RSGB BULLETIN

JULY 2003

1913 – When RSGB began

From *Wireless World* August 1913:

"London has hitherto been without a wireless club, but at a meeting held on July 5 an association was formed under the title of 'The London Wireless Club' having for its object 'the bringing together of all amateurs interested in wireless telegraphy and telephony'. At that meeting, Mr R. H. Klein, of 18 Crediton Road, West Hampstead, NW, was elected Hon Secretary *pro tem*. The next meeting will be held in September, and in the meantime amateurs intending to join the club should communicate with Mr Klein. We are glad to learn that already sufficient support has been given and promised to ensure the success of the club."

Among those present at the meeting of 5 July were R. H. Klein (seated), L. F. Fogarty (left) and L. McMichael (centre). F. Hope-Jones (right) became chairman of the club at a meeting held two months later when its name was changed to "Wireless Society of London"; later to be changed yet again to "Radio Society of Great Britain"

RadCom 90th Anniversary Edition 1913–2003

WATERS & STANTON

GENERAL ENQUIRIES: 01702 206835/204965
FREEPHONE ORDERLINE: 08000 73 73 88

carriage charges: A=£2.75, B=£6, C=£10

3 STORES TO CHOOSE FROM

WEB ORDERING
www.wsplc.com

NEW RIGblaster pro

New in the line up is the RIGblaster pro rig to sound card interface. Full status front panel LEDs, electret mic. input plus second mic. Now features dual headphone outputs 1/4" and 3.5mm. Built-in Yaesu CAT and Icom CI-V interface and Kenwood compatibility. Two independent keying outputs for CW and FSK. New CD-ROM program selections including sound card based DSP software. Large number of leads supplied for most hook-ups.

£299.95 B

NEW ICOM IC-E208

£319 B

VHF/UHF FM Dual Band Mobile Transceiver
*Frequency range 144-146MHz, 430-440MHz Tx *55/50W (3 power steps each band) *Wideband Rx 118-173, 230-549 & 810-999MHz *512 memories with Alphanumeric names *FM narrow capability *104x2 DTCS, 50 CTCSS tone squelch operation *16 DTMF channels *Detachable front panel *Extra large LCD with choice of colours green, amber, yellow *Large combined tuning dial & band switch *HM-133 remote control microphone - supplied *Packet ready for 9600/1200bps through mini DIN or 1200bps through mic socket *Supply 13.8V

NEW YAESU FT-2800M

£159 B

*144-146MHz *FM *137 - 174MHz expanded Rx *RF Pwr 65/25/10/5W *25/12.5kHz channel spacing *High/Low deviation *Supply 13.8V DC

The FT-2800M is the latest model from Yaesu with 65 Watts High Power, rugged construction, excellent receiver performance and direct keypad entry.

NEW YAESU FT-857

HF / 50 / 144 / 430MHz Mobile Transceiver
HF/6m 100W, 2m 50W, 70cm 20W. (13.8V DC)
Developed on the FT-897 and FT-817 transceivers. Built-in features 32 colour display, spectrum scope, AM airband aircraft reception, built-in memory keyer, detachable front panel.

£799 C

HF TRANSCEIVERS

ICOM IC-756 PRO II £1999 C

Flagship of the Icom range of HF transceivers. HF & 50MHz, features large colour LCD with spectrum scope, auto ATU and 32-bit floating point DSP unit.

ICOM IC-7400 £1449 C

SPECIAL OFFER

COMES WITH FREE SP-21& SM-20

HF/VHF 100W transceiver. Features large LCD with spectrum scope, auto ATU and same DSP system as IC-756PRO II. Supplied with free SP-21 speaker & SM20 desk mic.

ICOM IC-703 NEW £599 C

HF/ 50MHz Transceiver 0.1-10W Portable, Mobile, Base-Station. (9-15.87V DC) Designed especially for the Foundation Licence/QRP. Built-in features auto ATU, DSP memory keyer. (5W when using 9.6V batts) Battery and Carry Pack to follow.

ICOM IC-706 IIG DSP £799 C

HF/VHF/UHF mobile DSP transceiver. Its relative small size not only makes it a great mobile rig but also for fixed station use as well. HF general coverage and VHF & UHF .

ICOM IC-718 £499 C

HF 100W transceiver. Covers all HF bands plus wideband receive. C/w auto notch, dual VFO, SWR meter etc. Options include extnl ATU DSP & filters.

KENWOOD TS-2000 £1549 C

Top-of-the-range Kenwood transceiver. HF/VHF/UHF or up to 23cm with the optional module. Built-in auto ATU, DSP and its unique TNC.

SPECIAL OFFER

KENWOOD TS-870S DSP £1399 C

HFDSP 100W base station. Excellent all round rig great for DX working with its ability to winkle out weak stations using its true IF DSP. No filters to buy.

KENWOOD TS-570DGE £799 C

HF100W base station with built-in auto ATU. Very popular rig, excellent performance on SSB and CW. Two fitted antenna sockets - very handy.

SPECIAL OFFER

ICOM IC-910X with 23cm £1249 C

Icom's all mode VHF/UHF transceiver with 23cm. Large clear LCD with lots of facilities. 100W on VHF and 75W on UHF, 10W on 23cm. IC-910H version £1149

HF TX / LINEAR AMPLIFIERS

YAESU FT-1000 MKV £2349 C

200W HF transceiver, EDSP, Collins filter, auto ATU, 220V AC PSU - Acknowledged as one of the finest DX rigs on the market. Superb tailored audio and the ability to select Class A bias for dramatic signal purity.

YAESU FT-1000 FIELD £1749 C

100W HF transceiver, EDSP, Collins filter, auto ATU, 220V AC / 13.8V DC - Building on the success of the FT-1000MkV, the Field has become a respected leader in its class.

YAESU FT-920AF £1099 C

LAST FEW

100W HFplus 6m transceiver. 100kHz - 30MHz, 48 - 56 MHz Gen coverage Rx, 100 memories, Internal ATU with 100 tuner memories, large backlight LCD, Built-in memory keyer, 13.5V DC. Now includes FM unit and 6kHz AM filter.

YAESU FT-897 £989 C

100W HF rig plus 2m and 70cms (50W/20W) 13.8V external supply / internal optional FP-30V AC power supply / self powered portable using optional Ni-MH pack at 20W output. Compatible with FC-30 auto ATU and ATAS 120/100 antennas. The "must have" radio for 2003.

YAESU FT-847 £1199 C

1.8 to 440MHz, this all-in-one transceiver offers unbeatable value. 100W on HF plus 6m, and 50W on 2m and 70cm. You get genuine RF clipping on SSB for up to 6dB gain and there are 4 separate antenna sockets.

LINEAR AMP UK CHALLENGER III £1795 C

HF linear amp 160-10m including WARC bands. Output 1500W CW or SSB, 400W RTTY. Soft start and timer protection at switch-on. Front panel adjustable ALC.

LINEAR AMP UK RANGER 811H £895 C

HF linear amp 160-10m including WARC bands. Drive 10-100W, output 800W (max) CW. Soft start on switch-on. Compatible with all modern 100W HF rigs. Silent running Papst fan.

TOKYO HY-POWER HL-50B £265.95 C

FT-817 VERSION !

This model has been specifically designed for the FT-817. Enjoy up to 50 Watts output

TOKYO HY-POWER HX-240 NEW £229.95 C

HF TRANSVERTER

*144MHz (2.5/10W) in, 3.5/7/14/21/28MHz (30-40W) out. If you have an all mode (SSB/CW/FM) 2m transceiver and don't want the expense of buying an HF transceiver then this transverter might be for you.

HEAD OFFICE • 22 MAIN RD, HOCKLEY • ESSEX • SS5 4QS
ENQUIRIES: 01702 206835/204965 FAX: 01702 205843
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THE ONLY THING WE CUSTOMER SERVICE WON'T DISCOUNT

VHF | UHF TRANSCEIVERS

ICOM IC-2725E NEW £309 C

The Icom IC-2725 dual band FM transceiver is proving very popular. Easy to install, the controller is separated from the main unit - great where space is limited.

ICOM IC-207H £279 C

Great budget price dual band FM 50W/35W transceiver. Simple band operation. Front panel detachable from main unit if required.

ICOM IC-2100H £229 C

2m 55W FM mobile. Commercial grade, rugged construction. One piece die-cast aluminium chassis. Selectable green or amber display.

YAESU FT-8900R NEW £369 C

Want the best of all worlds then the FT-8900R is just the ticket! A rig with four of the most popular mobile bands - 10m/6m/2m & 70cm. Detachable head.

YAESU FT-817 £569 C

All bands & All modes gives you a totally portable HF DX or VHF/UHF station. *Ours includes* battery and charger.

YAESU FT-1500M £179 B

Remarkably small and compact, yet built like a Battleship!
Should last for years.
Look at the Price!

KENWOOD TMD-700E £449 C

Certainly the best dual band mobile transceiver with APRS. Does not need extra high cost boards to function. The only extra if required is a compatible GPS receiver.

KENWOOD TM-V7E £359 C

A lovely cool blue display, easy with 50/35W output. 50W/35W plus 280 memos and five storable operating profiles.

KENWOOD TM-G707E £289 C

If you are looking for simplicity and low cost, here's the answer. 2m &70cms with detachable front panel and "Easy operation mode." GREAT!

VHF/UHF TX & HANDHELDS

YAESU VX-7R NEW £319 B

6m/2m/70cm

Available in Silver or Black

The VX-7R is the best outdoor handie ever. The case, keypad, speaker and connectors are all sealed against water damage. Wide Frequency coverage from 500kHz to 900MHz the VX-7R is ideal for monitoring a variety of broadcasts. The display is a dazzling 132x64 dot matrix providing easy-to-read frequencies and information plus pictorial graphics.

YAESU VX-150 £109 B

The VX-150 is a fully featured compact yet incredibly rugged 2m 5W Handheld. Features include direct keypad frequency entry, CTCSS, DTMF, 1750Hz tone calling, wide/narrow deviation selection. It has a die-cast case, large high output speaker, illuminated keypad and battery voltage meter.

YAESU VX-110 £109 B

Combining the ruggedness of the VX-150 with the simplicity of 8-Key operation, the VX-110 is a fully featured 2m handheld ideal for the most demanding of applications. It has a die-cast case, large speaker and illuminated keypad.

ICOM IC-E90 NEW £269 B

The new E-90 offers triple band coverage of 6m, 2m and 70cms. Up to 5W output and rx coverage from 495kHz - 999MHz makes this a very attractive rig.

ICOM IC-T3H £129 B

The IC-T3H 2m handheld features tough quality but with slim looks. Its striking green polycarbonate case has been ergonomically designed. The rig is capable of providing a powerful 5.5W output with either Ni-Cad or Ni-MH battery packs. Supplied with charger and rechargeable battery.

KENWOOD TH-D7E £319 B

DATA COMMUNICATOR

One of the most successful handhelds over the past few years. It has a built-in TNC for Packet use. You can also use it for APRS operation in conjunction with an external GPS unit. Plus NMEA, 200 memos, and up to 5W output.

KENWOOD TH-F7E £259 B

WITH EXTRA WIDE RX COVERAGE

- 144-146MHz Tx/Rx: FM
- 430-440MHz Tx/Rx: FM

Up to 6W out with Li-ion battery and "scanner" style coverage from 100kHz to 1300MHz including SSB on receive! This is a great radio to have at all times when you are on your travels.

KENWOOD TH-G71E £199 B

If you want an excellent 2m/70cm dual-bander then you can't go wrong with the TH-G71. Fully functional with three power levels, 200 memories, CTCSS tone encoder/decoder, illuminated keypad and backlit LED.

VHF | UHF ANTENNAS

MOBILE ANTENNAS

DIAMOND ANTENNA (PL-259 base type) ***NEW***

CR-8900. Quad bander 6m/10m/2m/70cm. Length 1.26m, max pwr 60W with fold over base. **£72.95 B**

WATSON ANTENNAS (PL-259 base type)

W-2LE	2m quarter wave 2.1dBi 0.45m	**£9.95**	A
W-285S	2m 3.4dB 0.48m (fold over base)	**£14.95**	B
W-77LS	2m/70cm 0/2.5dB 0.42m	**£14.95**	B
W-770HB	2m/79cm 3/5.5dB 1.1m	**£24.95**	B
W-7900	2m/70cm 5.6/7.6dB	**£32.95**	B
W-627	6m/2m/70cm 2.15/4.8/7.2dB 1.6m	**£34.95**	B
WGM-270 ***NEW***	2m/70cm On glass 3.7m coax 50W	**£29.95**	B

MOBILE BASES

DIAMOND

K-600M.
Deluxe boot mount SO-239, c/w 5m RG-58 & PL-259

AML	Gutter mount fold over type	**£15.95**	A
K-11	Universal gutter mount	**£24.95**	A
K-33	Adjustable hatch mount	**£23.95**	A
K-400	Adjustable boot mount heavy duty	**£26.95**	A
K-600M	Deluxe boot mount + cable	**£49.95**	B
DPK-TR	Stainless Steel boot mount (ECH)	**£18.95**	A

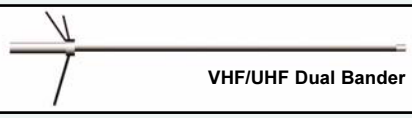
WATSON

WM-14B.
Large diameter 14cm magnetic mount SO-239, c/w 5m RG-58 & PL-259

W-3HM	Adjustable hatch mount	**£14.95**	A
WM-08B	8cm mag mount, 5m cable PL-259	**£9.95**	A
WM-14B	14cm hvy duty mag mount+cable	**£12.95**	A
WSM-88V	BNC mag mount plus 3m cable	**£14.95**	A
W-3CK	5m 5D-FB cable assembly+pigtail	**£18.95**	A
W-ECH	5m standard cable kit assembly	**£12.95**	A

BASE STATION ANTENNAS

DIAMOND



VHF/UHF Dual Bander

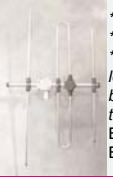
X-200	2m/70cm colinear 6/8dB 2.5m	**£79.95**	C
X-300	2m/70cm colinear 6.5/9dB 3.1m	**£99.95**	C
V-2000	6m/2m/70cm 2.15/6.2/8.4dB 2.5m	**£89.95**	C

WATSON

W-300.
Very popular dualband base antenna. Supplied with u-bolts for mast fixing.

W-30	2m/70cm colinear 3/6dB 1.15m long	**£39.95**	C
W-50	2m/70cm colinear 4.5/7.2dB 1.8m long	**£49.95**	C
W-300	2m/70cm colinear 6.5/9dB 3.1m long	**£64.95**	C
W-2000	6m/2m/70cm 2.15/6.2/8.4dBi 2.5m	**£69.95**	C

DAB-DIR NEW £24.95 B



**Frequency 175 - 230MHz *Yagi beam *3 elements *Gain 5dBd *Impedance 75 Ohms *Boom length 51cm *Elements 3 *Max element length 88cm *Connector screw terminal *Internal balun *Weight 700g (with clamp) *Mast size up to 50mm*

Base station yagi antenna for Digital Audio Broadcasting (DAB). Complete with mast clamp.

DAB-OMN NEW £16.95 B

**Frequency 175 - 230MHz *Folded dipole *Gain 0.0dB *Impedance 75 Ohms *Elements 1 *Element length 67cm *Connector screw terminal *Internal balun *Weight 400g (with clamp) *Mast size up to 50mm*

Base station antenna for Digital Audio Broadcasting (DAB). Complete with mast clamp.

WATERS & STANTON

1973 — WATERS & STANTON PLC 30th ANNIVERSARY — 2003

PRICE MATCH

HF ANTENNAS

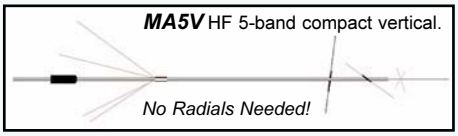
VERTICAL ANTENNAS

HUSTLER BASE ANTENNAS

6-BTV. HF 6-band vertical. Can be ground mounted

6-BTV *NEW*	80-40-30-20-15-10m 1kW PEP	**£239.95**	C
5-BTV	80-40-20-15-10m 7.64m 1kW	**£209.95**	C
4-BTV	40-20-15-10m 6.52m 1kW PEP	**£169.95**	C

CUSHCRAFT BASE ANTENNAS

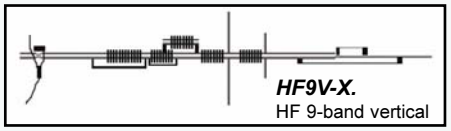


MA5V HF 5-band compact vertical.

No Radials Needed!

MA5V	20-17-14-12-10m 250W PEP	**£229.95**	C
R8	40-30-20-17-15-12-10-6m 1.5kW	**£529.95**	C
R6000	20-17-15-12-10-6m 1.5kW PEP	**£349.95**	C

BUTTERNUT BASE ANTENNAS



HF9V-X.
HF 9-band vertical

HF9V-X	80-6m 7.9m 1kW PEP	**£365.00**	C
HF6V-X	80-40-30-20-15-10m 7.9m 2kW	**£315.00**	C
HF2V	80-40m 9.75m (160m opt) 1kW	**£230.00**	C

HY-GAIN BASE ANTENNAS

DX-88. HF 8-band vertical

AV-640	40-6m 1.5kW, 300W 6m (PEP)	**£399.95**	C
AV-620	20-6m 1.5kW, 500W 6m (PEP)	**£299.95**	C
AV-14AVQ	40-20-15-10m 1.5kW PEP	**£179.95**	C
AV-12AVQ	20-15-10m 1.5kW PEP	**£139.95**	C
DX-88	80-10m 1.5kW, 250W 30m	**£395.95**	C

HORIZONTAL BEAMS & DIPOLES

CUSHCRAFT

Premier HF beam used around the world by serious DX'ers.

X-7	20/15/10m 7 el. Yagi 2kW	**£699.95**	D

Not got the space for a full sized HF beam antenna, then the mini beam MA-5B should be considered.

MA-5B	10-12-15-17-20m 4 el. Yagi 2kW	**£349.95**	D
A4-S	10-15 & 20m 4 el. Yagi 2kW	**£599.95**	D
A3-WS	12 & 17m 3 el. Yagi 2kW	**£399.95**	D
D-3	10-15-20m dipole element 2kW	**£249.95**	C

Don't want a wire antenna but can't fit a Yagi, then consider a rotatable dipole.

D-3W	12-17-30m dipole element 2kW	**£249.95**	C
D-4	10-40m dipole element 2kW	**£339.95**	C
D-40	40m dipole element 2kW	**£299.95**	C
TEN-3	10m 3 el. Yagi 2kW	**£219.95**	C
ASL-2010	13.5-32MHz 8 el. log periodic	**£799.95**	C

RADIO WORKS

A choice of quality wire antennas available to fit almost any circum-stances.

CW-160	160-10m 76.8m long	**£139.95**	C
CWS-160	160-10m 40.5m long	**£134.95**	C
CW-80	80-10m 40.5m long	**£99.95**	C
CWS-80	80-10m 20.1m long	**£119.95**	C
CW-40	40-10m 20.1m long	**£94.95**	C
CW-20	20-10m 10.36m long	**£84.95**	C
CW-620	20-6m 9.7m (32ft) long	**£94.95**	C
G5RV PLUS	80-10m with balun 31m (102ft) long	**£64.95**	B

HF ANTENNAS

RADIO WORKS - Baluns and Isolators

T-4 Plus	Line Isolator1.8 - 54MHz 4kW	**£42.95**	B
T-4-500	Line Isolator1.8 - 30MHz 500W	**£32.95**	B

Use a line isolator to eliminate stray RF.

T-4G	Line Isolator 1.8-30MHz + gnd 4kW	**£42.95**	B
T-4G Plus	Line Isolator 1.8-54MHz + gnd4kW	**£45.95**	B

The **REM-BAL** is a 4:1 current type balun and is ideal for open wire to coax interfacing, especially external to the operating position. Unlike voltage baluns, current type baluns maintain output balance over a wide range of loads.

REM-BAL	Ladder line 4:1 balun 1.8-30MHz	**£49.95**	B
B1-2K Plus	1:1 current balun - for inverted V 's	**£28.95**	B
B4-2K	4:1 voltage balun loops/folded dipoles	**£42.95**	B
Y1.5K Plus	1:1 current Yagi balun 1.8- 54MHz	**£42.95**	B
Sundries			
KEVLAR	200ft 400lb strain guy line	**£22.95**	A
LADDER	450 Ohm ladder line - per metre	**£0.90**	A

MOBILE ANTENNAS

HUSTLER

Standard Resonator 400W (mast sections not included)

RM-40S ***RM-80***

RM-10	10m 150-250kHz	**£19.95**	B
RM-11	11m 150-250kHz	**£19.95**	B
RM-12	12m 90-120kHz	**£19.95**	B
RM-15	15m 100-150kHz	**£19.95**	B
RM-17	17m 120-150kHz	**£24.95**	B
RM-20	20m 80-100kHz	**£24.95**	B
RM-30	30m 50-60kHz	**£26.95**	B
RM-40	40m 40-50kHz	**£26.95**	B
RM-80	80m 25-30kHz	**£29.95**	B
Super Resonator 1kW (mast sections not included)			
RM-10-S	10m 250-400kHz	**£24.95**	C
RM-15-S	15m 150-200kHz	**£26.95**	C
RM-20-S	20m 100-150kHz	**£31.95**	C
RM-40-S	40m 50-80kHz	**£37.95**	C
RM-80-S	80m 50-60kHz	**£51.95**	C
Lower Mast Sections			
MO-1	54" (FOLD @ 22")	**£33.95**	C
MO-2	54" (FOLD @ 27")	**£33.95**	C
MO-3	54" (NON FOLD)	**£26.95**	C
MO-4	27" (NON FOLD)	**£22.95**	C
Mobile Mount Accessories			
SSM-1	Ball mnt stainless steel spring&stud	**£45.95**	B
SSM-2	Ball mount	**£28.95**	A
SSM-3	Stainless steel spring & stud	**£24.95**	A
HOT	Trunk lip mount	**£24.95**	A
RSS-2	Stainless steel resonator impact spring	**£10.95**	A
QD-2	Quick disconnect adaptor	**£19.95**	A
VP-1	Multi-band adaptor	**£7.95**	A

PORTABLE ANTENNAS

MIZUHO (FOR FT-817)

ATX-WBN	Walkabout 80-6m Whip 1.5mBNC	**£49.95**	B

Special price on Walkabout whips, three to choose from with three different connectors.

ATX-WPL	Walkabout 80-6m Whip1.5mSO-239	**£49.95**	B
ATX-W38	Walkabout 80-6m Whip 1.5m 3/8	**£49.95**	B

Range of single band HF antennas with BNC connection. Ideal for FT-817.

AT-80	Single band 80m whip with BNC	**£24.95**	B
AT-40	Single band 40m whip with BNC	**£24.95**	B
AT-30	Single band 30m whip with BNC	**£19.95**	B
AT-20	Single band 20m whip with BNC	**£19.95**	B
AT-17	Single band 17m whip with BNC	**£19.95**	B
AT-15	Single band 15m whip with BNC	**£19.95**	B
AT-12	Single band 12m whip with BNC	**£19.95**	B
AT-10	Single band 10m whip with BNC	**£19.95**	B

ANTENNA TUNER UNITS

MFJ 989C VERSA TUNER V £379.95 C

High power tuner.*1.8-30MHz *3kW *6-way Antenna/ load switch *2 coax positions *Built-in 4:1 balun *X-needle meter *Peak & AV

MFJ 986 DIFFERENTIAL-T TUNER £349.95 C

Differential capacitor & Roller inductor.*1.8-30MHz *1.5kW *6-way Antenna/load switch *2 coax positions *Built-in 4:1 balun *X-needle meter *Peak & AV

MFJ 949E DELUXE VERSA TUNER II £159.95 B

Firm favourite with HF operators. *1.8-30MHz *300W *3-way Antenna selector *Dummy Load socket *Internal balun *X-needle meter *Peak & AV

MFJ 962D VERSA TUNER III £279.95 C

Ideal tuner for max UK legal power.*1.8-30MHz *1.5kW *6-way Antenna/ load switch *2 coax positions *Built-in 4:1 balun * X-needle meter *Peak & AV

MFJ 921 VHF DUAL BAND TUNER £74.95 B

This tuner helps you get perfect VSWR and offers some filtering as well.*144/220MHz *200W max *Power meter *Rear panel earth terminal

MFJ 906 6 METRE TUNER £89.95 B

Help match your 6m rig to your antenna.*50-54MHz *100W FM *200W SSB *X-needle meter, 0-60W & 0-300W *By-pass position for tuner

MFJ 931 ARTIFICIAL GROUND £94.95 B

Places rig near to actual ground potential.*1.8-30MHz *Ground current meter *Used where no earth ground is possible *Reduces TVI/RFI *Resonates random wire

MFJ 267 DUMMY LOADWATT METER NEW £129.95 B

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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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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.

RSGB Matters

RSGB SCOTTISH AWARDS PRESENTED

The RSGB's two Scottish awards were presented at the Scottish 'Mini-Convention', organised by the Mid-Lanark Amateur Radio Society, at the Summerlee Heritage Museum, Coatbridge, on 15 June. Several nominations were received for each of the two awards which were considered by a team of RSGB Deputy Regional Managers from the two Scottish Regions with the following outcome.

Les Hamilton, GM3ITN, receives the Jack Wylie trophy at the Scottish Mini- Convention on 15 June.

The **Jack Wylie Award** was presented to Les Hamilton, GM3ITN. It was Les who received the first signals from a radio amateur based in the Falklands following the Argentine invasion in 1982 [see *RadCom* pp18–20, October 2002], informing him that the islands were being overrun by Argentine troops. Les continued to keep communications with that station for as long as possible. This in itself is noteworthy. He then also offered his services as a QSL manager, and has been an ardent DXer in Scotland for several decades, promoting the hobby when and wherever he can.

The **Jock Kyle Award** went to Ed Murphy, GM3SBC, and Jack Drake, GM4MOX, who have shown real dedication to the hobby and have worked selflessly in an effort to promote VHF/UHF activities in Scotland. Because such activities in Scotland are relatively scarce, any endeavours to improve the situation are very welcome, and both Ed and Jack are commended for their perseverance and determination.

WANTED – EXPERIENCED IOTA ENTHUSIASTS

The RSGB Islands On The Air Committee Chairman would like to hear from any experienced IOTA participants who would be willing to spend some time talking about IOTA to visitors at their local rally. If you could help with this please contact Martin Atherton, G3ZAY (QTHR), or e-mail: g3zay@btinternet.com

OLD RSGB BADGE

In this 90th anniversary month, it is highly appropriate that we should receive a letter from Bill Capstick, G3JYP, with information on the historical badge pictured here. When Bill first became interested in radio in the 1950s, he heard about the radio club in his home town that was already in existence in the 1920s, the Appleby and District Branch of the RSGB. He was surprised that a small town of under 2000 population should have had sufficient radio enthusiasts in the 1920s to form a club. Bill contacted John Clarricoats, G6CL, then secretary of the RSGB, about the badge, who thought it must have been modified locally and was therefore probably unique. It is in excellent condition considering its age.

PHOTO: MARK CAPSTICK, G4RCD

GB2RS ON 5MHz BAND

The Radiocommunications Agency has given permission for experimental GB2RS news broadcasts to take place on 5MHz. These will be at 1230 local time on Sunday lunch times, when the D-region of the ionosphere is reaching its peak absorption. The first transmission is scheduled to take place on Sunday 29 June on 5405kHz USB, and will be followed by nets gathering SINPO reception reports on 5405kHz, 7045kHz and 3645kHz. Any RSGB member with a 5MHz NoV who would like to volunteer as a reader from any part of the UK, should contact the GB2RS News Manager Gordon Adams, G3LEQ, tel: 01565 652652; e-mail:

gb2rs@boltblue.com It is hoped that this new initiative will act as a weekly information exchange for NoV holders.

AROS TALKS

The RSGB Amateur Radio Observation Service (AROS) coordinator, Barry Scarisbrick, G4ACK, is giving a talk on the work of AROS at the **Echelford Amateur Radio Society** on **24 July**. Details from Robin, G3TDR, tel: 01784 456513.

Barry is now taking bookings for AROS presentations from November 2003 onwards (one per month). All enquiries to G4ACK QTHR; e-mail: AROS@rsgb.org.uk

RSGB MEETING WITH RADIO AMATEURS' EMERGENCY NETWORK

The RSGB's Radio Communications Voluntary Services National Co-ordinator, Paul Gaskell, G4MWO, accompanied by Gordon Adams, G3LEQ, RSGB Board member with portfolio for Emergency Communications, recently met members of The Radio Amateurs' Emergency Network's Emergency Planning Team at a liaison meeting in Beaconsfield. The meeting was hosted by the Network and was chaired by their Team Leader and Network Deputy Chairman, Cathy Clark, G1GQJ.

Topics discussed included the Raynet review, emergency communications frequencies on 2m and 70cm (including a proposal for designated frequencies for in-band 70cm talk-throughs), the use of HF and 5MHz, issues raised during the formulation of Child Protection and Vulnerable Adults guidelines, and raising the profile of emergency communications amongst Foundation and all other licensees.

The possibility of formulating a Memorandum of Understanding (MoU) between the RSGB and the Radio Amateurs' Emergency Network was discussed and this matter will now be progressed to the Network's Committee of Management for consideration. In addition the Network expressed a wish for a stronger affiliation with the Society, which will be carried forward in similar manner. Further liaison meetings were detailed for the future.

RSGB General Manager Peter Kirby, G0TWW, operating CW from the W1AW station during a break at a recent liaison meeting at ARRL HQ.

The West Midlands Police Conference & Sports Centre, Birmingham, venue for the 50th Anniversary Raynet Emergency Communications Convention.

RSGB TO HOST RAYNET 50th ANNIVERSARY CONVENTION

This year is the 50th anniversary of the formation of Raynet by the Society in the Autumn of 1953, following UK amateurs' involvement in providing life-saving communications during the devastating East Coast floods earlier that year when normal Coast Station communications were disrupted.

The Convention, to which the Radio Amateurs' Emergency Network ('the Network') has also been invited to participate, will take place on **Saturday, 25 October** at the **West Midlands Police Conference & Sports Centre, Tally Ho, Pershore Rd, Birmingham**. Admission is free and is open to all with an interest in amateur radio emergency communications.

The event, intended to be a celebration of Raynet activity over the last 50 years, will be opened by the RSGB President, Bob Whelan, G3PJT and features speakers from Raynet on a variety of emercomms subjects, the Radiocommunications Agency (RA), and User Services. It is also expected to include a reunion of those surviving original members of Raynet or 'RAEN – The Radio Amateur Emergency Network' as it was then known. In addition there will be a special event station operating under the callsign GB50RAEN and a competition is also planned.

Further details of the 50th Anniversary Raynet Emergency Communications Convention will be appearing in due course in *RadCom*, GB2RS and of course the Society's own emergency communications webpages at www.rsgb.org/emergency

NEW DRRM

A new Deputy RSGB Regional Manager has been appointed for Region 5, district 54 – Gloucestershire & Worcestershire. He is John Davies, G6RTV/M3FSG. He can be contacted on 01453 823427 after 7.00pm.

GB2RS RESERVE NEWSREADER WANTED

Lola Cash, G7TAI, wishes to step down as reserve newsreader for the 70cm GB2RS 8pm broadcast for the London area. We would like to thank Lola for her assistance to the main newsreader, Robert Snary, G4OBE, since November 1994. If anyone is interested in filling the post of reserve newsreader, please contact G4OBE (QTHR) or e-mail: robert.snary@rsgb.org.uk

MORSE TEST ANNIVERSARY SUCCESS

David Waterworth, G4HNF, the RSGB Chief Morse Examiner, reports that the 17th anniversary weekend of the Society's Morse test service, which took place on 10 / 11 May, was once again a great success. There were 25 special event stations on the air operated by county Morse test teams and making a total of several thousand contacts. At the time of going to press, 31 certificates had been issued (one overseas, the remainder within the UK) for making contact with at least 10 of the special event stations, with more requests still arriving.

The original Morse test anniversary weekend was held to celebrate the 10th anniversary of the service, but it proved such a popular event that due to popular demand the anniversary has been held on the second full weekend in May each year since.

GB2RS NEWS AVAILABLE IN MP3 FORMAT

Jeremy Boot, G4NJH, who reads the Real Audio version of the GB2RS news each week, now includes MP3 files as well as Real Audio for download from the Internet. The MP3 files, although greater in size, give better audio quality for re-broadcasters. To our knowledge, GB2RS is relayed in whole or in part in Australia, New Zealand, the USA, the Netherlands and South Africa, and occasionally by broadcast stations elsewhere, allowing both ex-pats and our friends and colleagues abroad the opportunity to hear the latest news from the UK. The streaming Real Audio files, which can be heard immediately on a mouse click, will continue to be recorded weekly along with the MP3 files. You can hear GB2RS on the Internet from a link on the RSGB's news site at www.rsgb.org/news/gb2rs.htm

PARTY IN THE PARK

The Radio Society of Great Britain was founded, initially as the 'London Wireless Club' and later the 'Wireless Society of London', in July 1913. The Society is therefore celebrating its 90th anniversary this month.

To celebrate the RSGB's 90th birthday, the RSGB is holding a 'Party in the Park' and each of the Society's 57 UK Districts has been invited to organise an event open to the general public in their area.

Special event station GB90RSGB will be operated from RSGB HQ for a month from 12 July, while each of the 57 RSGB Districts will also have an opportunity to join in the fun by operating a special event station over the 90th anniversary weekend of **26 / 27 July**. The 'Special (Special)' callsign agreed by the RA for this commemorative occasion may be operated from each of the Districts with the addition of the RSGB District number following the callsign, eg GB90RSGB/11, GB90RSGB/134 etc. A complete list of the Districts and District numbers can be found on page 14 of the June 2003 *RadCom*.

Any one callsign can only be used from one location at any one time. However, it is possible for the same callsign to be used in two different locations on two different days, eg if there are two groups / clubs within the same district who wish to apply for the use of eg GB90RSGB/34, both parties can be facilitated by one group using the callsign on Saturday 26 July, and the other group / club having use of it on Sunday 27 July. In addition, RSGB HQ will be active as GB90RSGB, which will be operational from Saturday 12 July for 28 days.

QSL CARDS

All incoming bureau QSL cards will be dealt with in the normal manner, ie those sent to the RSGB QSL Bureau at HQ will be forwarded to the GB QSL Sub-manager, Michael Evans, MW0CNA. If the operators of GB90RSGB/* (where * is the RSGB District number) wish to collect QSL cards for their callsign, MW0CNA must be provided with stamped addressed envelopes.

RSGB 90th BIRTHDAY AWARD

A special 90th anniversary award certificate is available for those making contact with (or SWLs hearing) any GB90RSGB stations. The award may be claimed by any licensed amateur / SWL providing the following proof of contacts made or stations heard:

HF bands (1.8-30MHz):	contacts with minimum of 10 GB90RSGB/* stations
VHF bands (50MHz and up):	contacts with minimum of 3 GB90RSGB/* stations
SWLs (any band or bands):	heard minimum of 10 GB90RSGB/* stations
(* = RSGB district number)	

An application form for requesting the award is available via HQ and on www.rsgb.org Send log book extracts together with the form to the Amateur Radio Secretariat Department at RSGB HQ, accompanied with the fee of £5.00.

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ML&S: £399.00

Package Deal
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- MEK-2 Mic Extension kit
- MMB-60 Quick Release Bracket
- SP-4 Mobile Speaker
- Maldol HMC-4 Quad band Mobile Antenna

RRP: £614.75

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ZERO DEPOSIT 36 x £20.61

FT-1000MPmkV Field
HF Transceiver

The very latest 100W H.F. Base Station to come out of Yaesu with a built in PSU, Auto ATU, Class A SSB Transmission (25W).

RRP: £2299.00

ML&S: Call for latest price

Package Deal
- SP-8 Matching Desk Speaker
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- Full compliment of filters (5 in total)

RRP: £2912.65

ML&S: £2449.00

ZERO DEPOSIT 36 x £89.04

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Offering 100 watts HF and 6metres this radio is a delight to operate. Fitted with FM,6kHz AM filter and 500hz CW filter plus simple to operate DSP this is an excellent base radio. (Requires 25a 13.8v PSU). Built in ATU

ML&S: Call for latet price

ZERO DEPOSIT 36 x £39.96

FT-897

At last the new 160m-70cm Transportable is available from stock. This compact package offers all mode operation with 20 Watts output from its optional internal batteries or a full 100W (on HF/6M) from its own internal PSU. (Optional)

ML&S: Call for latest price

ZERO DEPOSIT 36 x £35.96

- FT-897 All Band Transceiver
- FP-30U Internal 240V PSU
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- YF-122C Collins CW Filter
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- MD-100 Desk Microphone
- MMB-80 Mobile Bracket
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- 2xFNB-78 Twin Internal Ni-MH Battery Packs
- PA-26 & CD-24 12/240V chargers
- Miracle Whip Antenna (max 20W)
- TCXO-9 Hi-Stab Unit. (0.5ppm)
- CT-39A Packet Cable
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RRP: £2816.20

ML&S: £2529.95

ZERO DEPOSIT 36 x £91.98

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RRP: £1598.75

ML&S: £1449.00

ZERO DEPOSIT 36 x £52.68

Mobile Package
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- MMB-80 Mobile Bracket
- ATAS-120 Active Tuning Antenna System
- MH-36EHJ DTMF Mic
- SP-4 Mobile Speaker

RRP: £1449.80

ML&S: £1317.99

ZERO DEPOSIT 36 x £47.92

Base Package
- FT-897 All Band Transceiver
- FP-30U Internal 240V PSU
- FC-30 Bolt-on Auto ATU
- YF-122S Collins SSB Filter
- YF-122C Collins CW Filter
- MD-100 Desk Microphone

RRP: £1870.75

ML&S: £1699.00

ZERO DEPOSIT 36 x £61.77

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Blending a mixture of technologies developed on the FT-897 & the FT-1000mkV Transceivers, the FT-857 is the world's smallest HF/VHF/UHF Multimode Transceiver.

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VX-7R
SubmersibleTri-Band Handie

The worlds very first Tri-Band Handie that you can actually fully submerse! Tough construction (to MIL Spec 810). 5W on 6/2/70, RX 500kHz-999MHz, plus Dual RX.

RRP: £359.00

ML&S: £299.99

Package Deal
- VX-7R TriBand Submersible Transceiver
- CD-15A Rapid Charger (needs NC-72U)
- NC-72U 5Hr Charger
- CN-3 BNC to SMA Adapter
- CSC-88 Soft Case
- E-DC-5B Cigarette Lighter DC Adapter
- FNB-80Li Spare 1300mAh Lithium Battery
- CMP-460A Waterproof Speaker Mic
- SU-1 Bar Pressure Sensor Unit

RRP: £578.60

ML&S: £499.00

ZERO DEPOSIT 36 x £18.14

FT-817

Still the only truly handheld all band transceiver, 160m-70cm, 5W.

RRP: £799.00

ML&S: £579.00

ZERO DEPOSIT 36 x £21.05

Package Deal
- FT-817, c/w Nicads, Charger, Whip, Mic, Strap
- HL-50B 160-6M Linear Amp
- CSC-83 Case
- Miracle Whip Antenna

RRP: £1248.85

ML&S: £925.00

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Special arrangements exist for blind and disabled persons. Details and membership application forms are available from RSGB HQ.

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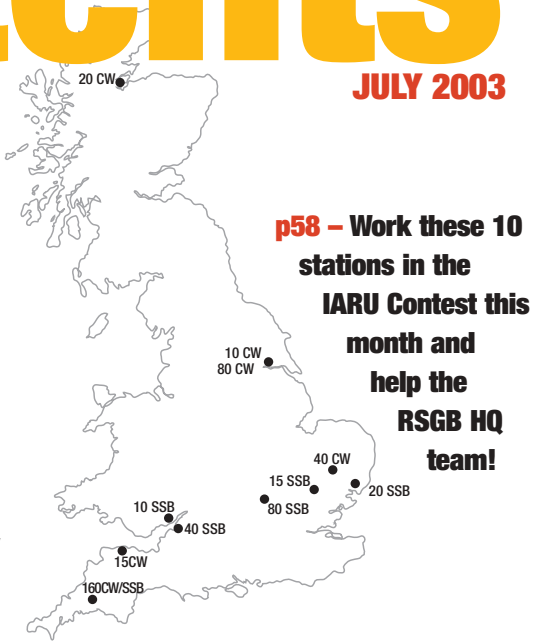

p58 – Work these 10 stations in the IARU Contest this month and help the RSGB HQ team!

News and Reports

Reviews

Down To Earth – Amateur Radio From The Ground Up

Technical Features

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WRC-03 Commences Its Work

THE WORLD RADIOCOMMUNICATION Conference, WRC-03, started its work in Geneva on 9 June and continues until 4 July. WRC-03 is to discuss the regulation of all radio services, of which the Amateur Service and the Amateur-Satellite Service are but a small part. There are, however, several items on the conference agenda that are of great importance to radio amateurs and the International Amateur Radio Union (IARU) has fielded its largest team of observers at an ITU conference in more than a decade. The RSGB HF Manager, Colin Thomas, G3PSM, is attending as advisor to the UK delegation.

Of greatest interest to radio amateurs are the proposed revisions to Article 25 of the *Radio Regulations*, which details the requirements for amateur radio and includes the obligation to demonstrate Morse code proficiency to operate below 30MHz. WRC-03 delegates are expected to delete the international Morse code requirement. The conference will also discuss the world-wide 'harmonisation' of the 40m band. The IARU has expressed strong support for a realignment of the band to make 300kHz of spectrum around 7MHz available to amateurs globally, but IARU President Larry Price, W4RA, who is heading the IARU observer delegation at Geneva, says the 40m issue is "complicated, controversial and involves multiple radio services, and there's simply no way of predicting what the outcome will be."

At the time of going to press there had been no final decisions on any issues. Regular updates from Geneva will be uploaded to the RSGB website at www.rsgb.org

A Remarkable Young Amateur

We have often received stories of youngsters passing the Foundation course at 7 or 8 years of age, but recently learned about a remarkable young man who has just passed the Foundation course. Pete Asbury, M0PCA, writes that his grandson Peter, had been "pestering" him for a long time about getting a licence but was told to wait until he was older. However, since Pete helps to run Foundation Licence classes at the South Derbyshire and Ashby Woulds ARG, he arranged for his grandson to attend the recent course there. Peter passed first time. The remarkable thing about this story is that he is blind, and still only six years of age.

Six-year old Peter listens in.

Peter regularly listens with a receiver, and is now learning Morse. He has just received the callsign M3PCA and has been phoning his grandfather to say "Hello M0PCA this is M3PCA, over"!

RA Consults on Proposed Changes to Amateur Licences

The RA has issued a consultation document on proposed changes to amateur radio licences. The document invites comments on proposed changes to the requirement to take a 5WPM Morse test for access to bands below 30MHz, allocations above 75GHz, and Intermediate licensees' access to amateur satellites. The full consultation document may be seen on the RSGB's website at www.rsgb.org (there is a link from the home page). The consultation period is for **one month**, commencing **11 June 2003**. Comments on any of the proposed changes should be made in writing or by e--mail to the RA: consultation responses cannot be taken by telephone, but questions on the consultation can be taken on by the RA's Amateur Section on 020 7211 0160.

RAIBC Requires Readers

The Radio Amateur Invalid and Blind Club (RAIBC) is looking for more volunteer readers to record its journal *Radial* on to cassette tape for its visually impaired members. *Radial* is published quarterly in A5 format and usually runs to between 50 and 60 pages of copy specifically of interest to blind radio operators. If you have a good voice and can make recordings with good pace, pauses and intonation, please consider offering your time for this worthwhile cause. Please contact Alan, GM4FLX, tel: 01505 843524 to find out how you can help.

M3 Reciprocal

Tony Wiltshire, M3ZMC, is likely to be the first UK Foundation Licensee to operate from Gibraltar following the introduction of the territory's own Foundation Licence scheme. Tony will be operating from Gibraltar from **5 to 11 July** using QRP SSB on the 15, 17, 20 and 40m bands. Tony says, "Having spoken to the agency in Gibraltar, they have confirmed that I will be the first Foundation Licence holder to obtain a ZB3 reciprocal callsign. I am sure that most M3s are not aware that they can operate from this country."

70 Years On Air for G5HF

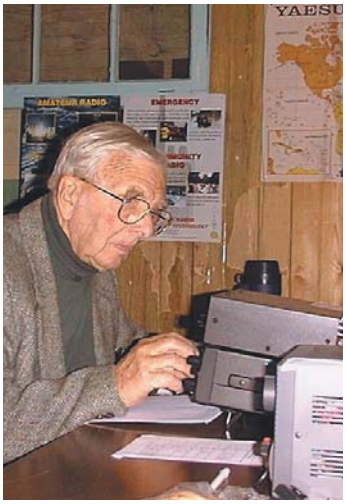
Harry Heap, G5HF, the President of the Chelmsford Amateur Radio Society, has celebrated an amazing 70 years on the air. Harry received his full transmitting licence on 5

New Products from Icom

The engineers at Icom have certainly been busy recently, with the launch of two new rigs and a third to follow shortly. Ideal for the M3 Foundation Licensee and the experienced QRP enthusiast alike, the new IC-703 features 10W output power, dropping automatically to 5W output when operated from 9.6V. Covering all bands from 1.8 to 50MHz, the IC-703 even includes an automatic ATU in its tiny case. We plan to review this rig in RadCom soon. Secondly, Icom has launched the IC-E208, a high-power VHF /UHF FM mobile transceiver. The IC-E208 features 55W output on 2m and 50W out on 70cm, with power level selectable in three steps. The rig has a detachable controller head, making it possible to install in almost any modern vehicle. Finally, though not yet available in the UK, Icom launched the IC-7800 at Dayton in May. This is very much a top-of-the-range HF / 6m transceiver which, from its description, takes amateur transceiver design to the next level. It is a large desk-top rig with 200W output, two completely independent receivers and no fewer than four 32-bit DSP chips. Look out for more on this exciting new development in 'Whatever Next' next month.

Icom's latest top-of-the-range HF / 6m transceiver, the IC-7800, already launched in USA.

October 1933 but had held 'Artificial Aerial' licence 2BZZ for about a year before that. To gain the full licence Harry had to enlist the help of local amateur John Curnow, G6CW. John wrote the required letter to the Postmaster General that detailed the experiments he wished to carry out and which could not be done with an Artificial Aerial. There were no exams in those days! The Chelmsford ARS has nine members who have been licensed for 50 years or more, with a total of over 500 years of experience in the hobby.



Harry Heap, G5HP, now licensed over 70 years, and still active on the bands.

'Back to their Source' for Polish Scouts

The Polish Naval tall ship *Orp Iskra* departs Portsmouth on 6 July, calling in at West India Dock, London, for one day around 9 July, and then continuing to Gdynia, Poland, to arrive 19 July. During this period HF55ISK/MM will be operated by the Polish Scouts on 20 and 40m SSB, with some 2m activity. Yaesu (UK) has kindly supplied an FT-897, power supply and accessories. The former Polish President Ryszard Kaczorowski, himself a former Chief Scout, and the Polish Ambassador to the Court of St James, His Excellency Dr Stanislaw Komorowski, are patrons of the event and the Polish Ambassador will be sailing with the Scouts from Portsmouth to London.

W&S 30th Anniversary

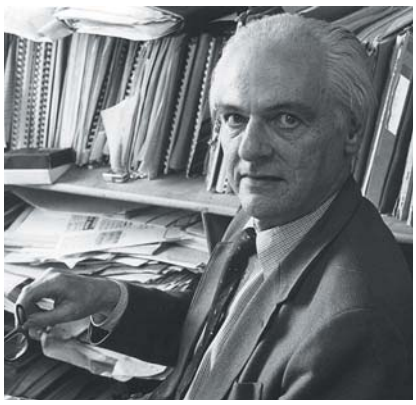
Waters & Stanton plc (www.wsplc.com) celebrates its 30th anniversary of trading this month. Peter Waters, G3OJV, and Jeff Stanton, G6XYU / M3JJS, started their business in Hockley, Essex, in July 1973, and now also run W&S@Lowe in Matlock, Derbyshire, and W&S@Jaycee in Glenrothes, Fife. Congratulations to Peter and Jeff and to Mark Francis, G0GBY, Sales Director of W&S.

DDRC's 20th Boot Sale Another Success

The Dunstable Downs Radio Club's National Amateur Radio Boot Sale proved to another great success this year. It is the 20th year that the event has been organised, with over 250 sellers turning up on the day, the largest event of its kind in the UK. One seller came over from Northern Ireland and there were several visitors who made the trip from France and Belgium. The DDRC runs a mailing list for this event: you can register for news of next year's event via www.ddrcbootsale.freeserve.co.uk

G3VA Inducted to Hall of Fame

Pat Hawker, G3VA, has been inducted into the prestigious *CQ* 'Amateur Radio Hall of Fame'. Pat has compiled *RadCom's* 'Technical Topics' since 1958 and is a prolific writer on radio and electronics in *RadCom* and other magazines. The *CQ* Amateur Radio Hall of Fame was established in 2001 to recognise individuals who significantly affect the course of amateur radio and radio amateurs who, in the course of their professional lives, had a significant impact on their professions or on world affairs. Congratulations to Pat and the 14 other new members of the Amateur Radio Hall of Fame.



Pat Hawker, G3VA, writing for Radio Communication in the mid-1980s.

RA Supports RAIBC

The Radiocommunications Agency recently presented a cheque for £2465 to the Radio Amateur Invalid and Blind Club (RAIBC). The sum was raised in the collecting boxes on the RA's stand at the various rallies they attend.

Alan Betts, G0HIQ, of the RA (left) presents the cheque to Alec Gaffin, G0MWO (membership secretary), and David Jones, Chairman, of RAIBC.

NEWS IN BRIEF

JIM MARTIN, MM0BQI, will be operating from the Summer Isles (IOTA EU-092) off the NW coast of Scotland from 24 July, to include activity in the RSGB IOTA Contest on 26/27 July. Operation will be on all bands 80 - 6m SSB, CW and RTTY.

THE BRITISH FESTIVAL of Science (www.britishfestivalofspace.co.uk) is to be held at Surrey University from 10 to 12 July. To celebrate the event, the Electronic and Amateur Radio Society (EARS) at the university will be operating GB4BFS from 1 July.

WILLIAM KENNARD, pictured on page 78 of the May *RadCom*, is the former US Federal Communications Commission Chairman. The present incumbent is Michael K Powell. While Mr Powell earned his position on his own merits, readers may be interested to know that he is the son of US Secretary of State Colin Powell. (Thanks to Dave Sumner, K1ZZ, Chief Executive Officer, ARRL.)

THE 135TH BROADWAY SCOUTS (Derby) is celebrating its 50th anniversary this year. Its first main Scout camp was held on the Isle of Arran in the 50s and one of the scouts who attended was Geoff, M5GAC. To celebrate the occasion, Geoff will operate on 40, 20 and 15m as MM5GAC/P from Arran for a week from 20 July. Geoff will be looking in particular for contacts with stations having a link to Scouting.

COMMENCING MIDNIGHT Eastern Standard Time on 3 July, General and higher class licensees in USA will be given five 2.8kHz-wide channels in the 5MHz band. The frequencies are 5332, 5348, 5368, 5373 and 5405kHz and they will be available for operation on USB only on a secondary basis and with a maximum ERP of 50 watts.

THE SUMMER 2003 edition of *Broadcasts in English* is now available from the British DX Club (www.bdxc.org.uk). It was compiled by Alan Pennington and includes details of all currently known international broadcasts in English on shortwave and mediumwave. Copies are available at £2 inc P&P from British DX Club, 126 Bargery Road, Catford, London SE6 2LR. Further details from secretary@bdxc.org.uk

***THE ESSENTIAL GUIDE** to Scanning* has recently been published by Martin Peters. The 108-page A5 book is aimed at those new to scanning. It includes easy-to-follow advice on what you can hear and where to hear it, choosing a scanner, understanding its features and much more. For more details see http://tinyurl.com/bnrf or order for £6 direct from Martin Peters, 11 Filbert Drive, Reading RG31 5DZ.

Club and Regional

Club News is a service for clubs and societies affiliated to the RSGB. The announcements are intended to notify non-members and potential members of your club of specific events, therefore 'informal', 'committee meeting', 'natter night' and 'ragchew evening' etc will only be included if space permits. Basic, unchanged details about RSGB-affiliated clubs are published annually in the RSGB Yearbook.

Region 1: Scotland West & Western Isles

WEST OF SCOTLAND ARS
11, Summer on Six. A M Fraser, GM3AXX, 01560 482720.

Region 2: Scotland East & the Highlands

ABERDEEN ARS
4, Junk sale. Robert, 01224 896142.
COCKENZIE & PORT SETON ARC
4, Normal club night. Bob, GM4UYZ, 01875 811723.

Region 3: North West

CHORLEY & DARS
16, North West Repeater Group, the RSGB, Dave Wilson, G7OBW. Sean, M1SMF, sean1226@hotmail.com
SOUTH CHESHIRE ARS
3, VHF/UHF on air. 10, Carnival preparation. 17, HF on air. 23, RSGB video. 24, Activity night. Chris, G1PUV, G0RDK, g1puv@chriswiseman.freeserve.co.uk
STOCKPORT RS
1, 'Getting Mobile', Dave Simcock. 15, 'Practical evening', various activities on several tables. David, M1ANT, 0161 456 7832.
THORNTON CLEVELEYS ARS
7, Talk, demo workings of LD repeater. 14, Surprise, Mick Green, G4EZM. 21, Auction. 28, Talk, slide show RNLI, Ted Groome. Jack, G4BFH, jack@jduddington.fsnet.co.uk
WARRINGTON ARC
1, 'A Week at RAF Cosford', Albert, G3ZHE. John, G0RPG, 01925 762722.

Region 4: North East

GOOLE R & ES
2, Load up night. 9, Debrief night. 16, Summer BBQ, on air. 23, Visit TBA. 30, 'ZL and VK Wanderings', G0SWL. Richard, G0GLZ, 07867 862169.
GREAT LUMLEY AR & ES
16, Erecting and testing whistling dipoles for the fox-hunt. 20, 'Foxhunt'. Nancy, 0191 4770036, nancy-bone2001@yahoo.co.uk
GRIMSBY ARS
3, Talk TBA, Tony G1AOC. 17, DF hunt. Brian, G4DXB, 01472 231383.
HALIFAX & DARS
15, Members favourite gear, construction competition. Tom, M0TKA, 01484 715079.
HORNSEA ARS
2, Humber Bridge visit. 9, Foxhunt. 16, IRLP. 23, Activity. 30, Foxhunt. Andy, G0VRM, 01430 801122.
KEIGHLEY ARS
10, On air, G0KRS. 17, RSGB film night. Ian, M1BGY, 01274 723951.
SHEFFIELD ARC
7, Club night. 14, VHF radio. 21, Video. 28, HF radio. Nick, G4FAL, 0114 2552893.
WAKEFIELD & DRS
1, 2m foxhunt. 8, On air. 15, Radio quiz, John, G7JTH. 22, 'Rubber Stamping', Pete, G0BQB. 29, Pitch & Putt at Thornes Park. Rick, G4BLT, www.wdrs.org.uk

Region 5: West Midlands

BROMSGROVE ARS
8, BBQ, details for DF4. 22, DF hunt 4. Angus, G8DEC, 01527 875573.
BROMSGROVE & DARC
4, Club hills on the air competition. 25, Construction evening for QRP competition. Chris, M0BQE, 01095 776869.
CHELTENHAM ARS
4, Introduction to amateur satellites, Mark, G4MEM. Ivan, G4BGW, 01452 731956, ivan@g4bgw.freeserve.co.uk
COVENTRY ARS
4, Preparation for VHF NFD, on air, Novice class, CW practice. 11, BBQ, on air, Novice class, CW practice. 18, 2m DF hunt. 25, On air, Novice class, CW practice. John, G8SEQ, 024 7627 3190 johng8seq@ntl-world.com
GLOUCESTER AR & ES
7, On air, HF/workshop. 14, 'The Crystal Set Revisited'. 20, Picnic at/P site. 21, 28, On air HF/workshop. Tony, 01452 618930, OH.
KIDDERMINSTER & DARS
1, Video, talk on DXpeditions, Gordon, G3LZT. Tony, G1OZB, 01299 400172.
MID-WARWICKSHIRE ARS
8, Picnic at Bidford on Avon, introduction to VoIP. 22, Field day planning meeting. Bernard, M1AUK, 01926 420913.
SALOP ARS
3, Contest preparation. 17, 3rd 'foxhunt'. 19, 20, Special event station Living History Days at the West Showground, Shrewsbury & Atcham Borough Council. 24, Contest preparation. 31, Chairman's discussion night. John, G0GTN, 01743 249943.
ST LEONARDS ARS
3, Is your rig performing correctly? Brian, G8VPR. 11, Chairman's social evening with YLs, XYLs & friends. 17, Talk by Dr Roy Clarke RSGB Regional Manager. 31, Visit to Rugeley power station. Derek, G0EYX, 01785 604904.
STRATFORD UPON AVON & DRS
14, Surplus equipment sale, G8HJS. 28, Construction competition, G3MXH. Geoff, G4OHJ, 01789 773286.
TELFORD & DARS
2, Open evening, on air. 9, 3rd DF competition. 16, Switched mode PSUs. 19, Newport show. 23, Visit to Telford Electronics. Mike, G3JKX, 01952 299677.

Region 6: North Wales

DRAGON ARC
7, Amateur radio and general knowledge quiz. 21, RSGB presentation by RRM Liz Cabban, GW0ETU. Stewart, GW0ETF, 01248 362229.
WREXHAM & ARS
1, On air. 15, Digital modes demo, Mark, MW1MDH, John, MW1VCD. Mark, MW1MDH / MW3MDH, www.qsl.net/wars

Region 7: South Wales

ABERYSTWYTH & DARS
5, 6, VHF Field Day. 31, Club net S21 (Call on S20), GW7OZP. Ray, GW7AGG.

Region 8: Northern Ireland

No club details received.

Region 9: London & Thames Valley

AYLESBURY VALE RS
9, Barbeque, Gerry, M3VFV host. Roger, G3MEH, 01442 826651, roger@g3meh.fsnet.co.uk
COULSDON ATS
14, Inter-club quiz night. Steve, G7SYO, 01737 354271.
CRAY VALLEY RS
5, 6, VHF NFD. Bob, BRS32525, 020 8265 7735 after 8pm & WE.
CRYSTAL PALACE R & EC
4, Club project, Morse practice. 18, Hands on equipment evening. Bob, G3OOU, 01737 552170 or Victor, G1PKS, 020 86532946.
MAIDENHEAD & DARC
3, QRP DXing, Dave, G3YMC. 15, Barbecue. John, G3TWG, 01628 525275.
RADIO SOCIETY OF HARROW
4, Informal. 6, GB2DHH operating day. 11, Newcomers' programme. 18, Informal. 20, McMichael Rally. 25, Shack visit. Jim, G0AOT, 01895 476 933 or 020 7278 6421.
READING & DARC
10, On air, final briefing for McMichael Rally. Pete, G8FRC, 0118 969 5697.
SILVERTHORN RC
25–28, Club Camp at Hertford. David, G0KHC, 020 8504 2831.
STEVENAGE & DARS
1, Members discussion. 8, Operating M3 tuition. 15, 22, Members' discussion. 29, Video. info@sadars.org
SURREY RADIO CONTACT CLUB
7, BBQ at G3ZPB. Ray, G4FFY, 020 8644 7589.
VERULAM ARC
14, Forum 'The Way Ahead'. Walter, G3PMF, 01923 262180.
WIMBLEDON & DARS
26 Jul – 3 Aug, Summer Camp. Jim, G4WYJ, 01737 356745.

Region 10: South & South East

ANDOVER RAC
1, 'All About GSM', Julian, G4UET. 15, Foxhunt. 18, Barbecue at G4NNS. Terry, G8ALR, 01980 629346.
BASINGSTOKE ARC
7, Raynet. 27, Foxhunt Peter,

News

M1DGQ, 0118 983 6545.

CHIPPENHAM & DARC
29, BBQ. Andrew, G4GWR, andrew@scott-green.fsnet.co.uk

CRAWLEY RC
9, Talk, demo APRS, Martin M1MRB. Derek, G3GRO, 01293 520424.

DORKING & DRS
22, Activity evening. G3AEZ, 01306 631236.

FAREHAM & DARS
2, On air. 9, What will be the next club project? 16, What the club did many years ago, Mick, G4ITF. 30, Meeting on Portsdown Hill, east of Fort Widley, bring portable gear. Steve, G7HEP, 01329 663673.

FARNBOROUGH & DRS
9, HF contest preparation, Derek, G3HEJ. 23, The Foundation Course, Simon, M3HHI. Norman, G0VYR, 01483 835320.

HASTINGS ELECTRONICS & RC
4, Echolink, repeater linking and D-Star, a new concept, G8PUO and G4TKR. 16, Club auction. R C Gornall, G7DME, 01424 444466.

HORNDEAN & DARC
1, Social evening. 12, 13, Special event station at Queen Elizabeth Country Park Show. 22, '100 Years of electricity in the home', John Narborough. Stuart, G0FYX, 023 9247 2846.

ITCHEN VALLEY RC
11, Communications by computer, Mike, G0AMO. 25, 'How I became a Radio Amateur', Conrad, M3BQI. Sheila, G0VNI, 023 80813827 sheila.williams@ivarc.org.uk

SOUTHDOWN ARS
7, Barbecue at Camp X, Beachy Head, mobile operation. John, G3DQY, 01424 424319.

SWINDON & DARC
3, VHF NFD contest preparation. 10, 'A Buyer's Guide to Digital Radio and TV Broadcasting', Mike, G7TAF. 17, DF hunt. 24, IOTA Contest preparation. Den, M0ACM, 01793 822705.

TROWBRIDGE & DARC
2, DF 'Foxhunt' 144MHz. 13, Aerial & kite day at White Horse Hill, Westbury. Ian, G0GRI, 01225 864698 E/W.

WORTHING & DARC
2, Aerial Maintenance. 9, Plans for Ardingly Special Event. 16, Discussion on current topics. 23, Plans for Special Event Stations. 30, Hints & Tips. Roy, G4GPX, 01903 753893.

Region 11: South West & Channel Islands

APPLEDORE & DARC
21, BBQ. Brian, M0BRB, brian.jewell@ic24.net

BLACKMORE VALE ARS
1, VHF on air. 8, Enigma. 15, HF on air. 22, Digital modes. 29, 'Bring Your BR68'. Tony, G0GFL, 01258 860741.

BOURNEMOUTH RS
4, Members' BBQ. 18, 'Understanding HF Antennas & Propagation', Peter Clifford, M0PTR. Chris, M5AGG, 01202 893126.

CORNISH RADIO AMATEUR CLUB
3, General meeting: a traveller's tale by Dick. 12, 40th Mobile Rally. 14, Computer Section. 26, 27, Model flying club display at Hell's Mouth. John G4LJY, 01872 863849.

SOUTH BRISTOL ARC
2, Computer clinic. 9, Working the SBARC team on Lundy Island. 16, Digital cameras. 23, Historic club videos. 30, On air. Len, G4RZY, 01275 834282.

WEST SOMERSET ARC
1, BBQ. Jean, G0SZO, 01984 633060.

YEOVIL ARC
3, Visit by RSGB Regional Manager G4ACK. 10, Foxhunt, G3ICO. 24, Hints and kinks, M0WOB. 31, On air. Derek, M1WOB, 01935 414452.

Region 12: East & East Anglia

BRAINTREE & DARS
21, Rig clinic. John, M5AJB, 01787 460947.

CAMBRIDGE & DARC
4, Preparation for Field Day. 11, Introduction to DF on 2m. 18, Preparation for club picnic. 20, Club picnic. 25, Video from John Parmenter. Ron, G3KBR, 01223 501712.

CHELMSFORD ARS
1, UI-View and Internet Linking, Dave Sampson, M1DOZ. David, M0BQC, 01245 602838.

COLCHESTER RAC
3, BBQ & Auction, Garry, M0UTH. 17, Eclipses, Paul Whiting, G4YQC. Andy, M1MOD, 01206 735122.

FELIXSTOWE & DARS
6, Darrell Day GB2FX Landguard Fort. 12, 13, Foundation Course. 14, Visit to Leiston Long Shop Museum TBC. 28, Visit to Orfordness transmitters, contact Herbie, M1DGY. Paul, G4YQC, paul.whiting@bt.com

HARWICH AR INTEREST GROUP
9, Barbecue & on air. Eugene, G4FTP, 01206 826633.

NORFOLK ARC
2, Informal, CW instruction, Barford briefing. 6, Barford Rally. 9, Reflections on Barford Rally. 16, Informal, CW instruction. 23, Members evening: bring your gadgets and gizmos. 30, Informal, CW instruction. Reg, G0VDO, 01603 429269.

Region 13: East Midlands

EAGLE RADIO GROUP
8, 'Robot Wars', visit of member of team of builders of 'Hell's Teeth' talks about success in TV series. G0SWS, 01507 478590.

SHEFFORD & DARS
3, Planning and equipment check for VHF/UHF field day. 10, Mobile 'foxhunt'. 17, Club BBQ and end of term party. Derek, G4JLP, 01462 851722.

SOUTH NOTTS RC
4, Gadget night: bring along your new toy. 11, Construction aerial analyser, John, G4EDX. 18, Open forum members only. 25, Quiz. Secretary, 01509 569746.

Chelmsford Amateur Radio Society Intermediate candidate Michael Sullivan, M3MPS, putting one of the toolkits to good use.

Chelmsford Invests in the Future

The Chelmsford Amateur Radio Society (www.g0mwt.org.uk) recently invested £250 in buying sets of toolkits and test equipment for use in the new Intermediate courses, which require the teaching of soldering and constructional skills.

For further information on the Chelmsford Intermediate courses contact Clive Ward, M0SIX, tel: 01245 224577; Mobile: 07860 418835; or e-mail: training@g0mwt.org.uk

May Day Display

Over the May Day bank holiday, a member of the Yeovil Amateur Radio Club, Haydn Kraus, G1PZK, put on an amateur radio display in the craft and hobbies marquee at the Abbey Hill steam rally at Yeovil in Somerset. The display showed the evolution of amateur radio equipment from 1898, when amateur radio began, through to the 1950s. Also on display were Morse keys connected to audio oscillators which engendered a lot of interest in young people, with some of the children coming back several times to have another go at using Morse code.

North Norfolk Amateur Radio Group at the Muckleburgh Collection

The Muckleburgh Collection (www.Muckleburgh.co.uk) located at Weybourne in Norfolk, is well known as a military museum, featuring working tanks and other vehicles, guns, missiles, and much more. Not so well known is the prestigious collection of vintage military and other transmitters and receivers, maintained and exhibited by the North Norfolk Amateur Radio Group (NNARG), together with an operational amateur station, GB2MC.

As visitors enter the foyer of the radio hut they are greeted by a computer-generated simulation of Morse messages sent from and to the Titanic in 1912, with a simultaneous plain language display on a screen. Apart from transmitters and receivers used by all three armed services, the collection includes radios used for intelligence gathering, surveillance, espionage and counter-espionage during WWII. An impressive exhibit is the home-built amateur station of the late Wing Commander Ieuan E Hill, G6HL, first licensed in 1927 as 6HL. Children are particularly welcomed and, after hearing a 'cat's whisker' crystal set, a potato-powered radio and a 1920s horn-speaker radio in operation, they are shown how to send their name in Morse code, for which they receive a certificate. Over 800 youngsters received these certificates last year.

Further information about the NNARG can be obtained by contacting the PRO, Tony Smith, G4FAI QTHR, or e-mail: g4fai@connectfree.co.uk The museum is open daily from Easter to early November; the radio hut can be visited on Wednesdays and Thursdays, bank holidays and some weekends during August.

New Secretary at Kettering

Andy Clements, G0SOP, has recently been elected secretary of the Kettering and District Amateur Radio Society. The club meets every Tuesday night at 8.00pm at the Lilacs Public House, 39 Church St, Isham NN14 1HD. For further details please contact Andy Clements, G0SOP, tel: 07971 835048 or e-mail: secretary@g5kn.org

Lottery Grant for Solihull Amateur Radio Society

The Solihull Amateur Radio Society (SARS) has obtained a lottery grant under the 'Awards For All' scheme to help it train newcomers to the hobby for the Foundation Licence. The award will be used to enable the Foundation Licence course to continue into the future and allow the club to purchase additional training equipment.

SARS's youngest member, Andrew Yates, M3BDA, who passed the SARS initial Foundation Licence course first time, recently presented Mrs Bobbie Thomas, Manager of Shirley Library in Solihull, with a number of amateur radio books. The presentation was made to thank the library for allowing the club to hold a special event station there and also to provide material for the general public.

Mrs Bobbie Thomas receives amateur radio books from Andrew Yates, M3BDA, at the Shirley Library in Solihull.

Eagle's Glass Goblets

Members of the Eagle Radio Group in Mablethorpe, Lincolnshire, who pass the club's Foundation Course receive not only the usual yellow pass certificate, but also a glass wine goblet engraved with the club's logo and their callsign.

Eagle Radio Group's new Foundation Licensees Homi, M3LBW; Frank, M3FTH; and Bob, M3PBM, being presented with their mementos by Mrs Ann Gilberthorpe.

Left to right: Graham Scatterwood, MM0BSX; David Lunan, GM4OAQ; Alan Thompson, MM1EQE; Euan Cammeron, MM0BIX; and Brian Murray, MM0ERK at the GB100MAS station.

GB100MAS

Members of Strathmore Amateur Radio Club will be operating GB100MAS from Montrose Air Station on **26/27 July** to celebrate the 100th anniversary of powered flight. The station was also on the air during the early May bank holiday weekend. The club members wish to thank Icom (UK) and Linear Amp (UK) for the loan of an IC-756PROII transceiver and Ranger 811H amplifier which together made 850 QSOs during the operation in May.

Another 90th Birthday Celebration!

It's not only the RSGB that is celebrating its 90th anniversary. The Northampton Radio Club also celebrates its 90th year this year. On 4 June 1913, the *Northampton Daily Echo* reported on the inaugural meeting of the Northampton Wireless Club, as it was then called, at the YMCA, where some 30 wireless enthusiasts met under the Chairmanship of Mr Rolfe. This makes the club the fifth oldest in England after Derby, Liverpool, Birmingham and Newcastle.

To commemorate the occasion, the club is to hold an amateur radio, electronics and computer fair at the Northampton County Cricket Ground on **13 July**. For further details please contact Phil Ridgeon, 8 Pippin Lane, Little Billing, Northampton NN3 9TQ or e-mail: phil_ridgeon@hotmail.com

Nine happy new Foundation Licence passes from North Wakefield Radio Club.

Donation to GB4FUN in Memory of the Late Norman Alan Harlow

We recently received a donation to the GB4FUN fund from Peter Neale, G3UHN, who sent the following letter:

"My cousin was recently clearing the bungalow of his late stepfather, Mr Norman Alan Harlow, and discovered a Sony ICF-6700W multi-band receiver. Knowing of my long-standing interest in radio matters, he kindly gave the receiver to me and I am pleased to say it still works well in SSB mode on the 80, 40 and 20 metre amateur bands.

"By profession, Mr Harlow was a telecommunications engineer. However, judging from the aerial system that was subsequently found in his St Albans back garden and the careful arrangement of feeders that were discovered to lead to a well-appointed garden shed, he appears to have been a very keen short wave listener, too! Such a pity I never met the gentleman, or even knew we shared a common interest.

"The May 2003 edition of *RadCom* shows the continued, excellent, promotional work of GB4FUN, the RSGB's mobile radio demonstration vehicle. The photographs alone tell a most encouraging story of lots of young people enjoying their first steps into our hobby – and the wider world of science and technology. I am therefore pleased to enclose a cheque as a donation towards the continued work of GB4FUN and in memory of the late Norman Alan Harlow. From what his relatives tell me, I am sure he would have fully supported the GB4FUN initiative.

"Yours sincerely, Peter Neale, G3UHN."

Thanks to Peter, and to the numerous other individuals listed in the 'GB4FUN Supporters' Honour Roll' below, for their generous donations which will help to keep the GB4FUN bus on the road and carrying out its important work.

East to West – GB4FUN On the Road

In May and June GB4FUN visited the east and west of the country. Between 13 and 23 May GB4FUN was touring the schools of Norfolk, including visits to Reepham High School and Hewett School in Norwich. The photos seen here show the children at Hewett School, under the guidance of teacher Alan Wright, G0KRU, getting some 'hands-on' experience of amateur radio in action.

From 9 to 13 June, GB4FUN was operating from Cumbria, with a busy schedule of visits to schools in Whitehaven, Cleator Moor, Hensingham, Maryport and Harrington during the morning and afternoon. Each evening during the week, GB4FUN was demonstrated to youth groups in the county, including the Whitehaven Guides and Brownies, Whitehaven ATC and SCC, Workington ATC, Workington Scouts and the Distington Club for Young People.

Over the weekend of 14/15 June, the vehicle moved on to the Whitehaven Maritime Festival at the Training Ship *Bee* on the Old New Quay, which is also the headquarters of Whitehaven Sea Cadets and the Whitehaven Amateur Radio Club. This is a major event in the north-west of England as the last festival attracted 180,000 visitors. There was a substantial presence by the RAF, Royal Navy and Army there, as well as tall ships in the harbour. A special event station, GB2WMF, was also on the air from the festival. The full week's programme was a joint project by members of the Whitehaven Amateur Radio Club and the Workington Amateur Radio and IT Group. ◆

EASTERN COUNTIES NEWSPAPERS, PAUL HEWITT


EASTERN COUNTIES NEWSPAPERS, PAUL HEWITT

The GB4FUN Supporters' Honour Roll

We asked members when renewing their membership to include a donation to help to continue to finance the GB4FUN mobile amateur radio demonstration vehicle. The following is the list of those members who have kindly sent in a donation by the deadline date for this issue. Contributions continue to be wanted: if you would like to help, please send your donation to 'GB4FUN', c/o RSGB HQ.

GB4FUN 'Big Hitters'

J Fucetola	5B4AEA
D G Alliker	G6WNA

M J Livingston	A92EV
W Gellerich	DJ3TZ
H K Gall	DK3YD
J J Gallagher	EI8BD
J J Gallagher	EI8BD
V M Covell-London	G0APV
D S S Fraser	G0BDL
F E Mance	G0BIT
J S Linfoot	G0CPP
J A Frost	G0DCR
E Webster	G0ERN
J Nichol	G0EUN
R J Baldock	G0FFQ
E R Flower	G0GCN
R Battersby	G0IMB
W Pattinson	G0JCK
W G C Bowles	G0KCZ
Peterlee Radio Club	G0KVJ
W A Williams	G0LHQ
Mrs C J Livesey	G0LJC
L J Volante	G0MTN
Chelmsford ARS	G0MWT
J W Fox	G0OWB
D Hyde	G0PDH
Mrs S F Poulter	G0PNT
K Greatorex	G0THF
R E Fisher	G0UEB
C L Thomas	G0VTE
WT Brown	G1BBY
W J Webb	G1BWP
D J Penrose	G1CWZ
T Mitchell	G1JZY
P E McGarry	G1NEG
S J Evenden	G1OJL
A W Knight	G1UOZ
R Mallender	G1UPL
J A Neate	G1WUU
L J Mackenzie	G1XUO
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C E Bland	G3DAE
B J Gealer	G3DEF
W J Omer	G3DOJ
B O Leach	G3DXY
G A Livesey	G3FIB
P J Simpson	G3GGK
J E Lacey	G3GLB
I S Davies	G3KZR
J S E Pearce	G3MEC
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C E Deamer	G3NDC
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A A Milham	G3OPL
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D J W Price	G3RLF
A Collorick	G3RLG
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P H Pearson	G4GXI
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D W Clouting	GM3YGS
A Robertson	GM3ZXB
J R Cramond	GM4NHI
A W Ross	GM4PMT
F Benson	GM8EKF
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B A Morgan	GW0GQC
Mrs J James	GW0KPD
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D K Egan	GW4XKE
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N Shepherd	M3GPY
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K F H Newland	M3KFN
D A Shaw	M3RJO
K Sharples	M5KEN
I Macdonald	MM5WIG
S Redmond	MW1IRW
J Robinson	MW3KHY
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D G Ellis	RS93865
J Harvey	VP8PE
A C Doty Jr	W7ACD
N A Harlow (in memoriam)	

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- Weight: 16 kg

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NEW!
Released originally as the Chelcom HFV1 this antenna has been re-designed to improve efficiency and increase power rating
- 80 metres - main band
- 5.6 metres *(18' 4")* long
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- SO239 Socket
- Supplied c/w with fixing brackets V bolts etc

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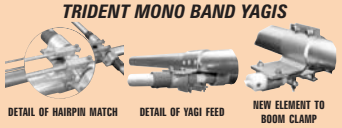
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6M6L	6 el Yagi	12.40	7.22mtr	n/a	£225.00
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4M3L	3 element	8.70dBi	1.48mtr		£85.00
10 Metre Yagis					
10M2L	2 element	6.59	1.5	5.0Kg	£119.95
10M3L	3 element Std	7.41dBi	3.0mtr	6.5Kg	£129.95
10M4LDX	4 el Long Yagi	9.42dBi	5.40mtr	11Kg	£199.95
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15M3L	3 element Std	8.21dBi	4.40mtr	tba	£215.00
15M4L-DX	4 el.Long Yagi	10.6dBi	8.20mtr	17.5Kg	£255.00
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20M2L	2 element Yagi	6.37 dBi	3.00mtr	tba	£179.95
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LP270	144 - 440 MHz	9.50dBi	1.40mtr	2.6Kg	£110.00
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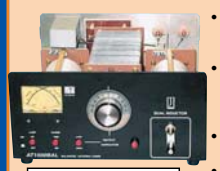

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- New low minimum variable capacitor with vernier drive
- 1500 Watts PEP
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- Weight: 16 lbs
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- Now with heavy duty edge-wound ***silver plated roller inductor*** for ***ultra high efficiency*** and ***reliability***
- Matches dipoles, centre fed doublets, G5RV's balanced feeders, Verticals, single wire, delta loops, beams, windoms, Inverted V's
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40/50 Amp, 13.8V DC heavy duty precision bench supply with meters. Featuring both short circuit and overload protection, has a thermostatically controlled fan cooling system. Precision voltage and current metres allow accurate voltage and current monitoring.

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Power: 300w/3Kw (Average or Peak)

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In 1904 the UK parliament passed the world's first Wireless Telegraphy Act, making it legally necessary to obtain a licence to use wireless telegraphy. Lord Stanley, the Postmaster General of the day undertook that "no licence for experiments shall be refused unless the refusal has been approved by me personally." Licences to use 'Wireless Telegraphy for Experimental Purposes' began to be issued in 1905. At first it was necessary only to advise the GPO of the intention to build a station and to fill in a form giving details of the proposed equipment. A Post Office inspector would call to see the equipment; a permit would then be handed to the owner.

H W Pope, PZX, later G3HT, in South Norwood, London, 1912.

By 1912, the outlines of amateur radio as an experimental, scientific hobby with official licences were already clearly drawn. By now transmitting permits specified a power and a wavelength, although spark transmitters covered a broad band of frequencies. Three-letter callsigns were issued, one letter of which was always X to indicate an 'experimental' station.

About 1000 transmitting licences were issued. Stores such as Gamages began stocking parts. Out-of-London signals began to be heard in the capital. The stage was set for the next advance.

BIRTH OF THE SOCIETY

The first national society had been formed in 1910 – the Wireless Institute of Australia. In the UK, clubs began to be set up where the experimenters could meet and exchange views. Often these were sections of the local 'scientific' societies that flourished in that Edwardian era. Radio communication also formed part of the activities of such organisations as the newly-formed Boy Scouts (whose groups used the call XBS).

Soon clubs devoted exclusively to radio experimenting came into existence – for example at Derby in 1912 and in Liverpool, Birmingham and Northampton. London remained without one.

Then, in 1913, Rene Klein (KXL, later 2HT and finally G8NK) wrote a letter to the press deploring that there was no association in London where amateur wireless experimenters could meet and discuss their problems. A preliminary meeting of some half dozen enthusiasts took place on 5 July 1913 at West Hampstead [see cover photograph - *Ed*] where it was decided to form the 'London Wireless Club'. Annual subscriptions would be 10s 6d (52.5p) for town members and 5/- (25p) for country members, showing the intention from the start of expanding beyond London. The new club was announced in *English Mechanic and World* (11 July) and *Wireless World* (August).

Shortly after the formation of the club, an event occurred which showed the need for an organisation with wider horizons and aims. The GPO announced that it intended to introduce a charge (one guinea – £1.05) for issuing transmitting and receiving permits, although there would still be no annual charge. The amateurs felt this contravened the spirit of the 1904 Act that had safeguarded the rights of 'experimenters'. Rene Klein, who had been elected Secretary of the club, asked the GPO to receive a deputation and this took place on 25 July 1913 - beginning the long history of official liaison between the emerging Society and the licensing authorities.

The initial licensing fee remained, but the GPO accepted the view that in future licences should be restricted mainly to *bona fide* experimenters and invited the club to put forward names of suitable applicants. This encouraged an early member, F Hope-Jones, to propose (September 1913) the change of name to the 'Wireless Society of London'. Hope-Jones became the first chairman. The first objective of the Society was "to guard the interests of all their fellow-workers in wireless telegraphy" but it also made its members undertake "to keep within the limits of their licences". This caused some controversy but the undertaking remained on the Society's membership application forms for over 50 years.

Hope-Jones was anxious that the Society should enlist the help of persons of influence. A A Campbell-Swinton, a noted scientist and engineer ('father of electronic television') and post-war 2HK, became the first President (1913–20). He helped the Society establish an office in Victoria Street. The Society also accepted an offer from Gamages for two rooms at 107 Hatton Gardens as a meeting place and club room. A 500-watt station was set up there.

By 1914, the number of stations active in London created a major interference problem. The Society drew up a code of good operating practice that included: "Receivers to be as selective as possible. Listen carefully before calling a station. Refrain from answering a station that is calling some other station. Never carry out testing work with the aerial on. Always use mini-

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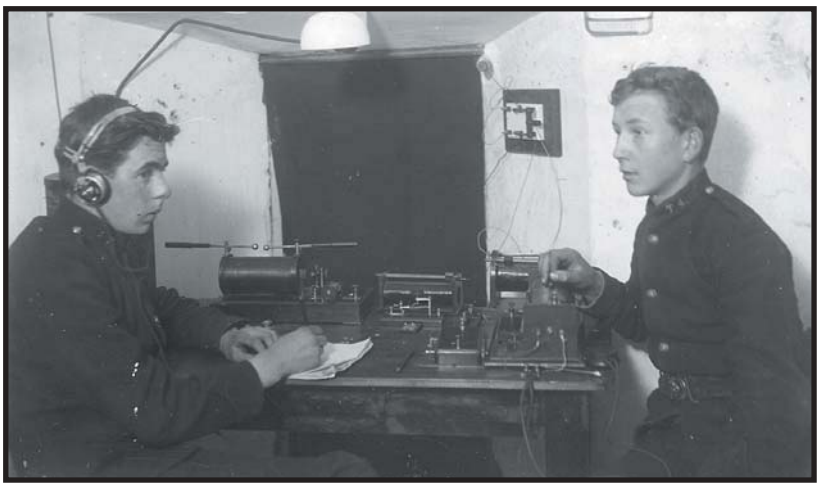
By Pat Hawker, G3VA, 37 Dovercourt Road, East Dulwich, London SE22 8SS.

Amateur Radio



Left: Messenger boys operating a home-built station, pre-1914.

mum power. Keep conversations (contacts) short and sign every message. Listen in for a minute after finishing a conversation to see whether anyone is waiting to call you." Amateur radio has changed less than many believe!

THE GREAT WAR 1914–1918

Almost all of the pre-WWI stations used spark transmitters and crystal detectors but even before 1914 primitive attempts were made to use 'phone as well as Morse, and some of the larger and more powerful stations were soon covering tens of miles. In the USA, amateur radio continued to flourish until the Americans entered the war in 1917 giving their amateurs a major advantage over the British experimenters who on the outbreak of the Great War in August 1914 were closed down and all their equipment seized. A total ban was imposed on both receiving and transmitting equipment, including components. The ban lasted until 1919 and the ban on amateur transmitting not lifted until late 1920.

Amateurs contributed to the war effort. Two prominent pre-war amateurs – Russell Clarke, THX, of Abergavenny and R J B Hippisley, HLX, later G2CW – persuaded the Admiralty that they could receive German naval messages on their home-built receivers at far longer distances than the Admiralty believed possible. They were commissioned into the Royal Naval Reserve and told to organise a chain of stations along the east coast to intercept the German messages and pass the encoded traffic to Room 40, the Admiralty's Intelligence code-breaking centre. H J Round of the Marconi Company provided advanced direction-finding equipment. One of those involved at the Hunstanton intercept station was Leslie Lambert (later G2ST) who continued in signals-intelligence in the inter-war years and was also to achieve fame as a highly successful BBC storyteller under the name 'A J Alan'.

Among the many successes achieved during WWI by this signals-intelligence operation was the bringing about of the 1915 Battle of Jutland (the last major naval battle fought on classic lines). Also the decoding of the Zimmermann diplomatic telegram to Mexico that played an important part in bringing the USA into the war.

One of the major changes in the technology during WWI was the introduction of low-power and high-power thermionic valves, and the consequent development of low-power phone (R/T) transmitters for use in aircraft, although spark transmitters formed the bulk of military transmitters. More importantly, the war created a body of talented young men with experience of wireless telegraphy and technology for military operations and signals intelligence.

The ability with valves to produce continuous-wave RF suitable for 'broadcast' transmission of scheduled programmes was first exploited in 1919 by Dutchman Hanso Idzerda. In 1920 he launched the weekly 'Hague Concerts' intended for reception in the UK.

THE TWENTIES – A KEY DECADE

The 1920s were to prove the most decisive decade in the history of the Society and of amateur radio, both technically and organisationally. The struggle to obtain licences; the success of the early trans-Atlantic tests that decisively proved the advantage of continuous waves over spark; the start of broadcasting and the loss of 1000 metres and then of 440 metres; the opening of the short-waves below 100 metres and the dawn of international DX; the change of name to the Radio Society of Great Britain in 1923; the challenge from the British Wireless Relay League and later the Radio Transmitters Society and their final coming together with the RSGB as the Transmit & Relay Section; the restrictive new licence conditions of 1925 and how these were partly overcome to become the standard form of 'experimental' licence for amateurs; the launch of the Society's *T & R Bulletin* in July 1925; how the T & R Section took over the former 'prestige' society. Each of these major turning points deserves a full length section in its own right – but space is limited.

When the war ended in November 1918, the authorities were anxious to preserve the use of the radio spectrum for official purposes and were opposed to not only amateur transmitting but also to radio broadcasting. The Society organised a mass petition, signed by 63 clubs representing 30,000 enthusiasts, asking for regular broadcasting to start - resulting in the weekly transmissions from Writtle, 2MT, run by P P Eckersely, G2OO, who soon was to become the first chief engineer of the British Broadcasting Company which began a daily service in late 1922.

A few experimental *receiving* permits were issued from 1919, but it was another year before *transmitting* licences began to be issued with callsigns in the form 2AA etc. At first the amateurs used wavelengths of about 1000 metres (300kHz) but were soon moved to 440 metres and 180–200 metres when the 1000m signals interfered with Croydon airport radio. Spark was permitted but soon valves were used to provide speech (and music) transmissions on 440m,

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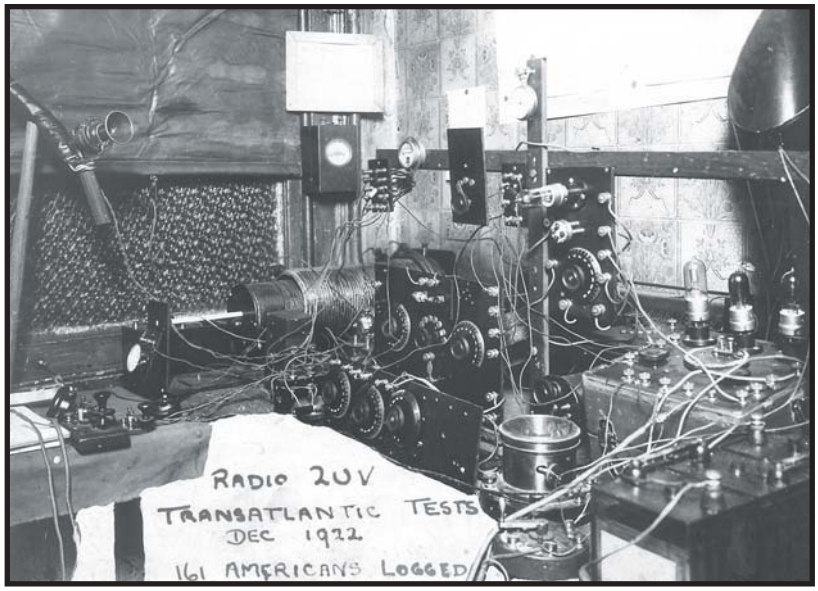
90 YEARS



Top: The station of W E F Corsum, (G)2UV, used for trans-Atlantic tests in December 1922: "161 Americans logged".

Fig 1: Early component layouts, showing the transition from the early breadboard to the completely screened metal chassis. (Source: GWA Dummer)

with occasional permits to provide what amounted to 'special event' broadcasting in an era when there was still no BBC.

By 1920–21, American amateurs who had been allowed back on the air in 1919 after a relatively short wartime suspension, were covering distances of 500, 1000 and even 2000 miles on wavelengths of roughly 200 to 230 metres using both spark and some of the earliest amateur valve transmitters. By now the American Radio Relay League (founded in 1915) had become the dominant society of radio amateurs in the USA. In 1920 ARRL began to organise attempts to transmit across the Atlantic. This was in co-operation with Philip Coursey, 2JK, the research editor of *Wireless World* that until 1925 was the official journal of our Society.

The first tests of February 1921 failed. The Americans believed that the British receivers were to blame and for the second tests in December 1921 sent over a leading American amateur, Paul Godley, 2ZE, with receivers including an early superhet. He set up his receiving station at Ardrossan in Scotland with a long 'Beverage' antenna. Harold Beverage, by then a senior engineer with RCA, was W2BML and met Godley on the ship coming over. During these tests, he logged 27 American and one Canadian stations, but this time several British listeners also heard trans-Atlantic signals.

On 11 December 1921 the special Radio Club of America station, 1BCG, sent the first complete amateur message across the Atlantic. One of the several signatories was Howard Armstrong, one of the most famous names in the history of radio. The tests also settled the 'spark versus continuous-wave' controversy overwhelmingly in favour of valve CW transmitters. During his visit, Paul Godley suggested in a lecture that the key to long distances with low power lay in the use of shorter waves.

The breakthrough came in late November 1923 when Leon Deloy, (F)8AB, a leading French amateur in Nice, was able to make a two-way contact with the ARRL station of Fred Schnell, 1MO, on about 100 metres (3MHz). This initiated a rush by many stations to the higher frequencies – no easy matter with the triode valves of that era, never intended for use above about 1MHz. Jack Partridge, (G)2KF, was the first British amateur to make two-way contact across the Atlantic on 8 December. In January 1924, E J Simmonds, (G)2OD, made contact with the States using a power input of only 30 watts. When student Cecil Goyder worked New Zealand on 80m the following autumn, the professional communications people really woke up to the possibilities of the short waves they had previously scorned. Amateurs were soon coaxing their equipment to ever higher frequencies, opening the way to daytime DX on frequencies up to about 14MHz and within a few years on 28MHz. In October 1928, Jimmy Matthews, G6LL, worked W2JN for the first 28MHz trans-Atlantic contact – and G2FN got across using just 8 watts.

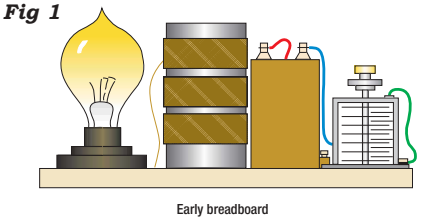
But the influence of the 11-year sunspot cycle was still not recognised – and the band then went dead to DX for another five years. By the end of the '20s, amateurs were hopefully exploring 56 and even 112MHz in the hope their signals would skip around the world!

In the early '20s, the coming of broadcasting threatened to divide and split apart the aims of the Society. Some members were concerned with the pure science of radio and wished to create a learned society; others were by now engaged in industrial development and saw in the Society the embryo of a professional body; some believed it should concentrate on looking after the new non-technical body of radio listeners; finally there were those who held to the original conception of the Society as being primarily for the advance of transmission and reception by amateur experimenters. These divergent views created tensions and the formation of rival societies including the 'British Wireless Relay League' and later the 'Radio Transmitters Society'.

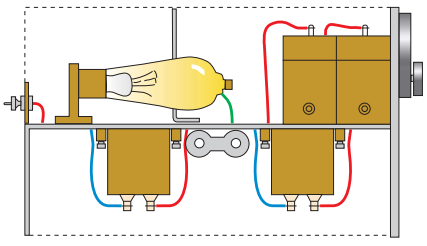
In July 1923, *Wireless World* published a strong warning on "far too much petty rivalry… between individuals and between one amateur society and another. Amateurs are drifting farther apart instead of strengthening the bonds of unity… to describe the situation as serious is in fact a mild expression." This seems to have had an immediate effect and on 21 July 1923 the BWRL invited the Society to take over its management by the appointment of a committee to be selected by holders of transmitting licences. This led to the formation of the 'Transmitter and Relay Section' of the RSGB. But another faction disagreed and formed a 'Radio Transmitters Society' that included many of the most active amateurs. But good sense prevailed and in February 1924 a 'fusion' was arranged between the RTS and the T&R Section of the RSGB. From that day to this, there could be no longer any doubt as to the UK national society for radio amateurs.

The fusion was opportune. In mid-1924, the GPO announced a new form of transmitting licence. This included a total ban on all international working by British amateurs except by special authorisation; working was limited to stations in Great Britain and Northern

Fig 1



Early breadboard



Early metal chassis
(screened grid valve)

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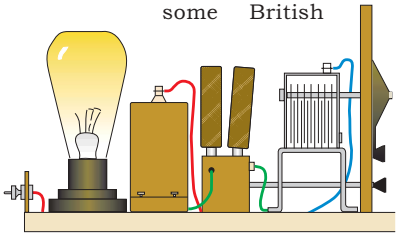
Ireland. Neither the RSGB nor the technical press was prepared to accept these vicious restrictions without a struggle. Both *Wireless World* and *Wireless Weekly* offered to place £500 at the disposal of the Society, to allow a test case to be argued in the courts. It is no secret that this action of *Wireless World* (established and owned by the Marconi Company) led directly to its sale.

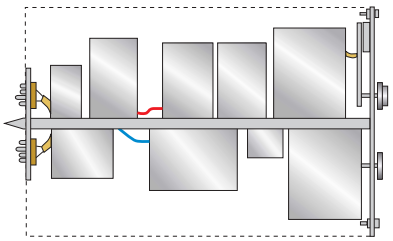
The President (Prof W H Eccles) was able to point to various passages in the Wireless Telegraphy Act of 1904 that the new restrictions appeared to contravene. In the outcome, these legal points were never put to the test. Surprised at the strength and unity of the amateurs, the authorities wavered. The Post Office granted a block permit for the 1924 trans-ocean tests, and this procedure became automatic. International working continued unabated although British amateurs were forbidden to call "CQ"; instead they sent "TEST" and this remained in force until the outbreak of war in 1939 when all amateur 'experimental' licences were withdrawn.

The RSGB's 'T&R Section' soon outshone in members and activity the main body of the Society. The radio industry members formed the 'British Institute of Radio Engineers', the Society made an attempt to 'approve' retail traders, there were prestige dinners, etc. But by the end of the decade, much of this disappeared and the T&R Section, with several hundred active transmitting amateurs, and boosted by the success of its own publication *The T&R Bulletin* that had been started in a modest way in July 1925, in effect took over the Society, that henceforth concentrated solely on the advancement of amateur radio.

By the end of the '20s, some British amateurs were licensed to use up to 1kW, although initially new licensees were limited to 10 watts DC input for at least six months, after which they could apply through the RSGB for 25 watts, and subsequently more. But high power was an expensive luxury. Many parts of the country remained outside the national grid and DC mains supplies were still common.



Breadboard plus control panel



Metal chassis complete screening

One of the few amateurs equipped for high power AM phone was Gerald Marcuse, G2NM.

In 1927, he began, from his home in Caterham, Surrey, a series of broadcasts to the British Empire on 32 metres – the first such transmissions from the UK using a 1.5kW transmitter built with the aid of Cecil Goyder. Goyder, as a 16-year old student at Mill Hill School in north London, had, in October 1924, made on the school station 2SZ the first two-way contact with Frank Bell, Z(L)4AA in New Zealand on a wavelength of about 80m. Amateur radio had girdled the world for the first time.

GROWTH IN THE THIRTIES

After the discoveries and advances made in the turbulent '20s, the following decade, a port before the storm of WWII, was relatively calm. Licence terms and procedures remained much the same throughout. Few fundamental technical breakthroughs were made, yet the average British station in 1939 was very different from those of 1930, with the gradual introduction of factory-built communications receivers (some with crystal-gate filters) although home-built two- and three-valve 'straight' regenerative receivers remained the norm.

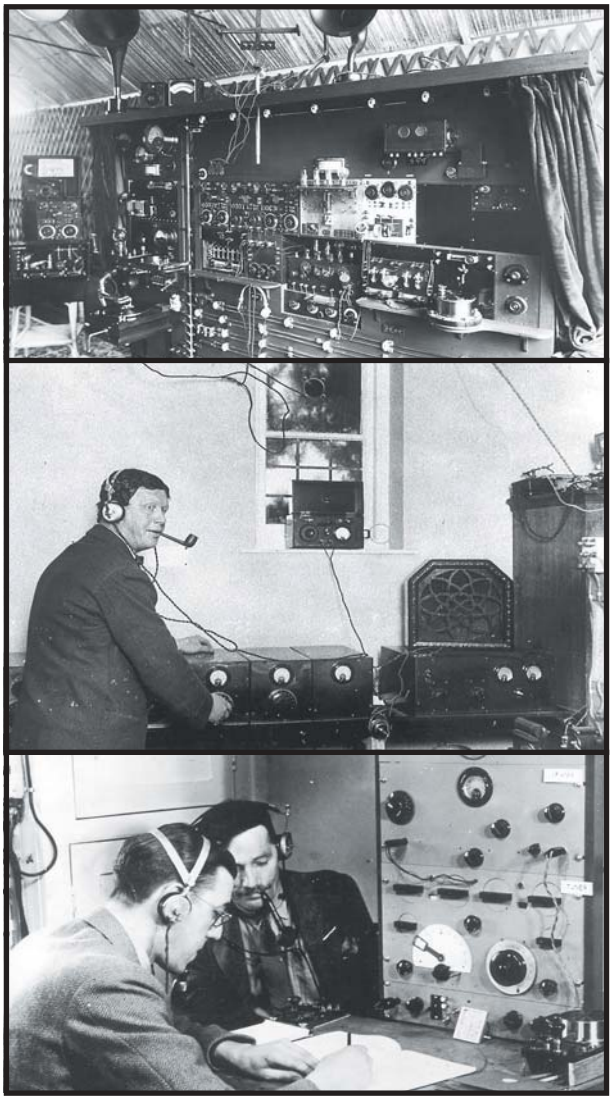
The gradual development of equipment layout during the '20s and '30s is shown in **Fig 1**.

I still recall the thrill I experienced as a newly-licensed schoolboy in 1939 when I contacted on 14MHz CW my first Australian amateur using a two-valve battery receiver and a 10-watt crystal-controlled transmitter, both home-made.

RSGB membership increased from around 1000 in 1930 to almost 4000 by 1939. The Society appointed a full-time General Secretary and Editor (John Clarricoats, G6CL, 'Clarry'). The monthly *'Bull'* grew to some 100 pages an issue. The QSL bureau became a cost-effective means of exchanging the QSL cards that had appeared in the '20s. National Field Day and the British Empire Radio Union (BERU) contest were established as annual events. The 'Worked British Empire' certificate, requiring a contact with a British dominion or colony in each of the continents, was a sought-after award slightly harder to achieve than ARRL's 'Worked All Continents'. The Society published a series of low-cost publications including an annual edition of *A Guide to Amateur Radio*, price 6d (2.5p) that in 1938 was expanded into the first edition of the RSGB's *Amateur Radio Handbook*, price 2s 6d (12.5p), compiled by many of the leading technical cognoscenti among the active amateurs of the period. There was an annual convention, extending over several days and including social functions and technical visits (I recall a memorable visit to the new Alexandra Palace television station in 1938).

By 1939, there were some 2000 'experimental transmitting licences' with G, GI, GM, GW, 2, 3, 4, 5, 6 and 8 and two-letter suffixes, plus some 2000 'artificial aerial' licences permitting the building and installation of transmitting equipment but not operation into a radiating antenna.

Continued on page 49



Top: An elaborate station of the early '20s, 2ND, in 1923.

Middle: Gerry Marcuse, G2NM, and the transmitter on which he launched the first HF Empire broadcasts.

Bottom: 'Dud' Charman, G6CJ, and friend using the first crystal-gate HF communications receiver built in the UK about 1933.

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Icom	IC-706	HF / VHF Mobile Transceiver	£450.00
Icom	IC-706mkII	Mobile Transceiver	£550.00
Icom	IC-706mkIIG	HF / VHF / UHF All Mode Mobile Transceiver	£675.00
Icom	IC-7100	25 - 2000 RECEIVER	£575.00
Icom	IC-71E	Receiver	£325.00
Icom	IC-720A	HF & FM Transceiver	£400.00
Icom	IC-728	HF Transceiver	£400.00
Icom	IC-735	Base Or Mobile Transceiver	£399.00
Icom	IC-740	HF Base Transceiver	£350.00
Icom	IC-740	HF Transceiver	£350.00
Icom	IC-746	HF / 6m / 2m Built In ATU	£875.00
Icom	IC-756	HF / 6M All Band Transceiver	£950.00
Icom	IC-756	12 Volt Base Transceiver	£950.00
Icom	IC-756pro	High Class Transceiver	£1,600.00
Icom	IC-756proII	High Class HF / 6m Transceiver	£1,750.00
Icom	IC-781	Icom Top Class Transceiver	£1,600.00
Icom	IC-821H	Dual Band Base - All Mode	£599.00
Icom	IC-910	2m / 70cms Base Transceiver	£999.00
Icom	IC-M3Euro	Marine Handheld	£100.00
Icom	IC-R100	100kHz - 1.85GHz Receiver	£199.00
Icom	IC-R2	Handheld Scanner	£99.00
Icom	IC-R2	Handheld Scanner	£99.00
Icom	IC-R7000	MINT CONDITION!!! Receiver	£550.00
Icom	IC-R71E	Receiver	£325.00
Icom	IC-R72	Receiver	£350.00
Icom	IC-T21E	2m Handheld Transceiver	£60.00
Icom	IC-W2E	2m / 70cms Handheld Transceiver	£140.00
Icom	PS-55	Power Supply Matching IC-735	£100.00
Icom	RC-7000	Remote Control	£40.00
Icom	SM-8	Desktop Microphone	£70.00
Icom	SP-12	Speaker	£30.00
Icom	SP-20	External Speaker	£99.00
Icom	SP-3	Speaker	£20.00
Icom	SP-7	Speaker	£20.00
Icom	UT-84	Tone Squelch Unit	£25.00
JPS	NIR-10	Noise / Interference Reduction Unit	£99.00
JRC	JST-245	HF 50MHz 1500w AC BaseTransceiver	£1,295.00
JRC	NRD-345N	HF Receiver	£275.00
JRC	NRD-525	HF Receiver	£375.00
JRC	NRD-545DSP	HF DSP Receiver	£975.00
JRC	NRD-L2000	1kW Linear Amplifier Solid State (VERY RARE!!!)	£1,600.00
Kamtronics	KAM	Multimode TNC	£140.00
Kent	RA	Morse Paddle Key	£40.00
Kenwood	BC-15	Rapid Charger	£35.00
Kenwood	DM-81	Dip Meter Including Coils	£55.00
Kenwood	HS-5	Headphones	£25.00
Kenwood	MC-80	Desk Microphone	£40.00
Kenwood	PS-10	Power Supply for TR-9130 etc.	£40.00
Kenwood	PS-430	Power Supply	£100.00
Kenwood	PS-50	Power Supply	£145.00
Kenwood	R-2000	Receiver	£225.00
Kenwood	R-5000	Receiver	£499.00
Kenwood	R-5000	Receiver With VHF Converter	£600.00
Kenwood	R-600	Receiver	£175.00
Kenwood	RZ-1	Wide Band Receiver - Car Radio Size	£130.00
Kenwood	SW-100E	SWR Meter	£25.00
Kenwood	SW-200A	SWR Meter	£60.00
Kenwood	TH-215E	2m Handheld Transceiver	£99.00
Kenwood	TH-235	2m Handheld Transceiver	£85.00
Kenwood	TH-47E	70cms Handheld Transceiver	£80.00
Kenwood	TH-79E	2m / 70cms Handheld Transceiver	£175.00
Kenwood	TH-F7E	Dual Band Handheld	£199.00
Kenwood	TH-G71E	Dual band Handheld Transceiver	£170.00
Kenwood	TL-120	Low Drive Linear Amplifier 100W HF	£150.00
Kenwood	TL-922	1 kW Amplifier	£899.00
Kenwood	TM-241E	2M Mobile Transceiver	£120.00
Kenwood	TM-251E	Mobile Transceiver	£140.00
Kenwood	TM-255E	2m Multimode Transceiver (Fair Condtion)	£299.00
Kenwood	TM-255E	2m Multimode Transceiver (MINT)	£395.00
Kenwood	TM-431E	70cms Mobile Transceiver	£110.00
Kenwood	TM-455E	70cms Multimode Mobile Transceiver	£450.00
Kenwood	TM-D700E	Dual Band Built In TNC	£299.00
Kenwood	TR-2400	2m Handheld Transceiver	£50.00
Kenwood	TR-751E	2m Multimode Transceiver	£250.00
Kenwood	TS-450SAT	HF Base / Mobile With Built In ATU	£550.00
Kenwood	TS-50S	HF Mobile / Base Variable Power	£425.00
Kenwood	TS-520	HF Base Transceiver	£99.00
Kenwood	TS-570DGE	Mobile / Base HF Transceiver	£675.00
Kenwood	TS-60S	6m 100W Mobile Transceiver	£450.00
Kenwood	TS-711E	2m Multimode Base (AC)	£399.00
Kenwood	TS-850SAT	HF Base Station with Built In ATU	£699.00
Kenwood	TS-940SAT	Mains HF Base Transceiver with Built In ATU	£599.00
Kenwood	TS-950SD	HF 150W DSP Base Station	£1,200.00
Kenwood	TS-950SDX	Kenwood's Flag Ship	£1,650.00
Kenwood	VC-10	VHF Converter	£99.00
Kenwood	YG-455CN-1	270Hz CW Crystal Filer	£100.00
Kenwood	YK-88C-1	500Hz CW Narrow Filter	£40.00
Kenwood	YK-88CN1	270Hz CW Filter 8.83MHz	£40.00
Kenwood	YK-88S-1	2.4KHz SSB Narrow Filer 8.83MHz	£40.00
Kenwood	YK-88SN	1.8K SSB Filter	£40.00
Kenwood	YK-88SN-1	1.8KHz SSB Narrow Filter 8.83MHz	£40.00
Linear Amp	6 METRE	6m Linear Amplifier	£550.00
Lowe	HF-225	HF Receiver	£150.00
MFJ	MFJ-1272B	TNC / Mic Switch	£20.00
MFJ	MFJ-1278	TNC All Mode	£175.00
MFJ	MFJ-722	CW / SSB Filter with 5 Watts Amp	£59.00
MFJ	MFJ-921	VHF 200 Watt ATU	£50.00
MFJ	MFJ-962D	1.8 - 30MHz, 1kW Antenna Tuning Unit	£199.00
Microwave	28/144	28 / 144 MHz Transverter	£125.00
Microwave	MML-432/50	50 Watt 70 cms Amp, with Built-In-PreAmp	£85.00
Microwave	Pre-Amp	Low Noise RF Switched Pre-Amp	£25.00
Nissei	TM-3000	1.6 - 60MHz, 10W / 3kW, SWR Meter	£49.00
OptoElectronics	MiniScout	Frequency Counter	£129.00
PacCom	TINY II	TNC	£99.00
PacCom	TNC-320	TNC	£90.00
PalStar	300LCN	HF Antenna Tuner (AS NEW)	£120.00
Pres. Lincoln	10 METRE	10 Metre Multimode	£175.00
Quantek	FC-2000	1MHz - 2.4GHz Frequency Counter	£30.00
RadioShack	Pro-60	200 Channel Handheld Scanner (30MHz - 999MHz, WITH GAPS)	£99.00
Realistic	DX-394	Base Scanner / Receiver	£99.00
RevCo	RS-2000	60 - 519 MHz Home Base Scanner	£79.00
Sabtronics	8610B	Frequency Counter	£30.00
Sangean	ATS-909	World Band Receiver	£130.00
SEM	MultiFilter	MultiFilter	£20.00
SEM	SEM	QRM Eliminator	£20.00
SGC	SG-2020	HF Transceiver	£450.00
Sommerkamp	FT-290R	2m Multimode Transceiver	£150.00
Sony	ICF-Pro80	Air Band Receiver	£40.00
Sony	SW-100E	FM/SW/MW/LW Portable Receiver	£90.00
Spectrum	RP-6S		£20.00
Standard	C-156E	2m Handheld Transceiver	£125.00
Standard	C-500	Dual Band Handheld	£99.00
Standard	C-510	2m / 70cms Handheld Transceiver	£125.00
Standard	C-510E	Dual Band Handheld	£99.00
Swedish	Key	Straight Morse Key	£25.00
Ten-Tec	515 Argonaut		£200.00
Timewave	DSP-599ZX	DSP Filter	£225.00
Tokyo	HL-30V	2m - 25W Amplifier	£75.00
Tokyo	HL-37V	Linear Amplifier	£60.00
Tono	T-777	Communications Terminal	£120.00
Transverter	QM-70	28/144 Transverter	£100.00
Trident	TRX-200	Latest Scanner	£175.00
Trio	R-1000	AC HF Receiver	£120.00
Trio	R-2000	Receiver plus Converter	£225.00
Trio	TR-9000	2m Multimode	£199.00
Trio	TR-9130	2m All Mode Transceiver	£250.00
Watson	W-25AM	25 Amp Power Supply	£65.00
Welz	AC-38M	200W Mobile Matching Network	£50.00
Welz	CH-20A	Antenna Switch	£15.00
Welz	CH-20N	Antenna Switch	£15.00
Welz	CT-300	300W / 1kW Peak Dummy Load	£65.00
WinRadio	WR-1550E	Trunking Software	£450.00
Yaesu	ATAS-100	Yaesu Active Tuning Antenna System	£175.00
Yaesu	FEX-767-2m	2m Module for FT-767	£175.00
Yaesu	FEX-767-6m	6m Module for FT-767	£175.00
Yaesu	FL-2025	Amplifier	£90.00
Yaesu	FP-501DX	Low Pass Filter	£20.00
Yaesu	FP-700	Power Supply	£100.00
Yaesu	FP-707	Power Supply Unit	£80.00
Yaesu	FP-757GX	Power Unit for FT-757	£300.00
Yaesu	FR-101	HF, 2m, 6m Base Transceiver	£399.00
Yaesu	FRG-8800	Receiver Including Converter	£399.00
Yaesu	FRG-9600	Receiver MINT!!!	£200.00
Yaesu	FRT-7700	Antenna Tuner for FRG-7700	£60.00
Yaesu	FRV-7700	Converter for FRG-7700	£60.00
Yaesu	FT-100	HF / 6m / 2m / 70cms Mobile Transceiver	£599.00
Yaesu	FT-1000MPmkV	200W DSP HF Transceiver	£1,800.00
Yaesu	FT-101B	HF Base Transceiver	£99.00
Yaesu	FT-101ZD	HF Base Transceiver	£275.00
Yaesu	FT-2600M	Mobile VHF / FM Transceiver	£120.00
Yaesu	FT-290RMKII	2m Multimode Mobile Transceiver with Amplifier	£250.00
Yaesu	FT-41R	Handheld Transceiver	£120.00
Yaesu	FT-50R	Dual Band Handheld	£150.00
Yaesu	FT-5100	Dual Band Transceiver	£199.00
Yaesu	FT-51R	2m / 70cms Handheld Transceiver	£199.00
Yaesu	FT-650AC	26-50MHz 100w Base Station Transceiver (MINT!!)	£525.00
Yaesu	FT-690RMKI	6m Multimode Mobile Transceiver	£199.00
Yaesu	FT-7100M	Dual band Mobile Transceiver	£225.00
Yaesu	FT-726R	6m / 2m / 70cms Transceiver	£575.00
Yaesu	FT-730R	70cms Mobile Transceiver	£120.00
Yaesu	FT-736R	2m / 70 cms Base Transceiver	£575.00
Yaesu	FT-757GX	HF Transceiver	£350.00
Yaesu	FT-76R	70 cms Handheld Transceiver	£99.00
Yaesu	FT-790R	70cms Multimode Transceiver	£175.00
Yaesu	FT-790RmkII	70cms Multimode Transceiver	£250.00
Yaesu	FT-8100R	2m / 70 cms Dual Band Mobile Transceiver	£225.00
Yaesu	FT-840	HF Base / Mobile Transceiver	£399.00
Yaesu	FT-847	HF 6m / 2m / 70cms Transceiver	£850.00
Yaesu	FT-900AT	HF Mobile / Base Built In ATU	£550.00
Yaesu	FT-920AF	HF / 6M Base Transceiver	£899.00
Yaesu	FTV-1000	200 W Transverter	£599.00
Yaesu	FTV-430MHZ	Module for Transverter	£99.00
Yaesu	FTV-707	Including 6m *AS NEW*	£99.00
Yaesu	FTV-707	2m Multimode Transverter	£125.00
Yaesu	FTV-901	Transverter including 2m Module	£165.00
Yaesu	FTV-902DM	Transverter	£225.00
Yaesu	FV-102DM	Digital VFO	£150.00
Yaesu	FV-707	VFO Unit	£99.00
Yaesu	FV-901	Digital VFO	£175.00
Yaesu	G-650	Rotator	£300.00
Yaesu	G-800SDX	Rotator	£300.00
Yaesu	KP-100	FRG-100 Key Pad	£25.00
Yaesu	MD-1	Desk Microphone	£55.00
Yaesu	MD-100A8X	Desk Microphone	£80.00
Yaesu	MH-35	Speaker Microphone	£10.00
Yaesu	MMB-16	Mounting Bracket	£20.00
Yaesu	MW-1	Remote Control Microphone & Infra-Red	£60.00
Yaesu	NC-29	Battery Charger	£30.00
Yaesu	NT-29	Charger	£30.00
Yaesu	SP-55	Mobile Speaker	£15.00
Yaesu	SP-980	Speaker with Built In Filters	£60.00
Yaesu	System 600	HF Commercial Radio	£600.00
Yaesu	VR-120	FM / WFM / AM Receiver	£99.00
Yaesu	VR-500	Yaesu Handheld Scanner	£149.00
Yaesu	VR-5000	Top Class Base Scanner	£450.00
Yaesu	VX-1R	Handheld Transceiver	£120.00
Yaesu	XF-114SN	2KHz SSB Filter	£60.00
Yaesu	YO-901	Scope	£250.00
Yupiteru	MVT-3300	Handheld Scanner	£99.00
Yupiteru	MVT-7300	Multiband Handheld Scanner	£199.00
Yupiteru	MVT-8000	Base / Mobile Scanner	£199.00

RSGB

To celebrate the RSGB's 90th birthday, the RSGB is holding a 'Party in the Park'. Each of the Society's 57 UK Districts has been invited to organise an event open to the general public.

Each RSGB district will also have an opportunity to take part in the 'Great Birthday Party' by putting on a special event station and operating the 'Special (Special)' callsign agreed by the RA for this commemorative occasion. The format of the callsign is GB90RSGB/*, where * is the RSGB district number, eg GB90RSGB/11. A complete list of the districts and district numbers can be found on page 14 of the June 2003 *RadCom*.

A special 90th anniversary award certificate is available for those making contact with (or SWLs hearing) the GB90RSGB stations. Full details can be found on page 7.

BADGES & GOODIES

The RSGB has produced a special commemorative pin badge to celebrate our 90th anniversary. This metal badge is 22mm by 29mm, finished in a hardwearing glossy UV resistant glaze and has a durable butterfly clip. This pin is free of charge to our members! To obtain your badge come to any of the 'Party in the Park' events listed on these pages and pick your badge up free of charge from the event. Should you be unable to attend a party you can send a stamped SASE to RSGB HQ who will send one to you (please ensure that the envelope is a 'jiffy' type to avoid damage to your badge). Stocks are limited and will be distributed on a first-come first-served basis.

Other commemorative items such as the mug, pens – and RSGB beer – are also available – see the advertisements elsewhere in the magazine for details of how to order.

As of the date of going to press, we have received details of the following 'Party in the Park' events. We expect more to be organised between now and 26 July!

GB90RSGB/82

1. Bangor and District Amateur Radio Club
2. Location in Cloughey, Co Down
3. Jeff Smith, MI0AEX, RRM 8; e-mail: blackstaff@nireland.com
4. Sat 26/7 & Sun 27/7
5. Expanded club event with BBQ, IOTA station, ATV demonstration.

GB90RSGB/31

1. Whitehaven Radio Club, Workington & District Amateur Radio & IT Group
2. Whitehaven Sea Cadet Corp HQ
3. Norman Williams, M0CRM, tel: 01946 692 462; e-mail: norman72@btinternet.com
4. Sat 26/7 & Sun 27/7
5. Special event stations, barbeque

GB90RSGB/32

1. Chorley & District Amateur Radio Society
2. The Viewpoint, Anglezarke Reservoir
3. Sean Flanagan, M1SMF, tel: 07944 515045; e-Mail sean1226@hotmail.com
4. Sat 26/7
5. Open air special event station, refreshments, guides on hand to tell visitors about the event.

GB90RSGB/34

1. Three Counties Foundation Team (club members from various clubs in Cheshire, Merseyside and Wales)
2. The Beacons, Simons Lane, Frodsham
3. Dave Wilson, M0OBW, tel: 01270 761608; e-mail: dwilson@btinternet.com
4. Sat 26/7 & Sun 27/7
5. Special event stations on HF, VHF, UHF, barbecue, RSGB bookstall, RSGB presentation.

GB90RSGB/62

1. North Wales Radio Rally Club & Wrexham ARC.
2. Eirias Park, Colwyn Bay
3. Ted Shipton; tel: 01745 336939; Liz Cabban, GW0ETU, tel: 01690 710257; e-mail: Lizandthecats@Telco4u.Net
4. Sat 26/7 & Sun 27/7
5. HF/VHF stations, BBQ, club displays, bring and buy. All clubs In North Wales and visitors to North Wales are invited to come along.

GB90RSGB/72

1. Aberystwyth and District ARS
2. Aberystwyth Cliff Railway, Constitution Hill, Aberystwyth (Eifion, MW0DEW, tel: 01970 617642)
3. Ray Ricketts, GW7AGG, tel: 01970 611853; e-mail: mwmg01@aber.ac.uk
4. Sun 27/7 (10.00am - 2.00pm)
5. Picnic and car boot sale on Constitution Hill, Aberystwyth

GB90RSGB/51

1. Moorlands & DARS
2. Creda Works, Blythe Bridge, Stoke-on-Trent, Staffordshire.
3. Paul Stevenson, M5DAD; tel: 01782 542 944; e-mail: m5dad@qsl.net
4. Sat 26/7
5. Barbecue, fun evening and club garden clearance on the 26th with special event station, GB90RSGB/51 to run on 26th operating on HF and 2m.

GB90RSGB/54

1. Rugby ATS
2. The Cricket Pavilion, BT Transmitting Station, Watling Street, Rugby.
3. Tony Humphries, tel: 0145 5552519; e-mail: THumph3426@aol.com
4. Sat 26/7 & Sun 27/7
5. Barbecue and fun evening, on the 26th with special event station to run on the 26th and 27th operating on HF, 6m, 4m and 2m from the site of the famous LF transmitter at Rugby.

GB90RSGB/52

1. Solihull ARS
2. First Sheldon Scout HQ, (Sheldon Country Park), Ragley Drive, Sheldon, Birmingham
3. Paul Gaskin, G8AYY, tel: 0121 542 721.
4. Sat 26/7 (pm) & Sun 27/7
5. Demonstration station GB90RSGB/52 and club station GX3GEI/P operating on both days on HF and 2m, plus Internet-linking via GB3DX. There will be computer games for the younger ops, a party, and food 'n' fun for all the family, with the usual park attractions, including children's playground, 17th century working farm, animals, a picnic area and nature walks. The park also has facilities for the disabled. The Scout Headquarters and farm are located at the park entrance (NGR SP152846). The Farm House and nearby St Giles Church are of his-

'Party
26–27 JULY 2003

toric interest, the latter dating from 1330. Car parking and refreshments available.

GB90RSGB/53

1. Hereford ARS
2. 'Cranwell', Dinedor, Hereford.
3. Keith Hales, tel: 01432 870244; e-mail: k.hales@ntlworld.com
4. Sat 26/7 & Sun 27/7
5. Barbecue on the 26th with special event station, GB90RSGB/53 to run on 26th and 27th operating on HF, 6m and 2m.

GB90RSGB/102

1. Chippenham & DARC
2. Chippenham Sea Scout *TS Tiger*, Long Close, Chippenham, Wiltshire (NGR ST929727)
3. Ian Carter, G0GRI, tel: 01225 864698 (evenings and weekends); e-mail: g0gri@btinternet.com
4. Sat 26/7
5. 24-hour special event station GB90RSGB/102. Those taking part will be sponsored with funds raised donated to the Wiltshire Wildlife Trust. The station and club room will be open to all, including the general public, between 2.00pm and 5.00pm. The RRM and DRRM for Wiltshire will be on hand to meet and greet and deal with enquiries, etc. Demonstrations/displays, space permitting, TBC. Refreshments available throughout the day. Access for disabled and car parking on site. There is space for picnicking and the site is with easy walking distance of the shops, park, pitch-and-putt golf course, leisure centre and cycle route. A location map is available on request either by phone, e-mail or letter to G0GRI QTHR (please send SASE).

GB90RSGB/113

1. G6PZ Contest Group, Weston-Super-Mare Radio Society
2. Easter Town Playing Field Common, near Weston-Super-Mare
3. P G Smith, G3TJE, e-mail: G3TJE @lineone.net; S K Cole, G3YOL, e-mail: cole@halebrook.freeserve.co.uk; Barry Scarisbrick, G4ACK, RRM 11; tel: 01749 677326; e-mail: G4ACK@rsgb.org.uk
4. Sat 26/7 & Sun 27/7
5. G6PZ operating in the RSGB IOTA Contest Sat 1200 - Sun 1200UTC. RSGB 90th birthday celebrations before and after. G6PZ birthday party BBQ, lots of invited non-amateur radio guests, getting amateur radio out in the open.

GB90RSGB/112

1. Torbay ARS
2. Cherston Ferrars Grammar School, Cherston, Brixham, South Devon
3. Pam Helliwell, DRRM 112, e-mail: pam.helliwell@tesco.net
4. Sat 26/7 and/or Sun 27/7 (dependant upon availability)
5. Portable operation open to general public, publicised in Torbay.

GB90RSGB/41

1. Derwentside Amateur Radio Club
2. 43 Derwent Street, Blackhill, Consett
3. Geoff Darby, G7/M3GJU, tel: 0191 370 2032; e-mail: g7gju@rsgb.org.uk
4. Sat 26/7
5. Coffee time and radio on the air.

GB90RSGB/42

1. Goole Radio and Electronics Society, Hornsea ARC
2. –
3. Andy Russell, G0VRM, tel: 01430 801122; e-mail: g0vrm@rsgb.org.uk
4. Sat 26/7 (& poss 27/7 also)
5. Outdoor BBQ with visitors from local radio clubs.

GB90RSGB/123

1. Chelmsford Amateur Radio Society (www.g0mwt.org.uk)
2. Sandford Mill Radio Museum, Chelmsford
3. David Bradley, M0BQC, tel: 01245 602838; e-mail: info@g0mwt.org.uk
4. Sun 27/7
5. Sandford Mill Radio Museum is located in an idyllic setting by the River Chelmer. The radio museum is open to the public from 2.00pm until 5.00pm on Sunday 27 July and the club station will be operated from the original 2MT (Writtle) radio hut now preserved inside the museum. Parking and entrance to the museum is free.

GB90RSGB/104

1. Andover ARC
2. Andover, Hants (venue TBA)
3 –
4. Sat 26/7 and/or Sun 27/7
5. Operating GB90RSGB/104.

GB90RSGB/101

1. Oxford & District Amateur Radio Society
2. 'The Den', Youlbury International Scout Camp, Boars Hill, Oxford OX1 5HD.
3. Paul J Goodhall, M3JFM, DRRM101. Tel: 0771 9114134; E-mail: PBRS176562@aol.com.
4. Sat 26/7
5. The event is organised with the help of the team from GB4YOU, the International Short Wave League (ISWL) and the World Association of Christian Radio Amateurs and Short Wave Listeners (WACRAL). Special event station on air 0900 till late on 80-10m CW, SSB, and BPSK31. Talk-in station G5LO/P on air 0900. Event opens 1000 and closes 1700. A 20-question amateur radio quiz and raffle. In 'The Den' will be a display of amateur radio equipment, books and magazines covering the 90 years of the RSGB. Local radio clubs have been invited to put on a table-top display to publicise their club. Members of the Youlbury Scout and Guide Amateur Radio Station team, GB4YOU, will have a stand promoting amateur radio for the Scout and Guide movement. ISWL and WACRAL will have a display of their archive material. The ladies of the Isis Scout Fellowship will be selling refreshments and sandwiches from the kitchen in the Den. Youlbury International Scout campsite is in 40 acres of woodland three miles south west of Oxford. There is plenty of car parking on site, however, no caravans are permitted by order of the camp site warden.

Get your RSGB beer direct from the brewer to help your 'Party in the Park' go with a swing.

GB90RSGB/91

1. Whitton Radio Group
2. Whitton Community Centre, tel: 0208 939 9021
3. Garo Molozian, e-mail: Garo@easy-dial.com; Paul Berkeley, M0CJX; tel: 01737 279108; e-mail: m0cjx@ntlworld .com
4. Sun 27/7
5. High-power special event station provided by Icom, table-top sale with some major traders in attendance, refreshments. Stall and entry fees to be by donation to GB4FUN fund.

GB90RSGB/103

1. Crawley Amateur Radio Club (www.carc.org.uk)
2. Hut 18, Tilgate Recreational Centre, Tilgate Forest, Crawley; tel: 0772 006 8493
3. Stewart Bryant, G3YSX; e-mail: stewart.bryant@virgin.net
4. Sat 26/7 1030-1700, Sun 27/7 1030-1300
5. All visitors welcome to CARC club house and shack, which will be operational as Crawley &DARC operating as GB90RSGB/103 on all bands up to 23cm. Tea and coffee will be served throughout the day, with a barbeque at lunch time. For directions please see www.carc.org.uk/html/mapfind.html ◆

KEY TO PARTY IN THE PARK EVENTS

1. Organising club
2. Location of 'Party in the Park' event
3. Contact person
4. Date of event (Sat 26/7, Sun 27/7, both days).
5. What is happening.

in the Park'

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18" T & K Bracket *(complete with U Bolts)* £17.95
24" T & K Bracket *(complete with U Bolts)* £19.95
36" T & K Bracket *(complete with U Bolts)* £29.95
Chimney lashing kit £12.95
Double chimney lashing kit £24.95
3-Way Pole Spider for Guy Rope/ wire £3.95
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Solid copper earth rod 4' £9.95
Pole to pole clamp 2"-1.5" £4.95
Di-pole centre (for wire) £4.95
Di-pole centre (for aluminium rod) £4.95
Dog bone insulator £1.00
Dog bone insulator heavy duty £2.00

5ft POLES H/DUTY (SWAGED)

Heavy Duty Ali (1.2mm wall)
1 1/4" single 5' ali pole £7.00
1 1/4" set of four (20' total approx) £24.95
1 1/2" single 5' ali pole £10.00
1 1/2" set of four (20' total approx) £34.95
1 3/4" single 5' ali pole £12.00
1 3/4" single 5' ali pole (20' total approx) £39.95
2" single 5' ali pole £15.00
2" set of four (20' total approx) £49.95
(All swaged poles have a push fit to give a very strong mast set)

REINFORCED HARDENED FIBRE GLASS MASTS (GRP)

1 1/2" Diameter 2 metres long £16.00
1 3/4" Diameter 2 metres long £20.00
2" Diameter 2 metres long £24.00

GUY ROPE 30 METRES

MGR-3 3mm (maximum load 15 kgs) £6.95
MGR-4 4mm (maximum load 50 kgs) £14.95
MGR-6 6mm (maximum load 140 kgs) £29.95

CABLE & COAX CABLE

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RG58 best quality military spec per mt 60p
Mini 8 best quality military spec best quality per mt 70p
RG213 best quality military spec per mt 85p
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3-core rotator cable per mt 45p
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PHONE FOR 100 METRE DISCOUNT PRICE.

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PL259/9 ..... £0.75 each
PL259/6 ..... £0.75 each
PL259/7 for mini 8 ..... £1.00 each
BNC (Screw Type) ..... £1.00 each
BNC (Solder Type) ..... £1.00 each
BNC for 9mm (RG213) £2.50
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N TYPE for RG213 ..... £2.50 each
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PL259 to BNC ..... £2.00 each
N TYPE to SO239 ..... £3.00 each
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SMA to SO239 ..... £3.95
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MB-4 4:1 Balun 400 watts power £24.95
MB-6 6:1 Balun 400 watts power £24.95
MB-1X 1:1 Balun 1000 watts power £29.95
MB-4X 4:1 Balun 1000 watts power £29.95
MB-6X 6:1 Balun 1000 watts power £29.95
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CS201 Two-way di-cast antenna switch. Freq: 0-1000MHz max 2,500 watts SO239 fittings £18.95
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CS401 Same spec as CS201 but4-way £49.95

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AR-31050 Very light duty TV/UHF £24.95
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RG5-3 Heavy Duty HF inc Pre Set Control Box £449.95
AR26 Alignment Bearing for the AR300XL £18.95
RC26 Alignment Bearing for RC5-1/3 ..... £49.95

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Turbo mag mount 7" 4mtrs coax/PL259 3/8 or SO239 ..... £14.95
Tri-mag mount 3 x 5" 4mtrs coax/PL259 3/8 or SO239 ..... £39.95
Hatch Back Mount (stainless steel) 4 mts coax/PL259 3/8 or SO239 fully adjustable with turn knob £29.95
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SO259 fitting £14.95
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SO259 fitting £12.95
Hatch Back Mount 3/8 4mtrs coax/PL259 ..... £12.95
Roof stud Mount 4mts coax/PL259 3/8 or SO239 fitting £12.95

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Enamelled copper wire 16 gauge(50mtrs) £9.95
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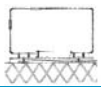
(Other lengths available, please phone for details)

HF BALCONY ANTENNA

BAHF-4 FREQ:10-15-20-40 Mtrs LENGTH: 1.70m HEIGHT: 1.20m POWER: 300 Watts £129.95



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TMAF-1 2" to 1 1/4" heavy duty fibreglass telescopic mast set, approx 20ft when erect, 6ft collapsed £99.95
TMAF-2 2 1/4" to 1 1/4" heavy duty telescopic fibreglass mast set, approx 40ft when erect, 9ft collapsed £189.95

HF YAGI

HBV-2 2 BAND 2 ELEMENT TRAPPED BEAM FREQ:20-40 Mtrs GAIN:4dBd BOOM:5.00m LONGEST ELEMENT:13.00m POWER:1600 Watts £329.95

ADEX-3300 3 BAND 3 ELEMENT TRAPPED BEAM FREQ:10-15-20 Mtrs GAIN:8 dBd BOOM:4.42m LONGEST ELE:8.46m POWER:2000 Watts £269.95

ADEX-6400 6 BAND 4 ELEMENT TRAPPED BEAM FREQ:10-12-15-17-20-30 Mtrs GAIN:7.5 dBd BOOM:4.27m LONGEST ELE:10.00m POWER:2000 Watts £499.95
40 Mtr RADIAL KIT FOR ABOVE £99.00

HF VERTICALS

VR3000 3 BAND VERTICAL FREQ: 10-15-20 Mtrs GAIN: 3.8 dBd HEIGHT:3.80m POWER:2000 Watts (without radials) POWER: 500 Watts (with optional radials) £89.95
OPTIONAL 10-15-20mtr radial kit £34.95

VR5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN:3.5 dBd HEIGHT:4.00m RADIAL LENGTH:2.30m (included). POWER: 500 Watts £169.95

EVX4000 4 BAND VERTICAL FREQ:10-15-20-40 Mtrs GAIN:3.5 dBd HEIGHT:6.50m POWER:2000 Watts (without radials) POWER:500 Watts (with optional radials) £99.95
OPTIONAL 10-15-20mtr radial kit £34.95
OPTIONAL 40mtr radial kit £12.95

EVX5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN:3.5 dBd HEIGHT:7.30m POWER:2000 Watts (without radials) POWER:500 Watts (with optional radials) £139.95
OPTIONAL 10-15-20mtr radial kit £34.95
OPTIONAL 40mtr radial kit £12.95
OPTIONAL 80mtr radial kit £14.95

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(Hi Grade Heavy Duty Commercial Antennas)

UTD160 FREQ:160 Mtrs LENGTH:28m POWER:1000 Watts £44.95
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MTD-2 (2 BAND) FREQ:40-80 Mtrs LENGTH: 20Mtrs POWER:1000 Watts £44.95
MTD-3 (3 BAND) FREQ:40-80-160 Mtrs LENGTH: 32.5m POWER: 1000 Watts £89.95
MTD-4 (3 BAND) FREQ: 12-17-30 Mtrs LENGTH: 10.5m POWER: 1000 Watts £44.95
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(MTD-5 is a crossed di-pole with 4 legs)

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30mtr RG213 Mil spec PL259 to PL259 lead £29.95
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CS401 4-WAY ANTENNA SWITCH

★ 2.5kW power ★ 0-1000MHz
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Book Review

ENIGMA U-BOATS – BREAKING THE CODE. THE TRUE STORY

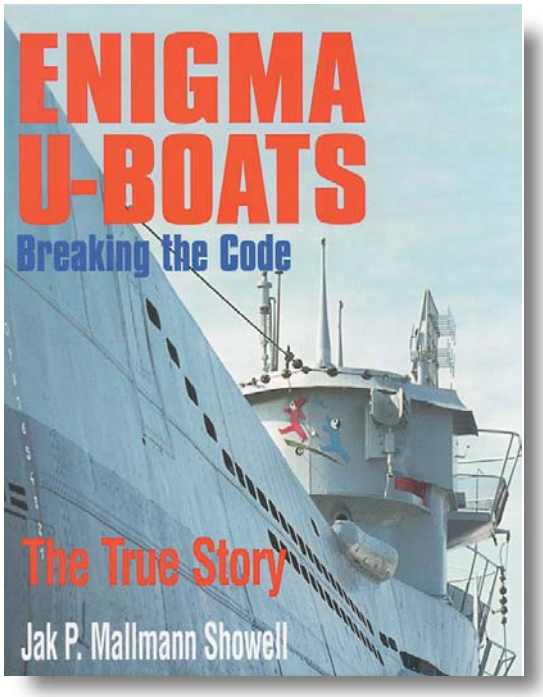
By Jak P Mallmann Showell
Reviewed by Pat Hawker, G3VA

This well produced and profusely illustrated (300 photographs) book is not an easy one for a radio amateur to review. It has clearly been written as a reply to several films that have tended to give a misleading impression of how numbers of German Navy Enigma machines were seized in the course of daring capture and boarding of the U-boats. These machines used up to seven code wheels, and in effect were impenetrable for months to the Bletchley Park ('BP') cryptanalysts. It was vital that some machines and their associated books of settings were seized; it to the great credit of the Royal Navy that this was done.

These operations are explained in detail and should prove of great interest to students of naval warfare. The book also has a good chapter on the German Navy Radio System and the giant Goliath transmitter. It also explains how messages intended "for officers' eyes only" were frequently read by the telegraphists by counting back to the special setting while the officer dashed off to give the message to the U-boat commander. It also gives details of the 'letter code' based on Morse code given to U-boat officers to enable them to pass back information from POW camps.

The U-boat radio traffic on which Bletchley Park depended was often sent only in very short messages at 'burst' rates. Again HF direction finding, in spite of its problems, played an important role in the vital battle. Without the defeat of the Atlantic U-boats in 1943, the war might well have been lost.

The book provides many recent illustrations of the Bletchley Park estate but is more sketchy on the wartime work there. Little is shown of the pre-war work of the Government Code & Cipher School and the secrecy surrounding the original Enigma developed for commercial purposes. One machine was purchased and declared unbreakable by GC&CS, until the Poles with French assistance showed that even the military version could be broken.



The author is a recognised authority on naval warfare if a bit more at sea in respect of interception and code-breaking. I feel sure the book will be eagerly devoured by those fascinated by the Enigma saga and the daring-do exploits of the Royal Navy.

The book is available from the RSGB Shop at a specially discounted price of £14.99 for RSGB members, a saving of 25% on the cover price.

ENIGMA U-BOATS – BREAKING THE CODE. THE TRUE STORY
By: Jak P Mallmann Showell
First published by: Ian Allan Publishing 2000 (reprinted 2002)
192 pages large format (255 x 200mm)
ISBN: 0 7110 2764 1
Member's price: £14.99 (non-members £19.99).

YASME: THE DANNY WEIL AND COLVIN RADIO EXPEDITIONS

By James D Cain, K1TN
Reviewed by Fred Handscombe, G4BWP

Newer DXers may well have see the 'YASME Foundation' logo on QSL cards and have perhaps wondered who or what YASME is? Older DXers will recall the operations by Iris and Lloyd Colvin and perhaps even Danny Weil and his boat named *YASME*. This book chronicles Danny's adventures as well as the lives and DXpeditions of Iris and Lloyd and how the YASME Foundation came to be.

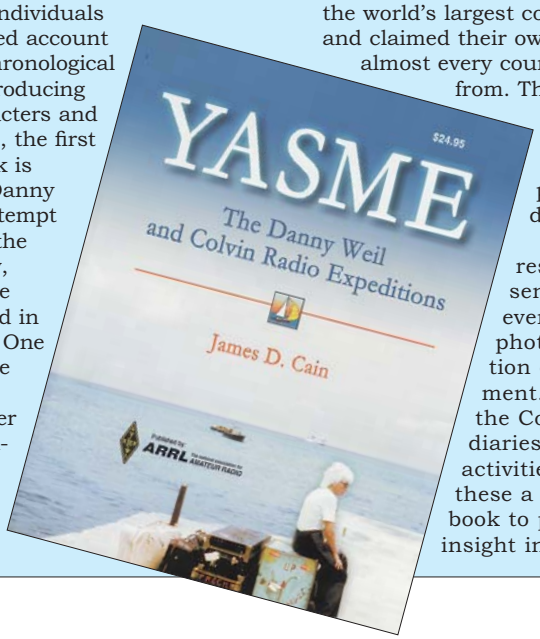
Jim Cain presents the stories of the lives of these three individuals as an interleaved account presented in chronological order. After introducing the three characters and their early lives, the first part of the book is mainly about Danny Weil and his attempt to sail around the world, and how, through this, he became involved in amateur radio. One cannot fail to be impressed with his tenacity after several incarnations of his yacht *YASME* are destroyed.

Danny was active from many rare spots, activating several countries for the first time, when the DXCC rules were less well defined than they are today. Reading his story helps to understand how DXCC rules evolved in those early days of DXpeditioning.

Later Iris and Lloyd Colvin took up the YASME name for their many DXpeditions, attempting to operate from as many countries as they possibly could. After a military career and building a successful business they were able to spend around six months a year travelling, and did this for many years. As a result they amassed the world's largest collection of QSL cards and claimed their own DXCC awards from almost every country they operated from. The latter part of the book chronicles these travels, along with details of their plans and correspondence.

This is a well-researched and presented book. Virtually every page has either a photograph or reproduction of a relevant document. Both Danny and the Colvins kept detailed diaries and records of their activities and Jim draws on these a great deal in the book to provide a fascinating insight into what went on behind the scenes. In Danny's case it was largely fundraising to support his trips, from Lloyd we read copies of his most persuasive letters to various licensing authorities around the world in his attempts to gain operating permission.

This book provides an historical account of some notable and prolific DXpeditioners of the past. Older DXers will enjoy the nostalgia and recall the many new countries logged thanks to Danny, Iris and Lloyd. Newer DXers will hopefully be interested by these accounts and how events of the past have affected DXing today. For me it brought back pleasant memories of meeting the Colvins in 1983 as they visited while I was working in Kuwait, and of Iris's distinctive voice saying "send your card to YASME". When we heard her voice we knew we were likely to work a new country and also certainly get it confirmed! Due to the generosity of Iris and Lloyd Colvin, the YASME Foundation continues to sponsor DXpeditions giving 'new ones' to another generation of DX enthusiasts.



YASME THE DANNY WEIL AND COLVIN RADIO EXPEDITIONS
By: James D Cain K1TN
Published by: ARRL 2003
ISBN: 0-87259-893-4
316 pages, US letter format (8.5 x 11in)
Members' price; £16.99 (non-member £19.99)

RSGB
90th Anniversary Gifts

RSGB 90th Anniversary Pin

The RSGB has produced this special commemorative pin to celebrate our 90th anniversary. This metal badge is 22mm by 29mm, finished in a hardwearing glossy UV resistant glaze and has a durable butterfly clip.

This pin is free of charge to our members!

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Count on us!

Reviewed by Steve White, G3ZVW,
31 Amberley Road, Palmers Green, London N13 4BH.

The MFJ-890 DX Beacon Monitor

The MFJ-890 is an item of equipment for the radio enthusiast who is interested in HF DXing or propagation research (eg see [1]). So far as I know, it is one that has no equivalents from other manufacturers or suppliers. It enables the casual listener or those not able to copy fast Morse to determine the state of the HF bands at a glance and thereby maximise their potential for hearing or working DX.

Housed in a black plastic case measuring 173 x 133 x 72mm, the MJF-890 is used in conjunction with an HF receiver or transceiver which needs to be tuned to one of the frequencies on which International Beacon Project (IBP) transmissions take place.

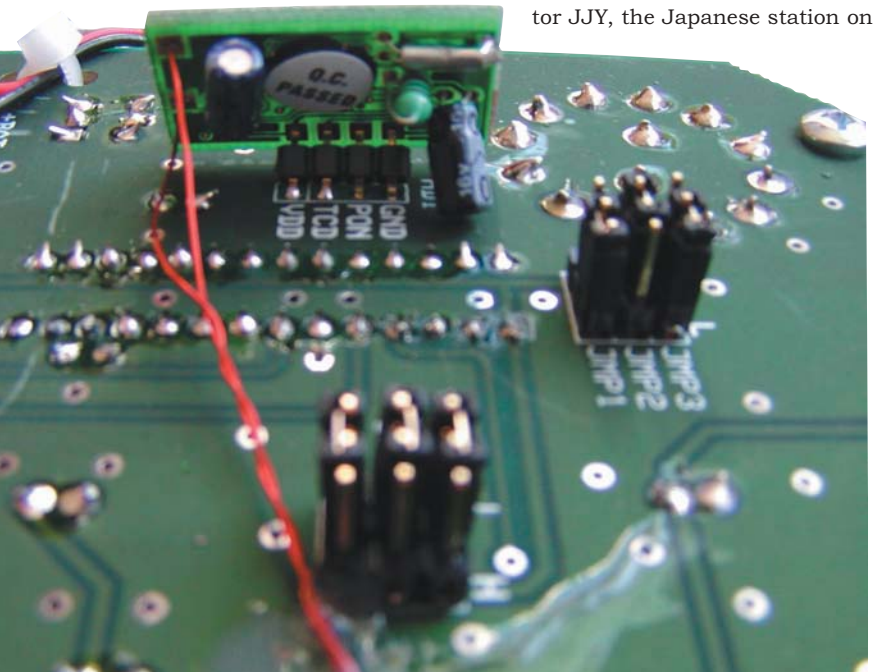
BACKGROUND

The IBP was instituted by the Northern California DX Federation (NCDXF) in association with the International Amateur Radio Union (IARU). There are 18 beacons in all, spread throughout the world. Each is equipped with the same equipment and omni-directional multi-band vertical antenna, and each makes a 10-second transmission on five amateur bands every three minutes, day and night. **Table 1** shows the minute and second of the start of the first transmission within the hour for each beacon on each frequency. Transmissions from each beacon consist of the beacon's callsign sent in Morse code at 22 words per minute, followed by four one-second dashes. The callsign and the first dash are sent at 100W. The power of subsequent dashes is stepped-down successively to 10W, 1W and 100mW. The more dashes you can hear, the better radio propagation is. The timing of transmissions is precisely controlled by a Global Positioning System receiver at each beacon site.

If you monitor the IBP frequencies you will almost certainly hear some of the beacons within the three minutes that the cycle takes to complete.

HOW IT WORKS

Throughout the world there are a number of standard transmissions which carry time signals that are locked to atomic clocks. Various versions of the MFJ-890 are built for various parts of the world, to take advantage of the coverage areas of these transmissions. Units intended for use in North America are built to monitor WWVB, which is a 60kHz transmitter located near Boulder, Colorado. Units intended for use in Great Britain monitor MSF, which also transmits on 60kHz. Continental European versions monitor DCF77 on 77.5kHz, the German station that provides a similar service. Units intended for the Far East monitor JJY, the Japanese station on 40kHz. A postage stamp sized receiver (see photo below) within the MFJ-890 monitors and decodes the time signals and uses them to synchronise the display. A block of three jumpers is used to select which transmitter is being monitored.



Bottom: Detail of the printed circuit board. The daughter board carries the receiver for the atomic clock transmissions that are used to synchronise the beacon monitor.

Under normal circumstances the monitor might be left switched on for extended periods. Consequently it would most likely be powered from an external 12V supply, a DC power lead being provided for the purpose. It can be powered – for short periods, at least – from an internal 9V battery. A second block of three jumpers is associated with 'sleep mode', to save energy when running from battery. Power consumption is stated as varying between 4mA (normal operation) and 10mA (synchronising).

OPERATION

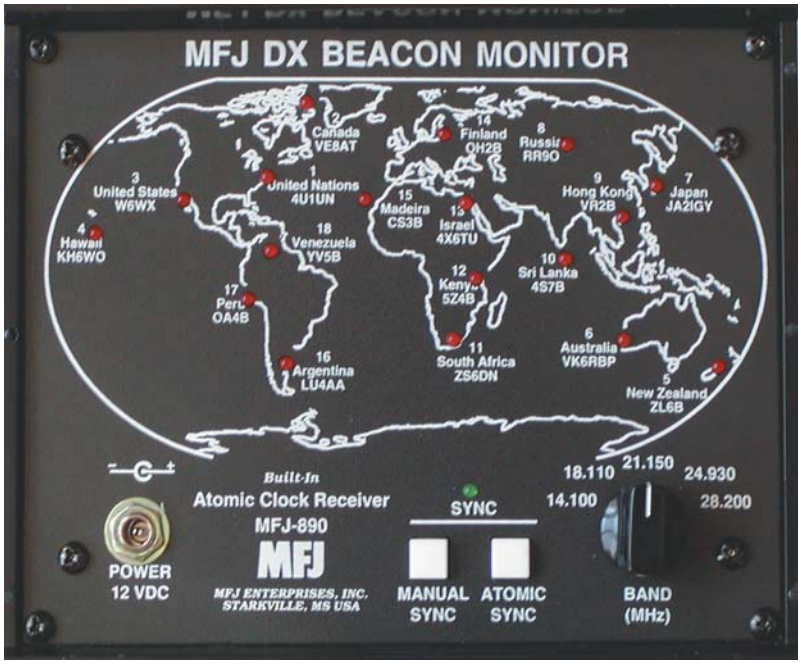
Upon switch-on, the unit needs to be synchronised. You can conduct this manually, or wait for it to synchronise automatically. During synchronisation a green LED flashes.

Automatic: The green 'Sync' LED flashes until the unit synchronises. Once locked, the LED remains on. To correct any internal timing errors, a daily synchronisation takes place thereafter. Additionally, you can initiate re-synchronisation at any time by a press of the 'Atomic Sync' button. In the event that the time signals cannot be received, synchronisation times-out after 10 minutes, but the unit retries hourly.

Manual: Pressing the 'Manual Sync' button at any time causes the unit to reset to the start of the three-minute IBP sequence. Consequently, if you are unable to receive the time signals from MSF, all you need is a time signal from the speaking clock, a GPS or teletext, to synchronise the unit manually. In this mode of operation the 'Sync' LED remains off.

The major front panel control is the band switch. Simply select the band you are monitoring and listen to the appropriate frequency on your receiver. On the map of the world that is printed on the front of the unit, one red LED will be alight at any time, indicating which IBP transmitter is currently active. The beacons are numbered and identified by ▶

By John D Heys, G3BDQ, White Friars, Friars Hill, Pett Road, Guestling, nr Hastings, Sussex TN35 4EP.



Front panel of the MFJ-890. Each LED illuminates in turn, following the sequence of transmission of the DX beacons.

▶ their locations and callsigns, as shown in the photo above. Every 10 seconds the lit LED will advance to the next in the chain. They cycle around continuously. If you switch to a different band the appropriate LED will light, but the sequence is the same.

There are various self-tests and checks that can be performed on the MFJ-890, and I found one in particular *very* useful. When I initially powered on the unit, I found that it took an inordinately long time for it to synchronise to the atomic clock. The 'troubleshooting' section of the instruction manual provided a clue to the answer, which is to keep the equipment well clear of any items of equipment that might interfere with the reception of 60kHz. However, the question remained as to which item of equipment might be causing the problem. The answer was to set the MFJ-890 into its 'time signal receiver test' mode and check the signal. Reception was poor indeed, but the instant I switched off my 17in video monitor the problem cleared and a solid signal was received anywhere in the shack (so long as the ferrite rod of the 60kHz receiver was not in line with the transmitting site at Rugby). Sadly this meant that I couldn't write this report at the same time as I conducted any tests! That's life, I suppose.

Call	Location	14100	18110	21150	24930	28200kHz
4U1UN	United Nations	00:00	00:10	00:20	00:30	00:40
VE8AT	Canada	00:10	00:20	00:30	00:40	00:50
W6WX	United States	00:20	00:30	00:40	00:50	01:00
KH6WO	Hawaii	00:30	OFF	00:50	OFF	01:10
ZL6B	New Zealand	00:40	00:50	01:00	01:10	01:20
VK6RBP	Australia	00:50	01:00	01:10	01:20	01:30
JA2IGY	Japan	01:00	01:10	01:20	01:30	01:40
RR9O	Russia	01:10	01:20	01:30	01:40	01:50
VR2B	Hong Kong	01:20	01:30	01:40	01:50	02:00
4S7B	Sri Lanka	01:30	01:40	01:50	02:00	02:10
ZS6DN	South Africa	01:40	01:50	02:00	02:10	02:20
5Z4B	Kenya	01:50	02:00	02:10	02:20	02:30
4X6TU	Israel	02:00	02:10	02:20	02:30	02:40
OH2B	Finland	02:10	02:20	02:30	02:40	02:50
CS3B	Madeira	02:20	02:30	02:40	02:50	00:00
LU4AA	Argentina	02:30	02:40	02:50	00:00	00:10
OA4B	Peru	02:40	02:50	00:00	00:10	00:20
YV5B	Venezuela	02:50	00:00	00:10	00:20	00:30

Schedule of the IBP transmitters (minutes:seconds).

CONCLUSIONS

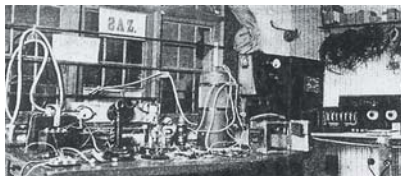
The MFJ-890 performed as intended and was easy to use. Waters & Stanton are the importers of MFJ equipment, and it is available from them at the price of £99.95. I would like to thank W&S for the loan of the review model.

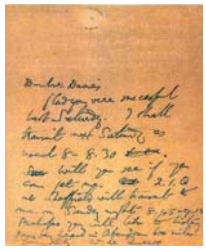
Finally, some words of caution. Early models of the MFJ-890 had a bug in the firmware that resulted in them not working properly when configured to receive MSF, the British atomic clock transmission. Units that were recalled from Britain may be offered for sale elsewhere in the world (specifically the USA), where the bug will not affect operation. The second point is that the receiver inside the MFJ-890 is dedicated to a fixed frequency, so you can't reconfigure the jumpers of a unit destined for the Japanese or Continental European market and expect it to work in Britain. Consequently, if you intend buying an MFJ-890 for use in Britain, you would be well advised to do so (a) in Britain, and (b) via a reputable supplier.

REFERENCES

[1] 'The RSGB PSC International Beacon Monitoring Project', by Gwyn Williams, G4FKH (Vice Chairman, RSGB Propagation Studies Committee), *RadCom*, April 2002. ◆

William





Top: The station of 2AZ around 1922 when located near Guildford, Surrey. Left: Le Queux's postcard to 2PC which gave his operating times and mentioned his DX transmission to Aberdeen. Right: A pre-WWI picture of Le Queux displaying his medals.

My attention was first directed towards William Le Queux, 2AZ, when researching the history of the first radio club in Hastings. The Hastings, St Leonards and District Radio Society was formed in 1924 and initially most of the membership consisted of keen but non-technical listeners to early broadcasts by the BBC. There were, however, a few amateur radio enthusiasts, including Victor Mills, 5QM; Norman Blackburne, 2AJB (later 2AX), and William Le Queux, 2AZ. This trio became involved with John Logie Baird, who had moved to Hastings and was busy developing his mechanical television system.

Le Queux was a nationally well-known and then popular novellist who also was a keen wireless enthusiast. His stature in both the literary and radio fields led to his election as the first president of the infant Hastings, St Leonards and District Radio Society. He was quite a recent arrival to Hastings, moving there from the Guildford, Surrey, area in 1923.

EARLY EXPERIMENTS

There is no doubt that Le Queux had some influence in official circles, for in 1920 when, after almost two years of lobbying, the Post Office issued the first post-WWI transmitting licences, Le Queux appeared at the top of the list of a dozen new licensees. He did not hold an experimental licence before WWI and he cannot be found on the list of some 450 transmitting amateurs that was published by Gamages in March 1914.

A treasured possession of mine is a postcard written by Le Queux to Mr A

Tufnell Le Queux, 2AZ

A Man of Many Parts

William Le Queux was the first licensed UK radio amateur after the First World War. He was involved with John Logie Baird, was an expert on European secret services and travelled from the Arctic to the tropics, picking up decorations in Montenegro and San Marino on the way. He even found time to write novels and his fictional hero could have been the prototype for James Bond himself. John Heys tells us more about this fascinating character…

G Davies, 2PC, of Timperley, Cheshire, and dated 19 July 1921. Le Queux wrote: "Glad you were successful last Saturday. I shall transmit next Saturday as usual 8 - 8.30. Will you see if you can get me? 2IQ at Sheffield will transmit to me on Sunday night 8.45 -9.15. Perhaps you will like to listen. I am now being heard in Aberdeen, 600 miles. Yours truly, W Le Queux."

At that time 2AZ lived at Lavender Cottage, on the Hog's Back near Guildford and he was regularly transmitting speech and music programmes on a wavelength close to 1000 metres (300kHz). Amateurs were then limited to a power of 10 watts and a transmitting time of only two hours each day. By special arrangement Le Queux had permission to use much higher power, certainly in the hundreds of watts.

The station of Le Queux was unique in the UK, for it was the first to be completely professionally built. He did not have time, or perhaps the expertise, to build his own equipment but, fortunately, he could afford the work involved. In 1923 he moved to number 93 Marina which was, and still is, situated on the St Leonards sea front. As a QTH, 93 Marina could hardly be worse. Although facing south and unscreened in that direction over the English Channel, the 'garden' at the rear went up as steeply as a 100ft sandstone cliff, making communication to the north difficult and only allowing an almost vertical wire antenna. Folk living along Marina have always been unable to get TV reception and the roadway in front of the premises is a 'dead spot' for mobile radio services.

The new president of the Hastings, St Leonards and District Radio Society was a prolific writer for the burgeoning amateur radio press and his many articles appeared in *Amateur Wireless*, *Wireless* and *Popular Wireless*. Le Queux was fascinated by spies and espionage and suggested in an article titled 'The Wireless Spy Menace' (*Wireless*, 19 September 1925) that possible German spies could devise secret underground aerials 100ft long enclosed in a rubber hose and laid in a straight line a foot or so down in a trench.

The present Hastings Town Council describes Hastings as 'The Birthplace of Television' and is proud of its once temporary inhabitant John Logie Baird. Always 'hard up', Baird struggled with his crude apparatus in a room over a shop in a town centre arcade in 1924 where he was given considerable help by a handful of local wireless enthusiasts. Victor Mills, G5QM, lent Baird a powerful (for that time) multi-valve audio amplifier which he had used as an early public address system in his car. Without this amplifier Baird's equipment would have proved a failure and he might even have abandoned his experiments.

Baird astutely recognised Le Queux as a likely supplier of funds but his attempts to persuade the writer to subsidise the television venture came to nothing.

In *Who's Who* Le Queux listed his recreations as revolver practice, skiing in Switzerland, Egyptology, criminology and experiments in wireless telephony. He was a Member of the Institute of Radio Engineers and President of the Wireless Experimental Association. Other interests included collecting medieval manuscripts, codices, the occult and monastic seals. He was consulted by the British government on the secret services of the Continental Powers.

William Tufnell Le Queux died in Belgium on 13 October 1927 aged 63, and when one considers his very full life it is remarkable that he could find time to operate on the air. Was he a spy? This we will never know. ◆

William Le Queux in later life.

"The name's Drew, Duckworth Drew"

Amateur radio was only one of Le Queux's many interests and activities. He had been born in London on 2 July 1864 and received a private education at Pegli near Genoa. In Paris he studied art, then toured France and Germany on foot. On his return to England he became a journalist and special correspondent for the *Daily Mail* and the *Globe*, becoming Foreign Editor of that paper in 1891.

He travelled widely, all over the Balkans, the Middle East, the Arctic and the Sudan. During the Balkan Wars of 1912 - 13 Le Queux was sending regular dispatches to the *Daily Mail*. Earlier, in 1908, he accurately forecast the Great War in his book *The Invasion* and gave many lectures on spies and spying. Amazingly, he accumulated medals which were bestowed upon him by Serbia, Montenegro, Italy and San Marino, where for a time he was appointed British Consul.

William Le Queux was a prodigious writer and the author of more than 130 stories which included novels, biographies and studies of spies and espionage. Unfortunately he was a man of his time and the often 'purple prose' of his books would today be considered almost unreadable.

His fictional hero 'Duckworth Drew of His Majesty's Secret Service' was perhaps a prototype James Bond. Did Ian Fleming model Bond upon the earlier Drew?

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AM Revisited

Let me throw out a challenge. Try working DX the hard way, using the heritage mode of double sideband amplitude modulation with full carrier – otherwise known as AM. 'Heritage mode'? Yes, since this was the major form of telephony communication, prior to the arrival of single sideband suppressed carrier amplitude modulation (SSB). I am not going to imply that AM is superior to SSB. It does, however, hold many attractions partly, I admit, from a nostalgia point of view, but also from the perspective of the 'self training' aspect of the hobby. Let's face it, if you spend a few hundred (or thousand) pounds on a 100-watt SSB transceiver, and feed it into a mediocre antenna, you will work DX, with little technical skill required. Try to do the same on AM and you will quickly realise that you need a whole set of new operating skills, the most important being patience. Because of its inefficiency, AM takes a great deal of perseverance to achieve a solid QSO under adverse conditions. With the exception of the 'AM window' on 10m, you will find that you are battling against static, SSB QRM, teleprinters and just about everything else that short-wave radio can throw at you.

AM operators are a mixed bunch. Some are devotees of vintage or military equipment. Some are 'home-brewers', using old technology with valves, others solid state. Many operators use the latest multi-mode radios in an effort to try a new challenge. A large group of enthusiasts are hi-fi modulation enthusiasts, something impossible to achieve in quite the same way with an SSB rig.

WHERE TO LOOK FOR AM ACTIVITY

I became interested in amateur radio at the age of 13 in 1966. The first amateurs I heard were on topband (160m). They were all locals, talking across town. Most used 'home-brew' rigs, running the then maximum permitted 10 watts DC input. 160m AM nets could be found all over the country, and topband was the main place for local traffic in the days before 2m FM boxes became available. Many AM nets operated for decades, some still do: a tune around the band on a Sunday morning should reveal some local ground-wave activity in most parts of the country.

The use of AM for working 'G DX' had all but died out by the early 1990s. In 2001, however, I came across G4FBG near Buxton, Derbyshire, whose S9+ well-modulated signal seemed to be the same strength anywhere in the county. Phillip uses a home-brew solid state transmitter with low level modulation – but you would never guess it was not a valve rig with high level AM. Another home-brewer and frequent 'G DXer' is Paul, G4LNA [1], from Walthamstow, East London. Paul's transmitter is also solid state and low level modulated. Cliff, G3THX, in Skegness has put together a valve rig from bits and pieces in his junk box and has worked stations up and down the country. Steve, G4MJW [2], uses a home-brew transmitter made by G2FSH in the 1970s, using a 5B254M modulated by a pair of EL84s.

Old commercial rigs are in abundance on 160m. Colin, G4DDI, near Boston, runs a KW Vanguard; Howard, G3RXH, in Skipton uses a KW Valiant. The much-loved Codar AT5 can be heard from Karl, G4GTW, on the south coast.

An informal calling/working frequency for inter-G AM has been established on 1963kHz, and activity can be found most evenings from about 7.30pm local time.

The resurgence of AM on 80m is largely due to the Vintage and Military Amateur Radio Society (VMARS) [3], which has operated a net on 3625kHz at 9.30am every Saturday morning for a number of years.

There are some big signals on this band, from a variety of different rigs, ranging from TCS transmitters, 1154s, and even the ever-popular Wireless Set No 19. Many of the operators using old kit have lovingly restored these radios, and it is a tribute to their technical skills that such equipment is kept in working order over 60 years after its construction. It is a further tribute to the 'self training' aspect of the hobby that these amateurs have the skill to communicate with this old equipment under the prevailing conditions on today's amateur bands. As well as the military transmitters, 80m AMers use a variety of vintage amateur equipment including KW Victors, Minimitters and DX100s.

Some of the big signals to be heard are from Stuart, G0TBI; Tom, G3TBQ, on the Wirral and Gerry, G3LEO, in Bedale. Activity has spread out from VMARS net time, and can often be found during lunch time in the week and at other times at weekends. Occasionally 3625kHz suffers from a commercial data transmission, whereupon 3606kHz is usually used. If you are looking for AM activity on the band try these frequencies first.

The re-emergence of AM has been happening for the past few years in the States, and there are many active stations operating between 3870 and 3900kHz. They can sometimes be copied in the UK, although you will need a selective receiver to pull the signals out of the QRM.

On 20m, for many years American amateurs have used 14286kHz as an AM operating frequency. Last year an American operator posted a message on the AM Window [4] bulletin board ▶

Above: The station of Colin, G4DDI, in Lincolnshire contains a wide variety of AM equipment.

Below, left: Retro radio. The 'Globe King 500D' transmitter is still being produced in USA for amateurs who want to try the delights of AM.

Nick, VE3OWV, near Ottawa at the AM microphone.

in an effort to stimulate activity in Europe. Since then, the volume of traffic has been high. I have worked Nick, VE3OWV, near Ottawa on 20m with signals peaking S7 - S8. Nick was running 40 watts from an old Geloso transmitter into a rhombic while I was running 40 watts from an Icom IC-706MkII into a 50m each leg doublet about 12m above the ground. Alan, G4GEN, uses a WWII 53 set with an 813 PA into a 150ft Windom antenna and has been a regular on 14286kHz, as has Paul, G3PSW, running a Kenwood TS-870 into a quad. Harry, KB1DOP/M, answered my CQ call last year giving me a 57 while he was peaking 56 – running only 30 watts. This proves that you do not need to run high power or big aerials to make the trip across the pond on 20m AM.

AM on 15m is proving to be a really interesting project. Look around 21425kHz for AM activity. I have been conducting frequent tests with stations in the USA, Canada and Australia, with many European stations participating. Two-way AM QSOs have been made with Brian, VK4ABZ; Graham, VK6RO, and I have even had a brief two-way exchange with David, VK2BA, whilst operating mobile.

Gradually more G stations are trying the band. Rob, G2BKZ, in Stevenage uses a 2-element quad and has worked a number of stations. Alan, G4GEN, and Dave, G3UUR, using a classic American transmitter, the Johnson Ranger, have both made Stateside contacts on 15m.

Both 12m and 17m offer the opportunity to achieve many firsts in amateur radio as these bands were not available to amateurs in the days when AM was king. 17m has provided me with a number of good QSOs, the first being with Tom, K1JJ. My first real DX AM contact was on 31 December 2001 when Joe, 7Z1AC, called me. We exchanged 59 reports (and then did the same on FM!). The WARC bands carry less traffic than 20m so there are real possibilities for some good AM QSOs. Arranging skeds via the AM bulletin board [4] can be a good way to stir up activity.

Without doubt, though, 10m is the best band for operating AM in a relaxed manner. For one thing, the band has an 'AM Window' at 29000 – 29200kHz which means it is generally possible to find a clear frequency without being 'jumped on' by SSB stations. Most of the activity on the band comes from the USA and Canada although in recent years I have worked FG5FG, OD5IU, UR5QGC, SV5/G4FMK, LZ2DO, and I5KAP (running 500 milliwatts). Judging by the amount of European stations on the band, it should be possible to have some good short skip contacts by Sporadic E this summer, even now that we are on the downward slope of the solar cycle.

Many operators are interested in 'rag-chewing' and making friends – 10m is that sort of band and AM is that sort of mode: you do not get the "59 QRZ" 'rubber stamp' QSOs on this mode.

AM RIGS

In the pre-SSB days the majority of amateurs built their own transmitters. The classic line-ups with 807s, 6146s, TT21s etc, were to be heard everywhere. Commercial transmitters were available, though. KW Electronics produced the Vanguard (which I now use) the Valiant and the Victor. Minimitter produced a table-top transmitter with two 807s in the PA, modulated by two more. The Labgear LG300 was a popular high-power rig. Heathkit produced the DX100 and the DX40. Many folk used the Panda Cub and on 160m the little Codar AT5 graced many a shack. Once given away at rallies or simply dumped, these transmitters are now sought-after items. In the USA classic AM transmitters known as 'boat anchors' change hands at hundreds of dollars.

If you have an old AM rig in your shack or in the loft, you may like to join the 'boat anchor' operators and get on AM that way. Most, though, will only have their main HF transceiver available. It is critical that you spend some time setting these up for AM. Some old rigs use SSB with carrier re-inserted: this will work, but you need to take care that you get the carrier to audio balance adjusted, since if you go over the top the signal will sound distorted and if you undermodulate you will cause the station at the other end to struggle to copy you.

Some of the later Kenwood rigs and even the Yaesu FT-1000 series need a bit of tender loving care on AM. The Icom IC-706 and IC-756 series have very good low-level modulators and do not distort even with full microphone gain and compression.

On 10m, 80m and 160m during the day, you can achieve good QSOs using high quality audio, but if you want to try your hand at DX on the other HF bands, or at night when the noise levels are higher, you will find that a communications-quality AM signal with compression will greatly assist your readability at the other end. Contacts are possible on 10m between September and April during peak sunspot years but conditions are not likely to be favourable on many days this autumn.

One of the things we take for granted with SSB is the relative lack of phase distortion. With an AM signal the carrier and the sidebands can go out of phase as the signal varies with fading. It is not unusual to have an S9 carrier with completely distorted modulation. The effect can be countered by switching the receiver into the SSB mode and zero beating the carrier to receive one of the sidebands during fades.

The IC-706MkII has a very sensitive receiver, but it is as wide as a barn door on AM, or too narrow with the filter switched in. Many of the rigs on the market today suffer from the same problem. If your receiver only has a narrow filter, you will need to tune away from the centre of the carrier in order to get reasonable recovered audio quality. If the filter is too narrow the signal will sound boxy and restricted. I therefore use an old AR88 receiver for much of my AM work.

AMATEUR RADIO ON THE CHEAP

AM offers a very cheap way of getting on the air – only CW is cheaper. It is not difficult to construct simple transmitters or receivers for the HF bands. Broadcast receivers can often be retuned to topband. This is amateur radio on the cheap, but is also excellent self training and another challenge that I met in my early days. When as an impoverished student in the early 1970s I was forced to sell my SSB rig, I modified an old domestic radiogram to receive 20m and 15m. It had no BFO to resolve SSB, so I used the Geloso VFO of my AM transmitter to resolve the SSB stations. This ensured that I was netted precisely on their frequency and most did not realise, until I told them, that I was running AM. With this bargain basement rig, I managed QSOs with PY, VK and the USA on 20m. 'Netting' is very important, in particular if you are using old equipment which drifts. The mode is already wide enough without spreading over several kilohertz unnecessarily.

I hope I have inspired you to have a go on AM and that it may lead you along the path of experimentation, home construction or, who knows, DXCC. ◆

WEB SEARCH

[1] G4LNA:	www.qsl.net/g4lna
[2] G4MJW	www.skylites.freeserve.co.uk
[3] Vintage & Military Amateur Radio Society (VMARS):	www.vmars.org.uk
[4] The AM Window:	www.amwindow.org
(this site has a bulletin board and lots of technical stuff)	
[5] G3YPZ:	www.traditional-jazz.com

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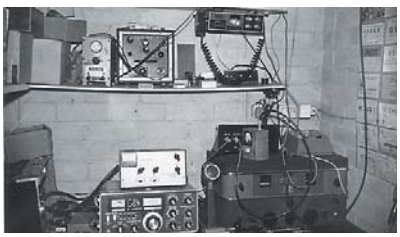
HF

During this RSGB anniversary month, it is worth remembering that amateur radio effectively started with HF. As amateurs, we were fobbed off with those frequencies the professionals felt were of little use. So while they pressed on with what we would now consider the LF and MF frequencies, requiring huge powers and antenna systems, amateurs started to experiment on the lower HF frequencies and discovered that these frequencies delivered DX results that were as good as, if not better than, those obtained on the lower frequency bands. What's more, as the years progressed, it became clear that things got better the higher in frequency we went, at least until one arrived somewhere around the 30MHz mark. But, of course, VHF devices and techniques really had to wait for developments during WWII, mainly focused around the needs of radar, so 30MHz was pretty much the limit of the technology in any case.

While I cannot claim to go back 90 years (!), my own development in amateur radio followed a similar pattern, starting on 160 and 80 metres with a Codar AT5 transmitter (10 watts of AM and CW), moving to the higher HF bands when my funds ran to a Heathkit DX-100U (150 watts of AM and CW on all HF bands, while drifting around the bands something awful) and eventually to various operations on VHF and UHF (though I retain HF as my first love). Of course, many more recent converts to HF have arrived from quite the opposite direction, starting at VHF and working downwards in frequency.



Don Field's, G3XTT, station in 1973.

MORE ON SPLIT FREQUENCY OPERATION

Apropos my discussion last month about split frequency operation, Richard, G3RWL, fresh back from Barbados where he operated as 8P6DR, has a comment to offer. When the pile-ups got fierce he invariably moved to split-frequency operation, but found that many operators called exactly 1kHz above his transmit frequency, with the result that it was just as difficult as before to pick out calls from the pile-up. As Richard says, those who called slightly above or below the rest had the best chance of being heard. Worth bearing in mind.

DX NEWS

Special memorial operations will be taking place from Poland to commemorate Polish scientist Ignacy Lukasiewicz, whose invention of the kerosene lamp was used for the first time on 31 July 1853 in Lviv. The special callsigns to be used are as follows: to 30 June HF8IL (QSL via SP8PJG); 1 July-15 August HF150IL (QSL via SP8PJG); 25 July-4 August 3Z0IL (QSL via SP8ZBX); 25 July-4 August SN0IL (QSL via SP9PEE); 20 August-10 September HF8IL (QSL via SP8PJG). Another special event station, EN3WLL (QSL via UR4WXQ), will be activated from Lviv, Ukraine between 25 July and 4 August. For further details please visit the website.

Lutz, GM0GNY, writes that he is in Azerbaijan, working on an oil platform in the Caspian Sea. He hopes to be active soon as 4K0GNY and on 20m daily from 1500 around 14200kHz using an FT-100D and a coax dipole. This operation raises an interesting point about such activities. Over the years there have been many operations from oil platforms in international waters. These, while obviously of interest, do not count towards awards such as IOTA or DXCC but are similar to other Maritime Mobile activities. In Lutz's case, as the platform is in national waters, I would expect the operation to count for DXCC, but obviously not for IOTA.

Rad, ZS6RAD; Ron, ZS5ABD; Cliff, ZS6BOX and Willie, ZS5WI, will be operating from Ezulwini, Swaziland (callsign awaited) from 29 July to 3 August. They will be joined by Willie, 3DA0BD; Andy, 3DA0TM; and Nigel, 3DA0NG, as time permits. Activity will be on all bands and modes from 0300 to 0700 and from 1400 to 2200 daily. QSL to ZS5WI.

Joe, AA4NN; Mauro, IN3QBR; and Fabrizio, IN3ZNR, will join forces to put on what is being called 'The African Double Jump' DXpedition. First stop will be South Africa where they will meet up with Andre, ZS6WPX. They will then head to Botswana for operations between 2 and 6 July, using the callsigns A25NN and A25ZNR. Next stop will be Lesotho where they expect to sign 7P8JB and 7P8NR from 7 to 12 July. Joe may possibly go to Mozambique afterwards. They have a web page.

Quite separately from the above, a group of US and Canadian amateurs will activate Lesotho (7P8) from 18 to 25 July. Frosty, K5LBU/7P8CF; Madison, W5MJ/7P8MJ; Neil, VA7DX/7P8NK; Tom, WW5L/7P8TA; Dave, K4SV/7P8DA; and Igor, W0IR/7P8IZ, will undertake an all-mode, all-band operation with beams, dipoles, a couple of amplifiers and hopefully at least one station on the air 24 hours a day. QSL via each operator's home call.

Three members of the Florida DXpedition Group, Bill, W4WX/VP2MHX; William, N2WB, and Bob, K9MDO, will be on Montserrat (VP2M) from 22 to 29 July. Three Kenwood TS-570D stations will be active on most bands and modes. This will be by way of a warm-up for the San Andres (HK0) trip they are planning for October.

Paul, FP/K9OT, and YL op Peg, FP/KB9LIE, are planning their third annual low-power DX vacation to Miquelon (NA-032) from 27 July to 5 August. QSL via home calls direct or via the bureau.

W1T will be a special event station active on all bands during the Tour de France, 5 to 27 July, to commemorate the 100th anniversary of the Tour de France and Lance Armstrong's attempt to win five consecutive Tours. QSL WA2VUY. The QSL card will have a photograph of 21 of the 22 living Tour champions taken on 24 October 2002 in Paris at a special reunion.

IOTA ACTIVITY

At the time of writing Terje, LA3OHA, was organising an expedition to Prins Karls Forland (EU-063) and looking for operators. The operation was scheduled to take place between 11 and 25 July. Further details from the website.

Francois, F8DVD, hopes to be active from Djerba Island (AF-083), Tunisia, using the callsign of the Djerba Scouts Radio Club, 3V8SM. Plans are to be on the HF bands on SSB only from 23 June to 4 July. QSLs for this operation only go to F8DVD. If sending via the bureau please write "via F8DVD/71" on the card.

Lanny, W5BOS, and Don, N5XG, will activate NA-121, Walrus Island, Alaska, on 15-17 July, CW and SSB. They will sign W5BOS/AL5 and N5XG/KL6. QSL to their home calls.

The 'Caracas DX-Group' will be active as YW5M from Los Monjes Archipelago (SA-015) from 17 to 20 July. Activity will be on all bands CW/SSB. QSL via W4SO.

Of course, this month sees a peak in IOTA activity, focused on the IOTA Contest (26/27 July, 1200-1200). At the time of writing I am aware of the following planned operations, many of which will be active before and after the contest: AN-016 (DP1POL, QSL DL1ZBO) by DL5XL; AS-107 (E21EIC/P) by E21EIC; AS-147

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(JI3DST/8) by JI3DST; EU-035 (R1PQ); EU-042 (DL4OK/P) by DL4OK; EU-057 (DF3UFW/P) by DF3UFW; EU-057 (DF0WLG); EU-063 (JW); EU-068 (TM3ON, QSL ON4ON) by ON4ASG ON4AVA ON4ON ON5SY ON6CX ON7PQ ON7XT ON9CGB; EU-080 (ED1ONS, QSL ED4URJ) by multinational team; EU-083 (IP1TIN, QSL IK5MDF); EU-088 (OZ0J/P) by OZ0J; EU-092 by MM0BQI/P; EU-120 (Lundy I) by ON5FP ON4CJK; EU-125 (OZ/DF0TX/P) by DF0TX; EU-125 (OZ/DJ1AA/P) by DJ1AA; EU-129 (DL0KWH) by DL2SWW DH7NO DH2AX DL6ATM DL2RTK DH1LA DL2VFR + others; EU-136 (9A0R, QSL 9A9R); EU-170 (9A/HA8KW) by HA8KW; NA-038 (VE2/VE9MY/P) by VE9GLF VE9MY; NA-094 (CY9, QSL N5VL) by N5VL N0RN KO4RR W4WY; NA-129 (VE8NET, QSL VE8CQ) by Western Arctic Amateur Radio Association; NA-140 (W3TBG/3); NA-141 (K9ES); NA-144 (WA6WPG/P) by WA6WPG; OC-097 (5W) by DL2AH; OC-NEW (YB7, QSL EA7FTR) by YB2DGR and YB2MTA. Wearing my other hat of IOTA Contest Manager, I am looking forward to a high level of participation; if you take part, even briefly, do please send in your log.

THE QRP WARC-SPEED DX CHALLENGE

Recognising the symptoms of sunspot decline that I discussed earlier in this column, K7SS and N0AX have devised a challenge to keep us in front of the radio during the difficult months ahead. The objective is to work as many DXCC entities as possible using QRP on the WARC bands (30, 17, and 12m) between 0000 on 1 June 2003 and 2359 on 31 May 2004. QRP is defined as 5 watts output on digital (any data-transfer protocol) or CW and 10 watts PEP on SSB. Certificates will be awarded for the top three totals from each CQ zone in each of the categories below and for working 100 entities on any single band.

The Low Land DXpedition Team's operation from the Faeroe Islands had "lots of fights with the propagation and the high winds" but managed to log 26,964 QSOs in 10 days.

COUNTRIES WORKED, 2003
(sorted this month by Datamode totals)

Call	CW	SSB	DATA	MIXED
G0ARF	0	0	120	120
G3XTT	191	137	103	213
GU0SUP	0	0	98	98
G4WFQ	164	52	93	194
M3RDX	0	155	84	172
MM0BQI	27	28	81	100
G4ZPL	0	2	80	80
G0URR	0	0	75	75
ZC4DW	85	71	74	116
G3LHJ	125	56	69	154
GI0NQC	1	63	63	94
G4OBK	105	17	47	117
M0CNP	5	127	36	131
G4DDL	34	6	12	40
ZC4VG	113	35	3	113
G3YVH	168	123	0	196
G0NXX	195	0	0	195
G4WXZ	124	136	0	183
G3SXW	179	0	0	179
GM0TGE	113	117	0	172
G3TXF	171	11	0	171
G4KFT	168	0	0	168
GU4YOX	121	123	0	167
G4IRN	165	0	0	165
G3VDL	157	0	0	157
M3CLY	0	138	0	138
G3ZRJ	129	0	0	129
MU0FAL	98	84	0	120
G3YMC (QRP)	114	0	0	114
G0GFQ	0	112	0	112
M0AWX	0	107	0	107
M5PLY	–	–	–	105
M5GUS	0	91	0	91
G4FVK	34	79	0	88
G0LGJ/M	0	75	0	75
G4YWY/M	0	69	0	69
M5AEF (1W)	27	52	0	59
M3FSI	0	50	0	50
GM0ELV (QRP)	47	0	0	47
M3NPB	36	15	0	42
GW4ALG (QRP)	39	0	0	39

QTH CORNER

4G6A Frank Toplak, VE7DP, General Delivery, Winfield, BC V4V 1M6, Canada.
4H1LC via VE7DP (see 4G6A).
9V1YC (new) Joe Morris, N5ID, 813 Highway 13, Wiggins, MS 39577, USA.
D2CR Vladimir Eremeev, PO Box 26, Moscow, 121609, Russia.
DX4CN via VE7DP (see 4G6A).
F8DVD Francois Bergez, 6 rue Liberte, 71000 Macon, France.
YE5A Antonio Cannataro, IZ8CCW, PO Box 360, 87100 Cosenza – CS, Italy.
ZK1AYL June Sim, VK4SJ, PO Box 406, Caloundra 4551, Queensland, Australia.
ZS5WI PO Box 1064, Eshowe, 3815, KZN, South Africa.

9 BAND TABLES No 46
MIXED MODE

CALL	1.8	3.5	7	10	14	18	21	24	28	TOTAL
G3KMA	254	301	327	321	334	329	335	322	332	2855
G4BWP	249	305	333	321	335	328	335	315	325	2846
G3XTT	235	279	318	285	334	315	332	298	314	2710
GW3JXN	191	259	296	286	328	319	321	297	305	2602
G3GIQ	152	246	303	264	334	318	333	307	328	2585
G4OBK	183	233	281	287	330	308	319	302	301	2544
G3SED	233	261	293	278	314	293	297	266	287	2522
G3TXF	138	240	301	294	329	298	324	285	305	2514
G3SNN	169	236	283	226	333	285	323	278	305	2438
G3TBK	139	239	279	257	329	300	317	286	291	2437
G3LAS	116	206	251	265	317	302	317	298	301	2373
G3YVH	132	166	260	283	325	313	312	278	284	2353
G3IFB	63	226	288	249	327	253	307	253	287	2253
GM3PPE	148	210	254	264	320	265	277	240	227	2205
G4PTJ	48	188	241	198	326	277	321	270	304	2173
G3AKU	115	170	241	253	299	267	275	265	275	2160
G3KMQ	60	214	267	214	325	251	282	259	249	2121
G0JHC	1	71	225	273	283	306	315	300	309	2083
G3IGW	129	198	320	242	289	246	264	134	237	2059
G5LP	70	228	283	225	312	227	284	178	250	2057
G3VKW	49	172	234	138	328	236	324	255	309	2045
G0TSM	67	153	229	184	301	261	294	231	295	2015
M0BEW	67	128	215	199	281	244	275	230	265	1904
G4OWT	42	87	181	94	307	112	296	97	268	1484
G4NXG/M	26	57	140	0	292	221	290	199	254	1479
G4WFQ	29	104	169	141	200	146	188	138	165	1280
G4FVK	42	79	106	61	191	107	190	84	176	1036
MM0BQI	39	80	130	50	200	81	185	63	173	1001
M0CNP	10	70	126	9	241	89	172	77	130	924
AVERAGE	110	180	247	212	302	252	290	235	271	2105
CW ONLY										
G3KMA	248	283	324	321	333	322	331	308	323	2793
G4BWP	228	236	307	320	305	307	311	284	266	2564
G3XTT	225	250	306	285	305	294	305	276	284	2530
G3TXF	138	236	299	294	324	296	319	284	295	2485
GW3JXN	188	234	282	286	314	305	309	275	278	2471
G4OBK	175	217	275	287	311	295	297	284	284	2425
G0NXX	175	238	282	293	300	292	278	268	269	2395
G3SED	232	244	287	278	286	262	259	220	226	2294
G3SXW	96	207	264	268	317	285	303	259	285	2284
G3YVH	131	163	255	283	316	300	297	263	268	2276
GM3POI	207	232	288	248	299	240	282	227	251	2274
G3LAS	116	145	229	265	278	280	286	260	264	2123
G3AKU	115	170	241	253	290	257	262	248	259	2095
G5LP	70	224	283	225	301	226	273	178	243	2023
G4PTJ	46	140	209	198	268	254	288	247	262	1912
G0TSM	63	106	203	184	216	177	225	180	253	1607
G3VKW	43	110	186	136	245	182	272	198	212	1584
G4OWT	34	81	154	94	239	75	238	71	209	1195
G4WFQ	29	99	155	141	133	112	135	108	95	1007
MM0BQI	26	56	93	50	114	39	112	30	114	634
AVERAGE	129	184	246	235	275	240	269	223	247	2049

Next deadline 8 July 2003. Prepared by G3GIQ henry@topdx.com

The publicity says, "This program recognises achievement by zone – so you'll be competing against your peers! Each month, results will be posted in the following categories: 17m CW, 17m Phone, 17m Digital, 17m Total; 12m CW, 12m Phone, 12m Digital, 12m Total; 30m CW, 30m Digital; Total CW, Total Phone, Total Digital, Total Overall. Enter as many or as few categories as you like. The website will just report what you enter each month - you're responsible for keeping the total up-to-date. This is a web-based challenge, requiring no QSL cards and no cumbersome paperwork! At the end of each month, WA7BNM will post a score submittal form on the 3830 Score Submittal web page. Enter your totals and the updated totals will be posted to the 3830 contest score reflector and CQ-contest reflectors (and forwarded to the DX and QRP reflectors, as well). At the end of the year, you'll be able to download your certificate. The honour system rules! No padding your totals with the ones that you 'almost' worked. No calling somebody at 100 watts (or more) and then asking for them to 'stand by for my QRP signal'". The sponsors also encourage local challenges, for example within your local club. Sounds like an interesting proposal that many of you may enjoy.

WEB SEARCH

3830 Score Submittals	www.hornucopia.com/3830score
African Double Jump expedition	www.qsl.net/xu7aay/africa/page2.html
FP expedition	www.mhtc.net/~k9ot
Lviv special activity	www.ot5.cq.pl
NA-121 expedition	www.geocities.com/buzzsimm/NA121.html
Prins Karls Forland	www.dxpedition.org/dxjwpk
Low Land DXpedition Team	www.qsl.net/lldxt

CORRESPONDENCE AND TABLES

Firstly, an apology that the nine-band table didn't run last month. Henry, G3GIQ, had prepared it in good time, but space constraints and my own activities meant it had to be held over.

David, M0CNP, despite comments about the atrocious conditions. managed to work 5N6DNP/9 (Nigeria), 9N7DX (Nepal) and SU1HM (Egypt) among others. Adrian, GI0NQC, considers his highlight to have been a lone CW contact, in order to improve his position on the listings when I order the table by CW scores. He says "I dusted off my key (literally), listened for a very slow CQ call, and 15 adrenaline-filled minutes later, had a 1 in my CW total". Well done, Adrian. Though, as he goes on to say, "Let's hope no one else tries this or it's back to the key!"

Ian, M3RDX, records contacts on 20m with ZK1AYL (S Cook Islands), 9N7YJ and 9N7DX (Nepal), S92UN (Sao Tome) and YI/KV4EB (Iraq), while on 17m he worked XU7ACG (Kampuchea). There has, of course, been a lot of activity from Iraq by armed service personnel and the ARRL has indicated that these operations will count for DXCC provided they have been authorised by the appropriate commanding officer. However, with the return to civilian rule, any amateur operations will have to be authorised by whatever interim administration is in place at the time. I would assume this also applies to operations by UN personnel (for example, YI/S53R who has been very active, especially on 30m).

Ken, M3NPB, sends in a list which contains both CW and SSB activity, mostly around Europe, though CW brought contacts with JA1NUT (Japan) and LU2FLN (Argentina), while SSB accounted for VU2DJQ (India). Ken doesn't mention which band(s) these were worked on, but I would have to guess 20m, given the way conditions have been.

Just to round this off, I note that some table entrants haven't updated for two or three months. Please do let me have your updated totals or, if you no longer wish to participate drop me a line and I will remove you.

THANKS

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 **September** issue by **19 July.** ◆

HF F-Layer Propagation Predictions for July 2003

	3.5MHz	7.0MHz	10.1MHz	14.0MHz	18.1MHz	21.0MHz	24.9MHz
Time	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220
(UTC)	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020
*** Europe							
Moscow	1.....23	62.....356	55.....2456	.2543332466.	....6...77..	....	....
*** Asia							
Yakutsk	....	....	21.....12232	654443456666	..2353321...	....	....
Tokyo	....	....	....	.....11..	.....11111.	.....1....	....
Singapore	....	.....12.	.....242.	.....1441.	.....242..	.....12...	....
Hyderabad	....	1	233	1.....13555	.1211136775.	..1222253...	....2.....
Tel Aviv	6.....345	75.....3777	362....26777	6.222112773.	....	....	....
*** Oceania							
Wellington	....	....	....	....	....	....	....
Well (NZ) (LP)	....	26.....3..	671.....332	441.....154	1.........21	11	....
Perth	....	....	1	1	....	....	...11.....
Sydney	....	.....1..	.....11..	....	.....2.	....	....
Melbourne (LP)	....	....	....	....	1.........1	1	....
Honolulu	....	....	....	...1.....	....	....	....
Honolulu (LP)	....	....	....	....	....	.....1...	.....1...
W. Samoa	....	....	....	....	....1.....	....	....
*** Africa							
Mauritius	....	221	.....132.	.....221.	.....21..	.....1...	....
Johannesburg	23.....22	34.....4775	7631	.....172..	...1...23...	.....21...	...22235....
Ibadan	....	12.....111	652.....1556	3271..125767	..875666886.	..63....77..	....
Nairobi	....	1.....111	21.....122	13.....2344	.12...125661	..3212345562.	....12226...
Canary Isles	33.....254	663.....666	7641....3556	7361....6677	...766677785	...44343884.	.....2..
*** S. America							
Buenos Aires	1.....5	763.....5	543.....14	312.....24	3.2.....466	1553	.....1..14..
Rio de Janeiro	....	22.....12	32.....23	21.....122	4...1...776	....1...2764	....11.126..
Lima	....	21.....1	211.....2	1.1.....1	...2.....65	143	.....1..
Caracas	....	....	....	1.1.....1	12	.....11.	.....2..
*** N. America							
Guatemala	....	....	....	....	....	....	....
New Orleans	....	....	....	1.....1	1222352	.....11112.	....
Washington	....	1.....1	321.....1	511.1....135	3333463	.....111112.	....
Quebec	2.....1	63.....16	22.....13	1122	.....43.	....	....
Anchorage	....	....	....	1.1.....1111	.....3.	....	....
Vancouver	....	....	....	....	1121	....	....
San Francisco	....	....	....	....	11	....	....
San Fran (LP)	....	....	....	....	....	....	....

Key: Each number in the table represents the expected circuit reliability, e.g. '1' represents reliability between 1 and 19% of days, '2' between 20 and 30% of days, etc. No signal is expected when a '.' is shown. Black is shown when the signal strength is expected to be low to very low, blue when it is expected to be fair and red when it is expected to be strong. The RSGB Propagation Studies Committee provides propagation predictions on the internet at http://members.aol.com/g4fkhgwyn. The page is updated monthly. The provisional mean sunspot number for May 2003 issued by the Sunspot Data Centre, Brussels, was 55.2. The daily maximum / minimum numbers were 99 and 17 on 1 May and 10 May respectively. The predicted smoothed sunspot numbers for July, August and September are respectively: (SIDC classical method - Waldmeier's standard) 57, 56, 54 (combined method) 66, 64, 61. Longpath predictions are shown with (LP) following the path name. Higher input power and superior aerials have been used for these predictions; less well-equipped stations may find the longpath predictions somewhat inaccurate.

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IOTA

Next year will be IOTA's 40th anniversary. Not quite the 90th anniversary being celebrated this month by the RSGB, but still pretty memorable. It's common knowledge that Geoff Watts, a leading British SWL, created the programme in December 1964 and ran it until March 1985 when he asked RSGB to take it on. Why an island programme and how it developed are not so well known.

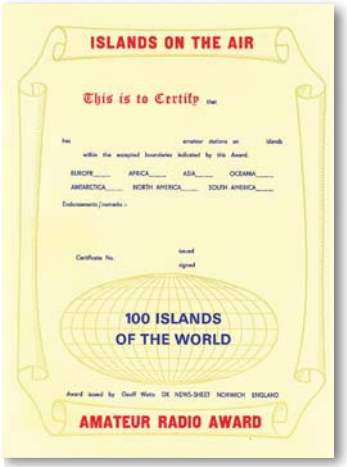
THE GENESIS OF IOTA

IOTA was the result of Geoff's vision that was in time to catch the imagination of amateurs world-wide. During the '60s most DXers were concentrating on DXCC following an influx of new countries as a result of political change. However, the pace was much slower and DXpeditions as we now know them were few and far between. The attraction of multi-band working was yet to come as was the excitement of operating on the new WARC bands. Geoff captured the mood with his new programme saying "Now that propagation conditions are poor, DX getting scarce, the possibility of brand new DXCC countries eventually becoming extremely remote, top DXers retiring because there is nothing new left to work, it is proposed that an entirely new DX achievement be created, the 'Islands on the Air Award', to promote more activity and interest among all DXers, many of whom can then go on a brand new island DXpedition themselves".

Geoff wanted the thrill of operating from the sharp end of a pile-up to be shared more widely than just among those who found themselves living on a rare island or able to afford to mount a DXCC-type DXpedition – cheap air flights were still a long way off. Not that the HF equipment needed for island operations was that portable in those days! With hindsight Geoff was probably ahead of his time with this new initiative. It took a while to take off.

Geoff's original IOTA list included some 500 groups of which 194 were given numbers from the outset: AF-001 to 032, AN-001 to 010, AS-001 to 021, EU-001 to 030, NA-001 to 036, OC-001 to 54 and SA-001 to 011. These included mainly recognised island groups (eg the Shetlands, Canaries, Azores) and larger single islands that had resident amateurs (eg Sicily, Sakhalin, Tasmania). In practice most of the main DXCC island-countries were included, but not all. For example, many of the Caribbean islands were grouped into either the Leeward Islands or Windward Islands, reflecting the geographical group rather than political concept underpinning the programme.

By March 1985 when at Geoff's request the RSGB took on the programme the list of numbered groups had increased to some 400, split as follows: AF-001 to 047, AN-001 to 014, AS-001 to 056, EU-001 to 093, NA-001 to 083, OC-001 to 081 and SA-001 to 029. 160 unnumbered groups took the total to some 560. It's another story how this then grew to its current size of 1200 groups of which 1041 are numbered. Suffice to say that by the mid to late '80s we were experiencing an explosion of interest in IOTA, manifested by a spate of requests for the creation of new groups and the splitting of existing ones. The only way to handle this was to rework Geoff's rules into a sturdier structure and use it to reshape and expand the existing list into one that could be seen to address most peoples' wishes while at the same time was definitive. That resulted in two major revisions, the first in 1991 with the introduction of a capped list of groups that covered all the world and the second in year 2000 with the listing of some 15,000 islands that qualified for them. Coincidentally, we are now in 2003 almost at the same spot as in 1985 – some 160 of our groups are unnumbered!



The original IOTA certificate awarded by Geoff Watts from 1964 onwards.

Those who were around in the early days of IOTA will remember how difficult it was to work a new IOTA. The real aficionados had first to identify the island stations that counted and then to track them down by good old 'search and pounce' methods. There was no DX Cluster and local VHF DX-tracking nets were seldom interested in IOTA contacts. Information had to be gleaned from one's own efforts or by a system of intelligence relay among the real enthusiasts. Furthermore, resident island stations needed to be convinced that they were a contact of sufficient interest to island chasers to warrant increased activity while requests to mainland stations to consider an operation from a nearby island often met with disinterest, if not disbelief! Promoting IOTA in those early days relied on the spoken word or such DX bulletins that were around and were interested in this apparently bizarre new programme. How things have changed. ◆

IOTA get-together at Visalia, April 2003. From L to R, seated: Merle, N6PYN; Mike, AD5A; Martin, G3ZAY; Fred, N6AWD; Dan, W4DKS. Standing: Don, W6ED; Ed, K6DT; Ray, N6VR; Mike, AB5EB, and Lanny, W5BOS.

NEW REFERENCES

AS-167	XZ	Irrawaddy / Yangon / Pegu Region group (Myanmar)
NA-223	HR	Gracias a Dios Department group (Honduras)
NA-224	XE1	Veracruz State South group (Mexico)
OC-256	P2	Kilinailau (Tulun) Islands (Papua New Guinea)
OC-257	P2	Nuguria Islands (Papua New Guinea)
OC-258	P2	Papua New Guinea's Coastal Islands North (Papua New Guinea)
OC-259	V63	Nukuoro Atoll (Federated States of Micronesia)
OC-260	V63	Oroluk Atoll (Federated States of Micronesia)
OC-261	VK5	South Australia State West Centre group (Australia)
OC-262/Pr	YB4-5	Sumatra's Coastal Islands South (Indonesia)

Pr = PROVISIONAL

WEB SEARCH

RSGB IOTA Programme:	www.rsgbiota.org
IOTA Manager's website:	www.eo19.dial.pipex.com/index.shtml
IOTA Contest rules:	www.rsgbhfcc.org/

RSGB IOTA PROGRAMME, PO BOX 9, POTTERS BAR, HERTS EN6 3RH; E-MAIL: IOTA.HQ@RSGB.ORG.UK

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ALINCO DX-70TH

Fully Featured Portable HF+6mtr Transceiver

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- TX - all HF + 6mtr
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- 100 memories
- Detachable faceplate and remote mounting kit available
- Speech processor standard
- Narrow filters fitted as standard

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The DX-77 is a design achievement that puts a HF desktop transceiver within your reach! And this is no 'bare bones' radio, nor is it a converted 'channelised' adaptation. The DX-77 was designed from the beginning to be a quality Amateur Radio, full of features to enhance its performance and your enjoyment.

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- General coverage RX 500kHz - 30MHz
- All modes, FM, LSB, USB, CW & AM
- 100 memory channels
- Built in speech compressor
- Front mounted speaker, loud clear audio
- Optional keyer

~~£599.00~~
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EDX2

Auto Tuner

An automatic antenna tuner that matches a transceiver to a random wire antenna of over 3m in length (3.5MHz and above), or over 12m in length (1.6MHz and above). It comes installed with 5m of coaxial and control cables for instant operation with Alinco DX-70.

- Auto tuner
- 3.5MHz-30MHz (with over 3 metre element)
- 200W PEP power handling
- Power for tuning = 7-20W
- 13.8V DC ±10% operating voltage

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HFM-1

A stainless steel, heavy duty HF mobile antenna complete with spring base. Covers 3.5 to 30MHz when used with the Alinco EDX-2 Automatic Tuner. Alternatively it may be base matched with any type of tuner for mono band or multi band use. Power handling with the EDX-2 is 150W.

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- Length: 2.7 metres

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ALINCO DR-605E Dual Band Mobile

The DR-605E is a no-nonsense twin-band mobile transceiver that delivers power and performance with user-friendly features. The command keys are simply laid out to enable intuitive operation.

- Ready for 9600 bps packet
- Extended RX capability 136 - 174MH, 420 - 470MHz
- 50W (2m) - 35W (70cms)
- 100 memory channels (+ CALL Channels)
- Cross band full duplex
- Tone search function
- Cable cloning function
- Channel indication mode
- CTCSS encoder fitted

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DJ-SR1

PMR 446 Licence Free Radio

Ideal for:
• FAMILY • BUSINESS • LEISURE USE

Gives clear two way communications up to 2 miles range
(dependant on terrain)

- 8 channels at 446 MHz
- 312 channel - modes with CTCSS
- 500 mW output

Large selection of accessories available including:

- Headset with Vox £39.95
- Speaker Mic £24.95
- Car DC lead £27.95

DJ-SR1

Single Unit **£79.95**

DR135E

- TX: 144 - 146MHz
  RX: Expandable 118 - 174MHz
- 50/10/5 Watts power settings
- 100 memory channels
- Frequency Steps:
  5, 8.33, 10, 12.5, 15, 20, 25, 30, 50kHz
- Front panel GPS input for APRS
- Rear panel DSUB9 computer connection
- Ignition key on/off feature
- CTCSS and DCS encode + decode
- Super-wide 7 character display
- Wide/narrow (25/12½kHz) FM modes
- Theft alarm feature
- AM airband receive
- Ten auto dial memories
- Size: 142 x 40 x 174mm
- ***EJ-41U***
  Optional internal TNC operates 1200, 9600bps ***£69.95***
- ***EJ-40U***
  Optional Digital Voice Board ***£79.95***

£235.95

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ing the world talking

DJ 193E

GREAT VALUE 2 mtr Handheld

- 2m (144-146MHz)
- Up to 5W VHF
- Wide RX possible (typical 135-173MHz)
- CTCSS + DCS enc/dec fitted
- 40 memory channels+1 call ch
- Alphanumeric display
- DCS, Tone burst and DTMF
- 13.8V DC direct input facility with battery charge feature
- THEFT ALARM! Emits a tone when disconnected from power
- S Meter
- Audio dialler
- Call cloning facility
- Comp. programmable 3rd party software
- Experimental insect repellent feature!

£139.95

DJ-596 NEW Dual Bander

- 100 memory channels, any mix of VHF/UHF
- Alphanumeric channel labels
- Direct freq input from keypad
- Large backlit display
- CTCSS, DCS encode+decode
- DTMF tones and autodial memories
- Tone bursts
- Three scan modes
- Theft Alarm feature
- Wide and narrow FM TX/RX
- 12VDC direct input (5W output)
- High-power NiMH battery (4.5w output VHF/4w UHF)
- Busy Channel Lock Out
- Mosquito Repelling feature *(experimental)*
- External Terminal Control
- Wire cloning capability
- Optional digital mode *(where permitted)*

£199.95

DJ-X2000 Intelligent Scanning Receiver

- Covers 100kHz - 2,149.99MHz
- 2000 channel memory
- AM/NFM/WFM/LSB/USB/CW
- 'Flashtune' reads the frequency of a nearby transmitter and instantly takes your receiver to it
- Record up to 160 secs direct from receiver or via the built in mic
- Descrambler
- Channel scope
- Bug detector
- CTCSS decoder/Search
- Frequency counter
- Field strength meter
- S Meter
- PC programmable
- Includes FREE:
  - Multi voltage 110V-240VAC mains charger for easy use anywhere in the world
  - 4.8V DC 700mAH NiCad battery pack
  - Belt clip
  - Carrying strap
  - Flexible low profile antenna

£499.00

DJ 195E

2 mtr Handheld with Keypad

- New 2 metre (144-146MHz) handheld
- Easy to use, direct entry keypad
- Wide RX possible (typical 135-173MHz)
- Up to 5 watts output (0.8W low power)
- 40 memory channels + 1 call channel
- Large range of accessories available

£159.95

DJV5E

Compact Dual Bander

- New dual band handy transceiver
- 5W/1W/0.5W output power
- Super wide receive (76-999MHz)
- Includes wide FM mode
- CTCSS Encode+decode, DTMF squelch and 4 different European Tone Bursts
- 200 memory channels +2 call channels
- Alphanumeric Display, up to 6 characters
- Autodial memories
- Up to 6 character alpha-tagging
- 4 scan modes, 5 programmable scan banks
- Input voltage display with over voltage warning
- Automatic high temperature protection feature

£225.95

DJ-X10E

Advanced Scanning Receiver

- Receives: 100kHz - 2000MHz
- Multi mode reception AM - WFM - NFM - SSB - CW
- 1200 memory channels
- Channel scope spectrum analyser - allows monitoring of 40 channels
- Advanced scanning features: Programmed scan (up to 10 groups) Programmed memory scan
  - Any memory scan
  - Mode scan
  - VFO search
  - Dual VFO search
  - Band encursion scan
  - Priority scan
  - Any channel ship scan
- Battery save facility
- Facilities for cloning another set
- Built-in 24 hour clock
- Switchable attenuator

£299.95

DJ-S40 CQ

UHF Pager Sized Handheld

- Up to 1 W output (with 13.8V supply)
- Large illuminated display
- Loud clear speaker horn system
- 100 memories+1 call channel
- Multi Scan functions
- 38 CTCSS tones for selective calling
- S-meter
- Cable Cloning
- External device control feature (outputs 3Vdc 5mA signal from an accessory port when squelch opens)
- Additional features, including anti-theft alarm and experimental mosquito repelling tone!
- Huge selection of accessories available

£99.95

DJ-X3

Ultra Modern Scanning Receiver

with 8.33kHz for airband

- 100kHz - 1300MHz
- AM/FM/WFM
- 700 memory channels
- Steps: 5/6.5/8.33/10/12.5/ 15/20/25/ 30/50/100kHz
- Auto descrambler
- Bug detector
- Stereo FM (with headphones)
- Attenuator
- SMA Antenna
- Battery saver cct
- Size: 56w x 102h x 23d mm
- Weight: 14.5g (without batteries)
- Supplied c/w: 3 AA dry cell battery case, carrying strap

Optional extras

- Ni-Mh battery pack
- Drop in Hob mains charger
- Earphone

£129.95

DJ-X2

The ULTIMATE Lightweight Scanner

with 8.33kHz for airband

- Receives: 522kHz - 999.995MHz
- AM WFM NFM
- Selectable scan modes
- 700 memories
- Audio descrambler
- Bug detector - detects presence and frequency of bug giving audible warning
- Selectable internal / external antenna
- Internal or external supply
- Program Search banks
- Illuminated backlight display
- 2 performance mode, easy and expert
- RX attenuator
- Auto power off mode
- Priority channel monitoring
- Squelch control
- Volume control

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CONTEST

It's sometimes fun to look back at what's changed in amateur radio and contesting, in some cases over a very short space of time. Take computer logging, for example. Most of us can't conceive of entering a contest using paper and pencil any more. Some do, I know, and very successfully to boot, but the fact is most of us don't. I well remember participating in SSB Field Day in the early 1980s with the Cheltenham club, G5BK/P, where a slip was filled out for each QSO made. From these slips, not only a contest entry had to be formulated, a score calculated, but the club logbook filled in too. It could take weeks. And it did! Happily now, most of us have a cursory scan down the log, create a file, e-mail it to the adjudicator – and that's that.

Portable rig performance is another thing that's changed dramatically. Receivers have moved on even in recent years – tremendously - though at VHF, my trusty FT-225RD/ Mutek combination still puts up a good fight against the newer rigs (when the circuit boards aren't loose, that is). A nostalgia trip taken every couple of years at G4VXE is no more than flicking through old logbooks and looking at the calls that have come and gone over the years.

CONTESTS THIS MONTH

One interesting contest this month is the IARU HF Championship, to be held on 12/13 July. This is a well-supported event from around the globe and there is an interesting section for HQ stations, entered by the national society. For many years, DARC in Germany has put up massive scores from their DA0HQ station. In recent years, some interesting challenges have been mounted from the ARRL station, W1AW. This year, GB5HQ is going to mount a big entry from the UK – and to do well, will need your help! GB5HQ will be active on all the contest bands between 1.8 and 28MHz and on both modes. Please look for GB5HQ and contact the station. There is an award to claim if you do so on at least three band/modes: see the 'Down To Earth' feature on page 58.

On 20 July, RSGB's Low Power Field Day takes place. With the increased interest in Low Power operation, this event has become much more competitive and interesting. If you normally enjoy QRO operation, but have a low power rig, why not try the event and see if your operating skills are as good as you thought they were?! For the dyed-in-the-wool QRP types, this is a great chance to be on equal terms with the other participants. We're looking forward to a big entry and hope to see some more Foundation Licensees taking part again this year.

26/27 July brings what has become the major RSGB international contest of the year, the IOTA contest. This event goes from strength to strength. As a UK station, if you go on during this event, you will be popular even if you are just on the UK mainland, so you can expect more calls than normal if you decide to call "CQ contest". Give it a go, it's great fun!

At VHF, the weekend of 5/6 July is VHF NFD – which as ever sees all the big groups and a good number of clubs out on the hills taking part in the contest. Even if you're at home and want to test gear out, this is a great time to do it, since there will be plenty of signals, near and far to work. Backpackers enthusiasts will enjoy the 3rd of the 144MHz Backpackers events on 6 July which runs concurrently with the last four hours of NFD.

The following weekend of 13 July sees the next in the series of the 50MHz Backpackers events. Even if you have simple gear, with any luck, there could be Es around that weekend, so you may well be able to work around Europe or possibly even further afield. The weekend after that (July is a busy month for VHFers), there are the 144 and 432MHz low power contests; 144MHz on Saturday 19th between 1400 and 2200UTC and 432MHz on Sunday 20th, between 0800 and 1400UTC. And to round things off, there's another 144MHz Backpackers event on 27 July between 1100 and 1500UTC. ◆

Two of the Three As Contest Group – always amongst the leaders in HF Field Day. Pictured are Ian, G3WVG, and Roger, G3SXW, operating as GU0AAA/P in 2002. Nigel, G3TXF, is the other member of the team and claims he was making the tea at the time!

CQ WPX CW Contest, 2002 (UK Entrants)

Single Operator		
GW7X	A	2045520
*G5X (op: M0BRK)	A	1982091
*M7W (op: G4IIY)	A	1929501
M0TTT	7	1829284
GM4SID	A	1629650
*G5LP	A	1543746
G4BJM	A	967434
*G3KKP	A	857789
*G3TJE	7	798183
*G4OGB	A	733044
*G3OOU	A	508352
G4ZVJ	A	483257
*G4KFT	A	442911
*MU0FAL	A	394605
*G4DDX	A	362232
*M4T (op: G0VQR)	14	361185
*G4WFQ	A	346320
MU/DL7ET	A	321708
G0CKP	3.5	279549
*G3RSD	21	238084
*G0/N9LYE	A	183521
*G0UKX	A	122982
G3UFY	A	103716
*GM4UYZ	A	4845
Assisted		
G3TXF	A	1870272
*M6T (op:G4PIQ)	A	177000
QRP		
G3KKQ	A	498190
M0O (op: G4JZO)	A	271458
G0DCK	21	255024
G3LHJ	14	166704
Multi-Single		
GX6YB	A	5165600
GM2T	A	264000

(* Low Power)

SP DX Contest 2002 (UK Entrants)

Multi Operator, Multi Band, Multi Mode	
MM0JXI	540
Single Operator Multi Band, CW	
G4EBK	25530
G3RSD	18612
M0AJT	3864
Single Operator Multi Band Mixed Mode	
G0DVJ/P	73776
Single Operator Multi Band SSB	
M5ACR	24444
Single Operator 14MHz Mixed Mode	
M0EEE/P	14208

Seanet Contest (CW), 2002 UK Entrants

G3JJG	270
G3RSD	210

Baltic Contest, 2002 (UK Entrants)

CW	
G0CKP	913
G3RSD	750
G4EBK	696
G3LIK	680
G4OGB	552
GM0NTL	456
G2XP/P	343
G3VQO	281
Mixed	
G0MTN	768

Many years ago the Southport & District Amateur Radio Club (SADARC) was quite active in contests. The club's special events co-ordinator, Mike Davis, is now encouraging it to enter more contests in future. The RSGB Slow Speed CW contest in March was used by Mike to introduce members to the skills required. Here, Mike makes the first contact as Brian Rimmer looks on.

By Tim Kirby, 11a Vansittart Road,
Windsor SL4 5BZ. E-mail: tim@g4vxe.com

Contest Calendar

HF CONTESTS

Date	Time	Mode	Contest	Bands	Exchange
1 July	0000-2359	CW/SSB	RAC Canada Day	3.5-144	RST+SN
12/13 July	1200-1200	CW/SSB	IARU HF Championship	1.8 – 28	RST+ ITU Zone
20 July	0900-1200	CW	RSGB Low Power Field Day #1	3.5	RST+SN+Power
20 July	1300-1600	CW	RSGB Low Power Field Day #2	7.0	RST+SN+Power
26/27 July	1200-1200	CW/SSB	RSGB IOTA Contest	3.5 – 28	RST+SN+IOTA Ref

VHF CONTESTS

Date	Time	Mode	Contest	Bands	Exchange
1 July	1900-2130	ALL	RSGB 144MHz Activity	144	RST+SN+Locator
5/6 July	1400-1400	ALL	RSGB VHF NFD	50-1296	RST+SN+Locator
6 July	1100-1500	ALL	RSGB 144MHz Backpackers #3	144	RST+SN+Locator
8 July	1900-2130	ALL	RSGB 432MHz Activity	432	RST+SN+Locator
13 July	1100-1500	ALL	RSGB 50MHz Backpackers #1	50	RST+SN+Locator
15 July	1900-2130	ALL	RSGB 1.3 – 24GHz Activity	1.3 – 24G	RST+SN+Locator
19 July	1400-2200	ALL	RSGB 144MHz Low Power	144	RST+SN+Locator+Postcode
20 July	0800-1400	ALL	RSGB 432MHz Low Power	432	RST+SN+Locator+Postcode
22 July	1900-2130	ALL	RSGB 50MHz Activity	50	RST+SN+Locator
27 July	1100-1500	ALL	RSGB 144MHz Backpackers #4	144	RST+SN+Locator+Postcode

MICROWAVE CONTESTS

Date	Time	Mode	Contest	Bands	Exchange
13 July	0900-2100	ALL	RSGB 24GHz Cumulative #2	24G	RST+SN+Locator
27 July	0900-2100	ALL	RSGB 5.7/10GHz Cumulative #3	5.7/10G	RST+SN+Locator

144MHz Backpackers Championship, 2002

Pos	Group	Callsign	Total	BP1	BP2	BP3	BP4	BP5
1*		M0AFC/P	3000	1000	1000	1000	1000	1000
2*		G4HLX/P	3000	1000	154	1000	1000	1000
3		GW5NF/P	3000	1000	500	1000	846	1000
4	One Man and His Dog CG	G8NWM/P	3000	1000	1000	1000	511	755
5		GW8ZRE/P	2779	607	854	925	1000	712
6		G4RQI/P	2524	503	1000	524	0	1000
7		G0HDV/P	2135	527	608	384	1000	428
8	Malvern Hill "B"	GW4IDF/P	2008	0	0	670	540	797
9	Wigan Douglas Valley ARS	G3BPK/P	1955	894	240	562	499	432
10		GW0PZO/P	1850	731	347	1	0	773
11	Barpackers Contest Group	M1BAR/P	1657	559	401	697	0	0
12		G8XQS/P	1589	0	67	384	645	560
13	West Kent ARS	G1WKS/P	1507	454	171	459	365	594
14		G0BVW/P	1320	356	140	503	188	461
15		G1ATZ/P	1304	686	80	0	0	538
16		G0PQF/P	1097	197	0	545	0	355
17		GW7LQD/P	1000	0	1000	0	0	0
18		M0BAO/P	891	137	121	402	169	320
19		G0TPH/P	676	0	264	0	0	413
20		G1ORC/P	598	0	598	0	0	0
21		GM4IGS/P	587	0	0	0	587	0
22	The Mighty Potters	M1LOL/P	568	237	180	151	0	0
23		G0OIW/P	481	0	0	0	0	481
24		G3JKV/P	466	0	0	0	0	466
25		GI7JYK/P	443	443	0	0	0	0
26		M5CSM/P	378	303	76	0	0	0
27		G0WJR/P	352	0	86	0	40	226
28		GQ4EDR/P	335	0	335	0	0	0
29		M1TAP/P	322	0	101	221	0	0
30		G4CZB/P	320	0	0	0	0	320
31		G1RVK/P	296	39	0	105	115	77.3
32		GW4EVX/P	279	0	0	0	75	203
33		M0BHE/P	245	0	96	0	0	149
34		G1WAC/P	212	0	0	0	212	0
35		G0LJD/P	80	0	80	0	0	0
36		GM4LPJ/P	78	78	0	0	0	0
37		G7NBE/P	76	0	0	0	0	75.9
38		M0COP/P	66	0	66	0	0	0
39		G4WVD/P	9	0	0	0	0	9.14

10GHz Trophy 2002

Pos	Callsign	Score	Mult	QSO	Locator	Pwr	Ant	Best DX	km
1*	G8P	99750	19	21	01QD	10	1.2m	PA6C	407
2*	M6V	26505	10	9	94RJ	15	1.0m	G4JNT/P	411
3	G4MAP/P	14634	9	13	92GB	10	1.0m	M6V	266
4	M1CRO/P	11385	9	8	01PU	5	0.6m	ON4CP	260
5	G4JNT/P	1296	3	2	80UU			M6V	411

* CERTIFICATE WINNER. ADJUDICATOR: ANDY COOK, G4PIQ.

50MHz Trophy Contest 2002

MULTI OPERATOR SECTION, 24 HOUR

Pos	Group	Call	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*	Northern Lights	MD4K	IO74QD	800	924378	230	212606940	4Z8GZ	3941	400	2x2x7+2x6+6	FT650
2*	Blacksheep C&DXG	G8T	IN79JX	604	753754	216	162810864	OD5/W0GXY	3782	400	2x6	JST245
3	Five Bells	G5B	JO03CE	492	478262	206	98521972	4Z4DX	3616	400	1x6 + 4x5	TS950+tvtr
4	DMUARS	M2A	IO92LM	451	472054	178	84025612	7Q7RM	8357	400	6el	FT847
5	Colchester CG	G0VHF/P	JO01GN	379	412218	191	78733638	D2EB	6562	300	7el	FT847
6	Bracknell ARC	G6BRA/P	IO80ST	358	390014	166	64742324	4Z4KX	3688	400	8el	FT920
7	Stevenage DARS	M3S	IO91TW	292	293965	178	52325770	D2EB	6620	400	7 + 3 + 3	FT847
8	Swindon RC	GQ8SRC/P	IO91CL	199	188913	108	20402604	SV8DTD	2580	80	5el	FT736
9	Telford DARC	G3ZME/P	IO82SM	165	179757	112	20132784	LZ1KSW	2452	400	5el	IC756
10	Guildford DRS	G5RS/P	IO91TF	181	132560	99	13123440	ER6A/P	2097	400	2x6	TS2000
11	Maidenhead DARC	G3WKX/P	IO91PN	102	110559	81	8955279	SU1SK	3496	100	5el	FT847

SINGLE OPERATOR FIXED SECTION, 24 HOUR

Pos	Group	Call	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*		G4DEZ	JO03AE	342	395031	161	63599991	D2EB	6745	400	7el	FT920
2*		G0AEV	IO81WL	252	293504	147	43145088	4X4IX	3674	100	7el	FT706
3		GW3LEW	IO71PS	180	231319	106	24519814	EY7AF	5622	400	5el	TS2000
4		G0VFW	IO91RR	131	123942	99	12270258	LZ1KWT	2223	100	4el	IC756
5		M0COP	IO92BK	109	128919	89	11473791	LZ1KWT	2333	100	5el	IC746
6*		M1DUD	JO02QC	91	102262	83	8487746	SV8DTD	2410	2	5el	FT690
7		MU0FAL	IN89RL	79	92671	55	5096905	LZ1KWT	2309	200	5el	FTV1000
8		G3FIJ	JO01KV	23	14757	25	368925	LZ1ZP	2113	10	4el	FT736

SINGLE OPERATOR OTHER SECTION, 24 HOUR

Pos	Group	Call	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*		GM4ODA/P	IP90LL	155	261800	99	25918200	ZR6DXB	9973	400	5el	TS850+tvtr
2*		GW8ZRE/P	IO83JA	53	47736	49	2339064	9H0O	2347	10	HB9CV	FT690

6 HOUR OTHER SECTION

Pos	Group	Call	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*	Yate Contest Group	M0YYY/P	IO81UN	285	329603	125	41200375	4Z4KX	3706	400	7el	FT847
2*		GM4WLL/P	IO85NR	133	208575	80	16686000	Z36W	2387	25	3el	TR9130+tvtr
3		G1KHX/P	IO81MH	91	112747	69	7779543	9H1BT	2203	90	3el	101ZD+tvtr
4		G4ADV	IO70LK	42	48105	39	1876095	9H0O	2244	100	5el	IC706

6 HOUR SINGLE OPERATOR SECTION

Pos	Group	Call	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*		G4DHF	IO92UU	220	271150	108	29284200	LZ1ZP	2228	400	7el	IC756PRO
2*		G3MEH	IO91QS	156	193446	92	17797032	4Z4DX	3601	250	5el	FT1000+tvtr
3		G4HLX	IO91FP	106	151721	83	12592843	LZ1KSW	2364	100	5el	FT847
4		M0DDT	IO91JR	105	129871	86	11168906	SV8DTD	2553	150	5el	FT736
5		GW0GEI	IO73TG	78	91117	71	6469307	CT3FT	2446	400	8el	FT920
6		G0ODQ	IO91NQ	80	84916	64	5434624	SV8DTD	2530	80	5el	FT736
7		GQ3VQO	IO91UB	25	36968	31	1146008	LZ4A	2109	100	3el	FT920
8*		2E1GUA/P	JO01FS	43	25092	27	677484	YO5BLA	1758	50	5el	FT847

SWL

Pos	Group	Call	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*		BRS25429	IO93FX	136	181947	118	21469746	SV5BYR	3019		5el	R2000

* CERTIFICATE WINNERS. ADJUDICATOR: MATTHEW JEFFERY, G7ORR.

70MHz Trophy, 2002

MULTI-OPERATOR SECTION

Pos	Callsign	Locator	QSOs	Score	Mult	Total	ODX Call	ODX Loc	ODX km	Power	Ant
1 *	GD0EMG	IO74QD	88	28912	57	1647984	S54M	JN86CL	1698	160	2*8 ele
2 *	GM4SIV/P	IO75DH	79	26179	52	1361308	S51UE	JN76CI	1707	160	2*9 ele
3 *	EI/G3TCU/P	IO63VE	66	25506	49	1249794	S54M	JN86CL	1763	150	4*6 ele
4	G4ZAP/P	IO70FD	63	21980	50	1099000	GM3CKR/P	IO85RU	666	158.54	8 ele
5	GM3CKR/P	IO85RU	69	21634	50	1081700	S51DI	JN76VL	1641	150	2*8 + 1*8 ele
6	G0VHF/P	JO01GN	66	13038	47	612786	GM4SIV/P	IO75DH	587	150	8 ele
7	G4SJH/P	IO91QF	63	12464	49	610736	S54M	JN86CL	1336	70	6 ele
8	G4ADV/P	IO70JH	43	13180	34	448120	GM3CKR/P	IO85RU	641	80	7 ele

SINGLE OPERATOR SECTION

	Callsign	Locator	QSOs	Score	Mult	Total	ODX Call	ODX Loc	ODX km	Power	Ant
1 *	G4YPC/P	JO00EW	68	15522	49	760578	GM4SIV/P	IO75DH	633	160	8 ele
2 *	GM4CWH/P	IO74WV	53	16540	37	611980	S51DI	JN76VL	1677	130	5 over 5 ele
3	GM4WLL/P	IO85NR	37	12046	29	349334	G4ZAP/P	IO70FD	646	20	6 ele
4	GW8ASA/P	IO81GN	48	7744	34	263296	GM3CKR/P	IO85RU	481	50	3 ele
5	G3IZD/P	IO84JC	35	6991	30	209730	G4ZAP/P	IO70FD	468	20	2 ele
6	G0OVA/P	IO91QI	34	5531	29	160399	GM4SIV/P	IO75DH	554	10	3 ele
7	G0WJR/M	IO81QJ	17	2776	17	47192	GM4SIV/P	IO75DH	481	15	2 ele
8	G4WVD/P	IO70NN	9	1187	8	9496	GD0EMG	IO74QD	399	25	3 ele
9	G3VQO/P	IO91MA	3	214	4	856	G4YPC/P	JO00EW	94	10	whip

SINGLE OPERATOR, FIXED SECTION

	Callsign	Locator	QSOs	Score	Mult	Total	ODX Call	ODX Loc	ODX km	Power	Ant
1 *	G3MEH	IO91QS	65	10479	50	523950	GM4SIV/P	IO75DH	517	160	2*5 ele
2 *	G3NAQ	IO91HL	55	9071	39	353769	GM4SIV/P	IO75DH	514	60	8 ele
3	G0ODQ	IO91NQ	49	8741	40	349640	GM4SIV/P	IO75DH	514	75	5 ele
4	G3IKR	IO82XF	46	8081	37	298997	S51DI	JN76VL	1436	140	4 ele
5	G3LVP	IO81WV	47	7471	36	268956	GM4SIV/P	IO75DH	447	150	4 ele
6	G0GCI	JO01ED	36	7676	35	268660	GM4SIV/P	IO75DH	615	100	7 ele
7 *	S51DI	JN76VL	13	16316	16	261056	GM4SIV/P	IO75DH	1788	100	8 ele
8	G3BPM	IO80OV	40	7989	32	255648	S51DI	JN76VL	1445	50	8 ele
9	G4DEZ	JO03AE	35	7458	31	231198	G4ZAP/P	IO70FD	512	160	5 ele
10	G4NBS	JO02AF	40	7063	32	226016	GM4SIV/P	IO75DH	510	70	4 ele
11	G4OBK	IO94OF	28	7015	28	196420	G4ZAP/P	IO70FD	557	75	5 ele
12	G3NKS	IO81XU	33	5649	32	180768	GM4SIV/P	IO75DH	454	100	6 ele
13	G1KHX	IO81MI	36	5426	25	135650	GM3CKR/P	IO85RU	501	90	5 ele
14	GW5NF	IO81KQ	26	5090	24	122160	S54M	JN86CL	1517	80	5 ele
15	S54M	JN86CL	11	16519	6	99114	EI1CR	IO53WG	1888	25	2 ele
16 *	G3JYP	IO84SN	22	4088	20	81760	G4SJH/P	IO91QF	391	10	10 ele collinear
17	G3FIJ	JO01KV	17	3814	16	61024	EI/G3TCU/P	IO63VE	500	10	4 ele
18	GM4DIJ	IO85IW	13	2800	16	44800	G4ZAP/P	IO70FD	661	70	4 ele
19	G4FEV	IO92RG	13	2812	14	39368	GM4SIV/P	IO75DH	479		
20	GW4ALG	IO81PP	12	1814	10	18140	GM4SIV/P	IO75DH	453	5	5 ele
21	M0FAQ	JO01GU	9	913	9	8217	GD0EMG	IO74QD	429	8	indoor dipole
22	GM4VVX	IO78TA	3	577	3	1731	GM4SIV/P	IO75DH	312	10	6 ele
23	M0WYE	JO01LE	5	141	4	564	G0VHF/P	JO01GN	51	10	vertical

By Bob Treacher, BRS32525, 93 Elibank Road, Eltham, London SE9 1QJ. E-mail: brs32525@compuserve.com

SWL

Right: Chas Farrell, BRS1733 (now G8GS), at Morse practice – date unknown, but pre-WWII.

As David Whitaker, BRS25429, and I have been playing the SWL game for a total of over 75 years between us, nostalgia comes easier to us than to most. Between us we have seen the highs and the lows of the last 30+ years on the amateur bands. We can both remember AM transmissions on 40m and the excitement of hearing a DL on 160m SSB. We also remember the days before the 'WARC' bands, and some wonderful, never to be heard again, DX.

WHERE WERE YOU IN 1969?

The first entry in my SWL log in February 1969 was KZ5RF, now a callsign used by an amateur in the United States, but in 1969 KZ5 was the Canal Zone and a country with DXCC status. I sent my QSL card direct the same week and one was returned. The next day, I heard CR7CH in Mozambique. Looking through my first log, I see that a great time was spent listening to inter-G QSOs on 40m AM. A few days into the log has the now defunct GB2SM from the Science Museum on 40m AM. Two calls logged then that are still to be heard today were G3JMB and G3WUX.

My first W7 was on page 11 of the log, one week after I started listening, but ZL took a little longer: almost six weeks. KW6GA (Wake Island) was heard – not so rare in those days. TJ1AR was heard on 15m AM, as was 9Q5KJ. VQ9L and ZC4MO are there too. More callsigns that you'll recognise followed – G2QT, G5LP and OH2BH, while back on 15m – this time on SSB – EP3AM (Iran), ET3USA (Ethiopia), 3V8AC (Tunisia), 5B4ES (Temporary licence from the English School in Cyprus), 5L2BJ (Liberia), 5A5TF (Libya) and 7X0WW (Algeria) were logged. I could reminisce for the entire column!

...AND IN 1993?

Although David could fill the rest of the column – he's been listening for 42 years – he looks back to the state of the bands in 1993, not that long ago really. At the end of March 1993 he had heard 231 DXCC entities, 21 more than the number heard this year. The individual band totals also showed more countries than he's heard this year. Taking the six 'traditional' bands – 10m, 15m, 20m, 40m, 80m and 160m – David heard 815 'band countries' (he says they weren't 'entities' then!) This year he's only heard 697. As he retired around 10 years ago, David's listening pattern is very much the same year on year.

The reason for this nostalgic look back to '93 is to see if any conclusions can be drawn into what is happening with the current sunspot cycle. David says that the solar indices were much the same as they are at present, with a flux of around 120 at the end of March 1993. It seems there's less activity now compared with 1993, and conditions have certainly been poor. Will they get any better? David's take on this is that last year's extended peak has upset the cycle momentum. He says that in the previous sunspot cycle the drop was more gradual. David poses the question, "are we really having shorter cycles now?", and suggests it might bring a longer sunspot minimum? He will wait to be proved right... or wrong!

REAL NOSTALGIA

I am delighted to say that showing the BRS1733 QSL card bought a letter to the Society from Chas Farrell, G8GS. He wrote, "I was greatly surprised, not to say shocked, to see my first QSL card (BRS1733) pictured in the May *RadCom*. The late Jack Coomber, G8UG, and I had been introduced to amateur radio by 'Spenny', G6NA, who also gave us Morse training and we got our tickets via the Artificial Aerial system. I enclose a photo of BRS1733 at Morse practice; the receiver was built in a glycerine container." The photo is reproduced here, and I am really pleased that publishing the QSL card sparked off some real nostalgia.

THE QSLing SAGA

Never a month goes by without some comment on QSLing. Jonathan, M5AEO, confirmed that he always sent SWL cards direct, wherever they are from, as an SWL for over 20 years as BRS45205. He received an SWL card from Germany but was initially confused as he thought he could not find the relevant QSO in his log. Then he realised that German SWLs have 'callsigns', eg DE1LME, DE8TOM etc, but that callsign would not be in his log! This is a point worth noting: there are many hundreds of German SWLs, all with the 'DE' amateur prefix.

Geoff, G0FPH, also took time to comment on SWL QSLing and special event stations. He operates special event stations from time to time and after the last, received four cards from SWLs. He would like more and always replies to SWL reports within 48 hours. Geoff asked me to encourage more listeners to send reports for his special events. His last event was from the Isle of Man in January using the very rare callsign GT2UG. His next special event will be 3–6 October from Guernsey using the equally rare GP2UG callsign. He intends to use 40m daily from 1000–1600UTC. He will be delighted to receive "a barrowload" of SWL cards from SWLs - put those dates in your diary now! Geoff's address is G Spurr, 5 Bentley Street, Wyke, Bradford BD12 9NP.

THE BANDS... MAY2003

Robert Small, BRS8841, complains that the bands have been as poor as they were last month. He remarks that a few DXpeditions lifted the gloom, but there were no new band countries. Best DX of the month was VK9XK on 80m CW, while 40m produced C93FF on CW and 3XY1L on SSB. Robert considered 20m is fast becoming the best band for DX again as we descend the slippery slope of the DX cycle. ZK1BWG, ZK1AYL (OC-083) and VI5WCP (OC-261) from the Pacific have been logged. The only DX worth mentioning on 12m this time was TY5ZR on CW. DX will become harder and harder to hear on 10m, so Robert was pleased with ZS1RBN (Robin Is) and C93CM.

Bringing us right up to date on 6m conditions, David, BRS25429, felt that "the old band was quite lively up here" on several days in May. His pick was T72EB, but Es had produced openings to YU, LZ, SP, YO, OM, OK, 9A, S5, OE, DL, I, EH and CT. He had already heard 31 countries this year by mid-May, but there were still plenty more to log! ◆

By Norman Fitch, G3FPK, 40 Eskdale Gardens,
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My first operation on 2m was with a Pye Ranger VHF AM transceiver, one of a job lot bought from a local taxi firm. They were easy to tweak on to one crystal-controlled channel on 2m enabling a group of we HF DXers to keep in touch to alert the others when some rare DX appeared.

During tropo lifts I managed to work into the near Continent with the Ranger but it wasn't until the late 1960s, when I moved to my present QTH, that I became seriously interested in VHF operation. I built a 3-ele Yagi out of copper tube and a wooden boom and hung it with string from the rafters in the loft to point north. With just 10W of AM I worked into Yorkshire in flat conditions.

The next step was to install a rotatable 10-ele Jaybeam antenna, later replaced by a 16-ele Tonna Yagi, on a pole attached to the back of the house. I bought a Solid State Modules Europa transverter and used a Hallicrafters SX-146 and HT-46 combination as a 28MHz IF system and this remained the main 2m station at G3FPK for several decades. The 1970s were particularly good with lots of activity. We had informal telephone networks alerting friends to auroral, tropo and Es openings.

To get a flavour of that era I pulled out the *RadCom* for January 1974 from my 'library' (actually the meter cupboard under the stairs!) The then VHF columnist was Jack Hum, G5UM, who started that month's 'Four Metres and Down' with comments on the new band plan that had been announced in a GB2RS news bulletin on 11 November 1973. It took account of the need to accommodate the emerging repeater network and planned the band by mode rather than geography: remember the old zonal band plan devised by the *Short Wave Magazine*?

Other topics Jack covered were the increased interest in MS activity on 2m, SSB on 70cm and an excellent tropo lift during the 70cm Cumulatives on 22 November 1973. Of the conditions he wrote, "Even more so on 2m: full marks to the Continentals for sorting out anything readable from the solid phalanx of UK stations calling them."

In the 'Product News' section there is mention of the FDK Multi2000 solid-state 144MHz SSB/CW/FM transceiver available from Western Electronics (UK) Ltd who also featured the Belcom Liner 2 144MHz SSB transceiver for £120 plus VAT. Other prominent advertisers offering VHF/UHF equipment include A J H Electronics, Baginton Electronics, B Bamber Electronics, Garex, Lowe Electronics, Microwave Modules Ltd, Radio Shack Ltd, Solid State Modules, Stephens-James Ltd, and Waters & Stanton Electronics.

For me it has been very rewarding to experience the development of the VHF/UHF bands from the days of relatively local QRP AM and CW QSOs using simple equipment to today's high tech era when we can recover signals the human ear cannot detect, thanks to computer technology. I wonder what it will be like by our 100th anniversary in 2013?

BEACON NOTE

Andy Talbot, G4JNT, writes that he has improved the performance of his telemetry beacon located at IO80UU near Blandford in Dorset. Its main purpose is to transmit housekeeping data for the GB3SC# cluster of microwave beacons, but a lot of listeners use it for setting up their 4m systems. The modulation is of two kinds, a slow CW transmission designed for Spectrogram or similar, and also a burst of normal fast CW approximately every 5min repeating the telemetry data plus callsign and locator.

The new transmitter delivers 0.5W to a dipole but now uses an AD9851 DDS chip driven from a high-stability ovened crystal source. The frequency shift has been increased to 85Hz. The programmed frequencies are 70.031000 and 70.031085MHz. The lower one carries the CW data with the higher one representing the gaps and the exact frequency will remain stable to within a few Hz. Andy is prepared to guarantee at least 10Hz accuracy and can measure it off air to better than 0.01Hz if given enough notice.

TECHNICAL NOTES

Ev Tupis, W2EV, e-mailed about the BEACONet Project's PropNET system, which is based loosely on APRS technology but using PSK31 rather than AX25. This is a real time propagation-tracking tool that has been very successful on 10m but is now being used on 6m. For further information look on the website, see the list.

Tony Jarvis, G6TTL, passed on information from Ian Abel, G3ZHI, about Internet Radio Linking. He says that there are now over 2000 world-wide amateur radio simplex and Internet Voice Gateways (IVGs) so reminds us to take our hand-helds with us when travelling abroad. Many cities now have VHF and UHF repeaters and some VHF/UHF simplex channels linked to IVGs. There are three separate ▶

Moonbounce

BELATED CONGRATULATIONS to Peter Blair, G3LTF (IO91), who came third in the multiband section of the 2002 ARRL EME Contest. He has been entering this event ever since it started and was QRV on 2m, 70cm, 23cm and 13cm. This was his highest position so far.

Roy Reed, G3ZIG (JO02), is QRV again and was on 2m for the Italian ARI contest over the 10/11 May weekend. He worked 54 stations in mixed conditions, which were good at times but in other periods he couldn't hear much at all. He completed with seven new initials; PA3CSG, DF0BV, SK6EI, W4SW, ES6RQ, UA9SL and RW3WL. In the ARRL contest he came seventh in spite of losing out almost all of the first weekend due to the gales.

At 0642 on 4 May on 23cm Howard Ling, G4CCH (IO93QL), finally completed with ZL1KA M/O and wonders if the QRB of 18,161.1km is a UK record? Brent's locator is RF72JV. Due to local obstructions at G4CCH, they only had a 15min window so settled on 1min periods. This brings Howard's initials total to 177 in 33 countries, six continents, 24 US states and 131 grids. In the Italian contest activity was low and he completed 24 QSOs for a score of 282 points. Stations worked on CW included JA6AHB, ZS6AXT, K5GW, N2IQ, WA6PY, W2UHI, K7XQ, VE6TA and K0YW. The others were Europeans including two Italians. On SSB he worked SM6CKU (52/55).

According to reports in the May *432 and Above EME News* conditions in the second leg of the *DUBUS*/REF World Wide Contest over the 12/13 April weekend were excellent. Simon Freeman, G3LQR (JO02), completed on 23cm with 25 stations, new initials being OH2DG and HB9JAW bringing his total to 82. His PA consists of four 2C39A planar triodes producing 300W to a 4.2m dish.

G3LTF reports pretty high activity for most of the contest and he spent most of his time on 23cm completing with 44 stations with 24 multipliers. He made a short appearance on 2m making four QSOs using a quad feed in the dish antenna. Over the two legs of the contest he made 105 QSOs on 2m, 70cm, 23cm and 13cm.

The next sked weekend is 5/6 July when London latitude stations will have 25.4 hours of Moon time. The declination ranges from +7.78° to –1.70°, the 144/432MHz sky temperature varies from 250/19K to 360/27K and the signal degradation referred to perigee is -0.38dB to -0.14dB. The Sun offset at Saturday midnight is +76°.

VHF/UHF

Right: Andy, M1LOL, and Ray, M1REK, activate The Cloud (SP-015) for the 'Summits on the Air' programme.

linking systems: IRLP, Echolink and eQSO. For further information e-mail Ian at g3zhi@totalise.co.uk or look at the web-sites, see the list.

SOLAR AND GEOMAGNETIC ACTIVITY

In the 30 days to 5 May the 10.7cm radio flux averaged 123.1 units, which is very slightly up on last month's figure. The maximum value of 155 occurred on 29 April while the minimum was 92 on 11 May. The number of new sunspot regions recorded was 26 and the maximum SESC sunspot number was 224 on 29 April. The minimum was down to just 22 on 10 May.

BAND REPORTS 50MHz

John Palfrey, EH7IT, now has a 50MHz permit and his first QSO was with *PY1VOY on 5 April at 1808 - QRB 7923km. He was using his IC-706MkII to a 40m dipole. Some European Es was noted on 19 and 20 April. Bryn Llewellyn, G4DEZ (JO03), has added Nigeria, Monaco and 4U1ITU to his countries tally. On 13 May he completed over 60 Es QSOs including UT5GK (KN19). David Whitaker, BRS25429 (IO93), heard 4U1ITU (JN36) on 50.165MHz at 1045 on 25 April.

Robin Burrows-Ellis, M1DUD (JO02), continues to get excellent results with his 2W QRP station. His first Es of the year was in a 15min opening on 17 April when he worked YU1ACR (KN13). A half-hour later he contacted 9A2DS (JN83) on CW and SSB. 1048-1230 next morning brought *IK0OKY and several others in north and central Italy including IW2KW/8 (JM79). On the 20th a CQ call was answered by LZ1XL (KN12) followed by more Is. In a strong opening from 1045 on the 26th LZ and YU stations were worked in KN04, 12 and 13. Robin was QRV in the 27 April contest but was disappointed by the lack of East Anglian stations. Conditions were marginal with deep QSB at times. ODX was PE1EWR (JO11) at 165km and he heard GD0EMG (IO74).

Steve Bainbridge, M1SWB (IO83), is mainly interested in digital modes and writes, "I am amazed that no-one seems to use PSK on VHF." He has been experimenting with it on 50.250MHz and has regular contacts with a friend 30 miles away and has worked into Italy. He suggests that anyone interested in tests should contact him at steve.b@freeserve.co.uk. He has a website, see the list.

Clive O'Hennessy, GM4VVX (IO78), caught his first Es of the year on 6 May with IW3HXI (JO55). There was a late night opening to the north on 11 May when at 2200 he contacted LA3TQ (JP99) for a new grid. LA3TQ and LA1ANG (JP66) were QRV working several GMs. Clive is now QRV on 6m, 4m, 2m and 70cm and invites those needing IO78 to telephone him any time on 01549 402835 to arrange a sked.

David Dodds, GM4WLL/P (IO85), was QRV in the 27 April contest running 100W to a 3-ele Yagi 25ft AGL. He made 30 contacts livened up by a few bursts of Es. ODX were SP6HED (JO80) at 1428km, SP3NQ (JO82/1342km) and F5TGC (JN37/1152). He worked seven countries, 19 grids and 19 districts for a claimed total of 534,510 points.

Steve Jones, GW0GEI (IO73), was also QRV in the contest and made 56 QSOs running 400W to an 8-ele Yagi. 65 multipliers brought a claimed score of 1,026,675 points. ODX was LY2BAW (KO25) at 1901km. Colin Fallaize, MU0FAL, worked into 9A, YU and S5 on 18 April on CW and SSB for about an hour from 1043. He runs 10W to a 5-ele Yagi.

In the second half of April Ted Collins, G4UPS (IO81), reports QSOs with I0, 3-5 and 9 districts and 9A on the 17th: with I0, LZ and 9H on the 19th: with I0, 6 and SV9CVY (KM25) on the 23rd: with EH5, F, HB9, I0 and I5 on the 25th and with LY, OZ and SM7 stations on the 26th. In May he was QRT till the 6th when he worked I0-2, 9, 9A and *4U1ITU. Next day brought QSOs with I2, 5, OE, OK, OM, SP, OD5/OK1MU (KM73) and *UR5QU (KN77). On the 13th he worked SPs and HF6UE (JO81) a European Union special event station.

70MHz

On 13 May G4DEZ worked S51DI on FM for a change. GM4VVX was out portable in IO78WA on 13 April for the first 4m contest. Running 10W to a 6-ele Yagi Clive only managed four QSOs. ODX was G4AFF/P (IO83) at 560km. He was QRV on 11 May in the contest but there was little activity and the southern stations were very weak. He did work G3UKV (IO82) at 600km with only 10W though.

144MHz

Ken Punshon, G4APJ (IO83), was QRV for a while on the Sunday morning of the May 17/18 contest to boost his district count. Stephen O'Malley, G7ANV (IO95), runs 160W to a 9-ele Yagi at 500ft ASL. On the evening of 19 March he worked 81 Continental stations in DL, OK, OZ, PA and SM. He worked many Berlin stations and it was the first time in years that he has heard such a solid wall of noise and pile-up. The lift was very big but selective.

Niels Montanana, G8RWG (IO91), got back on the band in early May with a new transverter. He acquired the Javornik as a kit from S53RM and S53WW in February and it has a very good specification with a high performance 'front end'. Unusually the IF is 14MHz and the performance with his FT-1000MP is excellent. Details of the transverter are on a website, see the list. The set up was first used in the 3/4 May contest when ODX was F5FNY (JN36) at 700km. DJ2IE (JN48) and DK0FY (JN49) were over 650km. In the 17/18 May contest he found lit-

ANNUAL VHF/UHF TABLE – JAN TO DEC 2003

	50MHz		70MHz		144MHz		430MHz		1.3GHz		Total
Callsign	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr	Points
G4DEZ	74	38	25	4	157	16	65	9	31	6	227
G6TTL	2	1	–	–	47	10	17	6	–	–	83
G4APJ	–	–	–	–	24	4	22	6	–	–	56
G8RWG	–	–	–	–	19	7	–	–	–	–	26
M3CLY	2	3	–	–	9	4	4	2	–	–	24

The District Codes are the 124 listed on page 56 in the January 2003 RadCom. Up to six different GI stations and up to three different GM stations in each Scottish district may be counted. Countries are the current DXCC ones plus IT9. The deadline for the next issue is 15 July.

tle activity but MM0FVC/P and GM4WLL/P (IO85) were a new grid.

Lee Jones, M0LEE (IO92), caught an Es opening on 19 May from 1914 and worked YU7EW (KN05) and IZ2FO (KN13). He runs 100W to a 9-ele Yagi. Steve Bunting, M0BPQ, only operates portable from a couple of sites in IO91. He has participated in the UK Activity Contests to good effect and was also QRV in the 17/18 May event in which ODX was DL8BEH (JO42) at 566km. From the beginning of April through 18 May he lists 169 QSOs.

GM4WLL/P (IO85) was QRV in the May contest and on the Saturday conditions were abysmal due to static rain at first but improved later and they were much better on the Sunday. He was using his FT-847 for the first time on 2m running 50W to an 8-over-8 slot-fed Yagi 25ft AGL. David completed 112 QSOs with four countries, 69 districts and 23 grids for a claimed score of 2,359,871 points. ODX was G7EUA (JO00) at 588km.

On 27 April GM4VVX answered G0UWK's (IO83) CQ call for his first G tropo QSO since moving to IO78 in 2000. On 29 April Clive made CW contacts with EI, G, GM, GW, LA, ON, OZ, PA and SM stations and SSB ones with EI, G, GM and PA stations on SSB in an aurora. There were further auroras on 30 April and 5 May.

Jamie Ashford, GW7SMV (IO81) now runs 400W to a 12-ele M2 Yagi. Using FSK441 on MS mode he completed with F0DSD (JN23) on 22 April, T7/IW2BSQ/P (JN45 and a new grid) on 4 May, DL1NFI (JN59) on 8 May and IV3DXW (JN65) on 10 May. On 20 May from 1803 EB7HAF and EA7DUD (IM76) were worked via Es.

430MHz UP

G3LTF was QRV in the May UHF Contest and Peter's ODX on 23cm was DF0HS/P at 521km. ODX on 70cm was DL0GTH at 857km. Other DX on 70cm over 550km were PI4GN, DF0MMO and DF1JM. M0BPQ/P was QRV on 23cm on 15 April and made four local QSOs in the Activity Contest.

GM4WLL/P (IO85) shared a site with the Forth Valley Contest Group, MM0FVC/P, in the May UHF contest and David used his water-cooled 7289 PA for the first time and it worked beautifully for seven hours. But he only worked one station due to the 'black brick' driver PA failing, an under-performing receiver due to faulty Heliax cable and shocking conditions.

MU0FAL has been QRV on 23cm for a few months and hasn't worked many stations but G3AUS (IO80) and *G4ALY (IO70) are in Colin's log. At the first sign of a lift he hears the Isle of Wight beacon, GB3IOW on 1296.908MHz and often hears it for days on end. No real news on 70cm this time.

SIGN OFF

My thanks to Neil Clarke, G0CAS, for the March and April issues of *SunMag* and to Dr Steve Reed, G0AEV, for the March issue of the *Six and Ten Report*. The deadline for the September issue is **15 July** and for the October issue it's **19 August**. The telephone answering and fax machine is on 020 8763 9457 and my CompuServe ID is g3fpk. ◆

WEB SEARCH

PropNET:	http://www.BEACONet.org
G3ZHI:	http://www.qsl.net/g3zhi
UK Irlp:	http://www.ukirlp.co.uk
also:	http://www.irlp.co.uk
and:	http://www.irlp.net
M1SWB:	http://www.m1swb.freeserve.co.uk
Javornik transverter:	http://lea.hamradio.si/~s53ww
Summits on the Air:	www.sota.org.uk

90 YEARS Continued from page 21

These licences, requiring no Morse or technical examination, were regarded as the first step to acquiring full radiating licences. They bore no international prefix but the figure 2 followed by three letters. Many of these licences were reissued post-war, subject to a Morse qualification, as G2 three-letter callsigns. For the full licence there was no technical examination but one was required to outline the type of 'experiments' to be undertaken and one needed to make sure that these could be conducted only with an antenna – fortunately for some of us, the GPO made no attempt to check that these experiments were pursued, although station inspections were carried out.

But in the UK numbers remained well below the USA where by 1939 there were well over 100,000 licensed amateurs and a growing industry dedicated to radio communications and the hobby. Communications receivers ranged from low-cost to high-cost receivers with crystal-gate filters and two tuned signal frequency amplifiers. With the lifting of currency restrictions imposed after the depression of the early '30s, the products of American firms such as National, Hallicrafters, Hammarlund, RME etc began to appear in the UK along with low-cost power valves such as the 6L6, 807 etc, with British firms such as Eddystone, Raymart, Premier, QCC etc catering for the UK (mainly component) market.

The 1930s seemed, for some of us, a 'golden age of amateur radio'. Simple equipment could be built relatively cheaply, bringing short wave listening and transmitting within schoolboy budgets, although full licences were issued only to those over 16 years. Antennas were sometimes connected to the experimental transmitters built by Artificial Aerial licensees! Making DX contacts with low power was a challenge that ensured that when made they were much appreciated. Licences permitted both CW Morse and amplitude modulated telephony. Happy days indeed! *In the second, concluding, part of this history of amateur radio and the RSGB, Pat Hawker will outline something of the role of the Society and its members in WWII and post-war developments.* ◆

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The R.A.I.B.C. produces a Quarterly Journal called 'RADIAL', which goes out to all of our members and supporters in either printed or cassette form. The photograph shows our Editor, Peter Hunter, GOGSZ in his shack chatting on the much loved FT-890O which - of course - was supplied by Martin Lynch & Sons.

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RG58CU, 5mm dia, 50 ohm stranded conductor	35p/m
RG1 74U, 2.3mm, 50 ohm Mini Coax	40p/m
RG11U,10.3mm, 75 ohm low loss Coax	£1/m
URM70,6mm, 75 ohm Tx grade Coax	35p/m
BT2002, 5mm, 75 ohm double screened Coax	35p/m
RG62AU, 6mm dia, 95 ohm Coax	50p/m
TV, 75 ohm, low loss Downlead	30p/m
MINI 8 low loss 7mm dia, 50 ohm coax	50p/m
POLYESTER (Dicrom type) 4mm GUY ROPE	30p/m
RG214U	£2/m
RG223U	£1/m
75 ohm Twin balanced Feeder, Light/Med 400w PEP	30p/m
300 ohm Ribbon standard light duty	30p/m
300 ohm Ribbon, HD USA Slotted type	65p/m
3 Core Mains/Rotator Cable, 5 amp	30p/m
6 Core Rotator Cable	50p/m
8 Core Rotator Cable	70p/m
Aerial Wire, light duty PVC coated	8p/m
Aerial Wire, medium duty PVC coated	10p/m
Aerial Wire, heavy duty PVC coated	25p/m
16swg HD copper	25p/m
16 swg stranded copper	25p/m
Single core screened, 2.3mm dia	20p/m
Two core screened, 5mm	30p/m
6 core screened, 5mm	40p/m
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Postage on cables - up to 20m £3. over 20m £5.

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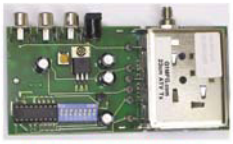

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		Microwave Modules 2m Amp 100w	£100
		Akd Mobiles 2m/70cm etc choice	£95 each
		Target Hf3 SW Rx	£90
		Kenwood Pb17 Battery	£25
		Diawa Cr4 rotator controller	£40

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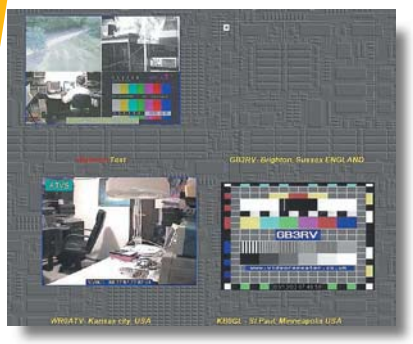

The live web page of Edwin Band, PD2EBH.

It is odd how one thing can lead to another. I was looking for old recordings of music hall performers and the search engine, using the word 'recording' led me accidentally to a most interesting page on early TV. As usual in the field of experimentation and discoveries, amateurs are never far away.

NARROWBAND TV

The page I ended up looking at was that of the Narrowband Television Association. It was founded "…to shed fresh light on the television systems used by John Logie Baird, and others, following on Baird's original demonstration in January 1926." It goes on to describe the systems from Baird's early experiments to modern-day TV but adds (of mechanical 32-line processes): "the beauty of the subject lies in the fact that mechanical scanning can be used and this brings in members who have special skills in optics, mechanical engineering and general mechanical construction." And, indeed, there is an impressive 32-line portrait of Peter, G4JNU, produced by his home-built Nipkow disc receiver. Paul Nipkow had invented this image-scanning system as early as 1884. Many technological improvements have been made to the Baird original which (as I understand it) make the synchronisation easier on transmit and receive.

Follow some of the links on the page and you will get to the 'TV Dawn' pages which allow you to view some of the earliest TV pictures ever transmitted. These are working models, so they move. On the history of TV, it seems that the inventor depends on where you live. When I mentioned Baird to my Russian friend, he immediately said no, it was Boris Rosing. People in the US believe it was Jenkins or Farnsworth; the Japanese believe it was Takayanagi; in France, it was Belin and Barthelemy; Eastern Europe, von Mihaly; Germany, Karolus. But the concept of a television system with electronic scanning, synchronisation and display, is due in 1908 to Alan A Campbell Swinton, 2HK, RSGB President from 1913 to 1920. I leave the rest for you to read.

I must just mention one final non-amateur page which follows on from the above to a small degree. The 'Dead Media Project Pages' will tell you of some wonderful forgotten inventions such as the Writing Telegraph (by Morse), the Voder, the Cyclops camera and the Kinetophone, which (though disputed) produced synchronised sound and film as early as 1889.

BATC

Back to amateur TV (in case you thought I had gone off at a complete tangent), and we have the British Amateur Television Club (BATC). The systems used by amateurs do not usually require revolving discs and mirrors, and modern software makes first steps very much easier than in the days before computers. There is a wealth of publications on the subject, software downloads and information, repeater news and both slow-scan and fast scan can be found. Some good articles too. "Our radio frequency enthusiasts transmit pictures from their homes, from portable locations and via repeaters. They use the medium to communicate visually with other similarly-interested amateurs. They also enter special contests arranged by the BATC and by other television clubs throughout the world. In this group are to be found those who only receive, including those who enjoy receiving long distance broadcast television stations, either direct or via the growing number of broadcast satellites." The BATC would seem an essential starting point for anyone wanting to enter this aspect of our hobby.

A link took me to the ATV corner of 'The Wave' which includes some educational video which struck me as useful, but there are equipment and commercial items as well as much else to look at. Yes, ATV equipment now is a long way from Baird's time, and somehow I don't think 10.2GHz was available in the 30s. Have a look at the pages of Edwin Band, PD2EBH, which include live webcams monitoring many ATV operators.

HAMS IN SPACE

On an entirely different subject, I had been reading about hams in space. In particular this took me to one of the excellent NASA pages, 'Ham Radios in Space' with an account by Astronaut Owen K Garriott, W5LFL, aboard the US Space Shuttle Columbia STS-9. This is what it is like to transmit from Space rather than to have a QSO with an astronaut. "I had specified particular times and frequencies beforehand," Garriott said. "Among others, I was able to speak with the Amateur Radio Club in my hometown of Enid, Oklahoma, with my mom, with Senator Barry Goldwater, K3UIG/K7UGA, and with King Hussein of Jordan, JY1, who was an avid ham." Not bad for a list of contacts, though he did have a bit of an advantage!

POSITIVE IMAGE

Still in the reference part of the inexhaustible NASA pages, a nice write-up showing ham radio in a very positive light: "Since the first space shuttle flight in 1983, ham radio has flown on more than two dozen missions. Dozens of astronauts have used the Space Shuttle Amateur Radio Experiment, SAREX, to talk to thousands of kids in school and to their families on Earth while they were in orbit. They have pioneered space radio experimentation, including television and text messaging as well as voice communication. The Russians had a similar programme for the cosmonauts aboard the Russian Space Station, Mir. When US astronauts were aboard Mir in preparation for the long-duration missions on the International Space Station, they used amateur radio for communication, including emergency messaging while Mir was in distress." It mentions the SAREX and ARISS pages, which themselves are well worth a visit, but for which there is no time for a review here. The URLs are included below however. ◆

WEB SEARCH

Narrowband TV Association	www.nbtv.org
TV Dawn	www.tvdawn.com/index.htm
Dead Media Project pages	www.deadmedia.org/notes/index-numeric.html
British Amateur Television Club	www.batc.org.uk/index.htm
The Wave	www.franklin49.freeserve.co.uk/atv_corner.htm
Edwin PD2EBH's pages	www.qsl.net/pd2ebh
Ham radios in space	www.spaceflight.nasa.gov/station/reference/radio
NASA reference	www.spaceflight.nasa.gov/station/reference/radio
SAREX	http://sarex.gsfc.nasa.gov
ARISS	http://ariss.gsfc.nasa.gov

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By John Heath, M3BBX, Chestnuts, Desford Lane, Kirkby Mallory, Leicestershire LE9 7QF. E-mail: g7hia@amsat.org

SPACE

The most ambitious construction project in history came to an abrupt halt with the tragic loss of *Columbia* and its entire crew. The Shuttle fleet is now grounded, probably for at least 12 months. Consequently, trusses and other large segments cannot be delivered. NASA will now rely on the Russian *Soyuz* and *Progress* craft to keep the ISS supplied and manned, based on a reduced crew of just two.

A human presence is considered essential for safety and maintenance operations. Supplies of water, food and equipment for the crew are only one factor. The ISS is in a very low orbit (about 390 km) - consequently the automated *Progress* rocket which arrives with the stores, has to use some of its carrying capacity for extra fuel to raise the orbit. The *Soyuz* is the crew's 'lifeboat'. Docked to the ISS, each *Soyuz* is certified for about 200 days. The craft are rotated every 180 days or so, being taken to the ISS by a taxi crew which docks the new one and returns in the old.

The Expedition 7 crew is Yuri Malenchenko and Edward Lu, With less scientific work and fewer EVAs, it is just possible that the crew may make more use of amateur radio.

SO-50 WORKED WITH AN ARROW ANTENNA

Thanks to Mike, G3LGR, who sent me a report of a QSO with Howard, G6LVB, from the Kempton Park Radio Fair. Howard was demonstrating low-power satellite operations using a hand-held Arrow 2m/70cm combined Yagi. Mike confirmed that the receiver on SO-50 is very sensitive. Once activated (by the CTCSS tone) the transponder is on a 10-minute timer and has to be reset during the pass.

AMSAT ECHO COULD LAUNCH IN 2003

Built on similar lines to the Microsats of the 1980s, but making use of the higher efficiency of solar cells, and the advances in technology, this will be a very capable satellite. There is a high-power downlink (7W), simultaneous voice and data, and a UO-14-style FM transponder. Optional payloads include APRS and PSK31. Depending on the launch vehicle, the orbit will probably have an inclination of 64° and an altitude of 600km. The launch will cost AMSAT NA an estimated $150,000 (£250,000).

REMOTE IMAGING GROUP

At a well-attended meeting at the National Space Centre in Leicester, delegates were treated to two excellent lectures. These were given by David Taylor, who is responsible for some outstanding software for use with weather satellite data, and Gordon Bridge, Eumetsat Consultant for User Services, who talked about MSG-1 (Meteosat Second Generation). MSG-1 is the first of the new geostationary digital satellites replacing the analogue Meteosats for weather forecasting, climate modelling and scientific study.

The in-orbit failure of a power amplifier meant a rapid rethink of how the satellite data would be communicated to Earth stations. The good news is that DVB technology has been chosen, using the TV satellite Hotbird 6. Typically, an 80cm dish, LNB and a card for the PC will be needed, the whole installation probably costing around £100. Low cost and low visual impact, this will be ideal for the hobbyist. The other good news is the policy on encryption. MSG-1 data will be encrypted, but an 'e-token', which plugs into a USB port, is all that is needed to unlock the data. These will be available from Eumetsat for around £25. Processing software is also available and this costs about £20.

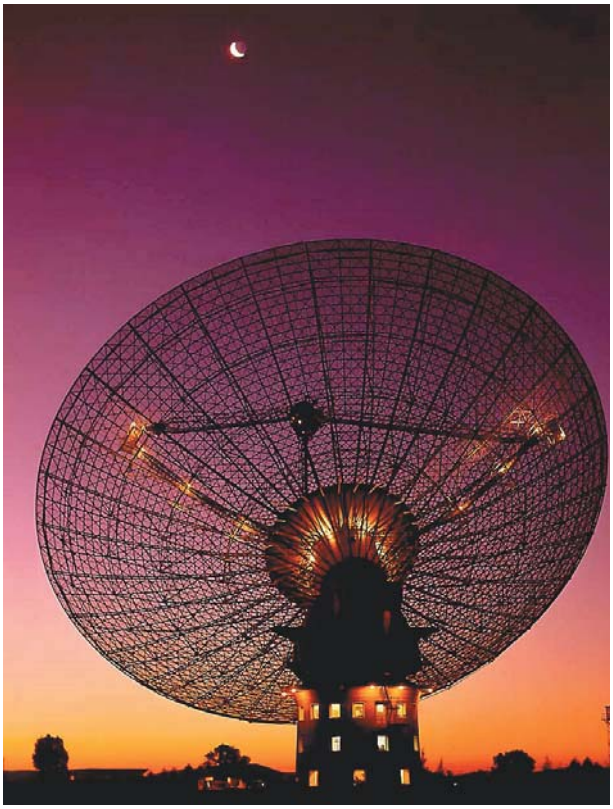
All this is very new, so a visit to the RIG and the Eumetsat websites is recommended. MSG-1 is an amazing satellite. Each transmitted image will be 2GB with 12 channels of imaging compared with four on the Meteosats. Simple and low cost, via DVB, these data will be accessible to a far wider user community. Perhaps, while the professional scientists are busy with their tasks, amateurs will find new ways to use these data streams to extract new information.

LUNAR CONSPIRACY CONTINUED

Thanks to Rodney Byne, G7OEL, and others, who suggested the Parkes Radio telescope website, where you can see pictures and read about their reception of the S-band TV signals from the Apollo 11 mission. David Austin, G4GTP, gave me information on Sven Grahn's site, which covers his use of a US Air Force 9m surplus dish to receive Apollo 7. This is a superb site and well worth a visit for its wide range of Russian and other space radio material. Richard, G7GLZ, gave me details of the Lunar Anomalies site, which has a very thorough rebuttal of all the major 'conspiracy' evidence, including the angles of shadows in the photos, absence of stars in the pictures, the 'wind' blowing the flag and lots more. A similar detailed analysis is also on the National Space Centre's site. ◆

Left: Watching the moonwalk in the control room at Parkes, 21 July 1969. (CSIRO Parkes Observatory)

Below: The Parkes radio telescope tracking the moon, July 1969. (CSIRO Parkes Observatory)



WEB SEARCH

Parkes Radio Telescope	www.parkes.atnf.csiro.au
Sven Grahn	www.svengrahn.pp.se/trackind/Apollo17/APOLLO17.htm (this URL is case-sensitive – Ed)
Lunar Anomalies	www.lunaranomalies.com/fake-moon.htm
National Space Centre	www.spacecentre.co.uk
Remote Imaging Group	www.rig.org.uk
Eumetsat	www.eumetsat.de
David Taylor	www.david-taylor.pwp.blueyonder.co.uk

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By Steve Hartley, GOFUW, 5 Sydenham Buildings, Lower Bristol Road, Bath BA2 3BS. E-mail: newcomers.radcom@rsgb.org.uk

Newcomers' news

I did consider following the 'nostalgia' theme for this month's column by recalling my memories of being the 'new kid on the block' some 20 years ago. However, I had so much input about today's newcomers you have been spared!

The instructors and students from the Hants & IOW Army Cadets (see 'First for the Eighth').

Stuart Granger, G4NSG, of the Midland Amateur Radio Society wrote to ask about blind or disabled candidates doing the practical assessments for the Intermediate Licence.

In an exchange of correspondence I explained that the revised Intermediate syllabus makes it quite clear that disabled candidates do not have to carry out assessments that they are physically incapable of doing. Identical wording should soon be added to the Foundation syllabus too, which is good news.

The Midlands ARS has been running radio classes for some time and its team includes Amos, M1BEI, who is totally blind and helps out teaching students up to RAE standard. They should not be short of parts for practical projects as their Secretary is the proprietor of Mode Components in Birmingham. It all sounds very encouraging.

FIRST COURSE FOR THE EIGHTH

Andrew Sinclair, G0AMS, reports that the first Foundation Licence course to be run for the 8th Hampshire and Isle of Wight Army Cadet Force was a huge success. Three instructors worked together to guide seven students through the material over the course of a week in March.

All seven passed the examination and Andrew says that the group will be running further classes soon. Details from Andrew, tel: 01329 235397 or from Steve Ellis, G7HEP, tel: 01329 663673.

INTERMEDIATE PILOT REPORT

Alan Ralph, G8XLH/M3ADR, always keeps us up to speed with his radio classes at the Peterborough and District Amateur Radio Club. Having run several very successful weekend Foundation courses he agreed to run one of the second batch of Intermediate pilots.

In a very detailed report he outlined his experience of the course and examination. The total cost of the course, including the hire of the room, the textbooks and all the parts for the practical elements was £45 per student. This included Lake receiver kits for the projects. The course was run over two weekends with the exam on the following Monday.

The receiver kits were built and tested on site using a pair of active computer speakers to boost the audio to a reasonable level. Alan says that all the students seemed to really enjoy the construction work and all the kits worked first time.

Unfortunately, not all the group passed the exam but I have to say that it is not unusual for one or two to slip up at this level – the pass rate for the old Novice RAE was always about 80%.

Alan said that he would stress to future Intermediate students that the training *is* more difficult that the Foundation course and it *does* require some home study between lessons. Good advice! Keep up the good work Alan and I hope those who were not successful this time will have another try.

SATELLITE ACCESS

I was taken to task by Paul Robinson, 2E1EUB/M3EUB, about something I said in the May column. I outlined the additional privileges that come with the Intermediate Licence as: more bands, more power, fast scan television, home brew transmitters and satellite access.

Left: Peterborough Intermediate students winding coils (see 'Intermediate Pilot Report').

Paul very quickly contacted me to say that, despite campaigning from him, and others, Intermediate Licence holders were still not allowed to use satellites. I was convinced that he was wrong and referred him to the latest Intermediate Licence Examination syllabus on the Radiocommunications Agency website (see 'Websearch' below). However, as Paul correctly pointed out, although the syllabus now requires knowledge of amateur satellites, the licence conditions booklet BR68/I has not yet been updated.

I contacted Alan Betts at the RA who said that the Agency has issued a consultation document on proposed changes to all three amateur radio licences (see Websearch below). Subject to comments received, the changes will be implemented (by *Gazette* Notice) in about a month's time.

WAB CONTACTS

In the May column I mentioned the Worked All Britain award scheme and said that it was a very worthwhile aspect to the hobby, which it is. Unfortunately, just about the same time I was writing the column there were some changes on the WAB committee and the contact details given are no longer correct.

If anyone wishes to know more about the award scheme they should see 'Websearch' below or contact Graham Taylor, G4JZF, 1 Threshers Drive, Short Heath, Willenhall, West Midlands WV12 4AN, e-mail g4jzfgraham@aol.com

I am sorry for any confusion caused and I hope this puts the record straight.

DATA COMMUNICATIONS

Another group that newcomers may not be aware of is the British Amateur Radio Teledata Group (BARTG). This is a not-for-profit organisation that promotes all forms of datacoms within the hobby. It has a website (see 'Websearch' below), produces a monthly magazine and runs two annual contests.

If anyone wants to find out more they can contact the membership secretary through the website or by post to: Andrew Thomas, G8GNI / M5AEX, Dane School House, 103 High Street, Stony Stratford, Buckinghamshire MK11 1AT. ◆

WEB SEARCH

Radiocommunications Agency: www.radio.gov.uk
Worked All Britain: www.worked-all-britain.co.uk
BARTG: www.bartg.demon.co.uk

GB5HQ: IARU contest RS

Wanted: all UK stations active on HF. G3s, M3s, 2E0s – yes, even you! You can help the UK in the battle against our 'continental competitors' by working GB5HQ on as many bands/modes as possible. How? When? Read on…

The International Amateur Radio Union (IARU) HF Contest takes place each year on the second weekend in July – in 2003 it will be on **12/13 July**. A special feature of this event is that IARU member societies can participate by running headquarters stations representing their national society. There is a rule that allows HQ stations to operate simultaneously on more than one band and mode, with separate transmitters for different bands *which can be at different geographical locations*. Within the IARU contest, these HQ stations compete only against each other. *You* can help to ensure that the UK entry gains the highest possible score!

The German national society DARC has led the way in recent years with its HQ station, DA0HQ, and many HQ stations now run on multiple bands and modes simultaneously. Thanks largely to the sterling efforts of Chris Tran, GM3WOJ, the RSGB's HQ callsign, GB5HQ, has been activated in recent years from Chris's station north of Inverness. However, to borrow a phrase from the politicians, "we are slipping behind our continental competitors", and for the 2003 event a much bigger entry is planned from 10 locations dotted around Great Britain (see **Fig 1**).

The decision to move the RSGB's station up to 'the big league' was prompted by the participation in the WRTC event in Finland last year, when *RadCom* 'Contest' columnist Tim Kirby, G4VXE, and editor Steve Telenius-Lowe, G4JVG, helped to operate the Finnish HQ station OI2HQ (see *RadCom* September 2002). They and the other UK amateurs at WRTC came home with the resolution that the UK needed a stronger presence in this international event, and a team of contesters has been working together since then to prepare for GB5HQ in this year's contest.

Members may ask why the Society's HQ station does not operate from the headquarters building at Potters Bar, but those who have visited will know the answer. It is not a good radio location, with very little room for antennas and plenty of scope for interference from surrounding buildings. Few, if any, HQ stations operate from their society's headquarters: instead, many of the country's best contest stations work together to build a score for their national society. Last year the ARRL's HQ station W1AW/5 was spread over six different sites in Texas, 1500 miles from ARRL HQ in Connecticut.

What has this got to do with RSGB members? Well, there are plenty of UK operators who enjoy working GB stations and GB5HQ is only ever aired during the IARU contest. Why not combine this with operation in the IARU contest and assist the RSGB entry by working GB5HQ on as many bands and modes as possible?

NETWORKING

A great deal of work has gone into planning this year's GB5HQ station. Some of the best contest stations in the UK have been made available by their owners, from Inverness to Cornwall and from Wales to Suffolk. An important factor in the success of this project will be to connect all 10 stations via the Internet, so that log information can be shared in real-time via a central server. This technique was pioneered by the W1AW/5 team last year in Texas, using extra software written for the *Writelog* contest logging program. Each of the 10 stations will connect to the server via the Internet. Some will use dialup, some have a broadband connection, while one of the stations, which will be set up at a field day site, will connect using a GPRS mobile phone. The software means that when you call GB5HQ on a particular band and mode, the operator will be able to tell which other band / mode slots you have worked GB5HQ on, and let you know which other frequencies GB5HQ is using at the time.

AWARD

With the spread of stations around the country, and differences of propagation, it won't be easy to pick up GB5HQ on *all* bands and modes, but it *is* possible. To provide some interest for those who are not die-hard contesters, an award is being introduced for working the station this year on a certain number of bands and modes.

Unlike most contests in the HF calendar this is a 'multimode' contest, which in fact means SSB and CW. By international agreement no contests take place on 30m, 17m and 12m so there is a total of 12 possible band/mode 'slots' on which GB5HQ can be worked. The award can be gained for working GB5HQ in 2003 on different numbers of band/mode slots as follows: **Bronze** – three slots; **Silver** six; **Gold** nine; and **Platinum** all 12 possible band/mode slots. The award costs £2, 3 euros, $3 or 5 IRCs.

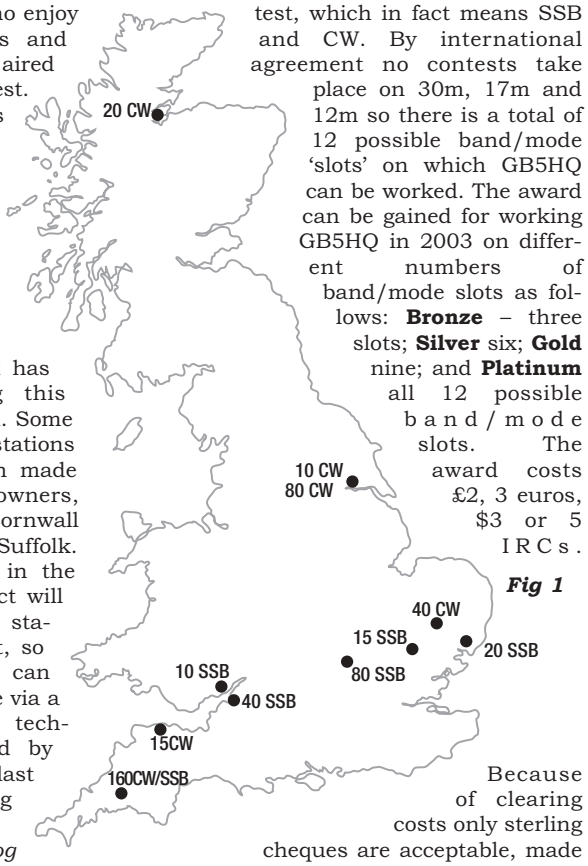

Fig 1: The locations of the 10 GB5HQ stations on 12/13 July 2003.

Fig 1

Because of clearing costs only sterling cheques are acceptable, made payable to RSGB. Applications should include a list of the contacts being claimed and must be sent to: John Dunnington, G3LZQ, PO Box 36, Brough, East Yorkshire HU15 2WX. QSLs are not needed to claim the award because we will be able to cross-check award applications against the full GB5HQ log, but part of the GB5HQ project this year includes the production of colour QSL cards. We do not plan to 'blanket' QSL all contacts, but all requests

WEB SEARCH

GB5HQ site	www.gb5hq.com
IARU contest rules and results	www.arrl.org
Writelog logging software	www.writelog.com
SD logging software	www.ei5di.com
RSGB HF Contest Committee	www.rsgbhfcc.org
Contesting website, discussion groups	www.contesting.com
UK contest reflector	lists.contesting.com/mailman/listinfo/uk-contest

By Dave Lawley, G4BUO, Carramore, Coldharbour Road, Penshurst, Kent, TN11 8EX. E-mail: g4buo@compuserve.com

GB HQ Station

for a card either direct or via the bureau will be answered. For QSL and award information as well as more details of all the contest stations that make up GB5HQ, please visit the GB5HQ website. The QSL manager is Nigel Cawthorne, G3TXF.

THE CONTEST

For those new to contesting this article can only give a very brief overview. Further information can be found on the many contest sites on the Internet, including the RSGB HF Contests Committee's website, where there is an HF Contester's Guide aimed at beginners (see 'Websearch' below). There is also an Internet discussion group for UK contesters, where newcomers can ask questions and seek advice about contesting.

In all contests, the aim is to make many contacts as quickly as possible. The only information that should be sent in a contest QSO is the callsign and 'exchange'. In many contests the exchange is a report and incrementing serial number, but in the IARU contest the exchange can be a little confusing. Most stations send their ITU zone number, which for UK stations is zone 27. HQ stations don't send their zone, instead they send the initials of the society's name. So you should send '59 27' (if you are in the UK) or '59927' on CW, while GB5HQ will send '59 RSGB' or '599RSGB'. Other HQ exchanges that you may hear include 'SSA' (Sweden), 'ARRL' (USA), 'MRASZ' (Hungary) etc.

The importance of the exchange in this contest is that each different zone and HQ station worked on each band counts as a *multiplier*. Multipliers are common in most contests, and in this case the number of different zones and HQ stations worked on all bands is multiplied by the points for the contacts on all bands to reach the final score. Put simply, a station that made 100 contacts all with one zone would have the same score as another station that made only 20 contacts but managed to work five different zones.

A few years ago, everyone logged on paper and scores had to be worked out manually. Paper logs are still acceptable, but contest software has developed to a high degree, and there are many logging programs that can be used during this contest. The software keeps track of multipliers and takes care of the scoring, though it is advisable to have a look at the IARU contest rules on the ARRL website. As well as *Writelog*, which will be used by GB5HQ, the popular *SD* program by EI5DI also supports the IARU contest.

The contest starts at **1200UTC** on **Saturday 12 July**. If you are unsure of what to do, don't jump straight in, but spend a few minutes listening to contacts taking place, and get familiar with the format of the contest exchange and the information being sent. And if you have just obtained contest logging software, make sure you practice using it in the days leading up to the contest, don't wait until the event itself to find out how it works.

HOW TO WORK GB5HQ

With different stations making up GB5HQ located all around the country, no-one is going to be at a geographical advantage when it comes to trying to work the station on all band/mode slots. However, the 40m and 80m SSB stations have been positioned to try to get good UK coverage during daylight hours, and these may well give the easiest opportunities to work the station. The 20m CW station is located in the north of Scotland and this should mean that it has a strong short-skip signal in southern parts of the UK during much of the contest period. After dark, the 160m station should also be workable from most of the country. Trying to work the different GB5HQ locations during the 24-hour contest period may provide several insights into the wonders of HF propagation!

Of course you can only work GB5HQ on a particular band if you can get your antenna to radiate. There isn't room here for anything but a very brief discussion of antennas, but one of the advantages of contesting is that an event only lasts for a weekend. Something put up just for the contest is only temporary, which may please the neighbours, and the high level of activity during a contest provides plenty of opportunity to evaluate the performance of the system. Those with multiband verticals or dipoles will already have an idea of how well they work on the various bands, but let's assume you are going to put up some antennas just for the IARU contest. Starting with 40m, a coax-fed dipole for this band will also work on 15m. A 40m dipole may have to be bent around the garden a bit but it will still work, and if there's room for a 40m dipole there's also room for 20m and 10m dipoles. 80 and 160m could be accommodated by a 60ft wire fed against ground through an ATU.

If you don't have the benefit of efficient antennas on all bands it may take you longer to work GB5HQ, but all the GB5HQ operators are very keen to work everyone they can, and contest QSOs are short and snappy, so you should not have too long to wait.

WORK EVERYONE!

In order to succeed, GB5HQ needs to work lots of DX and lots of UK stations too. We hope this article will encourage you to find and work GB5HQ, but don't stop there – this is a fun event which, like all contests, you can take as slowly or as seriously as you like. See how many other HQ stations you can work, or see how many different zones you can work, or just check the bands whenever you can over the weekend. The GB5HQ team wishes you good luck in the contest. ◆

Top: The site of the GB5HQ 15m SSB station: the Granta Contest Group near Cambridge.

Bottom: With antennas like these you won't need a big antenna or high power to work GB5HQ! GM3WOJ's 5-element monobander at 80ft which will be used on 20m CW by GB5HQ.

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Here are a few user comments about the ACOM 1000 - "I am really glad and delighted that I made this choice as it has lived up to all my expectations and more !!" (GI4MMJ) - "I worked for many years in the scientific instrument business., and in my opinion, this equipment is of that standard." (G3IOE) "Superb" (G0CHQ) "It's very quiet with almost no fan noise and a silent changeover relay....A very well built and civilized amplifier". (EI6IZ)

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PST have recently introduced a range of **elevation rotators** for 90 and 180 degrees travel, as well as a control unit with direct RS-232C output for computer control, and a speech synthesiser for operators with a visual impairment. It is the only **talking rotator** in the world!

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Evolution of the Beam Antenna

PART 1 With the 90th anniversary of the RSGB being celebrated this month, it is an appropriate time to look back at the history of that most ubiquitous of radio antenna – the Yagi beam. *RadCom* 'Antennas' columnist Peter Dodd, G3LDO, takes an affectionate look at the development of the beam antenna over the last nine decades.

When someone describes their antenna to you during an HF QSO it might be described as a "beam" having, say, four elements. At VHF or UHF it could be a "Yagi" with, say, 15 elements. From my office/shack window I can see around 10 or 11 houses all, without exception, sprouting TV and/or VHF radio Yagi antennas. This antenna, which is described in most literature as the 'Parasitic Array', has become the most familiar in our daily lives and the three-element beam has become an icon for HF amateur radio.

While the origins of many popular antennas are well known, the same cannot be said for the Yagi antenna. The purpose of this article is to explore how this antenna came into being and its development by radio amateurs.

EARLY DAYS

The parasitic beam antenna was the result of research carried out at Tohoku Imperial University in Japan in the early 1920s. The research team was headed by Professor Hidetsugu Yagi, who by that time had considerable experience of radio engineering, gained in Europe and the USA. Professor Yagi selected several students and co-researchers. Two of these were Kinjiro Okabe, who was to carry out research on the magnetron, and Shintaro Uda, who was to investigate the properties of antennas.

From the beginning of radio technology the frequencies of electromagnetic waves were defined in wavelengths and it is from these early days that classifications such as Long Wave (LW), Medium Wave (MW) and Short Wave (SW) were defined. Wavelengths shorter that 10m (frequencies higher than 30MHz) were classified as Ultra Short Waves. Although these frequencies had no practical use at the time they proved useful for investigating antennas because the small physical size of resonant lengths was convenient to handle.

Much of the work carried out Tohoku University concerned the generation of continuous electromagnetic waves, which followed on from Yagi's earlier research work with Flemming [1].

Shintaro Uda's early antenna work concerned the measurement of the single-wire resonant loop radiation pattern and he observed and recorded the effect of ground. He also noted that nearby unconnected resonant loops caused changes in directivity, and from this a directional antenna was created. Improved directivity was obtained when the loops were replaced with rods, then the driven element itself was replaced with a half-wave dipole [2]. The antenna design went from a loop to a dipole configuration, and the now familiar 'Yagi' antenna, with the dipole and parasitic rods vertically polarised emerged. Uda produced an in-depth analysis of the variables that controlled directivity such as parasitic element lengths, spacing and geometric arrangement of parasitic elements, and the effects of receiving antenna height and transmitting antenna height. All this research work appeared in a series of papers, first published in early 1926 [3]. This work was, of course, published in Japanese.

BEAM TRANSMISSION OF ULTRA SHORT WAVES IRE PAPER

In 1928, Professor Hidetsugu Yagi visited the USA, giving speeches to IRE members in New York City. He also contributed to the IRE a paper in English called *Beam Transmission of Ultra Short Waves* [4]. This two-part paper, which is now regarded as a classic, described the development of the beam antenna and the generation of ultra-short waves using the split anode magnetron. In summarising Shintaro Uda's work he said: "Suppose that a vertical antenna is radiating electromagnetic waves in all directions. If a straight oscillating system, whether it be a metal rod of finite length or an antenna with capacities at both ends and an inductance at the middle, is erected vertically in the field, the effect of this oscillator upon the wave will be as follows. If its natural frequency is equal to or lower than that of the incident wave, it will act as a 'wave reflector.' If, on the other hand, its natural frequency is higher than that of the incident wave, it will act as a 'wave director.' The field will converge upon this antenna, and radiation in a plane normal to it will be augmented. By utilising this wave-directing quality, a sharp beam may be produced.

"A triangle formed of three or five antennas erected behind the main or radiating antenna will act as a reflector. This system is called a 'trigonal reflector'. In front of the radiating antenna, a number of wave-directors may be arranged along the line of propagation. By properly adjusting the distance between the wave-directors and their natural frequencies, it is possible to transmit a larger part of the energy in the wave along the row of directors. Adjustment of the natural frequency of the directors is made by simply changing their length or by adjusting the inductance inserted at the middle of these antennas. The number of wave-directors has a very marked effect on the sharpness of the beam, the larger number of directors producing the sharper beam. It has been found convenient to designate such a row of directors as a 'wave canal... In general the effect of increasing the forming the canal is shown in **Fig 1**. The length of the directors must be accurately adjusted otherwise successful directing action will not be obtained. It has been found that the interval between the adjacent directors must be adjusted to a suitable value. The most advantageous value for this interval seems

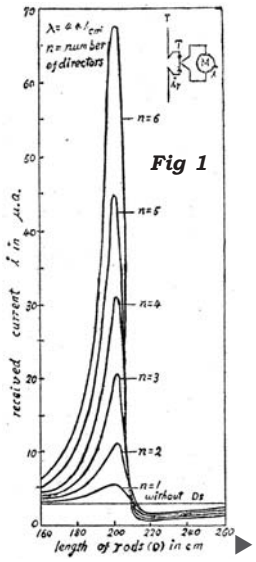


Fig 1: The effect of varying the number and length of directors in wave canals on received current.

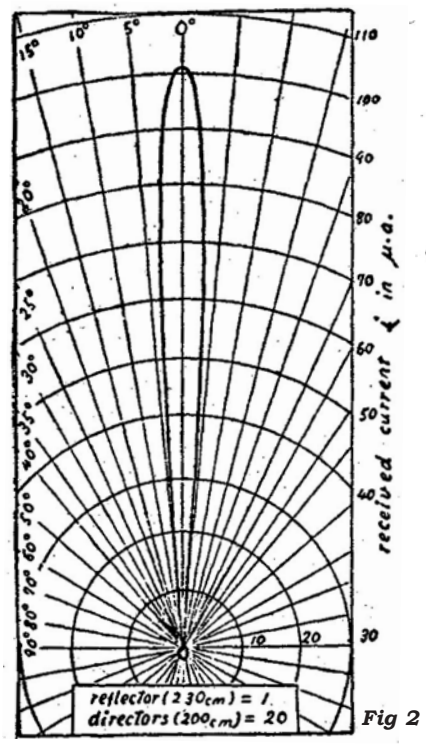
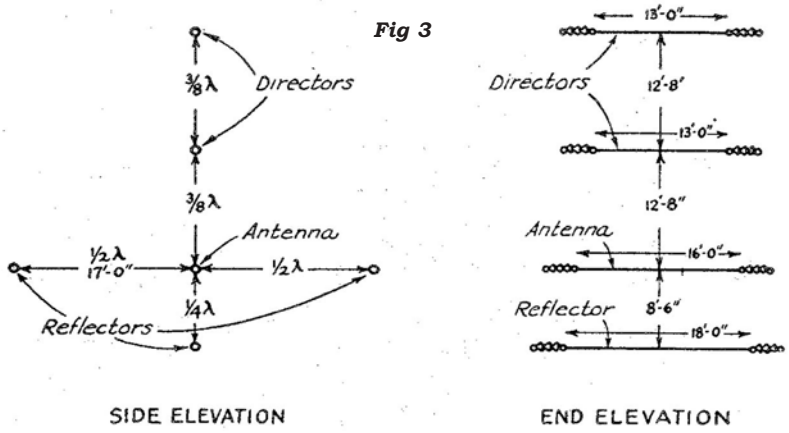


Fig 2

Fig 2: The beam radiation from a radiator utilising a wave canal.

Fig 3: The 1CCZ 28MHz antenna using a driven element, three reflector wires and two director wires.

Fig 4: Construction of the 1CCZ 28MHz antenna, showing the complexity required to support the wires (shown in Fig 3) and alter the elevation angle of the antenna.



to be approximately 3/8 wavelength.

"A typical polar curve showing the beam radiation from such a projector is shown in is given in **Fig 2**. The measurements were taken on a horizontal plane near the earth's surface. It has been found that the power received increases nearly proportional to the square of the number of directors forming the canal".

FIRST AMATEUR YAGI ANTENNA, 1CCZ, 1928

In 1902 it was independently suggested by Heaviside and Kennelly [5] that a conducting layer existed in the upper atmosphere, which would allow radio waves to follow the earth's curvature. This layer was postulated to explain why Marconi's transmissions from Poldhu in Cornwall were received in Newfoundland.

The existence of a conductive, or ionised, layer was proved by Sir Edward Appleton in 1924 using the Bournemouth transmitter of the BBC. Radio pulses were transmitted vertically and by measuring the delay of the received pulses a layer, 60 miles high, was detected. By 1925, after many more experiments, it was found that the structure of this ionised layer was not as simple as might have been supposed. There were several ionised layers, which showed daily and seasonal variations and interacted differently at different frequencies.

This information would have been available at the time Uda was performing his experiments with antennas. It may have been the reason why he used a 'wave canal', described in [4], as follows: "A canal was arranged parallel to the surface of the earth in the first case and along the line inclined 30 deg to the horizontal in the second case... Thus, by the use of wave canals, high angle radiation may be propagated at various angles to the surface of the earth. This may find some practical application in long distance work".

In October 1928 the first documented amateur use of a parasitic beam appeared in *QST* [6]. It described the work of Mr E C Crossett, 1CCZ [note 1], who built a beam antenna for 28MHz [note 2] and operated from his summer home at Cape Cod. It was undertaken under the auspices of the ARRL Technical Development Program to explore the possibilities of long distance communication using the reflected signals from the ionosphere.

The antenna was built primarily to permit variable high angle radiation in somewhat the same manner as that described by Meissner in 1927 [6]. Because the presence of the ionosphere was detected using a vertically projected signal it was assumed, at the time, that communications using the ionosphere would require the signal to be projected at a high angle.

Meissner conducted experimental transmissions on 27.27MHz from Nauen in Germany to Buenos Aires. He used a beam antenna, which was

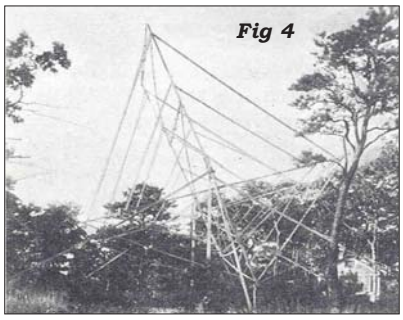


Fig 4

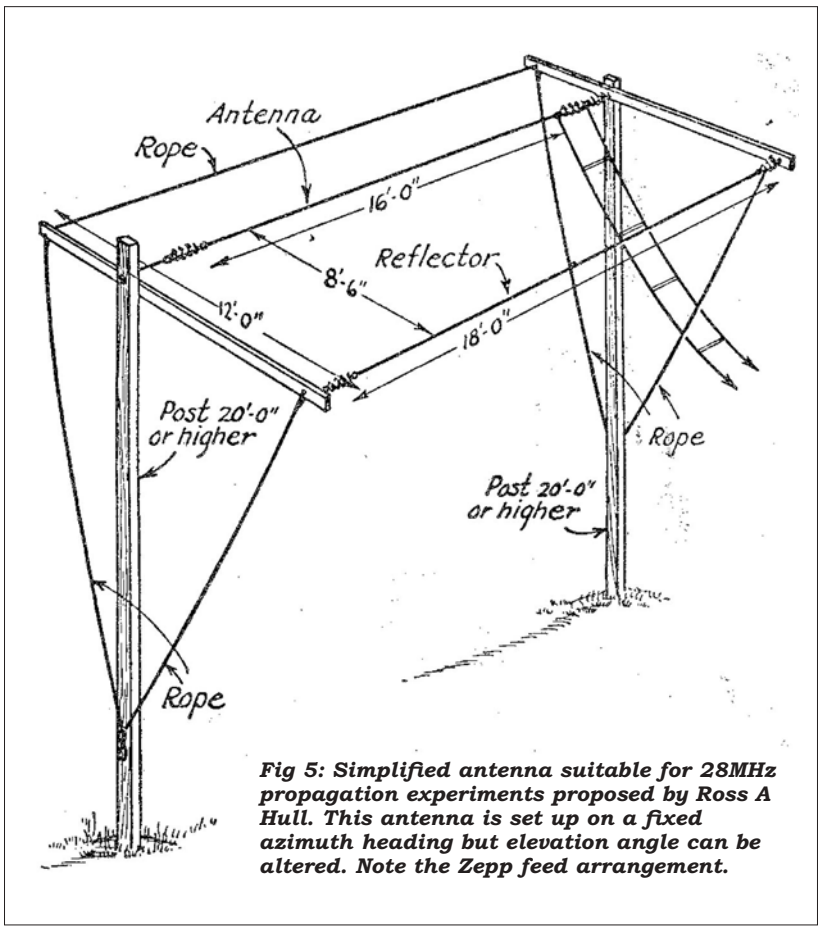


Fig 5: Simplified antenna suitable for 28MHz propagation experiments proposed by Ross A Hull. This antenna is set up on a fixed azimuth heading but elevation angle can be altered. Note the Zepp feed arrangement.

aligned on a fixed azimuth great circle path to Buenos Aires, although the elevation angle was adjustable. He noted, "Contrary to computations and theories, the 27,270kc [kHz] frequency was found to be highly effective in daylight between these two points providing the angle of the beam was adjusted to approximately 38 degrees or 80 degrees from the horizontal. With a simple vertical antenna in place of the beam, signals were rarely heard and then only at very low signal strength".

The experiments undertaken by 1CCZ were more ambitious. The objective was "…to endeavour to find the beam angle which would permit satisfactory contact with Australia – a distance over which one might expect 28,000kc to exhibit some of its useful characteristics". The antenna system, located at 1CCZ's QTH in Cape Cod, was arranged at a fixed azimuth angle 14 degrees north of west, on the great circle path to eastern Australia. The antenna could be tilted in the vertical plane by means of ropes. The antenna system consisted of a Yagi with a driven element, three reflector wires and two director wires, and described as: "…arranged in the manner suggested by Uda and Yagi [4]. The placing and dimensions of these wires is shown in **Fig 3**. The system is seen to be both complex and cumbersome and not particularly suited for the average amateur. The idea, however, was not to attempt to build a truly practical antenna for general amateur work on 28,000kc, but to put up a system strictly in accordance with the present understanding of the requirements. In this way, it was hoped, the work of developing a practical antenna would be, to some extent, facilitated".

The complexity of the structure can be seen in **Fig 4**. The method of feeding this antenna is neither illustrated nor described.

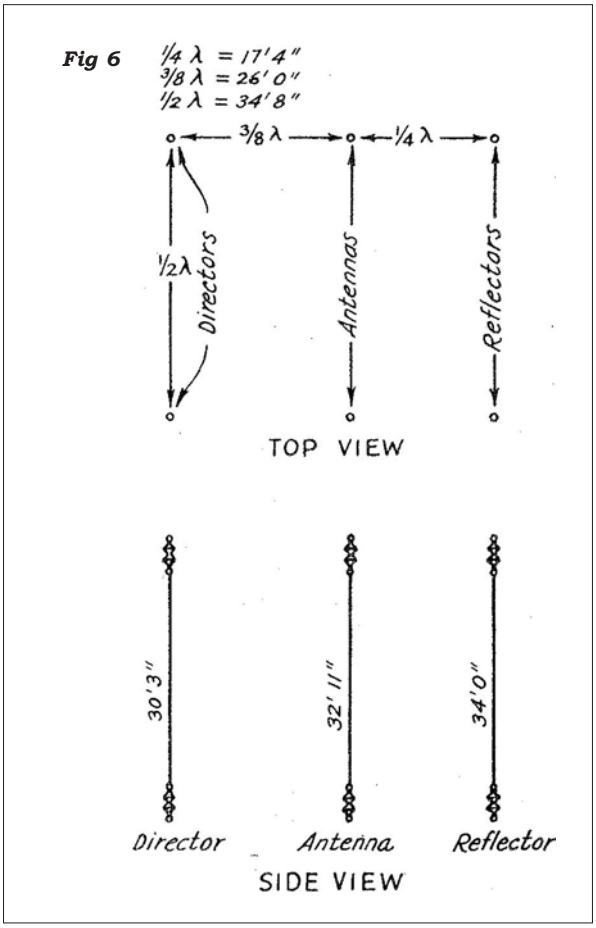
During the month of September the transmitter was operated on schedule with listeners in Australia but during the first two transmissions no reports from Australia were received. The signals, however, were reported R6 by 7ACS at Tacoma, Washington, on the West Coast of the USA.

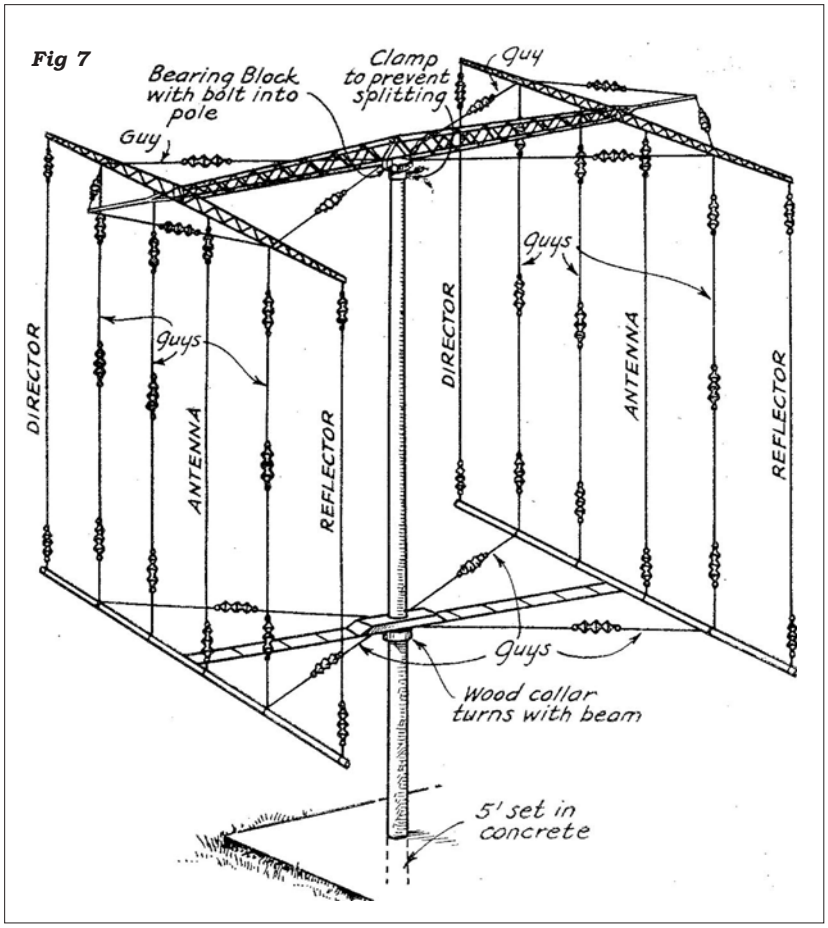
A report of experimental work done by amateurs in the 28MHz band appeared in January 1929, written by Ross A Hull [8], the Associate Technical Editor of *QST*, who was also in charge of the ARRL Technical Development Program. It outlined the USA coast to coast and transatlantic contacts that had been made to that date, plus other results from other parts of the world. The antenna and equipment used by 1CCZ, by now W1CCZ [see note 3], was made available for a week of experimental work by other members of the ARRL Technical Development Program. Hull describes the antenna experiments: "Experiments, with different beam angles and with the director and some or all of the reflectors removed, was made, extending over almost the entire hours when communication was possible. Code letters were sent to designate the different settings of the beam and in this way W6UF selected the most effective setting without knowledge of the angle. Many splendid checks were obtained of the improved signal intensity and greatly reduced fading at beam angles within a few degrees of 30 degrees. In contrast to Meissner's results no particularly effective angles above this were evidenced. The removal of the director made it clear that it was of very slight benefit. Also, experimental removal of the side reflectors made it appear that they were not of appreciable importance. The rear reflector, it seemed, was performing most of the work by itself. When it also was removed, leaving the antenna system as a simple horizontal fundamental Hertz approximately one wavelength above ground, the signal strength immediately dropped from the normal R5–R9 to R4–R5 and fading became pronounced.

"The experiences with the W1CCZ beam antenna have made it evident that any such system can be made much simpler than was first thought. In its most practical form the system would consist of a half-wave antenna mounted centrally between two reflector wires one wavelength apart. A quarter wave behind the antenna the third reflector would be mounted, the four wires being supported in some wooden structure which would permit the angle to be var-

Fig 6: Dimensions of element lengths and spacings for 14.2MHz.

Fig 7: Three dimensional view of the W3CIJ antenna. It is rotated by ropes fixed to the top main girder.





ied. The exact form of the supporting frame is not of particular importance and the amateur can be depended upon to design some assembly which is most suited to his facilities. Another highly satisfactory and still simpler system would consist of a horizontal half-wave antenna with a single reflector wire behind it. The reflector could be tied into place with ropes and made adjustable in the manner shown in **Fig 5**."

The simplified 28MHz antenna shown in Fig 5 is the first time that details were given of how the driven element was fed. This 'Zepp' feed arrangement was very popular with radio amateurs at the time and was used in larger antenna systems, to be described later.

THE W3CIJ 6-ELEMENT 14MHZ ROTARY BEAM

One of the earliest designs of an amateur DX beam was built by John P Shanklin, W3CIJ, and described in *QST* in July 1934 [9]. This antenna comprised two three-element vertical Yagis fed in phase. This is an excellent article and describes the antenna in detail. The dimensional arrangement of these elements is shown in **Fig 6**. The spacing between the elements are shown in fractions of a wavelength and in actual dimensions for a frequency of 14.2MHz. The complete beam assembly is shown in **Fig 7**.

W3CIJ describes the construction of the support structure in detail. The individual components are shown in **Fig 8**: "A good husky wooden pole of about 50-foot height carries the whole load. This is set in concrete, to ensure its remaining rigidly vertical. Pine flooring and plaster lath are the materials from which the main girder and end supports are made, the cost of the wood being about $115 and the whole works weighing only about 300 pounds. The tongue and groove were removed from the 1-inch by 3-inch pieces of flooring to make the 3-inch pieces, and those serving as the 1-inch by 2-inch pieces were cut down further to the latter dimension.

"With the bearing block on top and the collar at the bottom properly fitted, the beam is readily turned in any direction in a few minutes by means of a couple of rope stays. Once set at the desired position the ropes are pegged down to keep the beam from turning with the wind. To keep the feeders from becoming tangled up when the beam is turned, the line from the shack is anchored to the pole below the lower bearing point and flexible jumpers of sufficient length are connected between the line terminals and the quarter-wave coupling section of the beam. A pulley and weight arrangement keeps the line running to the shack taut under varying conditions of weather and temperature".

The Zepp method of feeding the driven elements is shown in **Fig 9.** Transposition of the feed line half way between the two radiators is necessary to excite the two antennas in phase. The feeders are extended a quarter-wave from one of the antennas; this quarter-wave section being shorted at its outer end to allow the antenna to be matched to the 520Ω feed line.

W3CIJ also describes a method of measuring the antenna's performance shown in **Fig 10**: "The intensity meter used in getting the experimental curve consisted of a Type 33 tube used as a diode rectifier, with both grids and the plate tied together, a 0 - 1 milliammeter connected in the output circuit giving the indications. Before taking the measurements it was calibrated on 60-cycle AC. In taking the measurements the intensity meter was set up 10 wavelengths from the beam and the beam was then revolved through 180 degrees, measurements being taken at a sufficient number of settings. The dotted portion of curve 'B' is approximate, the reading being too small in this region to be determined accurately.

"Theoretically the beam should boost the signal approximately 6dB over a non-directional antenna or, in other words, should give a power increase of four times, which means that the 50 watts here is effectively made equal to some several hundred watts with a non-directional antenna."

THE ZS1H 4-ELEMENT 14MHZ ROTARY BEAM

The antenna shown in **Fig 11** was constructed by ZS1H and a brief description of it appeared in the *T&R Bulletin* [10]. The antenna comprises two half-wave vertical driven elements, spaced a half-wavelength apart and fed in phase with 500Ω feeder (presumably using the Zepp end-fed arrangement). The two reflectors are half-waves, spaced a half-wavelength from the driven elements. The design appears to be a simplification of the W6CIJ beam.

The antenna support and mast were constructed of wood. The lattice mast was 54ft high and the top structure was 36ft long and 18ft wide and the whole support structure rotated on roller bearings. The antenna and construction is obviously influenced by earlier articles in *QST*.

THE G6CJ REVERSIBLE DIRECTION BEAM

By the early 1930s the Radio Society of Great Britain had a 'Research and Experimental Section' to the *T&R Bulletin*. Various individuals had specialised subjects and 'Aerial Design' was written by F ('Dud') Charman, G6CJ. In December 1935, G6CJ [11] described what appears to be a two-element reversible beam set up on a fixed (unquoted) azimuth angle. His edited description is as follows: "Some experiments recently carried out with a reflector system have shown that a considerable improvement in long-distance performance can be obtained fairly cheaply. Consider for a moment a horizontal half-wave aerial. This normally radiates in a broad direction at right angles to the wire with an angle to the horizon, which is determined by its height.

"…Now suppose that behind our horizontal dipole we can place a wire,

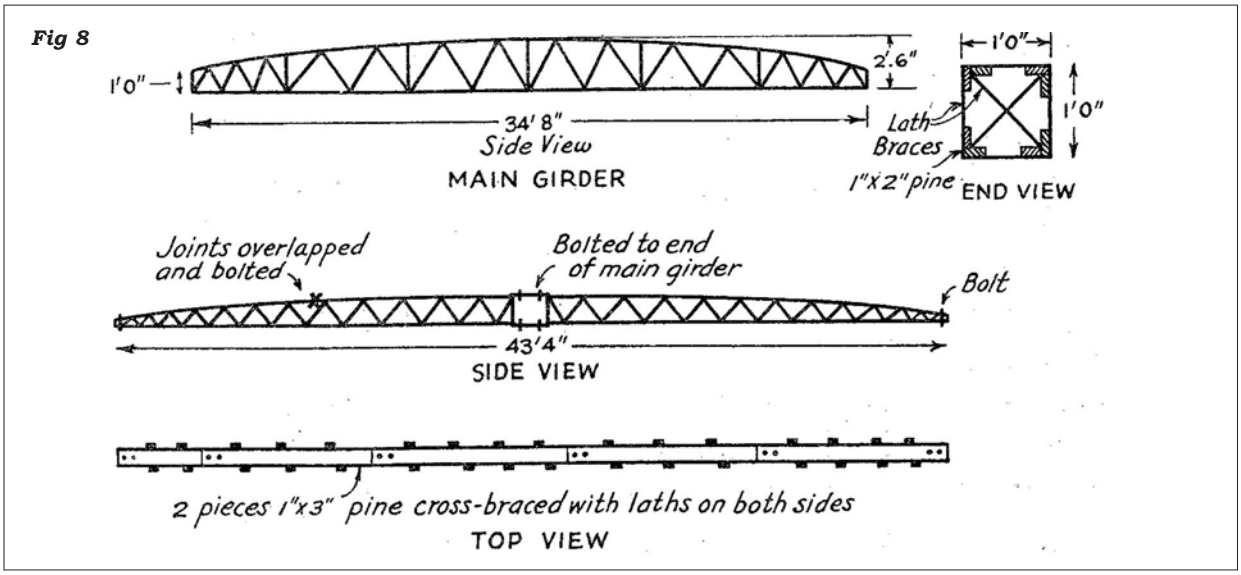


Fig 8: Construction details of the support structure of the W3CIJ antenna.

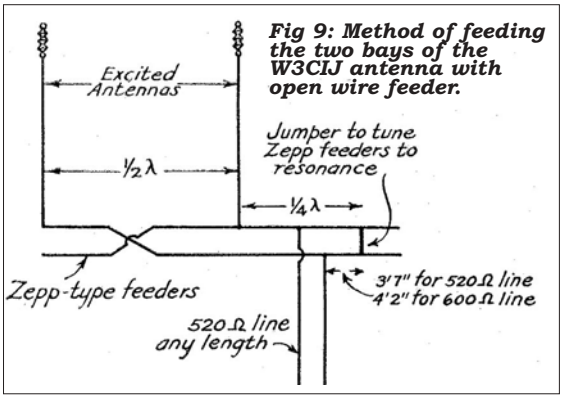


Fig 9: Method of feeding the two bays of the W3CIJ antenna with open wire feeder.

which is in resonance. At a quarter-wave spacing it will be seen, allowing a phase reversal for reflection, that the wave reflected back towards the dipole will be in phase with the next radiated cycle and will add in this direction; also in the opposite direction the two waves, the direct and the re-radiated, will be in opposition and tend to cancel. The system has become more directive and will, in addition to sending twice as much energy one way, also give lower angle propagation.

"The extra signal strength to be expected from doubled power is only 1.4, and is hardly perceptible, but the lower angle will allow of a long journey with less reflections between earth and F layer, and this will result in a reduction of attenuation which may be worth a hundredfold increase in power, and probably also a reduction in fading.

"…The experimental reflector was first tried on 14mc [MHz]. Theory showed that as there was a reactive coupling as well as resistive, the reflector might have to be longer than the usual 33ft, and 35ft was found to give best results. The radiation resistance of the radiator was increased somewhat by its presence, which means bringing the feeder tap or taps nearer the centre. The system was first faced west. Results were frankly astonishing. Signals in W6 rose from one to two points, and instead of getting through occasionally, stations were worked every time, and G6CJ became one of the best European signals over there. In Australia in the mornings signals went up two points and lasted out longer than any others.

"This was very encouraging, and the next thing was to make it easy to reverse direction. This was done by shortening the free wire to 31ft. This has the effect of trying to advance the phase of the re-radiated wave and so 'leading' the wave that way. Results were as before.

"…Turning to the practical side, the systems have so far been supported from one pair of poles by using 16ft spreaders. It is necessary to find the correct suspension point to allow for the weight of the feeders on one side, and the corners can be held back by cords to give stability. One and a quarter inch square pine will hold up a pair of 33ft wires, but it should be suspended from the middle as well as the ends in a sort of triangle. If full height is desired, 2 in x 1in may be used without the end triangle, but a rather stout halyard is necessary.

"A word of warning must be given regarding field strength measurements made with directive systems. In the horizontal system field strength measurements made locally mean practically nothing. The reflections from the ground at angles widely different from the direct ray completely spoil any attempts to find the directive properties of the system. If it is desired to carry out tests of this nature to determine the correct adjustment of the free wire, then the whole system must be made vertical and free from local reflecting objects. For convenience the design may be carried out on a scale model on 28 or 56mc, but the wire diameter should also be scaled down.

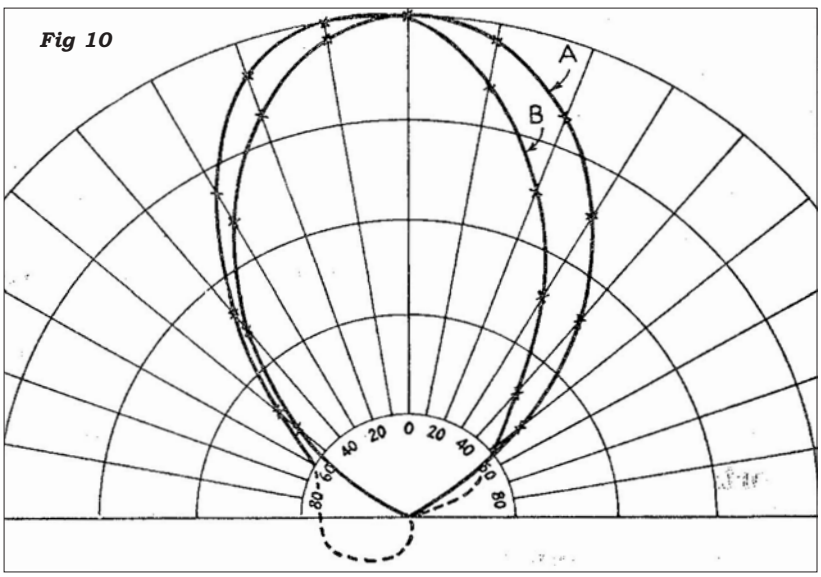


Fig 10

Fig. 10: (A) Calculated horizontal field pattern. (B) Measured field pattern.

"…The writer wishes to register thanks to his fellow experimenter, 2ASP, for his enthusiastic assistance in connection with this experimental work".

There are no illustrations and the method of feeding is unclear. Furthermore there are no references so it has not been possible to ascertain if this was the first time a parasitic array had been used in the UK. The construction appears to be similar to that shown in Fig 5.

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In the concluding part next month, Peter Dodd looks at such interesting designs as the W5BDB 'Signal Squirter', GM6RG's massive 28MHz beam from the late 1930s, and the modern, all-metal, beam similar to those used today.

NOTES

[Note 1] Although prefixes had been assigned to countries, amateur stations did not originally qualify for international callsigns. The USA was divided into nine call areas and amateurs were granted calls consisting of the call area number, followed by two or three letters, such as 1CCZ or 6MN. W and K prefixes started to be assigned to USA amateurs on 1 October 1928. [From http://www.ac6v.com/history.htm]

[Note 2] The 28MHz band become available to radio amateurs in March 1928.

[Note 3] The 28MHz experiments performed by 1CCZ ceased when he moved to his Chicago home in September. ◆

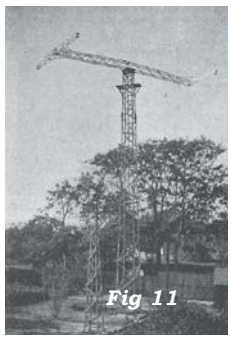

Fig 11

Fig 11: The ZS1H 14MHz four-element beam. A method for supporting the bottom ends of the vertical elements is not visible so it was probably done with ropes.

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By Harry Leeming, G3LLL, The Cedars, 3a Wilson Grove, Heysham, Morecambe LA3 2PQ. E-mail g3lll@onetel.net.uk

Pull the mains plug out!

I am sure I am not the only *RadCom* reader who has been horrified by the writings of some 'computer experts', and at the fitting instructions supplied with some computer parts. Instructions like "Leave your computer plugged into the mains but switched off at the wall socket, and make sure you are earthed" seem more applicable to suicide, than to computer upgrading.

THE DANGERS OF THE MAINS ELECTRICITY SUPPLY

The domestic supply in the UK commonly ends up in a wall-mounted 13-amp socket, possibly fitted with a switch. The three wires going to the pins are 'Live', 'Neutral' and 'Earth' (**Fig 1**). The lead going to the earth pin may be connected to a rising water main on an old installation or, more likely with a modern house, be connected to the outer shield of the incoming mains cable.

The neutral lead, when it leaves the house, goes back to the local substation, and is also connected to earth. Due to the resistance of the lead and the current drawn by local users, the voltage measured on the neutral pin of a socket may be a few volts above earth. In no way should the neutral pin be considered to be safe, as under fault conditions it can rise to the full mains voltage.

The live lead is connected by the electricity supplier to one half of the local three-phase supply, and is nominally 230V above earth.

To receive an electric shock, current has to be able to flow into and out of your body. If, for instance, you touch the live terminal of a socket with one finger while you are standing on a plate of glass, you will not get a shock. If, whilst still touching the live pin, you then either place another finger on the earth or neutral terminal, grab hold of a central heating radiator, or stand on a damp flag floor wearing leather shoes you will get a severe shock, *but please don't try it or you may be killed*!

MAKING SURE YOU ARE NOT KILLED

The most dangerous way to get an electric shock is from one hand to the other, as the current will pass through your heart and lungs. If you are gripping something tightly your hand muscles will be paralysed making it *impossible to let go*. A radio and TV engineer I know once got himself into this position when turning over a TV chassis, fortunately he managed to throw himself backwards dragging the mains plug out, and ending up with the TV on the floor, he recovered, but the set was rather poorly!

No-one who works with, or makes a hobby of, electronics can hope to escape without at sometime receiving an electric shock. What you can do is to get into safe habits so that, hopefully, any shock does little more than damage your pride. Since at least the 1930s, the accepted practice when servicing mains operated equipment such as radios and TVs has been:

1. Never trust the switch on a wall socket. (It does not isolate equipment from the mains and make it safe; it may be wired in the neutral lead, or it may even be 'upside down'.)
2. Always pull the mains plug out before replacing parts inside or outside any electrical equipment.
3. Never stand on, hold on, or touch, anything that is earthed when dealing with any equipment that is connected to the mains, or that has the remotest chance of being live.
4. If you *have* to work on live equipment try to keep one hand in your pocket; when this is not practicable, *never never never ever*, grip two conductive objects tightly with both hands at the same time.

CHARGED-UP CAPACITORS

When servicing the older valve-operated equipment, or some power supplies, there is also one more point that was forcibly brought home to me recently. I was half way through fitting new parts to an FT-102 when I had to knock off and go with my wife to visit our daughter for a few days. The FT-102 was unplugged, and when I returned home I set out to carry on where I had left off. My fingers accidentally touched the 900V line and, despite the fact that the rig had not been connected to the mains for almost a week, I got a very unpleasant jolt from the charge remaining in the capacitors. Learn from my experience and, before poking around near high-voltage stages, unplug the rig from the mains (preferably while it is still transmitting into a dummy load to help discharge the capacitors), leave it a few minutes, and then short out the high-voltage line. ▶

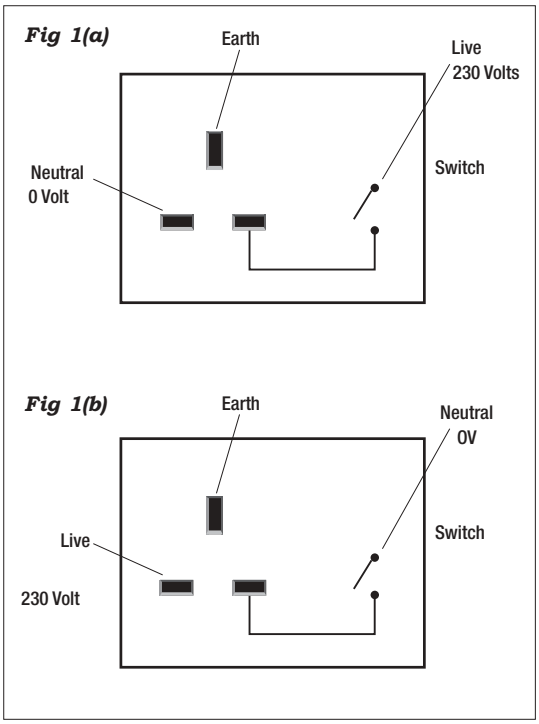

Fig 1 (a): A correctly-wired mains socket. Do not trust your life to this switch - it does not isolate the wiring from the mains. A fault anywhere in the neutral lead, such as a blown fuse, could make the neutral lead live!

Fig 1 (b): A wrongly-wired socket. The switch stops the equipment working, but the full mains voltage is still connected to the external equipment. It gives a false sense of security and is very dangerous.

SERVICING AND UPGRADING COMPUTERS AND OTHER EQUIPMENT WITH STATIC-SENSITIVE PARTS

Having put personal safety in its rightful first place, we can now look at the required safety measures needed to protect the equipment. Computers, along with much modern ham radio equipment, use devices that are susceptible to damage by the smallest of voltages. Such voltages can be generated by static electricity, or by leakage from the mains supply.

Leakage from the mains supply

This can be due to the capacity between the primary and secondary of the mains transformers in the adaptors feeding speakers, scanners or test equipment that is not earthed. It will not harm you, but it could wreck delicate voltage-sensitive parts as they are removed or fitted.

The generation of static electricity

On a dry sunny day, I walked across the new nylon carpet wearing rubber-soled shoes to kiss my wife goodbye, as our lips met there was a spark and she jumped back! No it wasn't just passion, it was static electricity. For an electric shock or damage to occur, there has to be a difference of voltage, and a path for a current to flow. If my wife and I had held hands, whilst deliberately sliding our shoes on the carpet, there would however have been no electrical discharge when we kissed, as we would have been at the same potential.

From the above, it is pretty obvious that if you skate across a nylon carpet on a dry day wearing rubber-soled shoes with a strip of computer memory, a non-gate-protected FET, or a microprocessor in your hand, and then try to fit it, you are asking for trouble. What should you do then?

THE WRONG WAY TO FIT PARTS

The standard wisdom, printed in many computer books and magazines, suggests that the computer is left plugged into the mains, but switched off at the mains socket to ensure that it is earthed while new parts are being fitted.

Whilst the above approach might be just about acceptable when working on equipment fed by the relatively-safe 115V mains supplies in the USA, and may, it is claimed, not be too risky with some of the latest ATX computers, it does completely violate long-established UK safety practice, and is *definitely not recommended*. A not insignificant number of readers of *RadCom* have, like myself, been fitting static and voltage-sensitive parts since long before many 'computer experts' were born. It is not difficult, and you certainly do not need to put your own life on the line to achieve it without causing damage.

The generation of static electricity depends very much on the environment. If you service equipment on a wooden bench, and stand in your bare feet on a stone floor in a damp workshop, you can probably get away without taking any anti-static precautions at all. (Being earthed via the conductive floor you will, of course, put yourself at risk of electrocution, to say nothing of arthritis!) In reality, one should work away from nylon carpets, and not wear rubber-soled shoes. If the area is extremely dry, put some water in a scent spray and dampen the surroundings slightly without making them wet. (Do *not* spray the equipment!)

Having established a reasonably static-free environment, you are now ready to proceed safely.

FITTING 'PLUG IN' PARTS

1 To ensure personal safety and avoid the possibility of leakage from the mains supply, the computer or other equipment to be worked on should be completely disconnected from the mains, together with *all leads and equipment.*
2 Touch something that is earthed, such as a central heating radiator.
3 Remove the case and put it safely to one side.
4 Roll up your sleeves and touch your bare arm on the metalwork.
5 Reach for the part you want with the other hand and, while you are fitting it, make sure that your bare arm remains in contact with the metal work at all time. (Do the same of course when you remove a part.)
6 Reassemble the equipment.

SOLDERING IN NEW PARTS

Most 'solder in' parts such as MOSFETs now have built-in protection, and so are less susceptible to damage than were earlier devices. Some of the more specialised low-noise devices, however, are still easily damaged, and care should be taken to ensure that all the pins remain at the same potential when they are being fitted. An easy way to achieve this, and also to guard against heat damage when fitting any FET, is to place a small piece of wet cotton wool between the leads whilst soldering and, of course, remove it and dry the area before applying power. When soldering any part, ensure that the soldering iron and the circuit board are both at the same potential by connecting a croc clip lead between them.

Anti-static wrist straps

One of these can be worn as an additional precaution. Do not, however, use one unless it is clearly marked as complying with British and European safety standards. Some of the cheap ones on sale may be intended for 115V areas, and could possibly be dangerous if used with equipment operating from 230V.

Forget everything else if you wish, but always *pull the mains plug out first*! ◆

HSE warning over safety advice on upgrading personal computers

The Health and Safety Executive (HSE) today expressed concern about advice given in some computer magazines to home computer owners on how to install electrostatically-sensitive components in computers.

To prevent damage to components from static electricity, computer-owners are being given the potentially dangerous advice to:

- Plug the computer in to the mains
- Switch off the power supply at the mains
- Earth themselves to the computer chassis using a conductive wrist-strap.

The HSE warns that this procedure can be dangerous. If there is a fault in the computer power supply, or if the electric socket is wired incorrectly, the computer chassis can become live and give a fatal electric shock.

To protect themselves, as well as static-sensitive equipment, HSE would recommend that home computer owners:

- Disconnect the computer and any attached peripheral equipment from the mains
- Before working on the computer, touch a metal radiator, water pipe or similar earthed object to discharge static electricity (static charges usually build up on the person, not the computer)
- Remove computer covers as necessary

If instructions on discharging static are provided by the component-manufacturer, follow them before unpacking the component; after installing new components, replace computer covers before connecting the computer to the mains. Following these instructions should keep owners safe.

PUBLIC ENQUIRIES: Call HSE's InfoLine, tel: 08701 545 500, or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.
www.gnn.gov.uk/gnn/national.nsf
14 April 2003

[Due in no small way to Harry's efforts, the Health and Safety Executive has issued new guidelines on upgrading personal computers. Although still not perfect, these instructions go a long towards making the upgrading process much safer. They apply equally to the servicing and repair of amateur radio equipment. This is the original text of the HSE document. - Ed.]

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PIC-A-ST

Fig 18: RS-232 connections. This can be made up as one composite loom – or as two separate leads.

Fig 19: PicAdapter board circuit diagram. This board plugs into the 18-pin PIC socket on the original Pic 'N' Mix DDS board and upgrades the PIC to a more recent and versatile PIC, the 16F870.

This month covers the circuits of the PicAdapter and Status boards. Constructional detail follows next month. You don't need these boards to commission STAR initially, since you can load and control the DSP software from your PC.

Thereafter, in terms of constructional sequence, you need the PicAdapter first, which then allows DSP code download from your PC and subsequent upload to the DSP assembly. Thereafter, you need the Status board to complete the user interface.

RS-232 connections

First the wires! The required cabling at any one time is one of the following:

- From PC to DSP – early test.
- From PC to PicAdapter – load new code.
- From PicAdapter to DSP – normal use.

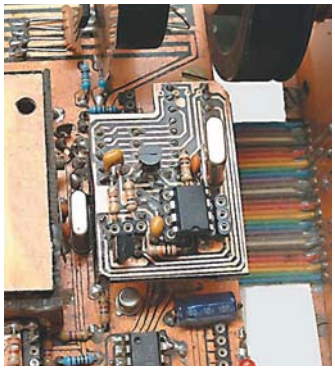
Fig 18 shows a simple implementation. The lead with the female connector for mating with the PC serial cable should be fitted for occasional use – if at all. Certainly the lead should not be routed via the RF section of the transceiver to the rear panel – to avoid any potential EMC coupling. I keep mine in the drawer and get it out when I need it.

The link to the PC is needed only to load new releases of DSP code, whereas the link to the DSP assembly is used continuously. Normally, the lead(s) plug into the PicAdapter board, but for loading and controlling the DSP assembly *directly* from the PC, a trivial connector with TX wired to RX can be used for pass-through operation instead.

PICADAPTER BOARD

This plugs into the original PIC socket on the Pic 'N' Mix DDS board. The circuit diagram is shown in **Fig 19**.

PicAdapter board in situ in Pic 'N' Mix.



For compatibility reasons, the PIC, IC9, uses essentially the original Pic 'N' Mix code to provide all the original Pic 'N' Mix functionality. However for STAR purposes, it has four incremental tasks:

1. To download new release DSP code together with control parameter values from your PC – and retain these in IC10, a serial EEPROM – for subsequent normal use.
2. At power-on time, to read the DSP code and parameters from the EEPROM – and load them to the DSP board.
3. During normal operational use, to communicate any changes you make to the control parameters (eg AF Gain) – to the DSP board. The changed values are also retained in EEPROM and thereby survive power-down.
4. To drive data out to the Status board to control the state of the LEDs.

To these ends, minimal RS-232 links *from* your PC at 1.2Kb/s and *to* the DSP Assembly at 9.6Kb/s are controlled by the PIC.

The PIC also controls an I^2C link to the serial EEPROM.

The slower downlink speed from the PC is used to give the EEPROM time to *write* each byte of the DSP code and control settings. However *reading* from the EEPROM is a much faster process, hence the higher baud value – which is the mode normally used operationally.

All the connections shown from the right-hand side of the PIC in Fig 19 duplicate the original Pic 'N' Mix pin-out and provide much-valued code compatibility.

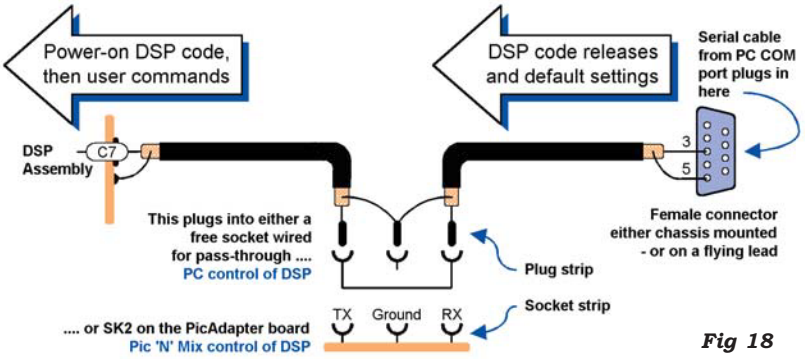


Fig 18

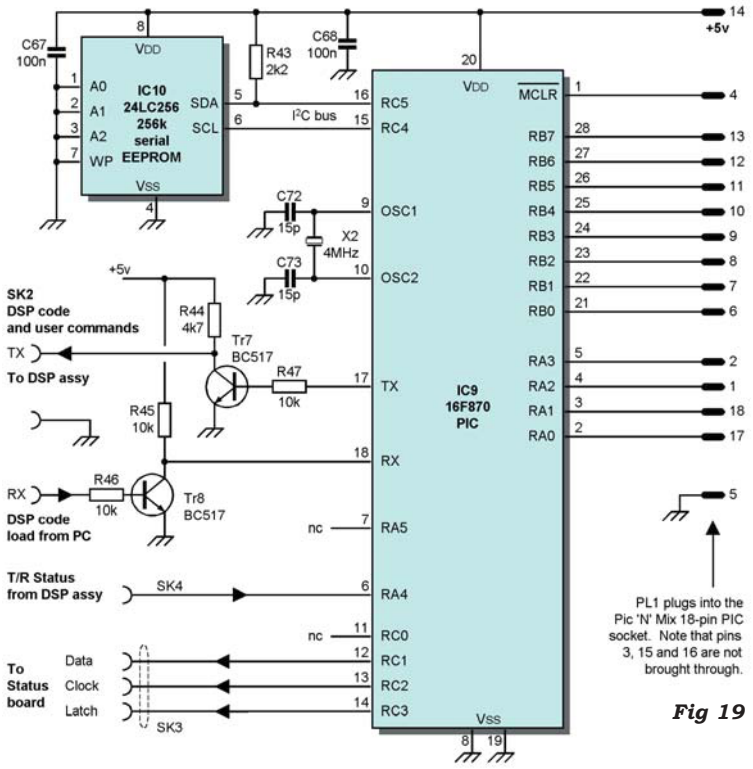


Fig 19

By Peter Rhodes, G3XJP, Danvers House, Wigmore, Herefordshire HR6 9UF. E-mail: g3xjp@qsl.net

AR

The T/R status line is an input to this board (and it also goes to the Timer board). Whether STAR is transmitting or receiving is determined by DSP and the result is communicated to the PicAdapter solely to allow 'split' operation. Thus it need not be fitted at first test. This line is at logic '1' on receive, '0' on transmit.

The only other pins worthy of mention are the Data, Clock and Latch pins, which simply drive the Status board LEDs.

Because this board is self-contained, it can be programmed – as an assembly – in the 18-pin socket of a PIC programmer.

For test purposes this board, once programmed, should provide full normal Pic 'N' Mix DDS operation, albeit with slightly longer key presses being required than those with which Pic 'N' Mix users will be familiar.

Split operation should finally be verified with the T/R Status line connected.

STATUS BOARD

This board carries the bar-graph S-meter, the latch/driver for the status LEDs and the passive connections to – and the mechanical mounting of – the keypad. You have the option of not fitting any of these functional elements should it suit you – and the PCB is laid out so that you can 'cut bits off' should you wish. Equally and conversely, these elements were designed explicitly to be used stand-alone in totally differing situations if required.

The circuit diagram is shown in **Fig 20**. IC16 is a conventional serial-in, parallel-out driver. It is identical in function to those already fitted to Pic 'N' Mix for band-switching purposes.

IC28, the PIC, exemplifies the pin-out efficiency of the current generation of PICs. Of the 18 pins, only three are assigned to 'overheads' – ie ground, power and reset, the other 15 all being available for I/O. Of these, one is programmed as an analogue voltage input (the AGC voltage) – 12 as outputs driving LEDs – and two are spare. So far, that is.

IC28 is a mere voltmeter which displays S-units on receive and relative power on transmit. R73 determines its sensitivity – and I can visualise some non-STAR applications where you may need to tune its value. ◆

Fig 20

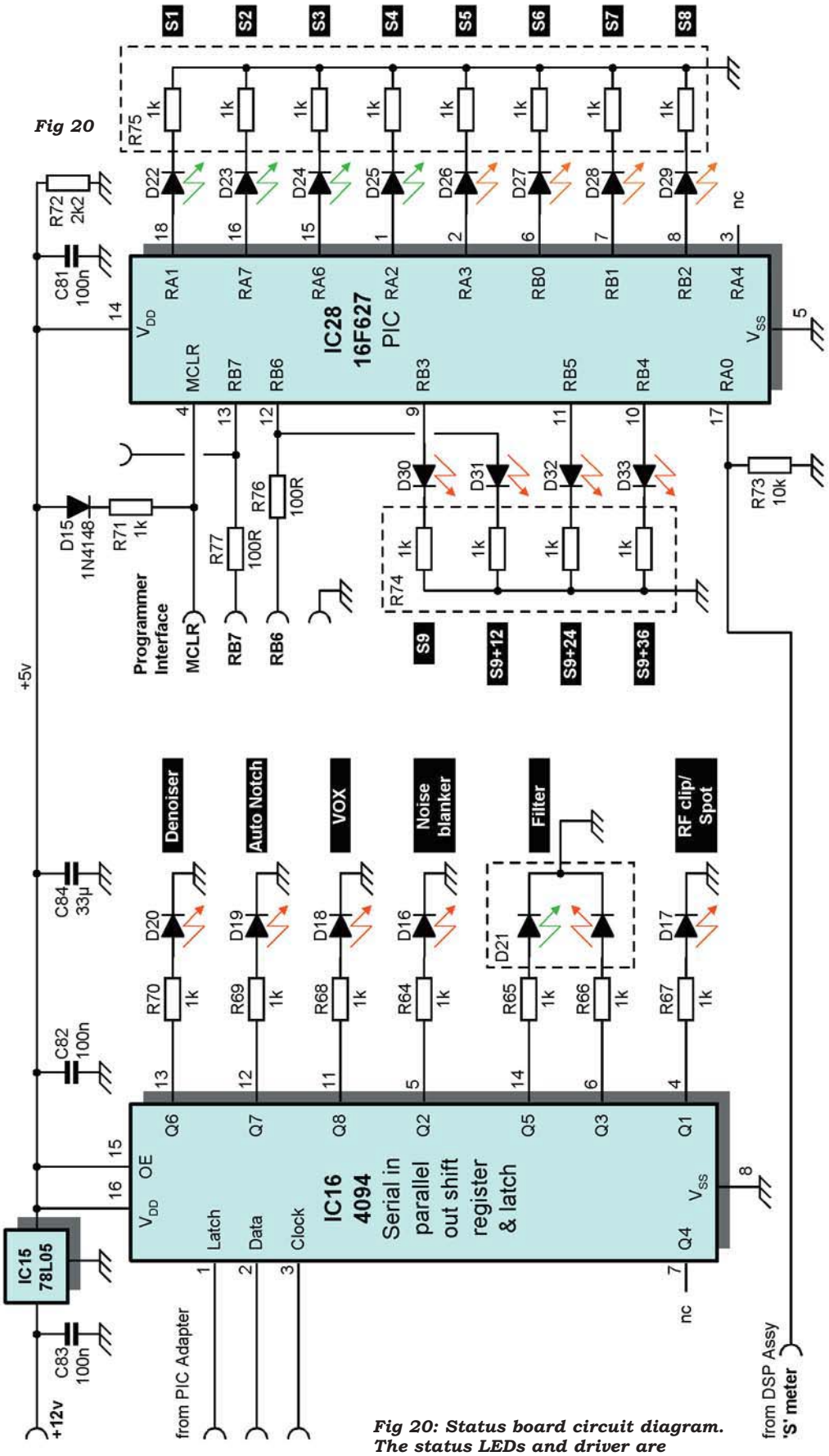


Fig 20: Status board circuit diagram. The status LEDs and driver are functionally unrelated to the S-meter LEDs and driver, but they are co-located around the keypad. Not shown here are some merely passive tracks which are used to make off the 7-way ribbon cable to the keypad. The connector shown on RB7 is for future development only.

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TT technical topics

GDOs DATED & UPDATED

For more than 50 years, the versatile GDO (originally Grid Dip Oscillator) has been regarded by most amateurs as an indispensable aid to home construction and experimentation. First introduced to the amateur fraternity by C F ('Bud') Bane, W0WB, in a *CQ* (March 1947) article 'About Grid-Dip Oscillators'. This described a portable battery-operated unit using a type 3A5 miniature valve. Its value was soon recognised; by the early 1950s, this simple device was being used world-wide. Design, construction and applications of this simple instrument appeared often in the amateur radio periodicals and handbooks in the following decades.

For example, the 1956 edition of *The Radio Handbook* noted: "A grid dip meter is a piece of test equipment that will be found invaluable in circuit alignment work. Basically, it is simply a low-power oscillator with a DC meter indicating rectified grid current. Some provision is always included for coupling [directly or via a link probe] the tank circuit of the oscillator to the circuit under test. The main application is to provide a means of indicating the (approximate) resonant frequency of the circuit [or antenna] to which it is coupled.

"The frequency of the oscillator is varied over the frequency range where the (unpowered) circuit is expected to resonate. When the frequency of the GDO coincides with the resonant frequency of the circuit to which it is coupled, power is drawn from the oscillator and its grid current will take a sudden dip."

In practice, the dip will be more pronounced when oscillation is fairly weak, with the coupling to the external circuit not so strong as to pull the valve or solid-state device out of oscillation.

The early GDOs consisted of little more than a valve and variable tuned circuit arranged as a Hartley, Colpitts or other standard oscillator, together with a reasonably sensitive meter (FSD of 1mA or better): see **Fig 1**. Both battery- and mains-operated GDOs were widely used. Most of the standard GDOs required the use of a set of plug-in coils, some with three pins to accommodate a tap (centre or otherwise).

By the late 1950s or early 1960s, solid-state GDOs often used bipolar or field-effect transistors. Because the early bipolar transistors would not oscillate readily at higher HF or VHF, a tunnel diode was sometimes used as a negative resistance oscillator, for example, in a Heathkit GDO. Solid-state GDOs overcame the need for the high-tension required for a valve, facilitating its use as a truly portable instrument, but tended to be less satisfactory in some other respects. For example, a diode rectifier, DC amplifier and a more sensitive microammeter were generally necessary. A 100μA FSD meter was often considered advisable in the absence of a DC amplifier stage.

'TT', many years ago, included an outline of a wide-range 'magic eye' GDO originally described by F A S Sterrenburg in *Radio Electronics* and claimed as simpler, more compact and more effective than many solid-state dippers, although requiring an external 6.3V, 200V power supply: **Fig 2**. With some 11 coils wound on octal valve sockets, it was specified as covering effectively the unusually wide frequency range of 60kHz to 160MHz.

To quote the original author as summarised in several editions of *Amateur Radio Techniques* (out of print): "The 'magic eye' is not only much cheaper than the combination of meter, amplifier and detector plus RF generator normally employed, but is also more rugged and easier to read. The design shown reduces the number of components to a minimum. Since solid-state dippers also include a battery and meter, they are rarely any smaller or more compact that this EM87 unit which, in my case, measures 9 x 6 x 4cm. Of course, one requires a cable connection to a power supply, but that is less objectionable than one might think.

"When the system was found to work, my existing solid-state dipper was immediately scrapped. I found it provided the following advantages:

(1) despite the rather large tuning capacitor, it was possible to achieve results up to 160MHz without spurious dips (a smaller-value capacitor might be preferable if the unit was required for VHF only);

(2) the lowest frequency attainable with a standard 104mH RFC is 60kHz (even lower frequency could be achieved with a suitable choke if required).

"The incorporation of low-frequency ranges permits the checking of low-frequency crystals (for example, FT241 crystals cannot be checked with many dippers), alignment of 450-470kHz IF stages, and the lower second or third IF sections of such receivers as the BC453 and various National, Hammarlund etc, models." C1 was specified as a Jackson type 0-0 gang with two 176pF sections.

Although 250V power units are less common today than in the 1980s and EM87 'magic eye' valves, although still available from some suppliers, are more costly than in the early 1980s, this device could still be attractive for use in connection with the 136kHz band.

Alan Bloom, N1AL (*QST*, May 2003, pp54-8), authors an article 'A Modern GDO – The 'Gate' Dip Oscillator'. This is sub-headed: 'Building an RF circuit? Use an updated version of an indispensable and legendary piece of equipment to test it - the 'dipper".

N1AL traces something of the history and varied uses of a GDO, including the measurement of capacitance and inductance, as well as being useful as a 'poor man's signal generator' in applications where good frequency stability and calibrated level accuracy are not needed for functional 'go/no-go' tests.

His design (**Fig 3**) is derived from an article by L Butler, VK5BR (*Amateur Radio,* January, 1997, p 15), 'A Dip Meter using the Lambda Negative Resistance Circuit'. However, N1AL's RF generator is a source-

Fig 1: Simple early form of the grid dip oscillator (GDO or 'dipper'). This configuration has the advantage of not requiring any RF chokes but has the disadvantage of requiring centre-tapped (three-terminal) coils.

Fig 2: The wide-range 'magic eye' grid dip oscillator is claimed as simpler, more compact and more effective than many solid-state dippers although it requires an external 6.3VAC, 200VDC power source. Coils (L) as required. C1 was a Jackson type 0.0 (two sections each 176pF maximum).

Fig 1

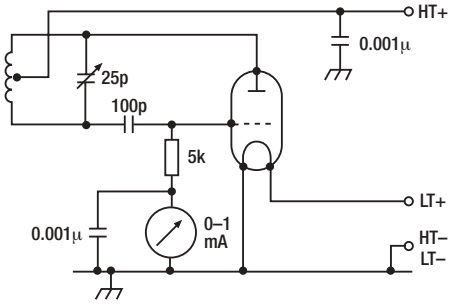
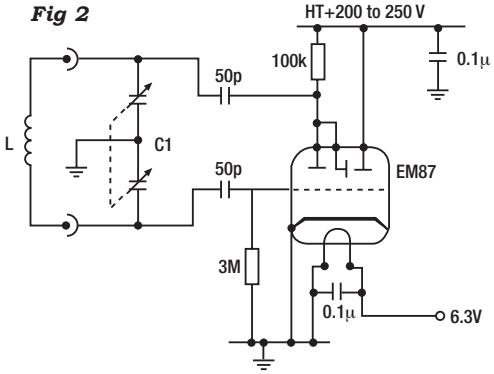
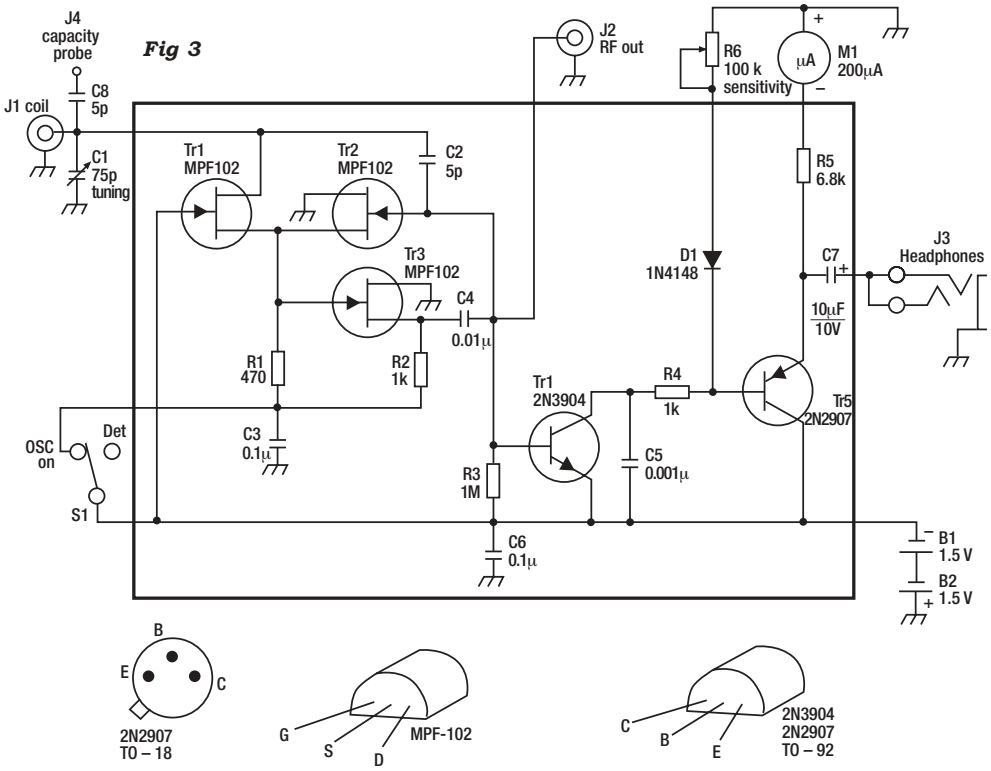


Fig 2





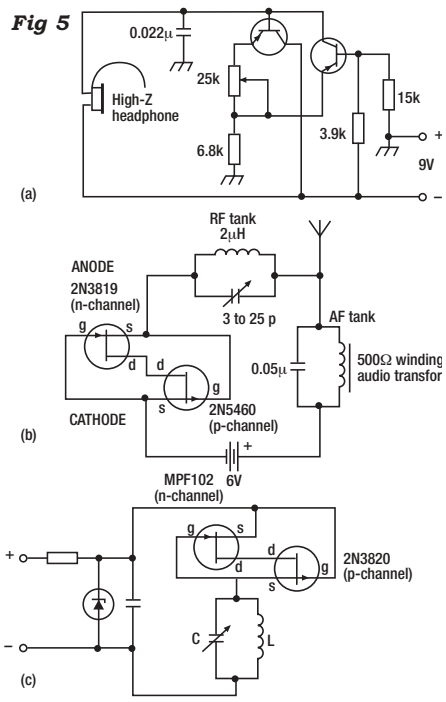


Fig 3: Circuit diagram of N1AL's 'Modern' Gate Dip Oscillator as fully described in QST May 2003.

Fig 4: The 'transitron' negative-resistance oscillator using a pentode valve with negative bias applied to the suppressor grid. As with the tetrode "dynatron", the screen grid must be at a higher voltage than the anode in order to operate in the negative resistance part of its characteristic.

Fig 5: Solid-state negative-resistance oscillators. See text for details.

coupled oscillator using two N-channel JFETs (MPF102) with a third MPF102 as a source-follower amplifier that can be used as a signal source or to drive a frequency counter for accurate frequency readout via the RF output connector. He tried but rejected the NRO approach (see following item) since, without selected coil resistors, he considered that it oscillated too strongly, and because p-channel FETs "are becoming hard to find."

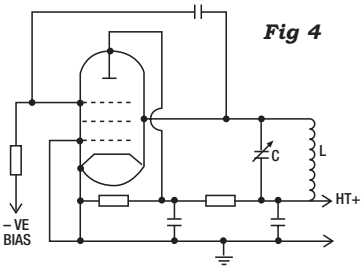
With no RF chokes in the RF generator, his GDO covers, with 10 coils, the range 440kHz to 150MHz with no false dips. The coil formers were made from $^1/_2$in water tubing. With the inside diameter slightly less than $^1/_2$in, it makes a force-fit onto the $^3/_8$in mounting threads of a male chassis-mount BNC connector. The lowest-frequency coil (440 to 525kHz) is wound on a large pill bottle with two 1in-diameter aluminium washers at the connector mount for added strength. The three smallest coils were space-wound, the middle four and the largest were close-wound; the next two scramble-wound. With the lowest-frequency coil, the range downwards was extended by connecting it to the GDO through a BNC T-connector with a pair of 53pF capacitors attached with clip leads. Coil-winding data is given in **Table 1** on page 76 but, for full constructional and layout information, it would be necessary to consult the *QST* article.

NEGATIVE RESISTANCE OSCILLATORS

Although N1AL rejected the use of the Lambda-diode negative resistance oscillator (NRO) favoured by VK5BR for his GDO, this form of oscillator (AF or RF) with its single, two-terminal inductor should not be overlooked by the experimenter. A NRO can be implemented with a single tetrode or pentode valve, a tunnel diode, or a complementary pair of bipolar transistors (npn and pnp) or FETs (n-channel and p-channel).

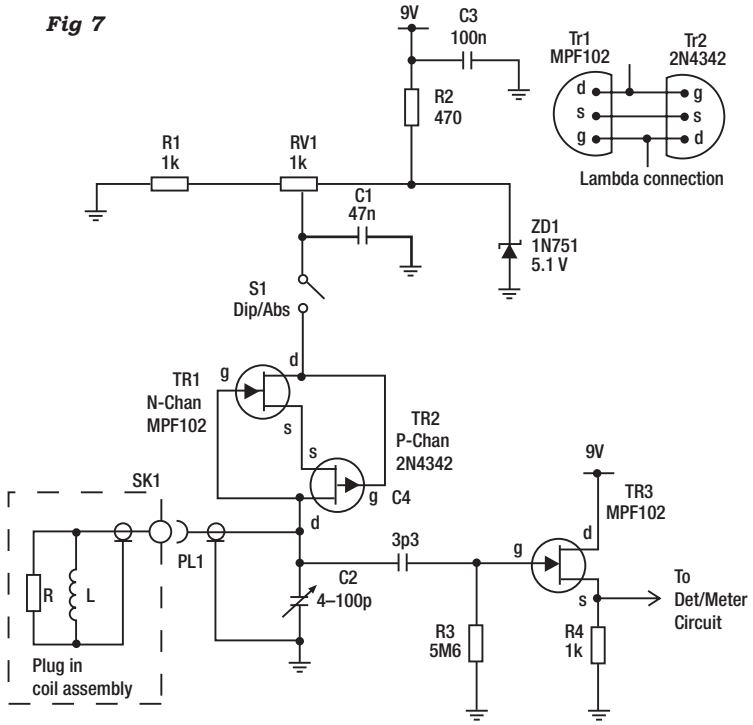
In the valve era, the NRO was known as the 'dynatron' or the later 'transitron' oscillator: **Fig 4**. The dynatron oscillator using a tetrode (screen-grid valve) circuit functions by virtue of the negative resistance present in the anode characteristic produced as a result of secondary emission from the anode as a result of the high screen/anode voltage ratio. In other words, the anode voltage is considerably lower than the screen voltage. The tetrode circuit tends to suffer from short valve life and the need to select individual valves. Although occasionally used in transmitters in the 1930s, it declined in popularity after the development of alternative negative resistance circuits, such as the transitron using a pentode valve. The transitron depends upon the effect of a negatively-biased suppressor grid upon the screen impedance of a pentode valve. For RF applications both forms tended to have more frequency drift than the alternative Franklin oscillator with a two-terminal coil but requiring two valves.

The so-called 'Esaki' or 'Tunnel' diode, first described in 1958, enjoyed a relatively short life as an NRO. Its early popularity came from its ability to function at much higher frequencies than the early transistors, but faded as the frequency range of transistors and varactor diodes increased and presented fewer circuit snags. A milliwatt 3.5MHz transmitter (that had been received at a distance of some 160 miles) using a General Electric 1N2939 tunnel diode powered from a 1.5V battery was described in 1961 in *Radio Electronics* and appeared in 'TT' and all editions of *ART*.



But, coincidentally, it was 1961 when a negative-resistance audio oscillator using two complementary bipolar transistors appeared in *Radio Electronics* (and subsequently in 'TT', April 1961). This used a high impedance headphone as transducer and to provide (with a 22nF capacitor) the resonant AF circuit: **Fig 5(a).** It was claimed to provide near sine-wave output.

Later ('TT', October 1980), G3NJT showed that this arrangement would oscillate readily between 150Hz and 5MHz with near-sine-wave output). But well before this, *Electronics* had described a two-terminal NRO modulated (A2) oscillator using a complementary pair of FETs connected in what has since become known as a Lambda-diode (or simply Lambda) oscillator ('TT' January 1976, pp42/43): **Fig 5(b)**. The original application was as a milliwatt A2 transmitter or, more practically, as a useful signal source. **Fig 5(c)** shows how this configuration can be used as an HF oscillator for a direct-conversion receiver, etc - a similar arrangement can be used with complementary bipolar transistors.



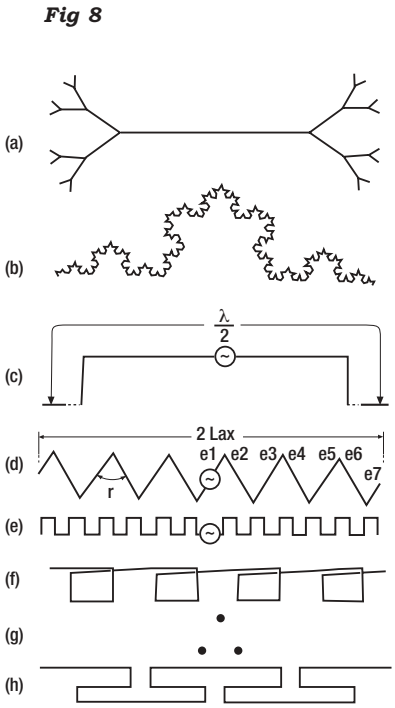


Fig 7: Circuit diagram of the RF generator section of VK5BR's dip meter using the Lambda negative resistance circuit. His original model used six plug-in coils covering the range 1.6MHz to over 144MHz.

Fig 8: Short-span dipole elements. (a) Fractal tree, (b) Koch curves. Both are difficult to implement on HF as bent-wire antennas. See text for details of (c) to (h).

Fig 6: Current plotted against voltage for the Lambda circuit with JFETs. To oscillate, the source-to-drain voltage must in the negative-resistance region. (Source VK5BR)

Lloyd Butler, VK5BR, in presenting his dip meter (covering 1.6 to 155MHz with six plug-in coils) using a Lambda negative resistance circuit (*Amateur Radio,* January 1997) showed that the two n- and p-channel JFETs, when connected in this configuration, interact with each other and produce an interesting characteristic. **Fig 6** shows the drain current versus the drain-to-source voltage that he plotted for randomly-chosen n-channel MPF102 and p-channel 2N4342 devices connected in the Lambda arrangement. Up to point A, the drain current increases as the voltage is increased. Beyond point A the current then decreases, with further voltage increase creating a negative slope and the negative resistance region A-C. Taking the ratio of voltage change to current change along curve A-C, gives a value of around -600Ω. It should be noted, however, that he found individual pairs of devices exhibited considerable spreads of characteristics. Although all pairs oscillated, some did so much more readily than others.

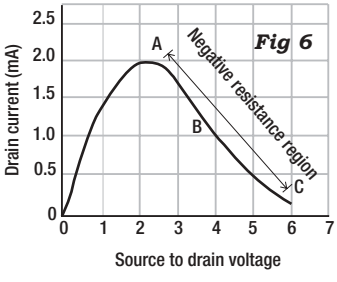
VK5BR adds: "To make a negative-resistance oscillator, we simply connect a tuned circuit in series with the Lambda circuit and the drain-to-source supply, and set the supply voltage at, say, point B, around 4V. Provided the parallel resistance of the tuned circuit at resonance is somewhat greater than 600Ω, the circuit will oscillate... In principle, it is similar to the tunnel diode but requires around 4V as compared to somewhat less than 1V."

Since the shunt resistance of a resonant-tuned circuit of even quite low *Q*-factor will be much higher than 600Ω, almost any practical inductor can produce oscillation. In effect, the feedback is greater than it need be when used as a GDO, since the NRO is able to deliver virtually the full signal swing when energy is absorbed and so there is only a small dip. VK5BR overcame this problem by shunting the tuned circuit with a resistance to a point where the circuit is oscillating only a little above the value which would stop oscillation. He found that the appropriate resistor, fitted at the base of the plug-in coils, varied from 1.6kΩ for the 1.6 to 3.6MHz coil, to 4.7kΩ for the 32.3 to 86MHz coil, and no shunt resistor for the 70 to 155MHz wire loop. The NRO section of his GDO is shown in **Fig 7**.

FRACTAL, MEANDER AND DIELECTRIC ANTENNAS

The June 'TT' drew attention to a February 2002 article in the *IEEE Antennas & Propagation Magazine* on fractal antennas as a miniaturisation technique. Fractal antennas have clearly become one of the hottest antenna topics in professional circles. Another detailed article appears in the February 2003 issue (pp 38-57): 'An Overview of Fractal Antenna Engineering Research', by Dr Douglas H Werner and Dr Suman Ganguly that includes a list of 121 papers on this topic published in the past decade or presented at professional conferences. In a section on early work on fractal loop, dipole and monopole antennas, the authors state: "Apparently, the earliest published reference to use the terms *fractal radiators* and *fractal antennas* to denote fractal-shaped antenna elements appeared in May, 1994... Prior to this the terminology had been introduced publicly during an IEEE seminar in November 1993. The application of fractal geometry to the design of wire antenna elements was first reported in a series of articles by Cohen [Professor Nathan ('Chips') Cohen, N1IR] in *Communications Quarterly*. These articles introduced the notion of *fractalising* the geometry of a standard dipole [examples in **Fig 8(a)** and **(b)**] or loop antenna. This is accomplished by systematically bending the wire in a fractal way, so that the overall arc length remains the same, but the size is correspondingly reduced with the addition of each successive iteration. It has been demonstrated that this approach, if implemented properly, can lead to efficient miniaturised antenna designs. For instance, the radiation characteristics of Minkowski dipoles and Minkowski loops were originally investigated [by N1IR]. Properties of the Koch fractal monopole were later considered. It was shown that the electrical performance of Koch fractal monopoles is superior to that of conventional straight-wire monopoles, especially when operated in the small-antenna frequency regime."

It would appear that, while there are good prospects for compact fractal VHF and UHF antennas using printed wire elements, the degree of improvement at HF is restricted, at least for amateurs, by the difficulty of implementing more than the first level of iteration, as outlined last month. My personal feeling at present is that it is still worth investigating alternative techniques of increasing the electrical length of a wire antenna without departing from classical Euclidean geometry. For example, various forms of bent, meander and zig-zag antennas (**Fig**



8(c) to **(h)**, and see *Antenna Topics* pp286-87 or 'TT' February 1997); the miniature quad antennas described in G6XN's *HF Antennas for All Locations*; or the 'toriodal helix' loop antennas originally patented in the early 1980s by James Corum, K1AON, see *Antenna Topics* pp198-9 and 309, and further developed in the two-part *RadCom* article by Roger Jennison, G2AJV, April/May 1994.

Fig 8(c) to (g) use classic Euclidean geometry: (c) is a dipole with bent down ends; (d) is a zig-zag form of meander antenna; (e) is an alternative form of meander antenna; (f) is a VK5HA-type planar loading as recommended by G6XN in 1985. This involves a string of one-turn loops, which may be implemented using three cords as in (g) with appropriate spacers. With three loops each side of centre, VK5HA was able to build a half-wave dipole into about one-third of the normal length, at the cost of an increase of only some 15-20% in total wire length, a big improvement in size reduction compared with a helix or linear phase loading as shown in (h).

Roger Bunney and D A V Williams, G3CCO, have drawn attention to the recent marketing by Antenova of microwave arrays for mobile base stations based on high dielectric antenna (HAD) technology that shrink the relative dimensions by the square root of the dielectric constant (ie an ε_r of 100 shrinks the antenna by a factor of 10. An explanatory article 'Dielectric Antennas Make Waves', by Roger Dettmer (*IEE Review*, February 2003, pp28-31) is subtitled 'Building antennas from dielectrics sounds like a contradiction in terms. But if you get the technology right, the benefits can be considerable.' It describes the recent work of Simon Kingsley and Steven O'Keefe that has led to practical antennas.

The operating frequency of an HAD is set by the volume of the dielectric with the initial product designed for the 5.8GHz band, with further development aimed at handsets. HAD technology scores best from around 800MHz upwards: "If you use 1g of dielectric at 2.4GHz, then at 5GHz you will only require $^1/_8$g, and at 80GHz we're talking about something like 3µg and manufacturing techniques are likely to be akin to printing."

But, as emphasised in the latest IEEE article, there is now no doubt that fractal antenna engineering can contribute to such desirable HF/VHF/UHF antenna attributes as compact size, low profile, conformal, multi-band or broad-band. To quote the authors: "Because fractal geometry is an extension of classical geometry, its recent introduction provides engineers with the unprecedented opportunity to explore a virtually limitless number of previously-unavailable configurations for possible use in the development of new and innovative antenna designs."

Wire (AWG)	Form dia (in)	Length (in)	Coil length (in)	Turns		Range (MHz)
12	0.375	–	0.125	2	130	- 150
14	0.5	1.5	0.5	3	62	- 108
18	0.5	2.0	0.4	5	29.5	- 62
18	0.5	2.5	0.5	10.5	16.5	- 35
22	0.5	2.5	0.6	21	9.2	- 19
26	0.5	2.5	1.0	46	5.1	- 10.5
30	0.5	2.5	1.5	100	2.8	- 5.6
30	0.5	2.5	1.6	180	1.5	- 2.8
30	0.5	3.9	3.3	390	0.9	- 1.5
30	1.25	3.9	3.4	230	0.620	- 0.980
				(+53pF)	0.505	- 0.640
				(+106pF)	0.440	- 0.525

Table 1: Coil winding data for N1AL's GDO.

CAPACITANCE METER (1pF – 100nF)

In the 'Circuit Ideas' feature of *Electronics World*, July 2002, p36, Davut Celik writes from Turkey; "In this capacitance meter (**Fig 9**), covering the range 1pF to 100nF, the monostable device and potentiometer set the width of the timing pulse, t_1. The counter is fed with the oscillator and monostable outputs and determines the time interval, τ, between the falling edges of the A and B inputs. The counter's LED display is calibrated to display the value of the unknown capacitor Cx by means of R.

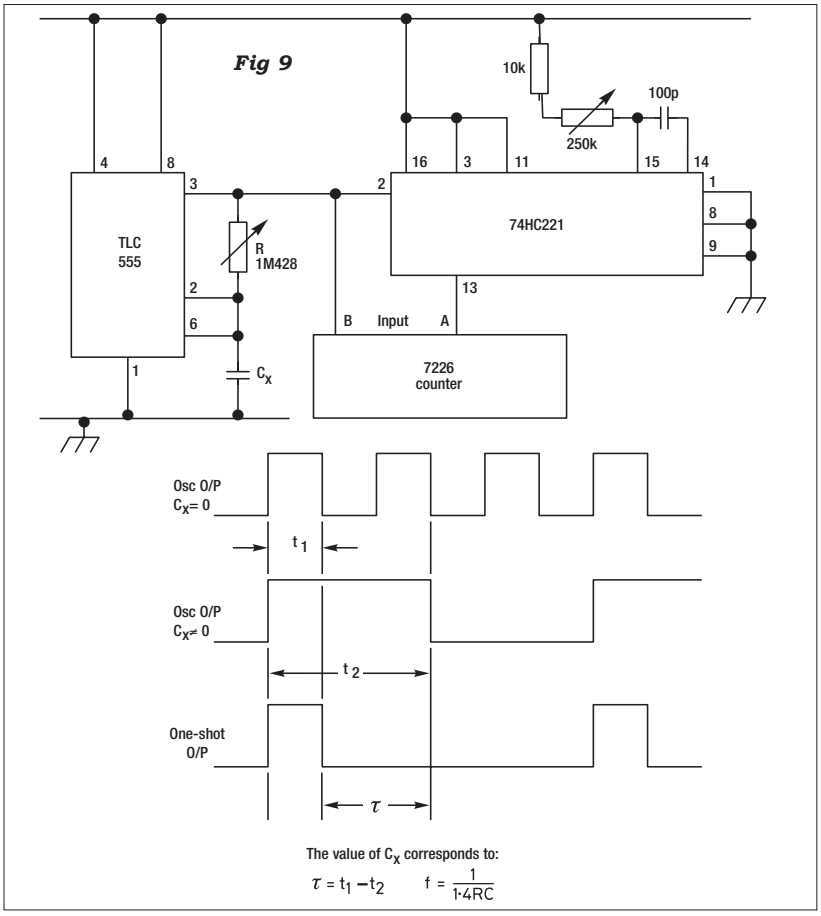


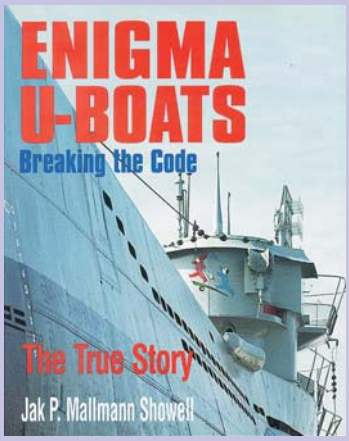
Fig 9: Capacitance meter for 1pF to 100nF based on measuring the interval of a pulse, the width of which is determined by the unknown capacitance X. (Electronics World)

HERE & THERE

One result of the change to the new *RadCom* format has been that a number of 'TT' 'Here and There' items have had to be held over for several months. Two of these follow, with apologies to those correspondents etc whose comments are still delayed.

For a third hand when soldering ('TT' August, October, 2002) Eric Christer, Z21FO, uses a metal 'bulldog clip' fastened by a bracket to an old heavy transformer. The bracket and screws fixing it allow the clip to be moved around to suit the work in progress. The flat surfaces of the clip steady the work piece such as a small printed circuit board.

Dick Wheelock, AA7NI (*QST*, November, 2002) suggests that small telephone common-mode RF filters with telephone connectors (available in the USA), intended to protect a telephone from RF, can also block computer RFI that would radiate from the telephone line connected to a modem. He writes: "I discovered that the majority of interference from my computer was being radiated from the telephone line attached to the modem. I placed one of the filters on the phone line where it plugs into the modem, and presto, ham shack interference from the computer was virtually eliminated." *QST* adds: "Modular filters are convenient, but homebrew common-mode chokes work too." ◆



ENIGMA U-BOATS: Breaking the Code - The True Story

Jak P Mallmann Showell is an acknowledged expert on the history of the U-boat arm in the Second World War analyses the development of Enigma, its role during German U-boat operations and the subsequent codebreaking work at Bletchley Park. These operations are explained in detail and should prove of great interest to students of naval warfare. The book also has a good chapter on the German Navy Radio System and the giant Goliath transmitter. It also explains how messages intended for 'officers eyes only', were frequently read by the telegraphists by counting back to the special setting while the officer dashed off to give the message to the U- boat commander. It also gives details of the 'letter code' based on Morse code given to U- boat officers to enable them to pass back information from POW camps.This book also examines in detail all the U-boats known to have been boarded by the Allies during the war from which Enigma machines could have been captured.

Lavishly illustrated with nearly 300 photos and 192 pages this book will be a source of great interest to those interested by the daring exploits of the Royal Navy in the North Atlantic during WW2

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Beyond Bletchley Park

Explores how the WW2 secret German wireless signals were intercepted, deciphered at Bletchley Park, acted upon by our own intelligence and subsequently dispersed back into the field in occupied Europe. RSS listener Bob King, wireless operators Wilf Neal and Maurice Richardson describe their secret wartime experiences. David White tells us about spy sets and Geoffrey Pidgeon takes a ride in an authentic Packard automobile, used as a mobile transmitter/receiver unit.

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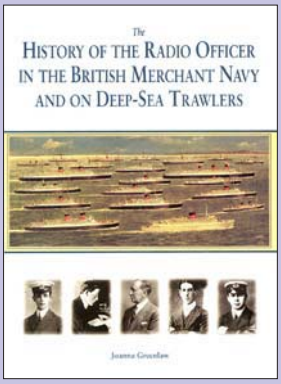
THE HISTORY OF THE RADIO OFFICER IN THE BRITISH MERCHANT NAVY AND ON DEEP-SEA TRAWLERS



The Merchant Navy Radio Officer, known to generations of seafarers as 'Sparks', was as integral a part of life on board as the ship's engine room or funnel. He (and later, she) provided the channel for orders, weather reports and private messages, and when disaster threatened, was often the only means of attracting help. If the traditio of the sea meant that the captain was the last to leave his ship, then the Radio Officer was usually the last but one. The nickname 'Sparks' was inevitable from the time that the first Radio Officer thumped away at a Morse key, producing the raspy note and hiss of electrical energy as blue sparks and the smell of ozone radiated from the silver plated spark gap at the heart of his occult contraption. Today, the advent of satellite communication has rendered the Radio Officer with a Morse key as extinct as the Brontosaurus. He has passed into marine history like the lamp-trimmer on a sailing ship or the donkeyman on a steam tramp, along with his world of dots and dashes, SOS messages and telegram forms. And his or her contribution to life at sea in war and peace deserves to be recorded for posterity.

The foreword in this book was written by HRH Prince Philip, Duke of Edinburgh, KG, KT.

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Whatever next

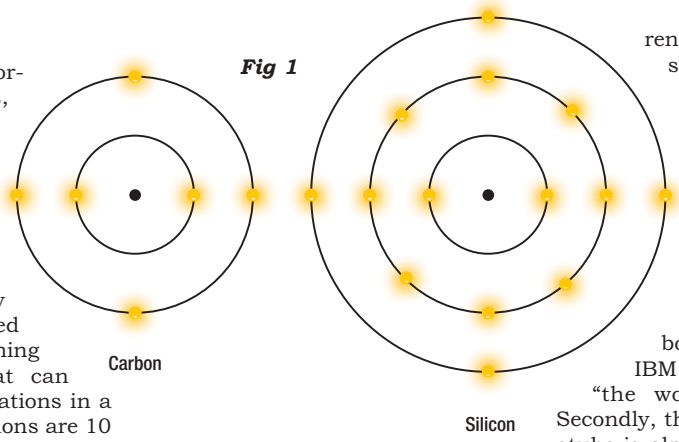


Fig 1

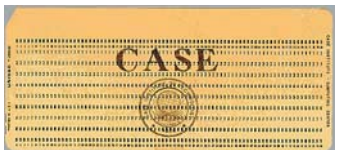
Fig 1: A carbon atom and a silicon atom. A carbon atom contains a nucleus plus six electrons in two 'shells'. A silicon atom is larger and contains a nucleus plus 14 electrons in three 'shells'.

Below, right: A punch card of the 1960s, which was a common method of programming computers in their formative years.

PUNCH CARD EVOLUTION

As the push to find new storage technologies continues, researchers at IBM have created a storage device that holds up to a trillion bits of data in an area the size of a postage stamp. The experimental prototype, which is part of an ongoing nanotechnology research project code-named 'Millipede', is a chip containing 1,000 heated spikes that can make, or read, tiny indentations in a polymer film. The indentations are 10 nanometres [10^{-8}m] across, which means that Millipede chips are 20 times more densely packed with information than current hard drives. The storage medium can be likened to an ultra-miniaturised punch card (remember them?), shown in the photograph.

Heat is the heart of Millipede. Each of the spikes on a Millipede chip contains a tiny heating resistor and a sharp tip. To make an indentation, the resistor warms up the tip to 400°C as well as the polymer recording media, which is located less than a micron away. The hot tip is then plunged into the film, which creates a dent. To read the data, the tip is warmed to a lower temperature. This allows the tip to interpret the pattern embedded in the film, without changing the pattern of the indentations. To erase data, the film is warmed to the point where it melts, at which point it flattens itself out. Whilst it might seem that a large amount of energy would be required to raise the temperature of the spikes to 400°C, this is apparently not so. They are so small that they can be heated in milliseconds.



Millipede will likely be relatively inexpensive to manufacture, because the chips can be made through existing manufacturing techniques. A 4,000-spike prototype that can be connected to handheld devices is due this year, with commercial products potentially arriving in a few years.

Several companies are trying to come up with replacements for hard disks – the universal storage medium for PCs – and also for flash memory, which stores data in mobile phones and digital cameras. Hitachi has proposed a similar polymer-punch method, but it does not involve heating the needle. Intel, meanwhile, is working on 'Ovonics', a type of memory made out of the same material as CD-ROM discs.

The research could lead to devices the size of a sugar cube that could store several movies.

CARBON TECHNOLOGY

Continuing the theme of single-molecule devices that has been running in this column recently, and staying with IBM, this month I have news of another.

IBM Research has announced that its carbon nanotube technology has enabled it to built the world's smallest solid-state emitter and the first electrically-controlled single-molecule light emitter. While emphasising that these are research results, IBM showed a detailed mathematical proof along with verifying laboratory demonstrations of hitherto speculated properties of light emission by carbon nanotubes, which are carbon tubes 1.4 nanometres in diameter. "Our results show that nanotube-based light emitters can potentially be integrated with silicon electronic components, opening up new possibilities in electronics and optoelectronics," said Phaedon Avouris, manager of nanoscale science at IBM Research.

It is important to note that a Light Emitting Nanotube (LEN) is not the same kind of thing as a Light Emitting Diode (LED). LEDs emit light whenever a potential is applied to their two terminals, whereas the three-terminal LEN uses a nanotube as the channel of a transistor, allowing the electrons and holes to be poised to flow into the source and drain, with the third terminal, the gate, turning the current on and off. Being a transistor, the LEN can also be used to process information, such as storing the brilliance value of a pixel for a display.

As I see it, the implications of the carbon nanotube should not be underestimated. Firstly, here we have a transistor made from carbon, not silicon. Even now, IBM is claiming them to be "the world's best transistors". Secondly, the size of the carbon nanotube is almost two orders of magnitude smaller than the smallest silicon devices being built commercially today (1.4 nanometres, as opposed to 130 nanometres). This reduction is size is partly due to the fact that carbon atoms are smaller than silicon atoms (see **Fig 1**).

"It will be several years before CNFETs (carbon nanotube field-effect transistors) are ready for commercialisation, but these results indicate that they will outperform even the most advanced silicon transistor designs," said Avouris, adding "After we have had time to optimise our CNFET designs, we could get another order of magnitude or more improvement".

To construct carbon nanotube transistors, IBM scientists first used vapour deposition to build mixed metallic and semiconducting nanotubes atop a silicon-oxide wafer, then attaching source and drain electrodes to metal pads over the nanotubes. In the next step, an electrode attached to the silicon wafer temporarily switched-off the semiconducting nanotubes to block a destructive current. Finally, the remaining unprotected conducting nanotubes were zapped with a high voltage, leaving semiconducting arrays of nanotubes undamaged and ready to be formed into logic circuits like those found on gate arrays.

To make circuits, the electrical breakdown process was reused to remove individual carbon shells from semiconducting nanotubes with a precision down to a single device. By 'blowing fuses' one-by-one, the scientists hope to fabricate semiconducting carbon nanotubes into circuits of field-effect transistors. ◆

WEB SEARCH

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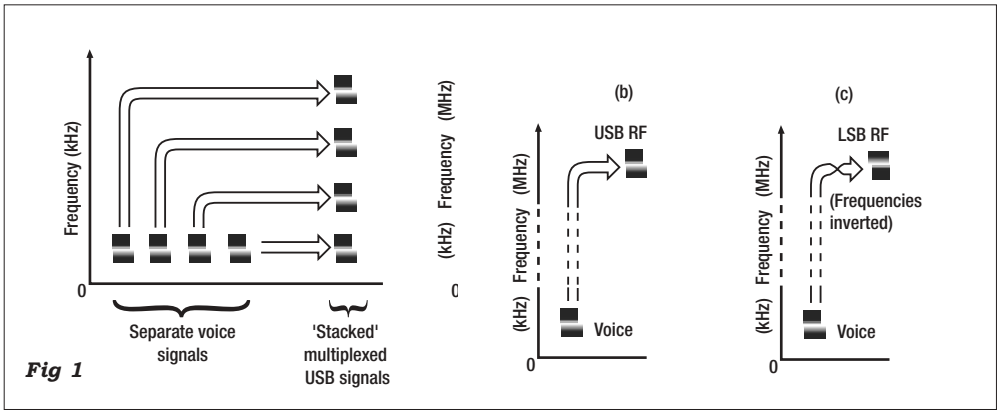
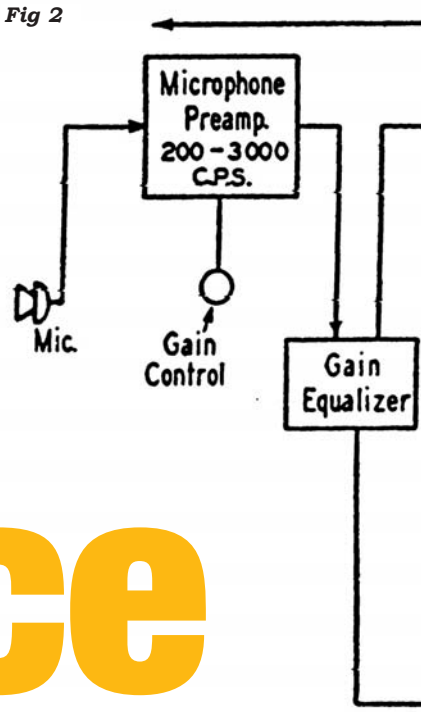


Fig 1

Fig 2



In practice

Fig 1: SSB (J3E) is simply a frequency shift applied to a voice signal. (a) How telephone companies used SSB technology to multiplex several voices on the same line. (b) How a single voice is frequency-shifted from AF to USB, or (c) to LSB.

USB OR LSB?

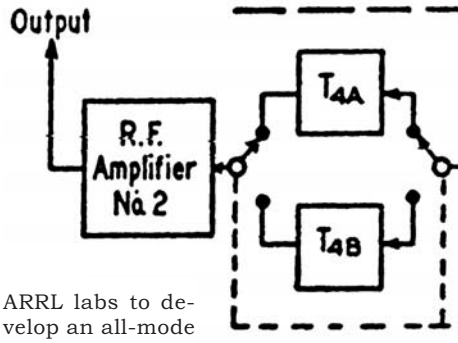
Q Why do amateurs transmit upper sideband above 10MHz, and lower sideband below?

A This has proved an interesting historical detective story, including its share of red herrings! This RSGB anniversary issue coincides with my own 40th anniversary on the air, so I was able to witness some of the later development of SSB; but above all I am indebted to Bert Knott, G3CU, who was one of the pioneers of SSB in the UK. Bert wrote a specialist 'SSB' column for the *RSGB Bulletin* from 1951 to 1958, and was later followed by Dick Thornley, G2DAF.

The amateur SSB story begins in the 1930s, although SSB technology had been used for a few years previously to increase the capacity of landlines [1]. All you are really doing with SSB is to frequency-shift a speech signal upwards from 'baseband' (300 – 3000Hz, see the May column) to some higher frequency. The phone companies were using this idea to 'stack' several voice conversations above one another to use the full frequency response of their landlines (**Fig 1(a)**) – but exactly the same principles can be used to shift a single voice signal up to radio frequencies that can be transmitted around the world (**Fig 1(b)**).

When you frequency-shift a voice signal by mixing it with a higher-frequency carrier, both upper and lower sidebands will be produced, along with the carrier itself. This is good old 'AM' radio, designated as A3E emission in the back of your *BR68* booklet. But the carrier has then served its purpose and doesn't have to be transmitted. Likewise the two sidebands contain the same information, so you only need to transmit one. SSB technology removes the carrier and one sideband, leaving you with a signal of ideally no greater bandwidth than the original voice signal. That is what drove the phone companies to develop SSB – the carriers had to be suppressed to prevent heterodyne whistles between the stacked voice signals, and eliminating the second sideband allowed twice as many phone links to be carried within the same total bandwidth.

Exactly the same advantages apply to SSB on the radio so, by the 1930s, a few amateur pioneers in the USA were already using the mode. However, it didn't take off until WWII provided the leap forward in radio technology and the plentiful supplies of post-war surplus. The inspiration for many more amateurs to try SSB was the experimental work by members of Stanford University in California, using the club callsign W6YX (which you can still hear on the HF bands). Those transmissions in the autumn of 1947 were closely followed by an article by Don Norgaard, W2KUJ, which introduced the 'phasing' method of SSB generation to amateurs [2]. **Fig 2** shows the block diagram that W2KUJ proposed for a transmitter capable of generating SSB (J3E) on either 80m or 20m, and also A3E and phase modulation (G3E) if required. This concept inspired Byron Goodman, W1DX, at the



ARRL labs to develop an all-mode phasing exciter which was published in *QST* for January 1949 [3].

A few British SSB pioneers built the W1DX exciter, and that was no small feat: the fixed-frequency exciter (essentially the upper part of Fig 2) required no less than 12 valves, plus another four in the regulated power supply, and the whole thing occupied a 17 x 13in chassis (G3CU's exciter is still in the RSGB museum). Then there was the VFO to build, and the mixer, and the power amplifier, so it certainly was a major commitment to explore this new mode. British amateurs then went on to develop their own ideas, and from 1949 onwards there was a weekly net on 3699MHz LSB including G2NX, G3CU, G3COJ, G3FDG and G3FHL. By the mid-1960s the 'SSB' column had re-started under G2DAF, and he and several others held an almost daily SSB net on 80m, where newcomers could timidly call in and have their signals critiqued. I got a lot of post-RAE education by listening to that net – but believe me, there were no holds barred!

By Ian White, G3SEK, 52 Abingdon Road, Drayton, Abingdon OX14 4HP.
Website: www.ifwtech.co.uk/g3sek E-mail: g3sek@ifwtech.co.uk

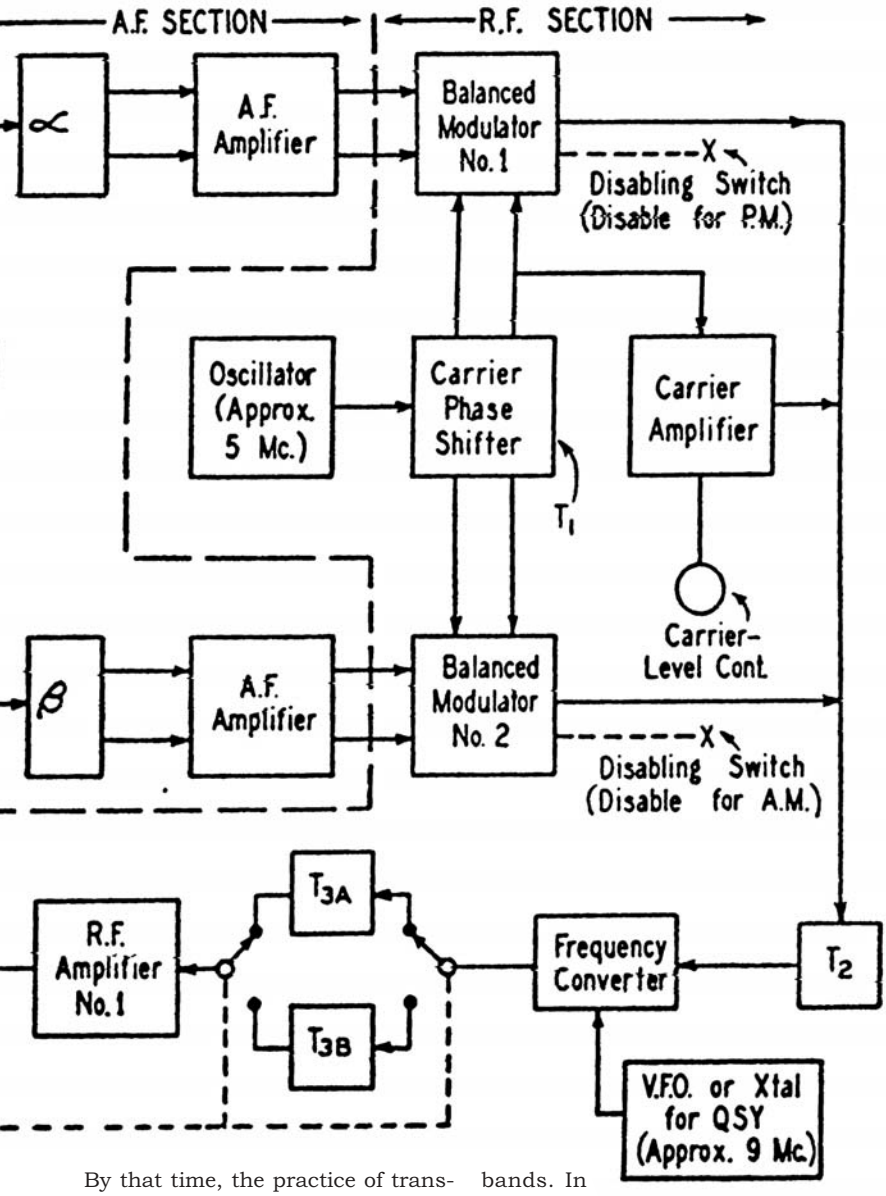


Fig 2: Block diagram of W2KUJ's 80/20m SSB transmitter. The upper part is the 5.2MHz exciter, made practical by W1DX. (Source: ARRL)

By that time, the practice of transmitting LSB on the lower ands and USB on 20m and above was already well established... so we have to look back to those earlier days for clues to the reason why.

The red herring is the belief that it was all to do with 9MHz filters. It is true that 9MHz became popular because you can mix 9MHz SSB with a 5.0-5.5MHz VFO to obtain SSB on either 14.0-14.5MHz (SSB + VFO) or 4.0-3.5MHz (SSB – VFO) [4]. Either band can be selected by changing the tuned circuits at the output of the mixer. You will note that the VFO tunes backwards on 4.0-3.5MHz – but the sideband does *not* invert!

If USB is generated at 9MHz, then it will be translated to USB at 14MHz and also USB at 3.5MHz. Anyone who has ever built one of these two-band exciters will be well aware that for LSB on 80m you have to generate LSB at 9MHz too. So 9MHz exciters have nothing to do with the amateur sideband convention – if they had, we would be using the *same* sideband on all bands. In other words, the USB/LSB convention came *before* the first of the popular 9MHz exciters in1956 [5].

Like any good detective story, this one has already given you the vital clue. If you look more closely at Fig 2, you will see that the carrier oscillator is on 'Approx. 5Mc.' and the VFO is on 'Approx. 9Mc.' The W1DX version of this concept used a 5.2MHz crystal oscillator, and a VFO around 9.0MHz. Now do the sums:

9.0MHz VFO + 5.2MHz USB
= 14.2MHz *USB*
9.0MHz VFO – 5.2MHz USB
= 3.8MHz *LSB*

Note the sideband inversion. If you mix an SSB signal downward by subtracting it from a VFO that is higher in frequency, the sideband will invert – USB will change to LSB. That doesn't happen if the VFO is at at a lower frequency than the SSB, which is why 9MHz SSB was a red herring.

The only other thing you need to know is how difficult it was to align a phasing exciter and keep the carrier and sideband suppression stable (especially when you have 16 valves pumping heat into the unit). It's even more difficult to align the exciter so that it will give equally good sideband suppression on both USB and LSB... so builders optimised their 5.2MHz exciters for USB only, and accepted that the sideband would invert on 80m. That sideband convention has remained firmly in place ever since, even though the original reason disappeared long ago.

And that's the story as far as I understand it – any further insights would be very welcome. The other historical puzzle is how this very practically-inspired inversion between 14MHz and 3.5MHz came to be codified into a 'split' at 10MHz, so that 7MHz and 1.8MHz also became LSB bands. The only clue I can offer is that it had certainly happened before we got the 10MHz amateur band.

Once again, many thanks to Bert Knott, G3CU, and to John Crabbe, G3WFM, and George Brown, M5ACN, for material from the RSGB Library. For a further account of the operational reasons for the rise of SSB, see the excellent article by Gil McElroy, VE3EPD [1].

Notes and References

1. 'Amateur Radio and the Rise of SSB' by Gil McElroy, VE3EPD, QST, January 2003.
2. 'A New Approach to Single Sideband' by Donald Norgaard, W2KUJ, QST, June 1948. The phasing method appeared at just the right time, because it was something that amateurs could try without spending money on special crystals for the filter method of SSB generation. The DIY techniques for making crystal filters began around the same time, and phasing almost died out as crystal and mechanical filters became progressively cheaper. But phasing has made a comeback with the advent of stable IC balanced modulators – and most recently, DSP techniques which suit the phasing method admirably.
3. 'The "Basic" Phone Exciter' by Byron Goodman, W1DX, QST, January 1949.
4. That is incidentally why 5.0–5.5MHz became a 'standard' range for amateur VFO builders, because much more stable VFOs were required for the highly popular 9MHz SSB exciters. Afterwards, many other rigs that did not use 9MHz continued to use a 5.0 – 5.5MHz VFO because designs for that range were readily available to copy.
5. 'Cheap and Easy SSB' by Anthony Vitale, W2EWL, QST, March 1956. ◆

By Peter Dodd, G3LDO, 37 The Ridings, East Preston, West Sussex BN16 2TW. E-mail g3ldo@ukonline.co.uk

ANTENNAS

In these days of solid-state transceivers, coax cable, and ATUs it can come as a surprise that in the early days the only way of feeding an antenna was to connect it directly to the transmitter. In my copy of the *Admiralty Handbook of Wireless Telegraphy* (1925) there is a circuit of a valve transmitter with the antenna is connected via taps on the PA tank circuit.

For this method of coupling to work efficiently the antenna had to present a fairly high impedance at the feedpoint and an end-fed half wave antenna would have been used. This practice was copied by radio amateurs and even as late as 1947, *The Radio Amateurs' Handbook* (ARRL) describes the method as 'direct excitation', when power is transferred directly from the source to the radiating antenna.

Fig 1a, shows the end of the antenna coupled directly to the transmitter tank circuit. The level of loading is achieved by connecting to the appropriate tap on the coil and a small capacitor is used to provide isolation. A preferred method is shown in **Fig 1b**, where a separate tuning circuit is used.

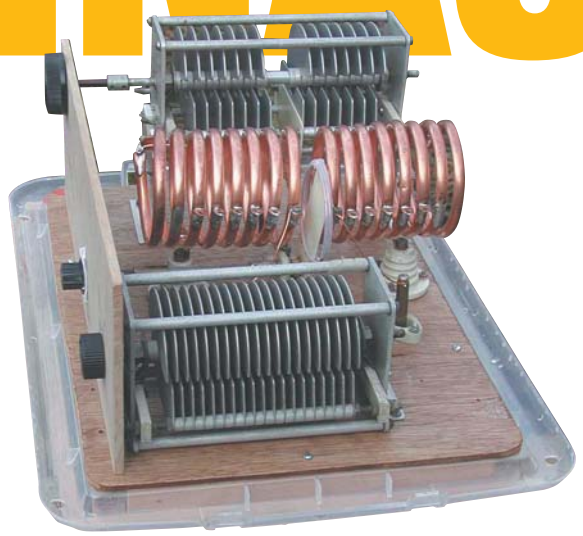
The disadvantages of this direct excitation were well known to amateurs, where the bringing the radiating antenna into the operating room had a close relationship with the house and electric wiring.

THE ZEPP FEED

By the late 1920s the German airship, *Graf Zeppelin*, was making numerous successful intercontinental flights and an efficient wireless system was considered essential. Wireless communications with aircraft were effective, with the antenna system on the aircraft simply a long trailing wire with lead weights at the far end and fed directly as described above. However, this system was not considered safe for a hydrogen-filled airship because on some frequencies there would be a very high impedances (and high voltages) close to the surface of the airship. The German engineers therefore devised the tuned feeder system shown in **Fig 2**, which became known as the Zeppelin or Zepp antenna. The lengths of antenna and feeder are arranged so that on frequencies where the antenna (X in Fig 2) is approximately a half-wave long, the open wire balanced feeder length (Y in Fig 2) is a quarter wavelength. The quarter wavelength feeder transforms the high impedance, high voltage point to a low impedance, low voltage at the transmitter. At lower frequencies, where the antenna is closer to a quarter wave, the feeder is only 1/8th wavelength so the voltage on the antenna system where it is connected to the transmitter is still fairly low. Capacitors C1 and C2 could be adjusted so that the measured currents in both wires of the feeder are approximately equal.

For some reason the Zepp antenna became very popular with radio amateurs even though the environment restrictions and requirements that shaped the Zepp antenna did not apply to a ground station. It was even used as a feed system for the driven element in the early beam antennas. It is my contention that some antennas are the result of 'fashion' rather than good engineering practice.

A derivative of the Zepp was the so-called 'Double Extended Zepp', which comprised two halfwave lengths fed by the balanced feeder. Although this is an improvement, because it is now a balanced antenna fed from a balanced feed, it is really a rather long multi-band doublet and too directive to be of much general use on the higher frequency bands.



The G3GMZ balanced ATU (see text).

ANTENNA TUNING UNIT

A wire antenna cannot be connected directly to the modern transceiver with a solid state 50Ω antenna connector. Some degree of impedance transformation is required that was done in early transmitters by the transmitter tank circuit and antenna link coupling circuit. An Antenna Tuning Unit (ATU) or 'tuner' is required, which can be thought of as putting the PA tank/antenna coupling circuits outside the transmitter. Nearly all ATUs on the market today are single-ended Pi or T network tuners that work nicely with coax lines or single wire antennas. These tuners can be used for balanced lines with a suitable balun at the output. If you want a truly balanced ATU you will probably have to make your own.

In the May edition of 'Antennas' I briefly described a balanced ATU built specially by Ted Hardy, G3GMZ, for use with the V-beam during the Narrow Band Television Association trans-Atlantic tests from Amberley museum. A photograph was referred to but was omitted due to lack of space, so is shown now. The ATU covers bands 14 to 21MHz. The coax coupling is achieved using swinging link coupling to the main coil. The band is selected using taps on the coil. Because the ATU was to be situated outside it was built on to the lid of a plastic storage box; the box itself providing a weatherproof cover. The waterproofing method could be used with any ATU, with the plastic box situated on a small wooden frame and the feeders routed through holes in the plastic base (lid). ◆

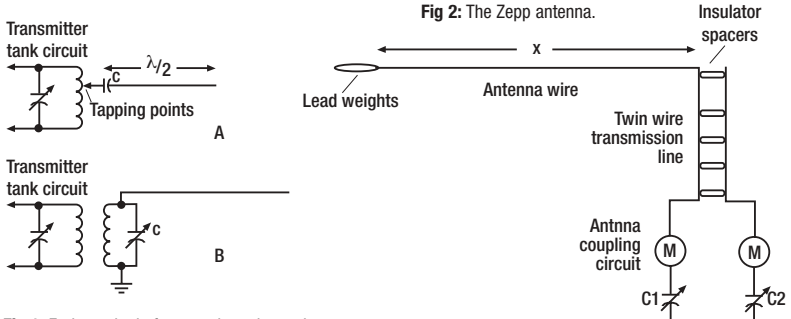


Fig 1: Early method of connecting a long wire antenna to the transmitter: (a) directly to the transmitter tank circuit; (b) connected via an antenna coupling circuit.

Fig 2: The Zepp antenna.

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QRP

It is always gratifying to receive reader feedback, and this month I have two examples. Darren Warburton, GW7HOC/MW5HOC, wrote to me about his interesting experiences with an FT-817 and a mobile whip antenna.

A QRP STORY

"For the past 11 years I have been a member of Wythall Radio Club, near Birmingham. For the last two years I have lived in Cardiff, which means that I cannot visit the club as much as I would like. Recently, I was I Birmingham overnight. This just happened to be a club night, so I decided to pay a visit to my old friends. When mobile, I have an FT-817 in the car and a large multi-band HF antenna mounted on the tow bar. With my station in the car, I decided to have a drive around with my friend Lee, G0MTN.

"Driving around the area of the club listening on 20m, Lee and I heard 9Y4/IV3IYH (Trinidad and Tobago) calling. I asked Lee to give him a call, which he did several times, but without success. We began to think that it wasn't worth it as we'd never beat the massive pile-up with just 5W from the car. But, being a dedicated QRPer, I said that it was worth the try, even if just for the fun of it. I took the microphone from Lee, and demonstrated the art of pile-up busting, QRP-style.

"After a few shouts of "Oscar Charlie QRP Mobile", I was called back. Both Lee and myself were amazed! A nice solid copy both ways. A short while later, Lee, not to be outdone, called again, using his own callsign. After a few attempts, Lee too was called back! Again solid copy both ways. Not bad, two contacts into 9Y4 with just 5W from the car.

"On our return to the club we told our story. The club's FT-920 was fired up, and the club too worked 9Y4/IV3IYH, this time running a bit more power and into a tri-band beam! It seems that nearly every time I turn my FT-817 on it surprises me. QRP mobile can be hard work, but give it a go and I think that you'll be happy with the results. Just don't expect 9Y4 every day!

"The antenna used was a multi-band (80m–6m) antenna called the 'Plug-In' from Sandpiper in Aberdare. This antenna can be used anywhere – mobile, portable, base station etc. It comes with various adapters and two whips, one stainless steel whip for mobile/base use and one telescopic for table-top operation. It's similar to the ATX but larger. It really does a good job on all bands. I have no connection with Sandpiper, I just like to praise a good product when I can." (Sandpiper Communications, Unit 5/6, Enterprise House. Cwmbach Industrial Estate, Canal Road, Aberdare, Mid-Glamorgan CF44 0AE. Tel: 01685 870 425.)

10m: NEGLECTED OPPORTUNITIES?

Des Vance, GI3XZM, wrote with some comments and reports on very-low-power radio contacts.

"I was particularly interested in the QRPp item in the April *RadCom* for two reasons: firstly, as you know, I am keen on playing with minimal power and minimal equipment; secondly, believing that ham radio might be more fun if we all used less power, I am always keen to see attention drawn to QRPp possibilities. I note below some trials by GI4JNS, myself and others in the hope that you might think it worthwhile to draw attention to the possibilities outlined.

"In 1983, GI4JNS encouraged some of his friends to buy and modify CB transceivers for 10m FM use. An informal group resulted, with both fixed and mobile nets and some DX working. The rigs used had a high/low power switch and, realising that very useful operation was possible in the low-power position (nominally 300mW) using simple antennas, some of us became curious to see just how little power would permit useful local contacts. By adjusting the internal preset control of the low-power position, we found it possible to have local contacts at power levels which could not be reliably measured with home-brewed power meters. This difficulty was overcome by inserting attenuators in the feeder, built to standard handbook designs and tested for accuracy and leakage at easily-measurable power levels. These could be left in circuit on receive and their effect allowed for in estimating the effective power used in the contact.

"Several rigs were adjusted to give 3W out on 'HI' and 300mW on 'LO' power settings. Tests with these rigs and a range of attenuators were carried out over interesting paths convenient to GI4JNS and GI3XZM. A one-transistor CW transmitter and a three-transistor regenerative receiver were also used. Trials in a city environment could not conveniently be made. It appeared that a few milliwatts of RF allows contacts over some miles of rolling farmland (not mountainous country!) on 10m FM. In 'line-of-sight' much lower power will do. It seemed likely that ultra-simple equipment, using other modes, was well worth a go; indeed, 'rock-bound' DSB might be far superior.

"The results suggest that, when the band is quiet, 10m offers scope for simple experimentation, local networking, novelty and perhaps the stimulation of interest in construction, particularly in a club environment. Our efforts were seen as preliminary but, due to external circumstances, they were never taken beyond this stage. This is unfortunate, because we realised there was much scope for experiments concerning local propagation, aerial polarisation, limiting terrain etc, not to mention design and construction projects."

APOLOGY

My apologies to GM3COQ. In the May 'QRP' column, I gave his 15m tally of countries worked as 52; the actual total was 152. ◆

A Few Results (from scribbled notes)

(1) Path: 3km over rolling farmland, not line of sight.
Antennas: ?-wave verticals, bases 6m AGL.
Power: 300µW (300mW, -30dB). Report: R4 (read easily).
100µW. Report R2 (some words read).
(2) Path: 12km close to coastline, line of sight , (not across water)
Antennas: ?-wave GP portable on 200m hilltop, ?-wave vertical 15m ASL.
Power: 10mW. Report: R5 (perfect copy).
1mW. Report R3 (difficult).
100µW. Report R1 (heard, but unreadable).
(3) All as (2) but 30km path, with portable antenna 350m ASL.
Power 10mW. Report: R5.
(4) Path: 50km rolling farmland, inland, not line of sight.
Antennas: ?-wave base-loaded mobile 300m ASL; GP portable at 100m ASL.
Power: 300mW. Report: R4.
30mW. Report R2.
(5) CW, using ultra-simple transmitter and receiver.
Path: 3km over rolling farmland, not line of sight.
Antenna: ?-wave vertical at 6 m AGL; ?-wave base-loaded mobile.
Power: approx 3mW input (300µA at 9V). Report 539.

"At the time we saw this type of activity as useful for beginners. This is no longer possible on 10m, but could something interesting be done on other bands when they are effectively 'dead'? If so, particularly in a club environment, might it not be possible to use this approach to correct the misconception that an expensive black box is necessary to enjoy ham radio?"

Josef, OK1DEC, and his home-made five-band CW QRP transceiver.

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LF

RIP 73kHz, 1996-2003

There has been some discussion about whether Marconi's first trans-Atlantic message was in fact propagated by LF radio or by harmonics in the HF range. Whatever the facts, his breakthrough did herald the start of use of the LF spectrum for commercial purposes. Amateurs were banished to the 'useless' short waves.

After decades of being barred from LF, it was therefore very exciting when it was announced that UK amateurs were to be given access to 73kHz back in 1996. Over 250 NoVs were issued and the experiments began.

It must not be forgotten that some ZL stations had been experimenting on 196kHz since the early 80s, but 73kHz was the lowest frequency then available to amateurs and it was a difficult challenge.

Many of the 250 fell by the wayside, but a core of LF devotees kept up the pressure for a permanent and international LF band. That came, in the form of the 136kHz band in 1998.

With 136kHz a general allocation, the 73kHz band became the poor relation. After all, it was a UK-only allocation with few stations able to radiate a good signal. Most people migrated to the easier slopes of 136kHz.

A few dedicated souls kept experimenting though, epitomised by Laurie, G3AQC, whose hard work eventually led to his 73kHz signal being received by W1TAG at a distance of 5291km in November 2001. He was followed by others and 73kHz had a renaissance with several trans-Atlantic crossings. I don't think the early users of 73kHz would have believed that this was going to be possible within just a few years. It's all over now. The 73kHz NoVs expired at the end of June.

Goodbye 73kHz and thanks. We had a great time.

73 FROM GM...

Before the band was lost to us, G0MRF and I went north of the border and G3GRO and M0BMU travelled to Cornwall to set up a 73kHz station at the Marconi museum in Porthcurno. Despite noise problems in Cornwall, a new record 2-way contact was made between G3GRO and GM0MRF at 612km. David, G0MRF, operated from the location of Simon, GM4PLM, who has been bitten by the LF bug and is currently the only resident GM on 136kHz. Scotland had not been activated on 73kHz before and many stations had their first (and last) contact with Scotland on the band.

...AND FROM GI, TOO

Also active during this time was Ian, MI0AYZ, who has been making steady progress on 73kHz. He had contacts with GM and G, both firsts of course, as he is only 73kHz station in Northern Ireland.

Changing taps to 136kHz, Ian has had a report from RU6LA at 3185km using QRSS10. They nearly completed a contact but signals faded. Not bad from a small garden!

YU TO GM

GM4PLM's LF activity has got off to a good start with Simon working YU7AR on QRSS, the first contact between the two countries. Although he will probably be heard more on 6m and above over the summer, Simon hopes to join the trans-Atlantic tests in the autumn. Maybe by that time a two-way contact will be possible?

WINDMILLS ON LF

We have heard LF stations operating from lighthouses, tower-blocks and cliffs on LF before but, until recently, not from a windmill. Wil, PA0BWL, and his local club took the opportunity to correct this when they operated as PI4OSS during the Mills on the Air event. They had a good signal and made quite a few contacts.

RUSSIAN ACTIVITY

The UA9 expedition in March generated a lot of interest, and a couple of Russian stations have been trying for contacts over the past few months. Sam, RN6BN, operates from near Krasnodar (KN95LC). He is a member of the RU6LWZ club, and is now putting a good signal out from his own location. Sam has already worked into the UK on QRSS and his CW contact with G3KEV is a record breaker at 2968km!

The LF shack of Teo, YU7AR, who has been active on 136kHz recently (see 'YU to GM').

The other newcomer is Vlad, RX3QFM, who can operate from his summer location. Although he has had teething troubles, he has now made his first LF contact and is hoping for some DX.

SOFTWARE UPDATES

New versions of the popular QRSS (very slow CW) programs *Argo* and *QRS* are now available. The coming of *Windows XP* seemed to cause problems with older versions, hence the updates.

The new version (4.01) of ON7YD's program *QRS*, which keys the transmitter at a preset speed, can now use the parallel port under *WinXP*. It no longer works with *Win 3* however, so stick to the old version for that operating system.

The new version of *Argo* (build 134) corrects some issues and has extra facilities.

KEEPING THE RF AT BAY

Many of us, myself included, have had problems with the high voltages generated by LF aerial systems. It is obviously desirable to keep the loading coil outside the shack for safety reasons, but this makes it difficult to tune. We all know how sharp the tuning can be.

Jim, M0BMU, suggests a system that I have seen in use at a few LF stations. Place the major part of the loading coil outside and run a single wire back to the shack, say 3 feet above ground, where the rest of the inductance can be safely housed and adjusted for resonance. The voltage on the wire will be no more than that on an HF aerial and is therefore easy to deal with. The wire above ground acts like a transmission line and doesn't cause significant loss.

I don't recommend hanging the washing on it, though! ◆

WEB SEARCH

QRS	www.qsl.net/on7yd/zip/qrs401.zip
Argo	www.weaksignals.com

By Simon Lewis, GM4PLM, Creoch Farm, Ochiltree, Ayrshire KA18 2QH. E-mail: uwave.radcom@rsgb.org.uk

MICRO WAVE

Below, right: A 3.4GHz transverter by the Microwave Newsletter Editor, G3PHO.

I have some sad news this month. The past few weeks have seen the passing of two well-known microwavers who were both instrumental in the promotion of microwaves during the late 70s and 80s. Sam, GI8GJX, was not so active in later years, but he still supported the hobby and his callsign was well known on the VHF and UHF and microwave bands. I know that he had a high regard for his fellow enthusiasts, some of whom he never had the pleasure of meeting, but one of his greatest pleasures was to attend the VHF Convention a few years ago, where he met many familiar names. He will be sadly missed.

Another familiar operator who has recently passed away is Glen Ross, G8MWR. Glen was a big figure in the 70s and 80s, promoting the previously-specialised area of microwave to the more general amateur population. He ran a microwave group that brought large numbers onto the 10GHz band. I know he spent many hours of his own time working to help others become active. I was one of them. Glen worked tirelessly to retune wideband heads that were on the surplus market and provided many people with a lot of pleasure. Although not so active in later years, he still assisted, passing on his expert knowledge.

Both were fine amateurs and good friends, who will be sadly missed. I have passed on condolences to their families on behalf of this column.

BEACON NEWS

Two of the south coast microwave beacons are currently off-air. The masthead PA at GB3SCX on 10GHz failed and was only being heard by local stations. It will not be replaced or repaired but, instead, it is intended to install a new higher-power PA which is currently on order. To do this will necessarily involve lowering the mast to rebuild the top unit. This could possibly take a couple of weeks which may disrupt operation of all the beacons on site, and it is hoped also to take the opportunity to retune GB3SCK for the new 24.048GHz frequency. At the moment the drive unit is undergoing some modifications to cure an interference problem caused when the 12V power supply line voltage changes due to the other beacons keying. GB3SCS on 2.3GHz has had its frequency tweaked and is now on 2320.902MHz. Reports, please, to Andy Talbot, G4JNT, by e-mail to g4jnt@thersgb.net

SURPLUS PARTS

One of the most interesting facets of microwave radio is the large number of surplus items that come on to the market and are then used by amateurs. A few years ago, I reported on the surplus 10W SSPAs available at low cost. These were quickly purchased by many amateurs in the UK. I received a recent e-mail from Jochen Zilg, the person responsible for their availability, with news that once again he has units available for amateurs. He has both 10 and 5.7GHz units available. If you are interested, you can e-mail him at mmwave.zilg@t-online.de, but be quick – these are excellent units and you can be certain they will disappear quickly!

Another e-mail came in recently from Steve Mitchell, who has some interesting 24GHz units available. These are ex-telecomms head units and contain a rather nice 24GHz transceiver unit. The specs that Steve has measured so far indicate they would make very nice transverters for 24GHz and, with a good noise figure on receive and around 400mW minimum on transmit, these could provide an easy route to 24GHz. The really nice thing about the units is that they are self-contained, waterproof, and include a very nice 0.5m dish on the front of the units. They would be perfect for mounting at the top of a mast. Steve has a number of these units available at low cost and is keen to provide the UK amateur market with them. If interested you can e-mail him at steve@g8jmj.tv, and he will provide further details. Surplus items like these appear on a regular basis and usually appear in the RSGB's *Microwave Newsletter*. If you're a newcomer to microwaves it's an excellent publication to find out what is going on in the microwave world. Subscription details can be obtained from RSGB Publications or on-line at www.rsgb.org/shop

NEW MICROWAVE DATA MODE?

Andy Talbot, G4JNT, writes "During recent contests, someone suggested the PSK31 mode could be used for weak signalling on the microwave bands. However, it is unsuitable for frequencies above HF. It was designed specifically for HF paths where frequencies are accurately known and Doppler shift and drift are minimal. Tuning errors and frequency spreads of no more than 4 to 6Hz are acceptable. Decoding relies on phase staying stable over the 32ms period from one symbol to the next – hence the tight frequency specification. Also, the waveform is shaped to minimise bandwidth to the absolute minimum possible for the given data rate, even at the expense of bit error rate; that results in about 1dB degradation in signal-to-noise ratio performance. In spite of this, PSK31 still falls down on certain types of HF link, particularly on transpolar paths with auroral flutter and Doppler spreading. My idea for microwaves is for a transparent keyboard-to-keyboard mode that operates in the same way as PSK31. For compatibility, it needs to be based on the SSB equipment that microwavers use, but otherwise bandwidth is not an issue. One idea is to use FSK at 1200 baud with 1800Hz shift, to fit most of the energy into 2.8kHz bandwidth. By adding error-control coding, interleaving or repeating, the net data rate is reduced, but the link reliability in poor conditions rises. The interleave factor cannot be too high, otherwise the real-time keyboard-to-keyboard feeling would be lost. The varicode alphabet of PSK31 can be included to speed up most standard traffic. D-BPSK may be another option, and trials are needed to see which is better. Initially, it might be possible to get something going with a mixture of hardware and simple software but, ultimately, the mode must be operable purely via a PC and soundcard. To get this going, I need to find someone who can programme in *Windows* for the soundcard – I can offer help with the digital signal processing and coding algorithms, but not the actual *Windows* interfacing."

If you can help, please contact Andy via e-mail to g4jnt@thersgb.net ◆

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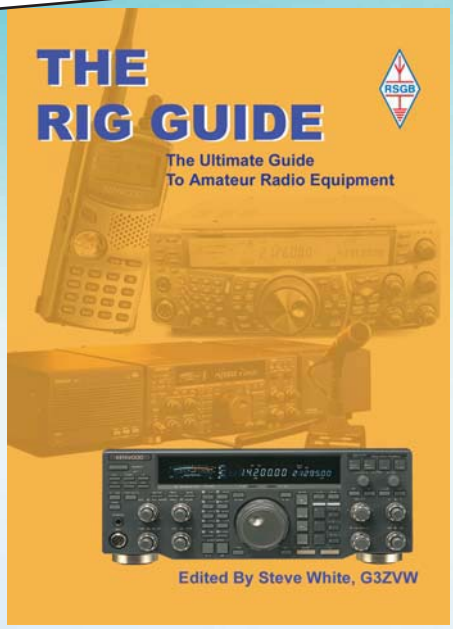

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By Trevor Brown, G8CJS.
E-mail: chairman@batc.org.uk

Above: GB3VR repeater coverage area.

My e-mail has been running hot again and most of it on the subject of ATV repeaters.

REPEATERS ON THE ALGARVE...

It started with a report from a reader who regularly visits the Algarve and has found a new 24cm ATV repeater, CT0TSM. Brian, G3KJX, drives down to the Algarve twice a year and always takes his ATV gear for simplex contacts with the locals. This year he was pleasantly surprised when one of the local contacts pointed him at the new ATV repeater. Brian received P5 pictures over a distance of 30 miles. If only he had taken the frequency counter along he would have been able reset the transmitter frequency and access the repeater. A few desperate attempts at *ad hoc* adjustment of the transmitter frequency may have opened up the repeater, which is located on one of the local broadcast sites about 450m ASL. Brian is planning a return visit in November and will be taking the frequency counter along.

...AND IN SUSSEX

Worthing Repeater Group looks after five repeaters in Southern Sussex. Three are ATV repeaters – GB3VR on 24cm, GB3VV on 13cm and GB3RV on 3cm. They are in the process of having their technology updated. GB3VR has undergone a Phase One rebuild. All the receiving equipment at the site uses ex-broadcast equipment and includes timebase correctors to make sure that the transmitted signal is as near to (amateur) broadcast specification as possible. The logic control is still carried out by an Amiga computer. Phase Two of the overhaul will see the end of the Amiga computer and the installation of an Intel Pentium-based computer. The coverage area of GB3VR is along the coastal plain, between the South Downs and the sea, from Brighton and out towards Chichester in the west. Even under slight 'lift' conditions, stations from as far away as Devon have been seen. There are a few stations to the east of the repeaters, and they are able to use the 23cm and 13cm TV repeaters from behind the beam antennas. However, they are unable to use the 3cm repeater due to the use of horn antennas.

Right, top: Work being carried out on the GB3VR aerials.

Right: Worthing repeater aerial farm.

Martin, G8KOE, and Roy, G4WTV, are experimenting with digital TV on 23cm, using QSPK as the signal modulation method. The best results are using an FEC of 1/2 and symbol rate of 4Mb/s. The digital delay introduced by the encoding process is around two seconds, and is amusing to watch. If you have watched a live TV news broadcast involving a satellite link, you will have noticed the 'uncomfortable' delay between question and answer!

The next stage is to apply for an NoV for GB3RV to have a digital output, as well as the analogue output on 3cm, for comparisons to be made. If all goes well, an application for a dedicated digital TV repeater, possibly on 3cm, will soon be in the pipeline.

The problem is that the pipeline is growing in length. At the beginning of May, no new repeaters (phone or ATV) have been cleared since the beginning of the year. ATV repeater applications such as for GB3CT (Sussex) have been with the RA for over 14 months, GB3PT (Southampton) for more than 10 months, GB3DH (Derby) for eight months and GB3TZ (Luton) for more than eight months.

It would appear that the Radiocommunications Agency's impending incorporation into the OFCOM organisation and the development of the new Foundation and Intermediate-licensing programme may be taking its eyes off the other balls.

Did Tandberg Television have these problems when it conducted the first live digital broadcast trials from an in-flight aeroplane? It used a Lufthansa Airbus to broadcast live video and audio over a distance of 600km from a height of some 8km using orthogonal frequency-division multiplexing.

OLD BUT GOOD

One final e-mail was from Peter Gibson, VK3AZL, who has been working on a Marconi TV OB scanner at Channel 7 in Melbourne. The scanner dates back to 1974 and Peter suspects that three other scanners were supplied at the same time to other Australian TV stations.

Thanks, Peter. The full story of this unit can be found in *CQ-TV* 202 along with three articles on DATV and the latest addition to Mike Cox's digital vision mixer (an RS-422 control panel). Peter Stonard also looks back at some of the micro-TV receivers including the Sinclair MTV1A and the rare Panasonic CT-101A. ◆

WEB SEARCH

CQ-TV	www.cq-tv.com
BATC	www.batc.org.uk
Worthing Repeater Group	www.videorepeater.co.uk

Members' Ads

FOR SALE

RSGB Members wishing to place an advertisement in this section should use the official form printed in ***RadCom*** each 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 members 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. Please do not send members' advertisements to Manning Publishing Ltd (advertising agents). **The closing date for copy is the first day of the month prior to publication, eg the deadline for the May issue is 1 April.**

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. Members' Ads also appear on the members-only website: www.rsgb.org/membersonly/membersads***

AMERITON AL-1500 HF amp, 8877 valve, >2kW o/p, as new in original boxes, £1900. Optional internal QSK board for AL-1500 (also works with other Ameritron amplifiers AL-1200 etc) in original box, £200. Ameritron ATR-30 1.5kW ATU like new in box, £450. Paul, G4CCZ, 01932 342 927 (Woodham, Surrey). E-mail: g4ccz@6metres.com

ANTENNA sale – following upgrade to monobanders! Cushcraft A3WS WARC bands antenna with A103 30m extension. As new. Mans available, £245. Gem Quad – 4-ele, 5 bands, reinforced boom, 16 fibreglass spreaders. Exc cond. Most original elements unused and available together with detailed man, £395. Cost £1,000+ ex-Canada. Buyers to collect, please. G3NUG, QTHR, 01442 262 929 (Hemel Hempstead). E-mail: g3nug@btinternet.com

AR88D free if collected, fully working last time used, not recently tested, collect from Dartford, Kent, e-mail me for details. E-mail: dantia@pacific.net.sg

ARGONAUT V Ten-Tec HF QRP tcvr, mint, boxed, £495. Trio TS-120V QRP HF tcvr, £175, vgc. Icom IC-701 100W HF tcvr plus Icom PSU, vgc, £200. Alinco DR-140 2m FM mobile tcvr, vgc, £100. SGC SG-2020 HF QRP tcvr, mint, boxed, £425. Ray, 01305 777 691 (Weymouth), after 6.30pm please. E-mail: g4owy@aol.com

COLLINS 30K-1 & 310A. Very rare piece of equipment, less than 100 manufactured between 1946 and 1950. Original pair with matching serial numbers. Full details and pictures on www.g4udu.freeuk.com G4UDU, QTHR, 01903 816 684 evenings (Steyning).

CUSHCRAFT MA5V vertical antenna, new and unused, £160. 01803 529 788 (Paignton).

EDDYSTONE collection for sale due to illness, includes many rare and prototype sets. Please send A5 SAE or e-mail for list. Simon, M5POO, QTHR, 01434 633 913 (Corbridge). E-mail: simon@nomis.co.uk

FT-736R, 2/70, CTCSS + speech synth, MD-1 mic, YH-5 h/phones, mint cond inc mans, £675. Icom IC-706MKIIG c/w SM-8 & SP-21, box & mans, mint, £600. Icom IC-28E 2m mobile, £65. Cushcraft 2x10-ele crossed 2m Yagi c/w rotator, £120. Kenwood SM-230 station monitor, mint with mans & leads, £500. All goods as new & used by non-smoker, last item FT-847, mint & boxed, £750. M3TJB, QTHR, 07970 431 528 (East London).

HEATHKIT 15 volumes of official mods to all models 1975 to 1989. Also AR88 man, offers? Buyer collect or arrange carriage. G3MA, QTHR, 01452 539 519.

ICOM 250Hz CW filters: FL-101, £35; FL-53A, £70. 01227 738 520 (Canterbury). E-mail: g3xag@hotmail.com

ICOM IC-271E 144MHz, multimode with Mutek board fitted, good order, recently professionally serviced, £295. Icom IC-706MkI, good cond, mic & power lead, £295. Timewave DSP-9 DSP filter, gwo, £50. Tono 144MHz, solid-state, 100W brick works well with IC-706, gwo, £50. All items postage extra. 01744 895 139 (Wigan). Email: rj.staples@blueyonder.co.uk

ICOM IC-30A vgc, £95. Alinco DJ-580 2m/70cm, Nicads require replacement, £90. KW Viceroy, £75. Bang & Olufsen Beomaster 3000-2 hi-fi amp/tuner, working but requires attention, £50. Buyer collects. 01474 569 357 (Gravesend).

ICOM IC-746 HF / 6m / 2m 100W tcvr, also gen cov receive, integral DSP, large display, HM-36 mic, fitted narrow SSB filter, £785 ovno. Kenwood PS-52 PSU, £85. All above boxed with mans and mint cond. G3ZTZ, QTHR, 01276 507 785 (Camberley). E-mail: pete.howell@ntlworld.com

ICOM PS-85, £75. Drae 24A PSU, £25. 40ft Versatower, £40. 25ft Tennamast, £40. TH3 tribander, £30. Must collect all. 023 9226 5101 (Waterlooville). E-mail: lears@tesco.nrt

KENWOOD antenna tuner AT-230, vgc, £130. MFJ-260C model dummy load 300W as new, £25. Sam, G3JNY, 0113 286 3058 (Garforth).

KENWOOD AT-230 ATU vgc, £135. MFJ-260C dummy load, new, £25. Cossor AT40 valve, 1921, offers? G3JNY. 0113 286 3058 (Garforth).

KENWOOD TH-D7E FM dual-bander with TNC, boxed with man, £160. G3ZJF, QTHR, 01727 811 851 (St Albans).

KLM KT-34 tri-band 4-ele beam, new, in its box, £600. Cushcraft AW-3S WARC-band beam, a few months use, £175. A-103 10m add-on for AW-3S, new, in box, £90. Paul, G4CCZ, 01932 342 927 (Woodham, Surrey). E-mail: g4ccz@6metres.com

KW1000 linear, £250. Also B&W 850 pi tank unit complete with data sheet, £35. GM3UCI, QTHR, 01555 770 914 (Carluke). E-mail: gm3uci@virgin.net

KENWOOD TS-830S VFO-230, £325. Large assortment of com ponents transistors etc, hobby electronics magazines US/UK, electronic reference books, assorted cables. 01494 530 018

MAST 40ft Clark SCAM pneumatic, code 13969, 8ft retracted, new in tropi pak with four legs & copy of user h/book, TB3 Jaybeam 10/15/20m tri-bander new & boxed. New boxed valves 5 x KT88, 2 x TZ40, 1 x 813, 2 x 805. Unused EMI model 407 AD/U wavemeter. Offers please. G3DMO, QTHR, 01254 249 836 (Blackburn).

PAKRATT PK-232MBX multimode data converter. Perfect cond, c/w original operating man and all leads including 'Y' lead for fax/graphics reception. Latest software downloaded from the internet via KT7L, £110. Also Elmac 4810 oscilloscope, virgin cond, DC - 5MHz, complete with original instruction/owners man, £50. Carriage on each item, £12. Ken, G3RDG, 020 8455 8831 (London). E-mail: kennethb@btinternet.com

RECEIVERS, Drake R8A, £500. Yaesu FRDX-400, £50 ono. 01624 29455 (IoM).

SHACK clearance. Yaesu FT-847, as new, boxed, £800. Yaesu FC-20 ATU, £150. Watson W-25AM PSU, £60. Swan 500 tcvr, £90. Trio TR-2400 h/h 2m, £80. MFJ-1798 antenna, £150. GI4FCW, QTHR, 028 4372 2941 (Newcastle). Email: guigan@btinternet.com

SIGNAL generator/counter type SG 4162 AD, by Testlab. Freq 100kHz - 150MHz, man, £55 + carriage. G3PTN, QTHR, 0113 265 4644 (Leeds).

SILENT key (GW3IEQ) sale. AV620 vertical, new cartoned, £75. Similar standing, £20. Worldwide competition awards 1961/69. Type D Morse Key. Other RAF-associated items, many constructors' reference books. Heulwen, Dinas Dinlle, LL54 5TW. 01286 831 340 (Caernarfon).

SILENT key sale, G0FYJ. Icom IC-251E 144MHz multi-mode, £250. Kenwood TS-530SP inc MC-35 mic, YK-88SN filter, £295. Kenwood AT-230 ATU, £100. Welz SP-300 SWR / power meter 1.8 - 500MHz, three sensors, £45. All good cond, all plus carriage, all ono. G3OHC, QTHR, 01757 290 078 (Selby). E-mail: gbadger@boltblue.com

SILENT key sale, GM0JKF. Icom 706 MkIIG vgc, £695. Icom AH-4 auto tuner, £245. Sec 1223 PSU, £75. Yaesu FT-2600M, £95. Alinco DR-06m, £90. BNOS 6m 100W linear, £55. MM 2m 100W linear, £55. AEA twin needle ATU, £65. Heatherlight 600W HF linear, £355. Heil headset, £55. Kenwood desk mic HC4 insert, £45. Sony mic ECM99, £15. Pair Realistic speakers, £15. 01224 316 787 (Aberdeen).

SILENT key. Trio TS-520, VFO-520, SP-520, spare valves, £150. DTR Mimic iambic keyer plus twin paddle key, £75. Trac TE-133 keyer, faulty speaker, £5. MFJ CW /SSB audio filter, £25. Alinco DJ-180E 2m h/h, spkr/mic, £90. Tokyo high-power HL-30V 2m 30W PA, £30. MFJ RTTY / CW computer interface, £25. All above with mans, ono. 13V 7A PSU, £5. Ray, 01525 370 134 (Leighton Buzzard). E-mail: rayg@omnis.demon.co.uk

STRUMECH W60 tower, £250. FT-736R 2m, 70cm, 6m, £650. FT-920, £750. 6m Discovery linear amp 3CX800A7 1kW, £650. FT-757GX11, £300. FT-757 auto ATU, £120. MM 100W 6m PA, £90. FTV-707 4m fitted, £150. G4SEU, 024 7639 2503 or 07813 963 406 (Nuneaton). E-mail: jfl7980@aol.com

TENNAMAST AAM 10m wall mounted tilt and raise, new cable, winch & brackets, exc cond, buyer collects, £275. John, MM3BPH, 01862 842 706 or 07748 553 816 (Invergordon).

TOWER 60ft Altron lattice, 5-section with new ground post, dismantled ready for collection, £300. 01303 863 891 (Folkestone).

TRIO TS430S, HF tcvr with psu, good cond, £150. 2m all-mode

SILENT KEYS

We regret to record the passing of the following radio amateurs:

2E1CRK	Mr P W Bell	09/04/03
G0LQB	Mr F W G Sampson	
G1WVL	Mr B S Sharp	08/03/03
G3IRW	Mr R A Wade	15/05/03
G3VED	Mr G J J Wilkins	02/05/03
G3XBB	Mr D E Latimer	28/01/03
G3ZUQ	Mr R F Simms	26/04/03
G4AYP	Prof S Kind	
G4MBW	Mr J Dufrane	14/04/03
G4PRU	Mr G H F Cousins	29/04/03
G7UZQ	Mr R S Marsh	04/05/03
G8JNZ	Mr R D Mersh	25/04/03
GM0PSQ	Mr W M Ireland	07/05/03
GW3JRJ	Mr F Buckley	01/01/03
VK4BP	Mr D Sim	24/05/03

tcvr, £50. 70cm tcvr, £50. Heathkit 5in oscilloscope, £30. Heathkit RFIU RF sig gen, £20. A/F oscillator, £15. Heahtkit 2ER AM tx, £5. Pulse generator, £5. Other miscellaneous (old) equipment – offers – antennas. Silent key sale of station at New Malden. G3ZQF, 020 8776 2060 (W Wickham). Email: svcarpe@yahoo.co.uk

TRIO. TS-4408 tcvr, HF bands plus gen cov, auto ATU with YK-88C, YK-88SN filters, mans, inc post & ins, £360. David, 01298 71020 (Buxton). Email: david@daveduke.plus.com

VHF W50 two-band colinear antenna, unused, £35. R A Wynn, G4BNB, QTHR, 020 8504 3260 (London).

YAESU FT-101ZD, Yaesu antenna coupler FC-902 plus mans, mic YD-148, ext spkr SP-801, £200. Buyer collects, G4IYW, 01793 527 227 (Swindon).

YAESU FT-102, FC-102 & SP-102. All in gwo, will not split but will accept first reasonable offer. JRC-525 rcvr, £325. Icom IC-24G 2m tcvr, £25. Bill, GM4TPQ, 01560 322 029 (Darvel). Email: billmilligan@talkgas.net

YAESU FT-480R storm damaged, instruction book. Also Titan 12V /5A power unit, regulation U/S. Offers for parts or repair? Jon, G0ITQ, 01732 456 553 (Sevenoaks).

YAESU FT-767GX with SP-767 spkr, MD-1 mic, £300. Yaesu FT-747GX with mic, 30A PSU & SEM Transmatch, £200. 3-section comms engineering mast – 13ft to 30ft, Daiwa rotator & controller, Jaybeam 3-band antenna, £150. MFJ-784B DSP filter, £75. Capco 300 ATU, £30. Heatherlite – Hunter HF linear amplifier, £300. G4NSW, QTHR, 01400 281 438 (Newark). Email: frank@placey.fsnet.co.uk

YAESU FT-847 all mode tcvr, mint cond, boxed, mans & MD-100 A8X base mic, £800. 07715 489 395 (Bishop Auckland). E-mail: m5agc@andyod.fsnet.co.uk

YAESU FT-847 as new, boxed, 3-year warranty & extras, £850. Kenwood TM-707G dual-band mobile plus mag-mount, £175. M5DJC, QTHR, 01476 570 323 (Grantham). E-mail: mark@cressey.co.uk

CONGRATULATIONS to the following, whom our records show as having reached 50 and 60 years' continuous RSGB membership this month:

60 years

G3DKO Mr J W Stevenson

50 years

G3IHX Mr N J Bond
G3JBQ Mr J S Munn
G3JNB Mr V E Brand
G3JNM Mr T R Whittaker

WANTED

ANY Racal and Watkins Johnson rcvrs, accessories, mans or just spares wanted by enthusiast. WHY? Especially looking for the following – Racal RA137 LF converter for the RA17, a WJ8888 (Quad-8), also want a JRC NRD-535 rcvr, 19in equipment racks. HF multicoupler to feed several rcvrs. Distance to collect no problem. G8WKA, QTHR, 01252 795 234 (Surrey). E-mail: richardreich@aol.com

ASSEMBLED crystal rcvr also Sinclair transistor rcvr. Ron, ex-G6FBR, 01202 531 996 (Bournemouth).

BIRD Thruline wattmeter & elements, 250W, 100W 100/250MHz, 5/10/25W 1100/1800MHz. G3IRQ, phone 01473 735 736 (Ipswich).

CAPCO rollercoaster 45 turns 2in dia, 6 1/2in cylinder length. Needed to build Richard Measures parallel rollercoaster ATU. Ken, G3RFH, 01253 823 957 (Cleveleys). Email: g3rfh@fsmail.net

CAPCO SPC 3000D ATU. Help! Owner's man and circuit diagram or photocopies required, either to purchase or to borrow. Please write, not telephone. Mike, G3IGW, QTHR, Halifax.

DISABLED fan of old days seeks pre-1970 QSL cards, magazines etc. Mike, 8 Windsor Road, Reydon, Southwold, Suffolk, IP18 6PQ.

ELECTRONIQUES Stabqoils, amateur radio band & gen cov type SQ & QM with prefix LZ, MZ, MX & HZ, WHY? Also QP-166 front end. Stabqoils for G2DAF, G3PDM etc. Wanted even if part-completed. Still looking for Rohde & Schwartz rcvrs, solid-state only. 01743 884 858 (H), 01743 260 243 (W) (Shrewsbury).

HEAVY duty tower suitable for large HF beam WHY? GM3UCI, QTHR, 01555 770 914 (Carluke). E-mail: gm3uci@virgin.net

PG-4K detachable front panel kit for Kenwood TM-732E 2m/70cm mobile tcvr. G3NKW, 01925 756 472 (Warrington).

PLASTIC block insulators for driven element of Mosley TA31/32/33 JR series, good price paid. Scrap TA31/32/33 JR considered for spares provided insulators are good. 01529 413 547 (Sleaford).

POWER supply unit for WWII Candian W/S 52. The Western Electric 1300V dynamotor only would be fine also. Palomar TX-5300 amplifier, OK if not working. Harris RF-625 long-wire adapter. Alan, G4GEN, 01825 712 205 (Nutley). E-mail: mohawk@clara.co.uk

RELAY IF board for K/W TS-520S. Part number 551-4017-15 or 551-4017-25, good price plus all p&p expenses covered. Ernie Stagnetto, ZB2FK, 00350 71719 (Gibraltar). Email: g134paul@gibnynex.gi

TCS equipment, TX, RX, remote control, cables, data, consider complete station. Also *T&R Bulletins* 1932, 1933, 1st edition *Handbook*. G3XSJ, 01453 845 013 (7-9pm) or 07742 594 418 (Gloucestershire). E-mail: kenbrooks@iee.org

TELEGRAPH keys wanted by serious collector. Looking for old or unusual telegraph equipment including 'bugs', straight keys, sideswipers, sounders, books, magazines, or any related item. I always have keys for sale or trade. Email: trogo@cox.net

TS-9405 digital A board wanted. Mine died after dotty display problems. Does anyone have one? GU4YOX, QTHR, 01481 256 755 (Guernsey). Email: gu4yox@cwgsy.net

WANTED copy of *Solid State Basics for the Radio Amateur* (1978) by Ray Rushgrove and Doug deMaw, good price paid. Chris, G8PCS, QTHR, 01665 510 265. E-mail: christianladds@aol.com

RALLIES & EVENTS

1–3 JULY 2003

THE ROYAL SOCIETY Summer Science Exhibition – 6–9 Carlton House Terrace, London. Admission free. 20 exhibits, with research teams on hand to explain. Exhibits include: optical diagnosis of lung cancer; 'Sting Jet', a new phenomenon causing severe surface winds; how Trinidadian guppies are providing insight into the formation of new species. Tim Watson, 020 7451 2508, tim.watson@royal soc.ac.uk [www.royalsoc.ac.uk]

6 JULY 2003

NORFOLK ARC Barford Radio Rally – Barford, 9 miles SW of Norwich near the A11 and A47. OT 10am. CP, TI, CBS, B&B, C, TS. David G7URP, 01953 457 322/458 844 or e-mail dpalmer@dcpmicro.com

YORK RC Rally – York Racecourse. OT 10.30am. C, CP free, B&B, DF, WIN, SIG. Arthur, G8IMZ, 01904 787 799 (office hours). [www.yorkradioclub.net]

12 JULY 2003

CORNISH RAC Radio & Computer Rally – Penair School, Truro. OT 10.30. TS, B&B, MT, CP free, C, TI. Ken, G0FIC, ken@jtarry.freeserve.co.uk or John, G4LJY, g4ljy@hotmail.com

20 JULY 2003

LINCOLN SWC Hamfest - New venue: Lincoln University Sports Centre, Brayford Pool, Lincoln. OT 10.30am. TS, B&B, FM, MT, C, LB, FAM. John, G8VGF, 01522 525 760.

McMICHAEL Amateur Radio Rally & Car Boot Sale – Reading Rugby Football Club, Sonning Lane, Sonning, Berks, just off the A4 at Sonning. OT 9am. TS, CBS, DF, clubs, CP free, LB, C, TI by GB6MMR on 145.550MHz. Dave, G4XDU, 01628 625 720 or g4xdu@amsat.org [http://go.to/mcmichaelrally]

25–27 JULY 2003

AMSAT- UK 18th Annual Colloquium – University of Surrey at Guildford. Presentations & displays over the three days. Accommodation and individual day tickets will be available. The availability of the Amateur Satellite Service to the new Intermediate licensees means that this is an ideal time to find out more about this exciting side of our hobby. GB4FUN will be there, fully equipped for satellite operation, and there will be special beginners' sessions on two afternoons. Jim, G3WGM, mailto:g3wgm@amsat.org or g3vzv@amsat.org [www.uk.amsat.org]

26/27 JULY 2003

LITHUANIAN ARS LY Hamfest 2003 – nr Jūrė station, between Kaunas and Marijampole. OT midday on 26th. HF, VHF, ARDF, football, beer-drinking, tug-of-war, markets, WIN, A, C, campfire dancing through the night, ladies' programme. CEPT operation is possible. Antanas, mailto:zdramys@kagi.com [www.qsl.net/lrmd/hamfest]

27 JULY 2003

COLCHESTER RA Amateur Radio Rally & Computer Fair - St Helena School, Sheepen Road, Colchester. Gary, 01621 818 620 or James, 01255 242 748. E-mail cra2003@garycavie.com or cra2003@mcginty.net

RUGBY ATS Rally – BP Truckstop on the A5 outside Rugby. *** **POSTPONED – see 9 August** ***. The BP Truckstop is no longer available. Tony, G0OLS, thumph3426@aol.com

VINTAGE VALVE TECHNOLOGY FAIR – Haydock Park racecourse, Merseyside. On A49, 5 minutes from jn 23 of M6. OT 10am, £2.50. Vintage comms, domestic, military, Hi-Fi, gramophones, telephones, valves & vinyl. Trevor, 01274 824 816 or vvt@supanet.com [www.myciunka.supanet.com/VVTF2003 (case-sensitive)]

3 AUGUST 2003

KING'S LYNN ARC 14th Great Easter Rally Car Boot Sale – Foster's Sports & Social Club sports field, Clenchwarton. OT 10am, £1. CBS, C, LB, TI by G3XYZ on 145.550MHz. Sorry, no dogs on field. George, G6AKC, 07719 874 128 (eves) or george@g6akc.freeserve.co.uk [www.klarc.org.uk]

LORN ARS Rally – Tyndrum Village Hall (**new venue**), 40 miles east of Oban, Argyll, at the junction of the A85 and A82. OT 10.30am. TI, CP, C, TS. Shirley, GM0ERV, 01631 566 518, or smclennan@freeuk.com or John, MM3MLH, 01838 200 304.

5 AUGUST 2003

CHELMSFORD ARS Radio & Electronic Table-Top Sale – Marconi Social Club, Beehive Lane, Great Baddow. OT 7.15pm, entrance/CP free. LB. David, M0BQC, 01245 602 838 or cars@g0mwt.org.uk

[www.g0mwt.org.uk]

8 AUGUST 2003

COCKENZIE & PORT SETON ARC 10th Annual Radio Junk Night – Cockenzie & Port Seton Community Centre, South Seton Park, Port Seton, E Lothian. OT 6.30pm, £1, proceeds to British Heart Foundation. WIN, DF, C. Bob, GM4UYZ, 01875 811 723 or bob.gm4uyz@btinternet.com

9 AUGUST 2003

RUGBY ATS Rally – New venue: Stanford Hall, Lutterworth, Leics. Follow brown signs to Stanford Hall from M1 jn 20. OT 10am, £1. TI on 145.550MHz. Tony, G0OLS, 01455 552 519, or thumph3426@aol.com [www.rugby-ats.co.uk]

10 AUGUST 2003

FLIGHT REFUELLING ARS Hamfest – Cobham Sports and Social Sportsground, Merley, Wimborne, off the A31 (signposted). OT 10am, £3 - correct money, please. TS, CBS, MT (5WPM), MA, LB, C, FAM, TI on 144.550MHz from 8am. Overnight camping on Saturday. Mike, M0MJS, 01202 883 479 or hamfest@frars.org.uk

16 AUGUST 2003

NATIONAL WIRELESS MUSEUM Annual Wireless Rally - Puckpool Park, Ryde, Isle of Wight. OT 10am. Douglas, G3KPO/GB3WM, 01983 567 665.

24 AUGUST 2003

MILTON KEYNES ARS 17th Annual Rally & Car Boot Sale – St Paul's School, Phoenix Drive, Leaden Hall (behind Woughton Campus). David, G3ZPA, 01908 501 310.

TORBAY ARS Communications Fair – rally@tars.org.uk

25 AUGUST 2003

HUNTINGDONSHIRE ARS Annual Bank Holiday Monday Rally – Ernulf School, St Neots, Cambridgeshire (nr Tesco Superstore on A428). OT 10am, £1.50. C, CBS on hard standing, TI on 144.550MHz. Peter, M5ABN, 01480 457 347, or peteherbert@aol.com

30/31 AUGUST 2003

WEINHEIM VHF MEETING - same venue as last year.

31 AUGUST 2003

TELFORD AMATEUR RADIO RALLY GROUP 2003 Telford Rally – RAF Cosford Aerospace Museum, on A41, one mile south of jn 3, M54. Entrance & CP free. RSGB regional stand/bookstall /EMC Clinic. Bob, M0RJS, bob@somrob.u-net.com [www.telfordrally.org.uk]

14 SEPTEMBER 2003

FENLAND RG Horncastle Summer Amateur Radio Rally – Horncastle Youth Centre, The Old School, Cagthorpe, Horncastle, Lincs (nr Horncastle Police Station). OT 10.30am, £1. C, TI on 144.550MHz. Chris, G0PXB, 01526 860 320 or Tony, G3ZPU, 07778 274 535. [www.fenlandrepeater.org.uk]

19/20 SEPTEMBER 2003

LEICESTER Amateur Radio Show – Donington International Centre, Castle Donington, Leics. Geoff, G4AFJ, 01455 823 344, fax 01455 828 273 or g4afj@argonet.co.uk

19–28 SEPTEMBER 2003

HORNSEA ARC Antenna Workshop & Farm – Usual attractions, inc full-size rhombic, demonstrations from Linear Amp UK. Richard, G4YTV, 01964 562 498 or g4ytv@aol.com

20/21 SEPTEMBER 2003

TRANSMISSION 2003 – 11th annual event to raise money for the British Wireless for the Blind Fund.

5 OCTOBER 2003

BELGIUM Amateur Radio & Computer Rally - Michel, ON7FI, 0032 64 849 596, or dewyngaert@skynet.be [www.qsl.net /on6ll/]

12 OCTOBER 2003

GREAT LUMLEY AR & ES Rally - Nancy, 0191 477 0036 or 07990 760 920 or nancybone2001@yahoo.co.uk

19 OCTOBER 2003

BLACKWOOD & DARS Rally - George, 2W1JLK, 01495 724 942, or Dave, GW4HBK, 01495 228 516.

HORNSEA ARC Rally – Richard, G4YTV, 01964 562 498 or g4ytv@aol.com

26 OCTOBER 2003

GALASHIELS & DARS Annual Rally – Jim, GM7LUN, 01896 850 245.

WEST LONDON RADIO & Electronics Rally - Paul, M0CJX, 01737 279 108, m0cjx@lineone.net

2 NOVEMBER 2003

SOUTH YORKSHIRE RG 13th Great Northern Hamfest - Ernie, G4LUE, 01226 716 339 or 07787 546 515.

8/9 NOVEMBER 2003

NORTH WALES RADIO & Electronics Show – Jenny, MW0BET, 01492 549 413.

9 NOVEMBER 2003

BISHOP AUCKLAND RAC Rally – Mark, G0GFG, 01388 745 353, or Brian, G7OCK, 01388 762 678.

16 NOVEMBER 2003

MIDLAND ARS 15th Radio & Computer Rally - Peter, G6DRN, 0121 443 1189 or 07710 963 123. [http://midamradio.members.beeb.net]

23 NOVEMBER 2003

RADIOSPORT Communication & Computer Show - RadioSport 01923 893 929. [www.radiosport.co.uk]

30 NOVEMBER 2003

PENCOED ARC Radio & Computer Show – MW5MWR, QTHR.

7 DECEMBER 2003

WORCESTER RADIO & Computer Rally - [www.qsl.net/gb2tcr]

1 FEBRUARY 2004

SOUTH ESSEX ARS Mobile Radio Rally – Brian, G7IIO, 01268 756 331 or briang7iio@yahoo.com [www.southessex.ars.btinternet.co.uk]

29 FEBRUARY 2004

CAMBRIDGE & DARC Rally – [www.cdarc.org.uk]

RALLIES & EVENTS

TI – Talk-In; **CP** – Car Park; **£** – admission; **OT** – Opening Time – time for disabled visitors appears first, eg (10.30/11am); **TS** – Trade Stands; **FM** – 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, raffle; **LEC** – LECtures/ seminars; **FAM** – FAMily attractions; **s** – Camp Site.

GB CALLS

These callsigns are valid for use from the date given, but the period of operation may vary from 1 – 28 days before or after the event date. Operating details are provided in an abbreviated form as follows: T = 160m; L = 80 or 40m; H = HF bands (30 - 10m); V = 6 and / or 4m; 2 = 2m; 7 = 70cm; S = satellite and P = packet. Please send operational details of your special event station to the RadCom office at least five weeks before publication. The only QSL Bureau sub-manager for special event station callsigns is as follows: GBxAAA-MZZ – Mike Evans, 322 Heol Gwyrosydd, Penlan, Swansea SA5 7BR, e-mail mw0cna@ntlworld.com. Will organisers of special event stations please ensure that they lodge plenty of envelopes with their sub-manager?

1 Jul	GB4BFS: British Festival of Space. Surrey. LH27PS (M0DBX)
	GB4QES: Queen Elizabeth Show. Petersfield, Hants. LH2 (G0FYX)
2 Jul	GB0RAF: Royal Air Force. Barnard Castle, Co.Durham. (G0NRK)
3 Jul	GB4GS: General Sikorski. London. LH (G0IDA)
4 Jul	GB2EK: East Kirkby. Lincolnshire. LH2 (G4BZA)
	GB4HS: Hollowell Steam. Northampton. LHV27PS (G0OFB)
	GB4JUL: Fourth of July. Harrogate. LH2 (M0ACP)
	GB4YOU: Youlbury Scout & Guide Radio. Oxford. (G0REL)
	GB4YOU: Youlbury Scout & Guide Radio. Oxford. (G0RJX)
	GB4YSC: Youlbury Scout Camp. Oxford. LH2P (G0LUQ)
	GB5RO: Radio Orkney. Scotland. LHV2 (GM0HTH)
5 Jul	GB300WES: Wesley. N Lincs. LH2 (G3KPU)
	GB4BOB: Borough of Broxbourne. Cheshunt. LH2 (M5AJK)
	GB8EC: Earth Centre. Doncaster. TLH2 (G0SSC)
6 Jul	GB2FX: Felixstowe & DARS. Felixstowe, Suffolk. LH2 (G0OZS)
11 Jul	GB2RVS: Rettendon Village Show. Essex. TLH27 (G4ZPE)
12 Jul	GB0RP: Roath Park. Cardiff. LH2 (GW0WHT)
	GB4ENI: Enigma. LH (G0IDA)
	GB5RL: Ribble Link. Tartleton, Nr Preston. LHV27 (G3UCA)
13 Jul	GB300WES: Wesley. N Lincs. LH2 (M0RHI)
14 Jul	GB0GP: Grand Prix. Northampton. LH (G0RMA)
	GB4CEB: Comms & Electronics Branch. Norfolk. LH2 (G4OHX)
17 Jul	GB1JST: Jubilee Sailing Trust. Cornwall. 2 (G7ERQ)
18 Jul	GB2RCC: Radio Caravan & Camping. Dalton-in-Furness. TLHV27 (G4TET)
	GB2RCC: Radio Caravan & Camping. Dalton in Furness, Cumbria. TLHV27 (G0VEP)
20 Jul	GB2FTS: Fleetwood Tram Sunday. Fleetwood, Lancs. TLH (G4BFH)
	GB4DAD: Disability Awareness Day. Cornwall. HV27 (G0FIC)
	GB6MMR: McMichael Rally. Reading. 2 (G4KWT)
24 Jul	GB4CW: Cowes Week. Ryde, Isle of Wight. (G0MWU)
25 Jul	GB100MAS: Montrose Air Museum. Montrose. TLHV2 (GM0RRU)
	GB100MAS: Montrose Air Museum. Montrose. TLHV2 (MM0BIX)
	GB100MAS: Montrose Air Museum. Montrose. TLHV2 (GM0JZV)
	GB100MAS: Montrose Air Museum. Montrose. THV2 (GM0TWB)
	GB100MAS: Montrose Air Museum. Montrose. TLHV2 (GM4OAQ)
26 Jul	GB100MAS: Montrose Air Museum. Montrose, Angus. (GM0VIT)
	GB100MAS: Montrose Air Museum. Montrose, Angus. TLHV2 (MM0BSX)
	GB300WES: Wesley. N Lincs. LH2 (G3UWT)
27 Jul	GB2CRR: Colchester Radio Rally. Colchester, Essex. LH27 (G3FIJ)

The Members' Ads order form is now published here. 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 advertisements on separate sheets 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.

RSGB MEMBERS' ADS ORDER FORM

Application form for one For Sale, Exchange or Wanted 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 *RadCom*.

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Business Cards

The Last Word

Amateur Radio and Museums

I reread the 'Antennas' column in the May *RadCom* (concerning GB2CPM at Amberley Museum) in a new light following a recent chat with a non-amateur. He apparently came across amateur radio for the first time when he saw a station at a museum. He was most surprised to learn that the equipment being used was only one month old. He had assumed that the station was part of the museum display and thus what was being demonstrated was 'radio as it used to be'. Apparently this misapprehension was strengthened by the size of the equipment (compared to his mobile phone). This point about the size of the equipment was fairly quickly explained to him, but he told me he was still left wondering what amateur radio had to with the rather older exhibits also on display.

Given that amateur radio needs a 'progressive image', it does seem to me that a linking in the public mind of the words "amateur radio" with the word "museum" is somewhat unfortunate. It gives the impression of a hobby that is of another era, something that is preserving the past rather than capturing the frontiers of technology. Maybe this is nearer the truth, however, than some of us would like to admit? We might well ask exactly why museums want to make an exhibition of amateur radio? Why not modern hi-fi, or flower arranging, or any of the myriad of hobbies that people currently indulge in? No doubt it gives them one more thing to amuse the public with, but is it doing amateur radio any favours?

I think there is a role for radio stations in museums, but it would be vintage radio stations – preferably working – that would seem far more appropriate. And then only when the theme of the museum is relevant to the technology being displayed or perhaps where some aspect of the local history is connected with radio. Then the historic aspects come to the fore, and such a display can help people understand where the current radios they take for granted have actually come from, provided the display has the necessary explanations attached.

Richard Hankins, G7RVI

Buying Secondhand

After reading various letters regarding the purchase of equipment from private sellers via the net or from magazines, I think the scare stories from some of the dealers are a bit over exaggerated. I have never experienced any problems whatsoever, but a few simple rules have to be followed:

1. Always get a contact telephone number, not a mobile and a full postal address.
2. Don't ever send cash or postal orders. Send either personal cheques or pay via credit card if the facility is available. You can at least trace the cheque to an account and if paying by credit card you do get some protection from the company.
3. Try to avoid buying items from overseas.
4. Try to pick a seller within your region as you can go and collect the item from their house, not a pub car park. If it turns out to be not what you expected, walk away. It has only cost your petrol expenses.
5. Don't buy items listed "with a slight fault". If it was slight it would have been fixed.
6. Always insist on a photograph of the item if buying on the net. Don't accept a general photo of the item.
7. Thoroughly check the equipment. If the seller says he has no way of checking it then provide a power supply from your car to test it when you go. Most electronic equipment can be run from vehicles either from the lighter socket or via an inverter.
8. If you do buy from overseas remember you may have to pay VAT and some import duty.
9. If you know the callsign of the seller check the details in the callbook to check that they match.
10. Don't send cheques to other addresses, only the seller's.
11. Ask all the questions you can.
12. Check any feedback the seller has. How many items have they sold before and to how many people. Items sold to one person would sound suspicious to me.
13. And finally, if in any doubt, walk away.

Hope this helps.

G Mack, MOCUS

A Helping Hand

Reading some of the letters in *RadCom* and listening to some QSOs it might be perceived that all G3s are grumpy OMs who do not like M3s who are CBers and don't know how to operate a radio. Nothing could be further from the truth. G3s, M3s and the rest of us are individuals who should not be categorised by our callsign. Within each group good and poor operators will be found along with considerate and intolerant individuals. To judge someone by their callsign is wrong, after all people aged between eight and 78 and with all sorts of radio backgrounds have obtained Foundation Licences from the Whitehaven ARC and the tuition has been supplied by members with all G and M callsigns including G3. Several of those who obtained their Foundation Licence have gone on to pass the RAE and Morse test to become M0s.

I would like to give you an example of a recent event which is the way in which one experienced amateur acted to assist a new amateur. Kurt, M3DMQ, passed the foundation test and obtained his licence. Being 14 years of age and having to finance his new hobby from his earnings from a paper round, he scanned copies of *RadCom* and *PW* for a bargain. He found a suitable 2m rig being sold by GJ3XZE and asked me to telephone to find if the rig was still for sale. So I contacted GJ3XZE who, immediately upon hearing that Kurt was only 14 years old, reduced the asking price substantially. He also met the cost of the postage. This made me think the spirit of amateur radio was still alive. My thoughts were confirmed when the parcel arrived and not only included the rig but also an SWR/power meter, a multi meter and other goodies. One kind and helpful G3 and one delighted M3.

I like a story with a happy ending so listen out for M3DMQ and help him in his self-training (that is the purpose of an amateur radio licence) and thanks to GJ3 for keeping the spirit of amateur radio alive. Let's stop this divisive bickering and concentrate on promoting this great hobby of ours.

Norman Williams, M0CRM
Secretary, Whitehaven ARC

NCDXF Beacon Network

Reading Mike Faulkner's letter in the June issue and his mention of the NCDXF beacons prompted me to put type to paper. I listen to these beacons on an almost daily basis and often mention them to stations I talk to. It is surprising how many amateurs don't know what they are or where they are in spite of many articles having been written about them over the years in most of the amateur magazines. I never cease to be amazed by the times I hear the 100mW tones when a band is completely devoid of any amateur signals. The power levels are 100W, 10W 1W and 100mW to R7 verticals a few feet off the ground.

To anyone reading this and would

like to find out more and has a computer, try downloading the 'Active Beacon Wizard' from Jim Tabor, (free for three weeks) see www.taborsoft.com or take a look at the MFJ-890 Beacon Monitor [reviewed on page 32 - *Ed*] or just listen on 14.1, 18.11, 21.15, 24.93 and 28.2MHz.

I reckon you will be quite surprised.

Howarth Jones, GW3TMP

More Newcomers Needed

An 18-year old apprentice where I work looked at my amateur radio in the van and had no idea what it was for. I explained and gave him a demonstration. He had never heard of amateur radio. I then asked him to ask his friends if they had heard of it, out of interest. Only a couple had heard of CB, but none knew about amateur radio.

Out of the 6000+ new M3 licensees I wonder just how many are new? Are we really attracting much-needed new people to the hobby? Firstly, we should take out all the B licence calls as they were already in the hobby. Next take out all the new family members as they cannot be considered totally new, then take out all of the CBers who have joined our ranks, as they already had an interest in radio. What does that leave us with? A lot less than 6000 I guess, so are we selling ourselves correctly not just in the UK but on a global basis?

GB4FUN is a great idea but it's not enough. Maybe someone out there has the answer.

G Mack, M0CUS

[After the initial flurry of Class B licensees taking out M3 callsigns to gain access to the HF bands, by far the majority of M3 callsigns now being issued are to entirely new licensees – Ed.]

Morse on the Phone

In reply to Andy Green, EI3HG, I use customised Morse ring tones on my mobile phone to tell me who is ringing. I have set up a system to put these ringtones on to Nokia phones. My method for doing this is a little complicated for the medium of 'The Last Word', however, I am happy to send any required tones to fellow RSGB members' Nokia phones. Just e-mail the required text and your mobile number to me (gi0nqc@adsystemsit.com).

I am not sure what the length limit is, but it is at least 10 words of Morse. Ringtones automatically repeat, so a single word would be repeated until answered.

The number of different ringtones you can have is dependent on the model of phone; some only allow two 'user defined' tones.

I can also send 'Nokia picture messages' which are black and white, 72 x 18 pixels (which can then be sent on), operator logos and group icons (72 x 14 pixels). So if you want your callsign or logo on your phone, send me an appropriately-sized graphic file (bmp or any other format). I have an RSGB logo so I can send you that with a callsign added.

Has any one used these as SMS QSL cards?

Adrian Dornford-Smith, GI0NQC, AC6LJ

Abolish Detector

Re: 'Abolish Detector' ('The Last Word' June 2003), an antenna is a capture device of EM waves and to redirect them along a cable or guide. A demodulator suggests to me a device for removing modulation instead of the detection of the presence of such. My vote is to keep detector.

G West

'NIL' & Bureau QSLing

Re 'The Last Word' June 2003 ('Bureau vs Direct QSLing' and 'Not in Log'), I dispatch many thousands of QSL cards for my IOTA expeditions each year. I receive the occasional card the call of which does not appear in the log. I check each of these against the date/time log to see if I can find any error we may have made. I am sure others do this, personally I do all I possibly can to avoid sending back a card "not in log".

Concerning bureau cards, it should be born in mind that the cost of receiving and dispatching cards via the bureau is considerable due to the postage involved. This continues for several years after the operation and additionally involves many hours of work organising cards from many different expeditions. All SWL cards are answered in order to encourage that part of amateur radio. I have always accepted bureau cards but I can sympathise with those who do not.

Ken Frankcom, G3OCA, 9G5KF, TR0A/P, DZ1MS, 4D0MS, DX0L, DX0C, 4D2B

Changing Callsigns – Again

I have read the letters from Paul Thompson concerning a change to, and reissue of, UK callsigns and feel that I must add my opinion. I am a radio amateur (and proud of it), licensed for 39 years and I do not consider that I am a 'stick in the mud old fogey'. I think that those promoting a change do not appreciate how important our callsigns become to us the longer we are licensed.

Most amateurs are known by their calls more than their names and our calls are very much more individual than our names. I am Andrew (Andy) Hewitt (and proud of it) and I have been registered in hotels and on aircraft with others of the same name, which has caused confusion. There are probably also other Paul Thompsons. Our names and initials are not particular to us at all, whereas our calls are completely individual to us: in the whole population of the world there is only one G3SVD and only one M3UKN, my 8-year old daughter. She is very proud of her call and will probably be using it for some time to come.

There are also many class B licensees who have upgraded to class A, but because they are known by their originally-issued G1/6/7/8/M1 calls they still keep their original calls for use on the VHF bands.

We should also consider the projected growth in licences over future years, now that the initial rush of Foundation Licences has worked through, before deciding on any changes as this would certainly involve a large cost to the RA, money which could probably be better spent elsewhere.

I am not against adjustments being made if really necessary, but change my callsign – over my dead body!

Andy Hewitt, G3SVD, MBE (also XE1/G3SVD)

RadCom on CD

I wonder how many of our membership have the same problem as myself. A loft groaning under the weight of old issues of the *RSGB Bulletin, Radio Communication* and *RadCom* apart of course from all the radio junk that I cannot throw away. There is a solution as far as the magazines are concerned and that is to get them on CDs. Unfortunately it seems a very expensive solution. It seems not unreasonable to me that CDs should be offered to the membership at a discount commensurate with their period of membership on a one-off basis. There must be many lofts both in the UK and abroad that would welcome some relief.

The Society must have a high proportion of its membership that are retired with the problem of storage increasing over the years. I like most people I suppose, am reluctant to discard the magazines, as time and again I make trips to the loft to look up articles that I vaguely recall from years before. Or simply look through the magazines on the off-chance of finding something interesting relating to my current project.

Anyhow I've said my piece and declare a vested interest as someone who has been a member of the Society continuously for 40 years.

Stan Hulme, G3SRM

LETTERS PUBLISHED in 'The Last Word' do not necessarily reflect RSGB policy. It is a condition of publication that all letters may be edited for grammar, length and/or clarity. Due to the limited space available, please keep letters as short as possible. Letters not published in RadCom may be published on the RSGB members-only website at rsgb.org/membersonly/lastword 'Last Word' letters may be e-mailed to **radcom@rsgb.org.uk**

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