includes a 230 / 115V AC PSU can sit out of sight under the desk. It's priced at around £3500.

The very popular MFJ Antenna Analyzer has been updated and the MFJ-259 Mk II is now out. It features an expanded LCD display with both analogue and digital readouts of impedance and SWR and a battery saver circuit. Every antenna experimenter should have one.
On this month's front-cover CD-ROM, you'll find plenty of predominantly DOS-based programs like HamComm, MScan, JVFax and so on, which use an external circuit on your PC's RS-232 port for the communication interface. Some programs allow you to use a specific type of sound card as an interface, but not everyone has such a PC system.

These days, basic two-speed CD-ROM drives can be found at £2 each, so there's little excuse for saying, "I don't have a CD-ROM drive and I can't afford one". Now that lower-specification PCs like 386s and even 486s have such a PC system.

For receive-only operation, you can use the PCB and just populate it with the receive components as described in the first section of the parts list. This allows for future expansion to add transmit capability, for example when you obtain an Amateur Radio transmitting licence, if you're currently a listener.

For receive only, the interface described here can be used for either receive only with a smaller number of components fitted as detailed, or for a full transmit and receive system with all the components fitted.

I've given two circuit options here. The first, with fewer components, is for a receive-only arrangement, i.e. where your receive audio output only feeds the interface (Fig 1).

For receive-only operation, you can use the PCB and just populate it with the receive components as described in the first section of the parts list. This allows for future expansion to add transmit capability, for example when you obtain an Amateur Radio transmitting licence, if you're currently a listener.

The complete circuit, with the addition of transmit components for the PTT (push-to-talk), and a multi-section low pass filter to shape the harmonic-rich square wave from the PC into a cleaner sine wave to feed to your mic socket, is shown in Fig 4.

The interface should operate correctly with 16V working electrolytic capacitors, which after several months of testing I've now back of your PC or alternatively be fitted directly with 16V working electrolytic capacitors, which after several months of testing I've now fitted, so the unit can either plug straight into the PTT (push-to-talk), and a multi-section low pass filter to shape the harmonic-rich square wave from the PC into a cleaner sine wave to feed to your mic socket, is shown in Fig 4.

There's no need to etch and build a PCB of course, instead you can easily use stripboard such as Veroboard to build the circuit if you wish, as the layout isn't critical.

I've used a 9-way board-mounting RS-232 D-type connector in this design, so the unit can either plug straight into the PTT (push-to-talk), and a multi-section low pass filter to shape the harmonic-rich square wave from the PC into a cleaner sine wave to feed to your mic socket, is shown in Fig 4.

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I've used a 9-way board-mounting RS-232 D-type connector in this design, so the unit can either plug straight into the PTT (push-to-talk), and a multi-section low pass filter to shape the harmonic-rich square wave from the PC into a cleaner sine wave to feed to your mic socket, is shown in Fig 4.
found to have no problems with ('I've built up and tested over 50 of these interfaces'). But it is preferable to use 25V working types if you have these in your junk box, in order to cope with maximum possible RS-232 voltage swings on some PC I/O boards.

The values of most of the resistors and capacitors components isn't critical, eg if you only have 'near values' in your junk box these will usually suffice nicely. The only critical components are R4, R5, R7, C5 and C6, as these give a defined filter response, so don't stray too far off these values. I've used a BC108 transistor, but any common NPN switching transistor may be used in its place, such as a BC547 or similar. Just be careful to connect the base, collector and emitter leads correctly if you use a substitute, the pin-out details are shown on the component overlay. Even if you buy all the components new, they shouldn't cost more than £5 including the RS-232 connector (which is often the most expensive part!)

**Components list**
- All resistors 1/10W or 1/8W
- All electrolytic capacitors 16-25V working
- C1, C2, C3 100nF disc
- C4 100nF disc
- C5, C6 22nF disc
- R1, R2 10k
- R3 1k horizontal preset
- R4, R5 10k
- R6 1k
- R7 100k horizontal preset
- D1 - D4 IN4148 or equivalent
- IC1 TL071
- CL1 10µF 16V
- C4 100nF disc
- C5, C6 100nF disc
- C1 10µF
- All resistors 1/10W or 1/8W
- 9-way D-type RS-232 connector
- 5-way D-type RS-232 connector

The following components are required for the transmit sections, and may be omitted for a receive-only unit:
- R4, R5 10k horizontal preset
- C5, C6 100nF disc
- R7 1k
- D5 - 7 IN4148 or equivalent
- TR1 BC108 or equivalent

**Fig 3: PCB layout, components side.**

**Fig 4: If you wish to transmit datamodes, use this circuit.**

---

**in use**

Before plugging the assembled unit into your PC's RS-232 port, do take a few minutes to check your solder joints, being especially careful to ensure there are no solder bridges between tracks. Check that you've inserted the diodes the right way round, as this is a common cause of non-operation.

The outputs of RX AF (Receive Audio), TX AF (TX mic connection), PTT (TX ground to transmit) and GND (common ground). I hope are all reasonably obvious. If you have a 'line out' or 'record out' on your receiver, try this to start, otherwise you'll need to use your receiver's external speaker connector, adjusting the volume carefully for correct operation. I've found the 'spectrum scope' on the HamComm program is an excellent tuning aid when you're on the air. The board-mounted potentiometer is used as an audio output level control on transmit, adjust this to provide the required drive to your transmitter, setting it so that it doesn't drive the transmitter into clipping.

For more information on testing and using the interface with your program and PC system, refer to the comprehensive documentation supplied on the front-cover mounted CD-ROM with the HamComm and JVfax communications programs, there are plenty of hints and tips to be found there.

**alternatives**

A number of Ham Radio Today advertisers can also supply complete kits and even ready-assembled PCBs for a similar interface. Companies such as Waters & Stanton PLC in Essex (tel: 1703 246222) can supply a Watson ready-made and boxed unit, whilst South Midlands Communications (SMC) in Hockley, Essex (tel: 01702 26835) can supply a Watson ready-made and boxed unit, whilst South Midlands Communications (SMC) in Hockley, Essex (tel: 01702 26835) can supply a Watson ready-made and boxed unit, whilst South Midlands Communications (SMC) in Hockley, Essex (tel: 01702 26835) can supply a Watson ready-made and boxed unit.
World Radio TV Handbook 1998
(Billboard Books, £22.94)

Even bigger than ever - at over 600 pages this year the World Radio TV Handbook is familiarly known as WRTH by generations of broadcast SWLs and DXers. Editor Andy Sennitt has crammed a vast amount of information on radio broadcasting, both domestic and international, into the book. The largest section, at around 300 pages, is devoted to domestic broadcasting: national, regional and local. There is an immense amount of data for each country, including full details of every known radio station in the country - frequency, power, and hours of transmission.

International broadcasters appear in a separate section of over 50 pages. Each station's current transmission schedule is given, listed by language, then time and frequency. Typical station announcements in numerous languages are given in many cases, to aid listeners in identifying what they are hearing (eg "Laparakobs Tbilisi" for Radio Georgia in Georgian). Another section lists all the international English-language broadcasts from each country in the world by time, target area of the world, and frequency.

Other major sections of the book are given over to long, medium and short wave frequency listings - essential reference for the broadcast band DXer.

The previous edition of the book had decreased the amount of television information to just eight pages, but in 1998 the world television section is restored to a comprehensive listing of broadcasters and terrestrial TV transmitters, including the colour system used, the standard, channel numbers and frequencies, powers of transmitters and programme transmitted.

In addition to the listings, there are articles on DAB (digital audio broadcasting), the AM synchronous detection technique, shortwave broadcast DXing in Hawaii, and on propagation by two of the world's foremost experts on the subject, George Jacobs, W3ASK, and Mike Bird. The book includes its now famous "test bench", a section devoted to impartial reviews of receivers and active receive antennas.

Ferrell's Confidential Frequency List
(PWP, £19.95)

Have you ever wondered what is to be found between the HF amateur bands? Yes, most people are aware of shortwave broadcast stations, but what about all those other signals?

Ferrell's Confidential Frequency List provides the answer. Subtitled "the definitive guide to utility stations 1605 to 30,000kHz" this 10th edition, compiled by Geoff Halligey, consists of over 450 pages, made up primarily of utility station listings in frequency order. A typical entry reads:

8764 USN NMG COMMSTA Boston, MA FC USCG

...which means that on 8764kHz there is an upper sideband station, callsign NMG, in Boston, Massachusetts, operating in the Marine Coast Station service.

Useful abbreviations lists explain that it is a US Coastguard Communications Station.

However, it is not only this station which is on 8764kHz: there are similar coast stations in Barbados, Panama, Argentina, Alaska, Guam, Indonesia, Russia and China, as well as several others in the USA, sharing the frequency and the book gives a similar amount of detail for all these.

Aero, CW, fax, fixed, embassy, military, navtex, time and Volmet stations are included in addition to coast stations.

Ferrell's Confidential Frequency List contains a 'Reverse Listing', the same information provided in callsign, rather than frequency, order. This is useful if, for example, you identify station NRV by callsign. The 'N' should tell you that the station is an American one, but the book will inform you that it is in fact located at Apra Harbor in Guam, and it also provides a list of several parallel frequencies on which NRV operates.

There are a number of useful tables listing the international allocation of callsigns, maritime service frequency allocations etc, as well as a series of continental charts showing the ICAO HF areas and their frequencies.

Spiral bound to lie flat on the shack desktop, Ferrell's Confidential Frequency List is the essential reference guide for utility listeners.

(Billboard Books, £22.94)

Access to the 73kHz band was limited to those who wished to experiment and could show a need. Now the new 136kHz band is open for use by all UK amateurs. To get access to a new band is exciting, but where does one start? All is not lost. Peter Dodd, G3LDQ, has edited a collection of articles written by amateurs who have overcome many of the problems found on 73kHz; many new articles have been written with the newer 136kHz band in mind.

The opening preface says quite a lot, and one paragraph must be remembered whilst reading the book. It says, "No attempt has been made to make this book into a work of art." It is not designed to show off the coffee table in the lounge, it is designed to be used opened up, flat on the workbench. Many of the photocopied photographs are not perfectly clear, but with the descriptions they don't need to be.

I spent a lot of time reading this book and found it fascinating. It is obvious to even the casual reader that arrived I started looking around for published material on the subject and found very little available. Even my pile of American books had little on these low frequencies. One thing I did know: it wasn't going to be easy. I eventually forgot about the band, except when I read about experiments in the magazines.

When the 73kHz band was released I was working in the ham radio business with an eye to making a kit for the new band. After the variation for the licence
there is a huge amount of information encapsulated in these covers. A few new ideas creep in that to many will seem horrendous: G4JNT writes, "The earthing system now appears to be more critical than the antenna", and then goes on to prove his point.

The 'Getting Started' article is a good place to start (though it is not at the beginning of the book): Peter explains that even some modern commercial receivers can be used on the band with some limited success. The transmitter is more of a problem. It is not so easy as taking a simple crystal oscillator to generate some RF. Low power sources such as signal generators have been used with some form of power amplifier.

Realistic antennas at this frequency are very inefficient. Some enthusiasts have used coils wound on dustbins to help load the antenna. Some use loops, some inverted-Ls, some traditional Marconis. Whatever you choose, do read the antenna section thoroughly.

To get the maximum permitted power output of one watt may seem easy, but this book soon dispels that idea. Transmitter levels of 5kW have been used, ie 5kW from the transmitter, giving less than 1 watt ERP! This should give readers some idea of the difficulties encountered.

One advantage of the band is that amplifiers are fairly cheap compared with their HF cousins. Most operators use audio amplifiers, eg the BK Electronics MF300, rated at 300 watts, provides a good 150 watts on 136kHz. A circuit diagram is given to show the safety modifications that should be made.

For anyone interested in getting on the band but not sure where to start, this book will help. I found it fascinating reading and had to be dragged away by my wife.

Dick Pascoe, G6BPS

Shortwave Receivers Past & Present
(Universal Radio Research, $24.95)

This new, third, edition of Fred Osterman's popular receiver index goes much further in the number of receivers described, the number of illustrations and the number of pages. With 473 pages compared with the 351 in the second edition, the book details over 770 receivers manufactured between 1942 and 1997, another increase over the 1945 to 1996 coverage before, from numerous manufacturers in many countries. US-produced sets dominate, but British, Japanese, German, Norwegian, Dutch and various others are also covered.

Amateur, military and commercial sets are covered, the increased time period bringing in many war time sets. British sets covered include Eddystone, Racal, Marconi, KW, Murphy, along with such Japanese sets as Trio, Kenwood and Yaesu. Each receiver has a black and white photograph, a detailed description of frequency coverage, specifications, weights and dimensions, additions to the circuitry or any unusual features, and notes on 660 model variations. A guide to new and second-hand costs is given for many of the sets along with the typical availability of sets on today's market (the availability is given from a US viewpoint, and many of the older British and Japanese sets may in fact be more readily available here than in USA).

Despite this, the book is a treasure of information, an ideal reference book and a very enjoyable read, regardless of being a collector or not. It is a book that should be on every SWL's shelf and many a Radio Amateur's as well. Well worth the price in my opinion and an ideal gift. It should be available from most radio magazine and society book departments immediately.

Ben Nock, G4BXD

RSGB IOTA Directory and Yearbook 1998 / 99
(RSGB, £8.95)

This book, edited by Roger Balister, G3KMA, and Martin Alberton, G3ZAY, is the essential guide to participating in the IOTA islands on the Air (IOTA) awards programme. It is also a thoroughly good read. There are two distinct parts: the Yearbook and the Directory.

The Directory lists thousands of islands, grouped by Continent, and (new this year) indexed by prefix. It also details the award rules, and includes application forms and masses of information and advice for the 'island chaser'.

It is the Yearbook section which makes it worth buying this particular edition - even if you already have an earlier version. Completely revised, this section contains Annual Honour Roll listing, articles on 'IOTA and the Environment', Internet sites, and new certificate holders.

New this year is a colour section which includes the results of last year's IOTA contest and the rules of this year's event (which takes place on 25 / 26 July), plus a 'DXpedition Roundup', describing the major IOTA expeditions which have taken place since the previous edition. The colourful new IOTA Award Certificates are also shown for the first time.

This section is illustrated by over 60 colour photographs and maps.

The book is 17% bigger (but only 50p more expensive!) than the previous edition, and vouchers are included with each book which are worth £5 off new RSGB membership, and £2 off the award administration charges. If both of these are used the book will cost you less than £2, so it's just got to be good value!

The IOTA Directory & Yearbook 1998 / 99 will be enjoyed by serious DXers, those who operate just for fun and anyone interested in finding out just why the IOTA award programme is the fastest growing aspect of Amateur Radio worldwide.
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  signal strength in FM/MW/LW bands
- E2 PROM for memories back-up
- FM stereo via earphones
- 29 pages SW stations name memory, 9 memories in every
  page
- Automatic search strongest signal station within SW station
  pages
- SSB (USB/LSB) 40Hz/step on fine tuning
- AM RF gain control
- Built-in 42 world cities time plus D.S.T. device
- 3 individual timers
- Adjustable sleep timer
- Alarmed by radio or HWS (Humane Wake System) buzzer
- Battery and signal strength indicator
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- Size in mm: 215 x 133 x 37.5
- Weight: 850g without batteries

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

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

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

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

Uniden Bearcat 9000 XLT - AM/FM/VHF/UHF switchable base station with 8002 scanning receiver. Covers 0.5-1650MHz. Features 500 memories, auto sorting, backlit orange LCD display. Scan rate of 100/300 channels/sec. £249.95 + £10 P&P.

Yupiteru MVT-7100 - All mode switchable handheld HF/VHF/UHF scanning receiver. Covers 0.5-1650MHz. Features 1000 memories, over 500 pass memories, 10 limit search banks, 12 step sizes. Comes complete with earpiece, belt clip, wrist strap, rechargeable batteries, PSU, in-car adaptor and telescopic antenna. £199.99 + £5 P&P (10 only)

Yeasu FRG-100 communications receiver - Award winning 50kHz to 30MHz base station AM, CW, USB, LSB, FM (optional) communications receiver. Features include two clocks and timer, 50 memories, FM option, remote control jack. Superb value at £449.95 + £7 P&P.

Radio shack DX-394 communications receiver - 150kHz to 30MHz base station AM, CW, USB, LSB communications receiver. Features include clock and timer, signal meter, 100+ memories, RF gain control and direct frequency entry. A steal at £149.95 + £7 P&P.

AKD Target HF3 communications receiver - 30kHz to 30MHz mobile or base station AM, USB, LSB communications receiver. Very simple to operate. Ideal for the novice, but with a performance more demanding listeners will appreciate. £159.95 + £5 P&P.

Commtel COM 206 - AM/FM handheld VHF/UHF scanning receiver. Covers 86-88MHz (FM) and 108-137MHz (AM), 137-174MHz (FM), 380-512MHz (FM). Full civil airband coverage, comes complete with free case and rechargeable batteries. £129.95 + £5 P&P.

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Clarence was just in the right place at the right time. Two local illegal 27MHz operators had just been 'busted', whereupon another decided to unload his gear in a hurry. £125 for an FT-902 that looked mint was just too tempting, but it wasn't till he got it home that Clarence found out that the 10 and 40m bands were a little non-standard! Not to worry, and he sent off a cheque that the 10 and 40m bands were.

The 40m band tuned OK over whilst only the 28.0 - 28.5MHz amateur section, but refused to tune at all. Further tests alerted Clarence to the fact that on 80m the rig would go no higher than 3.7MHz, and so he decided to bring it to me for attention.

Unlike most other Yaesu rigs of the same era, the FT-902 (and its earlier version the FT-901) use a phase lock loop in addition to individual band crystals. For some odd reason there are no alignment instructions for the PLL in either the user or service manuals, and so owners are rather left rather in the dark.

The first thing to do when aligning the FT-902 is to check the output of the crystal oscillators. A diode probe and valve voltmeter, or a high impedance 10k' oscilloscope probe, should be connected as shown in Fig 1. On each band the relevant oscillator core should be adjusted to give about 100mV output. It is important that the cores are not peaked for maximum, as the PLL will not lock in over the full width of some bands, if it is fed with too much injection. (Fig 1 shows the position of the adjustments in the FT-902. If in doubt which trimmer is which on the FT-901, tune to the calibrator, when it will be found that touching the circuit near to the active coil will alter the receiver beat note.)

Having set up the crystal oscillators, test the rig on all bands tuning the full 50kHz spread, noting which bands give full coverage. On any range which needs aligning, the tuning will either not alter the frequency on the digital display at all, or it will 'stick' at one end of its range. Correct operation entails first adjusting the relevant VCO oscillator coil trimmer to the relevant trimmer on the VFO unit.

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Fig 1: The Yaesu FT-902 crystal unit (under the VFO). When aligning, adjust each band's oscillator core for about 100mV.
as this was obviously the missing shunt. I re-soldered this in place, fitted three new PA valves (and a 3 amp fuse!) and everything was OK.

I did not want to risk a repeat performance, and so I also cleaned and lubricated the fan, and then left the unit on soak test for a few hours transmitting at about 10 watts into a dummy load, while I kept a careful eye on the PA current.

300 Whats?

Peter came in with his ATU. "It's supposed to be rated at 300 watts," he complained, "I only ran it with a hundred watt rig and it's arced over!" A quick look showed that the main band switch had tracked over, and would have to be replaced. I wondered what had caused the trouble and asked Peter a few questions. It soon transpired that he had been using the ATU with a 'long wire', and that he had frequently heard 'fizzing' noises when he had been tuning up.

Ratings on ATUs are very vague, and, as in many walks of life, makers tend to quote figures taken under the most favorable circumstances. I can remember one rather small ATU, which was surprisingly rated at one kilowatt. When one got round to reading the small print, however, it was rated at "one kilowatt into a 50 ohm load". It didn't seem to have occurred to the makers that if your antenna did present an exact 50 ohm load, you would not need an ATU at all!

When considering ratings of ATUs, remember that the voltage that will be present at its output depends on the impedance at the end of the antenna's feedline, as well as the power level. Feed 50 watts into an exact 50 ohm load and you get 50 volts; feed it into a 50000 ohm impedance and you develop 500 volts. The problem is that in a practical set-up the impedance varies not only when switching band, but when one varies frequency within a band. Even when using an antenna such as a coax fed G5RV, the impedance at the rig end of the coax is likely to be anything but 50 ohms. It might not be quite as high as that at the end of a 'long wire' an exact multiple of half-wavelengths long, but it can still place an unacceptable strain on the insulation of an ATU.

The practical answer is to be careful when tuning up for the first time after making any changes to antenna, power level, or ATU. Let you ears be the judge: if any sparking noises come from the ATU, back off the power, and alter feeder or antenna lengths by trial and error until operation is satisfactory.

new valves needed?

Simon telephoned to try and find out if he needed a new set of PA valves. Diagnosis at a distance is notoriously difficult, but in the case of suspect driver or PA valves, there are some quite good guidelines.

1) Low power on all bands. Speak into the microphone and note the ALC meter. If this is active you have plenty of drive, if not suspect the driver valve. Next check the current with the PA stage's I/C meter on CW transmit at full drive (for not more than one or two seconds or you may cause damage). If this current is low and all the voltages are OK, the PA valves are probably faulty. If the current is high and the output is low, there is possibly a fault in the anode circuit, or the PA HT feed choke has short circuit turns. Don't continue to use the rig in these circumstances, as most of the input power will be disappearing as heat into the output valves, and will cook them.

2) Low power on the higher frequencies. The gain of most equipment does fall off naturally at the HF end of the spectrum, so that any fault causing a slight reduction of drive tends to show up there first. If you have plenty of output at the lower frequencies, you can take it that there is nothing wrong with the PA valves. A driver valve that is on the way out can cause low drive at the extremes of the frequency range, but it is more likely that the rig needs a little realignment.

ft-101zd receive audio

Terry brought his FT-101ZD in for a general service, and mentioned that the receive audio sounded rather 'hollow' when receiving weak SSB signals.

This is a very common fault with the Mk2 and Mk3 FT-
RSGB Scottish Convention

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18
MFJ-969 HF to 6m ATU

With a number of rigs now covering 6m as well as the HF bands, this new 300 watt ATU will be of interest to many operators.

Most ham shacks need an antenna tuning unit (ATU) at one time or another. Although many modern transceivers now have ATUs built in, they are not very versatile, only being able to match moderate VSWRs on coax lines. On the other hand, an external ATU usually has a much wider capability and is able to match virtually any length of wire to balanced feed systems and co-ax-fed arrays.

Probably the world's largest manufacturer of Amateur Radio ATUs is MFJ of the USA. The introduction of the new MFJ-969 ATU merits a closer look, particularly as it covers the wide frequency range of 1.8MHz to 54MHz and includes some useful features.

**Design**

The MFJ-969 measures 268 x 242 x 95mm, can handle up to 300 watts of power and includes a 300W dummy load. The tuner circuitry is based around the traditional 'T' network with variable series capacitors feeding an inductor that is connected between the junction of the two capacitors and earth. This is a popular circuit arrangement with most commercial designs using a switch to select different inductance values. Now whilst this arrangement works well enough, clearly the optimum inductance value will vary more than that not far somewhere between the switched positions. In the design of the MFJ-969, a roller-coaster inductor replaces the traditional switched coil. This, together with the two variable capacitors, makes for a very versatile arrangement that is able to match precisely a wide range of impedances. The inductor is fitted with a front-panel turns counter, enabling it to be quickly returned to a predetermined value.

However, there are two problems with variable inductors of this type. The first is the risk of poor contact by the wheel as it runs along the turns of the coil when adjustments are being made. The second is the problem of self-resonance. MFJ claims to have overcome both these problems by careful mechanical construction and by the inclusion of an anti-resonance switch that is automatically switched in and out of circuit according to the inductance value selected.

**Metering**

An ATU needs some form of metering in order to show the results of the control adjustments and to indicate when optimum settings have been achieved. The meter fitted to most MFJ models is the cross-needle type. To most operators this offers a visual advantage over the alternative of employing separate meters where one reads the value of the VSWR whilst the other reads power output. The cross-needle system is very easy to read and can make adjustment of the unit that much quicker.

The MFJ-969 meter provides both average power and PEP readings, with switched full-scale ranges of 50 and 300 watts. A new innovation in this design is the inclusion of an active PEP meter circuit that claims to provide far more accurate indications of PEP than the normal passive designs. The meter can either be powered from an internal PP3 battery (which MFJ claim will almost last its shelf life) or an external supply voltage of 13.8V, which is also used to illuminate the built-in meter.

The tuner is provided with terminals for end-fed wire and tuned feeder connections, and SO-239 sockets for coax fed systems. Balanced line and end-fed wire matching is achieved by using an internal 4:1 balun which MFJ have placed between the antenna terminals and the ATU tuning section. Purists may yearn for the more traditional approach of link coupling (commercially made famous by KW Electronics in the 1960s). However, such an arrangement does not make front-panel band switching very easy to achieve and testimony to the performance of the balun arrangement is the large number of commercial tuners using this method.

**Dummy Load**

Also included inside the MFJ-969 is a 'short-burst' internal dummy load that can be selected by the front-panel switch and is capable of withstanding 300 watts for 30 seconds, before being allowed to cool. For a power level of 100 watts the load can be operated for 30 seconds before resting. The front panel includes a four-way antenna switch, marked COAX-1, COAX-2, WIRE/BALANCED, and DUMMY LOAD. A further four positions repeat the sequence, but this time the dummy load section is bypassed.

Because there is a 'THRU' position, the tuner can be left permanently in circuit and used in effect as an antenna switch to select different antennas. When switched to the normal tuner position, any internal tuner in the transceiver should be switched out of circuit.

MFJ equipment is distributed by Waters & Stanton PLC, 22 Main Road, Hockley, Essex SS5 4QS, tel: 01702 206835. MFJ-969 costs £179.95.
Book Browser

Ham Radio Today's great new service to readers. You can order by e-mail, phone, fax or post. See below for details.

Radio Communication Handbook
edited by Dick Biddulph, G6DPS
A comprehensive guide to the theory and practice of Amateur Radio communication. If you're into Amateur Radio, this is the book to buy!
6th Edn, 763 pages £21.00 (plus P&P)

PMR Conversion Handbook
by Chris Lork, G4HCL
Private mobile radio (PMR) equipment rapidly appears on the surplus market and can be acquired very cheaply at rallies. Often it can be converted to amateur bands quite easily and without expensive test equipment. This book tells you what to buy and how to convert it.
1st Edn, 192 pages £15.28 (plus P&P)

VHF / UHF Handbook
edited by Dick Biddulph, G6DPS
Guide to the theory and practice of Amateur Radio reception and transmission on the VHF / UHF bands including antennas, EMC, propagation, receivers and transmitters, together with constructional details of many items of equipment. One of the most complete guides around for VHF / UHF operators. See the review in Ham Radio Today December 1997!
317 pages £18.80 (Plus P&P)

VHF / UHF DX Book
edited by Ian White, G3SEK
VHF / UHF DX is one of the growing points where Amateur Radio shows that it still has a real future - and that's what this book is all about.
1st Edn, 447 pages £18.00 (plus P&P)

Amateur Radio Operating Manual
edited by Ray Eckersley, G4FTJ
This book covers the essential operating techniques required for most aspects of Amateur Radio, taking the reader from the principles of basic contacts right through to the secrets of working DX and winning contests.
4th Edn, 249 pages £12.23 (plus P&P)

RSGB Yearbook - 1998
edited by Brett Rider, G4FLO
Formerly known as the RSGB Callbook, the Yearbook has been enhanced to include a wealth of information for all Radio Amateurs. Includes all UK and Republic of Ireland callsign listings, plus over 120 information pages. Reviewed in Ham Radio Today December 1997.
1998 Edn, 517 pages £13.95 (plus P&P)

Ham Radio Today Binders - NEW
Red hard-cover binder, designed to keep your copies of Ham Radio Today safe and accessible. A label to denote each year is supplied free with each binder.
£7.40 (plus P&P)

World Radio & TV Handbook
edited by Andrew Sennitt
See review on page 12/13.
1998 Edn, 608 pages £22.94 (plus P&P)

Radio Logbook - Receiving
Spiral bound 100 pages £3.67 (plus P&P)

Radio Logbook - Transmitting
Spiral bound 100 pages £3.67 (plus P&P)

Your First Amateur Station
by Colin Redwood, G6MXL
How to set up a station and get on the air as cheaply and effectively as possible. It covers all bands, with special emphasis on VHF / UHF. A 'must' for everyone who has just passed the RAE or NRAE. (See the review in Ham Radio Today December 1997)
1st Edn, 124 pages £5.74 (plus P&P)

Your First Packet Station
by Steve Jelly, G6WSJ
How to set up a basic packet radio station and enter the world of data communications from your shack. Explanations are kept as simple and non-technical as possible, making this book an ideal choice for the beginner.
1st Edn, 76 pages £5.74 (plus P&P)

The Antenna Experimenter's Guide
by Peter Dodd, G3LDO
Take the guesswork out of adjusting any antenna, home-made or commercial, and make sure it's working with maximum efficiency. An invaluable companion for everyone who wishes to get the best results from their antennas.
2nd Edn, 160 pages £15.00 (plus P&P)

Practical Wire Antennas
by John Hey, G3BDQ
A 'down to earth' guide to the construction of many different types of wire antennas, ranging from simple dipoles to ingenious multi-wire systems. Boring and unnecessary theory is kept to a minimum - instead the author shares his years of experience, offering advice for beginners and enthusiasts alike.
1st Edn, 96 pages £8.92 (plus P&P)

Practical Receivers for Beginners
by John Case, G6HWR
Contains a selection of easy-to-build receiver designs suitable for amateur bands, together with simple fun projects and test equipment. The theory and practice of receiving techniques is outlined to help with understanding the circuit presented. This book is for anyone who is building receivers for the first time, or who is considering moving up to microwaves.
1st Edn, 165 pages £12.50 (plus P&P)

Ferrell's Confidential Frequency List
Compiled by Geoff Halliday
Including full reverse callsign list: aero; CW; coast; fax; fixed; embassy; military; Nato; state; Volmet. Published by PW Publishing. See review on page 12/13.
10th Edn, 450 pages £19.95 (plus P&P)

LF Experimenter's Source Book
edited by Peter Dodd, G3LDO
This book brings together source material from all over the world covering antennas, propagation, receivers, transmitters, special modes and test equipment. See review page 12/13.
1st Edn, 124 pages £7.50 (plus P&P)

RSGB IOTA Directory and Yearbook 1998 / 99
edited by Roger Balister, G3KMA, and Martin Atherton, G3ZAY
The Directory lists tens of thousands of islands group by continent and, new this year, indexed by prefix. It also details the award rules and contains the application forms needed. See review page 12/13.
1998 Edn, 112 pages £8.95 (plus P&P)

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to order
Ham Radio Today, RSGB Sales, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE.

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all prices include VAT (where applicable) and are subject to change without notice.
Do you have something constructive to say on the state of amateur radio today? Perhaps you'd like to put your viewpoint to the readers, get some discussion going, or give an answer to one of the issues raised? We'll pay £10 for the best letter we publish each month (paid 6-8 weeks following the publication date). So write in with your views to; Letters Column, ham radio today, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE or send an e-mail to hrt@rsgb.org.uk. We reserve the right to edit letters for length, grammar and clarity for publication. Letters must be original and not have been sent to any other magazines, and must include name and address plus callsign if held (name and callsign will be withheld from publication if requested). Reader's views published here are not necessarily those of the magazine.

Dear Ham Radio Today,

Here's one that's been bugging me for a while: when is a headset most useful/desirable on a rig?

In a 'contest' situation, ie lots of noise etc? Yes, I'd go for that one.

On a 'handle', allowing the user to walk, cycle, jog, write etc (like a typical security guard setup)? Yes, that's a good one too.

Now come on, what's a really good application for a headset? On a mobile rig, in a car perhaps?

Perhaps I haven't looked very far, but I cannot find a dual band VHF/UHF mobile rig which has a headset option. Yes, I would make a homebrew - 'spirit of the hobby' - but I have had enough of making 'lash-ups' for various rigs. In the world of 'all-singing, all-dancing' rigs with numerous options, I am amazed how hard it is to get one with a 'plug-and-go' headset option.

I was at a dealers the other day who didn't really force himself to find out if he had a rig which supported a headset option. Strange, as that was the only obstacle which would have liberated my wad of hard-earned cash.

So come on all you rig manufacturers/agents, I challenge you to provide a list of your mobile 2m/70cm rigs which support a proper headset option, or at least can be used with a compatible, 'off the shelf' headset.

Andy King, G7MIJ

Editorial comment:

Remember that when operating mobile you should never use a set of headphones which covers both ears or otherwise impedes your concentration. There used to be a UK firm which made a single-ear headset with boom microphone for safe hands-free mobile operating. Does anybody know if these are still available?

Dear Ham Radio Today,

With reference to the May news item, about the Trinidad and Tobago 9Z4 no-code HF licence, I have also been told by a German operator that this is the case there also.

I, like many other amateurs, have been under the impression that the CW test was a worldwide requirement that was not even being discussed until 2002. But that cannot be the case. Indeed, if some countries are introducing a no-code licence and not others, I think we should prepare for all hell to erupt from the one and sixpencees!

Kind regards.

Alan G Taylor, MOAUR

Editorial comment:

We believe you have been misinformed about the situation in Germany. However you will be interested to read the news story on page 5.
14 June
Elvaston Castle National Radio Rally, Elvaston Castle Country Park, Elvaston, Derby. On the B5010 between the A6 and A52, 5 miles southeast of Derby. The event includes the WAB awards group AGM. Details from Brian. G1CUH, tel: 01332 751412.

Bangor and District Amateur Radio Society Amateur Radio Rally, Clandeboye Lodge Hotel. The event is open 12 noon to 4.00pm and ‘full catering facilities’ are promised this year. Details from Roy Finlay, G1ULE, tel: 01247 460716.

Aldershot Amateur Radio Rally, Mytchett Community Centre, Mytchett Road, near Camberley, Surrey - easy access from J4 / M3, talk-in on 145.550MHz FM. Doors open 10.30am, entrance £1. Details from Roland Brade, G3VIR, tel / fax: 01252 837860; e-mail: rally@vunvvw.demon.co.uk

Barford Radio Rally, Village Hall, Barford, on B1108 Norwich to Watton Road, Norfolk. Trade stands, car boots welcome, bring and buy, Raynet supplies, raffle etc. Talk-in on 145.550MHz FM. Details from Tony, G1ULE, tel: 01760 338938.

20 June
RSGB Headquarters Summer Saturday Opening, Lamba House, Cranborne Road, Potters Bar, Herts EN6 3JE. RSGB shop / bookshop, GB3RS station, National Amateur Radio Museum and Library. Morse tests on demand (11.00am to 12.30pm only). Doors open 10.00am - 2.00pm. Details: Marcia Brimson, 2E1DAY, tel: 01707 659015 (office hours).

21 June
Newbury & District ARS Annual Radio Car Boot Sale, Cold Ash Playing Field, near Newbury. Sellers / traders to arrive at 8.00am, no earlier please. For further details contact Ian Trusson, G3RVM, tel / fax: 01635 826019; e-mail: G3RVM@compuserve.com

Please note that the Denby Dale (Pie Hall) Amateur Radio Rally Computer and Amateur Radio Fair, which was due to take place at Shelley High School, near Huddersfield on 21 June, has been cancelled.

25 - 27 June
Ham Radio '98 Friedrichshafen, Germany. See 'Rally of the Month' above.

28 June
Horncastle Rally, Horncastle Youth Centre, Lincs. Joint venture between youth centre and Fenland Repeater Group. Good access for disabled. Tables £2 (bookable and payable in advance), entrance £1. Further information from Tony Nightingale, G6CZV, tel: 01507 522482 or e-mail antony.n@virgin.net

5 July

Harlow and District Amateur Radio Society rally and car boot sale, at Mark Hall School, Harlow (A141) First Avenue (please note this is a new venue). Talk-in on 145.550 and 433.550MHz. Free entrance and parking. For further information, or for booking tables or car boot plots, contact Len, G7UFF, tel: 01279 832700; fax: 01279 864973; e-mail: len.brackstone@virgin.net

11 July
Cornish 35th Radio Rally and Computer Fair at Penair School, Truro. Large hall, bring and buy stall, Morse code tests etc. Doors open 10.30am and talk-in on 145.550MHz FM. Further details from Robin Worsley, GOMYR, tel: 01209 820118.

12 July

18 July
RSGB Headquarters Summer Saturday Opening, Lamba House, Cranborne Road, Potters Bar, Herts EN6 3JE. RSGB bookshop, GB3RS station, National Amateur Radio Museum and Library. Morse tests on demand (11.00am to 12.30pm only). Doors open 10.00am - 2.00pm. Details: Marcia Brimson, 2E1DAY, tel: 01707 659015 (office hours).

19 July
The McMichael Mobile Rally, the Haymill Youth and Community Centre, 112 Burnham Lane, Slough. Includes car boot sale at £10 per pitch on the day (no advance bookings). Doors open 10.00am. Admission: adults £1.50, children accompanied by adult: free. Talk-in on 145.550MHz. Trade bookings to Min Standen, G0UMS, tel: 0118 972 3504. Further details from Dave Chislett, G4XDX, tel: 01628 625720.

Humber Bridge Radio and Computer Rally, Costello Sports Stadium, Boothferry Road, Hull. One large hall with bring and buy, Morse tests. Details: tel: 01482 837032.

26 July
Colchester Radio and Computer Rally, St Helena School, Sheepen Rd, Colchester. Adjacent to Colchester bypass, Avenue of Remembrance. Wide range of radio and computer traders in two halls, Amateur Radio car boot sale, bring and buy, Morse code tests on demand (two passport size photos required). Free tea and coffee. Doors open 10.00am to 4.00pm. Admission £1.50, free parking, good access for disabled visitors. Details from David Magee, 2E1FRO, on tel: 01206 369226.

Rugby Radio Rally at the BP Truckstop, A5 Watling Street, near Rugby. Details from Arthur, MMASO, tel: 01788 550778.

To include your rally in this section, please make sure you send us details of your event in time: the deadline for the September issue is 13 July; for October, 14 July, and for October, 14 August, and for November, 10 September. The address for submissions is: The Editor, Ham Radio Today (Rallies), RSGB Publications, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE; fax: 01707 645105. We would be grateful if Ham Radio Today readers would ask their local rally organiser to send information on their rally to this address. If you're travelling a long distance to attend rallies, we recommend you contact the organisers of the events first, to check if there has been any changes since this magazine went to press.
The Friedrichshafen Ham Radio 98 exhibition is Europe's largest Amateur Radio exhibition. This year is the 23rd annual show, which takes place at the usual venue, the Friedrichshafen Exhibition Centre, in the town of that name, in Southern Germany.

This year, for the first time, visitors can enjoy two exhibitions for the price of one. The Ham Radio exhibition has combined with a 'HAMtronic 98' computer hardware, software and hobby electronics exhibition, to form an even larger event taking up a combined area of 24,000m² and occupying several halls of the giant Messe Friedrichshafen complex.

Another change is that this year the exhibition takes place from Thursday to Saturday, instead of Friday to Sunday. The change was made after feedback from both exhibitors and visitors, who were increasingly preferring to visit on the Friday instead of the Sunday of the show. The new times are to be piloted for an initial three years' trial and will be reviewed after the exhibition in the year 2000.

Ham Radio 98 features a wide and varied selection of interests and an immense trade presence with around 260 exhibitors from 40 countries. Over 20,000 visitors from all over Europe - and further afield - are expected to attend. Amongst those exhibiting will be Ham Radio Today, sharing the RSGB stand with an IOTA (Islands on the Air) display. The magazine will be introduced to European readers for the first time, and we hope they will enjoy what they see and will want to take out a subscription.

The 'QSL Collection', run by Wolf Harranth, OE1WHC, of ORF (Austrian Radio), now has more than 1 million QSL cards and will, as usual, be exhibiting at Friedrichshafen. They are still collecting unwanted QSL cards; so rather than throwing away your old cards, donate them to the QSL Collection instead. If you wish to donate any cards, send them to RSGB headquarters by 19th June and they will be shipped to the QSL Collection free of charge (packages should be marked 'QSL Collection, for the attention of Marcia Brimson, 2E1DAY').

In addition to all the major manufacturers, such as Icom, Yaesu, Alinco and Kenwood, displaying all the new equipment, Hall 6 is devoted to a giant 'flea market', with tables measuring a total length of 2km!

Other events taking place at the exhibition include a mobile competition and a direction-finding competition.

For the non radio enthusiast, Friedrichshafen is located in one of the most picturesque areas of Germany, on the shores of Lake Constance (Bodensee), with good access from France and Switzerland. On-site camping and caravan facilities are provided at a nominal charge.

The 'QSL Collection' will enjoy what visitors can expect to see this year and we hope they will enjoy what they see and will want to take out a subscription.

The Ham Radio Today August publication date is 25th July, and we hope they will enjoy what they see and will want to take out a subscription.

The Ham Radio and Hamtronic 98 exhibition is open from 9.00am - 6.00pm on all three days, and entrance costs DM12 per day. A discounted entrance 'badge' for all three days is available for DM25. There are discounts for children, OAPs and disabled people. For further venue / rally details tel: +49 7541 7080; fax: +49 7541 75290; accommodation / tourist information tel: +49 7541 21729.

**Other events**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>13 / 14 June</td>
<td>Scarborough Special Events Group, GX0000, 10th anniversary activity weekend.</td>
</tr>
<tr>
<td>14 June</td>
<td>Worked All Britain awards group AGM, Gothic Hall, Elvaston Castle, starting at 1400. G8UYD QTHR.</td>
</tr>
<tr>
<td>20 June</td>
<td>RSGB HQ Summer Saturday Opening, Potters Bar, Herts. Details: Marcia Brimson, 2E1DAY, tel: 01707 659015 (office hours).</td>
</tr>
<tr>
<td>21 June</td>
<td>RSGB 2nd 144MHz Backpackers Contest (0900 - 1300UTC) - please note this is a change of date.</td>
</tr>
<tr>
<td>21 June</td>
<td>RSGB 432MHz FM Contest (1800 - 2200UTC).</td>
</tr>
<tr>
<td>21 June</td>
<td>PW 144MHz Contest.</td>
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<tr>
<td>21 June</td>
<td>WAB 70MHz Phone Contest.</td>
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<tr>
<td>28 June</td>
<td>Longleat Rally.</td>
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<tr>
<td>28 June</td>
<td>WAB 144MHz QRP Contest (0900 - 1500UTC).</td>
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<tr>
<td>29 June - 3 July</td>
<td>Lions International Convention, NEC, Birmingham, inc special event station.</td>
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<tr>
<td>3 - 5 July</td>
<td>ARIM 30th anniversary, Morokouien, Swedish / Norwegian border. Details LATTIA, tel: 00 47 628 26920. RSGB 2nd 432MHz Backpackers Contest (1300 - 1700UTC).</td>
</tr>
<tr>
<td>4 July</td>
<td>VHF National Field Day (1400 - 1400UTC, 70, 144, 432 and 1296MHz).</td>
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<tr>
<td>5 July</td>
<td>RSGB 3rd 144MHz Backpackers Contest (1100 - 1500UTC).</td>
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<tr>
<td>5 - 12 July</td>
<td>Northern VHF Activity Group expedition to IO66 and IO67, Isle of Barra.</td>
</tr>
<tr>
<td>8 July</td>
<td>Ham Radio Today August publication date.</td>
</tr>
<tr>
<td>11 / 12 July</td>
<td>IARU HF Championship (10 - 160m SSB / CW, 1200 - 1200UTC).</td>
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<tr>
<td>12 July</td>
<td>RSGB 2nd 50MHz Backpackers Contest (1100 - 1500UTC).</td>
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<tr>
<td>12 July</td>
<td>WAB 50MHz Phone Contest (0900 - 1500UTC).</td>
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<tr>
<td>18 July</td>
<td>RSGB 144MHz Low Power Contest (1400 - 2200UTC).</td>
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<td>18 July</td>
<td>GB350BOP special event, 350yrs English Civil War.</td>
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<td>RSGB HQ Summer Saturday Opening, Potters Bar, Herts. Details: Marcia Brimson, 2E1DAY, tel: 01707 659015 (office hours).</td>
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<tr>
<td>18 / 19 July</td>
<td>Special event station GB4HMM at Holyhead Maritime Museum, Anglesey.</td>
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<tr>
<td>18 - 20 July</td>
<td>Special event stations E11M at Dun Laoghaire. RSBG 432MHz Low Power Contest (0800 - 1400UTC).</td>
</tr>
<tr>
<td>19 July</td>
<td>National Guide Jamboree, Wirral, inc special event station.</td>
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<tr>
<td>24 - 31 July</td>
<td>Waters &amp; Stanton PLC 25th anniversary sale, 22 Main Road, Hockley, Essex (9.00am - 6.00pm).</td>
</tr>
<tr>
<td>25 July</td>
<td>GB350BOP special event, 350yrs English Civil War.</td>
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<tr>
<td>25 July</td>
<td>RSGB IOTA Contest (10 - 80m SSB / CW, 1200 - 1200UTC).</td>
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<tr>
<td>25 / 26 July</td>
<td>AMSAT-UK Colloquium, University of Surrey, Guildford (details: Fred Southwell, G6ZRU, tel: 01731 195733.)</td>
</tr>
<tr>
<td>31 July - 2 August</td>
<td>Ham Radio Today August publication date.</td>
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</table>
**Yaesu FT-100 Previewed**

First with the new product news, Ham Radio Today looks at Yaesu’s amazing **new ultra-compact HF / VHF / UHF mobile transceiver**

Even before the Yaesu FT-847 HF / VHF / UHF ‘base station' transceiver became available in the UK, came news of Yaesu’s latest creation. In fact, we hinted as much back in the April issue, when we reported that Yaesu were “developing something interesting for the car”. Well, this is it. Although it won’t be available for several months yet, the FT-100 is set to be the most talked-about rig since the Icom IC-706.

**In brief**

So, what will you get for your money? In effect, the FT-100 is a mobile version of the FT-847, and basically covers the same bands, ie 160m to 70cm (although there is no word yet as to whether the UK version of the FT-100 will cover the 4 metre band - as the ‘847 does).

Although clearly intended as a mobile rig, it is certainly not a ‘basic' transceiver and there are sufficient built-in 'bells and whistles' for it to be used as a base station transceiver. In appearance, it looks very similar to the Icom IC-706, but is slightly smaller and lighter.

The front panel looks clean and uncluttered, with a large, bright, LCD multi-function display, which is light blue in colour and reminiscent of the FT-847’s display. The relatively few buttons and switches belie the number of functions provided, the FT-100 using a ‘menu' system, as with many similar rigs, to provide these facilities.

**specs**

The FT-100 has a very wide band general coverage receiver which tunes from 100kHz to 970MHz, although cellular / digital telephone frequencies are blocked. On transmit it covers all the HF bands from 160 to 10 metres, plus the 6m and 2m VHF bands, and 70cm on UHF. Despite its tiny size, the rig is quite a power house. It puts out 100 watts on HF and 6m, 50W on 2m, whilst on 70cm the power output is 20W. Of course, all modes are provided - including AFSK and both 1200 and 9600 bps packet radio operation, in addition to the usual SSB, CW, FM and AM. CW operators, however, may be disappointed that narrow filters are an optional extra: the FT-100 comes with a 2.4kHz SSB filter, but a wide AM 6kHz filter, as well as 500Hz and 300Hz CW filters, are options. Against this, CW operators will be pleased that a built-in electronic memory keyer is included. 200 memory channels are provided.

Incredible as it may seem on a rig this size, DSP (digital signal processing) on the receiver is standard (the UT-106 add-on DSP unit for the Icom IC-706 Mk II, which is reviewed on page 31 this month, is now being fitted on new 706 Mk IIIs sold in the UK - Ed). The DSP facilities in the FT-100 include an audio bandpass filter with independently variable upper and lower frequency cut-off, automatic notch filter to remove annoying heterodynes and other unwanted ‘whistles', and digital Noise Reduction facilities. Other QRM-busting facilities provided include an IF shift control and IF noise blanker.

For the SSB operator, a speech processor is included, as well as VOX (automatic voice-operated transmit switching) operation.

Around the back of the case, there are two antenna sockets, one used for the HF bands plus 50MHz, and the other for 144 and 430MHz. The Yaesu hand microphone provided, which looks coincidentally large compared with the size of the set itself, plugs into a socket on the side of the front panel. A limited number of functions can be controlled from the microphone.

In such a small transceiver there is, of course, no AC mains power supply built in: the rig is, after all, primarily intended to be used whilst mobile or portable.

**mobiling**

So what does the FT-100 offer for the dedicated mobile? In addition to the obvious - size, convenience, frequency coverage etc - the FT-100 has built-in CTCSS (sub-tone) encode and decode for repeater access and quiet band monitoring. All the UK 6m repeaters are CTSS controlled (rather than using a 1750Hz tone burst), and more and more 2m and 70cm repeaters are going over to CTSS access too, so this is a real plus.

DCS (digital coded squelch) encode and decode, as used on a number of Yaesu’s other VHF / UHF transceivers and the FT-847, is also provided, to allow for quiet monitoring of FM channels. Automatic repeater shift is included, and, according to the Yaesu web site, facilities such as ‘Auto-Range Transponder System', 'Smart Search Automatic Memory Channel Loading System' and ‘Quick Memory Bank (OMY)'

**options**

In addition to the three IF filters already mentioned, an FC-20 external antenna tuner is available as an option (due to the small size of the transceiver, there is no internal ATU).

The FT-100 is compatible with Yaesu’s ATAS-100 'Active-Tuning Antenna System' - basically an up-market mobile whip. The ATAS-100 is described as a 'revolutionary new mobile antenna system', and automatically adjusts itself to the best SWR on HF and 50MHz, by changing the length of the antenna’s unique motorised 'accordion' tuning section. On 144 and 430MHz, the ATAS-100 requires no tuning, functioning as a quasi-wave and five-eighths wave antenna respectively.

**summing up**

Don’t go rushing off to your local store to have a play with an FT-100 just yet. According to the Yaesu USA web site, they are not expected to be available in the USA until the autumn, and - because of the additional time required for CE approval - it will be later here in the UK. Expect to see the first examples at the Leicester Show in September, with stocks a little later in the year. The UK price has yet to be set, but according to Martin Lynch it will be about £1299. To this must be added the price of a 20A 13.8V DC power supply if you wish to operate the rig as a base station, although it is fair to say that most Radio Amateur’s shack already contain a suitable PSU.

Information on the rig is already on a number of web sites, including in this country the ML&S (Martin Lynch & Sons) site at: www.mlands.co.uk/product-guide/ft100.ht If you’re not on the web, give ML&S a call on 0181 566 1120 for further information.
Dayton Hamvention - Wish You Were There?

A report on this year’s Dayton Hamvention, with contributions by Neville Cheadle, G3NUG; Marcia Brimson, 2E1DAY; and ARRL HQ staff

The Dayton Hamvention is the world’s largest Amateur Radio gathering, with over 30,000 hams from all over the world descending on the small town in Ohio, USA (famous for the Middle East peace meeting).

Many go to socialise with friends they usually only meet on the air. Others go to attend the forums and special-interest events, such as the ORP Amateur Radio Club International ‘Four Days in May’ event, the DXers dinner and the ARRL Contest Dinner, sponsored by the American CD magazine. For many others, the giant flea market is the thing.

This year’s Hamvention took place between 15 and 17 May, and, as usual, the weather was hot and sticky. For the first time, Ham Radio Today was there. The magazine was for sale on the joint RSGB / IOTA / Ham Radio Today stand, where the sales team of Marcia Brimson, 2E1DAY, and Sylvia Manco, 2E1CYL, were doing great business. RSGB General Manager Peter Kirby, G0TWL, and President Ian Kyle, G1BAYZ / MIOAYZ, were also representing the RSGB in an official capacity; whilst IOTA Manager Roger Balister, G3KMA, and IOTA Committee Chairman Martin Atherton, G3AZY, looked after the Islands on the Air display.

In all, around 300 exhibitors were open for business in the halls, and another 2700 set up shop in the flea market area, for which Dayton is really famous. The ARRL (American Radio Relay League - the US national society) were selling their TravelPlus for Repeaters CD-ROM and updated General Class License Manual. They were also demonstrating a new QST View CD-ROM, which includes issues of the ARRL’s magazine going all the way back to 1930.

Dayton is typically the time for manufacturers to show new equipment for the first time. What is shown at Dayton often comes over to the UK several months later.

**Icom and Yaesu**

Icom wowed the crowds with its new IC-PW1 1kW amplifier for HF and 6m, and the tiny new dualband mini-power radio, the IC-07, reviewed in this issue of Ham Radio Today. Icom’s new IC-2100 2m mobile (reviewed last month), the IC-780 triband handheld, and the IC-746 HF plus 6m transceiver (both reviewed in March) were also on show.

This year, Yaesu was not saying what it had in store for Dayton before the event, but surprised everyone with the amazing little FT-100 all-band (160m to 70cm) transceiver. Ham Radio Today is able to bring you full details of what will surely be a major talking point - see page 24 in this issue.

Also attracting a lot of attention on the Yaesu stand was the fully-equipped Honda Goldwing motorcycle owned by Bob Curry, KC3VO. He has equipped the bike with a Yaesu FT-800 AT HF transceiver, FT-550 dualband handheld, GPS navigator, cellular phone, CB radio, and CD player with 100W audio amplifier and subwoofer. In the trailer he tows behind the motorcycle is a Yaesu FT-847 and VL-1000 X-7 beam, the ‘big brother’ of the X-9 beam, which was on display at the Alinco stand. Bob has even installed a petrol generator in the trailer.

Around the Stands

The long-awaited SGC-2020 compact HF 20W transceiver was on display at the Hamvention, whilst at the Alinco booth, following the success of the DJ-C1 and DJ-C4 single band ‘credit card-size’ transceivers for 2m and 70cm, Alinco introduced its new dualband ‘credit card’ handheld, the DJ-CS (see ‘Trade Topics’ in May issue).

The American firm Ten-Tec was expected to debut its new PC-based model RX-320 ‘black box’ HF receiver at Dayton. Their Titan II, a single-tube, full-legal limit, HF linear which will be available this autumn, was also on show. The commercial RX-340 DSP HF receiver was also there. ADI had its new compact 5W handheld for 6m on display, whilst on the combined MFJ / Ameriton stand, the new Ameriton ATR-30 ‘true legal limit’ (ie 1500 watt plus) HF ATU was on sale at around $600. From MFJ a pair of lightweight switching power supplies proved popular with DXpedition operators. The Mississippi company also had their updated MFJ-259 Antenna Analyzer on show at Dayton. MFJ founder, Martin F Jue, also stopped by at the Ham Radio Today / RSGB stand to say hello.

There were new antennas on display from both Butternut and Cushcraft, including the latter’s X-9 beam, the ‘big brother’ of the X-7 reviewed in the May issue of Ham Radio Today.

Although not known here in the UK, the American EleCraft firm had its K2 HF 160 - 10m SSB / CW transceiver kit, designed by N6KR and WA6HQQ, on display. This is a fully-synthesised, microprocessor-controlled radio with ‘no wires’ construction. The CW-only version sells for about $600 in USA.

As usual at Dayton there were terrific bargains to be had in the ‘flea market’. Computer books, normally retailing at $25 each, were on sale at two for $10. Second-hand transceivers usually fetch only low prices in USA, and there were plenty of bargains for UK amateurs, providing they could physically carry them back on the plane!

There’s a Dayton Hamvention website with more information for those who may be considering a trip next year: see http://www.hamvention.org
Transceivers are getting smaller almost by the day, and Icom's IC-Q7E is the latest to join the group of tiny fully-featured handhelds having a 'footprint' size that of a credit card or even smaller. Measuring 58W x 86H x 27Dmm you can easily carry it with the palm of your hand, and its smooth rounded corners make sure it fits comfortably in your palm as well as in your pocket. You won't need expensive or hard-to-get batteries for it either, because the IC-Q7E is powered by two AA cells - you can use low-cost AA nicads or nickel-metal hydride cells, together with your own AA battery charger, or of course batteries such as alkalines for standby use or more capacity for a given operating event.

Like many other miniature transceivers, the IC-Q7E is designed for local contacts, the transmitter offering 350mW on 2m and 300mW on 70cm when it's powered from a 3.0V supply (ie using dry batteries), and slightly less when using nicads.

The front panel has a minimum number of push button controls for easy operation, these being complemented by a click-step rotary knob on the top panel. But don't let the apparent simplicity fool you; the in-built 'set' mode has no less than 25 rotary tuning steps. The IC-Q7E has programmable functions to make the transceiver extremely versatile. With this you can preset operating functions such as the tuning step, dial setting, duplex shift and offset, scan settings such as individually programmable pause and resume times, together with several 'priority watch' modes, dial tuning speed, auto power off, power save and so on. There's full CTSS encode and decode fitted as well as a 1750Hz toneburst for repeater access, there's even a handy CTSS 'tone scan' facility to let you find which sub-tone (if any) is present on the channel you're tuned to.

Yet the IC-Q7E isn't just a 2m / 70cm transceiver. The receiver covers 30 - 1300MHz continuously, with reception modes of FM, AM, and Wideband FM. 200 memory channels are provided, together with two 'call' channels, giving you plenty of available memories to store your favourite frequencies for scanning as well as for quick manual selection.

To find new activity, you can program 20 'search bands' - ie lower and upper frequency limits - in any of the memory channels, for the receiver to scan in your programmed VFO steps. Like many 'top-range' scanners, the IC-Q7E also has a 'frequency pass' facility, where if the scan or search halts on some unwanted frequencies, such as beacons, they can be programmed to be skipped on subsequent searches. This facility automatically uses the upper memory channel allocations (ie channel 200 downwards) for storage of the 'frequency skip' channels.

**Accessories**

The transceiver comes supplied with a detachable belt clip and hand strap as carrying aids, and a wideband rubber whip antenna is supplied for portable use. This screws on to an SMA coaxial connector on the top panel, which allows you to connect an external antenna if you wish for home or mobile operation. A four-conductor 3.5mm jack socket is also fitted on the top panel for use with an external speaker microphone. A plug adapter cable is available as an option to convert this socket to the more usual twin 2.5mm and 3.5mm jack sockets. An earphone, carrying case, headset, speaker microphone and nicad charger plus battery set are also available as options for the transceiver.

**In use**

After fitting a couple of charged batteries, I found I was up and running with a simplex contact in less than a minute, without even reading the instruction book. It took me a while to work out how to switch in a repeater shift though - here's where I did need to take a good read of the supplied 38-page manual!

The IC-Q7E's receive audio level is controlled by the up / down volume buttons, and the small front panel 'SOL' button acts as a squelch defeat, either momentarily or on / off toggle, depending on your preferences. This also acts as a 'listen on input' monitor on channels I'd programmed a repeater offset into. Used together with the rotary channel knob this presets the squelch level, to either 'Open', or 'Auto' which uses a noise pulse-count technique, or to one of nine preset squelch levels. I invariably kept this in 'Auto' mode, as I found that even the '1' squelch level was a little too high for my liking - I prefer never to miss even weak but readable signals!

Despite its small size, I found there was ample audio from the front panel speaker; I could turn it up to quite a reasonable level for outdoor use before distortion set in.

**Portable**

Out portable around my locality, I found the sensitivity of the receiver to be, surprisingly, a little 'down' on what I'd have expected on both 2m and 70cm, and despite the fairly long set-top antenna. I presume this is because it's optimised for wide-band coverage rather than just the two specific ham bands it will transmit on. However, on 70cm I was surprisely again to be able to get into my local repeater when I was in a noted 'black spot', specifically in my back garden where I normally have to position carefully even a 2W 70cm handheld to get in.

Using the set at night highlighted the excellent LCD backlight, which automatically illuminated for a few seconds each time a front panel control or the click-step tuning knob was turned.

Is it a scanner, is it a handheld? It's both. It's Icom's IC-Q7E Reviewed
used, no need to fiddle about with extra buttons here. A further nicety was a small battery indicator, which showed two segments (replicating a small battery in shape) when the battery voltage was OK. This went down to one segment when it was getting low, and started to flash when it was nearly discharged to warn that it’s time to finish the contact or to be prepared to pop in a freshly charged pair of batteries. During the review period I normally used a pair of 1300mAh nickel metal hydride batteries (£2.50 each from Strikalite, who exhibit at several ham rallies). I found these easily gave me a full weekend’s worth of listening with the occasional period of transceiver operation thrown in.

**operation**

There were only a couple of things I didn’t like about the IC-07E. One was the four-pin jack socket, which you can’t use with a normal mono or stereo jack plug for earphone listening. Have you tried to buy a four-contact 3.5mm jack plug anywhere? I have, and have failed dismally. Thus it’s down to buying the optional adapter for earphone or extension speaker use, or indeed for packet. The antenna connector, although being a small SMA type, one can, however, easily find adapters for, I picked one up in my local high street.

I sometimes used the front panel buttons were a little larger, although I suspect that if they were, they would get pressed accidentally when the set was carried inside a pocket.

The transceiver uses a small ‘function’ bar beneath the side-mounted PTT to ‘double up’ the number of functions, such as scan initiation. But this is often a two-handed affair in operation, which is sometimes a little difficult if you’re carrying something else like a briefcase (as I often do) while you’re walking along with the set. For example, switching the repeater shift out in VFO mode (eg after moving from a repeater to a simplex channel) entails keeping the V/M button pressed for a couple of seconds, then rotating the channel knob until ‘DUP’ is displayed, then holding the function button in whilst simultaneously rotating the channel knob to read ‘OFF’, and then pressing one of the other keys such as S/O, V/M, or the PTT. But then, I suppose it does save having to have a large number of buttons on the front panel.

I did eventually find an easier way, though, so I mustn’t moan too much: Icom have allowed the contents of any of the memory channels, including channels steps, mode etc, to be transferred to the VFO with a quick press of the ‘Band’ button. So I eventually stored a number of ‘default’ channels into successive memories, which I could then use as a multi-band and multi-parameter ‘recall’. Tuning away from these in VFO mode whenever I wished. For one-handed operation I was also pleased to find that, although the ‘call’ button acted as a 1750Hz toneburst for the transmit harmonic levels, it was also programmed to automatically ‘speed up’ its tuning when it’s turned quickly, also a press of the ‘function’ button lets you move in larger frequency steps (eg 1MHz or 10MHz) to get from one part of the set’s wide frequency coverage to another. The AM receive capability is useful for airband reception on my local repeater at the same time, to make sure I didn’t miss anything! In all, a full-featured wideband VHF / UHF receiver as well as being a handy transceiver for local use.

**lab results**

The measured receive sensitivity was reasonable, although a little down on 70cm compared with other bands on the set, possibly explaining the on-air results. The intermodulation rejection wasn’t as good as some other dual-band handsets, although the image rejection levels were excellent, the set using a first IF of 266.7MHz which undoubtedly helped here. I did find some spurious responses at multiples of plus and minus 100kHz from the tuned frequency. These were around 50 to 60dB down, depending on how far away they were from the wanted carrier, although they disappeared after 400kHz and more away. It’s surprising what comes up in lab tests which you don’t always find on the air, although it must be remembered that the IC-07E is intended as a small handheld - like similar sets it’s not designed to offer full-blown base station performance.

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deviation, tone deviation were accurately set. The frequency accuracy was excellent. The transmit power output measured using fully charged nicads was lower than the 350/300mW level typically specified for a 3V supply, as I always attempt to replicate ‘typical use’ nicads being nominally 1.2V per cell rather than 1.5V as for a dry cell. However, the power level measured was still quite reasonable, and it certainly didn’t drop substantially with this lower supply voltage.

Opening up the transceiver reveals a well-screened inner circuit arrangement on the RF side. Two small potentiometers, marked "V" and "U" are visible next to the synthesiser VCO, I’d imagine these to be the peak deviation controls (although I could be wrong!), thus suggesting that eventual adjustment to a lower deviation setting for 12.5kHz channel spacing should be reasonably easy.

**conclusions**

Icom have combined a tiny but feature-packed wideband VHF/ UHF handheld scanner with a 300mW dualband handheld. It’s a small and easily-carried size, both in your hand or clipped to a belt, and it can be operated easily in memory mode using the top panel knob with an instant shift to full-tuneable operation from memory with a single front panel button push. The set’s initial and operational cost is kept down by using readily-available AA cells for power which you supply yourself. These are invariably much cheaper than having to buy a dedicated battery pack.

The IC-07E costs £215. My thanks go to Waters & Stanton PLC, 22 Main Road, Hockley, Essex SS5 40S, tel: 01702 206835, for the loan of the IC-07E for review.
DSP Add-On Unit for Icom IC-706MkII

Chris Lorek, G4HCL, tests Icom's new plug-in board which upgrades the receiver in the IC-706MkII to a DSP unit

The Icom IC-706MkII is already a very popular transceiver, offering all-mode coverage of HF, 6m and 2m in a very compact unit. Many amateurs use it as their main rig, as well as finding it a handy size for mobile and portable operation.

Several 'top of the range' base station HF transceivers are now equipped with DSP (Digital Signal Processing) facilities, offering DSP-based noise reduction and automatic notch filtering. I've personally used an external W9GR DSP filter for some time with my Yaesu FT-990, finding this extremely useful in supplementing the built-in upper/lower cut audio filtering - I wouldn't be without it now when DX chasing.

Despite the innards of the IC-706MkII being absolutely packed, the designers have left a small space, just big enough for the new UT-106 DSP receive unit. The same unit also integrates with Icom's PC-controlled IC-PCR1000 wideband receiver, offering similar facilities.

Installation

Although it's a 'plug-in' unit, I found that fitting the UT-106 into the IC-706MkII was slightly fiddly due to the very compact nature of the construction. The transceiver top and bottom lids need to be removed, and one of the wired connectors on the upper side needs to be unplugged and carefully routed back through the side of board to the lower side of the set's chassis, where the UT-106 fits. This connector plugs into the DSP unit, with a further wired connector from this unit plugging into the original connector position, which again requires careful routing.

I found it easier to do this by first removing the adjacent PCB ribbon connector lead from the chassis. Finally, a further short connection cable fits between the DSP unit and a connector on the set's PCB, next to the DSP unit. A double-sided sticky pad is supplied to fix the unit to the chassis. A careful routing of the set's displaced leads, a refit of the lids, and the upgraded IC-706MkII was ready to go.

Operation

The DSP unit is controlled from the 'Menu' facility on the transceiver, using the 'S4' sub-menu display. The soft keys below the LCD switch the ANF (Automatic Notch Filter) and NR (Noise Reduction) on or off, and either or both can be used at any time. The final button (indicated 'NRL') changes the display to give you an indication of the NR level, the adjacent click-step 'M-CR' varying this in 16 pre-set steps.

The ANF automatically attenuates beat tones, tuning signals etc, even if these are varying, and this functions in SSB, FM and AM modes. The NR function reduces noise components and is designed to help you pick out signals that would otherwise be masked by noise. The received audio components are converted to a digital stream and then the 'correlated' (ie desired) signals are separated from the 'uncorrelated' noise.

On the Air

The IC-706MkII already has a sensitive receiver for weak signal work on the higher bands, and switching in the NR made it even better. I found the background noise on all modes could be nicely reduced, although if I set the NR level greater than around the '8' (mid-point) setting, the resultant audio did tend to become rather "nasal" sounding and hollow. This is typical of virtually every audio-based DSP system I've used. I particularly found it useful for weak-signal reception on 2m and 6m, as I tend to suffer somewhat from neighbouring noise sources on 6m. The NR facility did help with this. Likewise, whilst monitoring for signals on the 'centre of activity' frequencies on 2m and 6m SSB, the NR helped to reduce listening fatigue.

The automatic notch facility was also useful, mainly on the crowded HF bands. Being an audio-based system, it could not prevent 'monster' carriers blotting out the wanted signal when the receiver's AGC cut in, but in these cases the set's normal IF shift control came in useful.

Conclusions

The IC-706MkII is already a well-equipped, compact and very versatile set. The addition of the UT-106 adds audio-based DSP filtering to this, making it even better, at a cost considerably less than you'd have to pay for a typical external DSP unit.

Thanks to South Midlands Communications Ltd (tel: 01703 251549) for the loan of both the IC-706MkII and the UT-106 to test. The UT-106 is available for around £59.95.

Fitting the UT-106 board can be a little fiddly - but the results make the effort worthwhile.
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**High Performance Linear Transverters**

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<th>Model</th>
<th>IF Freq.</th>
<th>Output Band Power</th>
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November 1992. A two-week holiday in Florida with my children. Having passed the FCC USA Amateur Radio licence test at a VE (Volunteer Examiner) session in Hollywood, Florida, I drove south to Key West. At the marina there I heard someone say, "Think, it is only 100 miles to Cuba" and I said to myself, "I'll go there one day".

5 years on
November 1997. Some of my friends from Stockholm had gone to Cuba to participate in the CO World Wide CW contest as T49C. I caught them finally on Sunday afternoon on 15 and 20 metres: it seemed that everything was OK (ie, they hadn't been imprisoned). On Monday I spotted an offer at one of the travel agents: a package tour from Stockholm to Cuba, including visa and two weeks at a three-star hotel for US$500. Did I hesitate?

I checked 15 metres: no

Our Ham in Havana

There's an awful lot of hams in Cuba, so why don't you t
the Caribbean isla

Varadero - a strip of beaches and hotels some 85 miles east of La Habana (Havana). Closed to common Cubans, and everything is priced in US dollars. Canadians, Italians, Spaniards, Germans and recently Scandinavians come here to get shocked when they get charged a dollar for a glass of water, four for a beer. With the smell of crude oil and natural gas coming from the oil rigs scattered along the coast, I felt like I was somewhere in the Persian Gulf. There is, however, a basic difference: there are thousands of enthusiastic hams in Cuba.

I walked the streets of Varadero and spotted some wires on the roof of a block of flats a few hundred metres away.
Our Ham in Havana

This is a feature in Ham Radio Today.

In Havana I easily found the headquarters of the Cuban national Amateur Radio society, Federacion de Radioaficionados de Cuba (FRC). A 90ft tower supports a triband beam just opposite the Italian Embassy. Of course, I met Winston, CO2WF. He is 26 years old. With him were his wife Lizette and brother Edwyn, who were to take the amateur licence test together with 30 other candidates. So it was noisy and crowded, with young boys and older men queuing for different tests. There is no code-free licence in Cuba. To us, the licence fee seems very low - 10 pesos (some 45 cents) for three years. The licensing authority, Radiocuba, has its official presence at the tests, which take place every month.

I met many hams at FRC. The president himself, Pedro Rodriguez, CO2RP, the grand ole' man of Amateur Radio in Cuba, Oscar, CO2OM, who is 78 and on the DXCC Honor Roll; and his son, CO2QJ, also Oscar. The vice-president Francisco, CO2HA; Cristian, CO2WW; Antonio, CO2AA; Juan Carlos, CO2WZ; and Conrado, CM2CO. In some cases it seems that the 'vanity call' programme - recently introduced in the States - has been effective in Cuba for many years, as many callsigns are made up of their owners' initials.

The atmosphere was very informal - a ham who's a barber gave me a haircut, some guys offered me rum and cola, and a meal was served to everyone. I received a special treat - the typical Cuban dish of rice with black beans, malanga root with garlic, some tomatoes and green cabbage.

Antonio, CO2AA, allowed me to visit his home and see the shack. I wondered how equipment such as he has came to be in Cuba. Antonio explained that Cuban troops were in Angola in the 70s and they brought the Yaesu FT-101 with accessories back with them. I didn't ask if the equipment was used by the troops or was a war trophy. I then recalled my meeting with a few hams in Lisbon, Portugal, earlier in the year and how they told me about their past in Angola.

The next day I visited Winston, CO2WF. His wife and brother Edwyn, who is a ballet dancer, passed the test the day before and were hoping to receive their callsigns soon. Well, it is in the family, explained Winston. His father was CO2WR but now lives in the USA, and his uncle Nelson is WQ2N in Pennsylvania, USA. It is the uncle that helps Winston with the equipment, so he is quite fortunate in Cuban terms. He likes DXing but getting QSL cards is tricky. With a salary the equivalent of US$15 - 20 a month, one cannot meet the demands of some DX stations and QSL managers.

mystery solved

I am back in Varadero. I insist on solving the mystery of the radio club in Varadero, especially since even the president of the FRC mentioned that it is there. So one evening I go and search for 22nd Street. Finally I take a brave step - I cross the motorway. When I come to one of the houses I can hear voices and typical 80-metre band noise through an open window. I see the callsign CO5ENA on the door.

I am welcomed by Alberto, CO5AM, and his wife Belgica, CL5NN: the club is in their home. Two young newly-licensed boys talk on 80 metres with a station in the eastern province of Cuba, Oriente. Yandis, CL5ENB, and Osmani, CL5ENC, are both 18 years old and received their licences just a week earlier. They are so enthusiastic they go to see Alberto every evening. Both speak English with ease. One wants to be a businessman, the other an electronics engineer, but right now they're radio-crazy.

reflections

There are over 2500 licences issued in Cuba. Yet it is not easy to work them on the air. One reason is certainly the lack of equipment and that the existing equipment is obsolete and not always in good shape (just like the vintage cars on Cuban roads). The other reason, in my opinion, is that too little emphasis is put on antennas there. The majority of hams use wires that are not effective. However, once they gain access to modern gear and better appreciate the importance of efficient antennas, there is going to be a lot of on-the-air activity from CO-CM-CL: the potential is certainly there.

There is a wind of change blowing over Cuba. Christmas was celebrated last year for the first time since the revolution. Over one million tourists visited Cuba in 1997. The use of the US dollar is widespread. Yet, the majority of Cubans do not want to be a part of the USA. They are disillusioned with the economic experiments, but they still worship Fidel Castro and Che Guevara.

Someone asked me why I decided to visit Cuba. I lived 30 years of my life in post-war communist Poland and remember very well what every visit from 'the West' meant to us.
This month we are back to themes. I wondered for some time what aspect of radio would be a good idea to examine this month. First, I want to tackle Microwaves. Although I am an HF man heart, I have always had a lot of respect for those who go not just to the heady heights of VHF, or even UHF, but onwards and upwards to the world of microwaves. I confess I know little at all about these frequencies. My impression is that only small amounts of power are required, that at such frequencies plumbing is more the skill required than electronics, and that direct signals are required between two points. So, having shocked the microwave fraternity rigid with such culpable ignorance, let’s dive to the Internet sites and see what we can find. As usual, I refer in particular to the G7KPF and the Enchufados pages for guidance. These two URLs should be in your bookmarks ready for action for any Radio Amateur linked sortie. As usual now, the URLs for pages referred to are listed in Table 1 to avoid cluttering up the main page with lengthy and difficult addresses.

**rsgb pages**

The first page I came across was the UK Introduction to Amateur Radio Microwaves (UK). This referred me to the RSGB’s Pages. This initially disappointed me a bit. I was hoping for more than Rigs and Bandplans, but I was disabused of my doubts, as the pages on Microwaves are very helpful. In fact the RSGB pages are really little gems these days: full of useful stuff and good links to other pages.

Five scenarios are put to the aspirant microwave: it’s great for construction; it’s a boon if you’re a serious contestant; you could be into ATV; you might wish to work satellites; perhaps you are already into UHF and fancy doing the whole hog (please note, I am trying my best to avoid the expression ‘the Full Monty’), and you could build a transverter.

There seems to be one thing I need to take on board: the difference between 1.3GHz and 10GHz. The remark I made about plumbing seems to apply particularly at the higher frequencies with construction and parabolic antennas very much the norm, whereas at 1.3GHz, a Yagi is still feasible and there is some commercial equipment available for the faint-hearted. It is the higher frequency too where mW are used. Find out about Gunn Oscillators, Gosh. I’m hooked on this.

On satellite working I can do no better than to quote direct from the page: “Mode S requires a 70cm SSB / CW transmitter and a 2.4GHz SSB / CW receiver and supports CW and voice. Many people use a 2.4GHz to 2 metre converter with a 2 metre SSB / CW receiver. Satellites using 2.4GHz are AO-16 and DO-17, which both have 2.4GHz Beacons, although in both cases they are usually not switched on. AO-16 has a beacon on 2401.14280MHz, transmitting 1200 BPS data and DO-17 on 2401.22050MHz, transmitting 1200 BPS BPSK data.”

I find that a bit hard-going for an introduction. But this is no doubt a valid way to explain what happens. There are also a reference to the AMSAT-UK pages.

What would you do with microwaves anyway? Well, it seems that they are ideal for data using FSK and should be good for much faster throughput, but also there is scope for digital encoding of voice signals which would wipe out cross-channel interference or malicious use of repeaters by call barring. “This is a very exciting future for Amateur Radio, and the microwave bands are the place to do it,” enthuses the writer.

There are other publications, especially the Microwave Newsletter, but these need a subscription. They do not appear on this Internet site (but see below under G3PHO).

**arrl**

Turning next to the ARRL, they seem to have revamped their site access and also contained very technical, but doubtless very erudite, information and articles on microwaves. Definitely not a starting point for the beginner. I found articles on every aspect of microwaves, but no specific reference to Amateur Radio. I am beginning to think that microwaves are not as easy to find out about as I thought.

**British gem**

Thank goodness then for Peter Day, G3PHO, in Sheffield, whose pages are a breath of fresh air. His pages are full of enthusiasm, and above all they are both encouraging and readable. Now I find out there are good results to be had at 24GHz and 47GHz too, and many times conditions allow even continental working. Construction isn’t an unsurmountable problem after all. It also transpires that Peter is the RSGB Microwave Newsletter Editor.

The site contains photos and maps of microwave achievements and details of contests, news and events and is of interest to the beginner and more experienced user alike. Now I know I should be talking about the “millimetric bands.” I am feeling more encouraged. At this site under Software, you can FTP useful articles, detailed database of references to microwave technical articles from the RSGB Microwave Newsletter, DUBUS, VHF Communications, etc. Really useful.

It seems that microwave technology is in fact 50 years old and the record for 10GHz is 1912km, which is somewhat more than line of sight! Read about Xylostron transmitters, waveguides and a very creditable record of experimentation and development by many G stations over the years. In particular, it seems, Charlie Suckling, G3WOD, almost single-handedly changed the face of 10GHz operation. There are quite a few other names in the annals of microwave history.

**European news sites**

Let’s move on the European Microwave News (EMN) site, whose webmaster is Simon...
Amateur Radio Microwave sites on the Internet

Lewis, GM4PLM. This is a good set of pages also: informative, interesting with an EMN Construction database, Newsletter, information on propagation and recommended book list. So I now discover from my initial very poor grasp of the subject, that propagation at microwaves can be Line of Sight (LOS), Refractive, Reflective, Tropospheric, or even aircraft scatter can come into it. Weather and atmospheric conditions can also have a marked effect.

The microwave bands are still new ground and we are constantly discovering new information about them. Experimentation is still playing a major part of our operating on these bands and we can all play a large part in the discovery of new propagation modes and techniques. This is the real stuff of Amateur Radio: microwaves seem very much to be in this pioneering mould.

marsport and dubus

Simon's EMN pages have a good links page. One name I keep hearing is DUBUS, so I followed the DUBUS UK Link and ended up at Marsport pages run by G4PMX. It seems DUBUS is an Anglo-German newsletter for the 'serious' VHF-and-up operator. It is something one subscribes to. From what I saw, it would appear to be for the experienced rather than the beginner. There are other useful pages on the Marsport pages, including software links for antenna design, propagation etc. All good stuff. Read it.

The Swiss ATV site, to which I linked, is principally in French, but with some articles in English. I looked therefore for Microwaves (or even Microondes) and came up with Nouveau relais-balise ATV lémanique sur 10GHz (an ATV 10GHz Repeater / Beacon: this article is not in English). There is a world record page and I now discover someone even plays at 241GHz and attained a record of 2.1km. My great-grandmother described the gas oven as "flying in the face of the Almighty." This surely comes into the same category! The site, by the way, is very well presented. I suppose having all those mountains must be useful for microwaves. The emphasis, on ATV, and whilst some may find the language bias to French difficult, it's worth a visit.

San Bernardino Microwave Society's page is well laid out and interesting. They run a newsletter all of whose articles seem to be included in the pages. Look at the pictures of their equipment and operating. One notes with a smile: "all of the rumors about big foot operating in the last contest aren't true . . ." from the pages. The intriguingly titled 'Comments, Rebuttals and Opinions' was empty! Not a deal here for the beginner. I note the most useful page they link to is Peter's, G3PHO. Well deserved too.

clusters and newsgroups

There is a Cluster Page which supposedly gives five minute updates of microwave activity (a bit like the PacketClustersystem I suppose) but when I visited it, it was days adrift, unless there was no activity worth reporting. During contests, perhaps it is more used.

Of the newsgroups, I found alt.ham-radio.uwave; alt.ham-radio.vhf-uhf; as well as anything that appears in the general groups. I did note a specific group in Fidonet, but most of us will not have access to it unfortunately.

This was intended to be another voyage of discovery via the Internet. As I said at the beginning of this themed series of articles, often I start out quite in the dark about a subject, which makes the discovery all the more enjoyable. I might not yet be ready to start building microwave equipment tomorrow, but I do have a new appreciation of the pioneer work done and still being done, particularly by British amateurs. There are some good pages out there and I hope you will enjoy following the thread. Now that summer is upon us (I write this during a rather tenuous spring), those hills are waiting and no doubt many of them will soon be crowned with parabolic devices! Happy surfing.
Graham, F/G8MBI, reports that he now has his little 70cm experimental EME ('moonbounce') station active on receive, and partially so on transmit. The antenna array consists of 4 x 4.5-wavelength MBI-designed crossed Yagis with simple V and H switching. His intention is to see just what such a small antenna can do on 432MHz. Until the amplifier is in place he only has 60W and can only contribute SWL reports and the odd 'big gun' QSO.

In February Graham either heard or worked: DF3RU, DL5FN, URSX, JA9BOH, JASOVU, K1FO, DL9KR (QSO), SM2CEW (QSO), NC1K, ON4KNG, DL4XX, DK3WG, K3HZO, K0RZ, SV1BTR, K4OI, DL9NDD, JH1FEA, ISTOJ, HAT1A, DL8OBU, DL4ME and some others. Graham says that his ears are still adjusting from 144MHz-type signals and operating techniques. In March he heard OH2PO, 7M2PD (Japan), JA2TY, HA1YA, SM2CEW, URSX, JASOVU, JH4JLV, OSEYM, DL4XX, K1FO, NC1K, VE1ALQ, DL9NDD, SV1BTR, N2IQU, I2COR, WBOGGM, VE6TA, JA9BOH, G3HUL and ON5OF.

The DUBUS contest seemed to be not too well supported, but the activity was nevertheless welcome, as it was a good chance to see what the antennas will hear. Thanks to Allen, K2UHY, for the above news.

microwave records

On 22 March, F6BVA/P and F5CAU/P made their first two-way contact on 47GHz between Notre Dame des Anges (JN33DG) in departement 83 and Mont Doublier (JN33KQ), departement 06. The path length was 67km. Reports of RS59 were exchanged. These reports indicate a potential for even greater distances for future contacts. Both operators used a DB6NT transverter, feeding a 75cm dish at F6BVA, and a 50cm dish at F5CAU.

Back in January, Neil Sandford, VK6BHT/P at Separation Point near Geraldton, worked Walter Howse, VK6KZ/P, at Point Louise near Green Head (north of Perth) over a 143km sea path on 24GHz SSB. Conditions were not conducive to good propagation on that band, with the temperature and humidity at each end of the path being 22 degrees Celsius and 98%. Reports of RS 31 each way were exchanged, along with serial numbers for the Ross Hull Field Day contest. There was severe QSB, and maintenance of the five-minute transmit cycles (Neil the even five minutes, and Wally the odd five minutes) was vital to the contact.

Signals from VK6BHT/P were initially heard at 1124UTC (1924 local time, just after sunset) and the contact was completed between 1310 and 1323. Both stations were using about 20mW to 570mm diameter dishes. The path on 10GHz was very solid. This contact will be claimed as a new Australian distance record, exceeding the previous one of 120km.

Attempts prior to this contact from Jurien Bay (a 172km path) were unsuccessful on 24GHz and also unsuccessful the following morning again from Jurien, despite strong signals on 10GHz. This was the last contact between these two operators for some time, as Neil has now moved to VK2 (New South Wales), although his OTH has not been finalised. Thanks to Peter Day, G3PHO, for the information.

sporadic e

At last the Sporadic E season is under way. The first reasonable opening of any nature was on 9 April at 0930UTC, when 50MHz opened to Italy from the UK. At that particular time the Italian stations had an opening to South Africa and at last the Sporadic E link-up made it into the UK.

G4OBK (1094) reported strong ZS stations on the band that day and ZS6WB, ZS6KJ, ZS6JS and ZS6AXT were all...
logged into the UK at up to S9+. On the 16th, another minor event happened and produced propagation from DL to YO / YU, SP to I, and CT to PA0. At the same time this linked up with Eric, TT8JE, in J/K72MC (Chad, Central Africa), and several stations in the Netherlands were lucky enough to make the grade on 50MHz.

The 18th also produced a mini opening and again linked up with South Africa. Norman, G3NVO, logged the 50MHz ZS6 beacon for 15 minutes at 1715UTC. On the 19th there was more 50MHz Sporadic E on the 'top end': TT8JE was reported into 1083 by Neil Carr, GOJHC, at 1642UTC after a tip-off from yours truly.

Eric, TT8JE, worked stations in OE / I / S5 / F / DL / ON / PA / F / EA and GJ.

As many of you may be aware, Eric, TT8JE, in Chad had been experiencing openings into the Mediterranean area on 50MHz during March and early April. Please note that these openings are not trans-equatorial propagation (TEP) as others are reporting! Eric is located at around 15 degrees north of the equator.

At 1330UTC on 1 April, Eric was heard in Jersey at S9+ on SSB. His signals were audible for over 1 hour, but there was no Sporadic E reported on the cluster or otherwise, which leads us to the question of what type of propagation this was? Eric worked stations in S5 / YU / I / OK / DL / ON / PA / F / EA and GJ. Also, the same day, Alan, 3C51 (Equatorial Guinea), was heard in Jersey, albeit weakly, on CW.

new 50MHz propagation mode?

VHF / UHF Message and describes a new type of 50MHz propagation

As far as March 1998, the 6m band is generally released to all SV hams on a secondary basis for an indefinite period. Particular rules are still in force, like submitting propagation reports at the end of every year. It is hoped that many new Grid Squares will be activated within the country.

144MHz tep

JH4JP0 reported the first cycle 23 144MHz TEP opening on 16 April when he heard the Australian Darwin 2 metre beacon on 144.480MHz at 2304UTC. Sadly, no stations were worked, but it now puts everybody in both countries on full alert.

There were other 144MHz openings earlier in the year between WP4 (Puerto Rico) and Argentina (LU), also via this mode.

greece now on 6m

Two new 50MHz beacons have been activated. They are: OZ2VHF on 50.062MHz, which runs 10 watts into a dipole and is located in J045FL, and XE3RCM/B, on 50.0536MHz in EL50 running just 0.75 watts into a dipole. On 2m, 10A is reported operational again on 144.449MHz.

News and views plus any photos of your shack or antenna system are welcome please to: Geoff Brown, TV Shop, Belmont Rd, St Helier, Jersey, Channel Islands JE2 4SA, via fax: 01534 877067, or e-mail: equinox@itl.net If you send large transcripts or reports, please put them on a floppy disc to save re-typing - thanks!
regular

Graham, G4VUX, has recently completed a new homebrew rig for 80m with his first QSO call bagging Mike, G3ZJJ. Mike was using a Lake TRx at 2 watts out. Graham used a massive 400mW from his crystal-controlled TRx. He explained, "I still get a thrill from a first QSO with a bit of new equipment."

Carl, GWOVSW, writes to tell me of what he has been doing. He is the proud owner of a QRP Plus connected to an MFJ-971 ATU. He joined in on the Fireside Sprint (these are short duration contests, hence the name 'sprint'). He tells me that conditions were poor on 40m but he still managed to work six stations. He only has a half-size G5RV antenna at 9m. On 20m he bagged VE2DOH near Montreal, and a change to 17m got him UA2, CT3, W1, and SP5. He says that 15m was more challenging, with just 9X and WP3 added to the log.

Dieter, DL5NFZ, uses a monoband 20m rig and a dipole. He also enjoys bicycling tours, below for the princely sum of £3.50, which includes postage. Please make cheques payable to R Pascoe.

Recent discussions about the use of the Shakespeare fishing poles as antennas have been going the rounds. Several operators, including myself, like to use a fishing pole to keep the antenna up when away from the shack. I have been told that Shakespeare not only makes fishing poles but they also make antennas for us amateurs. Sorry Shakespeare!

ne602 sources

My recent comments ('QRP Corner', Ham Radio Today, May 1998) about the demise of the NE602, prompted a comment by John from Mainline Electronics (tel: 0116 2777 648). He told me that he still has a few thousand in stock and he and his wife Monika, DL1NFZ, often take their rig with them and throw a wire between a couple of trees. Their best DX so far is W1, 9K2, YI, 4K, 4L, TF, EZ and 4X. They are quite disappointed that most of the UK is under the skip, although they often get into GM and GW.

Peter, G3XJS, was struggling recently to complete a contact with VK2B0, who couldn't quite get Peter's callsign. Peter was using his Sierra set at one watt out. A switch to his G0-20 at 3 watts made sure that he was heard - just. Peter told me he "had a solid two-way QRP contact."

I recently made mention of the original Hot Water Handbook produced by Fred Bonavita, W5QJM. This small booklet is "a collection of articles on the modification of the Heath HW8 QRP transceiver". There have always been readers asking about this 1985 booklet. I managed to contact Fred as promised and he gave me permission to make copies for anyone interested. A limited number of copies are available from me at the address to check with them for current prices. Another supplier of these is JAB Electronics. Peter's, G7JAB, current price for the NE602 is £12.60, with postage and packing at £1.00. I can also recommend the JAB catalogue to anyone. There is a good range of components including a few obsolete ones that are getting quite rare. If you would like a copy of the JAB catalogue send a note enclosing £2.00 to JAB Electronics, PO Box 5774, Great Barr, Birmingham B44 6PJ or tel: 0121 682 7045.

In a recent column I also mentioned the difficulty of getting dual pots and mentioned a company called Electro Value. I can now add JAB to that list, they also stock a limited range of dual pots from 4.7k to 1M at £2.30 each plus postage.

yeovil convention

The Yeovil QRP convention took place at the Digby Hall in Sherborne in Dorset over the weekend of 18 / 19 April this year. Readers may remember my comments that I had not been able to attend for many years. I think my last visit had been almost ten years ago. The convention always seemed to clash with the Dayton Hamvention in Ohio which both Rev George Dobbs, G3RJV, and I always attend each year.

The organisers had been trying for years to get George to attend, even changing the date of the convention a couple of times to accommodate him. Murphy's law struck each time, though. As quickly as Yeovil changed dates to accommodate him, the Dayton Hamvention...
dates changed too. It seemed to some that there was a conspiracy about. At last the Yeovil club picked a date that missed the American event by several weeks, and their ambition was achieved.

It is usual for many visitors to arrive early and join in on the club’s annual dinner. This year it was held at the Three Wishes restaurant in central Sherborne. An excellent evening with very good food. About 70 visitors enjoyed the evening with the club chairman, Mike Smith, G7SDD, standing to welcome all those there and especially George, G3RJV, and his wife, Jo-Anna, G00WH. It was not a particularly late evening - just as well, as the convention doors opened to the early birds at 7.30 am, with the public arriving at 9.00 am the next day.

The weather deteriorated through the day, starting fine but heavy, rain crept in, keeping some away. The 250-plus visitors who did attend all enjoyed themselves. The lecture stream was well attended, with George as usual packaging the lecture hall for the final talk of the day.

The display of home-made equipment in a side hall was excellent. Unfortunately, by the time I managed to get there with my camera there was very little away. The talk-in station was using homebrew equipment with large displays stating “high voltage – keep clear!”

Jo-Anna Dobbs, G00WH, was able to find Jo-Anna’s petite, good-looking lady of about 5ft 3in and quite slim; the other chap was about 5ft 9in and of a girth almost double Jo-Anna’s. Copious amounts of laughter as we told others that they were separated by a mere “dit”.

The hall was laid out in a similar manner to the Rochdale convention, where tables for vendors are spread out around the edges of the hall, and with a small area in the middle. Tables and chairs where visitors could sit and chat about their homebrew projects and much, much more surrounded the cafeteria. Another surprise was to find the same nice couple who owned the restaurant we had visited the previous night serving the bacon butties from the hall kitchen. If required there was even a full English breakfast available, and on real plates too!

One of the 'regulars' that I always seem to bump into at any rally I attend is Dawson Thompson, G3AHS. It will be noted from his callsign that Dawson is no 'spring chicken'. I have known him for several years and he has always belied his grey hair and age. He is an avid collector of Morse keys and I have helped him out on several occasions when he wanted a particular model. He always stops for a chat and exchange of news as he makes his way around.

Imagine my pleasure when I arrived at the convention with a 'young lady' in tow, and my huge delight to find they had recently got married. His new wife, Cynthia, was proudly showing off her shiny new wedding ring. Dawson told me that she knows only a little about the hobby but is learning fast, and he hoped that she may get a licence soon. My hearty congratulations to them both.

The Epiphyte

Peter, VK1PK, is considering building an Epiphyte look-alike, but explains that he has got called 'OWN' on the air. Jo-Anna is a petite, good-looking lady of about 5ft 3in and quite slim: the other chap was about 5ft 9in and of a girth almost double Jo-Anna’s. Copious amounts of laughter as we told others that they were separated by a mere “dit”.

The hall was laid out in a similar manner to the Rochdale convention, where tables for vendors are spread out around the edges of the hall, and with a small area in the middle. Tables and chairs where visitors could sit and chat about their homebrew projects and much, much more surrounded the cafeteria. Another surprise was to find the same nice couple who owned the restaurant we had visited the previous night serving the bacon butties from the hall kitchen. If required there was even a full English breakfast available, and on real plates too!

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Imagine my pleasure when I arrived at the convention with a ‘young lady’ in tow, and my huge delight to find they had recently got married. His new wife, Cynthia, was proudly showing off her shiny new wedding ring. Dawson told me that she knows only a little about the hobby but is learning fast, and he hoped that she may get a licence soon. My hearty congratulations to them both.

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A 0-10 command station W4SM says that solar illumination appears to be way down and the satellite is nearly 'comatose'. This is in keeping with his best guess regarding attitude, which shows less than 50% illumination at the moment. Given the ageing solar panels, that's probably enough to cause significant performance degradation. Things should improve again later in the summer and peak in August.

More information about the satellite can be found on W4SM's web page, at: http://www.csstone.net/~w4sm/AA-10.html

phase-3d

Ariane flight 503, conducted under European Space Agency, ESA, responsibility, will be the last of the Ariane-5 qualification flights. The launcher used will be the first production-series unit ordered by ArianeSpace from European industry. 15 July is the date that I have heard and Hot Bird 5 and the Atmospheric Re-entry Demonstration are currently manifested. However, the rumour is that Hot Bird will not be ready and so Phase 3-D may have a flight opportunity here.

ESA has issued a press release with the results of detailed data analysis of the Ariane 502 flight. The analysis confirmed that the launcher performed well overall and did not reveal any anomalies that had not previously been identified. The most significant anomaly, namely excessive roll torque during cryogenic main stage flight, has now been explained.

Three test firings of the Vulcain engine were performed on a test stand equipped with a roll torque measurement device. Throughout engine running time on all three tests, roll values very similar to those encountered in flight 502 were recorded. The excess roll torque phenomenon will now be countered by repositioning the turbine exhausts.

As a precautionary measure, and to obtain in-flight confirmation of the cause of the roll problem, the additional attitude control unit that has already been developed will still be used on flight 503.

The studies and tests conducted since flight 502 have also shown that the premature main stage shutdown that occurred during that flight was caused by the excessive roll torque. Action to overcome the torque problem will therefore also prevent a recurrence of the premature shutdown.

Ron Broadbent, G3AAJ, said recently that the 'Callsign to Fly Award' for Phase 3-D is still open for more donations from around the world in any currency.

Those individuals that contribute a large amount will receive a personal engraved plaque and have their name and callsign engraved on a plate fixed to the spacecraft. A photograph will also be sent to each contributor.

Information on the 'Callsign to Fly Award' can be obtained from G3AAJ or from the AMSAT-UK office, c/o Fred Southwell, G6ZRU, 40 Downsview, Small Dole, near Henfield, West Sussex BN5 9YB.

Ron had a computer crash recently and lost quite a lot of data, so he requests all who have asked him for information about the above Award to repeat their messages.

russian satellites

The Russians have reported that they are unable to command the RS-16 transponder to 'on', despite several tries. They are continuing, but with little hope of success. RS-10 also still refuses to come on.

WB4APR reports that the MIRMON program, which is designed to simplify the monitoring of downlink packets from the Mir space station during special MIREX school experiments, is now available for downloading.

It includes a demonstration of an experiment earlier this month, showing students the potential for future, similar, tests using UI packet frames.

The program is available from the TAPR FTP Web site using the following directory: tapr/SIG/aprsig/files/dosstuff/APRSdos

This program is a test version, which has not been thoroughly tested on the air, so users are cautioned to use it for receive monitoring only and familiarise themselves with the user interface. Any transmit testing at this time should be done locally on a simplex digital frequency.

There is also a network of linked ground stations to provide almost continuous coverage for some of the current digital amateur satellites along with the Mir and Shuttle flights. Now the first Internet-linked Mir ground station is on line and capturing all Mir passes over the east coast of the United States; posting the information on the world wide web.

According to WB4APR, this Internet site also removes all the connect / request / disconnect / busy traffic, allowing those on the web site to see who is currently connected and what was downlinked on the last eight passes. To view the site, look at: http://web.usna.navy.mil/-brungina/mirex.html

WB4APR hopes to expand the list of stations reporting to the web site in the future, eventually providing world-wide coverage.

To permit maximum participation by schools and students in a joint Mir communications experiment, the MIREX team authorised a special MIREX School Day test on 27 April. The purpose of the test was to improve the understanding of students about the space station and demonstrate the factors involved in space communications using packet frames.

Satellite Rendezvous

Will the Phase 3-D satellite eventually be launched this mor...
Digital Satellites

DOVE is currently non-operational, with the 145.825MHz downlink off the air. WDOE reports he will attempt to correct the situation as time permits. It could still be worth listening for the 5-band beacon on 2401.221MHz plus / minus Doppler (of about plus / minus 55kHz on a high pass).

WEBERSAT is also non-operational, being in MBL mode after a software crash. Attempts are being made to find and correct the cause of the suspected seasonal crashes.

IO-26 (ITAMSAT) is reported operational: listen for telemetry files, including a recording of mode-S which plays for 20 seconds. The other audio files are examples of each type of data transmitted by OSCAR-11, and each one plays for about 10 seconds. All the audio files are ziped, so that they can be played off-line. They should help listeners identify the various types of data, and give an indication of the signal quality required for successful decoding. The URL is http://www.users.zetnet.co.uk/clivew/

The mode-S beacon is still on, transmitting an unmodulated carrier, but telemetry indicates that it has partially failed, and is delivering half power. This beacon is a useful test source for those testing mode-S converters, prior to the launch of Phase 3-D. It is considerably weaker than DOVE, which should be used for initial testing. Any reports of reception on 2401MHz would be most welcome. Please e-mail g3cwv@amsat.org I understand that the frequency range to listen in is between 2401-540MHz with Doppler down to 2401.430MHz. Note UO-n6yf WINZIP is required (PKZIP won't do) to extract.

This software implements a fully automated Digital Store and Forward Satellite Ground Station including: KISS Protocols; AX25 Protocols; Pacsat Broadcast and File Transfer Protocols; Message Composer; Message Viewer; Orbit Propagation; Satellite Scheduling; Radio Control; and Rota- tor Control. The software has been successfully run on Windows 95, Linux and Solaris. The documentation is not complete yet, but there should be enough to get you going.

W2RS reports that the SEDSAT launch has been delayed until October at the earliest.

The spare Sputnik satellite that was delivered to Mir along with the Sputnik model that was deployed from Mir late last year is expected to undergo an upgrade and be deployed from Mir in the latter part of 1998. The upgrade will consist of replacing the battery and control boards, and installing circuitry that will allow the satellite to make voice announcements in French, Russian and English.

The Colloquium will be held at the University of Surrey, Guildford, from Friday 31 July to Sunday 2 August. This year's event will include technical and operational matters, as well as an IARU forum. The talk by an astronaut has fallen through - has anyone got any suggestions for a big name? Anyone wishing to attend the Colloquium should ask for full details as soon as possible from Fred Southwell, G6ZRU, 40 Henfield, West Sussex BN5 9YB, tel: 01273 495733.

The AMSAT-UK web pages have a new address: www.uk.amsat.org in order to give them a more memorable URL.

A copy of the latest Keplers is available on request by e-mail or post; my mailbox is G6HZY. However, please note that AAMSAT-UK Keplers are put out on packet weekly anyway and sent to KEPLER @ GBR. When asking me for Keplers please say which satellites - all means about 250 satellites ("all amateur sat" is adequate, if that's what you want).
A number of amateurs have asked me if I could confirm a 'rumour' of a version of the very popular JVFAx software now being available for Windows. Well, it's not a rumour any more, you'll find it included on the free front cover CD-ROM with this issue! See also Fig 1. At the time of writing, the latest version is Beta 0.91 which

\[ \text{APRS book} \]

If you'd like to read up on APRS, then I'd certainly recommend the ARRL book, Getting on Track with APRS by Stan Horzepa, W1ALOU. Stan offers an easily-digested 'hands-on' guide to using APRS software, for DOS, Windows and MAC, including step-by-step details on how to configure it for your own location, even if you don't have a GPS receiver. You'll find out how you can use APRS for plenty of things you may have never thought possible, like direction finding, weather tracking, 'jammer hunting'; as well as seeing where your packet radio partners are located whether they're operating from home, or out portable, or on the move. The book provides interconnection details for many packet TNCs and advice on GPDs receiver interfacing. In the US, it's priced at $14.95, although I purchased my copy just a few days ago from Poole Logic, 49 Kingston Rd, Poole, Dorset BH15 2LR (tel: 01202 683993) for £9.90 plus £1.00 P&P. If you'd like a copy on the web, courtesy of Bob Bruininga, WB4APR, at http://web.usna.navy.mil/~bruininga/mirex.html [there's more on this in Satellite Rendezvous on pages 42 & 43 - Ed].

\[ \text{APRS on mir} \]

If you've been following the latest news regarding the Automatic Packet Reporting System, or APRS for short, you'll know it's in use by a number of terrestrial stations. But even if there are no stations in your area, all is not lost if you'd like to 'give it a go'. MIREX, the experimental amateur station on board the orbiting Mir space station, has recently been conducting tests using APRS, primarily for school participation. You can find further details on the results of this on the web, courtesy of Bob G4HCL, brings details of a brand new Windows version of JVFAx.

\[ \text{WinPack add-ons} \]

WinPack V6.4 from Roger, G4IDE, is now with us (as previously digested in last month's column!) and there are many happy amateurs around the world using it. Alan, G0FUM, has already created a new 'splash screen' for this (Fig 2), which he's sent out on the packet network in 7-plus format as a bitmap file. A further, and very useful, add-on for WinPack, is the freeware logging program written by Mike, G0OPC, called WinPLog (Fig 3). It's a simple log program that reads the AUTOLOG TXT text file from WinPack and lets you view your activity with a number of options, as well as offering a print facility. It's been sent on the network in a number of 7-plus files, but if you'd like a copy on disk by post you can send a 1.44MB disk and return package and postage to: Mike Marriott, G0OPC, Morning Dew, 188 Leverington Common, Wisbech, Cambs PE13 5BP (add a note telling Mike it's WinPLog you want). Mike originally released V1.00 on the network, but unfortunately he found this had a bug in it (the printer routing gave an error) and promptly released V1.01. So if you're having problems with a version you downloaded, take a look for the updated version. The very latest version of WinPLog as well as the 'Splash' bitmap file (and of course WinPack V6.4, APRS etc) are contained on the current monthly-updated GSP73 Gold CD-ROM (don't confuse this with this month's free cover CD-ROM), so if you have a copy of this you'll already have the programs!

\[ \text{Data Connection} \]

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\[ \text{South coast tcp/ip hub} \]

There's a new TCP/IP hub, GB7BIP, coming online to cover Portsmouth, Chichester and surrounding areas. It's being set up to fill in for GB7HIP, which recently shut down. GB7BIP will be run by Richard, M1BNG, who's 16 years old and has held a Novice licence since he was 12, and Alex, M1BSX, who's just 15 years old and has also held a Novice call from the age of 12. GB7BIP's Mail system, although TCP/IP based, has a mail feed from the AX25 network, allowing users of the TCP/IP system to send and receive personal and bulletin mail from the existing AX25 BBS network. This uses a 4m packet link to GB7BPH in Portsmouth running at 1200 baud. The user ports will operate on 433.625MHz and 144.925MHz using 1200 baud, and 432.625MHz at 9600 baud for faster user access.

Plans are for a real-time link into the World Wide Conference server enabling users of the hub to chat with other Radio Amateurs around the world. At present, it's possible to connect to other chat systems, eg in London, which currently gives access to the World Wide Conference system - although this can be slow at the moment. GB7BIP hopes to provide, on start-up, SMTP and POP3 mail access for users with TCP/IP mail software. Other planned services will include space for user's packet web pages as well as ftp space for users who wish it. GB7BIP will also carry TCP/IP software and configuration files, for users to download and use. The SysOps are hoping to set up Hobbes to provide other services as well and would welcome any suggestions. More information from Alex M1BSX@GB7PFD or e-mail: alex@mayfamily.demon.co.uk (http://www.mayfamily.demon.co.uk) and Richard M1BNG@GB7SUM#48.GBR.EU or e-mail: m1bng@wings.demon.co.uk (http://www.wings.demon.co.uk).

\[ \text{Yeovil bbs} \]

If you're in the Yeovil area, you may be interested to know that GB7YE0 has been applied for in Yeovil by Lee, G7OOG. It's to be a new AX25 BBS, operating with 1200 baud user ports on 144.8625MHz and 433.650MHz. In the meantime you can get further information from Lee, G7OOG @ GB7TJF.

\[ \text{WINPA} \]

WinPack V6.4 is now out!
VHF Node Gateway, which lets you in on the VHF scene in Tasmania. VK7 Phil, VK7PHU, who is the SysOp of the BBS, says, "You can access the VHF port node on 14080.0KHz Mark PacTOR by connecting to VK7PHU. The VHF node port is open to anyone who would like to experiment with this facility. To access the VHF node's port once connected and entered in the BBS, at the command prompt type "NODE" (in upper case) which will take you through to the VHF gateway on two ports. It is good policy before connecting to any VHF station to type the "J" command at the command prompt which will bring up the heard list of VHF stations. From there type in "C2 VK7**" or "C3 VK7***" and you will be connected via PacTOR to a VHF station." The BBS also has a dedicated 40m port on 7045.0KHz Mark, and VK4KGM who is on the same Mark frequency also has this facility, so there's no reason why you shouldn't try both! More info via packet from cillities as soon as finances permit. The BBS also operates on 2m packet, on 144.825MHz and 147.575MHz. More information from VK5RO@VK5RO.#SYP#SA.AUS.OC.

The VK5ATB BBS now has a number of additional frequencies which are scanned, to allow anyone wishing to connect to have a little more choice. The following are all Mark frequencies, and are scanned 24 hours a day: 3629.9, 3633, 7035, 7040, 10143, 14076, 14078, 14080, 18107, 21072, 21074, 21078, 24925, 28078, and 28080KHz. This BBS forwards to the Australian packet system as well as to the international PacTOR forwarding system, and mail can be left there for forwarding or direct collection. Gateway facilities are also enabled through the FBB-based BBS software. More info from Pops, VK5ATB@VK5ATB.#BVL#SA.AUS.OC.

10m packet

Giovanni, IKOZIZ, in Lavino, Rome (QTH locator JN61HL) says that he's installed an experimental PMS on 10m FM, operating on 1200 baud packet on 29250KHz. It operates under the calling IKOZIZ, using an MFJ-1278B into an Icom IC-736 and a quad antenna. Giovanni says, "Please give it a try and tell me what you think about it". He can also be contacted via the packet BBS system with a message to IKOZIZ @ IWOFEF.ILAZ.ITA.EU. Ferdi, DDOKT, in Bornheim near Cologne (in JO3OLS) tells us the LXOPAR Digipeater is operational from Luxembourg on 10m. It's on 29210KHz using 1200 baud FM, so with increasing sunspot activity it could be worth trying this to connect to the European packet network. The system runs 10W into a vertical. More information from DDKDT@DKOMWX.#NRW.DEU.EU or via e-mail to lw7eds@htc.statics.com.au.

Pablo, LW7EDS, says that there's a network of activity on 28180KHz LSB 1200 baud, with PY, PP, KP4, CP, LU, LW, EA and I active. He suggests you take a look here especially if you're active on 10m FM packet, to link America with Europe. If you're interested in more details, you can send a packet to Pablo at LW7EDS@LW7EDS.MDP.BA.ARG.SA.

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ham radio
regular

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I wanted particularly to draw your attention to two contesting events which take place during July. Firstly, the IARU Contest sponsored, as the name implies, by the International Amateur Radio Union. This is a 24-hour event (1200UTC on 11 July to 1200UTC on 12th), in which participants try to contact other hams throughout the world. The idea is to collect points for every contact made, but also to collect ‘multipliers’, which are ITU Zones (for administrative purposes the International Telecommunications Union divides the world into 74 zones). Your final score is the sum of QSO points on each band multiplied by the sum of ITU zones which you contact on each band. QSO points are scored as follows: one point for contacts within your own zone, and with IARU HQ stations, three points for contacts in your own continent but different zone, and five points for contacts with other continents. You also get additional ‘multiplier’ credit for contacting the HQ station, your own zone, and five points for contacts with other continents. You also get additional ‘multiplier’ credit for contacting the HQ station, your own zone, and five points for contacts with other continents.

So all you need to do to make a contest QSO is to call someone who is calling “CO Contest”, note the signal report and zone number which they give you, and in turn give them a signal report and your zone number. Simple as that. Or, indeed, you can call “QSO Contest” yourself and wait for people to call you. Use any of the bands 160, 80, 40, 20, 15 or 10 metres. By common consent, no contests take place on the so-called ‘WARC’ bands (30, 17 and 12 metres), which leaves these free for hams who want to steer clear of contest activity.

After writing last month’s column, propagation took something of a downturn, but conditions were still better than at the same time last year, and will no doubt pick up again. Unfortunately there seems to be a major problem on 10 metres with pirate activity, mainly CB operators operating above their authorised band. This has been a problem in the Far East for some years, but now it seems to have become an issue in Europe during the sunspot minimum years while amateur activity has been low. Let’s hope that as ham activity returns to 10m, we can reclaim the band for our own.

contesting

I tend not to give a lot of coverage in this column to the various contests which take place on the HF bands, although most weekends you will hear some sort of contest activity. As in most hobbies, there is a strong element of competition in Amateur Radio, and some hams take contesting very seriously indeed. However, the nice thing about ham contesting is that it is like marathon running. Everyone can take part and, although there will be strong competition for the top places, for most entrants it is simply a fun event.

As with all contests, you keep a log (time, band, mode, callsign, contest exchanges sent and received, points and multiplier credits claimed) which you send after the event to the contest organisers. Most contest organisers also require you to submit ‘dupe sheets’ for each band, which are an alphabetic listing of all stations worked on that band, so that it is clear you haven’t contacted the same station twice on the same band and mode. You should also submit a ‘cover sheet’, which consists of a breakdown of your totals (QSOs, points, multipliers) by band, a brief description of your station, and a signed declaration that you have abided by the results of the contest. You should also indicate the section by band, a brief description of your station, and a signed declaration that you have abided by the results of the contest. You should also indicate the section by band, a brief description of your station, and a signed declaration that you have abided by the results of the contest.
The contest has grown out of the increasingly popular Islands on the Air awards programme, started many years ago by British Short Wave Listener Geoff Watts, and taken over at his request by the RSGB. Although you can work anyone during the contest, it is designed to encourage working island-based stations by giving more points for such contacts. Because it is in the middle of summer (at least, for the northern hemisphere) many hams go off on holiday expeditions to islands off the European and North American coasts, so you will find lots of interesting Island activity.

The contest exchange consists of signals report, serial number and, if you are on an island, the IOTA reference number (which, in the case of mainland UK, is EU-005). There are many categories you can enter, including 12 and 24 hours, CW, Phone, Mixed Mode. Success for an island contact, 5 points for non-islands, except that contacts with your own country or IOTA reference count 2 points. Multiply this total by the number of IOTA references contacted on each band (Mixed Mode entries can work multipliers on both modes). As with the IARU Contest, logs can be submitted by paper or electronically. Just to make things even easier, Paul O'Kane, EISDI, has an IOTA contest version of his popular Super-Duper contest logging program which is available free of charge, and can be downloaded from his web site at http://www.iol.ie/~okane (which, in the case of mainland UK, is EU-005). There are many categories you can enter, including 12 and 24 hours, CW, Phone, Mixed Mode. Success for an island contact, 5 points for non-islands, except that contacts with your own country or IOTA reference count 2 points. Multiply this total by the number of IOTA references contacted on each band (Mixed Mode entries can work multipliers on both modes). As with the IARU Contest, logs can be submitted by paper or electronically. Just to make things even easier, Paul O'Kane, EISDI, has an IOTA contest version of his popular Super-Duper contest logging program which is available free of charge, and can be downloaded from his web site at http://www.iol.ie/~okane.

The asking price is $47,000,000, for which you could buy your very own DXCC country!

signing off
This will be my last HF Happenings column for Ham Radio Today. I have thoroughly enjoyed writing the column, and appreciate the feedback: I have had from readers over the years. I took over from Steve Telenius-Lowe, GA4JVG, back in 1991 when he left the UK to work in Papua New Guinea. Steve is now, of course, a Ham Radio Today contributor, so some things come full circle! I am now writing the HF column for RadCom, the RSGB magazine, and I felt it inappropriate to continue with Ham Radio Today, but have been happy to keep up HF Happenings for the past few months during Ham Radio Today's transition to new ownership. My successor will be Martin Atherton, G3AVT, a very knowledgeable HF operator, and a good friend of mine for over 25 years. I know Martin will do an excellent job, and wish him well.

IOTA contest
The other contest I wanted to mention is the RSGB's Islands on the Air Contest, which takes place over the weekend of 25/26 July (from 1200UTC Saturday, for 24 hours) on the 80, 40, 20, 15 and 10 metre bands. This is a mammoth job. Such as the IARU one, manual (which, with having to do the job accurately, rather than nowadays as they have computer programs which can then cross-check logs for accuracy, rather than having to do the job manually (which, with thousands of entries to major contests such as the IARU one, is a mammoth job)).

Because most contest rules are fairly lengthy when reproduced in full, you will normally only see an extract in the various monthly magazines, but the organizers can always provide a set in return for an SAE. If you have Internet access, you will also find that there are many sites on the web which carry contest rules and, frequently, the test version of his popular Super-Duper contest logging program which is available free of charge, and can be downloaded from his web site at http://www.iol.ie/~okane.
WANTED: Young, talented Radio Amateurs

REWARD OFFERED: Cash and Industry Prizes to winner and runner up

The great hunt has begun for this year’s Young Amateur of the Year. Sponsored jointly by the Radiocommunications Agency and the RSGB, exciting prizes are awarded to both the winner and the runner up - the lucky pair will be invited to visit the Agency’s Monitoring Station in Baldock, Herts, and will receive other prizes from the RA, RSGB and from industry.

This highly prestigious and coveted award is presented at a special lunch at the RSGB’s HF & IOTA Convention in October 1998.

So if you are under 18, keen on amateur radio and are helping to get other people interested in the hobby, send for an application form now from Marcia Brimson, 2E1DAY, Radio Society of Great Britain, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE, or tel: 01707 659015, e-mail: sales@rsgb.org.uk

- Must be under the age of 18 on 31 July 1998
- Resident in the UK, Channel Islands, or the Isle of Man
- Must be nominated by an adult sponsor
- Must have shown a talent in any of the following areas:
  - DIY radio construction
  - Operation of radio
  - Community service (eg helping in emergency comm or helping disabled people)
  - Encouraging others into the hobby (eg through the Novice Entry Scheme)
  - School or club projects
- Applications must be received by 31 July 1998

A Date for your Diary

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Sunday, 2 August

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To include your club in this section, please make sure you send us your events details in time: deadline for September issue is 13 July, for October, 14 August; November, 10 September. We only list active clubs, in those who send us their diary of planned talks/events. Send your club event details to: The Editor, Ham Radio Today (Club News), RSGB Publications, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE; fax: 01707 645105.

Aberdeen ARS
Meets Fris. 12 Jun antena basics, Maurice Hatley, G3MSAT, 19 Jun VHF 'foothunt'. 29 Jun quiz. 29 Jul junk sale. Details from Robert Duncan: 01224 896142.

Appledore &DARS
7.30pm 3rd Mon of month at the Appledore Football Club room. For details contact new Acting Hon Sec Brian Jewell: 01237 472521.

Aylesbury Vale RS
8.00pm on 1st & 3rd Wed of month, at Hardwicke Village Hall, 3 miles north of Aylesbury on A413. 17 Jun discussion evening. 1 Jul multi lectures, 20min each. 15 Jul discussion evening. Secretary Gerry, G7YPS: 01296 432234.

Ayr ARG
7.30pm fortnightly. Fris. Garry Olsen, GM3MGO, 01292 479245.

Bolsover ARS
Meets Weds, 8 Jul quiz, 22 Jul computer night. 29 Jul CW night, G0LWN. Colin, G0LWN: 01246 622856.

Bristol (RSGB) Group
7.15 for 7.30pm last Mon of the month at Avon Combined Services Club, St Pauls Rd, Clifton, Bristol. 29 Jun QSL bureau, John Dendens, G4KJW. 27 Jul quiz chaired by G3RXF. Robin Thompson, G3TKF: 01225 420442; e-mail: robin@g3tkf.demon.co.uk

Bristol (South) ARC
7.30pm Weds at Whitchurch Folkhouse Association, Bridge Farm House, Whitchurch Rd, Whitchurch, Bristol. 17 Jun NFD training. 24 Jun Longleat prepara- tion. 1 Jul Lundy info and advanced. 8 Jul horticulture. 15 Jul barbeque. 22 Jul bring & buy. 29 Jul home construction. Jean Fletcher, G0AWX: 01275 834282 (24hr answerphone).

Bromley &DARS
7.30 for 8.00pm on 3rd Tue of month, at Victory Social Club, Kessil Gardens, Hayes. Kent. 16 Jun DF hunt. Graham, G4NPD & Alan, GOLTUK. 21 Jul practical electricity fundamentals, Iain Daniels, G4YTD. Alan Messenger, G0TUX: 0181 777 0420; e-mail: alanmg2@clara.net

Buxton Radio Amateurs
2nd & 4th Tue of month. 28 Jul video. Derek Carson, G4HID: 01298 255050. G4HIO @ GB7DAD

Cardiff RSGB Group
2nd Mon of month. 13 Jul RSGB video. David Thomas, GW3RXW: 01222 620939.

Carmarthen ARC
7.00pm & 1st & 3rd Tue of month at Hill House, Picton Terrace, Carmarthen. The club was formed in 1981 and has now grown into one of the largest in Wales: visitors welcome everyone club night. Islwyn Hughes, GW4XLK: 01267 231359.

Chelmsford ARS
1st Tue of month. 7 Jul talk by Fred Wright, G6F XM, Charles Shelton, G0GJS: 02134 256654.

Cheltenham ARS
7.45 for 8.00pm on 1st Fri of month at Prestbury Library, The Burghage, Prestbury, Cheltenham. 3 Jul testing rig deviation, G4MWT & G0LKS. Mrs Patricia Thom, G1NSK: 01242 241099 (9.00am 9.00pm); e-mail: g1nsks@g3knks.demon.co.uk

Chichester &DARS
7.30pm 1st & 3rd Tue of month at St Pancras Hall, St Pancras, Chichester. 16 Jun, 7 Jul, 21 Jul: freed / open evenings. John Strawfill, G3US: 01243 861578.

Christchurch ARC
8.00pm Thu in the radio club, behind the Sports & Social Club, Grange Road, Somersford, Christchurch. Secretary K P Harris, GW7HSN: 01202 484492 (evenings).

Cockenzie & Port Seton ARC
has 'normal club nights' on first Fri of month at the Thorsntree Inn, High Street, Cockenzie, from 1900 'till late'. Bob Glassgow: 01875 811723.

Coombe RAC
7.30pm on 1st Thu of month at Perranwell Village Hall, near Truro. 2 Jul pre-rally meeting. Robin Worsley, G0MYR: 01209 820118.

Coulson ATS
7.45pm on 2nd Mon of month at St Swithun's Church Hall, Grovelands Road, Purley. 13 Jul quiz vs other societies. Alan Bartle, G6HC: 0181 664 0610.

Coventry ARS
8.00pm Fri at Binley Church Hall, Brinklow Road, Coventry. 19 Jul VHF NFD discussion, 26 Jul testing night. 3 Jul VHF NFD preparation. For further details contact the Secretary, Robin W, G4JD0: 01203 673999.

Cray Valley RS
1st & 3rd Thu of month at Progress Club, New Road, Ewell Vale, Ewell. 22 Jul bring & buy. 29 Jul junk sale. Details John Cranfield, GW3GFX. 15 Jul pedestrian excursion with radios. 22 Jul night on air. 27 Jul digital TV. Secretary G4XDU, e-mail: Keith4du@virgin.net

Devizes &DARC
8.00pm Fri at Hare & Hounds Inn, Hare & Hounds St, Devizes. 21 Jun ‘spending your money wisely’. Noel, G4OXA: 01380 724533; e-mail: Noelmwcmail.com

Dragon ARC
7.30pm 1st & 3rd Mon of month at Ebenezer Hall, Foel Craig Lane, Higher Village, Llanfairpwl. 15 Jun

Droitwich Spa ARS
7.30pm on 1st Thu of month at Ye Olde Shoppe, 17 Ombersley St W, Droitwich Spa. Edward, G4PQZ: 01905 773181; tel / fax 01905 773181.

Dudley ARC
7.45pm at Dudley Central Library, St James Rd, Dudley. 27 Jul digital TV, Geoff Cooper, G0KVK. Tony, G4CWA: 01384 273925.

Dundee ARC
Details from Macdonald Black, GM0PVM, 01382 465771.

Dunstable Downs Radio Club
8.00pm Fri at Chess House, 77 High Street South, Dunstable. The club has 'library nights' on 1st Fri of month, plus: 17 Jul on the air. Paul McCay, G7SJE: 01582 861936.

Edgware &DARS
This Month at the Clubs

**Goole R&ES**

**Exter ARS**
7.45pm 2nd Mon of month at Moose International Centre, Blackboy Road, Exeter. 3rd Mon is committee / open evening. 13 Jul mobile equipment evening, 20 Jul on air. Theo, G3EOM: 01392 875496.

**Exmouth ARC**
1st & 3rd Wed of month. 17 Jun 12.5kHz channel spacing. 1 Jul Exe repeater / node cluster. Details: 01395 271880.

**Fareham & DARC**

**Felixstowe & DARC**
8.00pm at Orwell Park School, Nacton, Ipswich. 29 Jun special events, what to do, Paul, G4YOC. 27 Jul on air for experience for RA students, Paul, G4YOC. Paul, G4YQC: 8.00pm at Orwell Park School, 235397.

**Gloucester AR&S**
Mons. 22 Jun on air. 29 Jun Morse practice. Details: 01452 618930 office hours.

**Haddesdon Radio Club**
8:00pm alternate Thurs at Conservative Club, Rye Road, Haddesdon, Bucks. 11 Jun cold calls. Mike Hodgson. 25 Jun barbeque at Tolmers Scout camp, Cuffley, 9 Jul RG50GSH, General Manager, Peter Kirby, G0TWV. 23 Jul First Aid in the shack. Don, G3UJ: 01245 815819.

**Horsham & DARC**
8.00pm on 1st Thu of month at Guide Hall, Denne Road, Horsham, West Sussex. 2 Jul how aerials work, Ron, G3PYC. David Miller, G4JH: 01403 252010, or e-mail: davidmliller2@compuserve.com

**Hitchin Valley ARC**
2nd Fri. 12 Jun static electricity, Mike Holme, G6AIO. 26 Jun ‘treasure hunt’ from Netley Marsh Community Hall. Sheila Williams, G0VX: 01703 813827.

**Keighley ARC**
8.00pm Thurs at Inglow Cricket Club, Hainworth Rd, Ingrow, Keighley. 1st 7.30pm at Railway Sports & Social Club, Ropewalk, Lincoln, Cliff Newby, G3EBH: 01522 750637.

**Lincoln Short Wave Club**
7.45pm at Railway Station & Social Club, Ropewalk, Lincoln. 17 Jun engineering evening, Mick, G4ITF. 17 Jun engineering evening, Mick, G4ITF. 24 Jul social. Tommy Main, G4MCL: 0131 663 8501, or GM2HAM@G3EDN

**Loughborough & DARC**
at Science Lab, Hind Leys Community College, Forest St, Shepshed, on Mon evenings for general chat / operating & on Tuesdays as follows: 16 Jun DF: 23 Jun TVI & breakthrough. 30 Jun annual fun golf competition. Ian, G8SNF, tel: 01509 218259.

**Louth & DARC**
8.00pm 1st Wed of month at Woodman PH, Eastgate, Louth. 1 Jul organising special event station. Roger Wilson, G4IPE: 01507 622220; e-mail: g4ipec@lincom.demon.co.uk

** Maidstone ARC**
holds Morse tuition Tues and Fri and Novice classes Weds. Mike Grainger, G0VNB: 01634 856765.

**Moray Firth ARS**
RAE and Novice RAE courses available. Geoff Crowley, GM7SJC, 01542 882918.

**Newbury & DARC**
7.30pm on 4th Wed of month at Memorial Hall, Upper Bucklebury, near Newbury. 21 Jun NADARS Amateur Radio Boot Sale, Cold Ash, near Newbury. 24 Jun radio in aviation, Mike Grierson, G3SJO. 22 Jul no meeting. Ian Trusson, G3YVM, 01635 826019, g3yvm@compuserve.com

**Norfolk ARC**
Weds at Ugly Bug Public House, Colton. Informal evenings, including night on air, construction GRP & Morse practice, on 1st, 3rd & 5th Weds, plus 24: 7 Jun ‘foxhunt’. 8 Jul cheap air frequency standard, Mike, G4EOL. 22 Jul surplus equipment sale. Hon Sec, Sandra Simpson, Z21PO.

**North Ferry United ARC**
Thu (note change of day) at the Football Club, Church Road. David, G7PER: 01482 653024.

**North Kent RS**
8.00pm 1st & 3rd Tue of month at Pop-in-Parlour, Graham Rd, Bexleyheath. 16 Jun on the air night, North Wakefield RC
8.00pm Thurs at East Ardsley Cricket Club, Wakefield. 11 Jun semi-conductors, Dr Robert Kelsall. 25 Jun on air. 4 Jul US Independence day with Darley ARC at Menwith Hill. 16 Jul role of the RA. 30 Jul on air. Further details: 0113 253 9087.

**Nunfield House ARG**

**Plymouth Radio Club**
7.30 for 8.00pm 1st & 3rd Tue (summer schedule until Sep). 16 Jun Dartmoor Prison, Bill Green. 7 Jul forward planner update, Den. 14 Jul 7.00pm sharp visit to Hessary Tor. 21 Jul talk by Pat Marshall, harbour master. 23 Jul visit to Stonehouse Barracks.
This Month at the Clubs

Secretary Don Keeling tel: 0121 458 1603.

Southdown ARS
First Mon of month. 6 Jul commerci-
5al radio in the community, Sover-

South Manchester RC
Fris. 12 Jun computers in radio,
5oN, High Wycombe. 18 Jun pitch & putt. 23 Jun on the
air. 7 Jul 'foxhunt'. 14 Jul rally meet-

South Notts ARC
7.00pm Weds at Fairham Community
Centre, Hamstead House, Fairfax Rd, West Heath, Bir-
ingham. 7.30pm alternate Weds at
Mincinghpton Youth Club, nr
Stroud. 9.00pm Tues at Community Centre,
Stroud. 30 Jun video. Stuart, G0GNN: 01453 752411; e-mail:
Stuart@g0gnn@Gifford.co.uk

Submarine ARC
Weds at RNARS HQ. HMS Collingwood, Hants (please note this
is a new venue). Colin Mclean, M1AUC, packet @ GB7SUN.

Sudbury &DRA
on 1st Tue of month at the Old School
on junction of Head Lane, Wells Hall
Road, Great Cornard, & on third Tue of
the month, at a new venue: The Brook
PH, Bures Road. Jul BBC Radio Suffolk,
David Butcher, BBC engineer. Secretary
Mark Bean, G7UTC, on tel: 01787 374930.

Sutton & Chem RS
7.30p for 8.00pm on 1st & 3rd Mon of month
(except Bank Holidays & no meetings
in Aug), at the Radio Shack, Oldswinford Hospital, Heath Lane,
Stourbridge. 15 Jun air ambulance.

Stroud RS
7.30pm alternate Weds at Minchinpton Youth Club, nr
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Stuart@g0gnn@Gifford.co.uk

Stourbridge &DRA
8.00pm on 1st & 3rd Mon of month
(except Bank Holidays & no meetings
in Aug), at the Radio Shack, Oldswinford Hospital, Heath Lane,
Stourbridge. 15 Jun air ambulance.

Stratford upon Avon &DRA
7.30 for 8.00pm on 2nd & 4th Mon of
month at Home Guard Club, Main
Road, Tiddington, Stratford upon
Avon. 22 Jun visit (TBA). 13 Jul so-
cial evening. 27 Jul construction
competition. Secretary Jeff Porter,
G4OHU: 01789 732926.

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country. For membership details, contact their Secretary, Rev G Dobbs, St Aidan’s Vicarage, 496 Manchester Road, Rochdale, Lancs OL11 3NE; tel: 01706 31812 or see their web site at http://www.dlbinternet.com/~g4vfl/ggrp.htm

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

Irish Radio Transmitters Society (IRTS)
publishes regular newsletters giving details of local activities, and the yearly IRTS Callbook. They also have a video library. For further details of IRTS, contact Joe Ryan, EI7GY, tel: 01707 659015, Internet site: http://www.irtsgb.org and e-mail: info@irsgb.org.uk

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

Radio Amateur Relief Expeditions (RARE)
is a registered charity made up of radio amateurs and friends who take aid to Eastern Europe and organise summer camps for young people to learn about amateur radio, English language and life in the UK. New members are required to support this work both at home and by taking part in expeditions. Please contact: The Secretary, RARE, c/o Apple Cottage, Shrewsbury SY5 7AP; tel: 01743 874729, packet: GB7FM; e-mail: rare@donsun.demon.co.uk

Radio communications Agency (RA)
is the licensing authority for all UK radio amateurs. They have a large number of free publications, including the booklet How to Become a Radio Amateur, and their Novice Licence Information sheet and can offer advice on many aspects of licensing. New Kings Beam House, 22 Upper Ground, London SE1 9SA. Amateur Radio line, tel: 0171 211 0160. General enquiries, tel: 0171 211 0121, Answerphone service, tel: 0171 211 0591.

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

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United Kingdom Radio Society (UKRS)
is a new society for UK Radio Amateurs. They can be contacted at Box 100, Meadow Street, Northwich, Cheshire, CW8 1FA. tel: 01606 753270, or 0151 925 6597, packet: UKRS@GB7OAR, or e-mail: admin@ukrs.org, Internet: http://www.ukrs.org
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