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**'PRICE MATCH'** 





# **RSGB** Matters



# RADIO SOCIETY OF GREAT BRITAIN

THE NATIONAL SOCIETY WHICH REPRESENTS UK RADIO AMATEURS

Founded in 1913 incorporated 1926, Limited by guarantee Member society of the International Amateur Radio Union Patron: HRH Prince Philip, Duke of Edinburgh, KG, KT

Membership is open to all those with an active interest in radio experimentation and communication as a hobby. Applications for membership should be made to the Subscriptions Department from which full details of Society services may also be obtained.

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Details of the Society's volunteer officers can be found in the RSGB Yearbook 2002 HEADQUARTERS AND

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All calls to the RSGB are charged at National Rate QSL Bureau address: PO Box 1773, Potters Bar, Herts EN6 3EP E-mail addresses: sales@rsgb org uk (books filters, membership & general enquries) GB2RS@rsgb org uk (GB2RS and

club news items) RadCom@rsgb.org.uk (news items feature submissions, etc)

AR Dept@rsgb.org.uk (Morse tests, beacons, repeaters, GB calls, licensing) IOTA.HQ@rsgb.org.uk (Islands On The Air)

GM.Dept@rsgb.org.uk (managerial)

Website: www.rsgb.org

WebPlus: Members-only web site www.rsgb.org/membersonly Use your callsign in lower case as the user name and your membership number (see RadCom address label) as the password.

#### RADCOM PLASTIC WRAPPER

MEMBERS WILL have noticed that this issue of *RadCom* does not have its usual 'flyer' or 'carrier' sheet, that includes the 'Members' Ads' and book order forms, included with it. We are now able to print the members' names and addresses directly on to the plastic wrapper, leading to a more efficient despatch operation.

The Members' Ads order form is now published within the magazine (on page 70 this month). If members do not wish to cut the form out of the magazine, photocopies will be accepted, as will recent copies of the form from previous months, or recent copies of the 'carrier' sheet. As a last resort, members may also send in their Members' Ads on a separate sheet of paper, but if you choose to do this, you must supply an accurate word count - and, of course, the correct fee in the normal manner.

Book orders may continue to be made in writing, over the phone (tel: 0870 904 7373); by fax (fax: 0870 904 7374); by email (sales@rsgb.org.uk) or via the Internet (www.rsgb.org/ shop).



lan Waters, G3KKD, took this photo in 1964 which recently came to light once again. He says it is of an enamel plaque on a building in Chatteris, Cambridgeshire, that had been occupied before the war by a cycle and radio business run by a man whose name was Skiels. Ian speculates it must date from the early 1920s.

# RSGB JUBILEE AWARDS

TO CELEBRATE THE Golden Jubilee of HM Queen Elizabeth II, the RSGB is offering two special operating awards: the HF and the VHF Jubilee Awards. Note that the two awards are completely separate entities: you may apply for either or both, but you cannot 'mix and match'!

#### HFJUBILEEAWARD

1. The award requires a total of 50 points gained from contacts made with stations located within the Commonwealth of Nations during the month of June 2002. No QSL cards are required for this award.

2. The points for the award are scored as follows:

 Each contact with a station located in a Commonwealth country will count 1 point.

 UK stations using the Jubilee prefix of GQ, MQ or 2Q, and any other Commonwealth stations using a special prefix issued specifically for the Queen's Jubilee, will count 2 points.

The special event station at Windsor Castle, GB50, will count 5 points.

3. Contacts for the award may be made on any combination of the bands below 30MHz, and on any modes. The same station may be counted again if contacted on a different frequency band, irrespective of the mode of the contacts. No cross-band or cross-mode contacts will count.

4. The award may be claimed by Short Wave Listeners on a "heard" basis.

5. Applicants should send a log extract, or computer listing, of the stations claimed in chronological order, the award fee of £3 (cheques payable to RSGB), and a signed declaration that all contacts were made by the claimant personally, operating from the same DXCC country and in accordance with the terms of their radio transmitting licence. UK applicants should also enclose proof of membership of RSGB.

6. HF applications should be sent to: Fred Handscombe, G4BWP, Sandholm, Bridge End Road, Red Lodge, Bury St Edmunds IP28 8LQ. Enquiries may be sent by mail to the above address, or by e-mail to hf.awards@rsgb.org.uk

7. It is expected that certificates will not be posted until early September 2002. The RSGB HF Committee reserves the right to refuse applications that it believes to be false.

#### VHFJUBILEEAWARD

1. This award for VHF bands only is available to all licensed amateurs.

2. Eligible stations: a) fixed stations. b) /P or /M stations. Contest stations are not eligible.

3. Attainment target = 200 points.

4. Each contact on the qualifying bands counts for the following points: 50MHz: 1pt/contact; 70MHz: 4pt/contact; 144MHz: 1pt/contact; 432MHz: 2pt/contact; 1296MHz: 4pt/contact. For every 'Jubilee Special Prefix' call contacted score 2 points.

5. All contacts must be made during June 2002.

6. No QSL cards are required.

7. Enclose with your application a log extract showing stations and points claimed and signed by one of the following: a) a committee member of an RSGB affiliated society; b) an RSGB-appointed Novice Instructor, Morse Assessor, RRM or DRRM; or c) two licensed amateurs.

8. Enclose the appropriate fee: a) RSGB members £3.00 (6 IRCs); b) UK amateurs who are non-members £6.00 (12 IRCs); c) All others £9.00 (18 IRCs). (Cheques and Money Orders should be made payable to 'RSGB' or 'Radio Society of Great Britain'.)

9. Certificates may be endorsed for band or mode, but this information *must* be shown on the log extract.

10. Stations with the same generic callsign, eg fixed, /M or /P will only count once for points on any one band. They may be worked on other bands for additional points. Contest stations may be worked for qualifying points.

11. VHF applications should be sent to: Tony Jarvis, G6TTL, Dovecote Farm, Patman's Lane, Friskney, Boston, Lincs PE22 8QJ.

# **QSL BUREAU NEWS**

A NOTE FOR Foundation Licensees: you are welcome to use the facilities of the RSGB QSL Bureau under your new M3 callsign in addition to any other callsign you may also hold. Please just put in a note with your QSLs of your RSGB membership number or callsign under which you are registered as an RSGB member.

### RSGB MORSE TEST SERVICE ANNIVERSARY

THE 16TH anniversary of the establishment of the RSGB Morse Test Service is celebrated on **11/12 May**, when County Morse Test Teams will be on the air using special event station callsigns. A minimum of 27 teams will be on the air and a Morse Test 16th anniversary certificate will be available to anyone who makes contact with (or SWLs hear) at least 10. Send £2.50 (cheque or postal order made out to RSGB), \$5 or 6 IRCs to Chief Morse Examiner David Waterworth, G4HNF, 116 Reading Rd, Woodley, Reading RG5 3AD.

# 'IN PRACTICE' WEBSITE AND E-MAIL ADDRESS

THE WEBSITE and e-mail addresses for the *RadCom* 'In Practice' column have been changed without notice to the owner, Ian White, G3SEK. The 'In Practice' website is now www.ifwtech.co.uk/g3sek G3SEK's e-mail address has likewise changed to g3sek@ifwtech.co.uk He looks forward to continuing to receive your practical questions that will be of interest to other *RadCom* readers.

# **NRTIONAL SCIE** A Report on Amateur Radio Activities During the British Association

SPARTOF National Science Week, the RSGB amateur radio demonstration vehicle, GB4FUN, set off on a 1300-mile round trip, to visit schools up and down the country. Its first stop was Stranraer Academy; followed by Thomas Chippendale Primary School, Otley; Rydal Penrhos School, Colwyn Bay; Padgate High School, Warrington; University College School, Hampstead; the Radio Society of Harrow Open Day; Jarvis Brook School, Crowborough; and, finally, the City of London Freemen's School in Ashstead, Surrey. A pupil at the City of London Freemen's School wrote: "Thank you for letting us see all the equipment inside your jolly interesting bus. It was really hi-tech and fantastic to see one of our many forms of communication. We also thought that the aerial on top of the bus was very impressive, especially as it allows you to talk to people on the other side of the world!"

Longer reports on three of the GB4FUN visits are below. In addition, there were numerous other events at which amateur radio was introduced to the public. Frank Mifflin, M0FWM, Chairman of the Whitehaven



Pupils from Stranraer Acadamy brave the cold winds to visit GB4FUN.

Amateur Radio Club, reports that the club operated GB2HTM from the Helena Thompson Museum at Workington in Cumbria. The station was on the air daily between 11 and 16 March. On 14 March, the club also set up a 2m station at a local school, where amateur radio was demonstrated to the pupils.

Local newspapers from Cornwall to Scotland reported on amateur radio during Science Week, eg the *Oldham Evening Chronicle* on 20 March had a feature on the Oldham Amateur Radio Club's display at Oldham Library, and carried an interview with the club's Mike Crossley, M1CVL.

Further reports on amateur radio activity during Science Week will be uploaded to the RSGB website at www.rsgb.org/ scienceweek as they are received.

### **GB4FUN IN COLWYN BAY**

GB4FUN SPENT the day at Rydal Penrhos School in Colwyn Bay on 13 March. Anton Kok, a schoolteacher at the school - and also MW1EYT thanks to the STELAR course - enlisted the help of the North Wales Radio Rally Club (NWRRC) to run the day.

Members of the club did an excellent job setting up the vehicle and manning the station. 10 members of NWRRC were in attendance during the day.

A station was also set up in one of the school labs with an HF station, using an Alinco transceiver and long wire aerial and a 40m QRP transmitter. Use of computers in amateur radio was also demonstrated and club members gave short talks and answered questions.

A constant stream of students,



Girls from the Rydal Penrhos School in Colwyn Bay using HF radio in the GB4FUN van.

both boys and girls, visited the vehicle during the day. Such was the interest that NWRRC has agreed to run a Foundation Licence course specifically for students at the school in the near future.

Credit and thanks must go to Ted (NWRRC Secretary), who was responsible for co-ordinating a very successful day.

### Liz Cabban, GW0ETU, RRM Region 6.

### **PADGATE, WARRINGTON**

THE WARRINGTON Amateur Radio Club visited Padgate High School on 13 and 14 March. Some 200 pupils attended in groups at hourly intervals and kept club members on their toes giving instruction and answering questions. The highlight of the activities was the visit from the GB4FUN radio van on the second day. The appearance of the large white van with the logo GB4FUN and RSGB emblazoned on the side panels created quite a stir. Many pupils could not resist asking what it was all for. They were soon to find out.

Some pupils demonstrated their abilities in the German language during a contact with a station in Steyr in Austria. Considering that they had only been studying German for a year they did very well over the



#### **NEWSREADER(S) WANTED**

LONG-STANDING GB2RS newsreader Ernie Knight, G4NVD, in Grimsby wishes to stand down as a main newsreader after 20 years of service. GB2RS therefore requires a replacement main newsreader or newsreaders to cover the North-Lincolnshire, Humberside and North-East Midlands region on 2m FM. If you can help, please contact Ernie direct on 01472312673, or the GB2RS news manager, Gordon Adams, G3LEQ, on 01565 652652.

#### FOUNDATION LICENCE QUESTION BANK

THE RA HAS requested the assistance of the RSGB in finding suitable persons to write questions relating to items in the assessment objectives column of the Foundation syllabus. If you are interested in submitting (draft) questions, an information pack is available which contains guidance notes on writing suitable questions together with the appropriate stationery. Please contact Alan Betts, Radiocommunications Agency, Wyndham House, 189 Marsh Wall, London E14 9SX; tel: 0207 211 0160 or e-mail: alan.betts@ra.gsi.gov.uk

### **AROS TALKS**

AMATEUR RADIO Observation Service (AROS) Coordinator Barry Scarisbrick, G4ACK, will be giving talks on the work of AROS at the **Kidderminster & DARS** on **7 May** (detailsTony,G1OZB,01299400172); at the **Farnborough ARS** on **22 May** (details from Norman, G0VYR, tel: 01483 835320); and at the **Lincoln Short-Wave Club** on **29 May** (details: John, G1TSL, 01522793751).

# **NCE UEEK 2002** for the Advancement of Science National Science Week, 8 - 17 March

radio and were easily understood by the Austrian radio amateur. Later in the day, other pupils had the thrill of exchanging greetings with a Korean ham who was operating from New York State. Many pupils enjoyed improving their knowledge of geography by being able to see where the overseas amateurs were located, using a computerised world map showing the callsign areas.

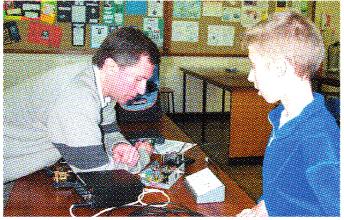
Pupils were also given demonstrations of how a PC linked to a radio can be used for transmitting data and TV pictures from one

station to another. Pupils also had the opportunity to study, and experience the use of several different electronic devices, ranging from a game of skill and co-ordination to detecting ultrasonic signals with a bat detector. All the devices had been built by Warrington ARC members, who were able to answer most of the very detailed questions asked by the inquisitive pupils.

Many pupils forsook the high-tech computerised equipment in favour of learning to send Morse code messages. Most had never before seen a real Morse key but soon got to grips with the use of the key and the Morse code, sending each other simple messages and obviously having a lot of fun in the process.

The club took advantage of the RSGB Library service and hired two videos for showing. These were Secret Life of Radio and An Introduction to the Hobby of Amateur Radio. A set of books donated by the RSGB for the school was presented by the Warrington club.

The following unsolicited quotes from pupils and staff of the school were received



A pupil at Rydal Penrhos School learns about the low-power transmitter.

after the event: "The best bit was sending and receiving Morse code" - Year 8 pupil; "All of the pupils took an active interest in the two days and some were amazed at what the radio club had on show" - Head of Science; "The pupils got really involved and did not want the demonstration to end, even coming back in their lunch hour for more" -Science Teacher; "Thanks very much to all of the radio club for their enthusiasm - it's not every day that we can get 12 engineers into school to share their experience with pupils. Thanks!" - Head of Science; "Can we do this again next year?" - Year 9 pupil.

As a result of its National Science Week activities, Warrington Amateur Radio Club is likely to be approached to assist Padgate High School in a project to build a radiocontrolled robot.

# Ron Davies, G0WJX, Publicity Officer, Warrington Amateur Radio Club OTLEY

SIX MEMBERS OF the Otley Amateur Radio Society put on a 'radio day' for pupils of the Thomas Chippendale Primary School in Otley, Leeds, on 11 March. The youngsters were taught how to send messages in Morse code, and how to spell their names using the international phonetic alphabet. They then practised the phonetics - and simplex radio-type communications using long rubber speaking tubes with funnels on the ends on either side of a closed door. Pupils were then able to put what they had learned into practice when visiting the GB4FUN van, when they had contacts with radio amateurs

around Europe and with Canada. Here are some excerpts from dozens of letters of thanks received from the pupils:

"Monday was absolutely fascinating. I learnt so much that my brain was sagging. I was amazed when me, Jack and Issy spoke to Bob in Ottawa in Canada. I didn't know sound waves could carry so far."

"It was ever so much fun. I am sure that everybody in year 6 benefitted from it. I liked all of it, I don't think I've ever had so much fun! The van was huge and it was brilliant talking to someone in a [foreign] country. The day was great, so please, please, please come again!

"I particularly liked being with David because the tubes were so good, especially the longest tube which was a bit hard to hear, but we managed to do it. I also liked being with Jack in the van to talk to different people in the world, such as Valy from Russia. I hope you can manage to see us again before we go to Prince Henry's as we would all like that. Thank you for the chocolates, we were all fighting over which one we wanted."



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# Front Cover:

Steve Nichols, G0KYA, tries out three of the GM3HAT-design CFL antennas (see page 28). The PCB of the 'Trafalgar' LF receiver, designed by Ted Crowley, EI3CY (see page 46).



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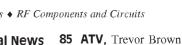
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# UK IARU 2m DF Competition

THE INAUGURAL UK Direction Finding Competition to IARU rules will take place on 2m on **22 June** at the Million, an attractive area of woodland near Stourbridge. For further information contact Robert Vickers, G3ORI, tel: 01384 377008 or look at the website at www.ardf.btinternet.co.uk/ index.html

# New Licensing Structure Exams

A PRESS RELEASE issued by the Radiocommunications Agency on 26 March announced details of the qualifications and examinations for the revised licensing structure for amateur radio. The new licensing structure was first announced in September 2001 and its first phase was CFA Discussion Group

IF. AFTER READING the review of the Crossed Field Loop antennas on page 28 this month, you are interested in experimenting with this new design of antenna, you may like to join a new Internet discussion group set up by Bob Henly, G3IHR. Intended for those interested in the development and construction of antennas using the crossed-field excitation principle, as invented by Maurice Hately, GM3HAT, it is a private moderated group and membership and content are moderated. To join go to http:// groups.yahoo.com/group/xfield/ and select 'Join this group'. Please note that the commercial production of any antenna using this design is covered by patents held by GM3HAT and others. You may, however, experiment with the design for your own use only.

the introduction of the Foundation Licence on 1 January. This has been a great success and since then over 1500 M3 Foundation Licences have been issued. The press release states, "a new syllabus for the Intermediate licence will be introduced early in 2003. This will be based on the current (Novice) syllabus but will exclude those topics covered in the Foundation Licence. The RA plans to announce the syllabus at least three months ahead of its introduction and it will be run initially as a pilot scheme, similar to the Foundation pilot. Once the new syllabus is in force, a pass at Foundation level will be a prerequisite to sitting the Intermediate examination.

"Introduction of the Full licence syllabus is planned for early in 2004. From that date, entry into amateur radio will be exclusively via the Foundation Licence."

None of these changes affects the status of Morse code. "It is still expected that the World Radio Conference in 2003 will remove the obligation on administrations to conduct Morse tests for access to the HF bands. Provided this obligation is removed, it is the UK's intention, supported by the RSGB, to merge the A and B class licences, granting current A licence privileges to all. The three types of licence will then simply be: Foundation, Intermediate and Full. A decision on callsigns has not yet been made, but it is likely that amateurs will retain their existing callsigns."



Pat Gowen, G3IOR, was guest at the February Sunday Lunch meeting of the Cyprus Amateur Radio Club at Avdimou. The picture includes SWL Roger; Alf, 5B4AFB; Tom, 5B4AGP; Mike, 5B4AGX; Mike, 5B4MT; Nick, 5B4FL; Steve, G0LII; Don, 5B4AGQ, and Arthur, 5B4AGT.

# **British Top Band DF Association**

THE BTBDFA was formed in 2000 to centralise the organisation of Direction Finding on 160m in the UK. The association organises the eight qualifying rounds and the final of the National DF championship; the winner receives the handsome RSGB Trophy which is now over 50 years old. The main aim of the association is to increase the popularity of topband DF; it does this by organising events, providing lectures to clubs, putting interested people in touch with each other, writing articles for magazines etc.

Last year's events were all cancelled because of foot and mouth disease, but there will be many 160m DF events in 2002. A qualifying event takes place on **12 May** (contact secretary Bill Pechey for further details); other events this year are as published on page 11 of the April *RadCom*. There will soon be a website at www.TopBandDF.org.uk; meanwhile the association operates an e-mail reflector. Join by sending a blank e-mail to TopBandDF-subscribe@topica.com Membership of BTBDFA is open to individuals and clubs; details from Bill Pechey, G4CUE, tel: 01491 680552, or e-mail: bpechey@iee.org

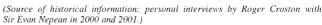
# Sir Evan Yorke Nepean Bt, G5YN, SK

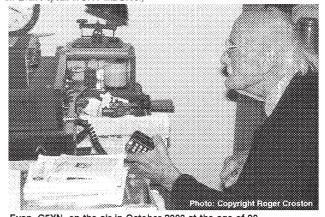
LIEUTENANT COLONEL Sir Evan Yorke Nepean Bt, G5YN, died at the age of 92 on 11 March 2002. Son of Sir Charles Evan Molyneux Yorke Nepean Bt and educated at Winchester and Cambridge, Evan became the 6th Baronet on the death of his father in 1953. He had a life-long interest in radio, taking out a Post Office receiving licence when he was 16 and, two years later, his first transmitting licence. He joined the RSGB in 1926 and was, at the time of his death, the longest-serving member of the Society, clocking up an incredible 75 years of unbroken membership. Sir Evan will probably be best remembered for his activity from Tibet as AC4YN in 1936. He was the last-surviving member of a British political mission to Tibet, which travelled overland from India via Sikkim to Lhasa, crossing the Himalayas on foot. Bearers and pack animals carried the radio equipment, which had been broken down into several loads of 80 to 120 pounds in weight.

During WWII Evan worked for MI8 on codes and ciphers. He was sent to Iraq and Egypt in 1941. He retired from the army six months after the Suez crisis and then worked for the Civil Service on ciphers until 1973.

For many years G5YN was President of the Salisbury Amateur Radio Club and was a tower of strength to many, particularly those struggling with Morse code, driving in from 10 miles away for almost every meeting. He ran the 'G5YN Net' on 80m SSB most weekdays from 1970 onwards and remained active until 2001.

His funeral took place on 18 March and was attended by at least 10 radio amateurs. The RSGB was represented by the President, Bob Whelan, G3PJT.





Evan, G5YN, on the air in October 2000 at the age of 90.



# ILink Demo at Epsom Rally

AT THE EPSOM Rally on **16 June**, Terry, G4CDY will be demonstrating how anyone with a 2m transceiver can access a local Ilink Gateway and talk to stations all over the world. This will be done 'live' via his link on 145.2875MHz in Purley. The Ilink system will also be shown working through a computer connected directly to the Internet. Information about other Internet linking protocols such as eQSO and IRLP will be on display.

# National Mills Weekend

THE NATIONAL Mills Weekend takes place on **11 / 12 May** and is being coordinated by the Denby Dale Amateur Radio Society. The mills award is available from Sue Kirwan, GOWFE (QTHR) if you work (or SWLs hear) 10 mills stations. The cost is £3 (payable to Denby Dale ARS) and proceeds go to help mill restoration. Further information is available on the Internet at www.qsl.net/g4cdd/mills.htm

# GB50: Amateur Radio for the Golden Jubilee

# RSGB Patron HRH Prince Philip to Visit GB50

ETAILED PLANS for the very special amateur radio event at Windsor Castle in late May and early June are proceeding apace. The amateur radio event will take place from a marquee on the North Terrace of Windsor Castle from 0900UTC on 29 May until 2100UTC on 9 June. The event will feature a top-of-the-range amateur radio station and a 'Meet and Greet' area. The Cray Valley Radio Society is now solely responsible for the GB50 amateur radio station, while the Burnham Beeches Radio Club and the RSGB are handling arrangements for the 'Meet and Greet' area. The RSGB has been informed that the Patron of the Society, His Royal Highness Prince Philip, Duke of Edinburgh, will visit the special event station during the Jubilee week.

# **New Amateur Satellite**



KOLIBRI-2000 or RS-21 was launched on 20 March from a Russian Progress M-1-7 launcher that had taken supplies to the International Space Station. Alex Zaitzev, RW3DZ, the director of the Microsat Office of the Russian Space Research Institute, described RS-21 as a non-governmental, non-commercial project, built with the co-operation of students in Russia and Australia. It is in a circular orbit just over 200 miles above the earth and operating on 145.825 and 435.335MHz. RS-21 uses both CW and FSK for telemetry transmissions - but it won't be on the air for long. RW3DZ said the satellite was designed with a limited lifespan and it will fall back into the atmosphere within a few months. Until then RS-21 will send down data and digitallyrecorded voice messages.



The 'Meet and Greet' area will promote amateur radio to the general public, and will feature information boards tracking the history of amateur radio from Marconi to the present day. Information will be available on the new Foundation Licence, including where

to access courses and sit the examination.

Icom (UK) has supplied all the transmitting equipment to be used at GB50. All five operating positions will feature either Icom IC-7400 or Icom IC-756PROII transceivers.

There will be two operating awards available for working GB50. To obtain the first, you need just one QSO with GB50 between 0001UTC on 1 June and 2359UTC on 4 June. A second award is available for making a number of QSOs with the station during the period of operation (29 May - 9 June). Full details are available on the GB50 website or from the Awards Manager, Clare Treacher, R\$102891, at clarejoan@hotmail.com

*RadCom* 'SWL' columnist Bob Treacher, BRS32525 (e-mail: brs32525@compuserve.com), will handle all SWL reports for GB50. Bob is no stranger to QSL Manager duties, having handled SWL cards for the 9M0C and D68C DXpeditions. Visit www.gb50.com for

all the latest news on the arrangements for the Golden Jubilee amateur radio event.

# **'Straight Key'** Evening

THE 21ST annual 'Straight Key' evening, organised by the Edgware and District Radio Society, is on 10 May from 7.00pm local time. Call "CQ SKE" around 3540kHz and above and enjoy a 'chat' using 'straight' keys. GB2SKE and GX3ASR will be active.

# GB2MAS On the Air

SPECIAL EVENT station GB2MAS will be on the air from Montrose Air Station **3 - 7 May**. The Royal Flying Corps no 2 Squadron was established at Montrose in 1913. Further details can be obtained from MM0ERK or MM0BSX (QTHR).



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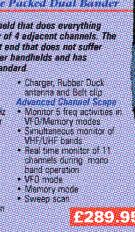
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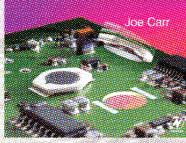
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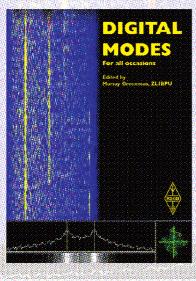


# R E COMPONENTS AND CIRCUITS

For those who are interested in RF design, this is the first RSGB book on the subject written by the legendary author Joe Carr. This book is written in an easy to understand style with the minimum of theory whilst offering a comprehensive introduction to the design and understanding of RF circuits. Developed from a highly popular series in Electronics World magazine, RF Components and Circuits covers the practicalities of designing and building circuits, including fault-finding and use of test equipment.

The late Joe Carr was one of the world's leading writers on electronics and radio, and an authority on the design and use of RF systems. Whether you are looking for a complete self-study course in RF technology, a concise reference text to dip into or a course text that is readable and straightforward, Joe Carr's book has the solution.

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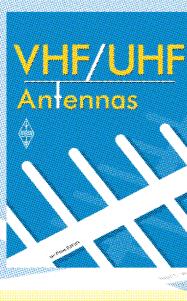
This is the book for every person who is interested in digital modes, as it is simply the most complete book yet written on this subject. The book describes serial transmission and various data and error correction techniques. It explains the differences between a bit, a byte and a symbol, the baud and BPS, Baudot and ITA2 and much more.

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# **Lead Feature**



T THE START of this project, I obtained an American SGC-237 tuner PCB, but decided that its 40W power limitation (100W PEP) and 2:1 input VSWR (before re-tuning) would not be appropriate for my station. The 237 was useful when getting a feel for remote top-feed operation and now serves in a transportable station. **Fig 4** shows how to add an automatic tuner to enable multi-band operation.



The upper part of the author's top-fed antenna, tuner open and tower luffed. It provides allband coverage, 1.8 to 30MHz at full power, with tower at any height. The photograph shows the insulating plate with HN output connector, Tufnol rod insulator and HF balun. The vacuum relay is hidden between the variable inductor and ceramic variable vacuum capacitor. The 'sardine tin' (top left) contains silica gel desiccant.

The photograph shows the top of my full-power multi-band arrangement, where a remote automatic tuner is used for driving either the six-band modified rotatable Yagi on the bands 30m to 10m, or the 20m Versatower on the bands 160m to 40m. However, on 40m, the radiation pattern is not ideal for DX contacts unless the tower height is reduced.

The full tower does result in optimum take-off for contacts a few hundred kilometres distant, however. The tower is motorised and controlled from the shack, so there is no problem slewing the beam elevation on 40m! A remote tuner should offer the advantages of maintaining a low VSWR, even at the band edges, maximising the

Concluding part, by Tony Preedy, G3LNP \*

power out of the radio and minimising feeder attenuation. It also allows operation to continue in bad weather, with the tower partially retracted or if the antenna is detuned by accumulated ice. The overriding benefit is that it saves a lot of hard work, raising and lowering the tower for optimisation of impedance transformation circuits for multiple bands. My system has a unique feature, which is one of the reasons I deferred using the tower on 136kHz. The insulator is bridged by a trifilarwound 100µH choke, necessary with my unusual electrically-tuned HF antenna, both to get band switching voltages to the beam and to provide a static discharge path [1].

The rotating tuner l eventually chose (or rather was given by someone who did not know what it was for), is a US surplus item, MSR 40-20 made by ITT/Mackay. This is typical of those early designs, employing aluminium an case and intended for use on ships (and built like one), where occasional immersion in salt water is inevitable. It appears to be quite happy with the output power from my SSB linear amplifier, although it lacks the sophistication of more recent designs in that it needs to be told when to tune and consumes 1.5A at 12V while doing so. However, once tuned,

the supply can be removed without loss of settings.

Other features are; a pair of signal outputs, derived from forward and reflected power couplers that are used to drive a cross-needle instrument showing VSWR at the tuner input, and a 3dB attenuator that is introduced until tuning is complete, to prevent the transmitter seeing an excessive VSWR. Another remote marine tuner that can sometimes be found on the surplus market is the Redifon ACU15. However, this requires a multi-core interfacing cable carrying an isolated 220VAC supply for the synchronous drive motors and anti-condensation heater, 24V coded telemetry and rela-

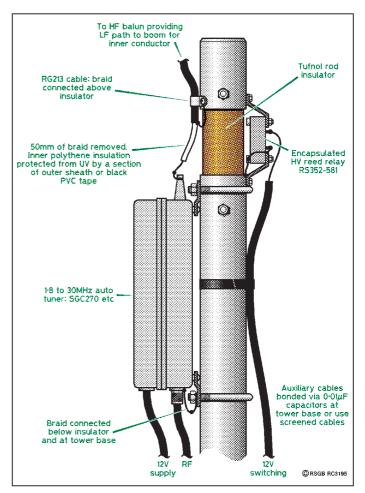


Fig 4: Basic arrangement for using a proprietary automatic tuner to allow a combination of top-feed plus normal operation of the beam antenna.

<sup>\* 7</sup> Station Road, Tring, Herts HP23 5NG.

tively complex interfacing electronics at the operating position. There are some ex-aircraft tuners, notably by Collins, but these are likely to be less amenable to exposure and have restricted tuning range. The recent SGC tuners are particularly attractive because they have all processing on board and can be operated over a single coaxial cable if the 12V supply is diplexed with the RF signal. They have low windloading, particularly if mounted with the major dimension horizontal. Icom supply a similar tuner.

My Mackay tuner is modified to include a vacuum relay and an insulated-type HN waterproof coaxial output socket in place of the original porcelain output terminal. Note that an HN- or N-connector is required, rather than the common SO239 or UHF-type socket, because the latter will compromise the weather sealing of a tuner package. The single changeover contact of the added vacuum relav is arranged to lift from ground the outer conductor of the output socket, whilst shorting it to the inner conductor when required to drive the tower. The Mackay tuner worked as expected on the 1.8 to 7MHz bands at full power, with a VSWR less than 1.2 when driving the tower at any height. The Yagi could be similarly driven, 7 to 30MHz, except that the balun restricted input to 100W if using the driven element of the multi-band



Simple modification to allow LF top feeding by changing the feed cable between LF tuning coil and HF balun.

Yagi on 7MHz. The tuner was, in fact, able to tune the Yagi on 1.8 and 3.6MHz, but I suspect very little power left the tuner!

Because of the high RF voltages expected on the 136 and 73kHz bands (Table 1, last month), conventional relays must be replaced by high-voltage vacuum switches or, alternatively, HF / LF operation will have to be selected on, say, a seasonal basis. For example, retracting and tilting the tower is necessary to allow disconnection of the RF feeder from the balun of the Yagi and plug it into the LF coil. The photograph (below, left) shows such a simple system. In this example, the top of the coil is connected to the boom of the Yaqi, the lower end is connected to the inner contact of a coaxial socket and the outer contact or shell of the socket is connected to the rotating mast

If you are worried, the practical difficulties associated with remote tuning on the LF bands are not insurmountable. Adjusting tower height is not the only way! Because at the lower freguencies the coaxial cable between top and base of the tower can be considered to be of negligible electrical length, and losses due to mis-termination over extremes of a single amateur band are also negligible, it is only necessary for the top inductor to bring the tower to resonance somewhere just above the upper band edge frequency. Final tuning is by means of the tower inductor, located within the shack.

For top feeding, it is necessary to provide electrical connections between feeder braid and tower, both just below the insulator and the tower base. The braid will automatically get connected to the tower if the tuner's 'earth' terminal is connected at the tower Generally, to prevent RF feedback to the radio, the rotator wires and tuner supply cables will also have to be bonded to the tower via capacitors at the base. For 80m and 160m, 0.01µF 250VAC is suitable but about  $0.22\mu$ F is required for the LF bands. In my situation, bonding was simplified because I had anticipated this when previously using shunt feed, by using overall screened rotator cable, which facilitated bonding without capacitors. If building from scratch, I recommend using a single multi-core cable with an overall screen for all auxiliary circuits. We have to assume that there will be electrical continuity between the tower sections and through the rotator bearing. This is not unreasonable, in view of the weight of the materials. In my

experience this continuity is reliable with no sign of poor contact except whilst the tower is being actively telescoped.

Similarly, continuity to the boom and elements of the HF antenna is required either via the balun, hairpin match etc to the antenna input connector. I use a home-made bifilar 4:1 balun to enable the trapless driven element of the beam antenna to be used in the range 10 to 30MHz. This ensures a low-frequency path between both halves of the driven element, boom and both sides of the input connector. The finished antenna consisting of top fed tower and six band yagi was shown in the photo last month.

# TOP-FEEDING A GUYED MAST

FIG 5 SHOWS a typical lightweight HF installation, as frequently used for DXpeditions and field days, modified for top-feed by replacing the rotating stub mast with a short piece of 50mm Tufnol rod. The tuner and relay have been fixed below the rotator in order not to increase stress on the bearings by lifting the antenna. The relay recommended is the high-voltage reed type stocked by RS. The effective encapsulation of this relay eliminates the requirement otherwise to protect the live parts by installing within a nonconducting box. As an alternative to the metal brackets shown, an adhesive can be used to fix the relay to the case of the tuner or a plastic angle bracket used to fix it to the mast. If you decide to design a top-fed system around the SGC tuner PCB, saving more than half the cost of the completed item, it can be packaged in a weatherproof box with space for the relay and an insulated coaxial output connector incorporated. If your Yagi does not have a balun, this can be included in the tuner box. Incidentally, my SGC-237 for portable use is housed with all these items in an Icom tuner box and is used to drive a short inverted-V dipole, either as a dipole or as a top-fed T.

The circuit is as shown in **Fig 6**, and can be used to convert any HF beam or inverted-V system for multiple HF band coverage as a dipole plus top feed. The balun consists of six turns of PTFE insulated twisted pair on a 40mm diameter FX1588 ferrite toroid. It is important to make sure that the flexible cable between tuner and beam does not make contact with either rotator or guys because, on the lower bands when topfeed is being employed, the braid is

# Lead Feature

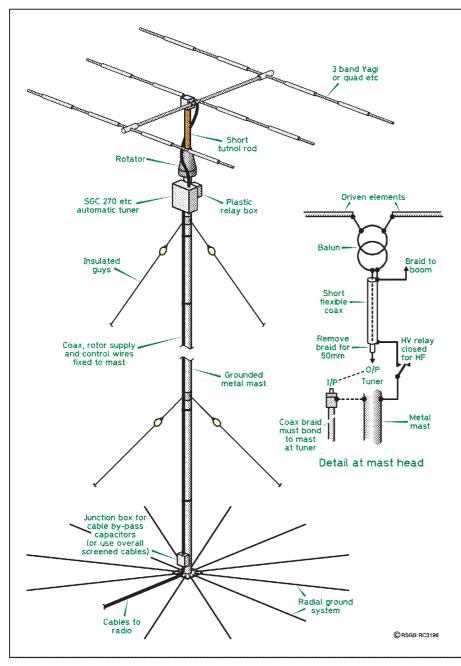


Fig 5: All band antenna system with top-feed, based on a guyed mast.

live. If necessary, additional insulation can be added over the sheath of the cable and the guys re-attached below the tuner, as shown.

The feeder, rotator, tuner supply and relay cables must remain close to the mast throughout its length, and they will require bonding at its base, as described earlier. If buried or running at ground level, they act as additional ground radials.

The remote tuner offers another advantage. Depending on the feed arrangements at the driven element, any triband or monoband beam can be driven as a rotary dipole on the WARC bands, where the tuner eliminates the otherwise prohibitive feeder losses and transmitter power reduction caused by a high VSWR.

# MULTI-BAND COVERAGE WITH A TV ANTENNA

I AM SURE the technique recommended to drive a grounded tower on the low bands could be applied to a chimney- or gable-end-supported amateur VHF or large domestic TV antenna array. The transformation range of the tuner and size of the TV array will determine how low in frequency the system will tune. This has the potential of making an effective but clandestine HF radiator for those with planning problems for amateur antennas. The TV antenna must obviously be of the type with parasitic elements connected electrically to the boom. In this application, the TV coaxial feeder would form both the HF feeder and, jointly

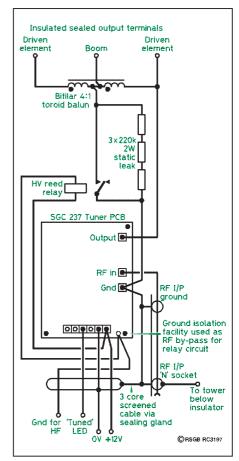


Fig 6: How to integrate an SGC tuner board with other components to make a 100W PEP self-contained dipole plus top-feed unit. This can be used to add extra bands to a triband Yagi, monoband Yagi or G5RV type inverted-V, and allow top-feed on 160m, 80m and 40m. A suitable sealed enclosure is the polycarbonate type, such as RS 138 - 177, with overall dimensions 200 x 150 x 75mm. The transparent lid allows the monitoring of moisture penetration, status LEDs etc, without opening.

with the tuner supply wires, the radiator, whilst the combination of domestic water and heating pipes plus electrical power wiring, to which they should be bonded, could provide the 'ground' or ship's hull effect. Although a separate RF ground is preferred, it is not practicable to separate this safely from the domestic system if using a mains-powered radio. If  $75\Omega$  feeder is acceptable, you can use inexpensive low-loss satellite antenna feeder which incorporates power supply conductors. The remote tuner now poses as a TV mast-head pre-amplifier! It would be advisable, for obvious consideration of EMC or TVI problems, to dedicate the 'TV' antenna to amateur radio, and to receive TV via cable or satellite.

# REFERENCE

 [1] 'Electrically-Tuned Six-Band HF Beam', by Tony Preedy, G3LNP, *RadCom* Jan 1999. ◆

# **IOTA DIRECTORY** - 11th Edition

# IOTA Directory - 11th Edition

Edited by Roger Balister, G3KMA

This book is an essential guide to participating in the IOTA (Islands on the Air) programme. It contains everything a newcomer needs to know to enjoy collecting or operating from islands for this popular world-wide programme.

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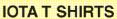
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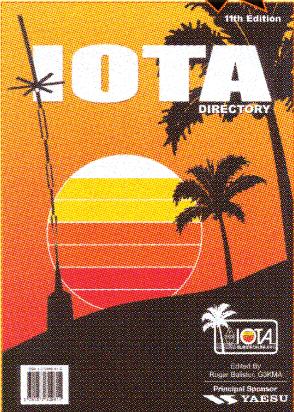
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# UHRTEVER NEXT

STEVE WHITE, G3ZVW 31 Amberley Road, London N13 4BH. e-mail: steve.white@rsgb.org.uk

AST APRIL I wrote about the Fluorescent Multilayer Disc (FMD), a medium which held - or perhaps still holds - the promise of up to 1TB of data storage on a 120mm diameter transparent disc. Since then it all seems to have gone rather quiet, August 2001 being the last time I can find any kind of press release on the subject.

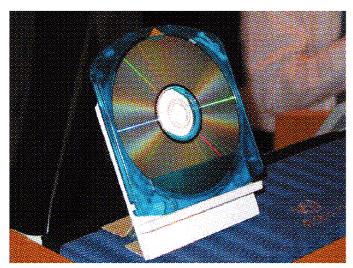
# **NEW RAY OF LIGHT**

IN TOKYO recently, a new digital optical disc to replace the DVD was unveiled. Together, nine major international technology firms [1] unveiled the 'Bluray Disc'. After posing with a model of the disc (see picture below), Shizuo Takashino, corporate senior executive vice president of Sony Corporation, is quoted as saying "It is a truly remarkable format, marking a new era".

The Blu-ray disc is 120mm in diameter, the same as CD and DVD, but uses a blue-violet laser instead of a red laser to record and read data. The shorter wavelength of the light (405nm, instead of 650nm) enables smaller pits to be burned in the recording media, upping the amount of data that can be recorded on a single layer to 27GB. Eventually it is planned to double the capacity.

Licensing to other industry groups to develop products for the technology is scheduled to have begun by the time this column is published, but the firms said they would head in their own directions in developing products for the format, and none was prepared to name a date for when its version would become available. At this stage, Blu-ray is basically a specification, although Panasonic, Philips and Sony are said to have demonstrated prototypes. Masao Suaimoto, the executive corporate engineering adviser to Pioneer Corp. said that the format would be able to take advantage of the spread of HDTV, which had reached some 2.3 million Japanese homes by the end of 2001. "(The Blu-ray) is of great significance in terms of the further development of the electronics industry and the high definition broadcasting sector," he said.

Companies, wary of alienating DVD fans, said Blu-ray products could be made to be compatible with DVDs. In my humble opinion it would be unwise for them not to do so. This is because, according to Sony's estimates, some 25.5 million



The Blu-ray disc that was recently unveiled by nine major electronics companies

	ita Capacitie	3
CD	DVD	Blu-ray
700MB	4.7GB	27GB*
-	133 min	-
-	13h +	2h +
	700MB - -	700MB 4.7GB - 133 min

DVD players were expected to be in the hands of consumers by March 2002, and it would be a risky strategy to produce incompatible products. Jan Oosterveld, representing Dutch partner Royal Philips Electronics from the Netherlands, said: "You all know the struggle we had to come to one format in DVD. We wanted to avoid that right away."

By employing a short wavelength blue-violet laser, the Bluray disc successfully minimises its beam spot size by making the numerical aperture (NA) on a field lens that converges the laser 0.85. In addition, by using a disc structure with a 0.1mm



The new Icom IC-T3H, capable of 5.5W output.

optical transmittance protection layer, the Blu-ray disc diminishes aberration caused by disc tilt. This also allows for better readout and an increased recording density. The Blu-ray disc's tracking pitch is reduced to 0.32µm, almost half of that of a regular DVD, achieving up to 27GB high-density recording on a single-sided disc.

Because the Blu-ray disc utilises global standard 'MPEG-2 Transport Stream' compression technology, which is highly compatible with digital broadcasting for video recording, a wide range of content can be recorded. It is possible for the Blu-ray disc to record digital high definition broadcasting while maintaining high quality and other data simultaneously with video data if they are received together. In addition, the adoption of a unique

ID written on a Blu-ray disc provides high quality copyright protection functions.

# **POWERS CREEP** HIGHER

IN THE EARLY days of handheld transceivers you were lucky if you got more than 1 watt RF output. As semicon-

> ductors were developed that could produce higher power from modest

The new Icom IC-G2XAT, capable of 7W output if run from a 13.8V supply (see text).

voltage, a couple of watts became commonplace, and more recently 5-watt transceivers have become the norm (even

though

	of the Blu-ray Disc
Recording capacity:	23.3GB/25GB/27GB
Laserwavelength:	405nm (blue-violet laser)
Lens numerical aperture (NA):	0.85
Data transfer rate:	36Mbps
Disc diameter:	120mm
Disc thickness:	1.2mm (optical transmittance
	protection layer: 0.1mm)
Recording format:	Phase change recording
Tracking format:	Groove recording
Tracking pitch:	0.32µm
Shortest pit length:	0.160/0.149/0.138µm
Recording phase density:	16.8/18.0/19.5Gbit/inch2
Video recording format:	MPEG2video
Audio recording format:	AC3, MPEG1, Layer2, etc
Video/audiomultiplexingformat	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Cartridge dimension:	Approx 129 x 131 x 7mm

some of the early ones got so hot on transmit that you couldn't hold them). I suppose it was only a matter of time before the power increased further.

The Icom IC-T3H (IC-V8 in the USA) is a new 2m handie that breaks the 5 watt barrier (just) by producing 5.5 watts, but I also found details of another new Icom 2m handie, the IC-G2XAT, that runs 7 watts. At the time of writing, Icom (UK) Ltd knew nothing of this transceiver's existence, so it is probably not destined for the UK market.

# MORE ON HOME **NETWORKS**

MIKE GOODE, G4SMA, wrote to add to the discussion on wireless local area networks. One particular point he highlighted is that the amount of data that a network needs to shift has an effect on its ability to do so. In short, the more you load-up a network, the slower it runs. From my days of looking after an Ethernet network, I remember a figure of 10% occupancy as being the point we really didn't want to exceed, as the performance of the network dropped rapidly thereafter.

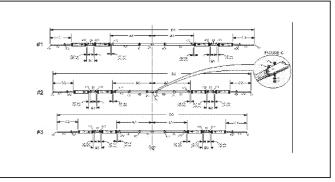
Other things that ought to be thought about when considering a wireless LAN are:

1. if another wireless LAN close by is being used heavily (each can support up to 255 devices), the throughput of yours is likely to be adversely affected, and

2. in certain parts of the world. hackers are known to tour neighbourhoods and map the locations of wireless LANs. returning later to wreak havoc.

It became apparent to me that I had spoken a little too soon when, referring to the fitting of computer networks in new houses, I wrote "I don't know of any house builders fitting SWS as 'part of the deal'." On just about the day that the February edition of RadCom landed on my doormat my parents moved into a brand new house, and guess what it's got . . . yes, a computer network fitted as standard. As if this didn't surprise me enough, I was amazed to discover that there were four outlets in the kitchen alone (ready for the day that the microwave cooker has an IP address and can be controlled from anvwhere in the world, and the freezer can automatically e-mail the supermarket when it decides you haven't got enough food). All telephone outlets throughout the house are gone, and instead network outlets are allocated for the purpose and the phones plugged into them via short adapter leads.

The system in folks had moved



Extract from the downloadable instruction manual for the Cushcraft A3S.

into one of a *very* small number of developments in the UK where such systems are being provided as standard by house builders (almost all of them in Hertfordshire, curiously). On the other side of the Atlantic. I understand that a much higher percentage of American new homes are being provided with such systems as standard, Info-linc being one of several suppliers.

# **FREEINSTRUCTION** MANUALS

IN THIS DAY of free and easy access to information via the Internet, I decided to conduct an experiment to determine whether I could download information specific to a number of amateur radio products. The results were quite interesting.

I started my investigations on the Kenwood website, where I soon discovered that they do indeed carry downloadable instruction manuals for their amateur radio equipment, but only the new models. There was a directory devoted to older models but it didn't contain anything. although a directory devoted to Service Bulletins contained information referring to equipment both new and old.

The Alinco website contained a good selection of instruction manuals for their equipment, but certainly not everything (eg an

instruction manual for their popular transceiver the DX70TH wasn't included). However, the site did contain a selection of downloadable service manuals. and when I checked the one for the DX70TH I was impressed with its content and detail.

I was pleasantly surprised by the Cushcraft website, which seemed to contain instruction manuals for every antenna they have ever made for the amateur market. This particular search turned out to be most fortuitous for me, as a couple of years back I came by an elderly second-hand 2m Ringo Ranger. Of course it came complete without instructions, but now I've got a manual and set-up details for it.

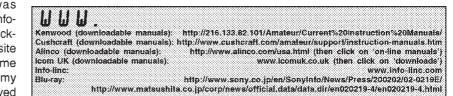
On the Icom UK website there was a selection of downloadable manuals, but only for current models, and even then not all of them.

# NOTE

[1] The nine companies that iointly unveiled Blu-ray are: Hitachi Ltd LG Electronics Inc Matsushita Electric Industrial Co Ltd Pioneer Corporation **Royal Philips Electronics** Samsung Electronics Co Ltd Sharp Corporation Sony Corporation

Thomson Multimedia

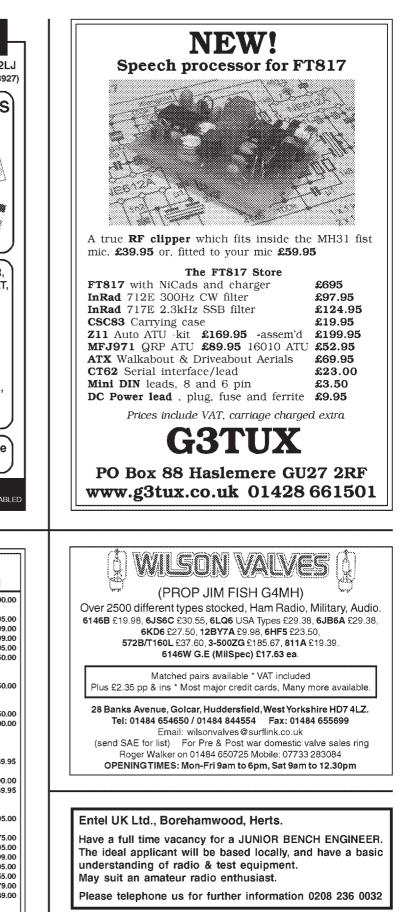
question was provided by Infolinc, and checking their website brought it home to me that my



If there is an item of new technology you would like to know more about - or one that you know about and think ought to be mentioned here - drop a line to the author, or e-mail him at the address at the start of the feature.



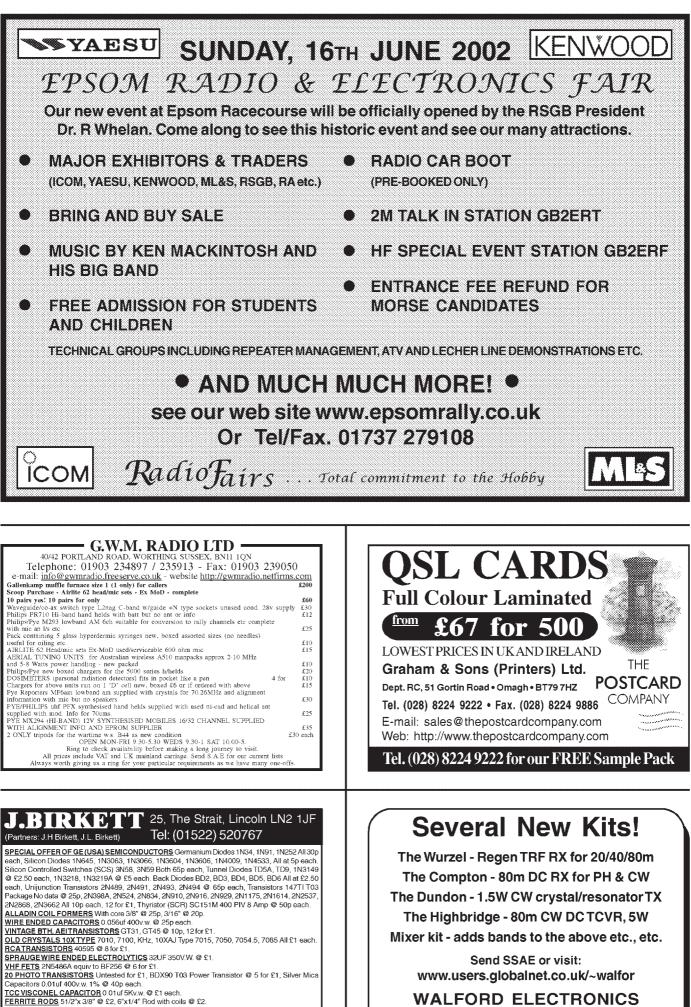
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America Contraction       35p/m         RG582U, 5mm dia, 50 ohm stranded conductor       35p/m         RG174U, 23mm, 55 ohm Tx graded conductor       35p/m         SUNDAY 12th MAY 2002       9am-3pm         9am-3pm       86174U, 10.3mm, 75 ohm low loss Coax       50p/m         STOCKWOOD COUNTRY PARK, LUTON       0ff M1, Junction 10 LUTON       30p/m         BARGAINS FOR EVERYONE       21/m       82/m         VISITOR PARKING £1 PER CAR       00 m Witoban Hould VPC coated       30p/m         0 Core Rotator Cable       70p/m       30p/m         16 Swg HD copper       25p/m       30p/m         17 Component, Some cable, 5 amp       30p/m         30 ohm Ribbon, Hur, Huy PVC coated       8p/m         Aerial Wire, inst duty PVC coated       8p/m         Aerial Wire, inst duty PVC coated       2p/m         16 swg stranded copper       25p/m         16 swg stranded copper cable, 15 amp       30p/m         16 swg stranded copper cable, 20 amp       21 p/m         16 swg st
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# The Hately Antenna Technology Crossed-Field Loop Antennas

It is fair to say that the Crossed-Field Antenna, as parented by Maurice Hately, GM3HAT, has been one of the more controversial antenna designs of recent years. Some antenna experts say they cannot possibly work, but the manufacturers claim that, nevertheless, they do work and that their detractors simply do not understand the method used by the new antenna design. Who is right? In this exclusive report, Steve Nichols, BSc Hons, GOKYA,\* carries out fully-independent tests on 40m, 20m and multi-band Crossed-Field Loop antennas.

A SMALL, efficient antenna for the MF/ HF bands, especially 40m, 80m and 160m, has become the Holy Grail for many radio amateurs. Traditionally, physically-short HF antennas have always been a compromise, although the magnetic loop antenna has been recognised as being a reasonable radiator if Ohmic losses can be kept to a minimum and you can live with its characteristic narrow bandwidth.

But the Crossed-Field Antenna (CFA), as described by Messrs Hately, Kabbary and Stewart in 1988, set the cat well and truly among the pigeons.

The controversy comes from the method by which the inventors claim the RF is generated. In a conventional antenna, the electromagnetic wave is generated by accelerating electrons in a conductor using an alternating current of the desired frequency. The time-varying electric field generates an associated time-varying magnetic field. In the far field this is an electromagnetic wave propagating outwards at the speed of light.

Anyone who has grappled with Maxwell's equations at degree level (as I did) can describe the process verbally far more easily than it can be expressed mathematically in all but the simplest situations.

Vector calculus describes the Poynting Vector as the cross product of the E and H fields (written E x H, but not to be confused with E "times" H). In plain English, the Poynting Vector describes the power density in the wave. The E and H fields are at right angles to each other and the wave propagation or the Poynting Vector is a tright angles to both - again, much easier to show with a basic diagram (see **Fig 1**).

The CFA purports to use direct Poynting Vector Synthesis to create the electromagnetic wave. This uses small structures to

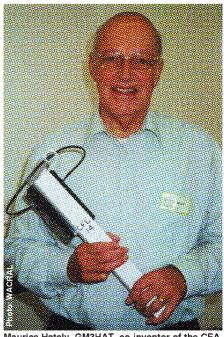
create radio waves from their constituent electric and magnetic fields. The patent says that a CFA radiator can be efficient even if only 2% of the designed wavelength in size, providing both fields are co-located, crossed in geometry, synchronous, proportioned to  $377\Omega$  of  $Z_o$ , and curved to form a spherical wavefront.

In essence, the Poynting Vector Synthesis in a CFA reputedly occurs by dividing the transmit power in half at the phasing unit. Half is used to create the electric field on one of the coaxial conductors and the other to create the magnetic field on the other. When these fields cross each other at right angles, and are perfectly synchronised, the pair interact and radio waves are created. Or if you prefer, photons are created that stream away at the speed of light. By reciprocity, the antenna receives in a reverse fashion.

While early designs used plates, cylinders and phasing units, later models utilised parallel conductors (the Electromagnetic

Delay-Line Radiator). Maurice Hately's latest design is the Crossed-Field Loop (CFL) antenna that uses a coaxial loop and small, mastmounted matching transformer and phasing unit to achieve the same result.

Let me state from the outset that Poynting Vector Synthesis is very much a controversial theory



Maurice Hately, GM3HAT, co-inventor of the CFA, with an HAT CFL14 for 20m.

and many eminent physicists are currently debating whether it is possible at all. My approach from the outset was to test the antennas to see if they worked and to stay away from controversy. There are plenty of people better qualified than me to argue about the theory.

# THE HATELY ANTENNA TECHNOLOGY CFLs

THE 40m (CFL7) and 20m (CFL14) CFLs consist of a small, sealed box containing the matching transformer and phasing ca-



The author, Steve Nichols, G0KYA, with the 20m and 40m versions of the CFL.

<sup>\* 7</sup> Quebec Close, Cringleford, Norwich NR4 6XU.

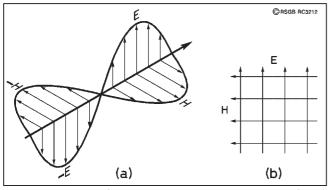


Fig 1: Representation of electromagnetic wave (a) along the path of travel and (b) as seen by an observer looking towards its source. The Poynting Vector is shown by the arrow depicting the direction of propagation of both components.

pacitor, and a copper coaxial loop just 40cm in diameter for the 40m version and a 30cm RG58 coaxial loop for the 20m version. In both cases the loop is held horizontally using a short section of plastic electrical trunking conduit. Likewise. the whole assembly is fixed to a wider piece of conduit that is then used to fasten the unit to a mast using two (supplied) worm-drive (Jubilee) clips. The whole assembly is waterproofed using sealant on all the joints and the 40cm copper loop fastens to the matching unit with N-type connectors. The 40m unit weighs about half a kilo and the 20m version 450g, and both are designed to be functional rather than works of art - they do have an air of 'home-brew' styling about them.

The multi-band loop (the CFL1D) is similar to the 40m version in that it has a 67cm copper coaxial loop. The difference is that it does not contain any phasing capacitor - the phasing is done with a separate shackbased phasing unit and the RF is fed to the unit via a flat three-core cable.

The phasing unit has seven phasing switches marked '16, 8, 4, 2, 1, 0.5 and 0.25', plus an advance capacitor with two switches for extra capacitance, a 'reverse / normal' feed switch, and switches to alter the impedance from 'Hi', 'Med' and 'Low'.

### THE COMPARISON TESTS

AS THE CFL is designed as a low-profile antenna, ideally suited to urban locations, it would seem inappropriate to compare it with a 10-element beam at 100ft. As someone who has used low-profile antennas for years, in three different suburban locations, I felt that it was best pitched against like-forlike antennas.

The main antenna at my four-bed, twofloor QTH is a loft-mounted multi-band dipole array with parallel-fed half-wave elements for 40m, 20m, 17m and 10m. This has been optimised over the years by spacing out the elements to give lowest SWR and has proved to be excellent at both QRP and 100W (max) levels.

I also have two commercial (AMA) magnetic loop antennas for 40 -80m and 20 - 10m that are mounted in the garage roof space, and both are able performers. The 1.7m diameter magnetic loop is a computed 12dBd down on 3.5MHz and 4dBd down on 7MHz. There are additional losses for being loft-mounted, but both are capable of working around Europe with typically 57 - 59 reports, with

the occasional DX contact. Compared with the 40m half-wave dipole, the magnetic loop is usually either equal to, or at most 2 Spoints down. Over the years, tests with a commercial vertical antenna and long wires have showed that the loft-mounted dipole is either equal to or 1 - 2 S-points down, but it rejects a lot of man-made interference.

The HF magnetic loop is also, on average, 2 - 3 S-points down at most compared with the dipoles, although at times there is nodifference. Incidentally, when it is mounted outside on occasions the loop has been within 1 S-point of the dipole.

In conclusion then, I know the capabilities and limitations of my station set-up, and know how a CFL would have to perform if it is to be a viable alternative to the existing compromise antennas.

# THE LOCATION AND RESULTS

I USED self-amalgamating tape on all the CFL connections to stop water ingress and mounted them on a 20ft light-weight mast, just below a 6m HB9CV beam and 2m vertical. I was advised to use 14m of RG58 coax for best matching. The antenna was at least 20ft away from the main wire dipole and 15ft away from the magnetic loops. The CFLs were mounted as far from the loft-mounted dipoles as possible to prevent interaction. No interaction on receive or transmit was noticeable as the magnetic loops were swung past the same resonant points as the CFLs. You could argue that the wire

dipoles should have been taken down for the tests, but that would have made comparisons difficult, if not impossible. The fact that no interaction could be seen with the (physically closer) magnetic loop was a good enough 'rule-of-thumb' test for me.

# THE CFL7 (40m)

THE 40m VERSION was tried first. On connecting up to my Yaesu FT-920 HF transceiver the SWR was found to be 2:1 at 7100kHz, falling to 1:1 at 7050kHz and below. It was possible to run 100W with no problems or change in VSWR.

On locating a strong G station in the middle of 40m the first shock came as I switched between the full-size dipole and the 40cm CFL - there was virtually no difference in received signal strength. Further tests up and down the band showed that for inter-UK working the CFL was always equal to, or no worse than 1 S-point lower than the dipole. Performance was roughly on a par with the magnetic loop.

Noise levels on all three antennas were roughly equal, but the CFL did appear to suffer from fading more than the dipole. Further tests showed that, in certain directions the CFL could sometimes slightly outperform both antennas.

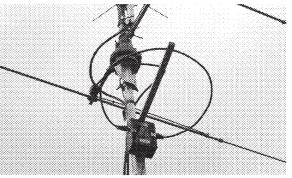
My first SSB QSO was with Ray, G3JGC, in Poole, Dorset on 7068kHz who gave me S9+ on the CFL. On back-to-back tests with the dipole, the CFL was identical. EI6DL then joined in and said the dipole was 10dB stronger than the CFL. This was during the late afternoon with continental QRM.

Signal strengths around Europe were also comparable. As short-skip conditions gave way to long-skip (evening) conditions the general noise level on the CFL was generally similar to the other antennas. Night-time European signals were generally down about 5dB, although all perfectly workable at 59+. VE1UT was a 'near miss' but was 56 on the CFL and 57 on the dipole / magnetic loop.

The CFL is quoted as being horizontally polarised, but the radiation pattern was definitely different from that of the dipole - switching between the two at night often resulted in different stations being received. I have often noticed this with the magnetic loop that is vertically polarised at all angles with nulls on either side of the loop.

As you often find when testing antennas, sometimes signals in some directions are often stronger on the reference antenna and vice versa. The small size of the CFL means it could make a useful addition to an amateur already using another antennas, such as a vertical.

During the test period I met up with another amateur who has a CFL7. He said that



The CFL7 for 40m mounted beneath a rotatable 6m beam. The 20m version is even smaller!

it works well all round Europe on both high power and QRP. He said it outperformed a 60ft longwire he had up, and was not significantly different from a half-wave dipole centred at the same point. For him the big difference was TVI - there was no TVI with the CFL and little induction in the TV downlead. Sceptics would argue that this could be due to poor radiation. I live in a very low area in Norfolk and need a TV amplifier to get a decent picture. The CFL7 was within 10ft of my TV Yagi with the latter looking straight at it. With

100W of CW I could see some patterning on the TV, but this was no worse than that created by similar powers into the dipole.

# THE CFL14 (20m)

I REPLACED THE CFL7 after two weeks with the smaller CFL14. This looks ludicrously small and I was eager to see how it performed.

SWR was 1:1.5 at 14350kHz, dropping to 1:1 at 14223kHz and rising back to 1:1.5 at the 14000kHz band edge. Initial tests shows that it was more prone to interference from my shack computer than either the magnetic loop or the dipole, although the latter's coaxial shield does work very well, supplemented by a ferrite choke at the feedpoint.

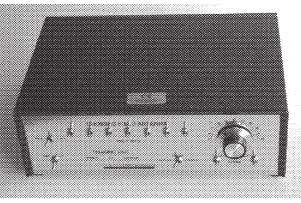
Signals from Eastern Europe during the late afternoon were on a par with the magnetic loop and about 2 S-points down on the dipole. Other signals from southern Europe were also about 2 S-points down. Some signals were occasionally equal to or at worst 1 S-point down on the dipole, although a slightly higher noise level on the CFL made the signal-to-noise ratio seem much worse.

Conditions on 20m were not good at the time, but the antenna performed adequately on both PSK31 and CW modes. Signals were definitely stronger on the indoor fullsize loop on both transmit and receive some being very much down below the (higher) noise level of the CFL when my computers were on. CW practitioners would probably get the most out of this antenna where absolute high signal strengths are not required.

When listening to a regular morning net on 14132kHz with VK2SB he was S4-5 on the CFL and S6-7 on the dipole. You would probably struggle to use this for regular 20m trans-Atlantic or antipodean SSB nets.

# THE MULTIBAND CFL1D

THE DIFFERENCE IN operating the multiband version is that you have to alter the phasing and capacitor arrangements to give maximum radiation. This is not as trivial as it sounds, as there is a multitude of settings to try, plus three different matching



The phasing unit supplied with the multiband CFL1D antenna.

impedances, a normal and reverse feed switch, plus two levels of additional capacitance.

Luckily, you are given a rough reference sheet with initial settings to try. It is then a case of adjusting both phasing delay and capacitance for maximum radiation and minimum VSWR. A field strength meter is essential as low SWR does not always mean maximum radiation.

Once this somewhat long-winded process is complete you should have a set of reference settings for everyday use, although the phasing unit has to be retuned every time you change bands.

The multi-band CFL is a compromise, as the 67cm loop is smaller than optimal for 160m, and larger than optimal for the higher bands. Nevertheless, it does resonate.

With no antenna to compare with on topband the test was always going to be difficult. The best SWR achievable was about 1.8:1. A few European CW signals were heard at S9, but I didn't attempt to work anyone due to time constraints.

Performance was adequate on 80m, but, once again, 1-2 S-points down on my magnetic loop antenna. The big difference was the wide bandwidth on the CFL - it is only about 2kHz on the magnetic loop before having to retune. Intra-UK and European QSOs were possible as long as noise levels and QRM were not too bad. The best SWR was 1:1.3. Noise levels were lower on the magnetic loop as you would expect.

It was the same story on 40m, with the loop being approx 10dB down on the magnetic loop and 15dB down on the dipole.

The higher HF bands were disappointing and it did not seem to perform as well as the dedicated CFL14 on 20m. Signals on 10m were very well down indeed - as much as three to four S-points. A higher noise level too made operating difficult.

# CONCLUSIONS

SOME PEOPLE HAVE suggested that the CFL is radiating from its feeder and tests with a field strength meter did indeed show some radiation when the meter was

almost touching the feeder, but no more than the other antennas in use at this QTH. I don't think that this radiation could account for the antenna's performance, especially on 40m. (And I suspect most feeders in less-than-perfect installations will radiate to some extent.)

While not being the equal of a full-size dipole at 100ft, the CFL can make a usable, low-profile HF antenna, but you do trade some performance for the small size. The wide bandwidth and no-tune characteristics make it ideal for

modern rigs or disabled operators. The 40m version (and multi-band version on 40m) were more than capable of UK and European contacts and were well-suited to those of us without acres of back garden or towers.

The 20m version was slightly less impressive in my own tests, but still produced contacts in a package that was small enough to fit anywhere.

The multi-band version was a compromise, as described, and never matched my other antennas on any band. But the difference was, on average, 2 S-points down. The performance was worse as you headed HF. I believe the lower-band versions make most sense, where a 40m, 80m or 160m antenna would just not be possible from small plots. They would make the difference between making contacts and not. Although I didn't test the 10m or 6m versions, I would consider a wire dipole first if possible as these don't take up much space anyway.

As long as you don't expect a CFL to outperform a dipole or similar antenna you shouldn't be disappointed. CW users, where absolute signal strengths are less important, will probably find them more useful than SSB practitioners.

I liked the 40m version - if you don't have room for a conventional 40m antenna this would get you on to the band. You can always get a QSO on 40m.

As to *how* they work, I will leave that to the ongoing debate. . .

There are monoband CFLs for all bands from 50MHz to 1.9MHz, ranging in diameter from 12cm to 90cm. Prices range from £50 for the CFL50 for 6m, to £132 for the CFL1.9 for topband. The multiband CFL utilises a 67cm coaxial loop and a separate phasing unit for all-band operation from 1.8MHz to 50MHz. The cost is £320, including 15 metres of feeder.

Thanks go to Maurice Hately, GM3HAT, of Hately Antenna Technology for the loan of the antennas. Unfortunately, due to Maurice's ill health, the marketing arrangements for these antennas is changing. New details will be advertised in *RadCom* in due course.





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Yaesu FT1000 mpac Gen.		Lowe Hf225 H/F Rx	£195
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# **The MFJ-461** Pocket Morse Code Reader

# Reviewed by Steve White, G3ZVW\*

HE MFJ-461 IS a self-contained Morse code reader that decodes and displays Morse at up to 99 words per minute (WPM). It comes packaged in a black plastic case, measures approximately 95 x 60 x 25mm and weighs about 140g (including battery).

Basically, the reader works by taking Morse at audio frequency, turning it into an on-off DC signal by use of an audio phase lock loop (PLL), decoding that signal in a specially-programmed 16C83A PIC chip, then feeding it to a liquid crystal display (LCD). Once the

reader has 'trained' itself, which can take a few seconds, it can track Morse that changes in speed and which drifts a little in frequency. In addition, a serial output is provided for transferring the decoded characters to a computer (terminal program not supplied), the data being sent at the fixed rate of 19.2kb.

## CONSTRUCTION

THE DECODER part of the reader is constructed on a double-sided printed circuit board, populated mainly by surface-mount components. The decoder board is connected via a short ribbon cable to the display, an off-the-shelf two-line 32-character liquid crystal module that protrudes about 3mm through the front of the case.

At the rear of the case there is a slide-off cover for the battery compartment, and two holes through which the user can adjust (a) the sensitivity to audio, and (b) the centre frequency of the PLL.

All the controls and connections are mounted on the right hand end panel of the case. These are: (a) 'power' on-off button, (b) 'repeat' button, (c) 'lock' indicator, (d) microphone, (e) external 'audio in', and (f) 'serial out' to computer.

# **DISPLAY MODES**

THE READER features a 140-character 'repeat' buffer, plus four display modes which can be cycled around. The repeat function is initiated and terminated by pressing the 'repeat' button briefly, whilst the modes are



cycled through by pressing and holding the button in for more than two seconds. In Modes 1 (the default) and 3, the speed of the received Morse is displayed all the time, but doing so means there is less room to display received Morse - 24 and 16 characters respectively. In Modes 2 and 4, which differ in the way that characters scroll across the screen, a maximum of 32 characters can be displayed.

Irrespective of mode, the reader has a sleep function which activates if no Morse is received for some time.

## PERFORMANCE

UPON SWITCH-ON I noticed that the reader initialised in an instant, displaying the messages "Ready" and "0 WPM". Placing it close to the loudspeaker of my HF transceiver while listening at comfortable volume to a CW QSO on 80m resulted in only a few brief flashes of the 'lock' LED and no meaningful display, but characters started to roll across the screen as soon as I adjusted the reader's sensitivity to maximum.

To obtain the most reliable copy I found that I needed to increase the volume of the receiver above the level at which I would normally listen. Fortunately, the input jack is available for connecting audio directly to the reader, and doing so has the advantage of excluding extraneous noises. In this case there is no requirement to 'hear' the Morse at all.

Under quiet band conditions, or when the narrow filter of the receiver was switched in, the reader produced a consistent output. Procedural characters such as KN, which are conventionally written with a bar across the top of them, were displayed in chevrons, ie <KN>

Not surprisingly, the reader coped better with electronically-generated Morse than hand sent, and didn't cope at all when an interfering signal was very close in frequency or when a burst of noise masked it. Such shortcomings are entirely normal, indeed scenarios that adversely affect the reader are mentioned and explained extensively in the instruction leaflet. Having said all that, the reader would almost certainly be useful to some-

one who has only taken a Morse Assessment, ie an M3 licensee, or someone whose Morse is very rusty and who wants to get back into CW operation.

One thing that I was particularly keen to assess was how the reader performed when the battery was low, so I took a *very* worn out 9V battery and installed it. In operation this battery delivered just 3.2 volts. Somewhat to my surprise the reader worked just as well as it did with a new battery. There wasn't even a discernable decrease in the contrast of the LCD display, so full marks in this respect!

### ACCESSORIES

A NUMBER OF optional accessories are available for the MFJ-461. These include:

MFJ-26B - a soft leather protective pouch with clear plastic overlay for the LCD, equipped with push button and jack openings, and pocket / belt clip; MFJ-5161 - a 3.5mm to DB-9 RS-232 serial cable, for connection to a computer; MFJ-5162 - a 3.5mm to 3.5mm audio cable, for connecting the reader to a receiver's external loudspeaker or headphone socket.

One non-optional extra that all users will require is a 9-volt battery, the manufacturers recommending an alkaline version (Duracell MN1604, or equivalent).

### ACKNOWLEDGEMENT

I WOULD LIKE to thank the sole importers, Waters & Stanton PLC, for loan of the review model. The MFJ-461 is available from W&S and other outlets at the price of £84.95.

Review

<sup>\*31</sup> Amberley Road, Palmers Green, London N13 4BH.

# Newcomers' News

News and Comment from and for Amateur Radio's Newcomers. Compiled by Steve Hartley, GOFUW

HANKS TO the sterling efforts of all concerned with the Foundation Licence scheme, over 1200 M3 callsigns have been issued. I can only claim credit for 30 of them, with another 10 in the current class, but only 18 of my 40 are complete newcomers, the rest have been licensed with Class B callsigns for some time.

Another Foundation Instructor, Alan Ralph, G8XLH, sent me reports of the two Foundation courses he has run in Peterborough. His helpers and students must have much more stamina than me, as his courses ran from Saturday morning to Sunday evening, mine are spread out a bit. As Alan points out, after over 20 hours at the venue for the organisers, anyone who thinks these licences are 'being given away with cornflakes' don't know the half of it!

Alan has a good party of helpers for his courses; John, G4HPW, looks after the Morse Assessments and HF on-air activities, Roger Bold, G4CNW, also helps with HF on-air activities, Andy Francis, M5AFU, is the main exam invigilator and Tracey Ralph, M1DZF, handles the course administration, is number two exam invigilator and assists with the VHF on-air activities. Despite the long hours, they must be doing something right because the students have done well and there are now 10 brand-new M3 licence-holders in Peterborough.

I think this is an excellent example of how to spread the load of running a course and how to make amateur radio more accessible. By the time you read this the Peterborough crew will have run another course and Alan has promised to keep us informed of developments. Keep up the good work!

# ANNE'S SUCCESS

FOLLOWING ON FROM her success in winning the transistor

tester from the August 2001 *New-comers News* Anne Reed, 2E1GKY, from Cheltenham was over the moon to pass the Foundation Morse Assessment and secure the callsign M3GKY.

Anne was extremely nervous when she started the assessment but she soon settled down and completed it with flying colours. She reports that she is now using her short-wave listening long-wire for transmitting and made her first HF contact with Dave Brown, G4KFN, in Longtown, Cumbria on 3579kHz. Well done Anne, keep us posted on your progress.

# **NEW PROJECTS?**

THE INTERMEDIATE (previously Novice) Radio Amateurs Exam will be changing at the turn of the year when the City & Guilds contract ends. The details of the changes are still being ironed out but one thing seems set to continue is the requirement to construct some sort of radio project as part of the assessment.

I have always been in favour of building a simple amateur-band receiver as part of the course, but I can see why a student with the latest Japanese black box sitting ready to go would not want to build something with a lower specification. This was recognised some time ago and the requirement to build a receiver was modified to allow any suitable radiorelated project of similar complexity, eg a Morse oscillator or an SWR meter.

What do you think should be on the 'approved list'? Let me have your ideas and I will forward them on to the RSGB Amateur Radio Development Committee for consideration.

### **NEW RECEIVERS**

A COUPLE OF possible receiver projects have come to my notice this month. The first is a new kit from Tim Walford's Somerset range. In keeping with his company policy the project is named after a Somerset village, this time

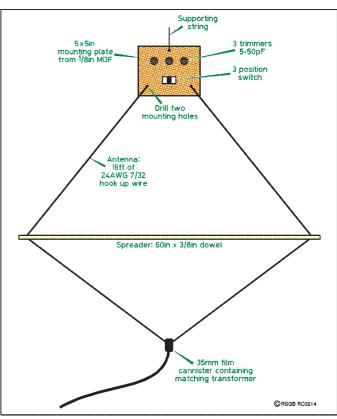


Fig 1: The G4FON portable loop for 20, 30 and 40m. The matching transformer consists of an FT85-61 torroid or similar. Primary 5 turns of hookup wire, secondary: 2 turns of the antenna wire. Adjust prmary turns for 1:1 SWR. (see 'Going Loopy?')

it is the turn of Compton to be pinpointed for the new 3.5MHz direct-conversion receiver. Tim has sent me one of the first kits off the production line to build and review in *RadCom*. If I hadn't have sat down to write this column the rig would probably be finished by now, so watch this space for a review soon.

A new name for amateur radio kits is Tony Westbrook. Tony is considering marketing a kit that will build from a medium-wave crystal receiver to an amateur three-band superhetrodyne receiver. The whole thing is expected to come on to the market at around £60. I will keep you posted of any further news.

# **GOING LOOPY?**

GEORGE DAVIS, G3ICO, from Yeovil asked me to mention an antenna that was published in the Winter 2001/2 SPRAT, the journal of the G QRP Club. He thought it would be of interest to newcomers, especially the new M3s keen to get going on HF without breaking the bank. I asked Ray Goff, G4FON, if he minded me mentioning his antenna and he kindly agreed for it to be featured here. Thanks Ray. The G4FON portable loop is shown in **Fig 1**.

Ray has used the antenna in hotel rooms and other temporary locations to great effect and George, G3ICO, had bagged several countries within hours of building his copy using just a few watts and the antenna hanging from the shack lampshade!

Full construction details can be found in edition 109 of *SPRAT* or from Ray's website where two versions are described in detail.

# **WW W .** Ray Goff, G4FON (portable loop

Ray Goff, G4FON (portable loop<br/>antenna)www.g4fon.co.uk

<sup>\* 5</sup> Sydenham Buildings, Lower Bristol Road, Bath BA2 3BS; E-mail: newcomers.radcom@rsgb.org.uk

# **Down To Eath A Relaxation Oscillator**

# (for those with the laid-back approach to home-brew)

By Steve Seabrook, MOECS

ONSTRUCTION projects really ought to work, but that was rarely my experience as a youngster! Imagine a silicon sculpture of carefully-soldered transistors (all 'rescued' from dead radios) and an assortment of over-optimistic 'working' equivalents. Finally the masterpiece is finished, the battery connected, the switch is thrown and... nothing! It just doesn't work!

# C'EST LA VIE

I THINK THAT a non-working project is a real killer for wouldbe home constructors. It's not the obscure parts or circuit diagrams like the London Underground, but the fact that, after all that eager work, the darned thing just doesn't work! That's life, you may say, but does it *have* to be like that?

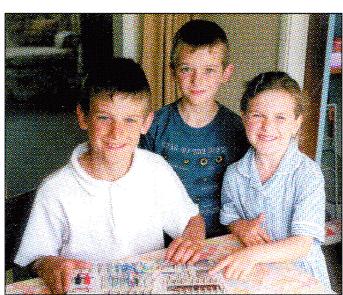
### **RIGHT FIRST TIME**

THIS LITTLE offering is a real favourite because it works. Really! It's simple, it's fun and it does something interesting which justifies its construction. Best of all, you can connect it up all the wrong way round [but you would never do that, of course - Ed] and it will still work when you finally get it right. Using just one transistor and a selection of passive components of non-critical values will produce a working audio oscillator. Adjust a couple of components and you can make it oscillate slowly enough to flash an LED.

# ...BUT HOW?

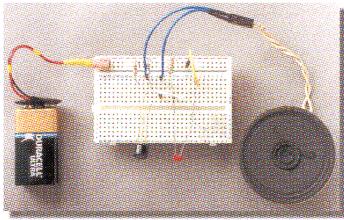
THE CIRCUIT (Fig 1) uses a curious beast - the unijunction

\* E-mail: steveseabrook@waitrose.com



It works! What greater pleasure is there than to construct a project that works first time? Peter, Philip and Hannah Seabrook test their relaxation oscillator. Peter has started the Foundation Course at Borden Grammar School this term.

transistor, which has two bases and an emitter. The connections for the 2N1617A are included, to help you with the construction. If you have to order an equivalent, always ask your supplier to provide details of the connections. R1 and R2 provide the biasing for the transistor, while the values of R3 and C1 determine how quickly C1 charges from zero to 3.2V when the transistor conducts and discharges C1. C1 then recharges through R3 until the conduction voltage is reached again and C1 is discharged. The charge-discharge cycle repeats as long as the power supply is connected. This circuit is called a 'relaxation oscillator', and you will find variations on this circuit in many branches of electronics. See, for example, Fig 4(a) and Fig4(b) on p72 of



The relaxation oscillator, as built on breadboard.

the January 2000 *RadCom*. These are relaxation oscillators.

The speaker (an ex-computer speaker will work fine) will receive a pulse of current every time C1 is discharged, thus producing a coarse tone, the pitch of which depends on the rapidity with which C1 charges through R3. Decreasing the value of R3 or C1 will reduce the time taken for C1 to charge and increase the frequency of oscillation.

The frequency can be calculated from the equation

$$=\frac{K}{RC}$$
,

where R is measured in ohms ( $\Omega$ ) and C in farads (F). K is an experimentally-derived constant; I found its value to be about 1.5. Using the suggested values, the circuit should oscillate at about 1kHz. Make the circuit up on breadboard (see the photographs) and you can experiment with different component values.

# VARIATIONS ON A THEME

THERE ARE A FEW things you can do with this circuit, all using bits from your junk box.

- Try substituting R3 with a potentiometer (say  $10k\Omega$ ) and a  $100\Omega$  resistor in series. Wire the potentiometer wiper (centre terminal) to one end and you now have a variable frequency oscillator.
- Alternatively, substitute R3 with a light-dependent resistor and the frequency will vary with light intensity.
- Increase C1 to 100μF (with the negative side of electrolytic capacitor to ground) and replace the loudspeaker with an LED (its cathode towards the emitter) for a 1Hz flashing light. A high-intensity

LED might work with the 2N1617A's bigger brother, the 2N2646 (it can handle 2A).

#### APPLICATIONS

BEMUSED RELATIVES who tried to look interested in my latest creation often asked the rather disconcerting question, "But what does is *do*?". In other words, "Great - it works but what *use* is it?". A trivial question surely, since the completion of a working circuit was, in itself, too wonderful an accomplishment to be encumbered with the need for any utilitarian function?

Well, here are a few ideas and they can be fun too!

- The audio tone is pretty harsh and, as such, is not ideal for a CW practice oscillator, but it can be used for this. It also makes a cheap and useful buzzer.
- Substitute the switch for a pair of test leads and you have a crude but effective continuity tester.
- It is, in its own right, an excellent, low-cost starter circuit and makes a satisfying project for beginners.
- It can easily be used as a test waveform source for an os-

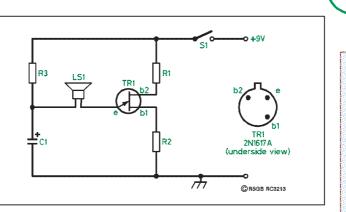
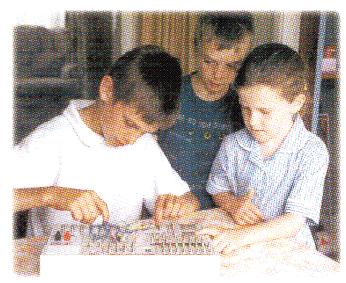


Fig 1: The circuit diagram of the relaxation oscillator. Connections to the 2N1617A are shown.

- cilloscope. The circuit's function is readily demonstrated with a scope. Try connecting a probe to each leg of the transistor in turn with the scope ground attached to the negative rail.
- Make a children's Christmas game. Bend some coat hanger wire into an interesting shape and connect it in place of one terminal of the switch. Make a metal loop on a handle and connect it in place of the other switch terminal. Now see if the grandchildren can work the loop along the wire and around the bends without activating the buzzer. Great for adults after a few eggnogs too!



"Are you sure that's the right place?": it's always advisable to have someone else check your circuit.



• Mark, G4HGL, would appreciate the loan of a manual for a **Pye Vanguard FM25B**. All postal and copying expenses willingly paid. G4HGL, QTHR. Tel: 0151 473 4095 (office hours).

● John, G3GTJ, is researching on-board HF direction-finders of WWII ("Huff Duff"), and would like to hear of sources of technical and operational information on the equipment designated FH-3 and FH-4. G3GTJ, QTHR. Tel: 01963 240 319 or e-mail sprocketeer@ thersgb.net

Bill, GM0KMG, requests any information on the R551 aerial filter unit and, in particular, SK3 - SK50, PL2, also R91, RFN1076, wave change? GM0KMG, QTHR. Tel: 0141 562 4571.

Grant, G8UBN, is looking for service manuals for the Systron Donner 6420 frequency counter. All costs will be paid. G8UBN, QTHR. Tel: 01256 364 539 evenings and weekends.

• R V Wright has two boxfuls of **teleprinter ribbons** which have dried out, and would like to know if there is any way of resuscitating them. Please write to him at 245 Sandy Lane, Hindley, Wigan, Lancs WN2 4ER.

Richard, G3AAT, would like the loan of the manual (OM1246) for the Marconi TF1246 oscillator. Oscillator is low, but supply voltages are correct. All expenses will be met. G3AAT, tel: 023 9247 5077.

• E J Edwards, G8HLJ, is looking for information on the **Wayne Kerr component tester B521 (CT375)**, and will meet all expenses. G8HLJ, QTHR. Tel: 0151 632 0614.

• Vic, G3IKN, is looking for **Commodore disc drives 1540** and **1541**, with handbooks. G3IKN, QTHR. Tel: 01344 485 635 anytime.

• Ted, G8HLJ, would welcome any information on the Marconi TF2002 Signal Generator and on the  $50\Omega$  pad type TM5573/1. All expenses refunded. G8HLJ, QTHR. Tel: 0151 632 0614.

John, G8UWS, requires information on the Comstream CDR101 Digital Weather Receiver software and password. G8UWS, QTHR. Tel: 01304 240 162/241 771. • Richard would appreciate being sent any back issues of *RadCom*, **QSL cards**, pens, ties, brochures, prospectuses, catalogues, books - in fact anything that you have surplus to requirements. He requests that all parcels be securely fastened! Send them to Richard Pilewski, Broniewsk. 12, 09-200 Sierpc, Woy. Mazowieckie, Poland.

**DWn\To Ea** 

**COMPONENTS LIST** 

LS1 ......  $8\Omega$  ex-computer

speaker (or

similar)

TR1 ..... 2N1617A

R1 ..... 470Ω

R2 ..... 100Ω R3 ..... 15kΩ

C1 ..... 0.1µF

S1 ..... switch

9V battery ... PP3

Ken, G3FVD, had the instruction book for his Tandy / Radio Shack 'Micronta' watch stolen, and hopes someone can supply him with a copy. G3FVD, QTHR. Tel: 01208 72487.

Nasir, AP2NK, would like a copy of the handbook or circuit diagrams of the Kenwood TS-530S and will meet all expenses. AP2NK, QTHR. E-mail: ap2nk@isb.paknet. com.pk

'Helplines' is a free service to members. Requests for help are published in the order in which they are received. We regret it is not possible to provide an undertaking of when any submitted request will appear.

# **BOWN TO Earth RSGB VHF, UHF and Microwave Awards**

an introduction by RSGB VHF Awards Manager. Tony Jarvis. G6TTL

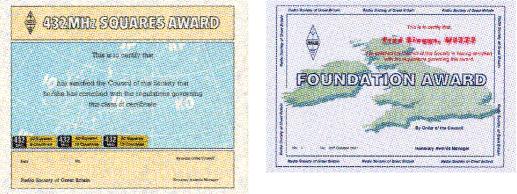
O, YOU'RE interested in the RSGB award scheme? Well, if you've got this far you will probably know that there is one for the HF bands, administered by Fred Handscombe, G4BWP (e-mail: hf.awards@ rsgb.org.uk), and also a broadly parallel scheme for the VHF, UHF and Microwave bands, this being managed by your trusty scribe.

The RSGB is not alone in offering awards for operating achievements: virtually every national society does. In addition many specialist interest groups have their own schemes - in the UK both Worked All Britain (WAB) and the UK Six Metre Group (UKSMG), to mention but two, offer award programmes.

So what is on offer and what makes amateurs claim them? Of those two questions the first is easy to answer - so I'll leave that for the moment and look at the more difficult one: 'Why?' I think if that question were put to 10 amateurs at random you would probably get 10 different answers.

In many cases it is no more than having a piece of parchment to hang on the shack wall. After all, we all know what we have achieved. Don't we? It is for them nothing more than personal satisfaction that is seen by very few other than visitors to that very special domain. On the other hand, holders of awards at the highest level are listed in the 'league tables' found on the RSGB VHF Awards website [1], which is also linked from the RSGB main site at www.rsgb.org [2].

Awards also make an attractive display, along with the QSL \* Dovecote Farm, Patman's Lane, Friskney, Boston, Lincolnshire PE22 8QJ; E-mail: vhf.awards@rsgb.org.uk



cards. Additionally they may also generate a little gentle rivalry between individuals or groups. Oh, and most months, our editor willing, you will get a mention in *RadCom*.

### WHAT'S ON OFFER?

FOR THE MAIN BANDS a range of attainment targets based on 'Squares' and / or 'Countries', UK postal districts (and 'Counties') form the basis of the awards. Additionally, for the microwave enthusiast, there are 'Distance Awards'.

These all require verification by QSL card, something that is an intrinsic part of our hobby. There are also several awards to encourage activity which *don't* require the claimant to submit QSL cards. At present there are two such awards, one for holders of Intermediate (Novice) and one for Foundation Licences.

From time to time special oneoff schemes may run. Currently the RSGB is sponsoring the IARU Millennium Award for contacts by Sporadic E over 2000km. Claimants are requested to include information on other contacts which is forwarded to Jim Bacon, G3YLA, to assist his research into Sporadic E.

In conjunction with the RSGB HF Awards manager, there will also be a special 'Jubilee Award'

available for contacts made during June only [details published elsewhere in *RadCom - Ed*].

So that's the outline, now briefly the detail.

On all bands 'Standard' and 'Senior' awards are available. These require the claimant to have made confirmed contact with the appropriate number of UK postal districts and countries. These may still be claimed using the old counties instead of UK postal districts, but please contact the VHF Awards Manager first.

The successful applicant receives an individual certificate. If you eventually aspire to holding three 'Seniors' (or two Seniors and a microwave Standard) you are entitled to claim a 'Supreme Award'.

On 70, 144 and 432MHz a combination of Squares and Countries form the basis of the award sequence. These are issued at an easily-attainable entry level and may be 'updated' by small increments. The higher the award level usually the more difficult it becomes to attain the increments. As an example, the 144MHz entry point is at 40 squares and 10 countries, extending to over 600 squares and 50 countries.

Six metres is different, in that it reflects the very variable nature of the band and that in the early days the number of nations that had an allocation was limited. Here, there are three awards available, one for Squares and two for Countries. The country award is split into one for '2-way' contacts and one for 'cross-band' contacts (the latter reflecting the high level of 28MHz to 50MHz cross-band activity in the early days of the band's general release in the UK).

The current leading station in the 'Squares' category, GD0TEP, has achieved over 600 confirmed contacts. However, at this level many have been by way of specialist modes such as aurora, EME (earth-moon-earth or 'moonbounce') and MS (meteor scatter).

# MICROWAVES

FOR MICROWAVE operators the options are limited to 'Squares' and 'Distance', the 'Squares' being incremental-based but the 'Distance' awards are currently a mix. For the 'centimetric' bands, ie up to 5.7GHz, a 'one-off' certificate is issued. However for the 'millimetric' bands, 10GHz and above, an incremental scheme is in force which provides a very powerful incentive when improvements may be measured in tens of kilometres.

For all the 'incremental' based awards, an initial claim is rewarded with an entry-level



certificate and appropriate sticker(s). Subsequent claims bring the upgrade sticker(s). Certificates can also be provided to mark specific milestones, eg '500 Squares' or '100 Countries'.

### ENDORSEMENTS

YOUR CERTIFICATE may also be specially endorsed, eg specialist modes, portable operation from specific sites, or 'first year of operation'. In these cases the information must be on the QSL cards, and / or a declaration has to be completed.

Currently about 100 separate awards are issued each year and 50MHz provides most of the claims at present, reflecting the current high level of activity on that band. The vast majority of claims are from RSGB members although non-members can also apply and I get the occasional claim from other nationals.

One question that I often get asked is: "Do you support the scheme you administer?" Yes! I hold a Senior at 144MHz and 432MHz, both issued in 1986, squares awards for 50, 144, 432 and 1296MHz and also a 50MHz Countries (2-way) award.

### **APPLICATIONS**

HAVING GIVEN an insight into what is available, how do you go about claiming an award? This is best answered by explaining the paperwork needed.

Application Form: Complete the appropriate application form, there is one for general use and separate ones for microwave distance claims and for special awards. They each ask for different information pertinent to that award. Most of the form is obvious, but do note that the name you enter is what is printed on the certificate.

**Checklist:** This for many is initially the most difficult part. This is needed for awards that have an incremental component, eg 50MHz Squares, 432MHz Squares / Countries etc and also for the Standard and Senior awards.

Depending on what you are claiming set your checklist out in three columns and enter each claim as:

square/Country Callsign Dateofqs0 For example, if you are claim-

1	-{{.}}	COSDA	17-1-82
8	88.42	P493433	17-1-12
8	8832	£.89888K	5.5.83
1	18893 //	£\$3.Q	15-16-31
§ 1623	3824-1	MM8433W	37-3-82
1	37.25 14	338(A3)	\$-7-69
1	.8858 /	SMERE S	24.7.98
8	1873	35,78335	16-2-38
8	3N36 /	V3/?AZ	10-7-00
<b>8</b> ( Assi )	33.98 X	0335333	24-7-440
8	.8323 🗸	P 2 754551	17.4.32
§	.8348 /	8332F8	24~7-36
1	38746	1.8365	27-7-49
\$	.8566	\$\$\$ \$KCM	14. 2.48

Fig 1: Example of a verified checklist.

ing 175 Squares on 50MHz, then your list will have at least 175 entries. If the main claim is for Countries, please sort the list alphabetically by country and *not* by prefix.

Where you are claiming a Standard or Senior award, please label the columns as:

POSTAL AREA/COUNTY CALLSIGN DATE Each and every QSL card submitted is then checked against this list. A typical checked list is shown in **Fig 1**.

There are various ways of producing these checklists. Most log programs can output selected fields, or you may use a spreadsheet or word processor. The spreadsheet has advantages when your claim gets large as I then check your claim with computer assistance and you may submit parts of the claim electronically.

This checklist, or a printout of it, is returned to you duly verified. You must keep this safe as it will be needed the next time the award is updated. If it is lost you may have to re-submit cards that have already been checked.

It is always a good idea to submit more cards than required in case of any unforeseen problems. This avoids disappointment and delay and in any case additional cards are always credited to the claim.

Where there are two components to the claim, or a card is submitted for two or more awards, please compile separate checklists and indicate where the cards may be found.

**QSL cards**: For each entry in the checklist you should supply a valid card. If you have any doubts, please supply a duplicate if you possess one. The cards should carry the words "Confirming our QSO" (or words to that effect).

Do please check the obvious, eg that the band is the band for which you are claiming. This is especially important if the station is a DXpedition working on several bands. Although rare, sometimes the wrong band is entered.

Also make sure that the card is for you and that there

is a date and mode indicated. A date is especially important where the award criteria have changed, eg postcode component for Standard and Senior awards.

Where the claim is for 'Squares', make sure that the locator is shown. Rarely do I find that this is missing but if it is, the position in latitude and longitude will enable the locator to be calculated. Sometimes you may still find old-style 'QRA locators', in which case just add the 'Maidenhead locator'. If you don't want to write on the card, add a note on a *Post-It* and stick it on the card. An example of a valid card is shown in **Fig 2**.

So you have now completed the application form(s), the checklists and sorted the QSL cards into order. The next task is to make up the package to send to me, but first what means are you going to use to get it to me? That's not meant to be a silly question, but there are several ways to post it, all of which require a suitable envelope provided for the return of the cards and paperwork. Certificates are sent separately. Consigning precious cards, that may have taken ages to get to you, to the Post

Office may not be everyone's choice, but they did get to you via the postal service in the first place. If you need peace of mind, Recorded Delivery is available. A more costly but effective alternative is Special Delivery, which is guaranteed next day delivery before 12.00 noon.

Whatever method you choose, you must enclose an SASE with the appropriate postage and in the case of Recorded packages the correct label for its return.

You should now have the following: application form(s), checklists, QSL cards, return envelope (with labels and stamps) and finally the fee, if one is required. I would also appreciate a covering letter with details of the equipment used etc for inclusion in 'VHF Award News' in *RadCom* and on the award website. If you are on-line, please add your e-mail address and you will get confirmation of your claim's arrival.

Full details of all the awards are found on the website and also in the current *RSGB Yearbook* on pages 99 - 100. Also on the website is a number of related pages to help you, including an extensive guide to claiming, information on 6 metres and of course the necessary application forms.

For those with on-line facilities I am happy to discuss claims by e-mail, or a large SASE will also bring the necessary information direct.

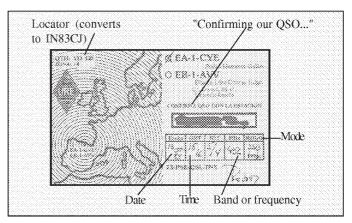


Fig 2: Example of a card valid for RSGB VHF awards.

[1] RSGB VHF Awards [2] RSGB main website

www.argonet.co.uk/users/tonyg6ttl/awards/awards.htm www.rsgb.org

# An Innovative 2-metre

The 'Holy Grail' of VHF DXing is a two-way trans-Atlantic contact on 2 metres, using all-terrestrial means. There has been much discussion about the mode or modes of propagation that will be necessary to accomplish this - tropospheric ducting, double-hop Sporadic E, or something different - or a combination of any or all of these. What seems certain is that such a contact won't be made accidentally or randomly, but will be the culmination of a well-planned and probably lengthy period of experimentation. Ev Tupis, W2EV,\* proposes a means to bring the 2m trans-Atlantic goal a little closer . . .

EVERAL DXpeditions and beacons have attempted to span the Atlantic on the 2-metre band. The common thread joining all of these plans and attempts together is the fact that the systems depended on direct, real-time human participation. It is impossible for human beings to focus around-the-clock on such a project. Is it possible that one needs to think a bit more creatively? Imagine a computer-controlled system that can operate 24-hours a day, and alert the operator only when something has been heard. Impossible, you say? Then you haven't heard about BEACONet.

Here's the recipe. Mix together equal parts of the following on a typical Atlantic Ocean radio-line-of-site amateur radio operator's estate:

Specially designed PSK31 software and a standard PSK31 interface cable

« Computer-controlled station operation

Specially configured APRS software

« Participation on four mid-Atlantic islandgroups and two-continents

« One antenna array of 6- to 18-elements «One stable, frequency-calibrated receive system (preferably preamplifier enhanced) One transmitter capable of generating
 100+ watts on demand.

Combine the first three ingredients by downloading the software from the BEACONet website, installing them on your own Windows-based personal computer.

Sprinkle activity across the Atlantic Ocean so as to have an 'early warning' system in place, should the band begin to show signs of enhancement.

Let bake in the hot summer sun until a 'lift' is noticed. It may take guite some time to occur, be patient. When it does, approach your computer and engage in the first allterrestrial 2m transatlantic QSO via keyboard-to-keyboard PSK31!

### **BEACONet^31**

BEFORE YOU DISCOUNT this system as pie-in-the-sky, you should know that it is in use right now - on the 10m band. The

\* E-mail: w2ev@arrl.net

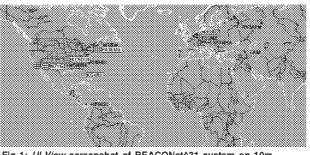


Fig 1: UI-View screenshot of BEACONet^31 system on 10m.

service is called BEACONet^31 and resides on 28.131MHz, USB + 1500Hz PSK31 audio. It is based on Roger Barker's, G4IDE, UI-View software - most commonly used in the APRS service on 144.800MHz. Unlike the APRS service, BEACONet^31 uses PSK31 (rather than AX.25 packet radio).

There are several unique aspects to a BEACONet^31 transmission. For instance, it uses a six-character Grid Locator rather than lat / long. Also embedded in each BEACONet^31 transmission is the station's callsign, frequency of operation, power output, antenna gain, antenna height and antenna bearing. All of this is useful information to the study of the trans-Atlantic path.

Typically a BEACONet^31 transmission is formatted like this:

FOR INFO HTTP://GO.TO/BEACONET G4ABC>VK0G32-9: [IO70se] ^ABCD

The first line is called a preamble. Its sole purpose is to provide a PSK31 signal so that the software's search-and-lock routine can find it in the waterfall, prior to the payload being sent. The second line is the payload. G4ABC is the callsign of the transmitting station, VK0G32-9 is the configuration code, in which is embedded the information referenced above. [IO70se] is the six-character Grid Locator and ^ABCD is a payload checksum to assure that the information is received accurately.

Fig 1 is a UI-View screenshot from W1/PA3EUG in Boston, MA, USA on 10m BEACONet^31 system. The icons represent the location of each received station (as determined by their transmitted Grid Locator). The callsign appears to the right of

the icon. Stations in white boxes are actual receptions: others are 'placeholders' of stations that have been active in the recent past, but not received on the day of this report. As 10m conditions ebb and flow, so do the appearances of the icons. It is a fascinating thing to

observe.

The entire transmission takes 20 seconds or so and is repeated every 10 to 15 minutes, 24 hours a day, seven days a week.

When used on 2m, the goal would be to do so from no later than 1 July until 31 October to take advantage of what may be the prime season for 'lifts' across the Atlantic Ocean. Starting earlier would allow participants to take advantage of Sporadic E links, should they occur. The formatting and timing of the transmission is all handled by the UI-Viewsoftware.

### **GULF STREAM DUCTING?**

UNLIKE TRADITIONAL ATTEMPTS at spanning the Atlantic Ocean, the proposed system does not imply usage on the shortest path between the two continents. Instead. there is a school of thought that implies that an overlooked path may be the one traced by the warm waters of the Atlantic Ocean's Gulf Stream. As such, North Americans as far south as the southern tip of Florida will be encouraged to participate! As of the time of this writing, there is a station in Florida gearing-up with 150 watts and a 14-element Yagi, dedicated to being BEACONet^31 active throughout the noted period.

We will now focus on the geometry of the path from Europe to North America. This is easily done by using the Azimuth-Equidistant map generator from WM7D's website. The next several illustrations provide valuable insight into how the North American coastline appears to inhabitants of different coastal locations on the European conti-

# Trans-Atlantic Recipe

nent. The lighter shading is used to identify paths that are most likely for tropospheric propagation via ducting or 'lifts', given allwater paths and proximity to warm Gulf Stream waters. Of course, should Es be present, stations much further inland will have the ability to participate, too. Darker shading is used to identify Great Circle paths that are less likely to support this mode of propagation, due to the inherently cooler waters of the Northern Atlantic. Landfalls break the path.

The honour of first analysis goes to Ireland. Of course, if (or should I use the term "when"?) the path is traversed on RF, the event will likely include the awarding of the Brendan Trophies - sponsored by the Irish Radio Transmitters Society [see *RadCom* June 1995 - *Ed*]. **Fig 2** shows an Azimuth-Equidistant map, centred on Ireland, with the Great Circle paths identified. At a glance, it appears that much of the Eastern North American coastline is shaded by the Maritime Provinces of Canada. In fact, the only portion of North America with a direct path appears to be the state of Florida, the Bahamas and Cuba.

**Fig 3** shows the Great Circle paths from Land's End. While the coast north of the state of North Carolina is still 'hidden' by the Maritime Provinces, much of the south-east coastline has now come into range. This is good, as a considerable population of amateur radio operators live in this area of the United States. Topographically, this begins to include some coastal highlands, in the form of the foothills of the Appalachian Mountains. Though these highlands are quite far inland, they are still considered line-of-site to the ocean. This area of the USA is considered prime for tropospheric enhancement during the summer and autumn.

Fig 4 moves us farther south, to the 'midcoast' of France. Although the amount of additional North American coastline that now comes into view appears to be quite minimal, the success potential has just increased significantly. This is because fully a quarter of the USA's population resides in this additional 'sliver' of the country's coastline. As a matter of fact, this area is known as 'The East Coast Corridor' to VHF Contesters in North America. Some of the highest scores in the ARRL VHF contests come from stations that are now in unobstructed range of this point on the European continent. It is participation by this population of stations that this project would benefit from.

Continuing with our trip to the south, our

next analysis takes us to the Atlantic coastline of Portugal (Fig 5). Again, only a small additional portion of the USA's coastline now comes into focus, but it is a very significant one, none the less. Mount Washington, Vermont, is now in a marginally unobstructed path to this point in Europe. The top of this location houses a weather station with emergency power. One can only dream if someone will realise the potential of that site, as it applies to our experiment with trans-Atlantic 2m propagation.

This analysis would not be complete if we were to omit one additional path - though actually a part of the African continental shelf: the Canary Islands (Fig 6). The path from EA8 to the UK is a well-documented tropospheric circuit (much like the one along the southeast of the USA). Examination of weather phenomena shows that this area is actually a breeding ground for tropical waves of energy that are responsible for the development of hurricanes that batter the Caribbean islands and Gulf of Mexico. As such, it affords this project an interesting opportunity for trans-Atlantic propagation, though not to Europe, Also interesting is a 'sliver' of a path to Mexico's Yucatan Peninsula and beyond to some of its Gulf Coast, too. The path to the Maritime Provinces isn't highlighted because - from a ducting perspective - it doesn't show a lot of promise.

### HAWAII TO MAINLAND USA

DO YOU STILL THINK that this is all just wishful thinking? Then maybe it would be appropriate to compare the potential Europe-to-North America path to the well-established Hawaii-to-North America path (and the established DX record to W7FI). Almost every summer the USA's

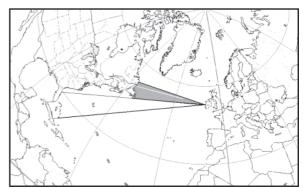


Fig 2: Azimuth-Equidistant map, centred on Ireland, showing 'lineof-sight' ocean Great Circle paths to North America. Lighter shading shows most likely paths for tropospheric propagation via ducting; darker shading shows Great Circle paths less likely to support this mode of propagation, due to cooler waters of the Northern Atlantic.

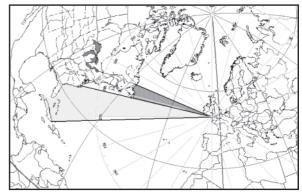


Fig 3: As Fig 2, but from Land's End to North America.

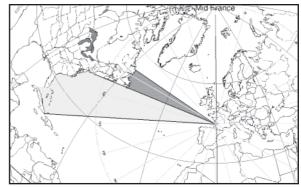


Fig 4: As Fig 2, but from central Atlantic coast of France to North America.

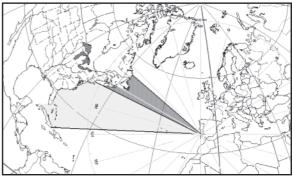


Fig 5: As Fig 2, but from the Atlantic coast of Portugal to North America.

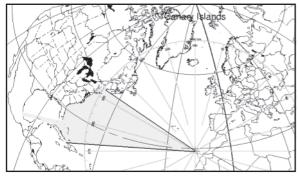


Fig 6: As Fig 2, but from the Canary Islands to North America.

west coast is treated to several days of 2m propagation to the Hawaiian Islands, due to sustained high pressure that forms between the two.

It is interesting to note that similar high pressure periodically forms in the western Atlantic Ocean. It is known as a Bermuda High, and is responsible for significant propagation events all along the eastern seacoast of Canada, the USA and the Caribbean. Similar systems are known to form regularly between EA8 and the UK. Imagine the two 'connectina'!

Fig 7 shows the amazing geographical and geometrical resemblance between the known Hawaii-to-mainland USA path and the potential North America-to-Europe path. In this case, the wedge of dark shading shows a path that is partially obstructed by the Canadian Maritime Provinces.

The Atlantic path is obviously further than the aforementioned Pacific path. The distance from Miami to the Azores is some 700+km further - but that is no reason not to try. Interestingly, the Atlantic Ocean contains several island nations whose BEACONet^31 activity would be welcome in support of this Holy Grail of VHFers.

Simply visit the BEACONet website to download the programs and their setup instructions. Power-up, point your antennas at North America and wait. An analogy to fishing would be appropriate. One may go a very long time until one gets even a nibble. Just when you are about to give up, the 'big one' grabs your hook and all that's left is the bragging to your friends.

The trans-Atlantic BEACONet^31 system will take advantage of the USA's ability to transmit in an unattended mode aroundthe-clock, with fairly high power for an unattended station. Doing so allows operators in Europe to 'lurk' in receive-only mode aroundthe-clock, yet still transmit when an operator is at the station location. It would be good if European participants would remember to

point their antennas at North America and leave their computers functioning (receiveonly) during times when they are not being used for normal amateur communication. In this way, participants maximise their opportunities for success. The UI-View software system will audibly 'announce' the

presence of a new station. It is possible that an enterprising European may come up with a scheme by which that announcement could be heard all around one's house. should the path open unexpectedly!

Because a vast

majority of the path

involved is over

open water, the

possibility of QRM

is minimal, even if

the chosen fre-

quency for this

project is already in

use for another purpose. Since trans-

mitting will primarily

be from North

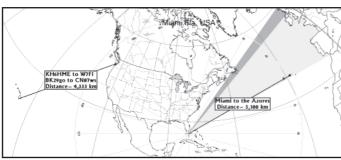


Fig 7: Comparing the similarities of the known Hawaii to West Coast USA and potential East Coast USA to Europe path.

Fig 8 is a simulation of what could be observed some day, when the path across the ocean is finally crossed. Interestingly, KG4RII (the only callsign of an actual participant that is shown) is ramping up right now to begin the project. Dear reader, if you live on any of the mid-Atlantic islands, your participation is profoundly requested!

### **HOW TO TAKE PART**

PARTICIPATION IS EASY, especially if you already have experience with PSK31 on HF.

America, it will be important to find a vacant frequency there, first.

Unfortunately, the Region 1 2m PSK31 frequency is squarely within a CW-only subband in the USA. Other opportunities exist, though. These include (all USB and +1500Hz PSK audio, by the way): 144.101MHz, 144.131MHz, low in the range of 144.490 -144.500MHz and some interesting possibilities at 144.990 - 145.000MHz, 145.550MHz (a frequency that used to be reserved for the Mir space station) and

145.790MHz (with antennas pointed over the ocean, and signals only 31Hz wide, it is doubtful there would be any QRM to the International Space Station on 145.800MHz). These are based on a cursory comparison of the 2m band plans from four different organisations (IARU Region 1, ARRL and two of the USA's east coast frequency coordinators) and are simply possibilities - among others, too - to explore. No actual determination of frequency has been made as of the time of this submission. [Note that some of these proposed frequencies may not be acceptable in the UK - Ed.] So how does one participate without a known frequency? Visit the BEACONet website for announcements. You may also join-in on the discussion by subscribing to the BEACONet reflector which was established to keep participants linked and collaborating while we await nature to honour us with trans-Atlantic signals. The BEACONet^31 system lies-in-wait



Fig 8: Could this be a 2m BEACONet screen some time in the future?

for the band to open, constantly probing for even the slightest propagation enhancements. When a signal is locked-on and decoded, an icon appears on the map and a voice from your computer speaker announces the presence of another signal to the station host. When it has been established that the path is viable this way, a keyboard-to-keyboard QSO may take place, complete with the ability to 'snapshot' the event for posterity (an advantage of having computers involved). It doesn't get much more straightforward than this.

Are vou intrigued? Are vou patient? It may take guite a while (possibly several summer seasons) for conditions to favour a trans-Atlantic path. If "yes" on both counts, then you may have what it takes to participate: the fortitude to be a BEACONet-er. The BEACONet community welcomes you. Visit the BEACONet website to download the software and instructions on its use. You may wish to join in on 10m as a testing ground, prior to setting up for the 2m effort. ٠

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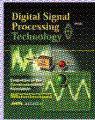
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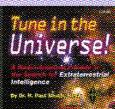
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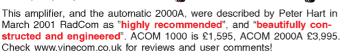
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70cms Super Gainer RX 25-1800	
MHz (Length 37cm) SMA fitting	£22.95
All of the above are suitable to any	
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Please add £2.00 p&p for H/held antennas.

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#### YAGI BEAMS All fittings Stainless Ste

	9	
	2 Metre 4 Element	
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į,	2 Metre 5 Element	
ť,	(Boom 63") (Gain I0dBd) £44.9	5
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	(Boom 125") (Gain 12dBd) 259.90	5
	2 Metre 11 Element	6
	(Beom 185") (Gain 13dBd)	5
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2 Metre (size 12" approx)	£12.95
4 Metre (size 20" approx)	£18.95
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### **MULTI PURPOSE ANTENNAS**

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	TX 2 mtr 2.5 dBd Gain, TX 70cms
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	TX 2 mtr 4.0 dBd Gain, TX 70cms
ģ	6.0 dBd Gain. (Length 62")
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Solid copper earth rod	

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	GUY ROPE 30 METRES	
		1
	MGR-3 3mm (max. load 15 kgs)	-

MGR-44mi	m (max load m (max load	150 kgs) .	 	<b>£1</b> 4
MGR-66m	m (max, load	1140 kgs)	 	£29

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	RG58 best quality standard	
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	permt	85p
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l	permt	£1.10

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### CONNECTORS

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PL259/6															£0.75
PL259/7 for mini 8								4					4		£1.00
BNC (screw Type)					1			U.	Ċ	į,	1	4	Į,		£1.00
BNC (Solder Type)	1.1.1		22			di.	<i>.</i>	6	4	2	.,	Ċ,	Ë,		£1.00
N TYPE for RG58					4							į.	Q.		£2.50
N TYPE for RG213	4.1	24		4				4		ł.			÷,		£2.50
SO239 to BNC	14	Ц.			9				Ľ.	1		2	Ľ,		£1.50
PL259 to BNC		124	2		7	<i>j.</i> ,	47	1		Q		ί.	j,	10	£2.00
N TYPE to SO239					/2	4		<u>.</u>			Ľ,				£3.00

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MD-24N same spec as MD-24 N-type fitting MD-25 (2 Way external/Internal Duplexer) (1.3: 35 Mbz 50 50-225 MHz 300w) (350-540 MHz 300w) nsert loss 0.2dBd Triplexer 1 6-60MHz (300w) 110-170MHz (300w 300-950MHz (500w) 50239 fitting CS201 Two way antenna switch, frequency range 0-16bz, 2 Power Handling SO239 fittings SCS201-N same spec as CS201 N-type fitting	E24.9 E49.9
SO239 fittings           MD-24N same spec as MD-24           N-type fitting         1           MD-25 (2 Way external/Internal Duplexer) (1.3- 35 Mhz 50           (50-225 MHz 300w) (350-540 MHz 300w)           insert loss 0.2dBd           Triplexer 1 6-6CMHz (800w) 110-170MHz (200w           300-950MHz (500w) 50239 fitting           CS201 Two way antenna switch, frequency range 0-1Ghz, 2           Power Handling S0239 fittings         1           CS201 N same spec as CS201         1           N-type fitting         1	0w) E24.9 E49.9 2.5 Kv 218.9 28.9
SO239 fittings           MD-24N same spec as MD-24           N-type fitting           MD-25 (2 Way external/Internal Duplexer) (1.3: 35 Mbz 50           50-225 MHz 300w) (350-540 MHz 300w)           nsert loss 0.2dBd           Triplexer 1.6-60 MHz (800w) 110:170 MHz (800w)           300-950 MHz (500w) SO239 fitting           S201 Two way antenna switch, frequency range 0-1Ghz ;           Power Handling SO239 fittings	0w) E24.9 E49.9 2,5 Kv
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SO239 fittings	
VHz 300w) (350-540 MHz 300w) insertioss 0.2dBd	622.9
MD-24 (2 Way Internal Duplexerl (1.3-35 MHz 500w) (50-	225
TRI/DUPLEXER & ANTENNA SWITCH	IES

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B110 2mtr 100w Linear Freq 140-150 MHz Input 0.5-25 watts Max output 100 watts

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RRP £149.95 SCOOP PRICE JUST £99.00 (While stocks last!!!)

# RSGB IOTA Millennium Programme - IOTA 2000

'IOTA 2000' was the special RSGB IOTA programme run for the Millennium year. IOTA 2000 was administered for the RSGB IOTA Committee by CDXC (Chiltern DX Club) - the UK DX Foundation. The closing date for applications for IOTA 2000 was 31 December 2001 and all certificates had been posted by 31 January 2002. Neville Cheadle, G3NUG,\* the President of CDXC, reviews this successful award programme. Review

HE PURPOSE OF the RSGB IOTA Millennium Programme - 'IOTA 2000' was to celebrate the Millennium, to promote IOTA activity and to have fun on the HE bands.

The world was divided into 12 zones. The limit of each zone was determined by a line of longitude. The first zone started with the International Dateline and ran to the  $150^{\circ}$ E longitude. The second zone ran from the  $150^{\circ}$ E longitude to the  $120^{\circ}$ E longitude. A further 10 zones were needed to divide up the world.

The objective was to contact as many different IOTA island groups as possible within the Millennium year 1 January 2000 to 31 December 2000 on the HF bands. There were two types of contact that counted for credit - 'premium' contacts and 'normal' contacts. Only one premium contact and one normal contact could be claimed for credit with each IOTA island group. regardless of band and mode.

Each premium contact scored three points. Premium contacts were made when an IOTA island group fell into a particular zone. Example: A contact with Ascension Island (AF-003) in the month of July 2000 scored three points. Normal contacts with Ascension, scoring one point, could be made at any time except during July 2000.

A series of attractive certificates was awarded to those attaining the following scores:

- Gold certificates 900 points
  - Silver certificates 450 points
- Bronze certificates 225 points

• Participation certificates were

awarded to all those achieving a score of at least **50 points**. There were also two awards for DXpeditioners.

QSL cards were *not* required. All claims had to include a log extract certified by two licensed amateurs, together with the official application form.

\*E-mail: g3nug@btinternet.com

The above is a brief summary of the rules that were widely publicised. Near the end of every month we also circulated details of the frequently activated islands that counted for premium points during the following month.



### THE YEAR 2000

JANUARY: A slow

start with the islands just to the west of the Dateline, such as New Zealand and Norfolk, counting for premium points.

FEBRUARY saw a great boost in activity with most of the Japanese islands and many of the islands in the east of Indonesia being activated for premium points. Several rare counters were activated this month.

In MARCH many of the remaining Indonesian islands were activated, including some really rare counters.

APRIL and MAY were quiet. The Indian Ocean islands were the main counters and there are relatively few of these. At this stage the challenge of gaining the gold certificate looked quite tough!

JUNE and JULY brought about a great

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Table 1: Main participants by country, including SWLs (14 SWLs took part including three from the UK).

boost in activity with the European IOTAs counting for premium points. There was also a great deal of activity in the RSGB IOTAContest.

AUGUST was quiet with the premium counters being mainly the mid-Atlantic and Brazilian islands.

In SEPTEMBER the Caribbean islands counted for premium points. I believe that most participants achieved their targets during this month.

The rest of year saw activity from the Pacific islands to the east of the Dateline.

Altogether 336 certificates were issued. Some statistics are shown in the tables. **Table 1** shows the main participants by country, including SWLs and **Table 2** is a breakdown of the numbers of different types of award issued. The full list of winners can be found on the CDXC web site (see WWW. below).

*	Gold	42
*	Silver	122
*	Bronze	113
*	Participation	49
*	DXpeditioners'	Platinum 3
*	DXpeditioners'	Gold 7
	Total	336

Table 2: Analysis by Award.

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### **MISCELLANEOUS STATISTICS**

• Approximately 50% of applications were entirely by e-mail.

• Two-thirds of those using e-mail used the custom-written system by SM6DEC, ie around 110.

• There were very few problems with applications.

• 1600 amateurs made around 2700 downloads from the CDXC website.

• Approximately 5000 e-mails were processed.

• 250 man-hours were needed to manage the programme.

• The IOTA 2000 Programme cash cost was approximately £500. This included printing of the certificates, mailing tubes and postage. Our sincere thanks to Nevada for its sponsorship, without which we could not have run this programme.

### CONCLUSIONS

 We had fun, many rare IOTAs were activated and it was quite tough to get gold.
 We had excellent support from Japan, Indonesia and Europe.

« IOTA needs a real boost in the US.

Many chase contacts but do not claim the awards.

There were over 600 IOTA groups active in the year 2000.

There is a need for an annual IOTA activity programme. This will encourage newcomers to join the main IOTA programme. Ideas suggested include activity days and published listings of IOTAs worked during a calendar year.

IOTA 2000 was a relatively easy programme to run.

### **TWO OBSERVATIONS**

TWO OF THE applicants won their certificates the hard way. One made the 450 contacts for his Silver award without claiming any premium counters, ie he worked at least 450 different IOTAs during 2000. Another applicant, this time for the Gold, made all his contacts (in excess of 300) by working only premium counters. Tough going indeed!

My thanks again to Nevada as sponsors, to the members of the CDXC committee and to all the participants for supporting the RSGB IOTA Millennium Programme. Thanks too to Trish, my XYL, who wrote out all the certificates.

For a prospectus about CDXC and a back issue of the CDXC Digest contact Shaun Jarvis, M0BJL, Secretary CDXC, 11 Charnwood Way, Langley, Southampton SO45 1ZL, e-mail: m0bjl@btinternet.com or phone G3NUG on 01442 262929.

UUU. CDXC www.cdxc.org.uk RSGB IOTA Programme www.rsgbiota.org

### POSTBAG

### A selection of comments on IOTA 2000:

I'd like to express thanks to you and CDXC for sponsoring the IOTA 2000 Award. It is the first award besides DXCC that was of any interest to me. It opened up another facet of the hobby that I'd not explored, and it sparked renewed operating interest and enthusiasm. I've since been exploring other operating awards. Researching my logs these past months I've found I qualify for over a dozen awards and I've begun actively working toward another dozen. Your award will hold the special place as the one that started it all. 73 Mike, AL7KC

Today I have received my IOTA 2000 Award! It's my first award and will take special place on wall in my shack! Thanks again. Best regards! Sasa. 9A3NM.

Many tnx for the certificates 'IOTA 2000', very appreciated award received. We are very obliged for your punctuality and for the interesting initiative. All the best and many regards. Pio, IOVII, Enrico, IKONJU, and Massimo, IKOSTM

I have received the certificate. Is very nice and it is my first certificate on radio. Many tnx for all, especially for the IOTA 2000 programme. 73s Amadeo, EA3GCJ

Today I received my Bronze certificate. I am very glad and satisfied. I put the certificate into the frame and hung it on the wall. Very nice view, indeed. I would like to thank you very much and send my regards to all the people who helped in such a nice and friendly idea. Best 73s Marek, SP6NIN.

Thanks for the nice IOTA Millennium Participation Certificate which I received yesterday. Best regards to you and your family. 73 de Chets, VU3DMP.

I have been received IOTA Millennium Award from you. Thank you for your help and support. Best regards from me to your family there. Eka, YCOONE.

Today I received my IOTA diploma. It is truly beautiful. I really thank you for the rapidity! My best 73s Giuliano, IK2VUC.

The beautiful Participation Certificate for Millennium IOTA 2000 has been received at my QTH on the 17th. I thank you very much for the encouragement. I am sure this is the only one for India. I will be showing it to our Bangalore Amateur Radio Club members in the next meeting in September 2001. 73, namaste from India, Arasu, VU2UR.

Want to inform you that I have received the IOTA Millennium Gold award. It is looking very nice. It came to me very quickly, just couple of days after I sent my application to your e-mail address! Thank you very much for the great job. My friends UU2JA and UU-J-1 also received their Bronze awards. Grateful thanks to you from them. 73, best DX, Rusty, UU2JQ.

Very many thanks for the beautiful IOTA 2000 (Silver) certificate recently received and also to Nevada Communications the sponsor. With my low profile set-up I was very pleased with the result. 73, John, G3OLY, Letchworth.

On last Friday we've got the IOTA 2000 Certificate. Thank you very much. It is beautiful certificate. 73 es good luck to all CDXC members. Sincerely yours, Miro, UT7WZ, op of UT7WZA.

I received today the wonderful Millennium IOTA 2000 Silver Certificate. Was a great pleasure to get it - many thanks! Best wishes 73 and thanks again! Sincerely your Zoli, YO2BP.

Received my Silver IOTA 2000 Certificate this morning. May I say thank you very much for a very beautiful and colourful certificate, please pass my tnx to all 73, George, VE3PRU.

I've just received the award and it's really nice. I tell you that thanks to that project I started to look for IOTA islands, so if the idea was to develop the IOTA programme you have made that goal. 73 and clao de Marcol, IK0YVV

Today I received my IOTA 2000 Certificate. It is really beautiful! Thanks very much for nice job.73 de Ivo, LZ4BU.

Just want to thank you for the beautiful IOTA 2000 Gold Certificate that I received in this morning's mail. Very nice job and well managed program. 73 and best wishes, Jerry, W2JZK.

I received the certificate yesterday, thank you very much. It's beautiful. It was fun and a real challenge to get it. Also, I am sure, the IOTA popularity was boosted significantly. All the best, 73, John, OZ4RT.

Many thanks for the IOTA 2000 Certificate. Yes, I like it, it's very nice. You see, I am not a 'pure' DXer, my hobby is HF or VHF CW contesting, but the IOTA Millennium Certificate is my only certificate. 73s for you, hope to see you on the bands. Yours sincerely, Slavek, OK1HX.

Many thanks for my certificate received today. I have been licensed for a number of years now but only recently got interested in IOTA. Thanks to everyone involved with the organisation of the IOTA 2000 award programme. 73, David, G4EDR.

### Technical Feature



HIS DIRECT-conversion LF/VLF receiver is PCBbased. It was designed initially for 136kHz. It may be retuned to frequencies below 136kHz by changing the component values in the signaltuning resonant circuits, and by suitably changing the RC time constant within the local oscillator.

### **POWER REQUIREMENTS**

THE BOARD will operate for 33 hours on an Lithium Manganese 1200mAh PP3 battery. Typically, it draws 36mA from a 12V supply. While it will operate satisfactorily from 9V, it was designed for a 13.8V supply. There are no regulators or

fuses on the PCB. The external supply should be fused, smoothed and regulated.

### PCB DIMENSIONS AND CONNECTORS

THE PCB is 4in x 4in (101.6mm x 101.6mm). It carries five. four-terminal, screwtype terminal blocks, so that connections may be made and remade without damaging the PCB. If preferred, wires may be soldered directly to terminal the blocks' pin holes and the terminal blocks omitted. The pin numbering on the footprints for the terminal blocks, de-

\*7 Trafalgar Court, Greystones, Co Wicklow, Ireland. By Ted Crowley, EI3CY \*



The Trafalgar Receiver undergoing testing in EI3CY's shack.

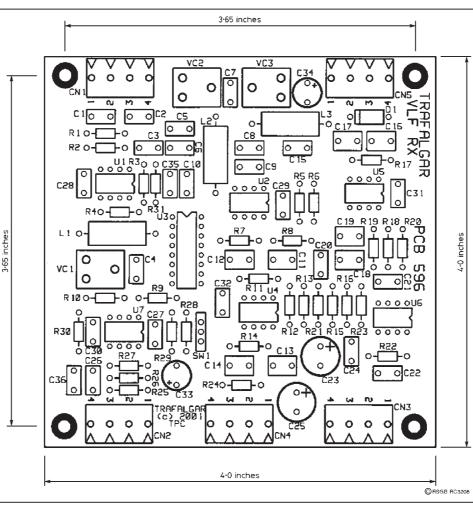


Fig 1: Showing the component placings on the PCB (actual size).

pending on how they are viewed, is from right to left, with pin 1 on the right hand side in each case. Please refer to the component identification outlines and text on the PCB and also to **Fig 1** for the connector pin numbers.

### TECHNICAL DESCRIPTION

### THE RF STAGES

The antenna and the antenna ground are input to the PCB on CN1, as **Fig 2** shows. Pin1 is the antenna terminal. Pin 2 offers a feed of +12V to power say, an antenna amplifier. CN1 pin3 is

grounded. Pin 4 brings the antenna system ground onto the PCB.

On the PCB, notuning is provided ahead of IC1(a). The purpose of IC1(a) is to present a high impedance to the antenna. The tuned circuits following TR1(a) are isolated from the antenna and will not be de-tuned by the antenna, regardless of its characteristics. If desired, a tuned antenna. or an ATU unit, may precede IC1(a). The antenna and the antenna ground terminals (pins 1 and 4 on CN1) may be connected to a ferrite rod antenna. Normally, the components

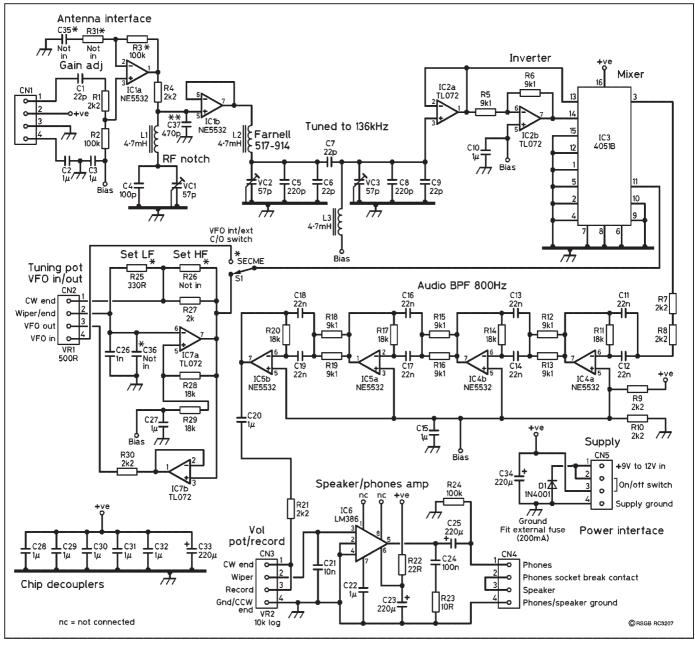


Fig 2: Circuit diagram of the complete receiver. The gain and bandwidth of IC1a are dependent on R31 and C35 as follows:

R31(kΩ)	C35(μF)	Gain(dB)	-3dB BW(kHz)
Omitted	Omitted	Unity	-
33	0.1	+12	50
10	0.22	+20	70

Notes: Power to IC1, IC2, IC4, IC5 and IC7 - positive pin 8, negative pin 4. \* optional; \*\*between pins 4 and 5 of IC1 (under PCB).

R31 and C35 are not installed. R31 may be used to increase the gain of IC1(a), whilst C35 controls its LF response. Similarly, R1 and R2 may be altered in value to provide input attenuation. Without R31 and C35 in circuit and with R1 at 2k2 and R2 at 100k, as shown in Fig 2, the gain of IC1(a) is practically unity. To increase the input attenuation, increase R1 and reduce R2.

The components L1, C4 and VC1 may be omitted. If installed, they can act as a series-tuned absorber circuit to notchout unwanted, out-of-band signals, signals strong enough to cause breakthrough. L1, C4 and VC1 may be varied in value to resonate at the frequency of the unwanted signal. A tiny final modification is shown in Fig 2 in the form of C37, shown connected to pin 5 of IC1. C37, a physically small ceramic capacitor, was added to the PCB after assembly between pins 4 and 5 of IC1. Use a 470pF capacitor say, 10 per cent tolerance, or better. Choose one which tucks neatly between the pins of the IC on the track side. It is not essential but, in conjunction with R4, it causes the frequency response to roll off above 150kHz.

IC1(b), the second half of IC1, acts as a unity-gain buffer to drive signals into L2. L2, VC2, C5 and C6 are tuned to resonate at the frequency of the wanted signal. The second stage of wanted signal selection occurs in L3, VC3, C8 and C9, tuned to the same frequency as L2, VC2, C5 and C6. Both tuned circuits are coupled loosely by C7. The capacitors C5 and C6 in parallel, as well as C8 and C9 in parallel, are provided for flexibility, odd values may be needed.

The two BiFET OpAmps in the TL072 (IC2), are identical. Being BiFET, pin 3 of IC2(a) presents an extremely high impedance and minimal damping to the tuned circuits preceding it.

The output of IC2(a), and its inversion at the output of IC2(b), are fed to the

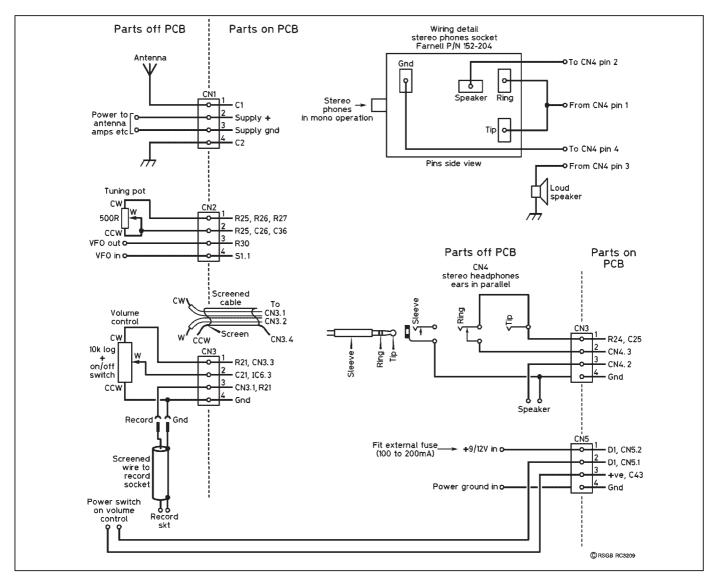


Fig 3: External connections to all five on-board terminal block connectors. At the top right are the connections to the mini-socket (Farnell 152-204) for the headphones - Sony Walkman Stereo.

mixer, the CMOS analogue switch chip IC3, type 4051B, at pins 13 and 14.

### THE VARIABLE-FREQUENCY OSCILLATOR

The 1:1 mark-space ratio variable-frequency oscillator waveform to IC3, the mixer, is fed to its lowest order addressing pin, pin 11. The oscillator signal is generated in IC7(a). The oscillator around IC7(a) is adjustable in frequency by means of a  $500\Omega$  potentiometer, VR1.

Resistor R25, across the frequency control, VR1, sets the lower frequency limit of the oscillator when the frequency control is set to its maximum resistance. Similarly, R26, which may not normally be needed, can be used to set the maximum frequency of the oscillator, when VR1 is rotated fully clockwise. Time spent optimising the resistor values around the VFO can repay handsomely in terms of spreading the 136kHz band (135.7 to 137.8kHz) over as much as possible of the swing of the tuning control.

### FURTHER OSCILLATOR OPTIONS

Additional flexibility features are associated with the variable oscillator:

- Pin 3 of CN2 carries a feed of the oscillator, buffered by IC7(b), which may be used to drive a digital frequency display.
- Pin 4 of CN2 may be used to inject an external oscillation into the mixer via S1. This external oscillation allows flexibility in terms of using an external oscillator.
- C36, shown installed for 136kHz in Fig 2, may be inserted to achieve larger capacitor values, when the PCB is used on frequencies lower than 136kHz. Alternatively, the C26 and C36 positions may be used to advantage on 136kHz to mix capacitors of suitably-chosen temperature coefficients and values to maximise the stability of the VFO.

In normal operation, without an external oscillator, S1 may be replaced economically with a wire strap between its pins 1 and 2. The wiring to all the connectors is shown in **Fig 3** above.

### AUDIO AND THE CIRCUITS FOLLOWING THE MIXER

The audio-bearing output of IC3 appears at pin 3. IC4 and IC5 provide a four-stage bandpass filter tuned to 800Hz. The filter components are selected to give a Q of unity. Of course, the front-end tuning reduces the overall bandwidth to less than the 800Hz provided by the audio filters. An ATU ahead of the receiver gives further narrowing of the frequency response.

With the four filters in cascade, the audio frequency response outside the passband drops off at the rate of 48dB per octave. Given the centre frequency of the filter as 800Hz and a Q of unity, the filter has a bandwidth of 800 Hz. Additional filtering may be added by the constructor either after the phones/ speaker output or following the *record* output.

### THE BIAS GENERATOR

The two resistors, R9 and R10, act as a potential divider across the supply; they generate a bias of half the supply voltage to the filter chips, IC4 and IC5.

### QUEEN ELIZABETH GOLDEN JUBILEE QSL CARDS



The RSGB has produced these special commemorative cards to celebrate the Queens Golden Jubilee. The cards have been luxuriously finished with special colour inks to create an exeptional and memorable card.

The design enables them to be overprinted on your own inkjet printer with your callsign. These cards can also

be used in conjunction with the special GQ (MQ, 2Q) callsigns allowed in June to celebrate this Golden Jubilee.

### Special price for members ONLY £9.99 for 400 cards

(Overprinting with your own callsign can also be arranged for only £25.99 extra)

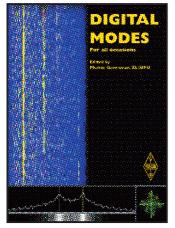


### The BEST Radio Equipment at the BEST PRICES are at









### DIGITAL MODES FOR ALL OCCASIONS by Murray Greenman, ZL1BPU

THIS BOOK REALLY should be in the possession of any radio amateur who is in the least interested in digital modes. Written by an acknowledged expert in the field, it comprises over 200 pages packed with information of every conceivable type relating to digital modes.

Greenman begins his treatise with some 50 pages devoted to the real fundamentals of the subject, leading the reader gently into what is a very complex area of amateur radio.

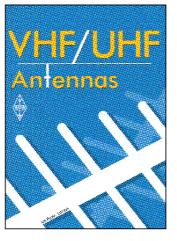
He explains what constitutes a digital mode, and shows the conditions under which a digital mode becomes a fuzzy mode. Like most modes, there are 'horses for courses', and the pros and cons of the digital modes are considered in some detail.

"What modes are covered?" you ask. The basic list includes AmTOR, Clover, Facsimile, Hellschreiber, MFSK16, Morse, MT63, PacTOR, PSK31, RTTY, SSTV and some more esoteric modes for the purists.

Data synchronism and error correction techniques are covered, as is a history of the subject. Had you ever thought that the lighting of beacon fires and the ringing of church bells in emergencies were digital modes?

Greenman then begins on the practical aspects - how to get started. He describes what is needed, how to set it up and how to operate. Each mode is then allocated a chapter, and the appendix covers the reference material from the preceding chapters. The book is well ilustrated with diagrams and cartoons, and can be recommended whatout reservation.

Digital Modes for All Occasions, RSGB ISBN 1-872309-82-8 Members' price: £14.44 Non-members' price £16.99



### *VHF / UHF ANTENNAS* by lan Poole, G3YWX

"YET ANOTHER book about antennas?", might be your first thought on seeing this title. Think again. How many amateur radio books do you know that are specifically about *VHF and UHF* antennas? We do not know of any others: most antenna books concentrate on HF and cover VHF/UHF antennas, if at all, as an afterthought.

Prolific and popular writer Ian Poole addresses this gap in the amateur radio literature in this new book. With 123 pages in a compact 24 x 17cm format, *VHF / UHF Antennas* has nine chapters covering basic concepts, feeders, the dipole, the Yagi, the cubical quad, vertical antennas, wideband antennas, antenna measurements and practical aspects.

The book contains both the basic theory and constructional details for many antenna designs, taking the reader through the essentials in an easy-tounderstand fashion. Simple antennas for the reception of VHF broadcasts supplement the amateur radio projects.

A good antenna is of vital importance to all radio amateurs, regardless of how good (or how much money is spent on) the transmitter and receiver. VHF / UHF Antennasenables the amateur to maximise the potential of his or her equipment, while use of a poor or ineffective antenna will limit the whole station.

VHF/UHF Antennas is ideal for all licensed amateurs or listeners who are active - or who plan to become active - on the VHF or UHF bands. Although written in an easy-to-understand style, even amateurs of many years' experience should learn something from it. For beginners, it provides an excellent introduction to what can become a complicated subject. Even if you operate a 'black box' station into a commercially-manufactured antenna, it is well worth reading VHF/UHFAntennasin order to understand how your antenna works. After all, isn't that one of the things that amateur radio is about?

VHF / UHF Antennas, RSGB ISBN 1-872309-76-3 Members' price £11.89 Non-members' price £13.99

### *RF COMPONENTS AND CIRCUITS* by Joseph J Carr

THIS TOME from the late Joe Carr is a reference book *par excellence* on virtually everything to do with RF.

Starting with a simple definition of radio frequencies, the book then mushrooms into every crevice of the RF world.





Written in Carr's usual easyto-read style, the beginner is not forgotten, and copious diagrams illustrate every point under consideration. A good example of this is in chapter 2 where, starting almost from scratch, the text reaches Fourier series by page 9, and leads painlessly on from there to waveform symmetry, transients, sampling, and noise spectra.

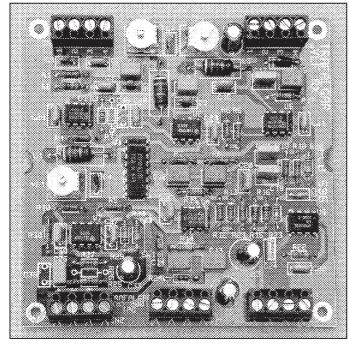
Using these concepts, the second section, 'circuits', considers radio receivers and their performances, treading deftly through the maze of RF amplifiers, mixers, spurious responses, together with thirdorder intercept points and their calculation. Oscillators, IF amplifiers, filters and demodulators bring the second section to a close.

The third section, 'components', covers capacitors, inductors, tuning and matching, splitters and hybrids, and not forgetting monolithic microwave integrated circuits.

Section four, 'measurement and techniques', rounds off the book by considering the measurement of inductors and capacitors, and the equipment with which to do it. Power measurement and filtering against interference is covered, and a simple noise-cancellation bridge circuit is presented as a fitting conclusion to the book, which runs almost to 400 pages.

RF Components and Circuits, RSGB and Newnes ISBN 0-7506-48449 Members' price £19.12 Non-members' price £22.50

### Technical Feature



The Trafalgar Receiver PCB populated with components. Note that, for consistency with this photograph, the integrated circuits in Fig 1 are labelled U1 - U7. In the rest of the article, IC1 - IC7 are used, in agreement with standard practice.

### AUDIO AND THE VOLUME CONTROL

C20 and R21 feed audio to the volume control potentiometer (VR2) via CN3. The four pins on CN3 are utilised as follows:

- CN3 pin 1 takes audio to the clockwise (CW) end of the volume control.
- CN3 pin 2 returns audio to the PCB from the wiper of the control.
- CN3 pin 3 provides a feed of audio not varied by the volume control. It is referred to as 'record'.
- CN3 pin4 connects to the anticlockwise end of the volume control track and takes it to ground. The volume control potentiometer is 10kΩ, audio taper.

### AUDIO AND THE AUDIO OUTPUT STAGE

IC6, an LM386, functions as a loudspeaker

The output from
IC6, at 8 $\Omega$ , is available on CN4, pin1. A
speaker could be connected directly
between CN4 pins 1 and 4. Pin 1 is
intended to be taken to a headphone
socket. The break contact, which opens
when the headphone plug is inserted
into its socket, should be returned to
CN4 pin 2, in which case the speaker
should be connected to CN4 pin 3 with
its other terminal connected to CN4
pin4.

### **POWER INPUT**

CN5 is the power connector. Connect the positive (+) supply to CN5 pin1 and the negative / power ground (-) to CN5 pin 4. Connect CN5, pins 2 and 3, to the on / off terminals of the on / off switch on the volume control.

Date	Time	Station	Comments
07/06/01	2020	G3OLB	Calling CQ
30.05/01	0949	G3OLB	In QSO with GW4HXO
	(	(July was a lost	month. The garden!)
10/08/01	0835	GW4HXO	Calling CQ, RST 579
0.09401	0842	G3AQC	In QSO with GW4HXO
10/02/01	0854	G6RO	In QSO with G3AQC
10.000	0908	G6RO	Calling CQ
12/02/01	1004	GW4HXO	RST 579
12.000	1004	EIOCF	RST 549
20800	1032	MMOALM	RST 589
12000	0902	GW4HXO	Calling CQ, RST 579
2008/01	0909	GW4HXO	Working ON6ND (Not audible)
208/01	0921	EIOCF	Worked GW4HXO, EI, RST 559
18/08/01	0850	DF2BC	Just audible, worked G3KEV
18/08/01	0855	GW4HXO	Calling G3KEV, GW, RST 589
12.000	0937	EIOCF	In QSO
1803031	1526	MMDALM	Calling CQ, RST 569
10000	1531	MMOALM	In QSO with GW4ALM, both 569

Table 1: An extract from the listening log of El3CY.

### and headphones amplifier. Output audio appears on CN4. Its pins are utilised as follows: The output from

### POWER SUPPLY FUSE

A 100mA fuse in series with the positive supply line to the receiver will be adequate. D1, on the PCB, protects the PCB from power supply polarity reversal *provided that* a suitable fuse is in series with the positive supply line, between the power supply and this PCB. D1 protects the PCB by blowing the fuse.

### **RECEIVER PERFORMANCE**

ON A SIMPLE inverted-L antenna, 40 metres long and 10 metres high at its highest point, working against ground and resonated with a home-brew ATU, this receiver performs better than either of two commercially-made general coverage receivers I had until recently, once one allows for the two signal shortcomings of a direct-conversion receiver. **Fig 4** shows the options for connecting various types of antenna. On a few casual listening sessions, mostly over weekends, numerous stations were heard and copied with ease. Part of my listening log is shown in **Table 1**.

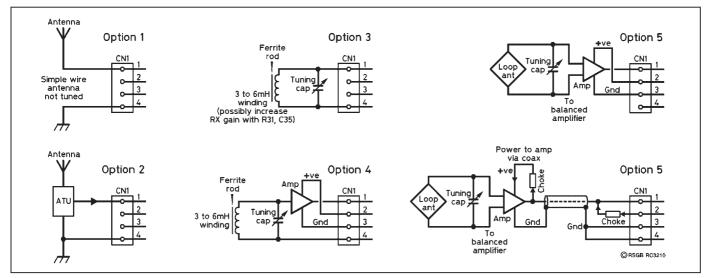


Fig 4: How to connect various types of antenna.

### **RECEIVER OPERATION**

FOR ANYONE FAMILIAR with operating complex and sophisticated commercial amateur radio equipment, this receiver should be simplicity itself to operate. It has only two external controls to adjust, the tuningcontrol and the volume control. I have found it best to tune the VFO from 800Hz below the lower end of the 136kHz band upwards to 800Hz below the top end of the band. In that way I reduce the overpowering signal constantly audible just above the top of the band at approximately 138.8kHz. In this way the VFO tuning range is from 134.9kHz to 137kHz. Normally, I park the receiver at a VFO frequency close to 135kHz. Consequently, I can hear practically the entire band, which is only 2.1kHz wide. Once a station comes on air, all I have to do is tweak the tuning control slightly to place it at the peak of the receiver's frequency response.

### ALIGNMENT

COUNTLESS SNEAKY TRAPS and pitfalls await the builder of any PCB. If the budget permits, use new good-quality components. Take your time, because it takes time. Make it a labour of love. Double-check the orientation of every component before you solder it on the PCB. It is not always that easy to get components out once inserted the wrong way round. No component is ever likely to be the better for overheating, de-soldering and re-soldering. The use of a multimeter is pretty essential. An oscilloscope is nice to have at hand and, if you encounter problems, it also may become essential. A frequency meter, something such as I have shown in the photographs, is essential. A stable signal source, tunable to 136.5kHz or so, is highly desirable. It can be used in conjunction with the scope, or the multimeter, to optimise the trimmer capacitors. Though I have several signal sources, I put together a 2.4576MHz crystal oscillator and divided it by 18 to give an output at

136.533kHz, which is very close to the centre of the band. The divided-down signal I then attenuated by 80dB. Once the PCB is populated or, as is said in the trade, 'stuffed', test it fully sitting on the desk, powered, with the controls and the other connections temporarily hanging out of it, before installing it into its box. This will save you a lot of bother, particularly if the board has problems - it is much easier to turn the PCB over without the box hanging out of it - believe me, I know first-hand.

Now that I have made you too nervous to embark on the project, a word of encouragement, particularly to the beginner. I have made three of these receivers. Each jumped into life once powered, and all that remained to do was insert the 135.533kHz attenuated test signal and tweak the trimmer capacitors. If you happen to believe that an oldstager, like me, does not make mistakes, you'd believe anything! After all, I forgot the LED resistor and it is painful to be reminded of C37!

### THE POWER LED

NO PROVISION was made on the PCB for the 'power on' LED, or its associated resistor. That was added as the PCB was wired into its box. The LED is in series with a 2k2 current-limiting resistor to its anode (+) terminal. The other leg of the LED goes to ground on the PCB (pin 4 of CN 4 is ideal). The far end of the 2k2 resistor goes to the terminal of the power on / off switch on the volume control, which becomes live when the receiver is turned on. The power LED is a nice addition to the receiver front panel. Without it, it is not easy to know at a glance that there is power to the receiver and it brightens things up to see it on. Fig 5 shows CN2 and some ideas for the future.

Should the interest justify placing an economically-sized order, PCBs may be supplied at a modest cost. Please write without obligation, and I'll make a list of persons who have shown an interest. Should that list

COMPONEN	TS LIST (136kHz mo	del)
1. Second States	Velter	
Resistors		
D1 D1 D7 D10		
R21, R30	2k2	543-706
R2, R3, R24 R5, R6, R12		643-860
R13, R15, R16,	2k2 100k 9k1	
R18, R19 R11, R14, R17,	9k1	543-615
000 000 000	. 18k	543-688
R22 R23 B25	22R 10R	
R25 R26, R31	330R	543-263
H26, H31 R27		optional 543-457
VR1	500R lin (see text)	306-8225
VR2	. 10k log with switch	106-481
Capacitors	22 <b>2</b> 5	200 AE2
C1, C6, C7, C9 C11 - C14, C16 - C19	22pF 22nF	
C2, C3, C10, C15,		
C20, C22, C27 - C32	1µF	108-959
	100pF*	optional
C4 C5, C8 C21	220pF 0.01µF	303-458 143-674
C23, C25,		
C33, C34		143-680
C24 C26 C35_C36	1nÉ	147-665
000,000	470pF	optional 303-628
VC1	5-57nE*	ontional
	5-57pF	303-872
Inductors	*	antional
L1 L2, L3	4.7mH	optional 517-914
Integrated Circuits		
IC1, IC4, IC5	NE5532AN	399-899
IC2, IC7 IC3	HEE4051B	401-158 385-347
IC6	LM386N	410-184
Diode		
D1	1N4001	365-117
Miscellaneous		
CN1 - CN5	connectors	304-4555
вох	* switch	279-092
Headahana sackat		152.204
Loudspeaker	8Ω	224-972 as required
PCB mounting screw	s, pillars	as required
12V regulated PSU c	8Ω s. pillars ning dial ir battery	as required as required
Parts marked * are	not in the basic unit	(see text)

become big enough, I'll get back to you in due course, once I have my 136kHz transmitter revamped, and we'll take it from there.

All enquiries and comments by post are most welcome.

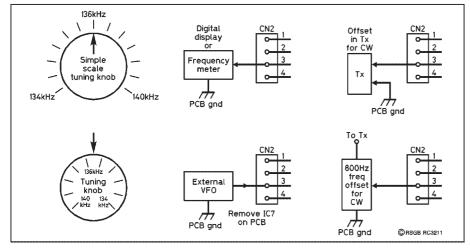
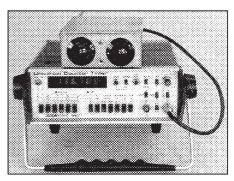


Fig 5: The VFO connector, CN2, with suggestions for tuning dials and possible future developments.



Front view of the receiver sitting on the Racal frequency meter to display the receiver oscillator frequency. The controls visible on the receiver module are as follows: the left hand knob is for tuning; the right hand knob is the volume control; top centre is a green 'power on' LED; lower centre is the headphone socket.

### In Pradike



### IAN WHITE, G3SEK

52, Abingdon Road, Drayton, Abingdon, OX14 4HP Website: www.ifwtech.co.uk/g3sek E-mail: g3sek@ifwtech.co.uk

### NEW E-MAIL AND WEB ADDRESSES

My e-mail and web addresses have had to change without notice. 'dot com' has now changed to 'dot co dot uk', so the new addresses are:

E-mail:g3sek@ifwtech.co.uk

'In Practice' website: www.ifwtech.co.uk/ g3sek

### **HUMAN STORAGE SCOPE**

IN YOUR APRIL article, how did you measure the pull-in and drop-out time of a relay? EVERYTHING HAPPENS very quickly, in a few tens of milliseconds, and ideally you would use a digital storage oscilloscope which can 'freeze' such events for inspection at your leisure. Fortunately you can test relays with an ordinary non-storage scope, using your own persistence of vision and memory instead.

You don't need a scope for everyday amateur radio, but if you get drawn into fault-finding and digital electronics, you'll discover that there is absolutely no substitute. Many radio amateurs either know nothing about oscilloscopes, or else got stuck in the era of very basic scopes that are only good for giving a general impression of waveforms. But a 'laboratory' scope is a true measuring instrument: it lets you capture fast events, and *measure* both the voltages and timescales involved. A laboratory scope is a bit like a car - no matter who made it, or what colour it is, you can always expect the same basic features and facilities. A classic lab scope has:

- DC-coupled vertical (Y) amplifier, so that you can measure static or slowlychanging voltages, and a high input impedance so that the probe doesn't unduly disturb most circuits;
- Calibrated Y deflection (volts per centimetre of vertical movement on the screen) with many switchable ranges, so that you can make real measurements;
- Possibly two independent Y channels; most 'dual-beam' scopes generate the two traces by multiplexing the two Yinputs into a normal single-beam tube;
- Horizontal (X) timebase with a wide choice of calibrated speeds (time/centimetre); and probably the option to input a second signal directly into the X amplifier for X-Y displays;
- Versatile triggering facilities so that you can start the X sweep from a particular feature of the Y waveform: rising edge or falling edge (useful for digital waveforms) or when passing a particular voltage level in either the rising or falling direction;
- Choice of repetitive sweep or a triggered single sweep;
- Sometimes a second timebase, so that you can delay the start of the main sweep for a controlled amount of time after the triggering event, or 'zoom in' on a selected portion of the waveform.

If you don't already have a scope like this, there are many bargains around, because today's professional buyers don't like the larger or older instruments [1] and they look too complicated for many amateur buyers. In fact they aren't as complicated as they seem, because all the controls relate to the basic functions listed above, so they will be much the same on

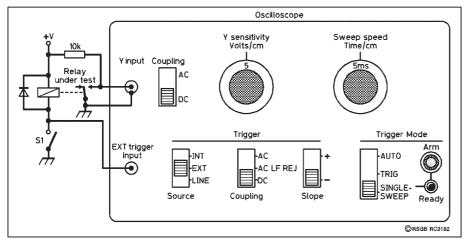


Fig 1: How to use a non-storage scope to measure relay changeover times. This diagram shows the key features which will be somewhere on the control panel of a typical laboratory scope.

Sweep triggered by S1 closing +V Ready OV -Sms/cm

Fig 2: Typical contact closure trace from Fig 1.

any model. Once you've found your way around a particular front panel (which is not much harder than finding all the controls on a new car) it's not difficult to learn how to get the best out of a scope. Measuring the switching time of a relay is a typical example.

What you're going to do is trigger the timebase for a single sweep, and watch the relay contacts change over, with the brightness turned up so high that your eyes and brain can't help remembering what happened. **Fig 1** shows a simple way to hook-up the relay so that the contacts carry a DC signal that you can observe. The switch, S1, that you use to operate the relay will also trigger the single-shot sweep from the falling edge when S1 is closed.

With the input disconnected and the TRIGGER selector set to display a continuous trace, use the Y SHIFT to position the trace near the bottom of the screen. Set the Y SENSITIVITY to something like 5V/cm, and check that the trace moves up and down as you switch the relay. For most relays the SWEEP SPEED will need to be about 5ms/cm to see the whole event. Set the TRIGGER selectors to EX-TERNAL input, DC coupling, SLOPE negative. With the relay switched off and SIN-GLE SWEEP selected, press the button to arm the sweep (probably a READY light will come on). Turn the brightness right up, and a very bright dot should appear at the left-hand edge of the screen. Use the X SHIFT control to position this on the leftmost marker on the graticule. Now watch the screen carefully.

Switch the relay on, and watch the trace flick through. It should look something like **Fig 2**. You missed it! Well, everybody does, first time. Simply switch the relay off, press the button to re-arm the sweep, and do it again. This isn't a precision measurement, but after a few times you'll get a very clear impression of how long it takes for the contacts to close, and how much the contacts bounce after the initial closure. You'll also notice that the measure-

### **In Practice**

ments vary, most likely because relays are not precision mechanisms and sometimes stick a little.

To measure the break time of the relay contacts, change the TRIGGER selector to SLOPE positive. You'll have to arm the sweep *after* having switched the relay on, or else the contact bounce in your switch will probably trigger the sweep before you're ready.

If you have trouble with reliable oneshot triggering, check the levels at the trigger input. This is where a dual-channel scope is convenient, because you can use the second channel to check the triggering waveform without unhooking from the relay contacts. In that case, select INTERNAL triggering, and the second channel as the TRIGGER SOURCE.

### **SWR ERRORS**

A RECENT CHECK on my antenna with an MFJ-259B analyser showed an impedance (Z) of  $53\Omega$ . I thought this should be a good match for  $50\Omega$  coax, but the SWR was indicated as 2.0. It also said that the resistance was  $42\Omega$  and reactance  $32\Omega$ . Is something wrong with the instrument?

NO, THE INSTRUMENT is fine - the problem is your conception of how SWR is related to impedance (Z), resistance (R) and reactance (X). The formula relating SWR to R, X and the reference impedance  $Z_0$  (usually 50 $\Omega$ ) is actually quite complicated. It's most easily written in terms of the reflection coefficient  $\rho$  (rho). As described in the March column,  $\rho$  is 0 for a perfect match, and 1 for a complete mismatch. SWR is related to  $\rho$  by:

SWR = 
$$\frac{1+\rho}{1-\rho}$$

R, X,  $Z_{0}$  and  $\rho$  are related by:

$$\rho^{2} = \frac{(R - Z_{0}) + X^{2}}{(R + Z_{0}) + X^{2}}$$

Let's plug in those measurements of  ${\sf R}$  and  ${\sf X}$ :

$$\rho^2 = \frac{(42-50)^2 + 32^2}{(42+50)^2 + 32^2} = 0.11$$

so  $\rho~$  = 0.34 and

$$SWR = \frac{1+0.34}{1-0.34} = 2.0$$

The impedance Z displayed by the SWR analyser is computed from the usual formula:

$$Z|=\sqrt{R^2-X^2}$$

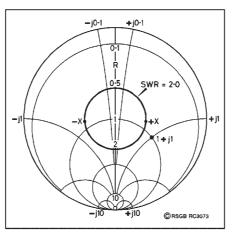


Fig 3: Smith chart representations of R =  $42\Omega$ , X =  $+32\Omega$  or  $-32\Omega$  - the SWR meter cannot distinguish because both impedances lie on the SWR = 2.0 circle. This is far from a perfect match to  $50\Omega$  (centre of chart) even though IZI happens to be  $53\Omega$ .

The computed value is actually IZI, the magnitude of the complex impedance, and in this case the value is indeed  $53\Omega$ . So the MFJ-259B was correct in every particular.

There is a widespread misconception that SWR =  $Z/Z_0$  but this example shows how untrue it is: IZI is close to  $50\Omega$  but the SWR is actually 2.0. A little algebra will show that this simplified formula is true only when X = 0, ie when the load is non-reactive.

Note that the same SWR would be produced by R =  $42\Omega$  and X =  $-32\Omega$ . The SWR analyser actually measures p and IZI, and then reverses the above formulae to compute SWR, R and ±X, so it has no way to tell whether the sign of X is positive or negative.

For a more visual viewpoint, let's look at this on a Smith chart - go back to the April 2001 column for a brief introduction. **Fig 3** shows the measured point plotted on the chart using values normalised to  $50\Omega$ : (R = 42/50, X = 32/50). As you can see, we're a long way from the centre so there's no way this impedance will be a good match to  $50\Omega$ . Fig 3 also shows the SWR = 2.0 circle passing through this point.

Finally, a correction to one statement in the April article. The scale of the central (R) axis is not logarithmic. As GOCPP has pointed out, the scaling is in fact proportional to the reflection coefficient  $\rho$ , because the 'map projection' used for the Smith chart is the magnitude and phase angle of  $\rho$  plotted in ordinary polar co-ordinates. I didn't mention the use of the Smith chart to plot phase angles or wavelengths along the transmission line, but if you look at a full chart you'll find that a complete rotation in phase angle is achieved in only half an electrical wavelength (180°). In other words, the phase angle of  $\rho$  changes twice as fast as the line length. This is because  $\rho$  is a *reflection* coefficient in a very literal sense the rate of phase-angle change is doubled for the same reason that your reflection in a mirror moves towards or away from you twice as fast as you're actually moving.

### SMD ELECTROLYTIC POLARITY?

HOW CAN I tell the polarity of a surfacemount electrolytic capacitor? There seem to be several different packages, all differently marked.

THE DISTINCTIVE MARKING is on the negative side, as with most modern electrolytic capacitors. Fig 4 shows a number of different package outlines, all with the negative side to the right. There is no consistent marking colour, but it always contrasts with the main body colour (eg white on a black body, or black on a brown or metal body). Some SMD electrolytic capacitors have a small metal can, which is always negative (as in larger electrolytics) and you can check continuity using an ohmmeter. The metalcan types are typically mounted on a small surface-mount wafer, which often has chamfered corners at the positive end. A few SMD electrolytics have no polarity marking but use the chamfer instead - again, this is at the positive end.

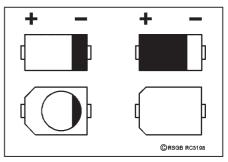


Fig 4: Typical polarity markings for SMD electrolytic capacitors. In each case the *negative* end is to the *right*.

### NOTE

[1] I wouldn't buy a large and complex scope based on valves any more. Although 20 years ago I'd have killed for one of those blue monsters, they are all approaching 40 years old now, and are becoming very tricky to maintain. There are now enough good bargains around with solid-state electronics, which are generally more reliable and also definitely more compact.

The 'In Practice' website (see the previous page) contains a cumulative index from 1994-2001, and links to component suppliers, etc.

If you have new questions, or any comments to add to this month's column, I'd be very pleased to hear from you by post or e-mail. Please remember that I can answer questions through this column only, so they need to be on topics of general interest.

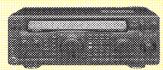


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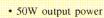
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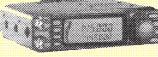


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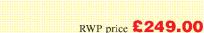
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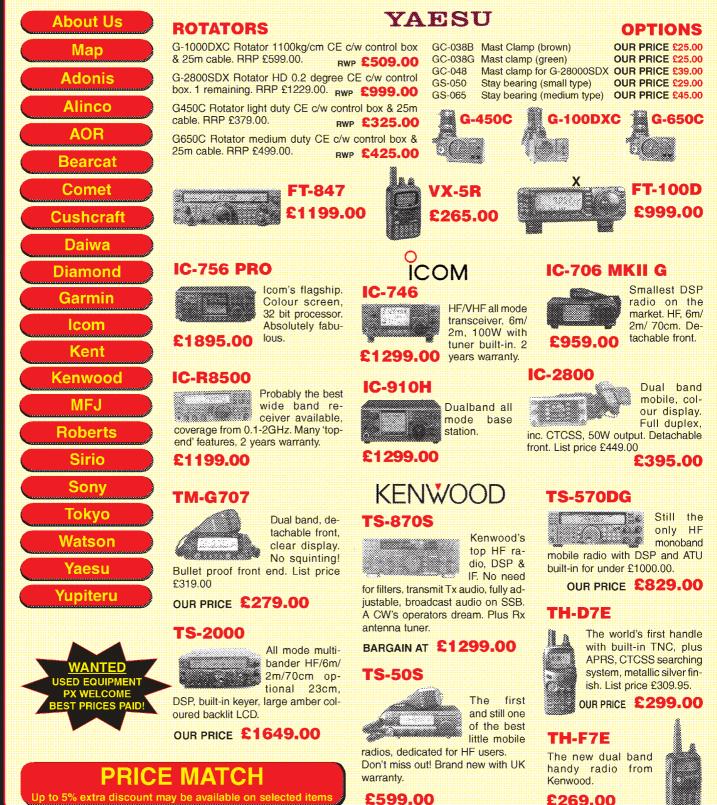


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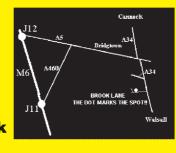


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YAESU YAESU	FT-8100 FT-811E	2/70cm MOBILE TRANSCEIVER 70CM HANDY TRANSCEIVER	£249.00 £99.00
YAESU	FT-847	HF / 2 / 6 / 70cm BASE	
YAESU	FT-900	TRANSCEIVER HF TRANSCEIVER	£999.00 £550.00
YAESU YAESU	FT-902DM FT-920AF	HF BASE TRANSCEIVER HF/6M BASE WITH DSP	£400.00 £899.00
YAESU	FT-980	HF TRANSCEIVER	£495.00
YAESU	FT-990AC	HF BASE STATION TRANSCEIVER	£750.00
YAESU YAESU	FT-ONE FTV-901	HF BASE TRANSCEIVER TRANSVERTER Inc 2m Mod	£450.00 £165.00
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YAESU	SP-8	LOUDSPEAKER Including Audio Filters	£100.00
YAESU YAESU	VFO-102	MINT CONDITION! RANGE SCANNER RECEIVER	£199.00 £500.00
YAESU	VX-5R	2 / 70 / 6 HANDIE 5W	£220.00
YAESU YAESU	XF-114SN YO-100	2KHz SSB FILTER SCOPE VERY RARE!	£60.00 £150.00
YAESU	YS-60	SWR METER 1.6 - 60MHz	£30.00
YUPITERU ZETAGI	MVT-7000 B-132	HANDY SCANNER 10 / 11m LINEAR AMPLIFIER,	£99.00
		MAINS	£60.00



### **MIXERS – FIGURE OF MERIT?**

JORGE DORVIER, EA4EO, draws attention to a three-page article 'Figure of Merit of Mixer Intermodulation Performance', by Bruce Marks of Mini-Circuits (*Microwave Engineering*, November 2001). This has an editorial introduction: "With increased demand on communication systems, today's receivers and transmitters need to handle multiple carriers, some wanted and some unwanted. These carriers combine at the mixer input to generate intermodulation products, of which the most troublesome to filter out is the third order product, IP3. This paper defines a figure of merit that will be useful in judging the IP3 performance of mixers."

In effect, a 'figure of merit' is proposed as follows: "In general, a lower level of intermodulation product leads to better receiver or transmitter performance. This can be achieved in two ways, by an increase in LO (local oscillator) power or by better design. There has been no easy way to quantify how good a design is for intermodulation performance. Now a figure of merit, E, is being defined as follows:

### $E = \frac{IP3 (dBm) - LO power(dBm)}{10}$

The article includes tabulation of Mini-Circuits' mixer systems, including high-efficiency VHF/UHF FET mixers, for which the E-factor ranges from 1.4 to 2.1, with IP3 ranging from 21 to 38dBm, whereas the E-factor for conventional diode VHF/UHF mixer systems ranges from 0.8 to 1.4, and IP3 from 25 to 31dBm.

Clearly, for hand-held battery operation, it is an advantage to have high IP3 combined with reasonably low LO power. The extent to which this applies to mains-operated receivers/transceiver seems a little questionable, although an IP3 figure of above 30dBm would be beneficial, always provided that the phase-noise of the local oscillator is sufficiently low.

It would be interesting to derive an E-factor for the FST3125 fast bus switch as a switching mixer, a choice that seems to be becoming established as an excellent choice for HF / VHF communications receivers although, to the best of my knowledge, not yet found in factory-made receivers and transceivers. The FST3125 is also clearly a good choice for RF filter switching although, as G3LLL pointed out in the February 'TT', there is much to be said for a return to the old-style manual rotary switch.

Nyall Davies, G8IBR, writes: "I have had a home-built amateur-band receiver working for some time using the FST3125M as mixer and as front-end filter switches. The mixer is outlined in **Fig1**. It uses one FST3125M and an ordinary ferrite bead for the transformer. It is thus very cheap yet gives a measured IP3 with filter of 39dBm.



"Ihave never measured the IP3 of a single one as an RF filter switch, since the mixer demonstrates that it provides no limitation in my receiver. My log book indicates that I measured the isolation of a single series switch FST3125M in a  $50\Omega$  circuit as 54dB. It was thus adequate for me to provide one on the input and one on the output of each filter."

### OSCILLATORS -MORE ON NOISE

THE APRIL 'TT' underlined the limitations on receiver performance imposed by the phase noise of oscillators and the significance of the development of the doubletank FET oscillator by Colin Horrabin, G3SBI, in 1994. The importance of this was endorsed by Wes Hayward, W7ZOI (not W7POI as wrongly given - apologies). While I noted that Wes was a co-author of ARRL's classic *Solid State Design for Radio Amateurs*, he provided a more rigorous and detailed section on 'Noise in Oscillators' in his *Introduction to Radio Frequency Design* (Prentice-Hall, 1982, pp292-301) intended primarily for professional engineers.

Since the fall-off of phase noise is related to the loaded Q of the tank circuit, it could be correctly assumed that a good HF crystalcontrolled oscillator is potentially capable of much better noise performance than an LC oscillator. However (as implied by G3USC in the April 'TT'), there is a problem in achieving this with modern small plated crystals.

As put by W7ZOI: "The junction field effect

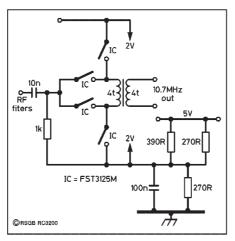


Fig 1: Outline of G8IBR's low-cost FST3125M switching mixer with an ordinary ferrite bead for the transformer core. Measured IP3 with RF filter of 39dBm.

transistor is appealing for many oscillator applications. It has very good 1/fnoise properties when compared with the usual RF bipolar transistor. In addition, the limiting occurs only from a square-law nonlinearity. High-order harmonic currents are small, especially if excursions into the pinch-off region are minimised. The analvsis points out a fundamental limitation of a guartz crystal-controlled oscillator. It was recommended in the previous section that a maximum crystal power of about 50µW be used. If this is followed, and a 10dB noise figure is assumed, the broadband carrierto-phase-noise ratio is only 154dB/Hz. This level is much worse than that calculated for an LC oscillator. It results from the limited power flowing through the crystal...'

As G3USC implied, the large non-plated crystals of the late 1930s and 1940s could withstand relatively large RF currents and can provide very good close-in phase noise performance. An idea of the LO noise performance of a receiver can be obtained by observing how close the receiver can be tuned to a locally-generated crystal-controlled signal before its noise becomes significant. Similarly, in reviews of modern frequency-synthesised transceivers, the omission of reciprocal-mixing performance at spacings of less than, say, 15 - 25kHz is an indication that synthesiser phase-noise remains a problem, even in the latest factory products.

Incidentally, the April 'TT' included references to the classic oscillator-noise analysis of Leeson. This was a reference to the concise two-page contribution 'A Simple Model of Feedback Oscillator Noise Spectrum', by D B Leeson of Applied Technology Inc, in the 'Letters' section of *Proceedings of the IEEE* (February 1966, pp329-330). This was a special issue devoted to the frequency stability of oscillators and the Leeson letter has formed the basis of much of the later work on analysing oscillator noise and reciprocal mixing or IP3 performance.

### MESNY POLYPHASE OSCILLATORS

IN 'TT' JUNE 1989 (see also Technical Topics Scrapbook 1985-89, p307), lincluded a note from J W Noble, G8FEQ, drawing attention to a Mesny VHF oscillator of the 1920s (Fig 2). This was a two-valve, pushpull oscillator resembling the 'pseudokallitron' oscillator, but with the unusual feature that feedback is by inductive (Meissner) rather than capacitive coupling. I reported that neither G8FEQ nor I could trace anything further on the work of Mesny. In fact, 'TT' February 1990 included an item 'Mesny - a French Pioneer', with notes on the Ciriex-Mesny antenna array (the basis of the zig-zag antenna) and also his work on the early development of radar as a techni-

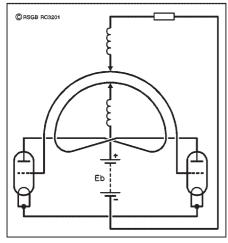


Fig 2: Mesny VHF power oscillator of the 1920s. The resonant loop inductors formed the antenna.

cal consultant for the French Military Signals Department - but nothing further on his polyphase oscillators.

Now, some 12 years later, a letter has arrived from John Crabtree, KC0GGH. He writes: "I was recently thumbing my way through TTS 1985-89 for the umpteenth time and came across the 1989 reference to the Mesny oscillator. There was a comment that neither G8FEQ nor you had managed to unearth further information, and I found no further mention of Mesnv in 'TT'. However, I have found one reference on page 516 of Terman's Radio Engineer's Handbook, 1943. This gave a reference to a paper'Generation of Polyphase Oscillations by Means of Electron Tubes', by René Mesny in Proc IRE, Vol 13 (not as stated), August 1925."

KC0GGH kindly sent photocopies of both these references, although noting that, unfortunately, the paper by Professor René Mesny of the [French] Laboratory for the Military Radio Telegraphy is not very helpful, adding: "I could find no references to the Mesny oscillator in either Terman's *Radio Engineer's Handbook*2nd edition of 1937 or 3rd edition of 1947."

Both the sources from KC0GGH described versions of a 'polyphase' oscillator producing two-orthree-phase output at frequencies up to about 1MHz. The short note on polyphase oscillators by Terman on page 516, based on Mesny's 1925 paper, states: "It is possible to arrange ntubes [valves] in an electrical symmetrical order to obtain n-phase oscillations. Examples of two- and three-phase oscillator circuits are shown in Fig 3. Such systems oscillate spontaneously in a polyphase manner, provided that there is reasonable symmetry between the tubes and electrical circuits associated with the individual phases, and provided the mutual inductances have been suitably chosen."

I feel uncertain whether there could be any amateur radio application for the threephase Mesny oscillator shown in Fig 3(a). However, the two-phase configuration of Fig 3(b) with either valve or FET devices would seem to merit serious investigation by someone with the ability to measure oscillator-noise. It is a double-tank, doubledevice, push-pull form of oscillator with the possibility of providing a reasonably high loaded Q in both of the two tanks (which could be ganged-tuned). It thus seems to meet the requirements for good low-noise performance promulgated by Colin Horrabin, G3SBI, in the April 'TT'. Incidentally, G3SBI originally began his investigation of lownoise oscillators for synthesisers from the starting-point of the push-pull (single tank) two-valve oscillator used by Peter Martin, G3PDM, for the receiver described in his ground-breaking series of articles 'Plagiarise and Hybridise' in Radio Communication, March - June, 1971.

### **ANTENNA MISCELLANY**

### **GROUNDED TOWER**

The use of grounded towers to form vertical monopole antennas for 3.5 or 1.8MHz has

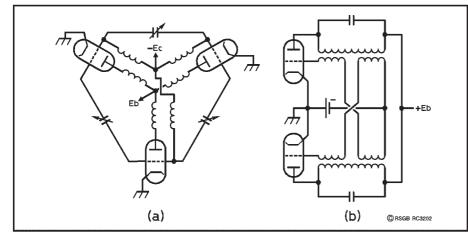


Fig 3: Mesny 'polyphase' oscillators as described in Terman's *Radio Engineer's Handbook* (1943). (a) Three-phase oscillator. (b) Two-phase oscillator which might well be worth investigating as an inductively-coupled push-pull oscillator with two tank circuits and potentially low-noise characteristics.

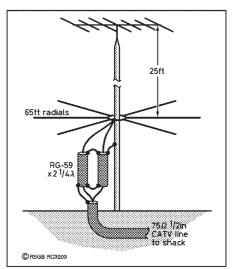


Fig 4: A 3.6MHz top-loaded 'reverse-fed' elevated ground-plane antenna with earthed tower and top-loading provided by the TH7 Yagi antenna, as described by N4KG in *QST*. The tower resonates on the band of interest with the TH-7 Yagi at the feed point shown.

obvious attractions. One established technique is to run a coaxial feeder up inside the tower and then use a sloper wire element fed at the top of the mast. However, there are other attractive alternatives. For example, with a tower supporting a 'plumber's delight' type of Yagi HF array, it can be very attractive if this can be used to form capacitive top-loading for the monopole without requiring the base of the tower to be insulated from ground.

A method for doing this was described by Thomas Russell, N4KG, in 'Simple, Effective, Elevated Ground-Plane Antennas' (QST, June 1994, pp45-46). This article was noted by Dr John Belrose, VE2CV, in a review paper on 'Vertical Monoples with Elevated Radials', at an ICAP Conference in April 1997 and noted in 'TT' April 1998 (see also Technical Topics Scrapbook, 1995-1999, pp211-212). Fig 4 reproduces a 3.5MHz top-loaded 'reverse-fed' elevated ground-plane type antenna, with earthed tower and top-loading provided by a TH7 Yagi antenna derived from N4KG's 1994 article. In this example, the antenna is resonant on 3.6MHz with the dimensions shown. A matching network for  $17\Omega$  feed formed from RG-59 cable is shown. For short feeder runs, it would be possible to use single  $50\Omega$ cable with an SWR of about 3:1. Note that the inner of the cable(s) is connected to the radials with the outer sheath connected to the mast, the reverse of normal practice.

N4KG also described a 1.8MHz version based on a 75ft tower carrying two stacked TH6 Yagi arrays, as well as including a table showing the effective loading of common Yagi antennas in terms of equivalent loading in feet. He also reproduced the formula developed by Belgian amateur John Devoldere, ON4UN, for estimating the approximate electrical height of a top-loaded tower.

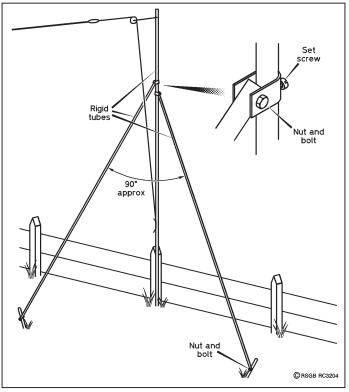


Fig 5: G3KKD's rigid stayed mast permits the mast to be erected at the boundary of the property.

N4KG's article has stimulated Professor Alan Christman (K3LC, formerly KN8I) to explore with computer simulation this reverse-fed, elevated-radials approach for MF broadcasting: 'Using Elevated Radials With Grounded Towers' (IEEE Trans on Broadcasting, Vol 47, No 3, September 2001). He gives, as background, the following note: "More than a decade ago, the author was contacted by an amateur radio operator in Texas, who asked if it was possible to utilise elevated radials with a grounded tower. After constructing several computer models, it appeared that such an arrangement could work, although the efficiency was less than that of a classical AM broadcast-style antenna. Later, experimental work by others [reference N4KG article] indicated that the performance of this type of antenna was deemed acceptable by members of the ham-radio community. Although not widely used for commercial purposes thus far, this antenna design may be suitable for certain AM-broadcast applications."

It should be appreciated that the standard form of American monopole broadcast antenna is based on the use of 120 buried radials and is expected to achieve extremely high radiation efficiency. In his paper, Al Christman states "computer analysis indicates that the radiation efficiency of a quarter-wave grounded tower with elevated radials can be within one decibel of that of a conventional base-insulated quarter-wave tower with an extensive buried-radial ground system." number and the transmitter output is significant), so their electrical conductivity should be as high as possible."

He notes that his

calculations are

based "on the as-

sumption that all

conductors were

composed entirely of zinc. Since most

tower sections are

actually made from

zinc-coated steel.

it is very important

to maintain the in-

tegrity of the zinc

coating. Further,

when adjacent tower sections are

joined together, a

low-resistance

connection is nec-

essary. The use of

conductive grease

is helpful, along

with tight mechani-

cal bonding. The

elevated horizontal

radials carry considerable current

(especially when

they are few in

### **RIGID STAYED MAST**

A note from Ian Waters, G3KKD, describes a mast-staying tip that he has found useful. He writes: "Sometimes there is a need to have an antenna support right on the limits of your property without using a free standing tower or having the facility to install the conventional guys behind the mast. This situation is common where it is required to make full use of the length of the garden for an HF wire antenna.

"A solution is to use a rigid stayed mast as in **Fig 5.** It uses two tubular rigid stays roughly at right angles. The stays are joined to the mast by straps made from strips of 14- or 16-gauge galvanised steel. The setscrew makes things more rigid. The stays are attached to stakes driven into the ground. A good source of rigid tubes is a scrap yard which often has water, gas or steam pipe from demolished industrial sites, etc. Lengths may be joined by finding or turning steel dowels of suitable diameter which are driven in to the ends, then bolted or pinned."

### THE STEPP-IR ANTENNA

David Williams, G3CCO, draws attention to an ingenious, if rather costly, form of antenna element that can form resonant dipoles or Yagi arrays, continuously tunable between 14 and 50MHz with an SWR of nearly 1:1 and is claimed to provide virtually the gain of a monoband array throughout the range. The new microprocessor-controlled SteppIR antenna marketed by Fluidmotion of Bellevue, Washington, USA (**www. fluidmotion.ws**) is being advertised in *QST* and appears as a 'New Product' in the January 2002 issue.

QST notes that "Each antenna element consists of two spools of flat copper strip conductor mounted in the antenna housing. The copper strips are perforated to allow a stepper motor to drive them simultaneously with a sprocket. Stepper motors are well known for their ability to index accurately, thus giving precise control of the antenna length. In addition, the motors are brushless and said to provide extremely long service life. The copper strip is driven out into hollow, lightweight fibreglass support elements, forming an element of any desired length up to 36ft long. The fibreglass poles are telescoping, lightweight and very durable. When fully collapsed, each element measures 48in in length, making the system an ideal choice for either permanent or portable installation. The antenna is connected to a microprocessor-based controller via cable."

The system is being offered as a singleelement antenna (\$439.95), two-element Yagi (\$739.95) or three-element Yagi (\$995.95). The design of the Yagi offers several unique features, including a 180º mode, which reverses the direction of the antenna by changing the lengths of the reflector and director in under three seconds, and also a bidirectional mode which allows the user to have gain in two different directions simultaneously. However, there seems to be no facility to change the element spacing to obtain optimum possible gain. The controller has push-button control for setting to the various amateur bands, but it is possible to create antenna modes etc and save to memory.

### **'LIQUID' ANTENNAS**

Alan Messenger, GOTLK, reported in the March 'The Last Word' on his successful experiment in using some 43ft of string soaked in strong brine connected to a 30ft portable mast as an end-fed sloper antenna with an extensive ground system. His purpose seems to have been to prove the old adage that, in good conditions, "a piece of wet string" is all you need to work the world.

While few would recommend such an arrangement as a permanent antenna, Dr Steve Bunting, M0BPQ, draws attention to an Internet article 'Ever Heard of a 'Liquid Antenna'?', by N9ZRT (www.wireservices. com/n9zrt/) describing his 'ionic fluid antenna (IFA)'. This reports the successful contact in March 2001 of a first 'liquid antenna' to 'liquid antenna' contact between WH2AAT in Orange Park, Florida and N9ZRT in Green Bay, Wisconsin. Both stations were operating on 18MHz with 10ft tall x 2in

wide "columns of ionic fluid" (in this case. concentrated saltwater). The IFA is described as "simply a column of saltwater with short copper probes delivering the RF into the liquid. This highly-conductive fluid resonates and becomes the antenna element. Signal reports are excellent, especially audio quality reports! So far, tests have included both 10ft x4in and a 10ft x2in PVC tubes filled with the homebrewed fluid. We have also tested an 8ft x 2in Pyrex glass tube, filled with the solution... Others have experimented with saltwater-based antennas. VE3UGW built a saltwater antenna by filling a piece of hose with a saturated salt solution back in 1995. He made contacts up to about 700km on 14MHz. With powers up to about 30W, the SWR remained constant but, with higher powers, it rose gradually apparently due to heating the fluid." Personally, I would prefer to use an airfilled copper tube!

### MORE COMMENTS ON NVIS ANTENNAS

Several more comments have come in following recent items on near-vertical-incidence skywave propagation (NVIS).

Alex Allan, G3ZBE, is not convinced from experience that the use of very low dipoles on 3.5MHz is likely to produce good results at any angle of radiation due apparently to the losses resulting from less-than-ideal ground conductivity. While he recognises that "one needs to be wary of putting too much trust in antenna modelling, it is so easy to prove the 'garbage in - garbage out' theory! While I can't claim to be an antenna modelling guru, I can't see that I am doing anything wrong in the plot shown in Fig 6. This elevation plot was producing using the EZNEC Real / High accuracy ground type and very good ground conductivity, better than most of us are likely to have! If it is correct, it may perhaps show why 80m dipoles lower than 40ft produce lessthan-optimum NVIS results."

G3ZBE began by modelling a 3.5MHz di-

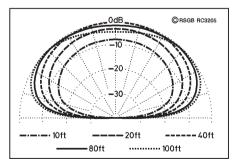


Fig 6: G3ZBE's elevation plot of a 3.65MHz dipole at heights of 100ft, 40ft, 20ft and 10ft, produced using the *EZNEC* Real / High accuracy ground software and very good ground conductivity. It shows that, with real earth, reducing the height below about 0.15 $\lambda$ (40ft) is a bad idea if you are looking for maximum upwards radiation on 3.5MHz. If this model is run with 'perfect' ground, the 10ft-high dipole wins by several dB.

pole at 100ft and then reducing the height to 80, 60, 40, 20 and then 10ft (the 60ft trace is not shown as it differs little from the 40ft and 80ft traces). The maximum upward radiation is at approximately 40ft, less at 20ft, and much less at10ft. G3ZBE comments: "Admittedly, a greater proportion of the available radiation is upwards at the lower heights, but the loss of gain results in less power actually being radiated upwards. While the optimum upward radiation appears to be at about 60ft (a quarter-wave high), this does not seem critical as there is little change in vertical radiation between 40ft and 80ft. Is the increasing ground loss at the lower heights starting to cancel out the increased upward radiation? Presumably, the results would also be worse with poorer ground conductivity? There is a reduction of approximately 7dB between the 60ft and 10ft heights. The feedpoint at 100ft is about  $63\Omega$ resistive, it is 39 + j14 at 10ft. If this model is run with a perfect ground, the 10ft high dipole's upwards radiation wins by several dB, but that is not the real world situation, is it?"

Antony Wedgwood, G0TJD, sent along an interesting article he wrote for the April 2001 issue of The VMARS Newsletter on the use of NVIS by the military dating back to WWII, although the term NVIS did not come into use until after the Vietnam war. He points out that, in British military circles, it was known as 'short-range skywave communication'. He concludes that, by the end of WWII, the British Army was well aware of the potential of NVIS, and was consciously using it in places where it mattered. He writes: "The Malayan emergency led directly to the development of perhaps the best-known NVIS antenna, and one of the most efficient. This is the 'Shirley', comprising two phased halfwave folded dipoles, separated by a distance of  $0.65\lambda$  at heights of one-eighth to one-

guarter wave at the operating frequency, with the ground as reflector. It was designed about 1950 by Major John Shirley, a New Zealander serving in the Royal Signals on attachment to the Army Operational Research Group in Malava. A derivative is the 'Jamaica' antenna, requiring a span of a full wavelength. Both versions are illustrated and described in G0TJD's article, but require more space than is usually available in amateur radio situations.

Richard Newstead, G3CWI, was surprised at my recommendation ('TT' February 2002, p62) of the book Near Vertical Incidence Skywave Communication, by Fiedler and Farmer. He has a far more critical review on his web site (www.gsl.net/ q3cwi) in which he notes that there is much repetition throughout; the slant is very much towards military needs; the number of unsupported gems of wisdom; the lack of statistically significant results; and a lot of dated information in the light of the significant advances that have been made with propagation and antenna modelling over the past 5-10 years. While I have to agree fully with his comments, I note he also indicates that "The book gives a good basic introduction to the subject, but is fairly light on the details." To my mind it remains, as far as I am aware, the only book devoted entirely to this subject and remains a good introductory text.

### **IC DETECTOR / FILTER**

AN ITEM FROM 'Circuit Ideas', a regular feature in *Electronics World.* 

Peter Fry in the November 2001 issue (p840), in an entry to a competition suggesting possible applications for the recent ZXF36L01 IC device, suggests it could be used as a CW product detector incorporating a variable-Q narrow-band filter centred on 800Hz: Fig 7. The maximum Q must not be too high and a margin should be left to avoid self-oscillation. The same arrangement could be used for SSB reception although, depending on the audio quality required, it may be better to cascade two filters with offset centre frequencies so as to obtain a broader SSB bandwidth. Peter Fry writes: "A fine tune on the IF injection oscillator will enable the signal to be adjusted exactly in the pass-band".

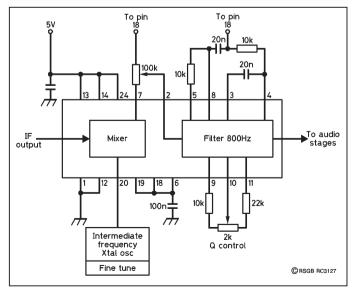


Fig 7: BFO CW/SSB detector and 'Q5er'-type variable AF filter using the ZXF36L01 device. (Source: Peter Fry, *Electronics World*)







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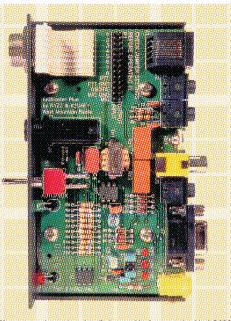
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### QUALITY HOTELS LUXURY COACH RADIO DEDICATED STAFF **OVER 40 EXTRA LOCAL TRIPS AVAILABLE**

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# ...bring your scanning directories to life!

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With 2 Megabytes of Memory

The RD500VX is a new kind of wideband receiver with sleek, robust styling, ...only 8 inches wide!

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Its massive memory can store information equivalent to several scanning directory books. Any word such as "Fire', "Air", "Voice Of America", or even your local town can be searched for. It can hold 54,682 entries, each with 20 characters of text, mode, and frequency.

A 45 key TV style remote is provided for text entry and control, and a PC keyboard can be plugged into the receiver.

...No more thumbing through scanning directories, and no PC needed!



The RD500VX gives wideband coverage with auto memory, skip list, priority channel, pause/hold, AFC, world time clock, and S.meter, and its HF performance is complemented with pass band shift, notch and peak filter, noise blanker, and smooth 5Hz tuning steps.

Modes include USB/LSB, AM, sync AM, stereo CW, NBFM/WBFM and stereo FM, with TV sound and video output as standard.

We include Windows software to make it easy to gather information from document scanners, the Internet and other sources. The RD500VX can be linked to your PC to backup or download information,

and a database is loaded into the receiver before shipping.

It also has a built in digital sound recorder and editor so a news flash or rare DX can be recorded. Up to 4 minutes of sound can be permanently stored!

### Specifications:

Sensitivity (10dB S/N) HF SSB 0.2uV. IP3 +10dBm. VHF/UHF NBFM 0.3uV. Scan speed 50/second. Frequency range 0 - 1750MHz Collins filters available.

### Members' Advertisements

RSGB Members wishing to place an advertisement in this section must use the official form incorporated on the label carrier of Radio Communication. This will prove membership and must be for the current month. No acknowledgment will be sent. Ads not clearly worded, or which do not comply with these conditions will be returned. If an ad is cancelled no refund will be due. An advertisement longer than 60 words will be charged pro rata. Trade or business ads, even from members, will not be accepted. Traders who wish to use this facility must send a signed declaration that the items for sale are part of, or intended for, their own personal amateur station. The RSGB reserves the right to refuse ads, and accepts no responsibility for errors or omissions, or for the quality of goods for sale or exchange. Each advertisement must be accompanied by the correct remittance, as a credit card payment. cheque or postal order made payable to the Radio Society of Great Britain. Please note that because this is a subsidised service to members, no correspondence can be entered

into. Licensed members are asked to use their callsigns and QTHR, provided their addresses in the current edition of the RSGB Yearbook are correct. RS mer nbers will have to provide their names and addresses or telephone numbers. Please include your town and phone number in the free boxes provided to assist readers. Advertisements will be placed in the first available edition of RadCom.

#### The closing date for copy is the first day of the month prior to publication, eg the deadline for the March issue is 1 February.

Warning: Members are advised to ensure that the equipment they intend to purchase is not subject to a current hire purchase agreement. The 'purchase' of goods legally owned by a finance company could result in the 'purchaser' losing both the goods and the cash paid.

### **EXCHANGE**

SWAP my 8mm movie projector and camera plus 20 assorted silent films for decent HF rig. 10255 436 118 (Clacton-on-Sea).

TAKAMINE electro-acoustic guitar, model EAN20, totally unused, cost, £1000, offers? Would consider exchange ham gear. Also unused Laney 30W valve amp, cost £480. 01446 413 379 (Barry).

### FOR SALE

AOR 3030 comms rcvr 30kHz - 30MHz, little use, still boxed as new, £375. Western 60ft heavy-duty telescopic 3-section triangular tower base frame, mounted with tilt-over system, complete with winches. Buyer must dismantle and remove, £250. Telex Hy-Gain 3-element TH-3JR Thunderbird HF Junior antenna, some use, £100. Call Peter, 01444 450 265 (Haywards Heath). E-mail: ppfrankville@aol.com

ICOM 751A free (to a new loving shack). Mechanically complete but needs some elec-tronic repairs. You pay postage only. Cedric, CT3FT, QTHR, 00351 291 984 577 (Madeira).

SONY PVM1440QM 14in colour Trinitron monitor. Multiple inputs, built-in speaker, instruction man boxed, in good cond, £150 ono, carriage extra. 01986 798 524 (Woodbridge). E-mail: steve@sboldvic.demon.co.uk

AERIALS - Multibeam MBM-48/70cm, Tonna 2m/11 X-Yagi, Tonna 1296/41 X-Yagi, £25 each. Tonna 2400/24 linear Yagi, £20. 1½m dish with 2400MHz linear feed, £30 or with SSB low-noise pre-amp, £70. Buyer to in-spect and collect. G2BFO, QTHR, 023 9225

Spect and collect. G2BPO, Q1TH, 023 9225 5459 (Portsmouth). ALTRON telescopic tiltover lattice tower, com-prising two 15ft sections, single winch, groundpost, rotator cage with attached Daiwa, rotator type DR-7500 A. Can be inspected/ collected, £160. 01228 537 747 (Carlisle).

Collected, £160. 01228 537 747 (Carlisle). E-mail: 30wdv@freenet.co.uk BURSTNER Ventana 520 TL Caravan, £11,000 ono. Two years old immaculate cond, towed for less than 1000 miles. 4 berth, hot/cold pumped water (230V or gas). Separate end bathroom with toilet, basin, Separate end bathroom with toilet, basin, wardrobe and shower cubic. Full cooker and Electrolux fridge (12V/gas/230V). Blown hot air heating (230V/gas) and convector heater. All 12V halogen lighting. Large leisure bat-tery and 230V mains supply. TV/radio an-terna socket. Alko chassis with 200 friction pati cache high. Drace wheat is partial. anti-snake hitch. Spare wheel in carrier. Aquaroll and Wastemaster (wheeled) con-tainers for fresh and waste water. Two gas cylinders (one full). Tow-hitch cover. Fiamm roller sun canopy. Offered in a ready-to-go condition. Reason for sale is my failing eye-cited. The carrier on the visuard and ed sight. The caravan can be viewed and col-lected from Icom UK, Herne Bay. Kent. I could even be persuaded to deliver (pay first in case I ding it). Dave Stockley, 01227 743 071 or 07768 334 574. E-mail: dave@icomuk.co.uk

CALLING Trio 930S enthusiasts, mine re cently repaired/checked (Castle Electronics) has developed another fault therefore now on offer for further repair or spares. £150 CW filter, buyer collects, details G8FF, QTHR, 01263 713 210 (Holt).

DELL Pentium 133 PC complete with monitor, keyboard, mouse leads, mans and receipts, ideal for packet, £60 ono. Tom, M1ACS, 01509 554 311 (Loughborough). E-mail: tomgirdler@yahoo.com FIVE new and unused cold cathode Nixie

tubes, Hivac type XN5 with data, £20. G3BDQ, QTHR, 01424 812 262 (Hastings).



FREE to good home, *RadCom* copies from Jan 1993 – Dec 2000 (94-96 in *RadCom* binders). *PW* magazine from Jan 1993 –Jul 2001 (93-95 in *PW* binders). *SW Magazine* copies same as for PW above. 01206 395 989 (Manningtree). FT-101ZD good cond with workshop man,

Spare valves, mic, only used rx, £225. Icom IC-245 2m multimode with IC-3PA PSU, IC-SM2 mic, mobile mount and computer keypad, £145. Ascom PMR tcvr, £20. MFJ-1278 TNC, £100. Dave, G1BGF, QTHR, 01298 76905 (Buxton).

G3LUY

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E-mail: dave@hpcas.co.uk FT-736R 2m/70cm/23cm multimode, c/w CTCSS module and mic. 3½ years old. Mans, boxed, very little used. Dick, G4LBH, QTHR, 01582 415 846 (Luton). GAP Titan vertical 10m to 80m, excellent antenna, good reason for sale, £200 ono. Only used for two months. 01376 515 401 (Witham).

(Witham). GECOPHONE crystal set REG 3300, six plug-in coils, Magicwave headphones. R1155A with mains PSU. Zenith trans-oceanic model Royal 1000, working order, patent 1946/ 1951. Sony ICF-5900 bandspread tuning, xtal marker, BFO, short wave plus FM. Tei-egraph set WWI 1918 dated, made by Ster-ling with doted cambrage heavy heres and ling with dated earphone, heavy brass and Ebonite construction. Hacker Helmsman working order. Offers invited on above items. 07957 711 789 (Swaffham).

07957 /11 /29 (Swattham). GEOCHRON world map, clock, needs atten-tion. National NCX5 and NCXA tcvrs, original boxes, mans, spare valves. KW109 Supermatch. 1933 Cossor364 radio, circuit and spare valves. Buyer collect any item, £125, 01442 824 402 (Tring).

E125. 01442 824 402 (Tring). E-mail: g3Inp@compuserve.com HANDBOOKS, workshop mans, circuit dia-grams etc, large box full including TS-940, FT-707 etc, rigs, scanners, receivers, tech-nical supplements. 1970, 1980, 1990s equipment. No split, must go together, £75 includ-ing UK delivery. Steve, G4WXC, 01235 532 653 (Abingdon).

653 (Abingdon).
E-mail: steveraughan@zoom.co.uk
HENRY Radio 2004-A 1kW linear amplifier, vgc, man, £650. SSB LT23S 23cm low-noise linear tvtr, 10W output, as new, £280. SSB LMS-24 transmit converter 24cm (AMSAT) with PA-2310 10W linear, £200. Buyer inspects and collects, G2BFO, QTHR, 023 9225 5459 (Portsmouth).
ICOM IC-202 2m SSB portable tcvr, vgc with man circuits mic etc, £125. G3TQY, 01403 822 334 (Horsham).

man circuits mic etc, ±125. G31GY, 01403 822 334 (Horsham). E-mail: mand@mtknights.fsnet.co.uk ICOM IC-738 HF tovr, includes CW filter and auto-ATU. Original box, very good cond, £525 ono. G4BWP, QTHR, 07899 064 100 (Newmarket). E-mail: fredch@homsshack.freeserve.co.uk

INDEX Lab QRP-plus tovr, £225. Tor TS-711E 2m multi-mode base, £245. Cushcraft R-7000, £150. Altron 45ft wall-mount lattice tower with head unit and winches, £125. High power 7MHz traps, £20. 01803 392 968

(Paignton). **KENWOOD** 50S as new, used as standby, 2hr use only. All boxed, absolute mint con-

dition, £375. 01243 372 094 (Emsworth)

E-mail: qsl@g0jqj.fsnet.co.uk KENWOOD TL-922 classic HF linear vgc, £750. Icom IC-706 MkII DSP, inc narrow SSB £750. Icom IC-706 MkII DSP, inc narrow SSB filter, mint, £525. Kenwood R-2000 rcvr, inc VHF unit, vgc, £195. All boxed, mans. Also SX-200N scanner, £40. Microwave Modules 432/28 tvtr, £20. Shipping extra or may deliver. 01244 544 794 (Chester). E-mail: dave@daveevans.org.uk **KENWOOD** TS-530SP, 220W, vgc, new valves. Kenwood MB-85 mic, SWR power meter, a bargain at £295. Any trial, buyer collects or pays carriage, 0113 286 3058 (Garforth).

Garforth)

KENWOOD TS-570DG, voice synthesiser, 1.8 MHz SSB filter, £625. Mint Drake rcvr R8E

1.6 Whit2 SSB hile?, \$262, Whit2 Drake rCV1 R8E, with VHF converter installed, ex cond, £475, 01502 715 419 (Beccles).
KENWOOD TS-690S as new, boxed, man, £700, 01407 720 657 (Anglesey).
E-mail: fredthree @btinternet.com
KENWOOD TS-790E VHF/UHF tcvr un-

marked, as new, maker's box and packag-ing, £695. G4XBE, 01621 828 590 (Maldon).

ing, £695. G4XBE, 01621 828 590 (Maldon). E-mail: johneasey@aol.com KENWOOD TS-820, £150. Yaesu FRG-7700 rcvr with memory, ex cond, £150. Hameg digital oscilloscope 2-channel, 20MHz, £100. SX-200 scanner, £50. G3ZUE, QTHR, 01297 489 239 (Bridport). E-mail: g3zue@tiscali.co.uk KENWOOD TS-850SAT, little used, mint cond, £650. 07773 316 313 (Tamworth). E-mail: acekiddy@btinternet.com KW-107 Supermatch, mint, £80. Vibroplex bug key, Champion model in original box, £75. Kenwood low-pass filter, unused, £30. Manson EP-925 13.8V PSU, £75. Kenwood MC-60 desk mic, £50. Buyer pays carriage. MC-60 desk mic, £50. Buyer pays carriage. Barry, GM4GIF, 01436 678 646 Barry, GM4 (Helenburgh).

(Helenburgh). LDF5-50 Heliax coax, 100ft c/w N-series plugs. 1.5dB loss @ 1000MHz. Offers? G3EDD, 01223 880 232 (Cambridge). MARCONI Morse key type 365A, £250.Ger-man WWII key, £50. Ferrograph valve tape recorder, £80. Wanted, Navy type 618 Tx/ Rx. Plessey PV-318 RTTY terminal unit. Siemens T100 teleprinter toolkit. Nigel, G0UGD, 01323 486 822 (Eastbourne). E-mail: nigel@irisv.co.uk

GUUGD, 01323 486 822 (Eastbourne). E-mail: nigel@irisys.co.uk NEVADA 1kW ATU, needs rewiring, £40. 12V 30A PSU, £45. Buyers collect, GW3COI, 01758 712 675 (Abersoch). **PSION** Series 5 Organiser with extra 2MB memory, hard protective case, software to sync with PC and serial cable, £180. G3UYK, 01962 877. 727 (Winchester)

01962 877 727 (Winchester). ROTATOR, heavy duty Emotator 1105MX fixed to dismantled P60 Versatower. Electric winch with 12V 1kW PSU plus lots of cables and Hy-Gain components from 402BA-S, 203BAS and TH6 DX antennas, all for £600. Ground post free if removed. 01442 824 402 (Tring).

(1rng). E-mail: g3lnp@compuserve.com SILENT key sale, G3OGW, Kenwood TS-9405, with 465kHz CW filter, £400 ono. 0161 491 2372 (Gatley). TEN-TEC Argonaut 535 HF QRP tcvr recently overhauled, £285. Alinco DJ-580E dual-

band HT, £150 ono, G4JZO. 01723 368 153

band HT, £150 ono, G4JZO. 01723 368 153 (Scarborough).
 TOWER 4in box tiltover, 30ft, cost £250, now £150. 3-band TB1 rotary dipole, £85. Tono 550 reader-keyer, £65, man. 486X66DX, £50. Wanted 10-80m vertical antenna. Icom 735, filter keyer, Icom AT-150, Icom PS-55, £600. Used CW only, mans. Complete stn, would split. 01992 763051 (Waltham Ab-bay)

Wolid spir. 01992 763051 (Walitham Abbey).
TRIO R-2000 general coverage rcvr, gwo, £195. Datong FL-3 audio filter, £60. Icom 290E multimode, boxed, £195 all plus carriage. 0113 294 3211 (Leeds).
TRIO TL-922 linear amplifier with slow-start, maker's man and carton, unmarked showroom condition, (non smoker), full output on WARC bands, £650. Buyer to inspect and collect. G5BM, QTHR, 01531 820 960 (Newent Glos).

WARC bands, £650. Buyer to inspect and collect. G5BM, QTHR, 01531 820 960 (Newent, Glos). **TS-505** tcvr, 100W, mounting bracket, mic, h/ book. Adonis compressor mic, £20 plus carriage. CFL1, offers? Tcvr £380. 01299 828 487 (Stourport). E-mail: g.grieves@fish.co.uk **UNIDEN** multimode 10m tcvr, boxed, with 'Dipole of Delight', £95. Also Revox CD player, Denon cassette deck. Paul, G4OHB, QTHR, 01562 710 801 (nr Bromsgrove). **YAESU** FT-290R MkII with FL-2023PA, £150. 01582 713 970 (Harpenden). E-mail: bob@g3ntf.freeserve.co.uk

Final State Content of the state of the s immaculate cond with man, £350. BNOS 6m 100W linear and preamplifier, FM or SSB, excellent condition, £180 or the two for £520. MM 4/30LS linear and pre amplifier, 1 or 3W input, 30W output, FM or SSB, exc cond with man, £50. Gavin G6DGK, QTHR, 01825 722 045 (East Sussex). **YAESU FT**-736RDX with Mutek conversion, £750. PK-232MBX, £100. IC-730, £250. Superscan 2001 plus monitor, £120. FT-227R, £60. 4CX250B valves, £25. UNF base, £30. Chimneys, £10. Cantenna, £25. 30A home-brew PSU, £25. 01993 200 586 (Witney).

(Witney).

(Witney). E-mail: tony.leeming@ntlworld.com YAESU FT-790R MkII, boxed, unused as new, £175. Kenwood TH-79E dual band h/ held, little use, boxed, as new, £145. 01926 651 772 (Warwick).

### WANTED

EARLY crystal and one-valve sets wanted; all early valve equipment is of interest including valves, speakers, components and cata-logues. Very keen for early Marconi items, still want a good Hallicrafters SX-42 or similar top-end valve comms, rcvr. G4ERU, QTHR, 01202 510 400 (Bournemouth).

AMU-100 or AMU 400 either model produced by Antiference Ltd, must be in untampered good condition, details to Dave, 01543 372 good conune. 958 (Walsall).

556 (waisail). E-mail: dajd@beaconway-9.freeserve.co.uk CREED 444 teleprinter, also maker's mans and dust cover. Derek, MODLM, QTHR, 01767 640 462 (Bedford). DRAKE TR7 extender boards, MS7 speaker and operator's or instruction man for SP75

speech processor (photocopy would suf-fice). G4WIA, QTHR, 01480 461 331 (Huntingdon).

E-mail: ivan whitmore@ntlworld.com

E-mail: ivan.whitmore@ntlworld.com E F JOHNSON roller inductors types 226-1 and 226-2 (about 27 turns) and types 226-3 or 226-005-22 (about 13 turns). Will pay top prices! DL1XO, fax 0049 2764 600 151 or E-mail: conector.d@arcormail.de JRC JST-135 must be in gwo, mic, man, boxed. Reasonable price paid if good cond. Dennis, G3YSV, QTHR, 01274 502 236 aftermoon or evening (Brafford)

afternoon or evening (Bradford).

KENWOOD SM-220 station monitor, Must be immaculate with panadapter and man. Sen-

### **Events Diarv**

sible price please. Also Kenwood HS-5 ear-phones wanted. Tony, G0GJP, 01628 604

- phones wanted. Tony, GuGJP, 01628 604
   953 (Slough).
   KW2000B PSU wanted, gwo, carriage paid. 01732 457 820 (Sevenoaks).
   QUAD, Leak or Radford valve amplifiers.
   Collins, Eddystone rcvrs, *Hi-Fi Yearbooks*.
   Will pay cash and collect. 01245 381 961 (Chelmsford).
- (Cheimstord). **RF** signal generator, must be accurate up to 50MHz would be acceptable. WHY? 0121 327 0412 (Birmingham). **SILENT** key clearout or just not needed. Wanted for research project, QSL accumu-lations, old call books etc, can collect. 0113 269 3802 (Leade)

- lations, old call books etc, can collect. 0113 269 3892 (Leeds). E-mail: g4uzn@qsl.net TEN-TEC Argonaut II QRP HF tcvr. Adam, 07753 581 290 (Nuneaton). E-mail: adam.page@invensys.com TET HB-33-SP tribander, specification and assembly instructions. All expenses paid. John, G0AZZ, not QTHR, 020 8391 2639 (Chessington)
- (Chessinaton) WANTED ATU PSU-30 SWR/power meter, 4-
- way coax switch, low-pass filter, spkr h/ phone D-type ex-RAF key HF linear amp. 01446 413 379 (Barry).



#### 3 - 7 MAY 2002

MONTROSE AIR STATION, **GB2MAS** - Special event station. MM0ERK, 01674 810 752 or MM0BSX, 01307 468 824.

#### 6 MAY 2002

DARTMOOR RADIO CLUB Radio Rally - Pannier Market, Tavistock Devon. OT 10.15/10.30am. DF, CP C, TS, B&B, TI on S22. Ron, G7LLG, 01822 852 586.

MID-CHESHIRE ARS Rally - Civic Hall, Winsford. OT 10am, £1. MA, TS, B&B, C, LB, CP free. David, G4XUV, 01606 77787.

G4XUV, 01606 77787. WEST WALES AMATEUR RADIO & COMPUTER RALLY - Penparcau School, Aberystwyth. OT 10.30am, £1. CP, DF, TS, B&B, SIG, C, TI on S22. Ray, GW7AGG, 01686 628 778, fax 01686 621 880 or mwmg01@aber.ac.uk

#### 11 MAY 2002

YORKSHIRE DX CLUSTER SUP-PORT GROUP Rally - John, G3LZQ, g3lzq@john-dunnington. freeserve.co.uk

#### 12 MAY 2002

DUNSTABLE DOWNS RC 19th Amateur Radio Car Boot Sale Stockwood Country Park, Luton, Beds. CBS, DF, C, CP. [www.ddrcbootsale.freeserve.co.uk]

#### 18 - 19 MAY 2002

SCARBOROUGH SPECIAL EVENTS GROUP - commemorating the revival of the 'Scarborough Flyer' train service to London during 2002. Special event station GB5SF, with full colour QSL of the steam locomo-tive *Green Arrow.* 40m SSB/CW, 2m & 70cm SSB/FM. Roy, G4SSH, q4ssh@netscapeonline.co.uk

#### 19 MAY 2002

**MIDLAND ARS Drayton Manor** Radio & Computer Rally - Drayton Manor Park, Fazeley, Tamworth, on A4091 close to M42 jns 9 & 10. OT 10am. TS, FM, B&B, SIG, Clubs. Peter, G6DRN, 0121 443 1189 (eve).

#### 22 MAY 2002

SURREY IEE MEETING - Theatre M, University of Surrey. 7.30pm, free admission. 'Time and the BBC', by Geoffrey Goodship. R Longman, rlongman@iee.org

### 25 MAY 2002

RADIO FLEA MARKET Beetsterzwaag, the Netherlands. OT 9am. TS, C, FM, TI on OT 9am. TS 145.650MHz. on [www.verona63.tmfweb.nll

#### 26 MAY 2002

SPALDING & DARS Annual Rally - Springfields Exhibition Centre, Spalding. OT 9.30/10am, £2. CP, TS, CBS, SIG, C, WIN, CS by ar-rangement, DF. Ray, M0CTM, 01775 711 953, or John, G4NBR, 07946 302 815. [www.sdars.org.uk] STIRLING & DARS Mini Radio Rally Menstrie Scout Hall, Nr Stirling. OT 10.30am. TS, GMDX Group, B&B, Megs. Brendan, GM0BWR, 01259 761 299 or bcoan@tiscali.co.uk [www.qsl.net/gm6nx] WEST MANCHESTER RC 6th Red

Rose QRP Festival - Formby Hall, Alder Street (off High Street) Atherton, Manchester. OT 11am £1. TS, RSGB, G QRP, FISTS, B&B,
 C, LB, DF, CP, TI on S22. Les,
 01942 870 634 or lesjackson@ ntlworld.com

### 1 - 4 JUNE 2002

SCARBOROUGH SPECIAL EVENTS GROUP - HM The Queen's Golden Jubilee. Special event station GQ0OOO, with souvenir official QSL card. 40m SSB/CW, 2m & 70cm SSB/FM. Roy, G4SSH, g4ssh@ netscapeonline.co.uk

#### 2 JUNE 2002

DOVER RC Rally & Boot Fair -Whitfield Village Hall, nr Dover. OT 10am. Ian, G3ROO, (QTHR), g3roo@btinternet.com

5 JUNE 2002

SURREY IEE MEETING - Philips Research Laboratories, Cross Oak Lane, Redhill. 7pm, free admission. 'IFF: Friend or Foe', by Richard Trim, OBE. John Stevens, jstevens@ iee.org

8 JUNE 2002

SIGNALS/SUPPORT HELICOP-**TER FORCE Special Event** - 21 Signal Regiment, Azimghur Bar-racks, Colerne Airfield, nr Chippenham, Wilts. GB21SHF acti-vated for 58th anniversary of D-Day. 01225 745 286.

9 JUNE 2002

33rd ELVASTON CASTLE National Radio Rally - Elvaston Castle Coun-try Park near Derby. £5 per car (inc passengers), £15 per coach. Les, G4CWD, 01332 559 965 or les@g4cwd.demon.co.uk

### 15 / 16 JUNE 2002

INTERNATIONAL MUSEUMS WEEKEND - Harry, M1BYT, 0113 286 6897 or harry\_m1byt@ ntlworld.com WREXHAM ARS special event station GB2WHO - BBC 'Doctor Who' Experience, Llangollen, in support of International Museums Weekend. Active on HF and VHF. [www.qsl.net/gb2who]

### 16 JUNE 2002

BRITISH AMATEUR TELEVISION **CLUB BGM and Rally** - Shuttleworth Trust, Old Warden, Beds. Admis-sion free, LEC, TS, exhibits.

[www.batc.org.uk] EPSOM Radio & Electronics Fair -Epson Downs Racecourse Grand-stand. MT, B&B, CBS, special event station GB2ERF, TI on S22 (GB2ERT), RSGB, TS, FAM. Paul, M0CJX, m0cjx@lineone.net [www. epsomrally.co.uk]

MOORLANDS & DARS Bring-&-Buy and Table-Top Event - Creda Factory, Blythe Bridge, Stoke-on-Trent. OT 12.30pm, free. CP free. Paul, M5DAD, 01782 542 944 or m5dad@gsl.net

NEWBURY & DARS Boot Sale Cold Ash, nr Newbury. Mark, MOCUK, 01635 36444. [www. nadars.org.uk]

### 22 JUNE 2002

RSGB ARDF Competition on 2m under IARU rules, to be held near Stourbridge. Entries to and information from G3ORI, 01384 377 008. Further details on website. [www.ardf.btinternet.co.uk/ index.html]

#### 23 JUNE 2002

**BANGOR & DARS Summer Radio** Rally - Crawfordsburn Country Club, near Bangor, Co Down. OT 12 noon. TS, B&B. Myles, GIOVTS, 028 9146 5635, myles@boyle1 freeserve.co.uk [http://welcome.to/ bdars1

MID-LANARK ARS Scottish Convention - Summerlee Heritage Cen-tre, Coatbridge. OT 10am. TS, B&B, TI. Elvin, GM8BBA, 01698 748 616 or elvin8bba@blueyonder.co.uk NORFOLK ARC Barford Radio NORFOLK ARC Barford Hadio Rally - Barford, 9 miles SW of Nor-wich, near the A11 and A47. OT 10am. CP, TI, CBS, B&B, C, TS. John, G0VZD, 01953 604 769 or David, G7URP, 01953 457 322, fax 01953 457 888.

### 24 - 28 JUNE 2002

ROYAL SIGNALS ARS and RAFARS Special Event -GB21SHF. 01225 745 286.

### 29 JUNE 2002

**REDDISH RALLY** - St Mary's Par-ish Hall, St Mary's Drive, South Reddish, Stockport (jn of Broadstone Road South and Red-dish Road). OT 11am, £1. TI on S22, C. John, G4ILA, 0161 477 6702.

### 30 JUNE 2002

ALEXANDERSON DAY - SAQ on 17.2kHz and SA6Q on 136kHz [www.telemuseum.se/grimeton/ defaulte.html1

CITY OF BRISTOL RSGB GROUP Longleat Amateur Radio & Com**puter Rally** - Longleat House, Warminster, Wiltshire. OT 10am, £3. TS, SIG, CS, RSGB, RA, CBS, CP, C, LB. Ron, G4GTD, 0117 985 6253 or ronford@g4gtd.freeserve.co.uk [www.longleatrally.co.uk]

#### 7 JULY 2002

YORK RADIO CLUB Rally - York Racecourse, Knavesmire Stand. OT 11am. TI on 2m & 70cm. yorkradiorally@btopenworld.com [www.john.g4fuo@btinternet.co.uk/ rally.htm]

#### 13 JULY 2002

CORNISH RAC Radio & Computer Rally - Penair School, Truro. OT 10.30. TS, B&B, MT, CP free, C, TI. Ken, GOFIC, ken@jtarry. freeserve.co.uk or John, G4LJY, g4ljy@hotmail.com

### 21 JULY 2002

HULL & DARS 9th Humber Bridge Radio Rally - Cottingham High School. OT 10.30am. C, TI on S22. Leigh, GOUBY, leigh@sydney. karoo.co.uk or Jon, G7DBL, 01482493 425. McMICHAEL RALLY & BOOT

SALE - Reading Rugby Football Club, Sonning Lane (B4446, just off A4) near Reading, Berkshire. OT 9am. CP, CBS, C, LB, TI on S22. First Aid post. Dave, G4XDU, 01628 625 720 or g4xdu@amsat.org [http:/ /go.to/mcmichaelrallv]

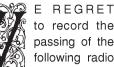
 Rallies & Events

 TI-Talk-In; CP - Car Park; 2- admission; OT-Opening Time-time for disabled visitors appears first, eg(10.30/11am);

 Trade Stands; FW - Flea Market; CBS - Car Boot Sale; B&B - Bring and Buy; A - Auction; SIG - Special Interest

 Groups; MT - Morse Tests; MA - Foundation Morse Assessments; LB - Licensed Bar; C - Catering; DF - Disabled

 Facilities; WIN - prize draw, raftle; LEC - LECtures/seminars; FAM - FAMily attractions; CS - Camp Site.



SILENT KEYS

to record the passing of the following radio amateurs:

2E1DGX	Mr D G Ford	19/02/02
G0BHW	Mr G E Brown	26/02/02
G0ESR	Mr D R Owen	
G0FBV	Mr P R Wardman	04/03/02
G1GPA	Mr D F H Edmans	10/01
G3AXN	Mr G Collop	05/02/02
G3JTI	Mr F W J Broomfield	04/01/02
G3PGM	Mr E Davies	12/03/02
G4DC	Mr P W Winsford	23/02/02
G4HLM	Mr A le Mottee	05/03/02
G4MMZ	Mr A G Warner	10/03/02
G4PMN	Mr S Prince	
G4YJJ	Mr C Berry	11/01/02
G8AYK	Mr D W Johnson	28/01/02
G8JR	Mr N P Haskins	30/08/01
GI3KOT	Mr G A Meaney	
<b>GM3ACL</b>	Mr D Robb	21/12/01
RS45873	Mr A Edkins	12/12/01
RS96589	Mr K F Gorman	13/02/02

### 26 - 28 JULY 2002

AMSAT-UK COLLOQUIUM - University of Surrey, Guildford. [www.uk.amsat.org] RADIO AMATEURS OF CANADA

National Convention - Vernon, British Columbia, Canada. The largest amateur radio event for the last five years in Canada. [www.rac2002. org/]

#### 28 JULY 2002

COLCHESTER RA Amateur Radio Rally & Computer Fair - St Helena School, Sheepen Road, Colchester. CBS, B&B, C, TS, TI via GB3CO on S22, CP free. Ron, G4JIE, 01206 826 387 or ron@g4jie.freeserve.co.uk [www.g3co.ccom.co.uk]

#### 9 AUGUST 2002

**COCKENZIE & PORT SETON ARC** 9th Annual Junk Night - Bob, GM4UYZ, 01875 811 723 or bob.gm4uvz@btinternet.com

### 11 AUGUST 2002

FLIGHTREFUELLINGARSHamfest-Keith, G1VHG, 01202577937orkeithg1vhg@ netscapeonline.co.uk [www.qsl.net/ g4rfr]

#### 17 / 18 AUGUST 2002

INTERNATIONAL LIGHTHOUSE / LIGHTSHIP WEEKEND www.arlhs.com/awards/arlhsnumbers.html SCARBOROUGH SPECIAL EVENTS GROUP International Lighthouse / Lightship Weekend G4SSH, Roy, g4ssh@

#### netscapeonline.co.uk 24 - 31 AUGUST 2002

NORTH WALES RRC Bardsey Island DXpedition - Ted, GW0DSJ, 01745 336 939

#### 25 AUGUST 2002

COLERAINE & DARS Radio & Computer Rally - Peter, MI0CIB, 028 7035 1335 or Jim, GI4ORI, 028 7035 2393 MILTON KEYNES ARS Rally -

ш

### Evenis Diary

Dave, M0BZK, 01908 501 310 or Conve mkars@bletchley.net TORBAY ARS Communications 904 73 13 OCTC Fair - rally@tars.org.uk NORTH 26 AUGUST 2002 Rallv HUNTINGDONSHIRE ARS Amawww.n

teur Radio Rally - Peter, M5ABN, 01480 457 347 (6pm - 10pm) or peterherbert@aol.com

- 29 AUGUST 5 SEPTEMBER 2002 HORNSEA ARC 4th Antenna Workshop - G4YTV, QTHR, 01964 562 498 or g4ytv@aol.com 1 SEPTEMBER 2002
- TELFORD & DARS Rally 01952 299 677 or e-mail mstreet@g3jkx. freeserve.co.uk [www.telfordrally.org] 8 SEPTEMBER 2002
- LINCOLN SWC Hamfest Dave, 01522 878 481 or 07961 961 494. 14 / 15 SEPTEMBER 2002

TRANSMISSION 2002 - John 01634 832 501

#### 15 SEPTEMBER 2002

BARRY ARS Welsh Amateur Radio Show - George, GW0PUP, 029 2083 2253

20 / 21 SEPTEMBER 2002

**LEICESTER Amateur Radio Show** Geoff, G4AFJ, 01455 823 344, fax 01455 828 273 or g4afj@ 01455 argonet.co.uk 6 OCTOBER 2002

GREAT LUMLEY AR & ES Rally www.glares.fsnet.co.uk

11 - 13 OCTOBER 2002

**RSGB** International HF & IOTA

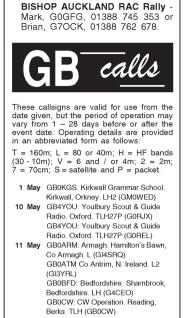
RSGB MEMBERS' ADS ORDER FORM
<b>RSGB MEMBERS' ADS ORDER FORM Application form for one For Sale, Exchange or Wanted</b> advertisement. Do not mix classifications on this         form; separate applications must be made.         Please ensure you read and understand the conditions of         acceptance of these subsidised Members' Advertisements, printed         at the top of the Members' Ads page of the current Rullow.         I enclose a cheque/PO for £         CARDNo         EXPIRY DATE         Signed:         Signed:
FREE TOWN PHONE ENTRIES E-MAIL

RATES: UP TO 20 WORDS £5.50; 21-40, £6.50; 41-60, £7.50

Convention HFC 2002 - RSGB 0870 904 7373. 13 OCTOBER 2002 NORTH WAKEFIELD RC Radio Rally & Computer Fair - www.nwrc.org	BISH Mark Brian	ember 2002 op Aucklan , GOGFG, 013 , G7OCK, 013
20 OCTOBER 2002		
BLACKWOOD & DARS Radio,		
Computer & Electronics Rally - George, 01495 724 942 or Dave, GW4HBK, 01495 228 516. HORNSEA ARC Annual Rally - G4YTV, QTHR, 01964 562 498 or g4ytv@aol.com	date give vary fror event da in an ab	allsigns are valic en, but the period n 1 – 28 days b the. Operating de breviated form a
26 OCTOBER 2002		m; L = 80 or 40 n); V = 6 and /
CARRICKFERGUS ARG Rally - Billy, MIOCZF.	7 = 70ci	m; S = satellite a GB0KGS: Kirkwall
27 OCTOBER 2002		Kirkwall, Orkney. L
GALASHIELS & DARS Annual Rally - Jim, GM7LUN, 01896 850 245 or gm7lun@qsl.net		GB4YOU: Youlbur Radio. Oxford. TLH GB4YOU: Youlbur Radio. Oxford. TLH
2 / 3 NOVEMBER 2002	11 May	GB0ARM: Armagh Co Armagh. L (Gl4
16th NORTH WALES RADIO & ELECTRONICS SHOW - Muriel, GW7NFY, tel/fax: 01745 591 704.		GB0ATM Co Antri (GI3YRL) GB0BFD: Bedford
10 NOVEMBER 2002		Bedfordshire. LH ( GB0CW: CW Ope
		2200 On opo

NORTHERN 12th GREAT HAMFEST - Ernie, G4LUE, 01226 716 339 or 07787 546 515 (6pm -8pm) or e-mail ernest.bailey1@ virgin.net

23 / 24 NOVEMBER 2002 LONDON COMMUNICATION & COMPUTER SHOW - New venue -Wodson Park, Ware, RadioSport 01923 89 Herts 893 929. [www.radiosport.co.uk]



GB0DGW: Danzey Green Windmill Bromsgrove, Worcestershire. LV2 (G3YCH) GB0DHM: Durham Test Team Peterlee, County Durham. LH (G4RXR) GB0ETM: Eling Tide Mill. Totton, Southampton, LHV2 (G0LKG) GB0GRN: Grampian. Aberdeen, AB15 8LO, TLH (GM3WLI)

GB0HFD: Hertfordshire. Bovingdon, Herts. LH (G4VCO)

GB0HLD: Highland. Dingwall, Rossshire. TLH (GM3WED) GB0.IA.I Jack and Jill Clayton West Sussex. LHV27 (M0BKX) GB0LCN: Lincolnshire. North Hykeham, Lincoln, LH (G4OSB) GB0LDN: North London Team. Ealing, London, LH (G3NOH) GB0LEC: Leicestershire Team. Nr Loughboro, Leics. LH (G4KGG) GB0MSY: Merseyside, Liverpool, L25 4SQ. LH (G3XSN) GB0MTS: Morse Test Service Thatcham, Berks. (G3RVM) GB0NLW: North Leverton Windmill. Notts, DN22. LH27 (G4YRZ) GB0NLW: North Leverton Windmill, Nr Redford, N. Notts. LH2 (G0CAS) GB0SFD: Staffordshire. Castleridge Stafford L (G0BYA) GB0SPE: Shropshire. Telford, Shropshire. L (G3JKX) GB0SX: Stone Cross. Stone Cross, East Sussex. TLHV27 (M0RJO) GB0TAU: Taunton, Wellington, Somerset. H (G4RGA) GB0YSE: Yorkshire East. Hull, 0JP LH2(G4VHM) GB2TMI: Thwaite Mill. Stourton, Leeds. (G0BFJ) GB2UW: Upminster Windmill. Upminster, Essex. TLH2 (M0MAC) 12 May GB0ATM: Antrim, Newtownabbey, N.I L2 (GI4BTG) GB2ME: Middle Earth. Hall Green, 17 May Birmingham LHV27 (G0MTN) 19 May GB2MRL: Museum of Rural Life. Milton Keynes, MK12 5EL. LH (MOBUP) GB5HM: Her Majesty. Ryde, Isle of Wight. LH2 (G0NTH) 25 May GB2HA: Hood Association Hampshire, SO21 3DU. LH2 (G0LMD) 31 May GB8GS: Glanford Scouts. Scawby, N Lincs. LH2 (M0AUS)

### - OBITUARY -A W 'HUTCH' HUTCHINSON

A W ('Hutch') Hutchinson, who edited Radio Communication from November 1969 until his retirement in May 1988, died last December, following long debilitating illnesses that left him finally unable to speak or walk. He had entered a nursing home in mid-2000 when his wife, Betty, could no longer nurse him at home in Chelmsford.

Alfred Hutchinson, although never a licensed radio amateur, was a former Merchant Navy Radio Officer who, when he swallowed the anchor, became an editor with Marconi Marine at Chelmsford.

In the late summer of 1969, still at Doughty Street, Bloomsbury, the RSGB unexpectedly lost the services of its youthful Associate Editor, John Adey. For a month or two, Radio Communication was put together by a small editorial panel drawn from members of the Technical Publications Committee, led by Roy Stevens, G2BVN, while a search was made for a full-time, experienced

editor. It was suggested to G3VA that 'Hutch' might be interested; he was approached and then appointed. It proved a sound choice, and he went on to become the longest-serving post-war editor, producing a balanced and meticulously-edited journal with limited resources. When the Society moved to Potters Bar, Hutch established an editorial office in Chelmsford, relying for technical guidance on amateur radio on the Publications Committee, and proximity to the Society's long-time technical illustrator, Derek Cole at Great Clacton.

In 1986, Hutch finally relocated to Potters Bar and he succumbed increasingly to the new technology of IT, although privately harbouring doubts whether the hobby would in the long-term benefit from the world of computers and the Internet. A true if dour Yorkshireman at heart. he spoke of returning north on retirement, but his many ties kept him in Essex. (Pat Hawker, G3VA)

### Region 1: Scotland West & Western Isles PAISLEY (YMCA) ARC

1, VHF Repeaters, GM7OAW. 15, Mobile operating. 29, AGM. Jim, GM3UWX, 01505 862817.

### Region 2: Scotland East & the Highlands ABERDEEN ARS

3, Junk sale. 10, Morse keying devices. 17, Kenwood TS-2000 demo, MM5BQY. 24, Antennas for QRP, GM4GVK. 31, QRP on airnight. Robert, 01224896142. **COCKENZIE &** 

### PORT SETON ARC

10, 144MHz DF hunt. Bob, GM4UYZ,01875811723.

### LOTHIANS RS

8, Islands on the Air, Tom Wylie, GM4FDM. 22, DF hunt. 25, Lothians challenge. Peter, 0131 4460155.

### Region 3: North West FYLDE ARS

9, Spare evening for night out on air. 23, Quiz: each member to bring five questions. Ken, G3RFH, 01253407952.

### MID CHESHIRE ARS

1, Winsford rally preparations. 6, Amateur Radio and Computer Rally at Winsford Civic Hall. 8, Rally debriefing. 15, Activity night and committee meeting. 22, HF on air. 29, 'International Space Station', Mike Tyrrell, G6GAK. Niall, G0VOK, 01606 871413.

### SOUTH MANCHESTER RADIO & COMPUTER CLUB

3, 'Technical Topics'. 10, Mini Lecture. 17, Mystery talk. 24, AGM. Edward, G7FQY, 0161 969 1964.

### STOCKPORT RS

7, National Field Day preparation. 21, Direction-finding night. David, M1ANT, 01614567832.

### THORNTON CLEVELEYS AMATEUR RADIO SOCIETY

12, GB2MMW at Thomton Windmill. 13, Web search engines, John, G8RDP. 20, Antenna design and stacking at VHF / UHF / SHF, by Dave, G8KBH. Jack, G4BFH, jack@jduddington. fsnet.co.uk

### Region 4: North East GOOLE R&E SOCIETY

3, Fund-raising at *Barnes Wallis Inn.* 10, Content planning at GOGLZ. 17, Social evening at



*Black Swan*, Asselby. 24, Bank Holiday on air at Barmby Tidal Barrage. 31, Talk at Courtyard Centre, Goole. Richard, GOGLZ, 07867862169.

### **GRIMSBY ARS**

2, Table-top sale. Brian, G4DXB, 01472231383.

### HALIFAX & DARS

21, Talk and presentation, Ken Cothliffe of Air Supply, Yeadon. R E Nolson, GOPMU, 01274 600297.

### HAMBLETON ARS

4, Operating night. 18, Talk and demo of ATV. Ian Brickwood, 01609 775598.

### **KEIGHLEY ARS**

9, On air. 16, Amateur TV demo, Alan, G3TQA. 23, Pie and pea supper, raffle. 30, 2m 'fox hunt'. lan, M1BGY, 01274723951

### Region 5: West Midlands

### **BROMSGROVE ARS**

14, AGM. 28, 'St Dunstans', by Terry Bullingham. Angus, G8DEC, 01257875573.

### CHELTENHAM ARS

3, Members' classic receivers. Derek, G3NKS, 01242 241099. **GLOUCESTER AR & ES** 

6, /P VHF from escarpment site. 13, Antenna test. 20, 27, Workshop / HF on air. Tony, 01452 618930 (office hours).

### **KIDDERMINSTER & DARS** 7, 'The RSGB AROS', Barry

Scarisbrick, G4ACK. Tony, G1OZB,01299400172. MIDLAND ARS

2, General meeting. 19, Drayton Manor Radio and Computer Rally. Chris, G8CHW, 0121 551 4191

### **MID-WARWICKSHIREARS**

14, Equipment and Book Sale. 28, 'Technical Topics' evening, by members. Bernard, M1AUK, 01926 420913.

### STRATFORD UPON AVON & DRS

13, Maintenance evening, Terry, G3MXH. 27, CW Exploits by a

Top DXer, Roger Western, G3SXW. David, 01926 642858 or 07816 550075.

### **TELFORD & DARS**

1, Open evening / on air. 15, 1st DF competition, 'fox' 2E1DJM, on 2m / 70cm. Hot dogs at 50p for entrants. 29, Car boot sale. Mike, G3JKX, 01952 299677.

### Region 6: North Wales DRAGON ARC

6, NFD planning. 20, Discussion night. Stewart, GW0ETF, 01248362229.

### NORTH WALES RRC

2,9, Foundation, Morse Assessment, Novice, free evening. 16, RSGB presentation, Liz Cabban RRM6. 24, 25, 25, Beach radio weekend. Ted, GW0DSJ, 01745 336939.

### **Region 7: South Wales**

No club details submitted.

### Region 8: Northern Ireland

No club details submitted.

### Region 9: London & Thames Valley BRACKNELLARC

8, Junk sale. John, G3NCN, johnellerton@beeb.net CHESHUNT & DARC

1, Members' forum. Jim, GOJXN, 01992468204.

### COULSDON ATS

13, Three mini talks, Bob Burns, G3OOU. Steve, G7SYO, 01737 354271.

### **CRAY VALLEY RS**

2, Weather satellites, Roger, G3MEH (TBC). 16, Queen's Jubilee Planning, Bob, BRS32525, and Dave, G4BUO. 29 May - 9 June, GB50 Queen's Golden Jubilee station at Windsor Castle. Bob, BRS32525, 020 82657735 after 8pm & WE.

### **CRYSTAL PALACE & DRS**

3, Club project. 17, 'My Favourite Item', Brian, G8DIU, and 'A Lifetime of Looking', Don,

### G3WDY. Bob, G3OOU, 01737 552170 or Victor, 02086532946 EDGWARE & DARS

9, 'Patents and Intellectual Property Right', John, G3SJE. 23, NFD Briefing and Constructor's Cup competition. David, G5HY, 01923 655284 (days)/020 8954 9180 (evenings).

### GUILDFORD & DRS

10, Meet the new committee. 24, The big spring sale. Nigel, G0ADA, 01483824665.

### **MAIDENHEAD & DARC**

2, Images from weather satellites, Keith, G3MCD. 21, Field day preparations and video. John, G3TWG, 01628525275. **NEWBURY & DARS** 

8, Morse Assessment. 22, EGM, AGM and test / gadget night. Mark, M0CUK, 01635 36444.

### **READING & DARC**

9, Video-on-demand / video servers, Chris Keen. Pete, G8FRC, 0118 969 5697.

### RIDGEWAY REPEATER GROUP

15, AGM. Robert, G4XUT (no contact details provided).

### SOUTHGATE ARC

9, The D68C Comoros DXpedition, Steve Telenius-Lowe, G4JVG. Mike, M0ASA, 020 8366 0698.

### SURREY RADIO CONTACT CLUB

13, Construction evening. Ray, G4FFY, 0208 6447589.

### SUTTON & CHEAM RS

16, AGM and construction contest. John, G0BWV, 020 86449945.

### WIMBLEDON & DARS

10, The Pyramids, Dennis, G4IZU.31, On air. Jim, G4WYJ, 01737 356745.

### Region 10: South & South East

### **CROWBOROUGH & DARS**

11, 12, GB2NW at Nutley Windmill. 25, Communications for Crowborough Beacon CC Charity Walk. 26, Gargano 6m Contest at Crest Farm, Duddleswell and RSGB 10GHz Contest at Firle Beacon. Eric, G3TXZ, 01892654633.

### **FAREHAM & DARS**

1, On air. 8, Standard frequency stations, Steve, G7HEP. 15, The new club radio, Mick, G4ITF. 22, Video. 29, 'Microwaves: A Beginner's Guide', Dave, G7CFR. Steve, G7HEP, 01329663673.

### FARNBOROUGH & DRS

8, 'How Long is a Piece of String?', Derek, G3HEJ. 22, Amateur Radio Observation Service, Barry, G4ACK. Norman, G0VYR, 01483835320

### HARWELLARS

14, Role of Deputy RRM. John, M3LNU, 01235 223250.

### **HASTINGS E & RC**

4, 11, A Course of Instructions for the Foundation Licence. 15, All you need to know about printers, Lee Bentley. 18, A Course of Instructions for the Foundation Licence. R C Gornall, G7DME, 01424 444466. **HORSHAM ARC** 

2, 'The best things since breadboards', David Jones, G4FQR. David, G4JHI, 01403252221.

### **MID SUSSEX ARS**

3, Club event video evening, G3XTH. 10, Mills preparation. 11, 12, National Mills Weekend from Jack and Jill. 24. Construction contest with G3NPF. 31. Shack ops, table top sale. Geoff, G6MJW, 01273845103.

### **OXFORD & DARS**

9, 'The PicATUne ATU', Paul Berkeley, MOCJX. Dave, G3BLS, 01865 247311.

### SOUTHDOWN ARS

13, Navigation and GPS, John Kay, MORYA; Foundation Licence details. John, G3DQY, 01424414319.

### **SWINDON & DARC**

2, Elecraft K2 kit transceiver; balloon-supported antennas, Steve Rawlings, GW4ALG. 16,

### 23, DF hunt. 30, 50MHz contest preparation. Den. MOACM, 01793822705. **TROWBRIDGE & DARC** 1, Power line transmission, Peter, G3RZP. lan, G0GRI, 01225

144MHz contest preparation.

864698, eves / weekends. **WORTHING & DARC** 

1, Video. 8, Discussion evening. 15, Printing, Tom Tappenden. 22, On air. Roy, G4GPX, 01903 753893.

### **Region 11: South West** & Channel Islands **BOURNEMOUTH RS**

3, "WAB? Is that something to do with the Locator?" 17, PicATUne, Paul Berkeley, M0CJX. Chris, M5AGG, 01202 893126.

### **BRISTOL RSGB GROUP**

27, Video evening with Hugh, G7KET: 'All About Lightning'. Martyn, G3RFX, 0117 9736419. **CORNISH RAC** 

2, Club night. 13, Computer section. John G4LJY, 01872863849. **EXMOUTH ARC** 

1, Video. 15, Ascension Island talk and slide show. 29, Member's forum. Alec, G8GON, 01395264872

### POOLE RADIO SOCIETY

3, Operating (shack). 10, Geoff's Challenge construction contest. 17, Construction (shack). Phil Mayer, G0KKL, 01202700903. SOUTH BRISTOL ARC

1, 20m activity. 8, HF workshop for newcomers. 15, Website



Members of the Solent Fortifications Amateur Radio Group at one of their special event stations in the 1990s.

MEMBERS OF the Solent Fortifications Amateur Radio Group, which put on a series of special event stations at forts and castles between 1987 and 1997, are getting together for a reunion. On 11/12 May they will be activating GB4SFR from Fort Nelson, with the kind permission of the Royal Armouries Museum. The museum is open on a regular basis throughout the year and is located at Portsdown Hill in Fareham.

Re	gion	RSGB Regional Manager
1.	Scotland West & Western Isles	Gordon Hunter, GM3ULP
2.	Scotland East & the Highlands	Billy Jenkins, MMOWKJ
3.	North West	Kath Wilson, M1CNY/M3CNY
4.	NorthEast	GeoffDarby,G7GJU/M3GJU
5.	West Midlands	Vacant
6.	North Wales	Liz Cabban, GW0ETU
7.	South Wales	Simon Lloyd Hughes, GW0NVN
8.	Northern Ireland	Jeff Smith, MIOAEX
9.	London & Thames Valley	Vacant
10.	South & South East	Ivan Rosevear, G3GKC
11.	South West & Channel Islands	Dick Atterbury, G4NQI
12.	East & East Anglia	Malcolm Salmon, G3XVV
13	Fast Midlands	Vacant

RSGB Regional Managers as of 26 March 2002.

construction tutorial. 22, Annual maintenance of club aerials. 29, VHF NFD training. Len, G4RZY, 01275834282.

### **TORBAY ARS**

24, DXpedition to T3 and 5W, Steve, G4EDG. John, G3RMA, 01803556425.

### WEST SOMERSET ARC

7, Construction evening. Jean, G0SZO.01984633060. WESTON-SUPER-MARE

### ARS

13, 'Building a Trials Car', by Graham Jones. 20, Workshop evening. Graham, G4DPH, 01934838298.

### **YEOVIL ARC**

2, QRP Convention, G3ICO. 9, ATUs, G3MYM. 16, Hints and Kinks No 5, G3KSK. 23, Using the magnetic loop aerial with the FT-817, G3ICO and G3CQR. 30, On air. Derek, M1WOB, 01935 414452.

### Region 12: East & East Anglia

### **BRAINTREE AR & CCC**

6, Mills weekend planning. 20, AGM. Keith, MOCLO, 01376 347736.

### **BURY ST EDMUNDS ARS**

21, 'The Science of Secrecy, from Caesar to Visa', Jonathan, G0DVJ. George, G3LPT, 01359 259518.

### CHELMSFORD ARS

7, Weather satellites, Sam Elsdon. David Bradley, M0BQC, 01245602838.

### EAST KENT RS

6, Demo: 'Amateur Radio and The Internet', Paul, G3VJF. 20, Operating evening. Paul, G3VJF, 01227 365384.

### **FELIXSTOWE & DARS**

3, Indian cookery with Bharat. 12, National Mills Day SES GB2WTM. 20, RAE Exam. 27, HF antennas at home. Paul, G4YQC, 01394273507.

### **GREATYARMOUTH RC**

10, Operating and CW practice. 24, NFD preparations. A D Besford, G3NHU

### HARWICH AR INTEREST GROUP

8, 'Practical AO-40 Satellite Experiments', Peter Rackham, G3IRQ. Eugene, G4FTP, 01206 826633.

### **IPSWICH RADIO CLUB**

1, RSGB talk by Phil Brooks, G4NZQ. Keith, G7CIY, 01394 420226

### **MAIDSTONE YMCA ARS**

10, RAE pre-examination night. Andv, M0CST, 01622661035. **NORFOLK ARC** 

1, NFD briefing. 15, Bring and buy sale. 22, Informal Morse practice and instruction. 29, Final NFD briefing. Peter, G3ASQ QTHR.

### **RAF AIR DEFENCE RADAR MUSEUM RAF NEATISHEAD**

5, GB2RAF RAFARS permanent special event station. Terry, G4PSH, 01692582064.

**SUDBURY & DRA** 7, On air. Bryan, G1TWY, 01787

### 247893.

### Region 13: East Midlands LEICESTERSHIRE

### **REPEATER GROUP**

2, AGM. John, G7RXS, 0116284 1517.

### LINCOLN SHORT-WAVE CLUB

1, G5FZ on air. 5, 6 Special event, Metheringham Airfield. 15, 'Amateur radio software, Mike, GOTTD. 29, AROS, Barry Scarisbrick, G4ACK. John, G1TSL, 01522 793751.

LOUGHBOROUGH & DARC 7, 2nd DF of 2002 on 160m. 14, Visit DHL Hub East Midlands Airport (all places taken). 21, Bring a favourite piece of test equipment. 28, On air: is there

anybody there? Chris, G1ETZ, 01509504319.

**MELTON MOWBRAY ARS** 17, Annual construction contest.

Geoff, G3STG, 01664480733. **SHEFFORD & DARS** 

23, 'TETRA', Bryan, MOBIK. 30, Pedestrian 2m 'fox hunt'. Derek, G4JLP, 01462851722.

#### SOUTH NORMANTON, **ALFRETON & DARC**

13, Club BBQ (outside shack). 20, Junk sale (conference room). 27, On air (outdoors). Lyn, M0BMY, 01773520353.

### SOUTH NOTTS ARC

1, Construction Project - Final Part. 8, 10-minute talks by members. 15, On air HF and VHF. 22, Open forum, members only. 29, Pack and price for Elvaston Castle Rally. Details, tel: 01509 569679.

## FLYING HIGH IN MABLETHORPE



CP

lan Wright, GW1MVL / GW0VML /

MW3MVL, Chairman of Wrexham

ARS, presenting Zoe Davies of Rhos School with the RSGB's

Foundation Licence Now! book and a

£5 book token. Zoe achieved the top

marks in a homework project on 'a history of radio' that was set by year

6 teacher Mr Edwards following a

talk on amateur radio given to the

class by lan on 19 February.

Members of the Eagle Radio Group at a recent club talk on computers.

A NEW RADIO CLUB has been founded in Mablethorpe, Lincs. So far, the Eagle Radio Group has had four meetings at which talks on the new licence categories and computers were well received by a good turn-out of members. A local press reporter has already visited the new club. Coming up are talks on gliding, digital television techniques and a special event station at the Mablethorpe show. This special event station, and an activity day at the local secondary school, will be used to introduce amateur radio to the public and to encourage candidates to the club's Foundation and Intermediate licence courses which will be starting shortly.

## **MID-CHESHIRE ARS's WINSFORD RALLY**

THE MID-CHESHIRE ARS has announced that the Winsford Amateur Radio and Computer Rally will be held on the May Day bank holiday, 6 May, at Winsford Civic Hall. This year the doors will open at the earlier time of 10.00am. There will be traders, a bring and buy stall, Foundation Morse assessments on demand, food and a fully licensed bar. Free parking and only £1 at the door. Niall Reilly,



At last year's Winsford Amateur Radio and Computer Rally, organised by members of the Mid-Cheshire ARS.

G0VOK, chairman of the club says, "We'd like to thank everyone for their support over the years and look forward to seeing you again". For club enquiries contact Niall on tel: 01606 871413 or e-mail: niall@g0vok. freeserve.co.uk

## SUCCESS FOR THE STOCKPORT FOUR



Left to right: Josh Murray, Pauline Bower, Christine and Christopher Simcock, and, behind, the two tutors, David, M1ANT, and Bernard, G3SHF.

FOUR CANDIDATES successfully completed the first Foundation Licence course held by Stockport Radio Society at its new headquarters in Bramhall. The course was held over the weekend of 23 / 24 February. Josh Murray, pictured far left in the attached photograph, comments, "a very enjoyable weekend - and a licence at the end of it!"

Stockport Radio Society, which recently celebrated its 80th anniversary, moved to Bramhall at the beginning of this year and now meets on the first and third Tuesdays of each month. The improved facilities allow the society to offer, amongst other things, Foundation Licence courses and Morse Assessments, plus regular weekend activities. For details of the society's activities, contact David, M1ANT (now M3ANT), tel: 0161 456 7832, or visit www.stockportradiosociety.co.uk

## COMBINED CLUBS PUT ON SHOW FOR 'TDOTA'



David Cutter, G3UNA, from Ripon and District Amateur Radio Club helping Guide Charlotte, aged 10, from 2nd Bilton Guides, Harrogate, and Brownie Emily, also aged 10, from 4th Bilton Brownies with their first steps on the air.

MEMBERS OF the Otley and Ripon amateur radio clubs combined forces for 'Thinking Day on the Air' in February to provide a special event station for the Brownies of the Bilton District Guide Association, Harrogate.

Jack Worsnop, GOSNV; Norman Kent, GOWNT, and David Cutter, G3UNA, set up GB0BDG ('Bilton and District Brownies') at Coppice Valley School, giving almost 50 local youngsters the chance to read out their own greetings messages on HF and VHF.

But it was not all talk; the keen Brownies learnt the phonetic alphabet and were tested on their proficiency in using it. They also designed personal QSL cards and logged their time on the air. They talked to other Guides and Brownies and to local amateurs from the Harrogate district. By the end of the day lots of proud Brownies were able to take home their Radio Communication badge.

# VHF/UHF NORMAN FITCH, G3FPK

40 Eskdale Gardens, Purley, Surrey CR8 IEZ. E-mail: g3fpk@compuserve.com

HE MAIN events in this reporting period were the openings from Britain to Australia and Japan on 50MHz. There is some news of upcoming contests and operation from Morocco and on the high seas.

All times are in UTC, ODX indicates best DX and QTHR signifies that the operator's address is in the current RSGB Yearbook. An asterisk (\*) after a callsign denotes a CW contact, (BS), (ME) etc refers to the postcode area and (MN83), for example, is the Maidenhead grid.

## PUBLICATION

THE FEBRUARY ISSUE of Six News, the quarterly journal of the UK Six Metre Group, comprises 56 pages. Clive Davies's, G4FVP, 'What's on Six' column is an absolute mine of information with plenty of illustrations, maps and a comprehensive QSL route section. There are articles by several operators from DX locations, contest news - see later section - and operating tables and awards sections. Chris Deacon, G4IFX (QTHR), edits Six News and his e-mail address is cdeacon@ compuserve.com while UKSMG membership details are handled by secretary lain Philipps, GORDI (QTHR), e-mail six@xcms.net. There is a website - see the list.

## **DX NEWS**

THOSE SEEKING TO work Morocco on 2m and / or 6m will be pleased to read that André Brequet, HB9HLM, plans to be operational (QRV) from 1 to 22 June using the callsign CN2DX. He has a dedicated website - see the list - with lots of information, much of it in French.

In an e-mail of 11 March, Mike Johnson wrote, "My next /MM trip will start very soon, from Europe, but I've no idea where I'm going or for how long, but 3 - 4 months is likely. Calls will be GU6AJE/MM for 50MHz up and MU5MUF/MM for HF in the event that 6m produces no conditions. Once again, PA4PA has offered to be my 'ground station' and he will forward any news of my activity to the usual 50MHz websites."

## **PHANTOM QSOs**

DAVE HEWITT, G8ZRE (CH), has an odd tale to tell. Last November he received a direct QSL card from an EA3 station confirming a QSO that was not in his log: he wasn't even QRV on the day in question. In February he received another direct QSL with a list of stations that the EA3 claimed to have worked that day. One of these phantom QSOs was with Peter Bowyer, G4MJS(RG), but he wasn'tQRV either.

Dave concludes that the EA3 gets the QRA details from a call book, monitors what bands his 'victims' use and then hopes they will 'confirm' so as to get his fairly rare grid. "The log extract is amazing; nearly every square worked in the UK," writes Dave. It would be interesting to learn if any other readers have received such requests.

## **CONTEST NOTES**

THIS YEAR'S UKSMG 24-hour 50MHz Summer Contest will be on the 25/26 May weekend starting at 1200 on the Saturday. There are five UK and three 'Rest of the World' sections. The full rules are in the February 2002 Six News and on the website. The following weekend sees the co-ordinated RSGB/IARU 50MHz Trophy Contest; see page 59 in the January RadCom for the annual VHF/UHF/Microwave contest calendar.

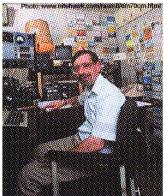
This year it is the Finnish national society's (SRAL) turn to organise the IARU Region 1 VHF

and UHE/Microwave contests. These are scheduled for 7/8 September for VHF (144MHz) and 5/6 October for the 432 MHz - 248GHz event. The full rules were e-mailed to the Society by Kari Syrjänen, OH5YW, whose e-mail address is Kari. Syrjanen @kymshp.fi

## **RESEARCH NOTE**

EV TUPIS, W2EV, is starting "an important and interesting project" and would like to hear from anyone who has the following, A 2m SSB capability with >100W output, at least an 8-ele antenna, experience of using UI-Viewsoftware - or who is willing to learn - experience of PSK31

mode on any frequency and. "patience and desire to make amateur radio history." You can



AI Katz, K2UYH, editor of the '432 and Above EME News' that is frequently referred to in the Moonbounce section.

## MOONBOUNCE

ACCORDING TO the March 432 and Above EME Newsletter February turned out to be a great month for those QRV in the 23cm SSB contest on the 23rd and 24th, as well as those using 70cm. In the contest HB9Q seems to be the winner with 550 points and Howard Ling, G4CCH (IO93), was runner-up with a claimed 410 points. Due to high winds he wasn't QRV on the 23rd for the start of the event. Next day he completed with 21 stations in 10 fields - CN, DM, DO, EM, EN, FM, FN, IO, JN and JO - countries worked being F, GW, HB9, LX, OE, OK, OZ and W. Activity was lower than he expected due to the lack of some European 'big guns'. He was QRV on 23cm on 16 February completing with OZ6OL\* and next day with IK2MMB\*, DL4MEA\* HB9BBD, W2UHI\* and LX1DB on SSB and CW. The 24th also brought QSOs with ZS6AXT\*, OE9ERC\*, OH2DG\*, W1QC\* and K5JL\* but he had some PA troubles.

Stuart Jones, GW3XYW (IO71), reports good activity in the 23cm SSB contest with moderate European participation. He completed with HB9Q, G4CCH, F2TU, OE9ERC, OZ6OL, N2IQ, IOUGB, W2UHI, K5JL, K4QI, LX1DB, K0YW, KA0Y, WA9OUU and K2UYH for a claimed total of 240 points.

Niels Montanana, G8RWG (JO01), is QRV again on 2m after almost six years of inactivity. He was in St Vincent for a year and, operating as J88CX, made some EME contacts with a single 11-ele Yaqi. He has plans for EME operation this summer with two 9-ele Yagis 12m AGL with elevation control and using his old Tempo 2002 amplifier. He reckons that will be a bit of a marginal set-up but he should be able to work some of the bigger stations.

The May activity weekend is 18/19 when London latitude stations will have 29.3 hours of Moon time. The declination varies from +23.05° to +15.75° and the signal degradation, referred to perigee, ranges from -0.40dB to -0.10dB. The 144/432MHz sky temperature range varies from 246/18K to 200/15K and the Sun offset at Saturday midnight is +79°

## JHF/UHF

e-mail him at w2ev@arrl.net for information. [See the article on pages 38 - 40 for more on Ev's project - *Ed*.]

## GEOMAGNETIC AND SOLAR ACTIVITY

IN THE 30 DAYS up to 12 March there was a significant drop in the average solar flux. In the previous 30-day period there were only three days when it was below 200 units but this time it was only slightly above that on seven days. The peak was 211 on 25 February while the minimum of 172 occurred on 5 March, giving a daily average of 191.1, 15.5% down. 44 new sunspot regions were recorded. The daily sunspot areas in millionths of the Sun's visible disc show a decline with a minimum of 610 on 8 March and a maximum of 1360 on the 11th.

The middle latitude geomagnetic activity was slightly higher than in the previous period but remained generally low. The A-index was quiet on 24 days, dropping to just 2 on 14 and 16 February. The maximum was 16 on 6 March but the K-index only reached 5 in a couple of three-hour periods, hence little auroral activity.

## PROPAGATION

THE JANUARY ISSUE of *SunMag* includes two articles about the Sun. The first suggests that our star consists mostly of iron, this hypothesis coming from Dr Oliver Manuel, a professor of nuclear chemistry at the University of Missouri-Rolla. The second, dated 18 January, is entitled 'The Resurgent Sun' and considers the evidence that solar cycle 23, like its two immediate predecessors, is exhibiting a double peak.

There are the usual tables of daily solar, geomagnetic, particle and sunspot group data, a nine-page list of all the sunspot groups of 2001 and a solar flare list. For subscription information contact GOCAS (QTHR) whose telephone number is 01302 531925. His e-mail address is neil@g0cas.demon. co.uk

The November issue of *The Six and Ten Report* contains the

usual reports, comments and analyses of the month's events. The *Report* is an activity of the RSGB's Propagation Studies Committee (PSC) and is edited by Dr Steve Reed, GOAEV, and Prof Martin Harrison, G3USF. Subscription inquiries should be addressed to Steve (QTHR) whose e-mail address is g0aev@explore.force9.co.uk

## **METEOR SCATTER**

THE NEXT IMPORTANT meteor shower is the Eta Aquarids with a predicted zenithal hourly rate (ZHR) of 60. The OH5IY software suggests the peak will be around 1230 on 5 May, just before the radiant drops below a mid-UK horizon at 1330 to reappear at 0200. There were no activity reports this time.

## BAND REPORTS 50MHz

Ted Collins's, G4UPS (EX), report covers the period from 12 February. On 12 February at 1056 he heard 5U6W in Niger working stations by numbers although many callers were ignoring this method of handling a pile-up. (In his 'What's on Six' feature in *Six News* G4FVP implores DX stations *not* to adopt this procedure, suggesting, "It is an unmitigated disaster on Six as the propagation tends to move quickly. Split frequency operation is the

route to go").

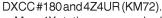
Among the in-band Russian TV on the morning of the 17th, OH, ON, PA and SM stations were calling for DX. At 1029UTC Ted workedOY9JD\* (IP62) and later EX8MLE\* (MN72) for DXCC entity 178. At 1148 next morning he worked VK4ABW\* (QH30) on 50.110MHz then QSYd to 50.105, called CQ DX and contacted

	ANN	IUAL	_ VHF/	UHI	<sup>-</sup> TABI	_E -	JAN T	<mark>o de</mark>	EC 200	2	
	50N	IHz	70N	1Hz	1441	ИНz	430	MHz	1.30	Hz	Total
Callsign	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr F	Points
G4DEZ	21	35	16	3	32	9	18	4	1	1	140
G3FIJ	7	2	1	1	17	6	18	3	1	1	57
G7CLY	3	8		-	6	7	4	3		-	31
G4APJ	-	-	7	2	19	1	-	-	-	-	29
G8RWG	-	-	-	-	8	6	-	-		-	14
The Dist	rict C	odes a	are the 1	24 lis	sted on p	bage	52 in the	Janu	<mark>ary 2002</mark>	Rac	dCom.
Up to 6 c	liffere	nt GI s	stations	and	up to 3 d	liffer	ent GM s	tatior	ns in eacl	h Sc	ottish
district I	nay b	e cou	nted. C	ounti	ies are t	the c	urrent D	XCC (	ones plu	s IT	9. The
deadline	district may be counted. Countries are the current DXCC ones plus IT9. The deadline for the next issue is 14 May.										

VK4CXQ\*. At 1034 on the 19th beacon VK6RSX peaked to S8 and was audible from 0927 till 1150 while VK6JQ\* was heard working HB9COP.

On the 22 VK6RSX peaked to S9 by 0950 and he worked VK6JQ\* (PH12) at 1015. At 1241 9U5D (KI46) was DXCC #179 -QSL via SM5BFJ. In the morning of the 24th, VK6RSX again peaked to S8, at 1023 KH2JU in Guam had a huge pile-up and at 1104UTC Ted contacted DU1/GM4COK\* (PK04), followed by XW0X (OK18).

At 1026 on the 25th JE2UAZ\* was worked, followed by VK6JJ\* in Perth. At 1112 YB5QZ\* had a huge pile-up but soon faded. The 26th was a rewarding day with strong Russian in-band TV from 0755. QSOs were completed with 4Z4KX\* (KM72), 4Z5FC\* and JY4NE\* (KM71), TA5/M0HEN (KM86), 5B4AGN and 5B4AGM\* (KM64), 4X4GT (KM72), EY7AF\* (MN40?) for



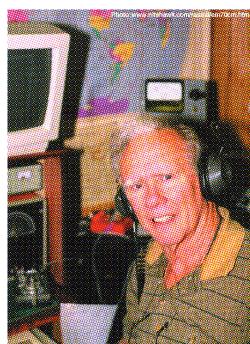
More 4X stations were worked nextmoming and at 1141 A71MA was heard working into IO90/91 with a big pile-up. From 1209 ZS6AVO\* (KG44) and ZS6AXT\* (KG33) were contacted before fade-out at 1225. A7, VK4, 6 and 8 signals were heard in the moming of the 28th.

Coming to March and on the 1st D44TA was copied at 1058 with a huge pile-up, VK6s were heard later. Ted worked D44TA (HK85) for a new grid at 1127 on the 4th, QSL via OE5XVL. Weak ZS6s were heard in the morning of the 9th and again in the afternoon of the 11th by G3HBR (HP). On the 13th Ted worked ZS4NS\* (KG32) and Bernie ZS4TX\* (KG30) for another new grid. He only uses the bureau twice a year so, unless you are prepared to wait a long time, he suggests you QSL direct. YI9OM's QSL took just 10 days to arrive and the QSL route is via OM6TX.

Last month KP4EIT's locator was given as FK58 as copied by stations José worked on 27 December. John Ridd, G8BQX (TN), sent a photocopy of his QSL which states FK68 with the '6' underlined.

Bob Harrison, G8HGN (CM), had a half hour opening to ZS from 1250 on 23 February and worked ZS6XJ (KG33) and ZR6DXB/P (KG44) for two new grids. Others in KG43 and 46 were heard plus V51/SP6IXF (JG97). XW0X was S8 from 1105 on the 24th with a big pileup. On 2 March 5N6NDP was copied giving his locator as JJ67LU which Bob reckons would put him outside Nigeria; perhaps JJ57? His QSL route is IK5JAN. On the 5th he answered D44TA's CQ call and completed for grid #283 and DXCC #63.

Clive O'Hennessey, GM4VVX



Another 'moonbouncer' from Al Katz's website: Ted, VE3BQN.



(IV), now retired, spends a lot of time listening though often with little reward from way north in 1078. But February broughtearly morning openings to the east to JY, OD, SU, 4X and 5B for new countries. Other new ones were UN3G\* (MN83) on the 16th and UK9AA (MN41) next day all with 5W to a 3-ele Yagi. He heard VK4ABW and VK4ANG\* at midday on the 18th but couldn't get through the QRM from many Europeans heard on backscatter.

GU6AJE missed last month's deadline when he listed 154 fine QSOs. The high point for Mike in February was VK6JQ\* at 1006 on the 22nd for a new grid, field and country to complete his WAC and ODX at 13,999km. Later he contacted 9U5D and on 10 March ZS6AXT\*.

Jamie Ashford, GW7SMV (NP), worked some choice DX such as 5U6W and PY8EA (GI58) on 12 February, UN5PR (MO60) on the 15th, UN3G, UN7QX\* and UN7GM\* (MN83) on the 16th, EX8MLT (MN72) on the 17th, JA6IDJ (PM42) on the 18th, VK6JQ\* and 9U5D on the 22nd. The 23rd brought ZS6XJ and V51/SP6IXF and next day DU1/GM4COK\*, XW0X and TR8CA (JJ40). On 1 March he contacted 7Z1SJ (LL25) and D44TA and next day ZS6WB (KG44).

#### 70MHz

Brian Williams, GW0GHF (CF), has regular skeds with Nigel Mockridge, G6EED, in Taunton and Steve Bryan, G7VHG, in Swindon who both have FM and SSB capability. Steve has been QRV in contests and runs 80W to a 4-ele Yagi 40ft AGL. Nigel uses a modified MFJ9406 6m SSB transceiver with 3W output into a 28W amplifier to a 4-ele Yagi 30ft AGL. Brian is testing a home made 2-ele Quad antenna with pleasing results and hears the GB3ANG beacon 80% of the time. His station comprises an IC-756. transverter and converted 2m amplifier running 30W.

#### 144MHz

G stations were complaining that there was little activity in the evening of 8 March so Bryn



Al Katz's, K2UYH, 28ft dish used for moonbounce.

Llewellyn, G4DEZ (JO03), did the obvious and put out a CQ call around 1900 and went on to work DL, ON and PA stations over 600km. ODX was HB9RDE at 903km. He writes, "It's no use tuning over the band, hearing nothing, and saying that the band is dead. Try calling CQ, you might be surprised at just what is about."

G8RWG worked a handful of stations in the contest on 2/3 March in fairly average conditions including LX/PA1TK/P (JO30), F6GYH (JN18) and ODX DL0PVD (JN49) around midday on the 3rd. Niels was running an FT-1000MP, DEM transverter

UKSMG Morocco (CN2DX)

http://www.uksmg.org http://radioamateurs.eicn.ch/cn2dx



COLOMOR (ELECTRONICS) LTD Unit 5, Huffwood Trading Estate Brookers Road, Billingshurst, West Sussex, RH14 9RZ Tel: 01 403 786 559 Fax: 01 403 786 560 Email: sales@colomor.demon.co.uk SEE OUR WEB PAGE AT: http://www.colomor.demon.co.uk VALVES 3/500Z CHINESE £128 EA. 6LQ6 / 6JE6C RCA & PHILIPS USA £31 EA. 6HF5 USA £29.30 EA. 6JS6C USA £37 EA. 6KD6 USA £37 EA. 12BY7A USA £10.50 EA. 12BY7A COLOMOR BRAND £7.90 EA. 572B £37 EA. 811A CHINESE £9.45 EA. 811A SVETLANA £17.35 EA. 811A SVE1LANA ±17.35 EA. 6164 B USA £19.65 EA. 6146W PENTA USA MATCHED PAIRS £42 PER PAIR EL519 £11.75 EA. 4CX250B BASES, AEI, USED £11.75 EA. UX4 CERAMIC 811A BASES £2.40 EA. UX5 CERAMIC 807 BASE £2.50 EA. ALSO AVAILABLE BIRD ELEMENT 10W 25-60 MHz £37 BIRD ELEMENT 10W 50-125 MHz £37 BIRD ELEMENT 100W 50-125 MHz £37 RACAL RA17 I.F. CRYSTAL FILTER £18 19 SET CONTROL BOX NO.17 £22 19 SET DOGBONE LEAD £22 LARKSPUR NO.8 RF TUNER £23 100PF SILVER PLATED BALL BEARING TUNING CAPACITOR £5 EA 100PT SILVER PLATED BALL BEARING TUNING CAPACITOR £9.50 EA 100PT TWIN GANG SILVER PLATED BALL BEARING TUNING CAPACITOR £9.50 EA 500PF + 500PF TWIN GANG VARIABLE CAPACITOR £5 EA 19 SET REMOTE CONTROL NO.1 £36 RACAL DANA FREQUENCY COUNTER 99015, 560 MHz £87 RACAL DANA TIMER COUNTER 9904, 50MHz £45 ROLLER COASTER GLASS FIBRE RACAL 41 TURNS 3 ½" DIAMETER, 9 ½" COIL, 3/8 X 1/16 SILVER PLATED STRIP, USED £47 EA MORSE KEY ARMY BAKELITE 8 AMP No.2 £9.40 EA GERMAN JUNKER BENCH MORSE KEY £53 EA CARRIAGE £3 PER UK ORDER VAT INCLUDED IN ALL PRICES Payment by cheque or card (Visa, Mastercard, Switch etc.) OVER 6000 TYPES OF ELECTRONIC TUBES IN STOCK INCLUDING MANY RARE TYPES PLEASE TELEPHONE FOR AN UP TO DATE QUOTATION

with 40W output to a 9-ele Yagi about 3m AGL.

G8HGN thought conditions pretty poor in this contest and made eight QSOs, ODX being DF0CI (JO51) at 676km. Bob worked into DL, F, G and GW in grids IO81, JO31, 42 and 51 running50W to two 15-ele Yagis 13m AGL.

#### 430MHz

G8HGN was QRV on 70cm in the 2/3 March contest running 50W to two 21-ele Yagis 13m AGL. Bob completed nine contacts with G, GW, ON and PA stations in IO81, 91, JN39, JO01, 10, 30 and 42. Conditions were pretty dire on the Saturday but a little improved on the Sunday.

### DEADLINES

THE COPY DATE for July is **14 May** and for August it's **18 June**. Mytelephone answering and fax machine is on 020 8763 9457 and the CompuServe ID is g3fpk •



WING TO THE backlog of contest results, this month we'll again concentrate on getting the results to you, rather than taking up editorial space. However, there is room to highlight one or two issues.

## SPECIAL CONTEST CALLS

JUSTIN SNOW, G4TSH, Chairman of the RSGB HF Contests Committee, asked me to mention that all the Special Contest Calls should have now been renewed. Some groups appear not to have renewed their calls. If you haven't renewed and wish to use the call again, or perhaps didn't receive the renewal form, please contact RSGB HQ for a renewal form or see the contests section on the RSGB website (http://www.rsgb.org).

Whilst we're on the subject of the special callsigns, trustees should note that the callsigns can only be used in certain specific events, which are listed with the Notice of Variation.

## **VHF CONTESTS – GAME ON!**

WHAT A PLEASURE it was, in the March 144/432MHz contest to work portable stations once again. After last year's foot and mouth outbreak affecting our ability to go portable, it was great to be able to work so many of the regular combatants once again. I'm certainly looking forward to the resumption of the Backpackers' contests this month.

Participants in the Backpackers' contests may be interested by the 'Summits on the Air' programme launched recently. It fits in nicely with the Backpackers activity. More information was published in the April *RadCom* on page 11 and full details can be found at http://www.sota.org.uk

Don't forget that you can post your claimed scores on-line for all VHF contests. Follow the link from the main VHF Contests Committee page (http://www.blacksheep.org/vhfcc). This makes particularly interesting reading for the Tuesday night activity contests.

## 2nd Slow Speed Cumulative 2001- Correction

FROM Derrick Webber, G3LHJ, who adjudicated this event comes a note to say that the logs from M5ALG/P were inadvertently omitted from the results table. M5ALG/P was placed second in the contest. Our apologies for the omission.

## Low Power Contest, 2001

THE CANCELLATION of portable sections reduced the number of entries this year. The winner of the 10W fixed section and the 1930 Committee Cup was Tim, G4ARI, who had an error-free log, and was also the overall winner. The 3W fixed section winner was Steve, G4EDG. Congratulations to all.

Some of the comments made included:

G3IZD/P - First attempt at a QRP test and new tactics to learn. 80m conditions good.

G3KZR - Just enough available stations to keep momentum.

G3RZP - Using 1950 technology Tx 807 Rx HRO – Great fun. M0CMQ - 80m was poor and 40m OK after 1430 from an electrically noisy QTH.

G4XPE - High QRN to start with, did not participate in afternoon session.

G3RSD - Good contest, plenty of activity from the continental low power contest on 40m.

## 2nd 1.8MHz Contest, 2001

FORTY-TWO logs were received for the 2001 second 1.8 MHz, 38 of them by e-mail or floppy disk. One of the paper logs had been prepared on a word-processor and printed out. I could have used its document file – it would have saved me typing it up. As an aid for contestants, numbers in the QSOs and bonus columns in the attached table are your claimed scores. The points column shows your score after I had made deductions for errors.

The number of entries was down again. If potential entrants think that it isn't worth entering these low-band contests in the present sunspot situation, they are mistaken. How about giving it a try in 2002? If you come on in the last hour you could have your very own pile-up.

Congratulations to Clive Penna, GM3POI, on winning the Somerset Trophy for leading UK station and also on winning the Maitland Trophy as Scottish station with the highest aggregate score over the two 1.8 MHz contests in 2001. Chris Burbanks, G3SJJ, was second and John Linford, G3WGV, third. The leading overseas station was Ted Misiunas, LY2OX. *Sid Will, GM4SID* 

UK Section           Pas Call         QSOs         Bours         Ps         Egrip.           1 GM3POI         201         75         377         4(2)           2 GSU         12         73         818         4(2)           2 GSU         12         73         818         4(2)           4 GRICG         134         66         715         3(2)           6 GRIL         132         65         713         3(2)           6 GRIM         125         64         661         4(2)           8 GRW1         125         64         661         4(2)           1 GWMWIN         10         75         88         4(1)           1 GWMWIN         10         75         88         4(1)           1 GRIN         96         5         525         3(3)           1 GRIM         96         5         525         3(3)           1 GRIN         10         47         455 </th <th>21</th> <th>nd 1.8</th> <th>MHz C</th> <th>ontest .</th> <th>2001</th> <th></th>	21	nd 1.8	MHz C	ontest .	2001	
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6     OHIAMCY     21     16     127     3W1       6     SP9KRT     19     14     127     3W1       8     OKIFAO     17     13     116     3W1       9     PA9CW     14     112     3W2       10     ECTAZ     12     11     75     4C29       10     EXAFZ     10     9     75       12     RNAO     5     5     40						
6 \$P9KET 19 14 127 3W1 8 0Z1FAO 17 13 146 3W1 9 PA9CW 14 14 112 3W2 10 EU1AZ 12 11 75 4C29 10 EA9AFZ 10 9 75 12 RNIAO \$ 5 40		26		153		
8 02/FAO F7 13 116 3W1 9 PA9CW 14 14 112 3W2 10 EU1AZ 12 11 75 4C29 10 UA9AF7 10 9 75 12 RNAO 5 5 40						
9 PA9CW 14 14 112 3W2 10 EU1AZ 12 11 75 46C29 10 UA9AFZ 10 9 75 12 RNIAO 5 5 40						
10 EU1AZ 12 11 75 4C29 10 EA9AFZ 10 9 75 12 RNIAO 5 5 40						
10 UA9AFZ 10 9 75 12 RNIAO 5 5 40						
12 RNIAO 5 5 40					4C29	
B 1Z3AB I I 8 401					101	
B LZ3AB I I 8 4QI	ы алады			δ.	401	

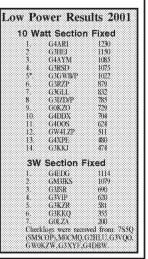
G4OOS - Very enjoyable - although ill at the time.

G4DDX - Intended to use 3W, howeverpylon noise S6 so changed to 9W section.

G3KKJ - Poor conditions in Dorset in AM session.

G3XYF - Had a lot of fun, hope to enter full log next year.

Some comments were received regarding the scoring and rules of the contest, which have been passed to the contests committee. Thanks to those that submitted check logs, some with large scores, we hope to see you in the contest next year. *Dave Mason, G3RXP* 



## 21/28MHz CW Contest, October 2001

AMAJOR SOLAR FLARE put paid to any repeat performance of the conditions during the SSB contest. 28MHz suffered in particular, and auroral effects were noted for the last hour of the contest which hampered making QSOs even further. This year the Worked All Germany contest coincided with our event, which increased the amount of DLs appearing in UK station logs but, judging from comments received, cost a few people multipliers where DX stations in the WAG contest chose not to give out points to UK contesters.

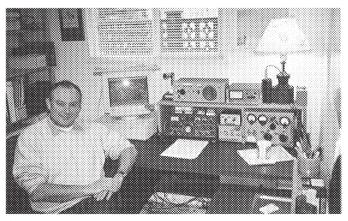
However, despite the uncertain propagation, an encouraging number of entries was received. Jan, G0IVZ, wins the UK Open section and will receive the G6VQ Trophy. At the other end of Britain, Jim, GM3CFS, tops the UK Restricted section. Mention must be made of the great score from Steve, G4EDG, running QRP who had a bigger final score than all of the Restricted section entrants and half of the Open section entrants!

There was a closely fought battle to determine some of the Overseas sections winners - congratulations to you all. Another top QRP operator was Rumen, LZ2RS, who actually made the overall highest Overseas score. Thanks also to those entering as multi-op teams which are rarer in CW events, and also to those submitting check logs.

## Lee Volante, GOMTN

2	1/28MH	z CW	Contest	, Octoł	oer 2001	
			COpen S			
Callsign Ove	rallScore	21Q	21M	28 Q	28M	Multi-Oj
1* GOIVZ 2* G4PIQ/P	229188 207414	299 289	77 78	241 209	66 60	
3* G5X¥	165120	263	76	177	52	М
4 G3SU/P 5 G4RCG	135720 123543	206 237	64 67	176 141	56 44	
6 GW3NJW	112428	183	61	169	47	
7 G3WGV 8 G3PfT	109836 102312	198 174	70 64	129 128	43 52	
9 GM4SID 10 G3UFY	63813 51870	153	% 0	89 275	34 65	
11 G3RSD	49140	0 157	51	58	27	м
12 G30G 13 G3GLL	45600 44820	152 100	50 41	52 84	26 42	
14 GWHNW	35100	98	47	55	31	
15 GW3WWN 16 G4BJM	28870 28860	85 71	41 31	52 79	29 34	
17 G3KNU 18 G3NKS	25527 17334	72 37	30 28	60 73	37 76	
19 G4BUO	11172	52	29	25	20	
		UK F	Restricted	d Sectio	n	
Callsign Ove	rallScore	21Q	21M	28Q	28M	Multi-Op
P* GM3CFS	68685	168	<b>9</b> 9	83	36	
2* M5ACR/P 3* G4ELZ	63222 62370	134 147	46 51	126 88	36 9)	м
4 G3WPH 5 G3RFH	62332 48708	114 96	30 30	167 162	44 43	
6 GOMIN	38700)	97	42	75	33	
7 G3YEC 8 M0AJT	34080 32472	97 113	45 41	67 51	26 25	
9 MOBEN	31557	82 82	32 33	81	35	
10 G3VYI 11 G3LIK	29502 28560	82 82	\$7	70 61	33 31	
12 G3BFP 13 MU0FAL	24759 23040	80 94	35 39	57 36	28 21	
14 G4CZB	18618	64	P	- 44	26	
15 G2AFV 16 G3WRR/P	18480 17316	74 76	32 36	39 37	24 16	
17 G3ZRJ 18 G4DDX	15444 14151	84 56	27 30	49 35	12. 23	
19 G4ISH	13992	40	25 27	49	28	
20 G4HZV 21 G3GMM	12000 10152	45 54	27 30	35 19	23 17	
22 G3KKP 23 G3GMS	9855 9717	53 61	30 29	20 19	15 12	
24 G4DDL	6318	29	19	26	20	
25 G4ZME 26 G3ZDD	5586 5184	27 37	21 21	22 17	17 11	
27 G3HIF 28 GW3SB	2484 2277	41 25	23 15	0 8	0 8	
29 G3VQO	540	~1 8	ы 6	а 7	9 6	
		U	K ORP S	ection		
Callsign Ove	rall Score	21Q	21M	28Q	28M	Matti-Oj
1* G4EDG 2* G2HLU	70656 28365	164 87	48 34	93 74	44 27	
	28362 16536	8) 66	54 X)	39	23	
3 G3KZR 4 G3HKO	4371	29	18	21		

	2	1/28MHz	CW Co	ntest, C	october	2001	
Callsi	gn	OverallScore	21Q	21M	28Q	28M	Multi-Op
			Overseas				
* ?*	LZ6C LZ9V	44100 42582	90 93	63 50	57 65	42 44	
3*	9J2BO	40896	55	42	90	54	
4	YO6EX VE3M		85 \$8	55 44	40 54	31 40	
ê	OL5KF	T 27639	92 23	61 50	25	<u>22</u> 21	м
8	LY2OX UX4MP	vi 26796	73 12	36	41 64	34 41	
9 10	VA3UZ UR3II		51 52	37 41	53 46	41 38	
44	EA4BW	VR 22515	Ħ		-44	35	
12 13	UN5I K3ZO	21462 20424	17 36	42 44	43 36	31 30	
-14	RA4A1	₹ 20064	56		37	33	
15 16	EA4EF K2SX	I 18690 16185	39 31	30 24	55 54	40 41	
17 18	NA2X UA4R(	15990 15498	43 54	34 39	40 32	34 24	
19	RD4M	10560	34	28	$\mathbf{r}$	27	
20 21	EZ2RF RATQ	9900 \$\$\$80	45 38	40 29	15 11	15  }	
22	SM7CH	5382	34	27	12	12	
23 24	OHIUI RA9F1		45 22	35 22	0 0	0 Q	
25 26	HPIAC RX9W	3078	24 25	20 22	15	14	
27	OK2SG	3654	33	26 27	13 9	13 3	
28 29	JM2RU VK8AV		31 13	27 13	4 18	4 17	
30	OM7Y(	2604	34	77			
31 32	UN6G UR5FC	2511 M 1875	31 15	27 15	6 11	0 11	
33	VE7NS	1200	17	17	3	3	
34 35	VA3IX PY4EQ		9 4	9 4	12 10	12	
36 17	JA2KK	A 363	0 10	0	11	11	
38	JA3YP IRIUD		10 8	10 8	0 0	0 0	
99 40	JAIAA 更2SO)	T 12	2	1 0			
		_		lestricted	d Sectio		
1*	EASCN	25647	46	39	61	44	
2** 3*	LZ4UU OM4X	A 20367	48 72	37 53	52 23	42 20	
4	YO6AI	W 13206	53	42	22	20	
5 6	LZIKP LZ2LD	11928 S 10143	41 0	29 (i	39 69	27 49	
3	WIEN	9833	40	31	21	20	
8 9	VE7NI RU4SS		37 34	13 28	14 16	12 14	
10 11	HA3G/ P95C	V 5880 5472	47 48	37 35		3	
12	YL2PP	4620	-44	35	0	0	
13 14	RV3PN UN7EX		33 28	28 21	10 15	9 14	
15	YU7SF	4305	$\overline{v}$	31	4	4	
16 17	UX5EF 4Z5OL	3552 3468	37 20	32 20	0 15	() 15	
18 19	YU7ES OH1BC		26 16	24 14	0 3	0 3	
20	WAOO	IV 546	- 14	13	0	0	
21 22	YO3FI SP9KR		0 7	0 7	10 0	8 ()	
23	EU6AA		1	1	Ö	ů.	
			Oversea				
1* 2*	LZ2RS AA1CA		89 32	8 30	63 17	45 26	
3	UA6AI	X 7920	22		39	29	
4	LYIDI OH2YI		40 35	34 30	0 0	0 0	
6	W8QZ	4 2436	6	6	23		
	JHINX	U 12		2	0	0	
<b>*</b>	UA3-15	70-847 5244	Overseas	3 SWL 5	Section 14	12	
*≃cer	filicatev	vinner Checklogs	were received wit	h thanks from	1G3IGW.G3	KXF.G4LE	S, HA3UU, N7ZN,
5P5G	6J. SP9(	FLVE7VF Entr	testrom9HTZAa	ndOHI-688	werereclassifie	sraschecklo	28.



If you took part in the Commonwealth Contest this year, you perhaps worked Brian Summers, VE7JKZ. Here's a picture of him at his station located in Richmond, British Columbia.

## UHF/SHF Contest, October 2001

THIS OCTOBER SLOT did nothing to promote itself with good conditions and weather. It would have come as no surprise to anyone that there was a substantial amount of rain scatter to be worked on 10GHz over the weekend! Activity was reasonable in Europe, but poor in the UK. The Parallel Lines returned this year after a sabbatical year suffering from a broken generator, but at least one other major group planned to go out, but had too many

problems to actually get on the air. The South Birmingham RS also had 47GHz equipment with them, but weren't able to make any QSOs. Equipment continues to develop, especially on the middle and higher bands, with increasing power levels being developed from solid state PAs now right up to 24GHz. Entrants should take note of the rule which prohibits self-spotting on the *DXCluster*. *Andy Cook, G4PIQ* 

									C	etob	er 2	001 UH	F/SHF	•							
			Single	Oper	ator C	veral	l Resu	ilts							2	320MH	z Sing	jle Oj	perator		
* 2* 3	Call G3XDY G8VHI G4LRT	02OB 86. 92FM 100 92LJ 7	) 171 7 4	2.3GHz 1000 ( 12	10		GHz 1 0 0 1000	0GHz 1000 0 11	24GHz 0 0 0	47GHz 0 0 ()	Tota 486 117 112	2  * G   2* G	allsign 3XDY 3MEH 4LRT	Score 5405 1282 67	Norm 1000 237 12	Q90 21 6 1	Loc 020B 91QS 92LJ	Pwr 50 10 8	Ant 0.6m 67Y 45QLY	Best DX DG1KJG PA5DD G3OHM/P	km 433 368 67
	G3MEH G4JT3	94QS 42 92SD 1	) 256 ) 143	237		0 6	0 0	0 0	0 A	0 0	61 14					2320MH	l <del>z</del> Mu	lti On	erator		
6 7*			) 98 3 () ) ()	0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	99 4 2	8 Pos C 8 P <sup>*</sup> M 9 2 <sup>*</sup> G 3 G	allsign HCRD/P 8P 5B	Score 8685 6817 3205	Norm 1000 785 369	090 39 28 13	Loc 01PU 01QD 03CE	Pwr 40 15 40	Ant 2.x.25¥ 2m 2m	Best DX DG5FEB PI4GN DJ6JJ	km 579 452 506
Pos	Group	1		Opera 1.3GHz				10GHz	24GHz	47GHz	Total	4 G	30HM/P	2132	245	10	82XJ	30	1.2m	PAGNL	423
l <sup>a</sup>	Parallel Lines	CG 010	Ð 1000	1000	785	1000	1000	1000	0	0	5785					400MH					
27 3 4	ColchesterCG South Birania Five Bells CG		Q 119	819 212 258	1000 245 369	0 569 0	() 391 0	577 205 0	0 1000 0	0 0 0	3058 2741 627	Pos C 1* G 2* G		Score 3053 67	Norm 1000 22	<b>QSO</b> 11 1	Loc 020B 92LJ	Pwr 15 1	Ant 0.6m 1.2m	Best DX DK2MN G8IFT7P	km 416 67
			43	32MHz	Sing	e Op	erator									3400MH	lz Mu	lti Op	erator		
Pos 1* 2* 3	Callsign G8VHI G3XDY G3MEH	Score 20401 17577 2425	Norm 1000 887 117	<b>QSO</b> 73 47 20	Loc 92FM 02OB 91QS	Pwr 100 250 100	Ant 2 x 23Y 28Y 2 x 23Y		Best I DKO DFOM ON 11	8N 1711	<b>lan</b> 708 837 405	P* G	allsign 8P 8IFT/P	Seore 2337 1329	Norm 1000 569	<b>Q90</b> 9 6	Loc 01QD 82XJ	Pwr 6 30	Ant 0.8m 1.2m	Best DX DK2MN PA6NL	km 421 423
4 5* 6	G4LRT 2E1GUA G3YJR	1567 986 588	75 47 28	5 6 7	92LJ 01FS 93FT	230 10 10	2 x 18Y 19Y 19Y		ON40 PA6N MICI	1	429 253 257	Pos C 1* G	allsign 41.RT	Score 67	5 Norm 1000	5700MH Q90	z Sing Loc 921.J	gle Oj Pwr 8	Ant 0.15mHore	Best DX G&IFT/P	km 67
			4	32MH2	2 Mult	i Ope	rator									5700MH	lz Mu	lti Op	erator		
рж 2*	Callsign G8P MICRO/P G8OHM/P	Score 120859 80005 14345	Norm 1000 662 119	Q80 301 226 69	Loc 01QD 01PU 82XJ	Pwr 400 400 400	Ant 4 x 21 Y 4 x 21 Y 4 x 21 Y 4 x 19 Y	+2x21	Best Y OE2N OE75 DK0	4 D	<b>kan</b> 925 953 735	* G	allsign 8P 8H717P	Score 3783 1481	Norm 1000 391	<b>Q90</b> 14 10	Loc 01QD 82XJ	Pwr 4 15	Ant 0.8m 1.2m	Best DX DK2MN PA6NL	km 421 423
			12	96MHz	Sind	le Or	erator												perator		
	Callsign G3XDY G3MEH	Score 16310 4176	Norm 1000 256	<b>QSO</b> 55 23	Loc 0208 91QS	Pwr 300 50	<b>Aut</b> 8 x 23 Y 4 x 35 Y		Best I DF00 DF20	1 WP	<b>km</b> 626 474	Pos C 1* G 2* G		Score 6365 67	Norm 1000 11	<b>Q90</b> 25 1	Loc 02OB 92LJ	Pwr 10 1.2	Aet (1.6m (1.4m)	Best DX DH8AG G3OHM/P	km 435 67
3 4*	GSVHI G4JIJ	2787 2337	195 143	24 16	92FM 92SD	35 20	67Y 35Y		PA6N DF0F		390 466	19				0368MI				10 PM	
5 6	GM4WLL/P G4LRT	1594 67	98 4	5 1	85NR 92LJ	18 120	67Y 27QLY		G3XI G3OI	Ж	488 67	1* G 2* N	allsign 8P 11CR0/P	Score 10396 5996	Norm 1000 577	QS0 39 24	Loc 01QD 01PU	Pwr 10 5	Aut 1.2m 0.6m	Best DX DB8AG DK2MN	kun 424 412
				296MH								3 G	30HM/P	2E34	205	В	82XJ	15	1.2m	PA6NL	423
	Callsign G8P MICRO/P G5B G3OHM/P	Score 27500 22534 7099 5823	Norm 1000 819 258 212	<b>Q90</b> 92 79 25 34	Loc 01QD 01PU 03CE 82XJ	Pwr 400 200 400 130	Ant 8x23Y 4x23Y 16x23 8x23Y	+2x23 Y		JR ATL MW/P	km 699 829 540 577		allsign SIFT/P	Score 165	2 Nom 1000	24000MI Q90 2	HZ MU Loc 82XJ	ilti Oj Pwr 0.3	Ant 0.3m	Best DX G3PHO/P	km 106

## 1.3GHz / 2.3GHz Trophies, 2001

OCTOBER IS SUCH a lottery for conditions, and unfortunately once again we lost, with another quiet contest under poor conditions! John Quarmby, G3XDY, maintained his grip on the single operator section on both bands, but the multi operator section honours and trophies are split this time between the Parallel Lines Contest Group, G8P, on 23cm, and the Colchester Contest Group, M1CRO/P, on 13cm. Special mention should go to David Dodds, GM4WLL/P, for venturing out portable so far north on 23cm. *Andy Cook, G4PIO* 

		1.3/	2.3GHz	Troph	iies, 20	101		
		1.30	Hz Singl	e Opera	tor Sect	lon		
Pos	Call	Points	080	Loc	Pwr	Ant	Best DX	ka
1*	G3XDY	11574	39	02OB	300	8 s 23Y	DF0CI	- 62
[ <sup>4</sup> 2* 3	G3MEH	4056	21	91QS	50 20 35	4 x 35¥	DF2Q#P	- 47
3	6403	2337	<b>16</b>	92SD	20	35Y	DF0ES/P	46
4 5	G8VHI	1918	- 11	921 M	35	67Y	PA6NL	39
	GM4WLL/P	1594	5	85NR	18	67¥	G3XDY	- 48
6	G4LRT	67	1	92LJ	120	27QLY	G3OHM/P	67
		1,3	GHz Mult	i Operat	or Secti	on		
Pos	Call	Points	080	Loc	Pwr	Ant	Best DX	ka
* 2*	G&P	21935	$\overline{T}$	010D	400	8 x 23Y	DK2GR	69
2.*	MICRO/P	15134	56	01PU	206	4 x 23Y +	2x23Y DF0CI	6
3	GSB	7099	25	03CE	400	16x23Y	DL5DAW/P	54
4	G3OHM/P	3536	7	82XJ	130	8x23¥	DECHES/P	57
		2.30	iHz Singl	e Opera	tor Sect	ion		
Pos	Call	Points	080	Loc	Pwr	Ant	Best DX	ka
<b> *</b>	G3XDY	3899	16	020B	50	0.6m	DGIKIG	- 43
2* 3	G3MEE	1282	6	91OS	10	67Y	PA5DD	36
3	G4LRT	67	1	92LJ	8	45QLY	G3OHM/P	C.
		2.3	GHz Mult	i Operat	or Secti	on		
Pos	Call	Points	090	Loc	Pwr	Ant	Best DX	ka
1 *	MICRO/P	6875	K	01PU	40	2x25¥	DG5FEB	37
2×	GSP	6277	25	01QD	15	30	PI4GN	45
3	G5B	3205	13	03ČE	40	2m	D1611	50
4	G3DHM/P	1349	7	82XJ	30	1.2m	PI4ZLD	41

## CONTEST CALENDAR

			HF Contests		
Date	Time	Mode	Contest	Bands	Exchange
4/5 May	2000-2000	CW/SSB/RTTY	ARI International	1.8-28	RST+Serial
	ıv 2100-2100	CW/SSB/SSTV	CO-M	1.8-28	RST+Serial
	iy 0000-2359	CW	CQ WPX	1.8-28	RST+Serial
			VHF Contests		
Date	Time	Mode	Contest	Bands	Exchange
4 May	1400-1400	ALL	RSGB432MHz-248GHz	432/248	RST+Serial+Locator
4 May	1400-2200	ALL	RSGB432MHztrophy	432	RST+Serial+Locator
4 May	1400-2200	ALL	RSGB10GHztrophy	10GHz	RST+Serial+Locator
7 May	2000-2230*	ALL	RSGB144MHzActivity	144	RST+Serial+Locator
12May	0900-1200	CW	RSGB70MHzCW	70	RST+Serial+Locator
					+OTH+Postcode
14 May	2000-2230*	ALL	RSGB432MHzActivity	144	RST+Serial+Locator
18/19 Ma	ry 1400-1400	ALL	RSGB144MHz	144	RST+Serial
					+Locator+Postcode
19May	1100-1500	ALL	RSGB144MHzBackpackers#1	144	RST+Serial+
· ·			*		Locator+Postcode
21 May	2000-2230*	ALL	RSGB1.3/2.3GHz Activity	1.3/2.3	RST+Serial+Locator
28 May	2000-2230*	ALL	RSGB 50MHz Activity	50	RST+Serial+Locator
- i	* = LOCAL ti	ime.			
		M	licrowave Contests		
Date	Time	Mode	Contest	Bands	Exchange
26May	0900-2000	ALL	RSGB10GHzCumulative#1	10GHz	

The full rules of RSGB HF, VHF/UHF and Microwave contests were published in the RSGB Contesting Guide in January 2002 *RadCom*.

Brief rules for non-RSGB contests, which are listed in italics above, can often be found in the 'HF' and 'VHF/UHF' columns.

The HF and VHF Contest Committees both have websites from which comprehensive details are available. These are www.rsgbhfcc.org and www.blacksheep.org/vhfcc

RSGB Microwave Contest rules can be found on thew Internet at: http://www.geocities.com/SiliconValley/Vista/7012/calendar2002.html



DON FIELD, G3XTT 105 Shiplake Bottom, Peppard Common, Henley on Thames, RG9 5HJ. e-mail:hf.radcom@rsgb.org.uk

HE VP6DI expedition has come and gone, with over 50.000 contacts in the log. In the end it proved a tough one for European stations to work, other than on the designated primary band, 15m. Although there was propagation from 10 through to 40m, the huge demand from Japan and the USA meant that Europeans were generally left fighting their way through the wall of closer stations calling the VP6. This resulted in frustration and some of the worst behaviour I have heard on the bands in many a year. However, the advent of a 'new one' still stirs the blood of many serious DXers.

The ARRL's news bulletin carried news that two of DXCC's leading participants worked Ducie Island for entity number 390! The bulletin says "Steve Adell, KF2TI, Secretary of the North Jersey DX Association, confirms Old Timers Howard Wolfe, W2AGW, and Ben Stevenson, W2BXA, worked the newest DXCC entity. These two top-notch DXers have only missed three DXCC Countries over the years - North Korea, P5, French Indochina, FI8, and Damao Diu, CR8. The last two are deleted countries. Wolfe, who will be 96 next month, and Stevenson, in his late eighties, are still looking for a QSO with Ed. P5/4L4FN. For the record Ed Hawkins, K6ZO, also worked Ducie Island. The only countries the 87 year old DXer has not worked are French Indochina and Minerva Reef, 1M. Ed has worked North Korea and is waiting patiently to see if it will count for DXCC. Congrats to all three of these top of the top DXers!"

North Korea is a rather different situation from Ducie. It is odd that it took so long before it was recognised as a valid country, given that it's a substantial nation with a population of 22m (CIA World Factbook). However, politics obviously played a large part in that one. In the event, although YT1AD was able to visit North Korea in March, and had a licence, the military authorities decided that he should not be allowed to operate, so it looks as though that one will remain rare for some time to come.

As it happens, those top DXers mentioned above still may not be able to rest on their laurels. Recent press reports suggest that there may be one or two other DXCC entities in the pipeline. Firstly, Yugoslavia is to be re-named Serbia and Montenegro; the latter has already been given a degree of autonomy, and may gain more in future. Secondly, it is reported that Papua New Guinea has voted to grant autonomy to Bougainville Island. The New York Times reported, "PNG analysts say the election of an autonomous Bougainville government cannot be held before 2003, citing six months to write a constitution and six to eight months to complete weapons disposal". [Whether 'autonomy' will be sufficient to warrant separate DXCC entity status remains to be seen, though - Ed].

The XR0X team, operating from San Felix Island in March, made over 70,000 contacts and were workable from the UK on all bands and modes.

## QTH Corner

XV3C	Jose F Ardid Arlandis, EA5KB, Apartado 5013, E-46080 Valencia, Spain.
	April RadCom), or via bureau.
XROX	John Kennon, N7CQQ, PO Box 31553, Laughlin, NV 89028, USA (correcting
VU2RD0	Q Rohith S Rao, PO Box 1006, Mangalore 575008, India.
VP6DI	Garth Hamilton, VE3HO, PO Box 1156, Fonthill, ON LOS 1E0 Canada.
H40XX.	H44XX Nick Hacko, VK1AA, PO Box 730, Parramatta 2124, NSW, Australia.
D44TA	Radio Club Voest OE5XVL, Lunzerstrasse 42, A-4020, Linz, Austria.
	Germany.
5WOIR	(direct only) Mario Lovric, DJ2MX, Am Oelberg 11, D-61231 Bad Nauheim,
3W3C	Antonio Gonzalez, EA5RM, PO Box 930, E-03280 Elche, Spain.
3W2L1/3	, 3W2KA/3 Trinh Hau, No 4 Dong Xoal, F13, Tanbinh, Hochiminh City, Vietnam.

## **DX NEWS**

DALE, GM4ELV, writes that Dom, F5SJB, will be active from 18 May to 1 June, including the *CQ* WPX Contest, as TM5CW, CW only, with some QRP operation. This station is valid for the **Lons-le-Saunier City** Telegraphy Award. A special QSL is available from Dominique Meige, F5SJB, F39130 Hautecour, France.

Josep, EA3BT, and his wife Nuria, EA3WL, who have conducted operations from a number of rare countries in recent years, have announced that their latest DXpedition will be to **Republic of Congo** (TN). The Congo ranks 32nd on The DX Magazine's 2001 Most Wanted List, 31st in the US and 57th in Europe. They expect to be active from 16 to 27 May, possibly as TN3B and TN3W, on 80 - 10m SSB and RTTY, with some CW too. As with their last two operations they will try to upload the logs to the Internet on a daily basis.

Cliff, GOMMI, has written that he has been receiving e-mails about CW activity in March from YI1BGD in Iraq. Although Cliff acts as QSL manager for Rodger, G0TLC, who is regularly active from YI1BGD, Rodger has not been in Iraq since November, with no further visits planned for a while. Neither Cliff nor Rodger has information about these recent operations, which could be by a visiting amateur, but are more likely to be some sort of pirate activity.

Sahruddin, VU2SDN, President of the Amateur Radio Society of **India**, writes that the Indian QSL Bureau has been receiving very large numbers of QSL requests for pirate stations using Indian callsigns. Calls beginning with VU2 followed by 2 or 3 letters and VU3, followed by 3 letters are the only calls valid. Contest calls are ATO, AT2 and AT3, followed by 1 or 2 or 3 letters. Since there is a blanket

ban on operations from the Andaman, Nicobar and Lakshadweep Islands, callsigns with VU4 and VU7 prefixes have not being assigned to anyone since 1992. Calls with prefixes like AU to AW, VT, VV to VW and 8T to 8Y are unauthorised. The VU bureau has received a few hundred cards, from several countries, indicating QSOs with amateurs using the above prefixes as well as VU4 and VU7. In addition, it should be noted that the following active DXers do not accept bureau cards: VU2AU, VU2DX, VU2FOT, VU2TMP, VU2TRI, VU2WAP and VU2XX.

JM3FVL/JD1, JG4LSR/JD1, JL4CVB/JD1 and JE5DTS/JD1 should be active from **Ogasawara** (AS-031) from 28 April to 4 May, on all bands SSB and CW. QSL to their home calls.

Toshi, JA1ELY, reports that Peter, VK0MQI (who was VK0AC from the ANARE Davis Base in 1998), is a member of the 2002 Australian National Antarctic Research Expedition on Macquarie Island (AN-005). He will be staying on the island until December. Peter plans to operate on all bands when his official duties permit. Toshi says, "Please be patient with him. particularly during the early part of his operation, as Peter does not have much experience in DXing". QSL via JA1ELY.

## **IOTA ACTIVITY**

PATRICK, F5MQW, will be travelling through Northern Europe between May and July, and expects to activate several IOTA island groups as follows: DL/F8UFT (Fehmarn, EU-128), OZ/F8UFT (Lolland, Falster, Faro, Mon, EU-029), SM7/F8UFT (Öland, EU-037), SM1/F8UFT (Gotland, EU-037), SM1/F8UFT (Gotland, EU-037), SM1/F8UFT (Mageroya and / or Kvaloya, EU-044, and Lofoten EU-076), DL/F8UFT (Borkum, EU-047), PA/F8UFT (Texel, EU-038). No specific dates were



The atoll of Ducie Island, location of the recent VP6DI DXpedition.

given, so it would seem sensible to keep an eye on the IOTA calling frequencies, especially at weekends.

Six French amateurs will operate from **Les Minquiers**, EU-099 (between Jersey and the French coast), 17 to 21 May, on 80 to 10m. QSL to F8CUR.

Tom, DL2RTK, and Ric, DL2VFR, will be active (on 160-10m CW and SSB, with some RTTY and PSK31 depending on demand) from Iceland and the Faroes in May. They will be signing TF7/homecall from Vestmanneyjar (EU-071) on 23 and 24 May and TF1/homecall from the main island (EU-021) 25 to 30 May. They also plan to operate as TF5/homecall from Grimsey Island (EU-168) for one or two days (to be decided) between 27 and 30 May. En route to Iceland they will sign OY/homecall from the Faroe Islands (EU-018) from 20 to 22 May.

As at the time of writing, a group of Slovakian amateurs was planning to activate the **Habibas Islands** (AF-NEW), Algeria, sometime during May. I have seen no further details.

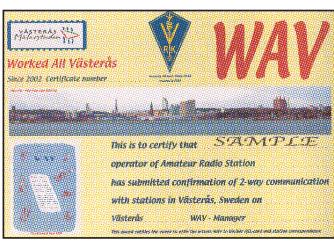
TA2RC, TA2MW, TA2LE and possibly others will be on from **Kefken Island** (AS-159) between May and August, generally at weekends including the IOTA contest weekend, 27 and 28 July. They plan 160 - 10m SSB and RTTY. They will use their home calls portable TA0.

David, AH6HY, sayshe's been in the process of finalising an IOTA trip to **Manua Islands** (OC-077), American Samoa between 18 and 24 May. He hopes to be on 10, 15, and 20, SSB only, as AH6HY/AH8. QSL via AH6HY either direct or via the bureau. More information can be found on his web page.

#### AWARDS

THE WORKED ALL Västerås Award (see below) is for contacts since December 2001 with stations in the Västerås district of Sweden. Contacts with club stations SK5AA and SK5BB count two points, other contacts one point (the same station may be worked on different bands). UK stations need 10 points to qualify. Endorsements are available for single-bands or modes. Applications (log extract, certified by two licensed amateurs) go to Award Manager, VRK, Box 213, SE-72106 Västerås, Sweden, with \$5, 5 Euros or 5 IRCs.

The Scottish **GM DX Group** (an active group of Scottish DXers, which also does much to support international DXpeditions) has provided me with details of its awards program. Firstly, the **Scottish Prefix Award** is available to all radio



amateurs and short-wave listeners for confirmed/heard contacts with amateur radio stations located in Scotland. Each prefix may be worked on CW, phone and digital modes on each band, giving a possible three per band. The Basic award requires a total of 25 prefixes, the Bronze award 50 prefixes, the Silver award 75 prefixes and the Gold award a total of 100 prefixes. Only contacts after 1 January 2000 count. Acceptable prefixes include: GM0, 1, 2, etc; GS0, 1, 2, etc; MM0, 1, 2, etc; MS0, 1, 2, etc; 2M0, 1, 2, etc; GB0, 1, 2, etc for special event stations located in Scotland (QSL card required for proof of location) and GZ0, 1, 2, etc for contest operations from Shetland Islands. Callsigns such as GM/F5NED count as GM0 and MM/W5ZE/P as MM0. A list of log entries certified by two other radio amateurs under the General Certification Rule along with completed claim sheets should be submitted for each award. The cost of each is £5, 10 Euros or \$10. Further details and applications to: Drew Givens, GM3YOR, 3 Murray Place, Gourock PA19 1TS, or from the GMDX Group website.

The Celtic Knot Award is attained by working stations (from 1 January 2000) in lands generally agreed to be those of the Celtic peoples, namely Scotland GM, Northern Ireland GI, Republic of Ireland EI, Isle of Man GD, Wales GW, Cornwall G, Brittany F, Galicia and Asturias EA1 and, to celebrate its Scottish heritage, Nova Scotia VE1. The aim of the award is to work as many amateurs as possible in the territories mentioned. This award is available in several classes: The Celtic Knot Bronze award for working 100 different stations in the Celtic territories with a minimum of five from each call area, the Silver award for 200 stations with a minimum of 10 from each call area, the Gold award for 300 stations with a minimum of 15 from each call area, and the Celtic Knot Honour Roll for working 400 different stations with a minimum of 20 from each call area. Certificates will be awarded in each category, the cost of each being £5, 10 Euros or \$10.

In addition, for those attaining the 300 award, a suitably engraved plaque will be available for £35, 70 Euros or \$70. Those achieving Honour Roll will be be eligible for an engraved quaich (Scottish drinking cup) which costs £35, 70 Euros or US\$70. For this and the Scottish Prefix Award please make cheques out to 'GMDX Group' (sterling cheques only).

Further information and an application form is available on the GMDX Group website. Applications, with the appropriate fee, should be sent to: Celtic Knot Award, Colin Brown, GM0RLZ, 9 Newton Crescent, Rosyth, Fife KY11 2QW.

Finally, while on the subject of awards, ARRL Membership Services Manager Wayne Mills, N7NG, has indicated that the DXCC Desk will, later this year, begin offering the last of the single-band DXCC awards, for 30m. An official announcement is pending, but it's expected the new award will debut 1 October 2002. Those planning to participate may send cards now to get a head start.

## TABLES

A LOT OF new entrants this month for the Annual Table. Welcome one and all. Al, MU3DHI, is the first M3 to dive in, and reports some nice contacts

anarop	5110 00		.00 00	
COUN	ITRIES	WOR	KED,	2002
	d this m			
CALL	CW	SSB	DATA	MIXED
GONXX	200	0	0	200
G3SXW	175	0	0	175
G4UCJ	155	0	44	156
G4PTJ	151	181	0	225
G4IRN	139	0	0	139
G3SED	125	67	0	143
ZC4BS	122	129	62	163
MUOFAL	113	79	0	119
ZC4VG	108	10	0	108
G3LHJ	105	13	75	128
G3JFS	100	51	91	156
G4OBK	97	38	56	119
G3AAH	95	55	0	125
ZC4DW	85	36	77	106
G4WXZ	76	72	0	118
GM4ELV o	RP 72	69	0	93
G4IDL	46	34	0	67
M5AEF OR	P 33	50	0	56
GSXTT	31	16	46	71
G4FVK	24	49	0	58
G4DDL	23	10	8	29
MMOBQI	15	20	81	81
MOCNP	2	79	24	79
MOAWX	0	165	0	165
GOARF	0	0	110	110
GOGFQ	0	107	0	107
GUOSUP	0	0	96	96
GOURR	0	0	81	81
MOBZK	0	57	46	75
MOCAL	0	71	0	71
M5AFA	0	0	32	32
MSPLY	-	-	-	150
G4YWY/M		-	-	75
MUSDHI				56



already, such as VU2ZAP on 15m CW and 9U5D and KL1V on 20m SSB. He uses a 2-element minibeam. Robin, M5AEF, writes that his 1 watt or less, into a sloping dipole for 17m, continues to give good results. He mentions contacts with KG4ZK (Guantanamo Bav) and JH1KLN (Japan), along with a 59+ contact with Scout station TF3JAM in Iceland. Robin also mentions his pleasure at working several of the new M3 licensees. David, M5AFA, uses 3 watts or less, and is focusing on PSK31 (the increasingly popular data mode). Best DX so far is UA0JQ (Siberia) and, coincidentally, KG4NW (Guantanamo Bay). Incidentally, I ought to point out that the KG4 prefix is also used in mainland USA, which confuses some people. Generally the mainland stations have three-letter suffixes while those on Guantanamo (much in the news recently) have two-letter suffixes.

while the inclusion of 6m in the 9-band tables has been ruled out in response to comments received, Henry, G3GIQ, who compiles the tables, and I were wondering whether the CW-only table should alternate with an SSB-only one? Any views to me or to Henry (HenryLewis@ compuserve.com) please.

## CONTESTS

IN THE LAST EU HF Championship there was a strong UK presence, with results as follows: CW HP G0IVZ 276,489 3rd (of 56 entries), G3TXF 257,7217th, GW3NJW 134,400 36th, G4RCG 27, 136 50th; CW LP G4OGB 90, 152 54th (of 166 entries), GM3CFS58,10075th, G3KKP 52,772 78th, G3LHJ 37,548 87th, GW3KDB 27,874 100th, G5LP 18,054 110th, G3RSD 16,585 112th, G4WFQ 14.744 115th, GOWHO 7068 134th: Mixed Mode LP G0MTN 39,370 25th (of 60 entries) GOMRH 2205 56th; SSB HP

G4PIQ/P275,6314th (of 31 entries), GM4YXI225,6769th; SSB LP GW4BLE 58,76523rd (of 109 entries), MW0CRI 34,584 38th, M0CNK 12,87758th, M0COP 147695th. Results of last year's Baltic contest appear on the website, with a dozen or so UK stations having entered.

In the **LZ DX Contest 2001**, UK scores were: G4OGB 83,628, G3UFY 25,198, G3VQO 13,090, G3RSD (10m SSB) 5922, M0EEE/P (20m SB) 3094.

Not a contest in the normal sense of the word, but the **EUCW/FISTS QRS Party** takes place from **28 April to 4 May**. Although sponsored by the various CW clubs around Europe (eg FOC and G-QRP in the UK), all amateurs are invited to take

## ₩₩₩.

GMDX Group:

AH6HY: Baltic Contest: *CIA World Factbook*: D-day activity: part. I can provide further details if required, or you can e-mail the contest manager, Keith, MOCLO, at keithm0clo@ hotmail.com

Remember that the **CQWPX CW Contest** takes place over the final weekend of the month (**25 / 26 May**). At the time of writing I have yet to receive the results of last year's contest, but will hopefully have them in time for next month's column.

## THANKS

www.qsl.net/ah6hy/samoa.html

www.irsf.it/BContest/BC00.HTM

www.qsl.net/on6jun

www.gmdx.org.uk

www.cia.gov/cia/publications/factbook/

SPECIAL THANKS GO to the authors of the following for information extracted: *OPDX Bulletin* (KB8NW), *The Daily DX* (W3UR) and *425 DX News* (I1JQJ). Please send items for the **July** issue by **18 May.** ◆

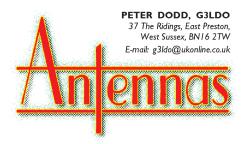
Finally on the matter of tables,

## HF F-Layer **Propagation Predictions** for **May 2002**

			-				I
	3.5MHz	7.0MHz	10.1MHz	14.0MHz	21.0MHz	24.9MHz	28.0MHz
Time	0000111111220	000011111220	0000111111220	0000111111220	0000 <mark>11111</mark> 1220	000011111220	0000 <mark>11111</mark> 1220
(UTC)	2468 <mark>0246</mark> 8020	2468 <mark>0246</mark> 8020	246802468020	2468 <mark>0246</mark> 8020	2468 <mark>0246</mark> 8020	2468 <mark>0246</mark> 8020	2468 <mark>0246</mark> 8020
*** Europe							
Moscow	3	86 <mark></mark> 3889	87322222 <mark>6888</mark>	<b>4</b> 776 <mark>6677</mark> 8886	3667 <mark>8888</mark> 8864	<mark></mark> 2	
*** Asia							
Yakutsk	<mark></mark>	· · · · <mark>· · · ·</mark> · · · ·	52111 <mark>4566</mark>	7776 <mark>5666</mark> 7788	.247 <mark>7774</mark> 2232	23 <mark>3432</mark>	2 <mark>222.</mark>
Tokyo	· · · · <mark>· · · ·</mark> · · · ·			<mark>12</mark> 571.	<mark>.233</mark> 24	2 <mark>3454</mark> .4	
Singapore	<mark></mark>	<mark></mark>	<mark>6771</mark>	<mark>3</mark> 8872		<mark>.</mark> 235 <mark>75</mark>	<mark>23</mark> 52
Hyderabad	<mark></mark>		12677	5 <mark>.</mark> 2 <mark>7887</mark>	2465 <mark>4578</mark> 8874	.367 <mark>7889</mark> 9863	56 <mark>6667</mark> 773.
Tel Aviv	71	88 <mark>5</mark> 888	986115 <mark>8999</mark>	9987 <mark>5567</mark> 8889	34.3 <mark>7888</mark> 3274	23 <mark>7778</mark> 3264	.2666642
*** Oceania							
Wellington	<mark></mark>	• • • • <mark>• • • •</mark> • • • •	<mark></mark> 1		2 <mark></mark>		
Perth	<mark></mark>		<mark></mark> 2413	<mark>11.</mark> 3	2	22 <mark>43</mark>	
Sydney	<mark></mark>	<mark>14</mark>	<mark></mark> 35	1 <mark>221</mark> .	<mark>1</mark> 3.	23 <mark>42</mark> 2.	3 <mark>3</mark>
Honolulu	<mark></mark>	• • • • <mark>• • • •</mark> • • • •			<mark>2</mark>		
W. Samoa	<mark></mark>	· · · · <mark>· · · ·</mark> · · · ·		1 <mark>11</mark>	<mark>222.</mark>		
*** Africa							
Mauritius	· · · · <mark>· · · ·</mark> · · · ·	4	33676	<mark>6774</mark>	<mark>4</mark> 763.	<mark>3</mark> 53	2 <mark>3</mark>
Johannesburg	67	89 <mark>6999</mark>	56 <mark></mark> 8998	1. <mark>1</mark> 9976	75 <mark>4468</mark> 86	77 <mark>6778</mark> 82	66 <mark>6778</mark> 6
Ibadan	· · · · <mark>· · · ·</mark> · · · ·	45	884 <b>1</b> 778	8884 <mark>1.13</mark> 6888	5578 <mark>7888</mark> 8976	4477 <mark>7778</mark> 9876	2256 <mark>6677</mark> 8764
Nairobi	· · · · <mark>· · · ·</mark> · · · ·	2	52	762467	5765 <mark>3236</mark> 7888	2377 <mark>6677</mark> 8874	35 <mark>7778</mark> 8752
Canary Isles	66	8871888	88731 <mark>5788</mark>	8887 <mark>5345</mark> 8899	5468 <mark>88888</mark> 8987	4 <mark>3466</mark> 8732	2 <mark>2244</mark> 652.
*** S. America							
Buenos Aires	23	887	888	878	657. <mark>2111</mark> 3888	2.3223 <mark>577</mark> 5	
Rio de Janeiro	· · · · <mark>· · · · </mark> · · · · ·	661	774	773	763.42236988	3 <mark>5445</mark> 7876	3345 <mark>68</mark> 53
Lima	· · · · <mark>· · · · </mark> · · · ·	552	666	4352	3.47 <mark>2211</mark> 2577	5.222 <mark>3563</mark>	21.243.
Caracas		11	331	455245	5 <mark>4222</mark> 2462	4 <mark>5566</mark> 7753	2 <mark>3233</mark> 453.
*** N. America							
Guatemala	<mark></mark>	22	2221	21212			
New Orleans	· · · · <mark>· · · · </mark> · · · · ·	21	2211	3342	2.3.3677775		
Washington	1	43	776115	7783311257	2 <mark>2622</mark> 7774	<mark>.</mark> <mark>342</mark> .	22
Quebec	71	882	663	23 <mark>21</mark> 2356	23234 <mark>5533</mark>	2 <mark>2233</mark> 3421	222
Anchorage	<mark></mark>	· · · · · <mark>· · · · ·</mark> · · · · ·	1	4332 <mark>111.</mark> 1123	2.22.223243	2.	<mark></mark>
Vancouver	<mark></mark>	· · · · · <mark>· · · · ·</mark> · · · · ·		1			<mark></mark>
San Francisco	<mark>.</mark>	.1	.1	· · · · <mark>· · · · </mark> · · · · ·			
		2	anananananan manananan				anananananananananan

Key: Each number in the table represents the expected The RSGB Propagation Studies Committee provides propagation predictions on the Internet at *circuit reliability*, eg 'I' represents reliability between 1 and www.g4fkh.demon.co.uk The page is updated monthly. The provisional mean sunspot number 19% of days, '2' between 20 and 29% of days etc. No signal is for March 2002 issued by the Sunspot Data Centre, Brussels, was 98.1. The maximum daily sunspot expected when a '.' is shown. Black is shown when the signal number was 125 on 31 March and the minimum was 74 on 9 March. The predicted smoothed strength is expected to be low to very low; blue when it is expected sunspot numbers for May, June and July are respectively: (SIDC classical method – Waldmeier's to be fair and red when the signal is expected to be strong.

## Antennas



On the right, plasticcovered aluminium tube to be used as a durable alternative to cane for horticultural purposes. It even has annular ridges that make it look like cane. To the left is plasticcoated *real* cane.

ETER Martinez, G3PLX. e-mailed me with some interesting facts about the EWE antenna [1] of which I was unaware. He says: "Your item on the EWE antenna was most interesting. I had never heard of it before under this name, but recognised it immediately. If you scale it right down in size to a few millimetres high and a few centimetres long, it's the sensor element in one of the classic SWR bridge designs. It's therefore possible to think of such an SWR bridge as being a directional antenna rather than a directional power sensor - it's just DFing the electromagnetic field within the coaxial cable in which it's placed! The plug-in sensors of the well-known Bird Thruline power meter is one of these, so it's really a tiny DF antenna that you poke into the line to see which way the energy is 'radiating' inside the line.

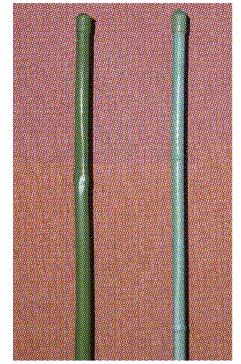
"If you scale it up it becomes a proper Beverage antenna. At an intermediate size you can make it square and balanced rather than build it over a groundplane, and have the resistor halfway along the back edge and the feedpoint halfway along the front edge. You could probably therefore improve the performance, particularly the front / back ratio, by adding a counterpoise wire between the two earth-points as shown in Fig 1 [1]. You can replace the resistor with a second feedpoint and bring a second feeder back into the shack, via a matching transformer of course, and then swap the resistor and the receiver between the two feeders to reverse the direction."

G3PLX adds: "If you do the maths, the required value of the resistor (and indeed the feed impedance, which is the same), is equal to the characteristic impedance of the wire above the ground. You can therefore make this lower by having more wires in parallel. If, instead of a wire you had a flat plate of width D and placed it at a height of D above the ground, the characteristic impedance becomes equal to that of free-space, namely  $377\Omega$ . From this you can see that practical versions of this antenna are always going to be rather high impedance.

"I recently saw this same principle used in a set of fieldstrength measuring antennas made by R&S. The Radiocommunications Agency field engineers have recently been issued with them. They are square loops made of broad flat sheet. Incidentally, because the directivity depends on the electric field and the magnetic field being in a specific amplitude ratio (the magic  $377\Omega$  number again), these antennas will only give a sharp null in the far field where this ratio holds true. I note reports from various people who suggest that loops are much better at rejecting local QRM than whips, which might mean that local QRM is predominantly E-field. If this is the norm, then I doubt if an EWE antenna could ever be very effective in nullingout local QRM, and the same imbalance would apply if the local QRM field was predominantly magnetic."

## MOXON RECTANGLE MATERIAL

"HELLO DEAR, I've bought you a present - could you help me unload the car?" XYL Erica had been on a retail therapy session at a local garden centre. Amongst the hanging basket construction kits, flower pots, potting compost and other miscellaneous bits was my present, a bundle of green canes. These turned out to be 8ft (2.4m) canes coated in green plastic. Cane is often suggested as a material for any antenna that uses nonconducting wire element support structures, such as a quad



or a Moxon Rectangle. While cane is cheap, lightweight and strong, its main disadvantage is that it is affected by weather unless adequately protected. On the face of it plastic-covered cane will overcome this disadvantage.

But beware. Some years ago I constructed a Double-D antenna [2] using what I thought was plastic-covered cane. I found it impossible to tune the antenna for either low SWR or directivity. I later discovered that the material was plastic-covered aluminium tube. The antenna performance (and my sanity) was restored when cane element supports were substituted.

As you can see from the photo there is very little visible difference between the two types of material. However, there are several clues. Plastic-covered cane is very rarely perfectly straight and the diameter tapers along its length. Plasticcovered tube *is* straight, has a constant diameter and gives a metallic sound when dropped on a hard surface.

The plastic-covered tube, shown in the photo, has languished in my antenna material junk pile for many years in all

Peter Dodd, G3LDO

weathers and shows hardly any sign of deterioration except that it has become lighter in colour. This implies that the plastic-covered cane should make a durable wire element support.

I am constructing a Moxon Rectangle using this material and will give details of how it worked out in a later 'Antennas' column.

I have also included some construction and information on this antenna on my website (see WWW. below). Other references to this antenna are to

be found at [3] and [4].

Plastic-coated bamboo canes were available in two of the many garden centres in my locality and from what I can gather they are imported from China. My canes were obtained from Country Fayre, Littlehampton Road, Ferring, West Sussex BN12 6PN (who regret they have no facilities for shipping canes). They were priced at £2.50 for a bundle of five canes, 8ft long. A rather more posh emporium, less than a mile away from my source, is selling the identical product for £4.99. Before you buy, inspect the canes to ensure that there is no damage to the plastic coating and that the end caps are securely in place.

### REFERENCES

[1] 'Antennas', *RadCom* January 2002.

[2] *The Antenna Experimenter's Guide* by Peter Dodd, G3LDO (RSGB).

[3] 'A Superbeam Experience on 24MHz', Vic Westmoreland, G3HKQ, *Practical Wireless* October 1996.

[4] 'The VK2ABQ Antenna Revisited', Vic Westmoreland, G3HKQ, *Practical Wireless* August 2000.

http://web.ukonline.co.uk/g3ldo

BOB TREACHER, BRS32525 93 Elibank Road, Eltham, SE9 I QJ. E-Mail: brs32525@compuserve.com

ANY OF YOU will be aware by now that amateur radio will come to Windsor Castle during the Queen's Golden Jubilee. I am honoured to be leading the team that will bring you GB50 from 29 May to 9 June. Full details of the event can be found at www.gb50.com As well as the operating side - which will feature 'DXpedition-style' operating at certain times each day - the event is very much about improving the public's perception of amateur radio. To this end, the Society will have a big presence at the event.

The operation will be 'SWL friendly'. The operators will have a clear brief to announce the station's identity at regular intervals on both SSB and CW, and the station will, wherever possible, insist on full callsigns only none of this 'last two' stuff! The Award scheme to be announced shortly will be available to SWLs, and all accurate reports will be QSLd 100%. I shall be handling the SWL cards, so please remember all the 'rules'. One 'rule' that , perhaps, needs to be rehearsed again is that cards sent direct with adequate return postage - either IRCs or \$ - will be replied to the same way. Any cards sent direct without adequate postage will be returned via the bureau. Also, it is worth stating that all direct cards should include a self-addressed envelope. A QSL Manager's job does not include writing out your address on one of his envelopes. Enough of yet another QSL sermon! Enjoy, we shall!

## DX

THE MONTH IN review has found the higher amateur bands in tremendous shape - with 28MHz producing good DX very late into the night. 24MHz has delivered



too, while 21MHz had been exceptional at times. 17MHz had been open into the early hours of the morning, and 14MHz has been 14MHz! I have no low band reports this month.

After the TI9, the PW0 and the H40, we had been lucky to have the XR0 and the first DXpedition to Ducie Island. Much had been said about the Ducie trip, but from an SWL viewpoint, their signals had been quite outstanding - especially on 21MHz after 0000UTC - and the operators had favoured the giving of 'full callsigns only'. Unfortunately, they were sometimes not too forthcoming about giving their callsign.

From an SWL point of view, there is too much 'last two' these days, and it is a practice that does the SWL no favours. DX stations will not QSL SWL reports that report QSOs with 'IU', 'UO', 'LW', etc. In fact one wellknown DX station refuses to work stations that only give their 'last two' - sometimes acknowledging 'IU' and saying "I don't know what 'IU' is, thank you for calling, and QRZ - full calls only". I'm sure that active listeners know who I'm referring to - and I'm sure you support him 100%.

What makes it worse is when a DX station works 'IU', you cannot hear 'IU', and the DX station does not repeat the full callsign. The QSO is 'complete', but the poor listener does not know who the DX station has worked! A rare occurrence? No, unfortunately, people do it all the time!

Looking at a few logs, I see mention of AA1NY/KH0, the fine signals from H7DX (YN), CE0Y/DM5TI on Easter Island; ZD9IR seems to have been very active, and Bert, PA3GIO, had been active from HI9. XW0X had been heard on 28MHz at midday; Jim, VK9NS, was a rare catch on 24MHz at 1030UTC on 16 March, and there was even TJ7PG from Cameroon. So, allin-all, an interesting and fulfilling month of DX activity.

On 50MHz, the F2 seemed a thing of the past. Indeed, it had been frustrating to hear eastern and southern Europeans workingZD7,ZD8,CE,J28,etc. However, by the time this column appears, the Sporadic E season will be just around the corner.

## **OH NO, NOT AGAIN**

COSTAS, SV1XV, wrote after seeing reference to SWLs sending reports for DX Cluster spots. He had received a direct SWL card from a north-eastern European SWL who claims to have heard him with 59 signals.

Costas is quite sure, after taking part in many contests, that

with the particular antenna he uses for 80m (a dipole 6m over the ground) only a well-equipped contest station can hear him with 44 signal. He was, therefore, very surprised to receive a 59 report from this SWL. Also, the time of the QSO as reported by the SWL was eight minutes later than his brief QSO with YR20T on his calling frequency. Costas is afraid that the SWL

read on the Internet the DX spot that he sent about YR20T three or four minutes after the actual QSO and decided to QSL it.

However, Costas will be sending a QSL card via the bureau as mistakes in time recording can happen and exceptional propagation does exist at times, but the report does underline why some amateurs refuse to confirm SWL reports.

## **CQ TUNISIA**

I HEARD 3V8SM on 50MHz last summer and have been trying to track down the correct QSL Manager. I have since been informed that there is doubt about the legality of the operation, so it is unlikely to count for awards, etc. However, in my search for the right manager, I e-mailed Mustapha, DL1BDF, who is the officialQSLManagerfor3V8ST, 3V8CB, 3V8SQ, 3V8SF, 3V8SM, 3V8SJ and 3V8MED. He is the initiator of amateur radio in Tunisia, installs all the stations, and confirmed that the only 6m permissions were granted to TS7N in November 2000 and 3V8CB in July 2001. He is "collecting information about those black operators to take a decision".

In the meantime, any SWL hearing any of the 3V8 stations listed here on HF can request a QSL card from Mustapha.



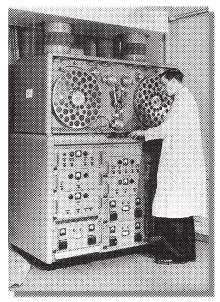
Mick Toms, BRS31976, in action during the CQ World-Wide DX phone contest in October.



N THE last ATV column I covered some of the early TV cameras, many of which can now be found in the hands of amateurs. I had lots of e-mails on this subject, including one from Stephen Beamish pointing out that the first colour camera to be used operationally by the BBC was the Philips PC60. Stephen was Chief Engineer at Intertel, the television facilities company based in Wembley, which also purchased four PC60s at that time. Several of the e-mails ask "How were the early programmes recorded?". The short answer is that many of them were not, as most of early TV was 'live'.

## TELERECORDING AND VTR

THE ONLY WAY to store a TV picture in the early 50s was to film it from a TV monitor, a process called 'telerecording' that produced results so poor that the broadcasters today will never



VERA, the BBC's video recorder, 1958. Source: BBC Technical Instruction

show such a programme in its entirety; clips are sparingly used for obituaries, etc.

The development of video tape recording was occurring in parallel in various places. The BBC developed a machine called VERA (Vision Electronic Recording Apparatus) that used

extremely large spools and had a very short replay time. The first commercially-viable system was developed in the USA, but the video tape recorder (VTR) was not a solo effort - the team had some star engineers, amongst whom was Ray Dolby (better known for his later audio noise reduction work).

This first commercially-viable VTR was produced by this team in the late 50s and was then soon adapted to the 405-line standard for use in the UK. This machine (the Ampex VR1000) used 2in-wide tape and was scanned transversely by four video heads and, for that reason, the format was called 'Quadruplex'.

RCA soon joined Ampex with the TRT1, which recorded in the same format, a format that dominated video-taped programmes for some 20 years, surviving the change-overfrom 405- to 625-line television and the introduction of colour.

> The system had many problems: the machines were complex, large and very costly; they would not produce pictures in shuttle mode and, in the early days, took several seconds for the servos to lock up and produce a recognisable picture. These same servos often produced alarming disturbances on air. which could last several seconds. Throughout the 60s and 70s the technology improved - better picture quality, servos that would lock more quickly - one machine would lock in

less than one second.

The machines were still large and expensive, but the technology enabled many early TV programmes to be stored. One advantage of the format was tape editing. In the 60s, if you wanted to removepartofthe programme or splice one part ofaprogramme to another. the tape could be 'developed' with

a solution of iron filings and, with the aid of a microscope, the recordings could be identified and the tapes cut and spliced together. These physical edits are sometimes still to be found on TV archive tapes.

In 1999, for the International Broadcasting Convention (the annual broadcast TV hardware show in Amsterdam), BATC was asked if it could fill a stand with working old TV hardware. I located an RCA TR70b Quadruplex VTR and, after many evenings' work, managed to return it to working order and, with two other amateurs, transported it to Amsterdam and kept it working for the duration of the exhibition. We were inundated with questions from onlookers and shared many fond memories with some of those who remembered the days when these machines were the only way to record TV pictures. As a result, I have fixed several more of these machines for interested parties and been as far afield as Kuwait to sort out problems on Quad-ruplex VTRs.

Something I left behind in my broadcast days suddenly caught up with me. If you would like to



The author with an RCA TR70b VTR at the International Broadcasting Convention.

know more I have included some links to Internet sites where this technology is to be found. You may never be subjected to pictures from these machines on the airwaves, amateur or broadcast, but it makes you think, when you next put the home VCR into 'record', where the technology started.

## **ATV REPEATERS**

TWO NEW ATV repeaters have been proposed for Clacton-on-Sea in Essex - GB3CX on 23cm, and GB3CZ on 13cm. Contact the keeper, Richard Kearnes, G7HJK, for further information. GB3CT used to be active as a 23cm ATV repeater in the Crawley area, and an application is in process for a new replacement unit to be based at the local club HQ.

## **BATC RALLY**

THE BATC BGM and rally will be held on 16 June at Shuttleworth, Old Warden, Bedfordshire. The event is open to all, admission will be free and there will be a full lecture programme, exhibits and trade stands. See the BATC website for more details.

 WWW.batc.or.uk

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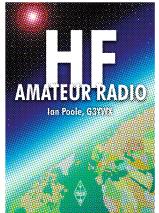
 Editing Equipment and Techniques
 www.sssm.com/editing/

 RCA TRT-1B VTR
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 BBC VT history
 www.oldboys.dabsol.co.uk

 Quadruplex Park
 www.lionImb.org/quadpark.html

# ROUKSXODE EDER



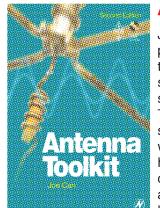
## **HF Amateur Radio**

HF Amateur Radio takes the reader through setting up an efficient station, how to make the best use of each of the bands, choosing equipment and antennas. and the advantages of each type of transmission. Written in an easy-to-read

style, HF Amateur Radio will benefit those new to HF, anyone contemplating

exploring the world below 30MHz, and just about any HF operator who feels he could get more out of his station.

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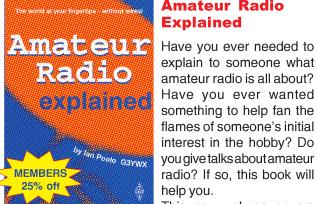
## Antenna Toolkit II

JoeCarr's latest book provides radio amateurs with the definitive design guide for sending and receiving radio signals.

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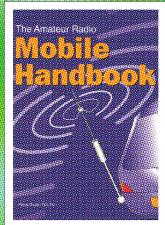
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explain to someone what amateur radio is all about? Have you ever wanted something to help fan the flames of someone's initial interest in the hobby? Do you give talks about a mateur radio? If so, this book will help you.

This new volume covers

setting up a station, what you are likely to hear on each band, how to receive and transmit, what's involved in getting a licence, codes, propagation, and much more.

**ONLY £7.49 -** £9.99 (non-members)



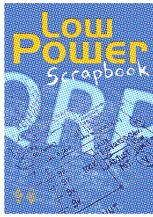
## The Amateur Radio **Mobile Handbook**

The Amateur Radio Mobile Handbook covers all aspects of this popular part of the hobby.

It includes operating techniques, installing equipment in a vehicle and antennas, as well as maritime and even bicycle mobile.

This is essential reading if you want to get the most out of your mobile station.

## **ONLY £11.89 -** £13.99 (non-members)



## Low Power Scrapbook

The G-QRP Club are renowned as the leaders in Low Power and this book contains 133 of the very best projects from the Club's magazine Sprat, brought together in a handy A5 book. Choose from dozens of simple transmitter and receiver projects for the HF bands and 6m, including the

tiny Oner transmitter and the White Rose Receiver. Ideal for the experimenter or someone who likes the fun of building and operating their own radio equipment.

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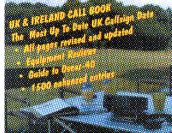
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Your favourite annual has just got even bigger and better. Colour features include how to get the best out of Oscar-40, and reviews of the FT-1000MP MarkV, the TS-2000 and the FT-817. There are comparitive reviews on logging software, HF linears, VHF/UHF handhelds and kits. Also RAE courses, the new RSGB regional structure and repeater maps for 6m and 23cm. Plus the mass of information you have come to expect, and the most accurate and comprehensive UK and Eire callsign listings.

- The most up to date UK callsign data
- 288-pages of Callsign Listings
- 1500 enhanced entries (eg e-mail, locator etc)



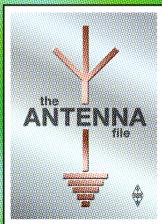
- Post town and surname indexes 176-page Information Section
- Plus all your favourites: repeater and beacon lists, bandplans, clubs, etc. Everything you need at your fingertips, and the best value ever.
- ELECTRONICS

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For those who are interested in RF design, this is the first RSGB book on the subject written by the legendary author Joe Carr. This book is written in an easy to understand style with the minimum of theory whilst offering a comprehensive introduction to the design and understanding of RF circuits. Developed from a

highly popular series in Electronics World magazine, RF Components and Circuits covers the practicalities of designing and building circuits, including fault-finding and use of test equipment.

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## **The Antenna File**

The Radio Society of Great Britain produces some of the best works on antennas and this is a collection of that work from the last ten years. This book contains 288 pages of articles drawn from the Radcom magazine and includes: 50 HF antennas, 14 VHF/UHF/SHF antennas, 3 receiving antennas. 6 articles on masts and

supports, and much, much more. In fact everything you need to know about antennas and how to get the best out of them.

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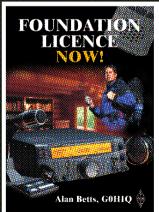


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For the first time, we have collected all of the technical material from a whole year's RadCom and published it in a single volume including -All of the technical features from the 1999 RadComs -Every page of "Technical Topics" - Every page of "In Practice" - Every "Eurotek" -All the technical information from "Down to Earth". That's

nearly 300 pages of construction, technical innovation and practical advice. Throw away those old dog-eared RadComs and get your copy of this neat book.

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For those wanting to know more about the new Foundation Licence the RSGB has produced 'Foundation Licence-Now!'. The book contains all that is required to obtain this first step into Amateur Radio.

In addition to the book the RSGB are also providing, free of charge, an information and

materials pack including the New Foundation Licence application form and many other items, making this a very useful addition for every Radio Amateur beginner.

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## WWW



ANDY GAYNE, G7KPF 119 Lower Lickhill Road, Stourport-on-Severn DY13 8UQ. E-mail: www.radcom@rsgb.org.uk

FTER recently giving the **RAF Signals Museum a** mention in this column. Dave Thompson contacted me with a couple of observations. First of all. Dave's callsion was printed incorrectly and should have read G3OXG, so I'm happy to put the record straight. Of greater concern to Dave though was that, since appearing in RadCom, the number of hits on his website had increased dramatically, to the point where it had exceeded the data transfer limits imposed by the operator of the hosting service. Consequently, the site was being taken 'off line' at times, which is not a particularly acceptable state of affairs. I have advised Dave on a course of action to remedy this, but considering that many readers of this column have or will put together their own website, I thought it would be a good idea to share my suggestions with a wider audience.

### **DOMAIN NAMES**

THE KEY TO solving the problem is perhaps a little obvious: move the site to another server that allows more hits on the website, by having more liberal bandwidth limits. The down-side of this is that the website address will change, which is a bit of a shame after having it published in the National Society's magazine. The original address could be kept live, and used to redirect readers to the new site, but there is always the risk that the replacement web server will also fail to meet expectations. resulting in yet another move

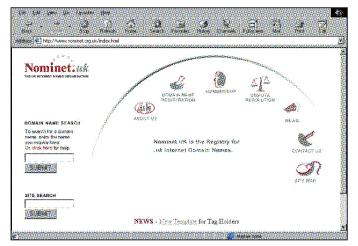
and subsequent redirection of visitors.

This is where registering your own domain name becomes a really good idea, and it is a relatively easy and inexpensive process. A domain name is the unique word that fits between the 'www.' and '.co.uk' (or '.com', '.org', etc) parts of an address, and is

registered through a single national or international organisation appropriate to a particular type of address suffix, or Top Level Domain as they are known. For example, all names ending in 'uk' are registered through Nominet, whose website is also an excellent place for finding out more about the domain name system and the restrictions on who can use different types of address.

To register a '.co.uk' domain name, you first have to find out if it is available, which is accomplished by performing a 'whois' search on the Nominet database. To do this, always use the search page on the Nominet website, rather than similar whois query boxes often found, for instance, on ISP and searchengine websites. These indirect searches will always eventually interrogate the Nominet site, but there is anecdotal evidence that many of these are also used to harvest your ideas for names, automatically registering a name for the search provider if you don't register it quickly enough. The search will tell you the owner and registrant of a domain name, and with Nominet's current registration rate of one every two minutes you are likely to find many of your early choices already taken.

A search is carried out on the full domain name but without the 'www', and the result you are looking for is 'no match', which indicates the name is still available. For example, a search in early March revealed that '12wpm.co.uk' was not registered, so I'm sure a Morse code enthusiast will quickly snap this up.



Nominet - home of UK domain names.

## REGISTRATION

HAVING ESTABLISHED the availability of a domain name, it must then be registered. In most circumstances, this has to be achieved through one of Nominet's member ISPs, of which there are plenty. Prices and conditions of registration will vary enormously from one ISP to another, so it's worth shopping around for the best deal. A good place to start is the Bigbytes website, which provides a comprehensive list of suitable ISPs and the facilities they can offer.

Look for an ISP that will register the domain in your name, rather than the ISP's, and who does not make a significant charge if you wish to move the domain name entry to another provider. The chosen ISP should also provide web and e-mail forwarding, as this then leaves you free to host your website on any service you wish to choose. Registration will typically cost around £10 for two years and, provided that you have adhered to Nominet's rules for domain names, the domain will be your protected property for that period.

It is also worth considering that a domain name need not be used for a website, it can be just as useful to register a domain purely for e-mail forwarding purposes; I have personally registered a domain for this very reason.

## FIND A HOST

THE NEXT STEP is to find a suitable host for your website: once again

Bigbytes is a good source of information, as is ISP Review. Whether you decide to use a free or paid-for service will be entirely dependent on the facilities on offer, but should be chosen to give sufficient web space and bandwidth for the expected number of visitors to your site.

The actual address of the hosting site doesn't matter, as the idea is to have your registered domain name redirected to the actual location of the site. This will be either a straightforward redirection (the site location will then appear in the browser window) or can be hidden, so your visitors will only ever see the registered domain name. This latter approach is the tidiest, but its main drawback is that search engines will not index your entire site to the domain name although, depending on the ISP, there may be mechanisms in place to improve search engine listings.

The result is that you now have a website linked to a personalised domain name, which can be advertised widely and need never change. If you later find out that the host of your website does not give the performance required, the site can be easily moved to another host by just changing the redirection parameters; the site's advertised address can remain the same.



# QRP

#### REV GEORGE DOBBS, G3RJV St Aidan's Vicarage, 498 Manchester Road, Rochdale OLII 3HE. E-mail: g3rjv@gqrp.com

ILL WIGG, G5OW, is, at 91, perhaps the oldest member of the G QRP Club. His membership number, 210, is certainly an old one. Bill began operating CW in 1932

10 67 3307.00

Bill, G5OW, in his shack. He won the loudspeaker when he was 14 years old, for building an 0-V-0 receiver which was deemed 'Wolverhapton's best'.

and, in spite of a heart attack and a stroke and having to relearn to talk, write and walk, he is still operating CW on the bands. In the summer of 2001 he was made an honorary member of the High-Speed CW Club. Bill promptly went on the air in their autumn CW contest and sent in a log to assist the scoring for other members. Much to his surprise he received a handsome certificate to testify that he was the leading British member in the contest! May I wish G5OW many more years of operating on the amateur bands.

## EN100GM QRP EXPEDITION

BETWEEN 9 and 17 December, the UR QRP Club mounted an expedition to the Crimean mountains (plateau Ai-Petri). The event was dedicated to the centenary of Marconi's first trans-Atlantic radio contact on 12 December 1901. The members of the expedition were: Dmitriy, UU4JCQ; Igor, RK3ZK; Peter, US1REO; and Victor, US1RCH. Over 1000 QRP QSOs were made on the HF and VHF amateur bands. The expedition was designed to pay tribute to the pioneers of radio and to attract

amateur radio attention to this jubilee. The expedition marked the event on 12 December by setting up a dipole and QRP transceiver (14MHz, about 1W output, with battery power) in the open air. The main problem proved to be working with the key out of doors, as it was so cold that the operator's fingers became numb!

> The weather during the expedition was extremely cold, even for that region. The whole plateau was covered with snowdrifts, with very strong winds, which shook the small radio room. However, the intrepid radio amateurs and their an-

tennas (long wire, delta loop and dipole) survived!

The operators enjoyed working on the bands, and communicating with other QRP stations, in the wonderful winter setting of the Crimean mountains. All stations that worked EN100GM will get special QSL cards via the QSL manager Maxim, RU3OM. Further details of this and future QRP expeditions can be had from Peter Grytsay, US1REO, President of the UR QRP Club at us1reo@ne.cg.ukrtel.net

## THE GORP CLUB WINTER SPORTS

THE ANNUAL G QRP Winter Sports, held between Boxing Day and New Year's Day is, perhaps, the premier QRP event of the year. A 'QSO Party' rather than a contest, it attracts QRP operators from throughout the world, all with the intention of working as many other QRP stations as possible. Although it is not a contest, there is an award. The G4DQP Trophy is given each year to the person thought to have contributed most to the event. The 2001 / 2002 G4DQP Trophy was awarded to that doyen of QRP operating, George Burt, GM3OXX, for the third year in

## **QRP QRP** Q

succession.

GM3OXX's success was not without problems, for he discovered on Christmas morning that his antenna feeder was in need of repair, and had to brave the -10°C temperature in order to carry out a repair. It was so cold that only his 40-year-old 100W soldering iron was man enough for the job. Other participants commented how impressed they were with George's signal on the various bands during the Winter Sports, and his log shows why. The log is full of contacts (364 of them) on all bands between 160m and 10m, with almost every part of the world and all achieved with a 1-watt homebrew transceiver and wire antenna. A note at the end of his submitted log says, "Enough is enough!"

Peter, G3XJS, the G QRP Communications Manager, received 20 logs from the UK, and 16 from overseas. I quote some of the comments from Peter's report in SPRAT, the journal of the G QRP Club.

Steve, GW4ALG, says that it was his first Winter Sports, and that the highlight for him was working GM3OXX on 160 metres with a balloon-supported vertical. Pavel, OK2BMA, made one QRP - QRP PSK31 QSO, as well as working GM3OXX on each of the eight bands he used. Don, W2JEK, had a very special 2m QSO during WS. It marked 50 years exactly since his first

QSO, which was also on 2m (AM). In 1947 he built a 117N7 transmitter for 40m, which he has since converted to 80m, and he used this rig during the WS as part of the celebrations. Joe, K2JT, made several contacts with his 200mW Pixie II transceiver, including one with W2UW running 20mW! Robin, M5AEF, used 1W of SSB throughout WS and, although he found no other station calling "CQ QRP" on that mode, he did raise 5N6NDP and CN8KDon15m,ZS6BAFon12m, and was called by (and worked) KL7J on 17m.

Richard, G3CWI, decided to run his K1 at just 100mW (mostly on 80m) and was surprised "just how easy it was to make QSOs at this power level," although he found only one other station running less than 1W (MOCWY with 500mW). At one point, Richard says he generated a mini pileup! Dieter, DL2BQD, submitted an all-QRP PSK log showing some fine contacts, including one with FR5HA on Reunion Island. John, W4/G0FSP, found 10m to be busy with QRP activity, but this will be his last WS log from Florida, although he took one day off from the radio in order to take advantage of the local beach!

Perhaps you will want to join in this event at the end of 2002. Anyone is invited to take part. The only requirement is that the RF output of the transmitter should not exceed 5 watts.

POWER MANAGEMENT CHALLENGE, 2002 THIS IS A NEW challenge for owners of portable radios. The concept is simple – make as many contacts as you can during the IARU Region 1 Field Day (CW or SSB). But here's the catch: you can only use eight AA-size cells, and you operate until your batteries run flat! operate until your batteries run flat! Date: CW - First full weekend in June, SSB - First full weekend in September. Time: CW - 1/2 June, Saturday 1500UTC, Sunday 1459, SSB - 7/8 September, Saturday 1300UTC, Sunday 1259. Bands: 160m - 10m (no WARC). Mode: CW (June), SSB (September). Categorles: *PMC Portable*: only one transceiver, and only one antenna a maximum of 10 metres high. The equipment should be capable of being carried in a backpack to the site, although this need not actually be done. *PMC Fixed*: only one transceiver. Battery power in both classes is restricted to eight AA-size cells. These can use any battery technology, but must not be changed or recharged at any time during the contest. changed or recharged at any time during the contest. Exchange: RST + serial number Points: QSOs with European fixed stations count two points, with non-European stations, three points, QSOs with portable stations in Europe, count four points; with portable stations outside Europe, six points Multipliers. Each DXCC and WAE country counts one multiplier per band. Final Score: Total QSO points times total multipliers. Logs: Send logs within 10 days of the contest to ARS-Eu by e-mail to

g3cwi@tesco.net. Logs should include section entered, QSO total, score, equipment used, and battery technology (NiMH, NiCad etc).

DAVE PICK, G3YXM 178 Alcester Road South, Kings Heath, Birmingham B14 6DE. E-mail: If.radcom@rsgb.org.uk

AST TIME, I mentioned an experimental mode '7FSK'. The following is a more elegant variation on the theme

Alberto di Bene, I2PHD, is known to LF operators as the developer of Argo, a PC spectrum analyser program optimised for QRSS (very slow CW). He has now turned his attention to a system based on the ideas of Steve Olney, VK2ZTO. This is an FSK system known as Jason and works in the following way.

The audio output of a CW receiver is fed into a PC sound-card where Fast Fourier Transform (FFT) analysis is performed to identify coherent carriers within its narrow window of acceptance. Once a carrier is detected, any subsequent change in frequency is taken to represent a particular data value. Two such values make up each character. The changes in frequency occur every 12 seconds, so a character is identified every 24 seconds giving a transmission rate of just over two characters a minute. This may seem slow, but it compares well with QRSS which, at the same element length, is about one-eighth the speed.

Many tests have been conducted, and the performance seems to be comparable with 10-second-dot QRSS, the great advantage being that you don't have to decipher the message, it appears as text on the screen.

The mode is still being developed and the details may change; faster and slower versions are possibleanddifferentbandwidths have already been tried. The current version occupies a 4Hz bandwidth enabling it to fit between Loran lines.

The software, along with Argo and Spectran, can be downloaded from the 'weaksignals' website (see below).

## **CONDITIONS**

ALTHOUGH Trans-Atlantic conditions have not been very good, daytime long-skip conditions seem to have been enhanced. I am told by Alan, G3NYK, our LF propagation guru, that this is often the case.

These good conditions have allowed signals from OH1TN, IK5ZPV, OK1DTN, OM2TW and IK2DED (see below), to be copied in the UK during the day.

Alan now has his own web-site where you can find out more about LF propagation, the address is at the bottom of the page.

The first LF contact between Hungary and Italy was made when HA6PC worked IK5ZPV during one of these periods of good conditions. Gyuri, HA6PC, has been active on LF for some time, but hasn't made it over to the UK yet. He is still improving things so we may be hearing him soon.

## TRANS-ATLANTIC

AFTER THE great successes at the end of last year, things went a little quiet in January and February. Although the Americans and Canadians were regularly looking

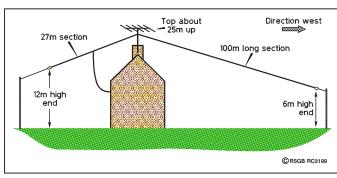


Fig 1: The LF aerial at OM2TW.



The TV tower near Mantova which supports the IK2DED LF aerial.

out for signals, the number of stations copied was low. On the positive side, the first signals from Slovakia (OM2TW) and Italy (IK5ZPV) were detected by VE1ZJ before John's LF receiving antenna succumbed to the Canadian winter.

There is hope that the spring equinox may bring a spell of good conditions, I will report on that next time!

## **TOWER OF POWER**

GIULIO, IK2DED, visited his contest site one Saturday morning in February and took his LF transmitter with him. This site has the advantage of having access to an 80-metre tall TV tower. There are some topband antennas suspended from the top, and Giulio used one of these as a semi-vertical endfed wire to work G3AQC and others.

The results impressed him and he is hoping

to optimise the system for LF soon, look out for him.

## **LF PROFILE - OM2TW**

**RICH HAS BEEN operational** on 136kHz since January 2000, and was the only station on 136kHz from Slovakia until March 2001 when OM5CW came on the band.

So farhe has worked 16 countries with a best DX of OH1TN at a distance of 1524km.

In September last year, Rich organised the first Slovak LF meeting at his portable location at Sintava. Several OM amateurs attended and a nice Tantenna was erected between the two 21m towers at the site. During the weekend, they had 15 LF QSOs and made the first OM - OZ QSO with OZ1KMR.

Rich initially operated only from the portable site, but is now able to radiate a good signal from his home QTH with the aerial shown in Fig 1. This is suspended from the chimney of his apartment block.

Recently Rich has been working into the UK regularly and his signal has been seen in VE1, as mentioned above.

QTH: Sered near Bratislava, Slovak Republic.

Antenna: 135m inverted-V.

Tx: 400W from 2 x IRFP250 FETs, DDS VFO. Rx: Icom IC-761 with 2 x 500Hz

and 2 x 250 Hz CW filters. First LF QSO: HB9DCE in

January 2000.





Rich, OM2TW, and young assistant, in his shack.



ROGER BALISTER, G3KMA La Quinta, Mimbridge, Chobham, Surrey, GU24 8AR. E-mail: g3kma@dial.pipex.com

EW! IOTA Directory -11th Edition is now available - larger than ever with 128 pages it's crammed with all you have come to expect from the Directory including updated IOTA listings, DXpedition stories, a more informative Most Wanted IOTA group list, articles on how to get started, and much more besides [ordering details are on page 19 - Ed]. As mentioned last time, the major feature is the listing, for the first time, of all or almost all the operations over the years from more than 500 of the rarest IOTA groups. It details for each group the callsigns recorded as accepted on the central IOTA Database of members' records. In most cases there have not been more than a handful of operations, so with this list it should be a straightforward task to check the stations you have worked and confirmed. This. together with the other help listings in the Directory, should make entry into the programme easier than it has ever been.

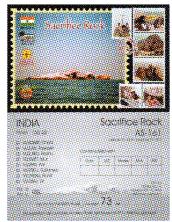
There is no repeat of the 58 new groups added to the islands list in IOTA Directory 2000. In fact none has been added although mention is made that a possible new one is being investigated in South America in a group that had previously been treated as barren of qualifying islands. The Committee has always said that it would be prepared to consider listing in such a case if a qualifying island were found. More details are required before a decision can be taken. Following receipt of information from local sources, we have made some small changes to the island listings including the transfer of some Indonesian islands between groups and the renaming of some IOTA groups

RSGB IOTA Programme, PO Box 9, Potters Bar, Herts EN6 3RH; e-mail: iota.hq@rsgb.org.uk in southern Chile.

The Directory provides the only authoritative listing of the 15,000 islands that gualify for the 1020 numbered IOTA groups. For participants, both island hunters and DXpeditioners alike, this is important as the rules do require that the name of one of these islands features on every card submitted before it is accepted. The Directory also lists the 70 or so new IOTA reference numbers issued in the last two years. As we have mentioned before, if you are short on time . . . or 'really, really hate' to have a lot of mistakes pointed out by your Checkpoint, get the latest Directory!

## ACTIVITY ON THE BANDS

THE LAST TWO months brought us three new ones, two in Asia and one in the Pacific. The recent growth of interest in IOTA among Indian amateurs again showed in late January when the newly-established



The two sides of the AS-161 Sacrifice Rock QSL. The expedition was put on by members of the Indian VUIOTA Group in January.

νυιοτα group put on an activity from Sacrifice Rock in Kerala State. Judging from the number of Cluster spots the operators VU3DMP (team leader) and VU2s JIX, JRO, MTT, PAI, RDJ, RDQ and SBJ gave the new AS-161 a real airing. Note that the callsigns were not /P each operator obtained a note of variation on his home licence, the normal practice in India. The attractive QSL card below shows this rocky outcrop - and how little the cover from the sun!

Shortly afterwards, in early February, a joint Italian / British team - Nando, IT9YRE; Maury, IZ1CRR, and Derek, G3KHZ made a long-haul trip to Sonsorol Island in the South Palau group. The 35 islanders had never before had foreign visitors to stay with them. They see a supply ship four times a year and occasionally a visit from a doctor from the Palau capital, Koror. In a two and a half day operation using the callsign T88SI the team made 3500 contacts to put OC-248 firmly on the map. The hire of a yacht to take them the 220 miles to the island made for an expensive operation . . . and an arduous one on the journey back what was scheduled to be a 24-hour sail stretched to 63 hours due to atrocious weather conditions.

Then, in mid-March, the fifth of the six Vietnamese IOTAs was put on the air when a joint

## Yaesu, Principal Sponsor of the IOTA Programme

Japanese / Vietnamese team, consisting of JI6KVR, JA6IEF, 3W2LI and 3W2KA, set up station on Cham Island, near Da Nang. On arrival they found they needed additional permission from the navy over and above the permits obtained by the Vietnamese radio society officials in months of negotiation. Sorting out this hiccup delayed the start of the operation by two days and probably led to the loss of another at the end. The two calls XV3C and 3W3C were aired for barely 24 hours from the new AS-162, an undoubted disappointment for the team who had prepared as well as they could for the operation but had been faced with unexpected permit requirements.

Jack, F6BUM, was also scheduled to make a visit to Cham Island later in March to operate with his call 3W3M, so we hope that he managed it successfully. This experience illustrates the difficulties that face the most careful of DXpeditioners from time to time in certain areas of the world. As I write this, I'm listening to the Ducie Island operation, VP6DI. Many readers will recall the problems that led to the cancellation of the first scheduled new DXCC operation from that island last year when the boat was within a day of arriving. There are no cast-iron certainties with DXpeditions, however well planned.

"WHAT IS THIS TEN-TA?", asked the guy picking up an IOTA badge at Dayton in 2001.

		NEW REFERENCES
AF-091	3V	Jendouba / Bizerte / Tunis / Nabeu
		Region group
AS-156	ROB	Ushakova Island
THOMORED HOMORED HOMO		Shandong Province North West group
		Kerala State group
AS-162/Pr		South China Sea Coast North group
	<b>T8</b>	South Palau group
SA-091	000000000	Magallanes Province group
Pr=provis	ional	

## ₩₩₩.

RSGBIOTA Programme: IOTA Manager's website: IOTA Contest rules:

nme: http://www.rsgbiota.org bsite: http://www.eo19.dial.pipex.com/index.shtml http://www.rsgbhfcc.org/

# MICROWAVE

UNSHINE IS beating through the shack window here as I write this and, with the promise of spring around the corner, thoughts are turning to the warmer days ahead and the chance of some hilltop operation. With the footand-mouth crisis over, this summer should see more activity, although we should be sensitive to that fact that some landowners may still be jumpy about site access. Please check your permission before you venture back to your old site. Space in the column is always tight, so on with the news - these last few months have been a period of record-breaking contacts!

## UK 76GHz RECORD EXTENDED TO 58km

2001 ENDED on a high note for a group of Northern England millimetre-wave operators. On 31 December, Paul Widger, G0HNW/P, located at Winter Hill, IO93RO94, and Martin Farmer, G7MRF/P, on Mow Cop, IO83VC47, made a twoway contact over the 57.8km path, a new UK record. This comes only two months after the same group set a new UK 47GHz record. The previous 76GHz record stood at 52km. This contact was the result of many months of painstaking construction and equipment alignment. G0HNW/P sent a report of RS42 on SSB and received a RS43 report from G7MRF/P.

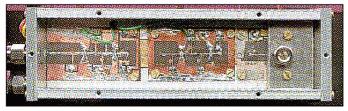
Both stations used DB6NT mixer transverters and 15cm diameter dishes.

After the SSB contact was established, Paul decided to

try to feed the 3-foot diameter dish, used on 24 and 47GHz, with 76GHz RF. For this, he poked a short length of tubing inside the 47GHz feed tube and a useful improvement in 76GHz signals was obtained. Reports of RS54 were then exchanged using narrow-band FM. Paul expects a further improvement to be obtained when he can feed the 3-foot dish with a purpose-made 76GHz feed tube (circular waveguide) and a dual-mode (W2IMU) feed horn. Dave, GOIVA/P, using an offset-fed dish, was also present at the Mow Cop end of the path, but could not find GOHNW/P's signal. Unfortunately, another member of this millimetre group, David Hall, MOVZT, was unable to take part in the tests as he was held up by snow around his home area of Telford.

## AMERICA 76GHz RECORD RESPONSE

ON 1 MARCH at 12.30pm PST, W0EOM completed a QSO from Mount St Helena, California (CM88QQ) to KF6KVG on Mount Umunhum (CM97AE) on 47.040GHz. Signal levels were >20dB above noise. Several minutes later, W0EOM and AD6FP both completed QSOs from Mount St Helena KF6KVG on Mount to Umunhum on 75.600GHz. Once again, signal levels were >20dB above noise. The distance from CM88QQ to CM97AE is calculated as 175.3km. For a more detailed report on these activities please visit the website of Peter Day, G3PHO.



The DB6NT 76GHz transverter, as constructed by G8BKE.

## FT-817 AS A MICROWAVE IF

I WAS RECENTLY looking for a new transceiver to act as a microwave IF and decided that the Yaesu FT-817 looked an interesting option, especially as it is capable of operating on HF, 6m, 2m and 70cm, all in a very small compact unit. I had not heard a great deal of feedback from users in the microwave world so l posted some queries on the Internet and was pleasantly surprised to receive a large amount of feedback from users pleased with this choice. Some of this feedback was recently published in the RSGB's regular Microwave Newsletter, but I thought that some readers might like to hear a little more about this amazing little radio.

The unit has a lot of interesting features useful as a microwave IF. It is very small, about twothirds the size of an FT-290. It is lightweight but robust, being built on a diecast chassis. It has two antenna sockets. The front panel carries a BNC, the other is a rear-mounted SO-239. You can switch between the two using the menu entries. The radio has

#### SIMON LEWIS, GM4PLM

Creoch Farm, Ochiltree, Ayrshire KA18 2QH. E-mail: uwave.radcom@rsgb.org.uk

variable power levels from 3.5 to 0.5W so can be switched down for transverter driving. The radio is very sensitive, but also carries a very good receiver; time will tell how good but, even on the crowded HF bands, it managed quite well on my Carolina Windom. The radio is easy to drive and has plenty of nice features; there is even an inbuilt keyer you can drive from the microphone up/down scan buttons - leaving the keyer on the shack bench shouldn't be a worry any morel

There are only a couple of things that it didn't do that would have been nice. It does not have the option to put a voltage on the antenna socket like the old IC-202 / FT-290s used to and it's a little thirsty on batteries, so you will need an extra 12V power supply foraday'shill-topping. Having said that I am very impressed with it and, during a recent 6m opening, worked South Africa with it barefoot on my 7-element 6m beam. There are some good deals around now, so shop about. So far I am very impressed and can recommend that you consider it if you're looking for another IF transceiver.

## .....

G3PHO website www.qsl.net/g3pho

MICROWAVE BEACON NEWS AFTER MORE THAN 12 months of planning and six months of weekend site preparation work during the winter months, five microwave beacons covering the bands 2.3 to 24GHz came into service on Saturday 23 March 2002. The beacons are on a communal mast 15m above ground level and 275m ASL on top of Cranborne Chase in Dorset, IO80UU59 - NGR ST799083. The callsigns and frequencies are: GB3SCS - 2320.905MHz GB3SCC - 5760.905MHz

GB35CC - 5760.905MHz GB3SCX - 10368.905MHz GB3SCK - 24192.905MHz

A full description of equipment and ERPs will be published in the *Microwave Newsletter*. This complex of beacons is the largest single site concentration in the UK at this time, and GB3SCC is the first operational 6cm beacon. It is hoped that this new source of microwave signals will encourage ongoing multi-frequency propagation studies and stimulate operation and construction throughout the upper parts of the amateur bands. This project has been undertaken by the South Coast Repeater and Beacon Group and supported by local amateur societies and individual members of the local VHF and microwave fraternity. Construction was undertaken by G8BKE, G0JMI, G4LDR, G0API, G4JNT and G3YGF. Reception reports would be welcomed via e-mail by the beacon keeper at g0api@tesco.net or g4jnt@thersgb.net

### RadCom + May 2002

JOHN HEATH, G7HIA Chestnuts, Desford Lane, Kirkby Mallory, Leicester LE9 7QF. F-mail: #7hia@amsat.org



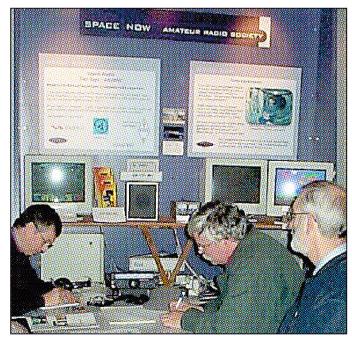
HOPE YOU managed to try the Lusat telemetry experiment from last time. We tested it at the National Space Centre in Leicester (see picture) and subsequently ran it as a public demonstration. Capturing data from a spacecraft in real time was very well received by the visitors and the Morse code certainly attracted attention. The audio propagated very well within the Space Centre building!

## RSGB PRESIDENT VISITS SPACE CENTRE

MEMBERSOFTHE NSC Amateur Radio Society took a few hours off work to greet RSGB President Bob Whelan, G3PJT, and show him the amateur radio satellite ground station GB2NSC. The RSGB is one of the main sponsors of this important project, which helps to promote amateur radio to a wider audience. Being a nice dry day, Bob was invited to take part in one of our popular public demonstrations from the car park. Using a TH-D7E handheld transceiver, Bob was introduced to the delights of satellite QRP with 2W out and an Arrow dualband beam for 2m and 70cm.

## COSMONAUTS TO VISIT UK

THE ORGANISERS of the 'Autographica' event, held in Northampton, confirmed that four Russian Cosmonauts are booked for this year's event. At the time of writing, names could not be confirmed as visa applications had only just gone in. Last year's event featured signing sessions with Russian Cosmonauts Alexei Leonov, Anatoly Solovyov, Boris Volynov and American Astronauts Ed Mitchell, Jerry Carr and Richard Gordon. Although this is a purely commercial event, involving an entrance fee and a payment for the autograph, I feel justified in mentioning it in this column as it is very well organised and prob-



From the left, Colin Blunn, G0IFM, Andy Thomas, G0SFJ, and Jerry Davis, G3WTD, testing the Lusat experiment.



Bob Whelan, G3PJT, on the radio with NSC-ARS Committee members Stewart Bradshaw, G8GMB, Geoff Griffiths, G3STG, and Geoff Dover, G4AFJ.

ably a unique opportunity to meet these people and obtain an autograph. I will certainly remember the handshake from Alexei Leonov, the first man to walk in space. For the latest information and confirmed guest list, visit the website given below.

## AMSAT-UK COLLOQUIUM

THIS YEAR'S AMSAT-UK Colloquium is held from 26-28 July inclusive at the University of Surrey, in Guildford.

Don't let the title of the event put you off. Packed with lectures and presentations, the colloquium is a must if you have any interest at all in amateur radio in space. With visitors from many countries, you can meet satellite designers and builders as well as other satellite users. It's a great chance to meet people you work regularly on the satellites, to talk over technical issues, or just to enjoy a pint.

I think it's worth the price of the ticket just to take the tour of the Surrey Satellite Technology building accompanied by Satellite Controller, Chris Jackson, G7UPN. The tour takes in satellites under construction in the clean rooms, and the impressive Ground Station where as many as 10 satellites are monitored and controlled 24 hours a day. Check the AMSAT-UK website for up-to-date information, programme and booking information. If you can't make it

Meet the cosmonauts

for the full three days, get a day ticket, it's well worth it.

## AMSAT-DL GOES TO MARS

DR KARL Meinzer. DJ4ZC. Project leader for the Phase 3D (now AO-40) satellite has been busy on another potential AMSAT project, Phase 5A, a spacecraft to orbit Mars. Based on the AO-40 space frame, and a maximum takeoff weight of 650kg, his calculations suggest the 400N propulsion unit design, as used on AO-40, will do the job. Going to Mars raises many questions, including how to power the spacecraft. Mars is some 227 million miles from the Sun, so the available solar power is only 0.6kW/m<sup>2</sup> compared with the Solar constant in Earth orbit of 1.4kW/m<sup>2</sup>. Fortunately, this reduction is offset to some extent by the reduced temperature, which leads to increased conversion efficiency from the solar panels. Dr Meinzer calculates that a solar panel area equal to the size of AO-40's panels, (3.78m<sup>2</sup>) will give 250W in the vicinity of Mars, compared with 500W for AO-40. There are many other technical questions to be resolved before this project can become a reality, but AMSAT worldwide has traditionally supported ambitious projects which push radio communication and spacecraft technology. I am looking forward to receiving the first Oscar signals from Mars.

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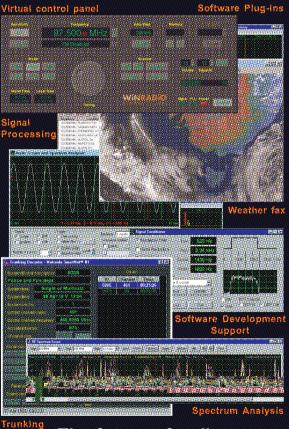




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## **Keep DOS Alive**

Many amateurs use computers somewhere in their hobby for such things as propagation prediction, finding distances and locator squares, or just simple programming and graph plotting using one of the several forms of BASIC.

Most of these programs are DOS-based, which Microsoft's latest operating system, XP, does not support. Such DOS programs will run on the XP system, but the displayed picture, graph or other information cannot be transferred to a document or printed, as the 'Print Screen' function is disabled. Even Microsoft's own QBASIC cannot be properly used.

I have spoken to Microsoft UK who state that there will be no remedy, and DOS-based programs will be confined to history. This, I feel, is a great shame. Does anybody know of a software 'patch' which will circumvent this problem? John Welsh. GONVZ

## What's in a Name?

Many thanks to the RA and the RSGB for securing our new classification as the Intermediate Licence. It would be great to see on all relevant literature 'IRAE' but I still keep reading about the 'NRAE'. The Foundation Licensees will obtain the current UK prefix 'M' (M3). Any chance of us being 'worthy' of, say, M4? 2E is synonymous with the word 'Novice' - an 'M' callsign would feel good.

After all, our course was 15 weeks and of course the TRF receiver construction project. The 5WPM Morse test was sufficient, but I did 12WPM.

## A 2E0 member (name and callsign supplied)

[Although the RA and RSGB now refer to the 'Intermediate Licence', the exam administered by City & Guilds is still called the Novice Radio Amateurs Examination, hence the continuing references to the NRAE. '2' is a current UK prefix in the same way as 'G' and 'M' are (see any ITU prefix list), so Intermediate licensees have no cause to feel 'unworthy'. Indeed, many G and M licensees would welcome the exclusivity of a 2- prefix! - Ed.]

# the last WORD

## **RSGB Raynet Review**

It was somewhat surprising to read the negative tone under the 'RSGB Matters' article (*RadCom*March 2002) concerning Raynet. One would like to think that, following the terrorist attack on the World Trade Centre on 11 September, each and every local council has reviewed its community emergency plan and that communications formed part of that review. If not, perhaps Raynet should point out this omission.

11 September demonstrated very clearly that when landlines, mobile telephones and satellite communications fail (for whatever reason), radio comes into its own. In New York the Radio Amateur Civil Emergency Services (RACES) net played a crucial role in coordinating Red Cross services and locating people.

Raynet exists for this very type of emergency. Acting as a service providing communications for community activities is not, as the article seemed to indicate, people out 'playing radio'. Raynet groups use such events to test out their skills and equipment; the provision of a community service is a useful adjunct which helps advertise our hobby.

Let us hope that the RSGB Raynet Review recognises this important role that, one hopes, will never be needed but which nevertheless is essential to keep in its proper context.

## David Barlow, G3PLE

[Peter Kirby, G0TWW, RSGB General Manager writes in response: "The RSGB is very aware of the important role radio amateurs played in the aftermath of the terrorist attacks on 11 September. We are also aware of the services that Raynet groups provide to their local communities right across the United Kingdom. Much of this work goes unrecognised; groups get very little recognition for their efforts, be it in emergency situations or in support of community events. The RSGB, which has supported Raynet since its inception in 1953, is carrying out the review to ascertain just what level of support Raynet groups would like and expect from their national body. Raynet operation in the UK has suffered because of fragmentation amongst groups over the past 10 years. We aim to put this right. What is 'negative' about that?]

## Internet 'Nail in Coffin' for Amateur Radio?

In daily increasing numbers, radio amateurs the world over access the Internet for the wealth of knowledge and information contained within. But with Internet 'Chatrooms' such as 'PalTalk' and 'ILink' purposefully designed exclusively for use by amateurs to communicate with other amateurs world-wide via the Internet, isn't that surely another 'nail in the coffin' for the hobby?

I applaud the efforts of the RSGB and the RA in getting the much needed changes in licensing conditions in allowing existing amateurs the chance to access the HF bands. In fact I believe the sooner the Morse code requirement is scrapped the better, so more and more can enjoy the delights of this fascinating and rewarding hobby.

Meanwhile, a reminder for all that radio amateurs work the

world using *radio waves* and shame on those that do otherwise.

## Martin Russell, G0CAK

## **E-Mail Forwarding**

Any non-ham wanting an anonymous e-mail address could have picked "g0hga" quite by accident ('The Last Word' April 2002). It isn't as useful as all that to have your callsign as your e-mail address, as anyone who wants to contact you still has to find out the rest of the address. The RSGB and ARRL both offer e-mail forwarding services, but what is really needed is one central domain for all hams world-wide. Perhaps Angie didn't realise it, but it alreadv exists.

Any licensed amateur can obtain an address of their call @ qsl.net, which will be forwarded to their ISP mailbox. If they want, they can also have

web space. This is a free service provided by Al Waller, K3TKJ, but he appreciates donations of the order of \$10 a year. The advantage of using qsl.net is that you can keep your address even if you change ISP - just change the forwarding address. But more importantly, it's an easy-to-remember address that any licensed amateur, regardless of nationality or the organisations or ISPs they subscribe to, can use. I think all Internetconnected hams should consider using it. To register, just visit www.asl.net.

## Julian Moss, G4ILO

## **Simple Mobile Mount**

Having read the article 'A stand for the Yaesu FT-817' ('Down to Earth' January 2002, page 36), the following points might be of interest. Using the mobile Ushaped mounting bracket that came with my FT-2500 radio fitted to the bottom of the set and screwed to a rectangular base cut from MDF serves as a very usable table/bench mount for a mobile set. A coat of paint and some feet to prevent slippage or damage to surfaces finishes off the job.

The set can be operated at home on a flat surface, or mobile sitting on the car seat held in place on its stand by the seatbelt. For transportation when not in use the set slides into a waterproof (ammunition) box lined with a layer of foam providing excellent mechanical protection.

A second dual mounting rack has also been constructed to hold 2m and 70cm AKD radios one above the other using alloy sheet as side panels. The sets are attached to the alloy side panels using the standard factory mounting points, spaced with soft polythene washers to prevent damage and to take up any movement. The baseboard, again MDF, holds the dual-fused power supply point for the two radios as well as headphone and external speaker output jacks contained in a plastic box. A handle is fitted to the top of the unit to allow easy and safe transportation. This is part of the equipment used by Scarborough Raynet Group.

Jon Woollons, G1OSP

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WHX-7000 Dual Band	5A Telescopic	0 + 100 - 100 Mar - 100 Mar po 17: 50 - 54MHz - Rr. same - 100 Mar po 150cm long - BNC fitting - <b>24.35</b> A WSMA-450	0/150/3(	Telescopic	The state of		<ul> <li>1 x 135 - 1150H72 + Kx 1 x band only</li> <li>+ 10W Max power handling</li> <li>+ 22cm long approx - BNC fitting £7:35 A</li> <li>- 22cm long approx - BNC fitting</li> </ul>	• • • • • • • • • • • • • • • • • • •	WSW-2 2m Super-	• Power Tow • Scontong • Pargut ang • RVC filling • Colour black • 2935 A AT-270 Dualband Te	<ul> <li>Tx: 135-4400Hitz + Px: Tx band only</li> <li>1001 Hax power handling + 16-45cm Bing</li> <li>BNC fitting E14.35 A</li> <li>WBV-70 Half Wave</li> </ul>	<ol> <li>Frequency 69-71MHz - GRP &amp; Aluminium - 3:5dB</li> <li>Max power 150W - Impedance 50 Omms - SO 239</li> </ol>	

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