55p

The SHORT WAVE Magazine

VOL. XL NOVEMBER 1982 NUMBER 9

NRD-515

Being the man I am, I cannot say I took kindly to the idea that my beloved NRD515 was about to be keyboard controlled. When I heard that JRC were about to produce a remote keyboard control system for the rig I must admit my thoughts were turned to the "other" shortwave receiver which only has a keyboard. My prejudices told me this was not the real way to wander over the band — in short, I was a knob man.

Now, after having had the device coupled to my station for the past few weeks, I have to admit I was wrong, completely wrong.

Of course JRC have done their bit in producing a keyboard controller which is perfect. I suppose you think I am biased in my opinion, but just look at the specification. First of all, a liquid crystal display that does not require a magnifying glass to read the frequency, a well designed keyboard with clear and explicit controls, all together in a case that fits nicely in the palm of the user. Add a control cable that is flexible and not likely to make operation awkward and the NCM515 has to be a logical extension of your NRD515.

I'll just run through the commands available from your armchair. Say, for example, we are wandering through a short wave band. The receiver is obviously set to the correct mode and bandwidth. Key in the frequency — this is not a problem as the NCM515 is logical. If the frequency you want is 9.535 MHz then that is what you enter, 9, 5, 3, 5. Press the pre/man button and whatever the rig was doing is overriden and the required frequency is entered into the receiver.

From this set frequency one can scan up and down in either 1 or 0.1 KHz steps at one of two speeds, be it fast or slow. Alternatively, you can either add or subtract any other frequency to the initial one and repeat this up and down the band. A most useful frequency stepping device.

Another nice point regarding scan, as long as you press the key the rig scans, when you stop, so does the rig. Perfect for station hunting.

Obviously the frequency steps and two speeds are also eminently suitable for single sideband and when you add to these impressive features four additional memories, the NCM515 is compatible with the 96 channel memory unit, then, as I said initially, the NCM515 controller improves the unimprovable.

NRD515 £985 inc VAT
NSD515 £1,223 inc VAT
NDH518 £198 inc VAT
NVA515 £34.50 inc VAT
NBD515 £148.35 inc VAT
NCM515 £125.00 inc VAT

improves the unimprovable

ok, it was always a good receiver, but now with FM the **SRX 30D**, todays rig, yesterdays price.

- Extended coverage 200 kHz-30MHz.
- Digital readout in large green display units which give true unambiguous frequency information — even when you switch sidebands or use the clarifier.
- All new frequency synthesis using Plessey SL 1600 ICs for a new high standard of performance.
- All new audio system which produces outstandingly good quality on the built in speaker, and is capable of driving external hi fi speaker units for ever better sound.
- All new IF filters with optimum bandwidth for mode in use. Automatic filter selection from mode switch.

We predict that the SRX 30D will be a landmark in low cost, high performance SWL receivers. Just consider how much you should pay for a receiver covering 200 kHz-30MHz with accurate digital readout; high performance FM USB/LSB/AM with switched filters; drift cancelling frequency synthesis; built in mains supply and built in speaker; high quality construction and advanced design — and so much more.

SRX 30D NOW WITH FM STILL £215.00 Carr. £5.00

From Daiwa yet another aid to operating. In addition to the notch, SSB and CW filters, the AF606K is equipped with a PLL tone decoder; when the tone frequency of the CW signal and the free running frequency of the PLL tone decoder are the same a locked signal is generated. This locked signal keys an audio oscillator which then reproduces the received CW signal. However, there is a tremendous difference between the produced signal and the received one — no noise and, of course, no fading. **ANOTHER PIECE OF EQUIPMENT TO ENHANCE YOUR LISTENING.**

AF606K £56.50 inc. VAT, carr. £5.00

With so many electronic keys and keyers on the market, it's hard to describe one that is better than the rest. Inevitably it is a matter of "feel", and the feel of the New Daiwa DK210 is superb. Being Daiwa, the quality of design and construction has to be of the best, but it's in use that the DK210 is so impressive. Designed to be used with an external paddle, to give greater personal choice, the DK210 is otherwise self contained, even to being battery powered (PP3). It offers a speed range of 10 to 50 w.p.m., built in sidetone, facilities for semi auto, or fully auto keying, and a tune position for adjusting your transmitter, but the outstanding feature is the adjustable "weight" control. This control gives an amazing improvement in the character of the sending, and completely removes that mechanical sounding "electronic morse" characteristic. Those experienced CW users who have tried out the DK210, have all said how good it sounds — and have usually purchased one. So will you if you try it out.

DK210 from DAIWA — A truly nice keyer.

DK 210 £42.00 less paddle. CARR. £5.00.

Now from Daiwa, a new 2 metre monitor receiver. Using PLL synthesized circuitry, the SR1000E covers the entire amateur band in 5 KHz steps. It provides for today's amateur a small convenient means of monitoring activity on the busy 2 metre band. Compact and supplied with earphone, mounting bracket, the SR1000 provides for you mobile or fixed your contact with the 2 metre band.

SR 1000 E £72.50 inc. VAT, carr. £2.25

LOWE IN LONDON, Open monday to saturday, six days a week
lower sales floor, Hepworths, Pentonville Rd, London. telephone 01.837.6702
LOWE IN GLASGOW, Open tuesday to saturday
4,5 Queen Margarets Rd, Glasgow. telephone 041.945.2626

handability TR 2500

The TR-2500 is a compact 2 metre FM handheld transceiver featuring an LCD readout, 10 channel memory, lithium battery memory back-up, memory scan, programmable automatic band-scan and HI/LO power switch.

TR-2500 FEATURES:

- Extremely compact size and light weight 66 (2-5/8) W x 168 (6-5/8) H x 40 (1-5/8) D, mm (inches), 540g, (1-2lbs) with Nicad pack.
- LCD digital frequency readout, with memory channel and function indication.
- Ten channel memory, includes "MO" memory for non-standard split frequencies.
- Lithium battery memory back-up built-in, (estimated 5 year life) saves memory when Nicad pack discharged.
- Memory scan, stops on busy channels, skips channels in which no data is stored.
- UP/DOWN manual scan in 5kHz steps.
- 2.5W or 300mW RF output. (HI/LOW power switch.)
- Programmable automatic band scan allows upper and lower frequency limits and scan steps of 5kHz and larger (5, 10, 15, 20, 25, 30kHz . . . etc) to be programmed.
- Slide-lock battery pack.
- Repeater reverse operation.
- Keyboard frequency selection across full range.
- Frequency coverage, 144.000 to 145.995 MHz.
- Optional power source, MS-1 mobile or ST-2 AC charger/power supply allows operation while charging. (Automatic drop-in connections.)
- High impact plastic case.
- Battery status indicator.
- Two lock switches for keyboard and transmit.

STANDARD ACCESSORIES

- Flexible rubberised and antenna with BNC connector.
- 400mA heavy-duty Nicad battery pack.
- AC charger.

TR 2500	HANDHELD TRANSCEIVER	£207.00
ST 2	BASE STAND/CHARGER	£46.23
SC 4	SOFT CASE	£12.19
MS 1	MOBILE STAND	£28.29
SMC 25	SPEAKER/MIKE	£14.49
PB 25	NICAD PACK	£22.31
LH 2	LEATHER CASE	£21.39

"now hear this" R600

A simple to use general coverage receiver covering 150kHz to 30MHz in 30 bands at an amazingly affordable price. Use of PLL synthesized circuitry provides high accuracy of frequency & excellent stability with the maximum ease of operation.
R600 FEATURES are:

- 150kHz to 30MHz continuous coverage, AM, SSB or CW.
- 6kHz IF filter for AM (wide), and 2.7kHz filters for SSB, CW and AM (narrow).
- Up-conversion PLL circuit, for improved sensitivity, selectivity and stability.
- RF Attenuator allows 20 db attenuation of strong signals.
- Tone control.
- Front mounted speaker.
- "S" meter, with 1 to 5 SIMPO scale, plus standard scale.
- Coaxial, and wire antenna terminals for 2MHz to 30MHz. Wire terminals for 150kHz to 2MHz.
- 100, 120, 220 and 240 VAC, 50/60Hz. (Selector switch on rear panel) & alternative 12 Volt dc operation.

Other features include carrying handle, record jack & head phone jack.

R600 £235 inc. VAT
carriage £5.00

FT ONE £1,295 inc. VAT @ 15% & SECURICOR

FREE FINANCE

*Option

- ★ Rx: 150kHz-30MHz. Continuous general coverage.
- ★ Tx: 160-10m (9 bands) or 1.5-30MHz commercial.
- ★ All Modes: AM, CW, FM*, FSK, LSB, USB.
- ★ 10 VFO's!!! Any Tx-Rx split within coverage.
- ★ Two frequency selection ways, *no* bandswitch.
- ★ Main dial, velvet smooth, 10Hz resolution.
- ★ Inbuilt keyboard with up/down scanning.
- ★ Dedicated digital display for RIT offset.
- ★ Receiver dynamic range up to 100dB!!!
- ★ SSB: Variable bandwidth *and* IF shift.
- ★ 300* or 600Hz*, 2,400 → 300Hz, 6kHz*, 12kHz*.
- ★ Audio peak and notch filter. FM squelch.
- ★ Advanced variable threshold noise blanker.
- ★ 100W RF, key down capability, solid state.
- ★ Mains and 12VDC. Switch mode PSU built in.
- ★ RF processor. Auto mic gain control. VOX.
- ★ Last but not least *full* break-in on CW.

FT902DM £885 inc. VAT @ 15% & SECURICOR

- ★ 160-10 metres including new allocations.
- ★ Variable IF bandwidth 2.4kHz down to 300Hz.
- ★ Audio Peak and independent notch controls.
- ★ AM, FSK, USB, LSB, CW, FM, (Tx and Rx).
- ★ Semi-break in, inbuilt Curtis IC Keyer.
- ★ Digital plus analogue frequency displays.
- ★ VOX built-in and adjustable.
- ★ Instant write in memory channel.
- ★ Tune up button (10 sec, of full power).
- ★ Switchable AGC and RF attenuator.
- ★ 350 or 600 Hz CW, 6kHz, AM filters.
- ★ Clarifier (RIT) switchable on Tx, Rx or both.
- ★ Plug in modular, computer style constructor.
- ★ Fully adjustable RF Speech processor.
- ★ Ergonomically designed with necessary LEDS.
- ★ Incredible range of matching accessories.
- ★ Universal power supply 110-234V AC and 12V DC.

SPECIAL OFFER — NOW WITH CW FILTER, AM FILTER, CURTIS KEYER† AT NO EXTRA!

*Option †D + DE MODELS

FT102 £725 inc. VAT @ 15% & SECURICOR

"INSTANT" H.P.

- ★ 1.8-3.5-7-10-14-18-21-24.5-28MHz
- ★ All modes:— LSB, USB, CW, AM‡, FM‡, (‡Option board)
- ★ Front end: extra high level, operates on 24V DC.
- ★ RF stage bypassable, boosts dynamic range over 100 dB!
- ★ Variable bandwidth 2.7KHz→500Hz *and* IF Shift
- ★ Fixed bandwidth filters, parallel or cascade configurations
- ★ IF notch (455KHz) *and* independent audio peak
- ★ Noise blanker adjustable for pulse *width*
- ★ External Rx and separate Rx antenna provisions
- ★ *Three* 6146B in special configuration — 40 dB IMD!
- ★ Extra product detector for checking Tx IF signal
- ★ Dual meter, peak hold ALC system
- ★ Mic amp with tunable audio network
- ★ **SP102:**— Speaker, Hi and Lo AF filters, 12 responses!
- ★ **FV102:**— VFO, 10Hz steps and readout, scanning, QSY.
- ★ **FC102:**— ATU, 1.2KW, 20/200/1200 W FSD PEP, wire.
- ★ **FAS-1-4R:**— 4 way remote waterproof antenna selector.

FT101ZD £635 inc. VAT @ 15% & SECURICOR

- ★ 160-10 metres including new allocations.
- ★ Variable IF bandwidth 2.4kHz down to 300Hz.
- ★ Selectable CW fixed bandwidth CW-W and CW-N*
- ★ Semi-break in with sidetone for excellent CW.
- ★ Digital plus analogue frequency displays.
- ★ 180W PIP and — 31dB 3rd order intermod.
- ★ RF speech processor fitted — adjustable level.
- ★ VOX built-in and is adjustable from the front panel.
- ★ Wide dynamic range for big signal handling.
- ★ High usable sensitivity, for those weak ones.
- ★ Superb noise blanker — adjustable threshold.
- ★ Attenuator; 0-10-20dB, AGC; slow-fast-off.
- ★ Clarifier (RIT) switchable on Tx, Rx or both.
- ★ Low level transvertor drive output facility.
- ★ Universal power supply 110-234V AC and 12V DC*.
- ★ Incredible range of matching accessories
- ★ 6 models: Digital/Analogue — AM/FM options.

FREE SECURICOR

*Option

FT707 £569 inc. VAT @ 15% & SECURICOR

PLASTIC BY 'PHONE

SMC FM MODIFIED VERSION AVAILABLE

- ★ 80-10 metres (including 10, 18 and 24MHz bands).
- ★ USB-LSB-CWN-AM (Tx and Rx operation).
- ★ 100W PEP. 50% power output at 3:1 VSWR.
- ★ Full "broad band" no tune output stage.
- ★ Excellent Rx dynamic range, power transistor buffers.
- ★ Rx Schottky diode ring mixer module.
- ★ Local oscillator with ultra-low noise floor.
- ★ Variable IF bandwidth — 16 crystal poles.
- ★ Bandwidths 6kHz*, 2.4kHz-300Hz. (600-350) Hz*
- ★ AGC; slow-fast switchable VOX built-in.
- ★ Semi-break in with side tone for excellent CW.
- ★ Digital (100Hz) plus analogue frequency display.
- ★ LED Level meter reads: S, PO and ALC.
- ★ Indicators for: calibrator, fix, int/ext VFO.
- ★ Receiver offset tuning (RIT-clarifier) control.
- ★ Advanced noise blanker with local loop AGC. *Option

CONNECTORS COAXIAL

BNC-N-UHF INTERSERIES ADAPTORS

UG255	UHF socket — BNC plug	£1.76	0.50
UG273	UHF plug — BNC socket	£1.76	0.50
SO/25	UHF socket — 2.5mm jack	£0.79	0.50
SD/35	UHF socket — 3.5mm jack	£0.79	0.50
SD/NF	UHF socket — N socket	£1.96	0.50
UG146	UHF socket — N plug	£2.25	0.50
UG83	UHF plug — N socket	£1.96	0.50
UG201	N plug — BNC socket	£3.28	0.50
UG349	N socket — BNC plug	£3.16	0.50
UG606	N socket — BNC socket	£2.59	0.50

BNC PLUG 50 ohms

UG88	Standard type 5.5mm	£0.78	0.50
UG959	Large type 11.2mm	£3.22	0.50

BNC SOCKET 50 OHMS

UG290	Standard, 4 hole type	£0.78	0.50
UG1094	Nut fixing type	£0.76	0.50
UG89	Free, cable-end, 5.5mm	£0.94	0.50

BNC COUPLER 50 OHMS

UG914	Back to back female	£1.07	0.50
UG491	Back to back male	£1.66	0.50
UG274	'T' 2 female 1 male	£2.23	0.50
SMC3FBNC	'T' 3 female	£2.02	0.50
UG306	Elbow, Male — Female	£1.88	0.50

BNC CABLES 50 OHMS

BNC18BNC	1.5' RG58, BNC ends	£2.55	0.50
BNC36BNC	3.0' RG58, BNC ends	£2.65	0.50
BNC36RDC	3.0' RG58, BNC clips	£2.50	0.50

UHF PLUG

PL259	Standard type 11.2mm	£0.55	0.50
PL259P	Push on type 11.2mm	£0.79	0.50
UG175	Reducer 5.0mm	£0.14	0.50
UG176	Reducer 5.6mm	£0.14	0.50
PL259R	Reduced type 5.0mm	£0.67	0.50
PL259A	De-luxe type 11.2mm	£1.50	0.50
PL259B	De-luxe type 5.0mm	£1.13	0.50
PL259SL	'Solderless' 11.2mm	£0.63	0.50
PL259SS	'Solderless' 5.0mm	£0.63	0.50
PL259E	Angle type 5.0mm	£0.95	0.50
PL259M	Metric type standard 11.2mm	£0.75	0.50
PL259PM	Panel mount 4 hole	£1.07	0.50

UHF SOCKET

SD239F	Standard 4 hole fix	£0.48	0.50
SD239F3100	4 hole PTFE Au plate	£0.97	0.50
SO239T	2 hole fixing type	£0.48	0.50
SD239NI	Nut fixing inside type	£0.59	0.50
SD239NO	Nut fixing outside type	£0.59	0.50
SO239E	Free angle type 5.0mm	£1.01	0.50
	Free cable end 5.0mm	£2.22	0.50
MX913/C	Dust Cap c/w chain	£0.46	0.50
MX913/M	Dust Cap metric type	£0.46	0.50

UHF COUPLER

PL258	Back to back female	£0.91	0.50
PL274	Back to back chassis	£1.07	0.50
SMCPL/PL	Back to back male	£1.38	0.50
M359	Elbow male — female	£1.07	0.50
M358	'T' 2 female 1 male	£1.38	0.50
M358AF	'T' 3 female	£1.70	0.50
M458	'X' 3 female 1 male	£2.13	0.50

UHF CABLES

PL36PL	3.0' RG58, PL259 ends	£1.85	0.50

N PLUG 50 OHMS

UG536	Small type 5.5mm	£2.82	0.50
UG21	Standard type 11.2mm	£1.55	0.50

N SOCKET 50 OHMS

UG58	Standard 4 hole fix	£0.94	0.50
UG1052	Free cable end 5.5mm	£2.86	0.50
UG23	Free cable end 11mm	£1.70	0.50
MX913/C	Dust cap c/w chain	£0.46	0.50

N COUPLER 50 OHMS

UG107	'T' 2 female 1 male	£3.74	0.50
UG28	'T' 3 female	£3.16	0.50
UG57	Double male adaptor	£2.70	0.50
UG29	Double female adaptor	£2.13	0.50
UG27	Elbow male — female	£2.24	0.50

CABLES, RADIO FREQUENCY

COAXIAL 50 OHM CABLE

URM95	Solid centre 2.2mm	p/m	£0.23	
UR43	Solid centre 5.0mm	p/m	£0.25	
UR43/100	Drum 100m UR43	100m	£24.15	2.20
UR76	Stranded core 5.0mm	p/m	£0.28	
UR76/100	Drum 100m UR76	100m	£26.45	2.20
RG58U	Stranded core 5.0mm	p/m	£0.29	
RG58U/100	Drum 100m RG58U	100m	£27.60	2.20
RG213	Low loss 10.2mm	p/m	£0.82	
RG213/100	Drum 100m RG213	100m	£57.50	4.50
UR67	Low loss 10.2mm	p/m	£0.67	
UR67/100	Drum 100m UR67	100m	£62.10	4.50

COAXIAL 75 OHM CABLE

307EP	Economy 4.3mm	p/m	£0.21	
307EP/100	Drum 100m 307EP	100m	£18.40	2.20
UR70	Stranded light	p/m	£0.30	
UR70/100	Drum 100m UR70	100m	£27.60	2.20
UR39	Medium duty 7.8mm	p/m	£0.44	
UR39/100	Drum 100m UR39	100m	£41.40	3.40
UR57	Low loss 10.2mm	p/m	£0.69	
UR57/100	Drum 100m UR57	100m	£65.55	4.50

BALANCED TWIN CABLE

302	75 ohms light duty	p/m	£0.17	
302/100	Drum 100m 302 (75)	100m	£14.95	2.20
306	300 Ohms Ribbon	p/m	£0.20	
306/100	Drum 100m 306 (300)	100m	£17.25	2.20

ANTENNA/MAST FITTINGS/PARTS

ANTENNA WIRE

CU14SWG	Hard Drawn Copper	p/m	£0.20	
CU7/029H	Hard Drawn Stranded	p/m	£0.22	
CU7/036	CAD Copper Stranded	p/m	£0.32	
CU/TER	CU/Terylene Braid About 3mmD	p/m	£0.20	
CU/029S	Soft Copper Stranded (Radials)	p/m	£0.19	

BALUN TRANSFORMERS

BN86	Hy-Gain 1:1 3-30MHz	Ferrite	£15.58	0.90
H1Q1	Van Gorden 1:1 3-30MHz	Air	£10.00	Free

DIPOLE CENTRE PIECE

CCJ28NC	Standard c/w fittings UG88 etc	£5.69	0.65
CCJ2UHF	Standard c/w fittings PL259 etc	£5.69	0.65
CCJ1UHF	HD type c/w fitting PL259 etc	£7.99	0.80
AJU	Polyprop. clamp and lug type	£1.09	0.55

INSULATORS END STRAIN

SMCP2	Polypropylene 3 inch	£0.55	0.45
PORC3	Porcelain 3 inch	£0.67	0.45
SMCP1	Polypropylene 8.5 inch	£2.24	0.45
EG38	Porcelain Egg 1.5 ins	£0.44	0.45

LIGHTNING ARRESTORS

SMC566	Spark SO239/PL259 in line	£2.99	0.55
SMC567	Spark SO239/SO239 in line	£2.99	0.55
LA1	Gas Discharge Bulkhead	£48.19	0.90

CABLE GRIPS

CG5	Bulldog Grip 5mmD (0.1875") Galy	£0.17	0.55
CG6	Bulldog Grip 6mmD (0.125") Galy	£0.18	0.55
HD9	Brass Line Clamp for copper wire	£0.55	0.55

WALL BRACKETS (STAND OFF'S)

W12	12" c/w 2" U Bolts T Section	Pr	T.O.S	2.60
W18	18" c/w 2" U Bolts T Section	Pr	£10.06	2.60
W21	21" c/w 2" U Bolts T Section	Pr	£10.92	2.60
W21HD	21" HD c/w 2" U Bolts O with Brace	Pr	£12.92	2.10
W24	23" c/w 2" U Bolts T Section	Pr	£13.23	2.80
W24HD	24" HD c/w 2" U Bolts with Brace	Pr	£15.48	2.80

D SHACKLE (PIN SIZE)

DS6	6mm (1¼ins)	£0.32	0.55
DS8	8mm (5/16 ins)	£0.37	0.55
DS10	10mm (3/8 ins)	£0.47	0.55
DS11	11mm (7/16 ins)	£0.75	0.55

GUY ROPES

HTS3	HT Steel 3mmD 1 x 19 BS720Kg	p/m	£0.20		
HTS4	HT Steel 4mmD 1 x 19 BS1258Kg	p/m	£0.32		
HTS5	HT Steel 5mmD 1 x 19 BS2000Kg	p/m	£0.25		
HTS6	HT Steel 6mmD 1 x 19 BS2875Kg	p/m	£0.48		
X150	Rustproof 3mmD Multistrand	150m	£20.59	2.60	
FE7X18G100	Galvanised 7 by 18 Gauge	100'	£6.90	2.80	
FE7X18G300	Galvanised 7 by 18 Gauge	300'	£20.13	4.20	
TPS3	Terylene 3mmD BS 70Kg	p/m	£0.10		
TPS4	Terylene 4mmD BS 295Kg	p/m	£0.15		
TPS6	Terylene 6mmD BS 570Kg	p/m	£0.22		
TPS8	Terylene 8mmD BS 1110Kg	p/m	£0.37		

GUY STAKES

GS18	18" 'T' section 38x38x5mm Galv.	£4.08	2.10	
GS27	27" 'T' section 38x38x5mm Galv.	£5.64	2.50	
GS36	36" 'T' section 51x51x6mm Galv.	£10.64	3.70	

GUY TENSIONERS

TPR933	Turnbuckle 115x8mm, 4.5"	£2.70	0.90	
RS150X10	Turnbuckle 150x10mm, 6"	£5.12	1.30	

MAST FITTINGS (12" MASTS)

SMCMP3	Guy Plate 3 hole	£1.38	0.75	
SMCMP4	Guy Plate 4 hole	£2.19	0.75	
SMCMB3	Guy Band 3 hook	£1.61	0.85	
SMCMB4	Guy Band 4 hook	£2.24	1.05	
SMCMC1	Cap. Cast Alloy	£3.74	0.80	
SMCMBP1	Base Plate Alloy Shoe	£5.58	0.95	

THIMBLES

THIM30	Galv. 30mm OA (1.25") for Wire	£0.18	0.50	
THIM38	Galv. 38mm OA (1.5") for Wire	£0.21	0.50	
THIM44	Galv. 44mm OA (1.75"7 for Wire	£0.23	0.50	
THIM51	Galv. 51mm OA (2.0") for Wire	£0.28	0.50	
F1235	Nylon 30mm OA (1.25") for Terylene	£0.20	0.50	
F985	Nylon 38mm OA (1.5") for Terylene	£0.24	0.50	

MASTING

AL32X16G	Aluminium 1.25" 16 Gauge	p/m	£1.83	
AL38X16G	Aluminium 1.50" 16 Gauge	p/m	£2.21	
AL49X7G	Aluminium Nom 2" 7 Gauge	p/m	£4.54	

MISCELLANEOUS HARDWARE

RBD20	Rawlbolt 8mm Bolt	£0.51	0.50	
RBE19	Rawlbolt 10mm Bolt	£0.61	0.60	
PSS25	Pulley 25mm winch	£0.76	0.50	
PSS38	Pulley 38mm winch	£0.94	0.50	
SMC53	Mast to boom clamp 1.2" to 1"	£1.73	1.40	
SMC63	Mast to boom clamp 1.2" to 1.25"	£2.19	2.10	
SMC73	Mast to boom clamp 1.2" to 1" H.D.	£2.82	2.10	
SMC59/15	Mast sleeve 15" for 2"	£6.61	2.10	
SH63	Shap hook 63mm O/A	£0.99	0.50	
UBDLT2	'U' Bolt 2" Centre 9mm Galv.	£0.46	0.60	
ER4	Earth rod copperweld 4', c/w Clamp	£6.15	2.10	
SMC2LK	Double lashing kit	£13.80	2.50	
SMCCP1	Cross over plate 5"x5"x¼"	£4.77	1.90	

CARRIAGE

Carriage charges (shown after the item price) are for the mainland only (excluding post) and the rates shown are for one off of the item. Where more than one article is odered, total freight charge is likely to be much lower than the sum of the individual charges.

Cables, ropes and masting are normally despatched by Roadline. Carriage is £2.00 to 7Kg thereafter add an extra £0.15 per Kg. (Mainland).

Where Secuncor delivery on an item, or any number of items combined, is possible, (i.e., less than 25Kg/55lbs and 5'6" long) it is charged at £4.49 per lot.

If in doubt of carriage send a cheque crossed, "not more than £ . . . ."

ALL PRICES INCLUDE VAT @ 15%.

ANTENNA ROTATORS

KR500	Kenpro elevation Meter calb ± 90°	£86.25	Free	
KR400	Kenpro bell, box as KR500	£86.25	Free	
RLD3	SMC, Bell Auto control	£38.53	Free	
AR30	CDE, Offset Turn and Push	£51.75	Free	
9508	Channel Master, Offset	£74.75	Free	
9502B	Channel Master, offset	£54.63	Free	
KR250	Kenpro, Bell Twist Switch	£44.85	Free	
AR40	CDE Turn and Push	£65.55	Free	
KR400RC	Kenpro Round meter 360°	£90.85	Free	
AR68	CDE 5 position pre selector	£113.85	Free	
CD45	CDE 8 x 4cm meter readout	£113.85	Free	
KR600RC	Kenpro Round meter 360°	£132.25	Free	
Ham 4	CDE 8 x 4 cm meter readout	£189.75	Free	
KR2000RC	Kenpro Heavy Duty 360° meter	£241.50	Free	
T2X	CDE 8 x 4cm meter readout	£270.25	Free	
H300	Hy Gain Digital readout	£451.95	Free	

ROTOR ACCESSORIES

CD562	Bearing CDE AR30 etc.	£7.76	1.25	
AK 121	Adaptor Kit, CDE Bell to plate	£4.60	0.90	
50425	Clamps/U Bolts ST CDE AR40 etc.	£4.95	1.25	
50463	Clamps/U Bolts HD CDE CD45 Ham 4	£7.36	1.85	
51472	Mast Mount Kit ST CDE HAM4 etc.	£12.08	2.10	
51467	Mast Mount Kit HD CDE T2X etc.	£24.15	2.10	
9523	Support Bearing Channel Master	£14.38	1.70	
9525	Rotary Bearing Channel Master	£14.38	1.20	
KS050	Rotary Bearing 1⅝" Kenpro	£12.25	1.40	
KS065	Rotary Bearing 2" Kenpro	£17.65	1.85	
KC038	Lower Mast Clamp KR400, KR600	£9.95	1.70	
RC5W	5 Way AR30 AR40 KR400RC	p/m	£0.35	
RC6W	6 Way KR250/400/500/600RC	p/m	£0.48	
RC8W	8 Way CD45 Ham 4 T2X KR2000RC	p/m	£0.52	

ANTENNAS VHF/UHF MOBILE

ASCOT Full range. SAE List
BANTEX Full range. SAE List

SMC-HS

SMC118M	Colinear 2M 11/8 7dB¼ 9.7'			£28.35	2.20
SMC6P2T/PL	Telescopic 2M PL259	0dB¼		£3.45	0.50
SMC6P2T;BNC	Telescopic 2M BNC	0dB¼		£3.97	0.50
SMC2H/PL	Helical 2M PL259			£3.45	0.50
SMC2H/BNC	Helical 2M BNC			£4.43	0.50
SMCHS430	½λ 432MHz "Handie" 2.5dB¼			£5.75	0.60
SMC4	Ele 70MHz ¼λ	0dB¼	3.4'	£7.85	1.80
SMC2QW	Ele 144MHz ¼λ	0dB¼	1.6'	£2.30	1.30
SMC2NE	Ele 144MHz ¾λ	3.0dB¼	4.3'	£6.90	1.80
SMC2VF	Ele 144MHz ½λ	3.0dB¼	3.5'	£8.63	1.80
SMC79F	Ele 144MHz ¾λ	4.5dB¼	5.7'	£12.25	1.80
SMC78B	Ele 144MHz ¾λ ball		5.6'	£12.65	1.80
SMC78SF	Ele 144MHz ¾λ short		4.7'	£12.25	1.80
SMC88F	Ele 144MHz 5/8 λ	5.2dB¼	6.5'	£16.10	1.80
SMC258	Ele 432MHz 2x⅝λ	5.5dB¼	3.1'	£11.50	1.80
SMC358	Ele 432MHz 3x⅝λ	6.3dB¼	4.7'	£14.95	1.80
SMC70N2M	144 and 432MHz	2.7dB¼—5.1dB¼		£14.20	1.80
SMCHS770	144/432 duplexer, 50W, 30dB, 0.5db			£13.40	1.30
SMCSOMM	Magnetic base c/w 4M cable			£8.45	1.20
SMCSOWM	Wing mount base			£3.45	0.72
SMCGCCA	Gutter clip, c/w 4M RG58, PL259			£8.80	1.20
SMCTMCAS	Trunk mount c/w 6M cable			£7.30	0.95
SMCSOCAL	Cable assembly 239M, 6M cable			£4.20	0.50
SMC8SD	Bumper strap stainless			£7.71	1.00
HS88BK	Bumper mount 144MHz extension tube			£16.50	1.50
MX913/M	Dust cover fits SMCOCA			£0.46	0.50
YCGA	Cable grip adhesvie (5 off)			£0.45	0.50

ANTENNAS HF FIXED

HY GAIN

12AVQ	Vertical 10-15-29M	14.0'H	£50.60	2.20	
14AVQ/WB	Vertical 10-15-20-40M	18.0'H	£64.40	2.20	
18VT/WB	Vertical 10-15-20-40-80M	25.0'H	£109.25	2.20	
14RMQ	Roof mount kit for above		£36.22	2.20	
18V	Vertical 10-15-20-40-80M, tapped	19.0'H	£29.78	2.20	
103BA	3 Ele Yagi 10 metres	17.0'LE	8.0'B	£67.85	2.20
105BA	3 Ele Yagi 10 metres	18.5'LE	24.0'B	£143.75	3.95
153BA	3 Ele Yagi 15 metres	23.0'LE	12.0'B	£90.85	2.90
155BA	5 Ele Yagi 15 metres	24.5'LE	26.0'B	£217.35	5.90
203BA	3 Ele Yagi 20 metres	35.0'LE	16.0'B	£166.75	7.30
204BA	4 Ele Yagi 20 metres	36.5'LE	26.0'B	£286.35	7.30
205BA	5 Ele Yagi 20 metres	36.5'LE	34.0'B	£362.25	9.40
402BA	2 Ele Yagi 40 metres	43.0'LE	16.0'B	£247.25	6.50
DB10/15A	3 Ele Yagi 10-15M	23.0'LE	13.0'B	£146.05	4.80
TH3JNR	3 Ele Yagi 10-15-20M	24.2'LE	12.0'B	£194.35	3.10
TH2MK3	2 Ele Yagi 10-15-20M	27.3'LE	6.0'B	£169.05	3.20
TH3MK3	3 Ele Yagi 10-15-20M	27.0'LE	14.0'B	£274.85	5.30
TH5DXX	"Thunderbird" 5 Ele	31.0'LE	18.0'B	£378.35	6.70
TH7DXX	"Thunderbird" 7 Ele	31.0'LE	20'TR	£458.85	8.75
18TD	Dipole Tape 10-80M		132'	£113.85	2.80

JAYBEAM Full range. SAE List
G4MH MINI BEAM
MINI BEAM
MOSLEY Full range. SAE List.
SMC TRAPPED/MANPACK DIPOLES Full range. SAE List.

SMC — HS ANTENNA

SMCHF5V	Vertical 10-15-20-40-80M	15.7'H	£40.25	2.30
SMCHF5R	Radial kit loaded	6.5'-7.3'	£29.90	2.30
SMCHF3VNB	Vertical 10-18-24M 100W pep	16.0'H	£47.90	2.30
SMC3Y1015D20	3 ele 10-15, Dipole 20M	13.2'B	£134.95	5.00

ANTENNAS VHF/UHF FIXED

Full range. SAE List

ANTENNAS HF MOBILE

Full range. SAE List

MASTS AND TOWERS

Full range. SAE List

The professional

IC-Rx70, The very latest from Icom! £469.

The New Rx 70 receiver from Icom is designed to provide a really stunning performance at a price not much greater than its inferior competitors.

It covers all modes (when the FM option is included), uses 2 CPU – driven VFO's for split frequency working, has 3 IF frequencies – 70MHz, 9MHz and 455KHz and a dynamic range of 100dB.

Other features are:-
Input switchable through a pre-amplifier, direct or via an attenuator.
Selectable tuning steps of 1KHz, 100Hz or 10Hz.
Adjustable IF bandwidth in 3 steps (455KHz)
Noise limiter. Switchable AGC. Tunable notch filter.
Squelch on all modes. RIT. Tone control.
Tuning LED for FM (discriminator centre indicator)
Recorder output. Dimmer control.
Separate antenna sockets for LW-MW with automatic switching.
Large front mounted loudspeaker - 5.8W output.
Frequency stability 1st hour ± 250Hz, thereafter ± 50Hz, sensitivity -SSB/CW/RTTY better than 0.32 µv for 12 dB $\frac{S+N}{N}$.
Am – 0.5 µv, FM better than 0.32 for 12 dB Sinad.
Built in mains supply – DC optional.
Size 286mm x 110mm x 276mm – weight 7.4Kg.

IC-25E, The Tiny Tiger £239.inc.

Amazingly small, yet very sensitive.
Two VFO's, five memories, priority channel, full duplex and reverse, LED S-meter, 25KHz or 5KHz step tuning. Same multi-scanning functions as the 290 from mic or front panel. All in all the best 2M FM mobile ICOM have ever made.

Remember we also stock Yaesu, Jaybeam, Datong, Welz G-Whip, Western, TAL, Bearcat, RSGB Publications.

Agents (phone first – all evenings and weekends only, except Scotland).
Scotland – Jack GM8 GEC (031 665 2420)
Midlands – Tony G8AVH (021 329 2305)
North West – Gordon G3LEQ (0565 4040 Ansafone available)

Introducing the NEW IC-740. £699.

This latest transceiver contains all the most asked-for features, in the most advanced solidstate HF base station on the amateur market...performing to the delight of the most discerning operator.

Study the front panel controls of the ICOM IC-740. You will see that it has all of the functions to give maximum versatility to tailor the receiver and transmitter performance to each individual operator's requirements.

Features of the IC-740 receiver include a very effective variable width and continuously adjustable noise blanker, continuously adjustable speed AGC, adjustable IF shift and variable passband tuning built in. In addition, an adjustable notch filter for maximum receiver performance, along with switchable receiver preamp, and a selection of SSB and CW filters. Squelch on SSB Receive and all mode capability, including optional FM mode. Split frequency operation with two built-in VFO's for the serious DX'er.

The IC-740 allows maximum transmit flexibility with front panel adjustment of VOX gain and VOX delay along with ICOM's unique synthesized three speed tuning system and rock solid stability with electronic frequency lock. Maximum versatility with 2 VFO's built in as standard, plus 9 memories of frequency selection, one per band, including the new WARC bands.

With 10 independent receiver and 6 transmitter front panel adjustments, the IC-740 operator has full control of his station's operating requirements.

See and operate the versatile and full featured IC-740 at your authorized ICOM dealer.

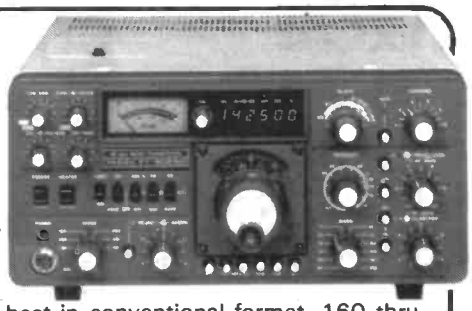
Options include:
- FM Module
- Marker Module
- Electronic Keyer
- 2 - 9MHz IF Filters for CW
- 3 - 455MHz Filters for CW
- Internal AC Power Supply

Accessories.
- SM5 Desk Microphone
- UP/DWN Microphone
- Linear Amplifer
- Autobandswitching Mobile Antenna
- Headphones
- External Speaker
- Memory Backup Supply
- Automatic Antenna Tuner

Ask about the new range of CUE DEE antennas, the winners in recent tests!

Thanet ICOM Thanet ICOM Thanet ICOM Thanet ICOM Thanet ICOM Thanet ICOM Thanet ICOM

FT-902DM Competition grade HF transceiver



The HF transceiver with the pedigree for the man who insists on only the best in conventional format. 160 thru 10 metres including the WARC bands.
All-mode capability, SSB, CW, AM, FSK **and FM** transmit and receive. Teamed with the FTV-901R transverter coverage extends to 144 & 430MHz.

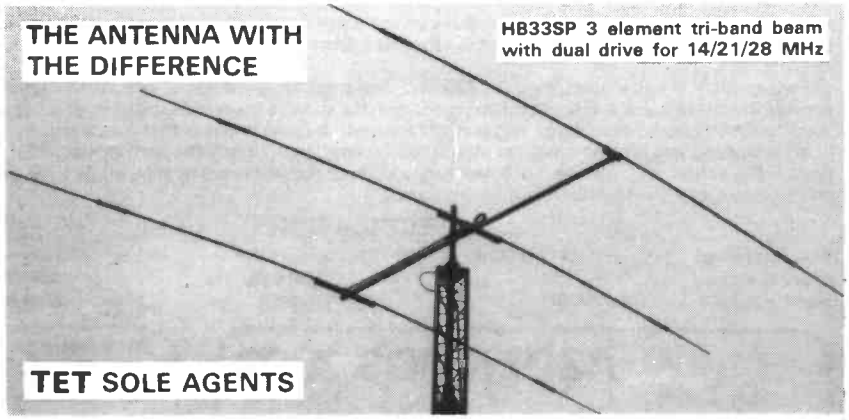
FT-707 All solid-state HF mobile transceiver

The definitive HF mobile rig, digital, variable IF bandwidth, 100watts PEP SSB. AM, CW (pictured here with 12 channel memory VFO). Latest bands.

TET ANTENNA SYSTEMS

TET HF antennas are unique in that they employ dual driven elements with the following distinct advantages—

- **Improved gain over conventional arrays.**
- **Broader bandwidth with lower SWR.**
- **Enhanced front to back ratio.**
- **Better matching into solid state transceivers without an A.T.U.**
- **High power handling capacity.**



HB33SP 3 element tri-band beam with dual drive for 14/21/28 MHz

TET manufacture an exciting range of multi-element HF beams including superb monobanders plus HF verticals. Also there is a full range of VHF/UHF antennas most of which have multi-element drive or distinctive technical features.

Model	Description	Price incl. VAT	Carriage
HB10F2T	2 Ele. Mono Band Beams for 10 Meter Band	50.75	2.75
HB10F3T	3 Ele. Mono Band Beams for 10 Meter Band	73.79	2.75
HB15F2T	2 Ele. Mono Band Beams for 15 Meter Band	57.21	2.75
HB15F3T	3 Ele. Mono Band Beams for 15 Meter Band	88.49	2.75
HB34D	4 Ele. Tri Band Beams for 10/15/20 Meter Band	202.69	5.87
HB23SP	2 Ele. Tri Band Beams for 10/15/20 Meter Band	128.80	2.60
HB33SP	3 Ele. Tri Band Beams for 10/15/20 Meter Bands	189.23	4.60
MV3BH	Vertical Antenna for 10/15/20 Meter Band	40.25	1.75
MV4BH	Vertical Antenna for 10/15/20/40 Meter Band	49.50	1.75
MV5BH	Vertical Antenna for 10/15/20/40/80 Meter Band	71.25	1.75
MLA4	Loop Antenna for 10/15/40/80 Meter Band	105.60	2.10

● Full range of VHF/UHF Beams now in stock — an S.A.E. for full details please

YOUR LOCAL TET STOCKISTS

Amateur Radio Exchange, 373 Uxbridge Road, Acton, London W3

Amcomm Services, 194A Northolt Road, South Harrow, Middlesex

Bredhurst Electronics, High Street, Handcross, Haywards Heath, West Sussex RH17 6BW

Stephens James Ltd., 47 Warrington Road, Leigh, Lancs. WN7 3EA

Uppington Tele Radio, 12-14 Pennywell Road, Bristol BS5 0JT

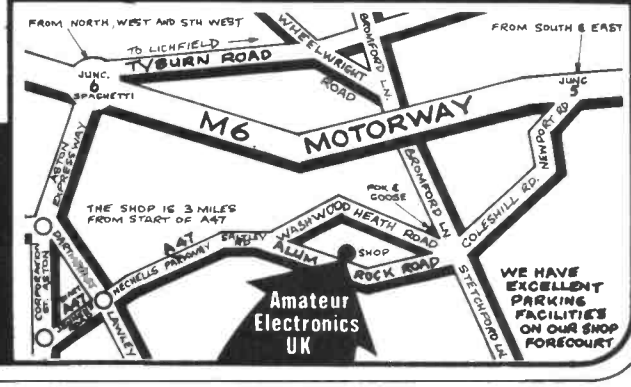
AGENTS

North West – Thanet Electronics Ltd. Gordon, G3LEQ, Knutsford (0565) 4040
Wales & West – Ross Clare, GW3NWS, Gwent (0633) 880 146
East Anglia – Amateur Electronics UK, East Anglia, Dr. T. Thirst (TIM) G4CTT, Norwich 0603 66189
North East – North East Amateur Radio, Darlington 0325 55969
Shropshire – Syd Poole G3IMP, Newport, Salop 0952 814275

Amateur Electronics UK

504-516 Alum Rock Road · Birmingham 8
Telephone: 021-327 1497 or 021-327 6313
Telex: 334312 PERLEC G
Opening hours: 9.30 to 5.30 Tues. to Sat. continuous – CLOSED all day Monday.

WHERE TO FIND US



DATONG

NEW PRODUCT

MODEL FL3-A NEW AUDIO FILTER WITH AUTO-NOTCH

A NEW AUDIO FILTER FROM DATONG MODEL FL3

Model FL3 gets it all together! It combines all the power of the FL2 which continues in production with a remarkable new automatic notch filter - a concept which we pioneered with our FL1.
In one stylish case Model FL3 offers the complete solution to receiver audio processing. We believe that such a powerful combination of filtering capabilities has never been offered before in one package.

NOTCH FILTER SCANS CONTINUOUSLY

User of our FL1 will confirm the practical advantages of an automatic notch filter. With absolutely no help from you the operator the automatic notch tirelessly scans the receiver's audio output until a continuous audio tone is received. When it is the notch filter locks on and removes it. If the tone changes in frequency the auto-notch follows.

SHOOTS DOWN TUNE-UP WHISTLES AND HETERODYNES

Imagine the benefits. A tune-up whistle no longer causes any problem; after a second or two it simply drops out of ear shot. Those tiresome whistles that occasionally descend on a QSO become a thing of the past. Only the "LOCK" lamp on the FL3's panel reminds you of what you are thankfully missing.

PLUS LOW PASS, HIGH PASS AND MANUAL NOTCH

While all this is happening you still have three other independent filters at your disposal. Imagine, for example that another SSB station starts up 2 kHz high. Instead of trying to copy through all that high-pitched monkey chatter simply wind down the low-pass filter (the right hand knob) and wipe it out.
Then perhaps a teleprinter starts up 300 Hz above your carrier frequency; a touch on the high-pass filter knob (the middle one) cures that.
Finally maybe a second whistle appears. Since the auto-notch is busy, just bring in the manual notch as well and tune it out (left hand knob).

PHENOMENAL SKIRTS WINKLE OUT CW

For CW and RTTY the low-pass, high-pass and manual notch filters combine to give a 12 pole fully variable filter with remarkable skirt selectivity. Compared with lesser filters you can use a much wider bandwidth for a given interference suppression - this makes tuning easier and reduces ringing effects.

ATTENTION FL2 OWNERS!

At Datong we don't believe in "planned obsolescence". There's no need to throw away your FL2 to get an FL3. Instead you can convert it to an FL3 using our conversion unit, Model FL2/A.
This is a fully assembled PCB module with its own board-mounted "IN/OUT" switch and "LOCK" lamp. Installation involves four soldered connections to the existing FL2 PCB and one track cut.
Model FL2/A is also suitable for building into other equipment where an automatic notch function is required.

FREE HARDWARE KIT

As an introductory offer Model FL2/A will be supplied complete with a punched and printed FL3 front panel to replace the FL2 panel, plus PCB mounting hardware.

TECHNICAL REPRINT OFFER

The filtering in Model FL2 and now in Model FL3 has been carefully conceived to give maximum possible benefit in real life reception conditions. The thinking behind the product design has been described in depth by the designer, Dr D A Tong in "Ham Radio", November 1981. A limited number of reprints of the article are available free on request.

PRICES All prices include delivery in U.K.; basic prices in £ are shown with VAT inclusive prices in brackets.

FL3	112.50	(129.37)	AD370	56.00	(64.40)	RFA	29.50	(33.92)
FL2/A	34.00	(39.67)	AD270+MPU	45.00	(51.75)	Codecall		
FL1	69.00	(79.35)	AD370+MPU	60.00	(69.00)	(Linked)	28.00	(32.20)
FL2	78.00	(89.70)	MPU	6.00	(6.90)	Codecall		
PC1	119.50	(137.42)	DC144/28	34.50	(39.67)	(Switched)	29.50	(33.92)
ASP	72.00	(82.80)	DC144/28			Basic DF System	149.00	(171.35)
VLF	26.00	(29.90)	Module	28.00	(32.20)	DF System	159.00	(182.85)
D70	49.00	(56.35)	Keyboard Morse			Complete Mobile DF		
D75	49.00	(56.35)	Sender	119.50	(137.42)	System	214.00	(246.10)
RFC/M	26.00	(29.90)						
AD270	41.00	(47.15)						

See previous advertisement or price list for further details.

DATONG ELECTRONICS LIMITED

ALL DATONG PRODUCTS ARE DESIGNED AND BUILT IN THE U.K.

Data sheets on any products available free on request – write to Dept S.W.

DATONG ELECTRONICS LIMITED

Spence Mills, Mill Lane, Bramley, Leeds LS13 3HE, England. Tel: (0532) 552461

ADVERTISERS' INDEX

SHORT WAVE MAGAZINE

(GB3SWM)

ISSN: 0037-4261

Vol. XL NOVEMBER, 1982 No. 469

CONTENTS

Editor: **PAUL ESSERY, G3KFE/G3SWM**
Advertising: **Charles Forsyth**

Published at 34 High Street, Welwyn, Herts. AL6 9EQ, on the last Friday of the month, dated the month following. *Telephone: 04-3871 5206 & 5207*

Annual Subscription: *Home: £8.40, 12 issues, post paid*
Overseas: £8.40 ($17.00 U.S.), post paid surface mail

Editorial Address: **Short Wave Magazine, 34 High Street, Welwyn, Herts. AL6 9EQ, England.**

AUTHOR'S MSS

Articles submitted for Editorial consideration must be typed double-spaced with wide margins on one side only of A4 sheets. Photographs should be lightly identified in pencil on the back with details on a separate sheet. All drawings and diagrams should also be shown separately, and tables of values prepared in accordance with our normal setting convention — see any issue. Payment is made for all material used, and it is a condition of acceptance that full copyright passes to the Short Wave Magazine, Ltd., on publication.

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FOR THE RADIO AMATEUR AND AMATEUR RADIO

The SHORT WAVE Magazine

EDITORIAL

11th A.R.R.A. Exhibition

Like many visitors and exhibitors, we imagine, we have something of a love-hate relationship with the dear old Granby Halls, Leicester, venue for the Exhibition on October 7-9th. Hate it for all the obvious reasons, but at the same time there is also something special about the place in its association with amateur radio. Over the years it has seen a great deal of excitement and enthusiasm for this "lovely hobby" (*see* below). Leicester Corporation in fact have decided to develop the Granby Halls as a leisure/sports centre and, as a result of work done so far, it made a very pleasant change not to feel that its only function was to await the attentions of a firm of demolition contractors.

This year attendance appeared to be well down compared to previous years, and only a few traders were pleased with results (*W. H. Westlake* of Holsworthy, Devon, told us they had sold two *tons* of co-ax cable!), the rest expressing varying degrees of disappointment although, as always, there was an exciting selection of equipment of all kinds, new and old, for visitors to see and try. There must be reasons for this, but to do more than speculate is difficult. Clearly the continuing general economic slump would be a depressing factor at any exhibition, but another reason could be the sheer number of rallies, exhibitions, conventions, etc., there are throughout the year. Added up, they well exceed the annual total of weekends, so maybe it's just that some saturation point has been reached. The specialist groups, however, received plenty of interest as usual.

As far as we were concerned, the show was certainly a success: the three-day event being a thoroughly enjoyable and rewarding experience — more so, perhaps, than in previous years. Criticism was always friendly and constructive, and therefore valuable, and the many remarks of general satisfaction with the *Magazine,* naturally, very much appreciated. We hope to be invited to next year's Exhibition — even if it is at the Granby Halls!

MCC

Owing to dwindling support over the last few years, reluctantly and very sadly we have decided to abandon MCC, for this year at least. After 35 years of organising it, this was a hard decision indeed, but with only 15 or 20 clubs sending in logs (whereas fifteen years ago it was nearer 120 clubs) the light hardly seems worth the candle.

When the news has sunk in the MCC is no more after all these years, and if we get enough letters of outrage and/or disappointment, then we will of course reconsider the position for next year — with the contest in a different form if that is what's wanted. Over to you, with thanks to all those clubs which have taken part down the years.

Your assistance, please

It was a newly-licensed and unbelievably enthusiastic YL who remarked to us at Leicester that "amateur radio is such a *lovely* hobby". Well, nobody would disagree with that, but it also does have its problems.

Every reader must be aware by now that amateur radio has changed considerably over the last few years. As part of a *Short Wave Magazine* research project on the hobby's present situation and its likely future, we need your views to achieve a balanced perspective.

If you have opinions on *(a)* where amateur radio is today, *(b)* how it arrived there, and *(c)* where it is *likely* to go as well as where it *ought* to be going — then please write to us. We would appreciate your contributions, which should be addressed to the Editor, by 31st December if possible; they will not be for publication unless specifically permitted. You may wish to mention distinct issues as well — for example, the current licensing situation in general and the question of a novice licence in particular; if so, please do.

And while on the subject of opinions, don't forget that "A Word in Edgeways" is always available for you to air and share your views — controversial though they may be!

WORLD-WIDE COMMUNICATION

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

THERE is one thing most amateurs know and turn a blind eye to every year: there is nothing an autumn gale likes for breakfast more than a good amateur aerial system! We now offer for the very first time a corollary: there's nothing a coaxial feeder likes better than a nice draught of rainwater — which is promptly weeps out of the other end.

Conditions have been somewhat like the curate's egg; good in parts. Perhaps if we got a sustained, full month of superb conditions, we'd be spoilt for the normal run of things where half the fun lies in assessing the conditions for one's self.

Events

By the time this comes to be read, the active use of BY1PK on SSB, by operator Tom Wong, VE7BC, will be well on the way if all the signs are correct. VE7BC will also assist in the final setting up of the BY7 station in Shanghai during his seven-week trip, and he will also endeavour to establish whether there has been any genuine BY1PK operation on 7 MHz. He will only be allowed SSB operation.

On the Heard Island front, the two groups planning to go there are both making noises indicating their planning is on schedule, and both seem to be on the look-out for funds. We get the feeling that each side is waiting for the other to come unstuck. . . . If you want to join the VK9NS group as an operator, contact Jim Smith immediately — only three thousand dollars a head exclusive of the cost of getting to Australia and back!

There will be an operation from Nepal in December, with KP2A and VU2YOU; callsigns which will appear include 9N1A, 9N1YOU and 9N38; the last-mentioned will only be in use around the three days of the King of Nepal's 38th birthday. December 15 to January 1 is the slot for this activity, which should add a savour to the turkey.

The OH2MM visit to Mozambique has been postponed indefinitely, on political grounds; and there seems to be some doubt as to the validity of such an operation in terms of DXCC, so during the delay period the proposal is being run past the DXCC pundits at Newington.

There does seem to be some progress on the U.S. opening of the new 10 MHz band, said *TDXB* early in September; but we hear noises which seem to imply quite a delay before they get the band.

That KJ6DO/KH7S which was around recently was reported to be on Suitland Is.— but there seems to be a quite impenetrable wall of nothingness when one looks for *facts;* about all we can say is that there is some doubt, on the basis of the information put out, as to whether Suitland could become a new DXCC country. But perhaps more to the point, we can't find any positive indication that it *exists.* If anyone can tell us of an atlas or navigational chart, or whatever, indicating such a spot, around 43°N 155°W we would be mightily obliged; otherwise we don't intend to speculate a QSL!

The Mail

First off we must mention a letter from Dave Brooks, G4IAR, regarding the WAB sponsored net on December 11 and 12. The idea is that mobile stations will activate various WAB squares, and it is hoped to have around 2000 contacts between the mobiles and fixed stations. You may sponsor their efforts, and last year the going rate was between 1p and 5p for twenty contacts; the profits will be split equally between RAIBC and leukaemia research. Contact Dave Brooks, G4IAR, 28 Avon Vale Road, Loughborough, Leics LE11 2AA, with your offers of sponsorship. On the day there will be nets running all the time on 1.93 MHz, 3.76 MHz, and 7.06 MHz. and all are welcome to check in. Dave also mentions that the whole WAB programme has been overhauled and revised, with a new record book, which contains lots of detail on the revised awards; at £4 in U.K. or £4.50 for overseas, obtainable from B. Morris G4KSQ, 22 Burdell Avenue, Sandhills Estate, Headington, Oxford OX3 8ED. All cheques and postal orders to be made payable to "Worked All Britain Awards".

1983 has been declared by the United Nations to be World Communications Year, and someone had to take the opportunity to turn it to use for a contest. January 15, 1983 is the date, all 24 hours of it (GMT), and the idea of the contest exchange it to swap numbers, your station sending a number which comprises three digits, the first being the ITU Region (1 for Europe) and the next two being your ITU Zone number. Thus a G station would give out 127. The same station may be worked once on each band, on telephony (to include SS/TV) and telegraphy (to include RTTY). The multiplier to be the number of ITU Zones worked on each band, and each mode (no cross-mode QSOs allowed). The QSO counts for four if it is with a station in a different ITU Region, or two if it is with another Zone in your own region, or one point if with your own Zone. Final total is the sum of the QSO points times the multiplier. Logs to be sent to Potomac Valley Radio Club, Post Office 337; Crownsville, MD, 21032, USA, postmarked no later than February 28. The same address will provide a map of the ITU Regions and Zones and a copy of the contest rules if you send them an *s.a.e.* or IRC. You need these as the disqualification rules are more definite and firm than most contests; we hope the Potomac Valley club are setting a trend in this.

Top Band

As far as you conductor is concerned, this is one band that went west in the gales — the aerial had the choice of stretching several feet or breaking as the tree waved about. The situation now is "have wire, will climb!"

Our other reporter on this band is G2HKU (Sheppey) whose SSB reached PAOPN, and CW worked UT5AB, OZ1W, LA1EKO (the Ekofisk oil rig), EI9J, YU3EF, and SM6IQD.

Eighty

This is very much a band for the QRP merchants, and the DX-ers who like to make things as difficult for themselves as possible. G3ROO (Church Whitfield) says he will be restarting the QRP club skeds during October; 1730z 14.330 MHz on even dates, and 3560 MHz on the odd dates, this one starting on CW and then shifting to a clear frequency to finish the QSO on SSB.

Nice to hear again from G3ZPF (Dudley); David has been doing some night-shift work of late, the most recent one being the J-O-T-A station GB2PS — he says he gets nailed for the night shift every time as he is single. Seems to us the solution is to get married! On a different theme, David has started his late night roaming of the DX segments of Eighty, snapping up whatever can be found — another 2OC needed on Eighty to complete a 5BDXCC.

G2HKU seems to have taken one look at the CW end of the band and then recoiled in horror — but that one look gave a QSO with UA9FGJ on the key.

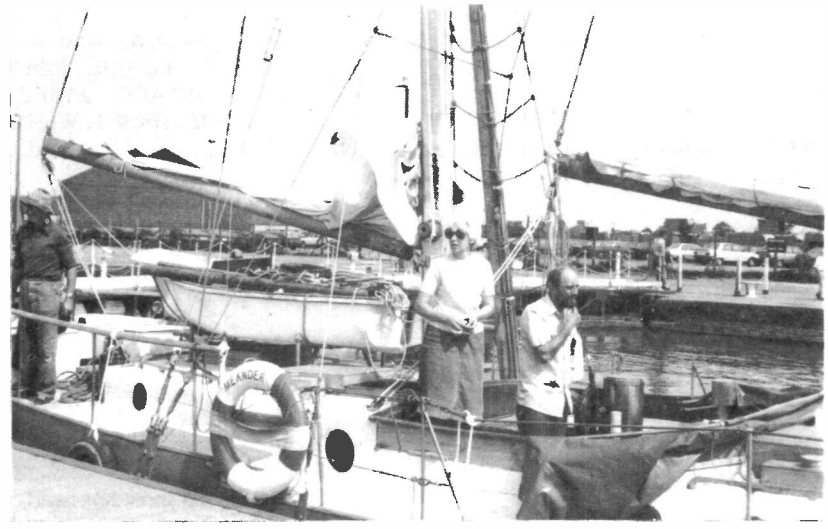
Another report of just a single contact, this time on SSB, comes from G2BON (Aldridge) who offers 8P6OR.

A third reporter who mentions just one QSO on Eighty is David, GI4MXW (Portadown), who hooked up with G4IWA/HB0.

G2NJ (Peterborough) was startled to hear G2NM on Eighty on September 12; it turned out to be a commemorative station, the call having been now re-issued to the Chichester club. Other stations found during the afternoons included G3INA/P who was near Skegness, and then G2CNN/A who this time was holed-up at Royston, and G4OJZ/A at Chichester. On September 17, a fine signal was noted from OK4CIW/MM who said he was in the German Bight. After working several Eastern bloc stations, he sent QRL and disappeared.

G4NKM (Blackheath) wonders whether we could use any cartoons — the more the merrier, provided they make us *all* laugh in the office, which is our test before use!

We have been hearing about G2HLU (Earley) and SWL D. Casson, and Morse. Harold now writes to note that at last he has had the pleasure of having the first QSO (on the key, too) with the newly licensed G4OTP; they have in fact had several more on Eighty CW, to make sure Dereck's CW speed is kept up, but Harold says G4OTP didn't need any telling how to work DX on sideband!



Les Mason, G4MIY/MM, at the wheel of his home-built yacht *Meander of York*, with his XYL Mollie behind him, as they and friends set off from the Ocean Lock at Goole recently at the start of their three-year voyage to the U.S.A., *via* Spain, Portugal, Madeira, Canaries and the West Indies. Les, who is a member of York A.R.S., hopes to be on the air every day, and anyone wanting a copy of the sked times can have one in exchange for an *s.a.e.* to G3WVO (QTHR). *Short Wave Magazine* wishes them, not without a little envy, a safe voyage and good DX.

Photo by G4ISU

Forty

This is a band where there is pay-dirt for those who know where and how to look for their gold. And, more than for some time, the gang have been at work.

G2HKU divided his time on the band three ways: in the first place SSB to work OH0W, in the second place CW at normal input power to raise PR7PO, UK9ABA, UM8MXU, LU8DQ, KV4CI, UK8AAI, and in the third place four watts of CW QRP, which was enough to work IK2BCP who himself had just one watt to a dipole.

The early mornings were clearly the favourite times for G2BON; Tom seems to have found them all in a forty-minute time slot centred on 0600z, including VP2KBV on St. Kitts, K1KI, KA3BUJ/8R1, ZY5EG, FM7AD, CE8ABF, and ZB2GR, all on SSB.

Forty for GI4MXW meant just a couple of contacts, with C31JX and EA8AUU; but we don't suppose David minds that so much, when his activities have been concentrated on other bands — David was active in the columns of "SWL" and will have spent many hours listening too, we expect.

G4NKM is now QRP in aerials and in power terms; his twenty feet of wire bent vertical up the side to the house now has two watts of CW, and with this Steve snapped up SM7MWO, PA0RSX, and DJ3TS, with UA0ABL and UK9AAN as gotaways.

Turning to G4MVA (Scarborough), Glynn didn't put his call on the letter; we could recollect the name, the address, the handwriting, but the call-sign — no way! However, we have *records* as well.... On 7 MHz, the TS-120V put out its ten watts of CW to work FP8AA, VE1AWS (Sable Island), HB0B, W3XU, LB5RB, VP2MM (QSL *via* AB1U), and WA1JAS — which must have given the WA station quite a thrill.

A rare report on this band from G3NOF (Yeovil); Don has been having a few listening spells on the band but didn't hear a lot of DX, with just SSB QSOs to GD3AHD/A, GD4GHS/A, GD4IHS/A and YV5HNI entered in the log.

10 MHz

We have a couple of reports on this band, the first being from G3CJ (Cheltenham) who has a TS-520S which has been converted for the band as suggested by *Lowe Electronics;* the aerial is a 22-foot vertical used with a counterpoise system which works very well indeed — we are promised a short article on this device ere long. Between them, these tools have yielded (CW of course) VO1AW, VEs, VK3MR, DL2GG/YV, C53DU/OZ — a YL operator named Christa — and the usual crop of Europeans. G3CJ has a pertinent comment when he notes that most people seem to operate 10.100 and 10.110 MHz when it is clear, and neglecting an unoccupied gap which often exists between 10.140 and 10.147 MHz — quite a handy slot.

Our other reporter is G2HKU; Ted managed CW QSOs with ZL4QO, AX2DSG, and VK2PA.

Ten Metres

This band has been patchy, says G3NOF; most days the Russians have been around during the morning and afternoons, and South Americans in the evening; the North Americans have appeared for short periods between noon zulu and 2200, even including the odd W6 and W7. Don made SSB contacts with K4MZU, KA2CYN, OH0W, PP2ZZD, PY2BW, PY8ZBJ, WB4KLA, Z23JO, ZY5EG.

GI4MXW also found the band patchy, but as he says, he didn't get squashed by the Mittel-Europa stuff so much that way, and he did turn up interesting contacts ZC4MR, 4Z4AB, 4X6GE, 4X6DX, UK0AMM, UF6FFT, HK3LT, J73CB, plus a gaggle of East Coast Ws, LU2FFD and 8R1J.

Afternoons around 1700z seemed to be preferred by G2BON; Tom notes his SSB signals reaching out to 5N8ARY, N5AY, EL2AM, YV2BYT, YV3BRF, and ZS1HE/P.

As far as G3FPK (Purley) was concerned, conditions varied from marvellous to "Ugh!", but Norman did find some signals of interest; one was 8P6OM (a YL named Jean) on SSB, while CW found and raised CT2EC for a brand new one, FY7YE (QSL *via* W5JLU), and ZY1NEZ in the contest weekend September 11/12.

Harold at G2HLU says he worked nothing but the odd European, although he admits to listening to DX on the band.

Finally, on this band, G2HKU mentions just one QSO on Ten, with WA5FIT on CW; however, we had to laugh at the tailpiece. Seems Ted was evicting a family of frogs from the garden pool; his XYL was in the pool, and was doubtless some-

what startled when the frogs jumped over her and back into the water!

"CXDN" deadlines for the next three months—

December issue — November 4th
January issue — December 2nd
February issue — January 6th

Please be sure to note these dates.

Fifteen

Probably the best of the bunch this time, which is rather as one would expect. G2HLU used his CW to work EA9KQ and 9M2DW, and then happened across a pile-up and joined in, to be rewarded with a QSO with YV3BRF; as Harold says — he works 'em first and asks the questions later. Another interesting one was VU9LO in Poona (VU2LO being his normal call) and of course the inevitable crop of Ws on CW to fill out the pages.

G3FPK didn't spend too much time on the band, as his makeshift aerial seems to be resonant on about 20.9 MHz and the ATU isn't clever enough to fool the rig into thinking it is looking at 50 ohms. However, that having been said, the G3FPK CW did reach YC3BDJ, J40AA, and 9Q5VT.

Turning now to G3NOF, Don notes the long path has been open in the mornings to JA around 0800, plus of course VK and ZL, turning to short-path around 1000z. SSB contacts were noted with various A4s, A71BJ, A92P, AX2HD, AX3NLG, AX4KGM, AX4NHM, CX1DOI, EP2TY, FC0GAG, FG7CB/FS (St. Barthelemy Is.), FP0JA, HL1AHS, JAs, K6YRA, KI7K (Idaho), KU7M (Oregon), UA9CC1, UA0WAM, UI8FAI, UK9AAN, UK0AMM, PP2ZDD, TG9GI, lots of VKs, VK9ND, VP8ML, VP8QG, VU9PMP, VU9DQP, W7FP, WD6ACY, YJ8NMP, YK1AO, ZC4CW, ZC4MT, 3A2EE, 3D2RJ, 4D9RG, 4S7PA, 5T5TO, 9Q5VT, and 8P6OR.

Another one with a long list of DX is G2BON, who also stuck to SSB, and offers 4K1HK (Enderby Land, Zone 39), A4XJQ, VE3FGY, 9V1VP, A4XYB, 3B8FK, 4S7EA, 5N0ETM, WB6RTH/DU, A4XJL, UM8MDX, N6AW, VE6OU, FP8DF, 4Z4EC, 4X6FI, 4X6GE, PY2R1S, 7X2ARA, ZP5MJV, and XT2BM.

A few hours spent on 21 MHz were productive for GI4MXW, who found C30MK, LU9DM, TI2SRR, ZS4AE, 4X6GE, FP8AA, IK5ACO, ZY5EG in Brazil, NP4P, EA9IE, HK3LT, W6HDT, W6TBX, WB7FDQ, lots of VEs, and JAs a-plenty.

The very brief note from G4MVA mentions that he worked with his ten watts of CW lots of Ws, plus ZS6BUD.

Now Twenty

Here we must start with G2BON, who is — and rightly — more than a bit steamed up at the number of intruders on our bands; Tom cites in particular Russians at 14099 kHZ, and 14196 spreading nearly 30 kHz, the ZA noise on 14320 kHz broadcasting in Chinese, and of course the Middle European amateurs with up to seven kW. and ten-element beams, and it make him — and most of the rest of us too — wish for the more peaceful times of years ago, when the worst we had to suffer were the drifty CW signals of the Russians. However, G2BON did put out his trawl on the band, and mentions SSB contacts with VK5ZH, KE4CI/TF, 3A2EE, VK7GE, VK3DKY, 4Z4DX, VK2QT, P29PA/MM, KL7ISE, in Alexander Archipelago, N5AU (Texas), PY2BW, ZY5EG, TG9NX, WL7AME (Anchorage), AX5FR, OD5FF, OD5AW, AX2DPN, J6LB, 4U1VIC (Vienna), and VK3DHV.

Quite a crop went into the log at G2HKU; Ted used SSB for HV2VO, ZL3FV, ZL3RS, KD4LI/TI2 (a blind YL missionary), VK4ACU, G4IML/MM off the coast of Spain, plus CW contacts at normal power with VE4AIY, R4ASK, UK9OAZ, 8P6DW, YB5AES, VP2MM, HK3HY, HC1CG, K6DDO, W7CE, G6ZY/EA6, UK5SAX, and IV3NXV/MM, the captain of the *Texaco Colon* tanker in the Caribbean. Turning to the QRP CW we find CN8CY, YB5AES and VP2MM.

G2HLU says he was pleased to work VP8ANT, but HB4FF got away — Harold wonders what was special about him beyond the unusual prefix.

G3FPK hasn't heard anything of FW0AG any more, and when he listened at breakfast time there didn't seem to be any propagation thataway; and the ZLs over the long path have sounded quite Auroral. Nothing of any interest was raised on sideband, but CW brought HB0/DL1GK, IY4FGM — a new prefix — JW9PCA (QSL to LA9PCA), J40AA (QSL to N200), KH6GI, and FO8GM in Tahiti, who was followed into the log by KC4AAA at the South Pole *via* the long path; his QSL data is PO Box 400, FPO San Francisco 96692, USA.

Most mornings, says G3NOF, the long path to VK/ZL has been good between 0700 and 0900 but little has been heard from the Pacific. In the evenings around 1800z there have been some openings to VU and VS5, some short path VKs were noted around 2000z and, later, conditioins were good to North and South America. SSB contacts were rung up with AX3AH, HB0AYX, J6LJ, OD5KV, VK1WB, VK2AMD, VK2SV, VK3AXW, VK3DWJ, VK3MR, VK3SP, VK3WP, VK3WJ, VK4AHR, VK4LJ, VK5NS, VK9NS, VK9ZA, and ZL4OY/A on Campbell.

There were a few interesting contacts for GI4MXW on the band, including OJ0MA, YV5ANF, KP4CC, UD6DFO, CG3BI, DL1GK/P/HB0, J44LE in Greece, HV3SJ and VK3BYE.

The two watts from G4NKM were keyed to work SM6KOP, YU7PXT, OZ4UBG, PA2FRA/A, EA1JD and SL6AL.

Twenty for G4MVA included contacts with ZC4RP, VP8ANT which was pleasing on ten watts, 4U1VIC, but there was an annoying gotaway in the shape of FK8CE.

The New Bands

There wasn't time for any of the reporters to get in with notes on the first few hours of the bands, and as far as your scribe was concerned the loss of the end-fed precluded much in the way of listening or transmitting. However we were amused to hear that, after that boob over the *Gazette* announcement of 10 MHz being opened, the TUC "day of action" resulted in the *Gazette* announcement of the opening of 18 and 24 MHz being delayed — we hope the Home Office telephoned those with whom we now share and told 'em we were going to join them!

Finis

Short and sweet this time; we could always do with some more reports, particularly on Top Band and the three new ones. Send them, to arrive by the date in the 'box', addressed to your scribe, "CDXN", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts AL6 9EQ. In the meantime, good hunting and leaf sweeping.

AN IMPROVED SWR METER CIRCUIT

J. W. BARKER, G3WAL

THE investigation which gave birth to this short article was precipitated by the question "why does the SWR of my aerial *appear* to be dependent upon the setting of the sensitivity control — and, more to the point, which reading is correct?"

The meter, a commercial unit of Japanese origin, permits measurement of SWR on 50 and 75 ohm coaxial cable, and provides a metered 15 watt r.m.s. dummy load, all within a case 7" x 3" x 2½".

Once the question had been asked, memories stirred and I checked back through various radio magazines, going back to the late fifties, which reduce living space at this QTH. I was right: others had recognised the same problem but, apart from recommending maximum sensitivity for reasons of consistency and minimum power input, they offered no further comment. One possibly significant feature was however noted; modern circuits called up 50 or 100 μA meters whereas earlier ones used 500 μA or 1mA movements.

Now, things began to click into place. It was considered that the possible explanation was that the low currents involved due to the short coupling lines (whence the 50 μA movement) meant that the diodes were working in the non-linear region of their characteristics. A simple check, carried out by breaking the circuit at the junction of the coupling line and the diode so as to feed in a variable DC voltage and noting the current flowing, confirmed the hypothesis.

Fig. 1 shows the plot of meter current against the applied voltage. Observe that for 50% of the voltage required to produce full-scale deflection, the current was only 9 μA. Thus, a simple sum indicated that the 3:1 SWR offered to the meter would be shown as 1.45:1 on the meter, and a meter's 2:1 would in fact be 6.2:1. *See* Fig. 2.

Where did we go from here? Clearly a 1mA movement would be a good idea, against which would have to be set the higher input power or much longer coupling lines. Earlier circuits used up to 2-3 feet of coupling line, with the coupling line under the braiding! (*Ed. note:* coupling lines longer than about 1/20 wavelength at the highest frequency tend of themselves to introduce errors). An alternative approach would be to use a linearising resistor; this does improve the situation but does not overcome the basic problem — *see* Fig. 3.

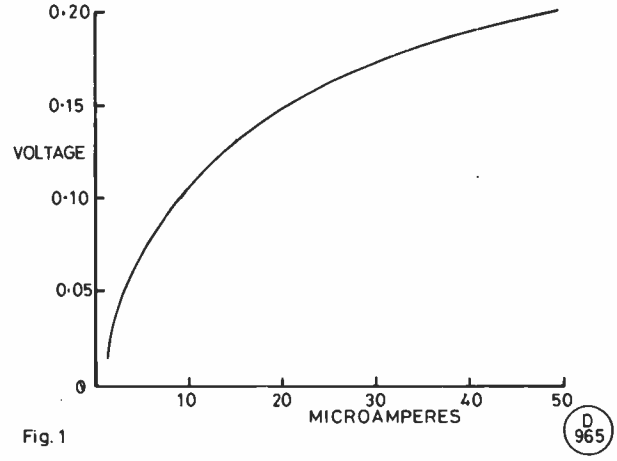


Fig. 1

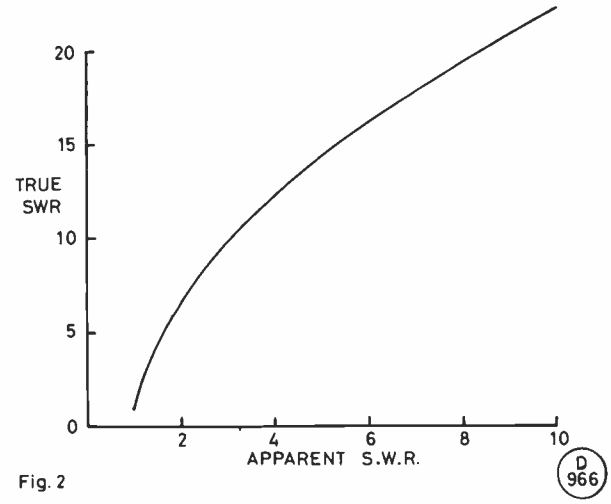


Fig. 2

The solution finally adopted was to apply forward bias to the diode so that the latter passed some 20 μA at the unity SWR position, the meter then being reset to read zero by means of the adjuster — which in this case fortunately had enough range; the meter then read between 20 μA at 'zero' to 70 μA at full-scale. The calibration of the resulting instrument, though not truly linear, was more than adequate for amateur use.

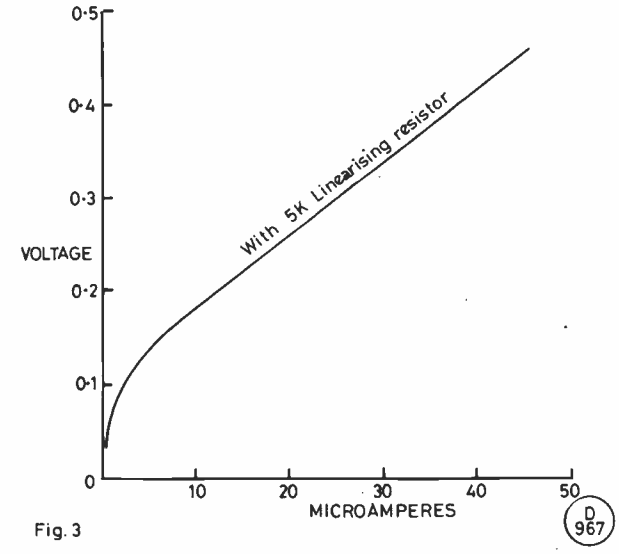


Fig. 3

Fig. 4 shows the modified circuit. Diodes D1 and D2 are a matched pair of germanium diodes, C1 and C2 are 1% tolerance silver mica, and R1 and R2, both 4.7K 5% tolerance, provide a DC return for the rectified RF as well as acting as a linearising resistor for the respective diodes. The RF choke is *vital* — without it the forward and reverse readings are always the same (work it out!). Forward bias is set by RV1, a 100K pot of linear taper, fitted with a switch.

Results

How does it perform now? A check with no load on the output showed full-scale readings both in the forward and reverse

December issue due to appear on Friday, November 26th

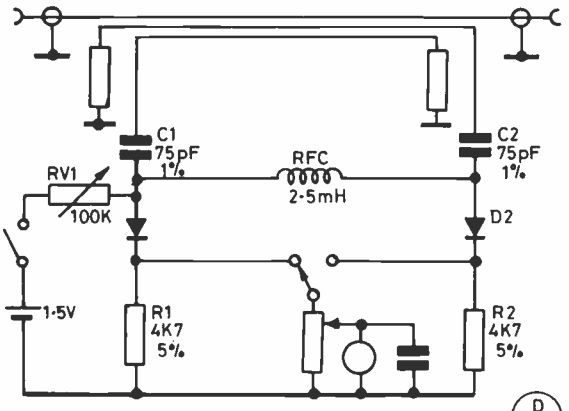


Fig. 4 IMPROVED CIRCUIT

directions, suggesting good matching in the coupling and rectifier circuits. Further checking with a series of known resistors gave SWR readings in good agreement with their measured values, as did a dummy load the impedance of which (as indicated by a noise bridge) varies from 50 ohms at 3.5 MHz to 85 ohms at 30 MHz.

Finally, the SWR of my aerial now shows the frequency consciousness to be expected from a dipole, something which it appeared to lack before. As to the sensitivity control, it still has an effect, though very much less noticeable than before. The explanation for this seems to be that as the sensitivity is reduced, that part of the control in parallel with the movement reduces in value thus increasing the current through the diode, while the section above the wiper forms a linearising resistance. Both effects have a tendency to *improve* the accuracy, so it would appear that the best setting is that which just allows full scale deflection to be reached in the forward direction.

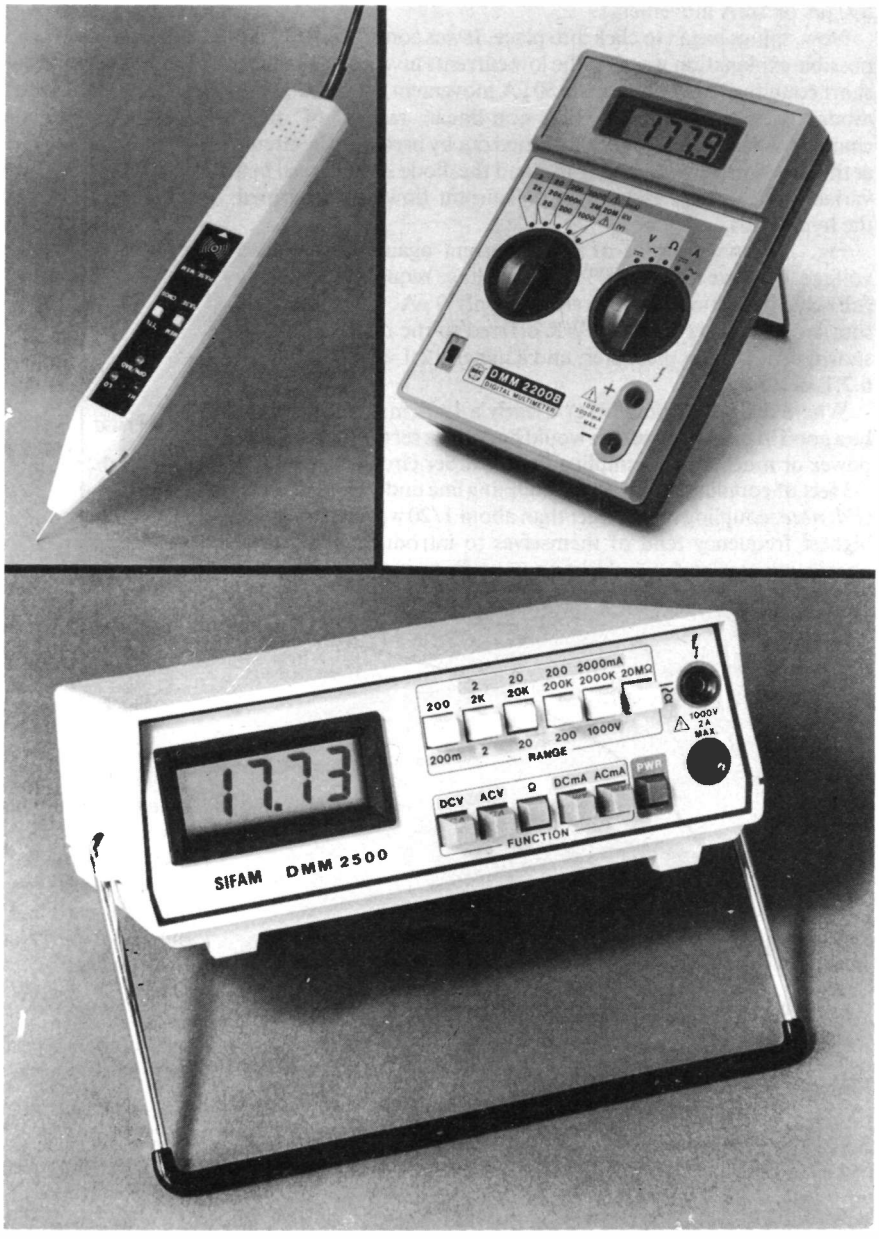
Known best, perhaps, in commercial and professional fields up to now, *Sifam Ltd.* has entered the amateur radio arena with a range of test instruments and accessories.

Top left is the Model DLP50 digital logic probe, which is compatible with DTL, TTL and CMOS standards, and features an input frequency range of DC to 50 MHz, a minimum detectable input pulse width of 10 nanosecs, input impedance of 10 megohms, power range of 4.5 to 30VDC, three-colour LEDs signal and audible alarm. The DLP50 is fitted with an 800m. power lead and comes complete with ground and IC clip leads and operating manual; price is £39.09 plus VAT.

The Model DMM2200B hand-held 3½ digit multimeter is shown top right, and offers 21 ranges in five modes: DC and AC voltage and current, and resistance. Featuring overload protection, autozero and autopolarity facilities, over-range and low-battery indications, it is supplied with test leads, spare fuse, battery and operator's manual, and costs £43.43 plus VAT.

Model DMM2500 bench multimeter, bottom, offers 24 ranges in the same five DC/AC measurement modes as the DMM2200B, with the same order of accuracy (quoted as 0.3% DCV) and operational features, but with push-button function/range switching, 2000 hours battery life and circuit-breaker overload protection. Supplied with test leads, battery and manual, the DMM2500 is priced at £66.04 plus VAT.

For full details, contact Sifam Ltd., Woodland Road, Torquay, Devon TQ2 7AY. (Tel: 0803-63822).



• • • SWL • • • SHORT WAVE LISTENER FEATURE

By Justin Cooper

JUST *what* is the difference between the new recruit to SWL, and the chap with over 1000 prefixes logged and a wall covered in QSLs? This question is often brought to mind by the mail, and perhaps now is as good a time as any to try and answer the question. Basically, it is a matter of site, aerials — and the operator. Equipment is very much less of a factor than people would have us believe; while there have always been plenty of people using super gear, there has also been a proportion of one-valvers, or two transistor portables driven in tandem, or other simple gear, and there probably always will be; after all, if you *want* to listen enough, and cash is a bit short, you will find a way!

So: what about site and aerials? Clearly, the chap with room for aerial-farming has an advantage over the fellow in a housing estate where outside aerials are barred. The aerial-farm will maximise signal pick-up and have, probably, a lower basic noise level, but the chap in the estate has lower signal pick-up and by virtue of the estate rules his aerial is almost certainly optimised for listening to the thermostats, electric drills and other such pestilences of the urban society. However, that's not all of it; sometimes a site can be found that seems far above average, and for no apparent reason. For example G4AKY in Harlow, who contributes to *CDXN,* can work anything you care to name on Top Band with an aerial set-up that really doesn't seem anything like good enough; and some fifteen or so years ago there was another Top Band operator who seemed to work anything that went from Harlow — he lived as near as dammit on the same spot. Here we have a clear case of *site* for some mysterious reason being the key. Regarding aerials, the thing is to do the best one can within the constraints of one's plot and neighbour relations, and to make quite sure that it is properly matched in to the receiver. If it is still not too good, a bit of portable operation could be fun, from a quiet site in terms of electrical noise.

Turning now to the operator, we have here a whole mass of questions to answer; skill in the mechanics of 'driving the receiver' to the best advantage is something one has to learn with a very simple set-up, and indeed the super-receiver tends to cover up the continued need for such skill. Thus one needs to deliberately spend time trying to extract signals from under the noise and QRM by manipulation of the receiver controls and experiment, not because they happen to be DX signals, but because they need skill to winkle out, and because 'practice makes perfect' is even more important while learning. Again, it is down to the operator to realise, for example, that if his aerial has a null in a certain direction, he can hardly expect DX from that direction on that band. Time is the other prime question; it's not much good listening for Australia at a time when no Australians would be on the band, and if there is a choice of times, it is well to choose a time to listen for them when their local time is 'right' for them to be operating. After all, the chap must work, eat and sleep, just like us! Much information can be obtained by subscribing to a DX publication, such as *DX News Sheet.* (Incidentally, we all hope that Geoff Watts will soon be in a position to return to his last with *DXNS;* G3XTT and G3ZAY are doing a fine job in the interim though.)

As for the receiver and its adjuncts, whatever one has, the essential is to be able to push it to its limit; and after a few months, one will be hearing things the like of which one had not dreamed of at first, as all the right things become instinctive. A final point is the question of headphones or speaker, and CW or Phone; your J.C. has been largely on CW of late, and to listen on SSB has become hard again as one has got into the habit of concentrating around 800 Hz from the phones rather than telephony from the speaker. Phones are to be preferred one feels, both from the operating point of view and also because they confine most of the rumpus — which helps the domestic relationship!

The Mail

Sometimes we get long letters and apologies for the 'ramblings' — but we like reading your letters, and we get a lot of pleasure from hearing how people are getting along. All we can say is that we can't allocate too much space to commenting in these pages, in fairness to all the others.

The Ladies

Mrs. T. Parry (Blackpool) has been playing with a new toy — a sewing-machine — and, like listening, learning the tricks of the trade. This has left room for the OM to continue with his aerial experiments, and so there is a six-element two-metre Quad up in the loft, of his own design, and a Mini-X beam for 28 MHz also up there, both apparently doing their stuff. A pity the teething troubles are in the important area of rotation — the pulley system doesn't want to oblige!

Turning to *Mrs. J. Charles (Colchester)* June sounds a mite aggrieved at having to settle for a claim of 799 this time as the 800th just would *not* appear. On the day she wrote, she had just taken the plunge and enrolled at the RAE course — we hope she will stick it though and get a pass slip for the trouble.

Mrs. C. Law (Chesterfield) doesn't have much to say, but she added a few to her total in the Ladder.

In *Nuneaton, Mrs. R. Smith* has been having the family home from Bahrain on leave, during which time Ruth became a grandparent; so naturally radio has taken a bit of a back seat. Not entirely, though: there is a totally new aerial system, to add Forty to the bands of operation as well as 20-15-10. Towards the end of the period, Ruth was hearing masses of Prefixes but not much that was new went into the log — one of the snags associated with being near the top of the list!

The Gentlemen

A. Rowland (Morwenstow) writes to advise all SWLs to buckle down to the RAE; Alan dithered for twenty years before he finally tried; the result was a distinction in both parts and a new call — G4OJQ, on which our congratulations. The R-820 has had to go, and a Shimizu is in the process of being built and let loose upon the world.

One of the fascinations of writing this column is to notice a first entry which is crammed full of DX, and then to come across one like that of *M. Rodgers (Harwood)* which, with nearly 1400 heard previously adds another six, all from Europe. One suspects that this often arises: perhaps one disregards these Europeans as "not worth the logging" in the first flush of enthusiasm, and then realises that they are important in keeping the score rolling.

A. F. Roberts (Kidderminster) sticks to his old half-wave vertical, end-fed wire, and Eddystone 840A receiver, which have taken him up over the 1000 on CW, and added another twenty-odd this time.

B. F. Hughes (Worcester) sends in his last list from his old address; the new one is at 268 feet a.s.l., much higher than the present spot, so we will be expecting spectacular results when Bernard gets going. First, though, we expect he will be fully occupied settling in.

B. Patchett (Sheffield) says he has been interested in SWL for many years, and wonders why there is so little activity in the way of a Sheffield club or an RAE class. Although he began as far back as 1956, it is only in the past couple of years that Brian has

HPX LADDER
(All Time Post War)

SWL	*PREFIXES*
PHONE ONLY	
B. Hughes (Worcester)	2567
S. Foster (Lincoln)	2262
Mrs. R. Smith (Nuneaton)	2232
E. W. Robinson (Bury St. Edmunds)	2080
J. Worthing (Shrewsbury)	1668
H. M. Graham (Chesham)	1507
G. W. Raven (London SE13	1426
M. Rodgers (Harwood)	1373
M. Toms (Barkingside)	1360
N. Askew (Coventry)	1245
M. Law (Chesterfield)	1242
J. Singleton (Skelmersdale)	1127
D. C. Casson (Reading)	1089
D. J. S. Williams (Wednesbury)	1024
N. E. Jennings (Rye)	981
B. A. Payne (Leeds)	970
Mrs. T. Parry (Blackpool)	968
H. Bale (Cardiff)	924
Mrs. J. Charles (Colchester)	799
K. Cooke (Cardiff)	762
R. Everitt (Bluntisham)	709
B. L. Henderson (Salisbury)	708
J. Dunnet (Prestatyn)	703
P. Lincoln (Aldershot)	635
P. Pyne (Bradford)	609
A. J. Hall (Alvaston)	502
CW ONLY	
E. B. Ward (Ruddington)	1359
J. Goodrick (I.o.W.)	1166
J. M. Dunnett (Prestatyn)	1049
A. F. Roberts (Kidderminster)	1031
P. L. Shakespeare (Foulness)	624
N. I. Neame (Lancing)	508
D. J. S. Williams (Romsey)	262
RTTY ONLY	
P. Lincoln (Aldershot)	285
J. M. Dunnett (Prestatyn)	264

Minimum Score for an entry: 200 for CW or RTTY, 500 for Phone. Listings to include only recent claims and be in accordance with HPX Rules (p. 367, September issue).

has a receiver with a BFO; now he has a Grundig Satellit 1400 at home, and an EC10 Mk.II at work. As to whether there is a club in Sheffield, there certainly was one a few years back — perhaps one of the locals would care to contact Brian at 107 Handsworth Avenue, Sheffield S9 4BU and put him in the picture as to club and RAE class prospects.

A. Pyne (Bradford) bewails his 'awful' handwriting, which he says, gets worse with the years — he reckons he'll need to write better by the time he takes the RAE — or at least practise putting ticks in boxes!

There can be no doubt that the keeping of logs in connection with activities like HPX and contests is greatly aided by the use of a home computer; *P. Lincoln (Aldershot)* has now got his organised to print out a list for HPX, all nice and tidy and legible, with the duplicates ready weeded-out — a pleasure to pick up at this end too. On a different tack, Peter has been looking at his QSLs — so far nothing from Japan, and after many tries a first one from OK on RTTY can in along with one from Brunei in the same mode.

A very first list comes in from *H. Bale (Canton, Cardiff)* with 924 prefixes claimed on Phone — one of the biggest starting scores for some time.

Next we have a long and interesting epistle from *B. Ward (Nottingham)*. Most of the D-I-Y efforts proposed in his last letter went for a burton when he was forced, as he put it, to "go QRP — no, QRPp!" It's an ill wind, though, as it resulted in some more hours spent in the shack, and some reflections on the goings-on heard. Barry likes to be quite sure he has got his man firmly, and he remarks that sometimes you have to hear him several times to be sure, otherwise the log would be very much of a gamble; we agree, and frankly deplore the fallaway in operating standards in the past few years. Perhaps the BY1PK approach is the right one — disregard all abbreviated or omitted calls as being bad mannered and only work the people who operate properly. On a different tack, one of the YL harmonics has a boy-friend, who was rapidly snaffled and sent aloft with some pre-made new aerials to be put up; with all the wire and tensioning string, Barry reckons the loft is an obstacle course to defeat any bat! Turning to the list, Barry offers K5KG/OH0/OJ0 as a "chap with a large inside leg measurement — one leg in each country!". Another oddity was N3CBV/WA3QPO — we suspect this was N3CBV operating the novice station of WA3QPO.

White Rose SWL Contest

We have a note of the results of the White Rose SWL contest for last year, and a data sheet on the one in January coming. To the results first, last time they had 43 entries from 13 countries, of whom some 32 were in the Phone section, led by Chris Vermote of Ypres in Belgium, with Arthur Miller of Bromsgrove as runner-up. On CW the winner was Alex Dodd, and J. Goodrick in Bognor Regis was runner-up, with J. Dunnett of Prestatyn in fifth place. Congratulations to all.

Turning to the next one, it is to run between noon GMT on January 29 to the same time on 30th, competitors to choose their own period of 18 consecutive hours. Two modes: Phone or CW — no mixed-mode entries — on 1.8, 3.5 and 7 MHz bands. Call areas of USA, Canada, Australia, and New Zealand to count as countries, all the rest being in accordance with the ARRL Countries List. As there seems to have been some confusion in scoring entries in previous years, it is suggested an *s.a.e.* be sent to David Whitaker, Hillcourt, 57 Green Lane, Harrogate, N. Yorks. HG2 9LN for a full copy of the rules. However, in summary, score one for each station heard in your continent, or five for a station from another continent. No CQ, QRZ or similar calls to be counted, nor/AM or /MM stations. The score is the sum of the points as above times the multiplier. The multiplier is to be the sum of the countries heard on each band added together. Logs to show: date, time GMT, band, station heard, station being worked, report at SWL QTH. Points claimable only for stations actually heard and noted in the heard column; if claiming both ends of the QSO, each station to appear in the 'heard' column. The same station is *not* to appear in the 'worked' column more than ten times on the trot. Comments on the contest, conditions and so forth are welcome, and the whole lot is to arrive with David McGregor, G4IDJ, c/o White Rose Radio Society, 8 Manor Court, Shadwell, Leeds LS17 8JE, by March 24th, 1983, latest.

Challenge

We thought someone would rise to Barry Ward's bait last time over the matter of overtaking the top score known to have been made in the CW listings; *J Goodrick (Newport, I.o.W.)* says he intends to give him a run for his money, using no aids to deciphering beyond his own two ears. John made a bad start though by scrubbing a perfectly good 4X9 prefix from his list on the grounds that he already had 4X4!

Turning now to *N. I. Neame (Lancing),* Nigel is now ready for the Morse test, having been concentrating on getting solid copy from stations having QSOs at 15-plus w.p.m., but he has to wait to gather the boodle up to be able to take the test, the cost of which Nigel thinks is a bit much. On a different tack, Nigel wonders if anyone recalls the pre-war ST-900 receiver, designed by John Scott Taggart for *Popular Wireless* — it was a very good CW receiver, it seems.

Only one cancellation, exults *N. E. Jennings (Rye),* having completely re-hashed his record system after a mishap with a cup

of tea tarnished the glory of the original. As to his sight, Norman is pleased to say the eye is coming along fine, and with normal corrective glasses he can now read a *Call Book* with ease. Fine!

We slipped up with the list from *Tony Hall (Derby)* last time, crediting him with 369 instead of 396 — sorry! — but that hasn't stopped him sailing straight out of the top of the Annual Ladder and into the All-Time at 502.

We now come to *R. Everitt (Huntingdon)* who has his RAE in the sights for December; he has some HPX queries, all noted OK, save for one CU1UA who stated he was located in "squiggle" — the only word in the letter we couldn't read! The nearest we could get was to make it look like Tokyo, but we remain doubtful. Perhaps Richard could give us clarification next time — most letters have the odd hard-to-read word, but it is normal to be able to make a reasoned deduction from the context. Not so this time, though.

Earths

R. Wooden (Staines) has a half-size G5RV up, fed by an ATU to his Eddystone 730/4, which has a terminal for a signal (non-mains) earth; to this, Roy has connected a lead to an earth spike, the lead being some 24 feet long and the spike going down eight feet. This earth doesn't seem to have any effect, says Roy. Well, now, the G5RV aerial used in its 'proper' configuration is essentially a balanced system which works quite independently of an earth connection. However, if you try strapping both legs of the feeder and tuning it up on Eighty against earth (*i.e.* as a Marconi aerial, where half the aerial is in fact the ground image) then you would notice a difference. The ideal situation is to have the earth lead as short as possible, but one has to 'make do' if the location demands it. If a transmitter is being used, and the earth lead is a half-wave long, or near, one may well find all the unpleasant symptoms of 'RF in the shack'; then the cure is to tune the earth to resonance with a capacitor so that it looks like an exact electrical half-wave, when the problem will disappear, albeit the earth lead may contribute well to the aerial's performance!

T. Kirby (Cheltenham) operates on CB, and some of his locals and himself recently did a sponsored 48-hour marathon in aid of Cheltenham's Hospital's orthopaedic ward which raised some £600 in cash and many gifts for the ward — good show. For the winter Tim has now put his receiver by the bedside for nice warm late-night and early-morning sessions after Prefixes — when he isn't nose down in the RAE book, that is!

H. M. Graham (Chesham) has been enjoying his FRG-7700 no end, and for the first time in years Maurice has been looking aroung on Top Band — no VKs, as yet — the best of the bunch being GW3XHG in Mid-Glamorgan putting in a hefty signal, plus lots of locals in Chesham and Hemel Hempstead. Favourite band was 21 MHz, where quite a wide selection of countries was heard, among them many YBs in the late afternoons. An interesting one was 4D9RG, who was in fact DU9RG operating away from the home QTH. On Ten, Maurice noted the *Ar* opening on September 6, in which GW3NNF seemed to be very much wanted. Later in the month a new country and Prefix heard was 4K1HK. As a final, Maurice slyly enquires if C30 is the same as C31 — a Good Question, and we think not.

The SWL station of Norman Jennings, BRS48675, ISWL-G16779, BSWL-1147, and member of BARTG.

A new contributor is *J. Heath (St. Ives, Hunts)* who was a pre-war 2FRJ (the pre-war AA licences did not have the G prefix attached). John has recently retired and resumed SWL with the aid of a Sony CRF-320 receiver, and he seems to have retained the old touch, with a nice crop of DX, perhaps the best of which was FH0FLO on Mayotte; he also notes that IR0 is an alternative prefix for Sardinia.

Just a list this time from *N. Askew (Coventry)* taking him from 1226 up to 1245.

Two letters from *P. Hunt (Woolwich)* who has for the moment finished with the paint-pots, but found the bands, as he put it "variable, from bad to worse!". Nonetheless the Prefixes continue to accumulate, among them the prizes being probably JW5 and VS5. Peter reckons 40 to be a very good band for filling in the blanks among the European prefixes.

A mixed bag of news from *K. Cooke (Cardiff)* who passed the RAE and celebrated by breaking an ankle! As he rightly remarks, you can't win 'em all. On the aerials front, Kevin has installed a Lowe HF5V which he finds gives quite an improvement on his results.

ANNUAL HPX LADDER
Starting date, January 1, 1982

SWL	*PREFIXES*		
J. Heath (St. Ives)	475	P. D. Hunt (Woolwich)	310
R. Wooden (Staines)	423	C. N. Woods (London W3)	267
T. Kirby (Cheltenham)	403	I. Blair (Swansea)	263
A. Pilkington (Chesterfield)	368	Mrs. C. Law (Chesterfield)	256
B. Patchett (Sheffield)	328		

200 Prefixes to have been heard since January 1, 1982, for an entry to be made, in accordance with HPX Rules, (p. 367, September issue). At score 500, transfer to the All-Time listings is automatic.

Finally, another list from *A. J. Pilkington (Chesterfield)* whose claim in unusual in that it includes signals heard on 14-21-28-144 MHz, and quite a nice collection too.

And that, friends, is the bottom of a thinner-than-usual pile; for the next time the deadline is **November 18th** to arrive, addressed as ever to your J. C., "SWL", SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts. AL6 9EQ. We look forward to your next collection of letters and doings, and before then we'll doubtless have seen some of you at Leicester. Meanwhile, *adios!*

TWO-METRE TRANSVERTER FOR ELEVEN-METRE RIGS

ROBIN VESMA, G8GYB

THERE are many types of equipment available to the amateur that enable him or her to "get on 2" quickly and effectively, the options are:—

(*a*) Custom made single or multimode tranceivers.

(*b*) Converted industrial-type radiotelephones.

(*c*) Custom or home-made transverters for use with existing HF equipment.

Option (*a*) is the obvious choice though financing such a system could be a problem for some.

Option (*b*) is quite workable but this type of equipment is invariably crystal-controlled, thus making a multi-channel system complicated and expensive.

Option (*c*) is normally associated with single sideband (as dictated by the HF exciter) and as a constructional project is undertaken more often by experienced Class 'A' licence holders who wish to extend the capability of their existing HF stations.

With the advent of a domestic FM service on 27 MHz option (*c*) becomes much less restrictive in terms of transmission mode and construction. Because we are now using FM instead of SSB we no longer have to use linear amplifiers but simple Class 'C' biased stages which in turn make the design, and hence the construction, simpler. However the use of these inexpensive 27 MHz rigs does involve the acceptance of certain compromises. These compromises take the form of 10 kHz channel spacing and, in amateur terms, poor receiver performance in the all-important area of selectivity; but because we are now effectively on 25 kHz spacing the problem is not so severe. The only adjustment to make in the Tx side is to increase the deviation to around ±3.5 kHz which in most cases is a simple pot. adjustment and a helpful 'ear' on the band. So it would seem that using an 'el cheapo' 27 MHz FM rig as a prime mover is certainly quite feasible.

The transverter circuit employs two commercially available sections, for reasons of simplicity and ease of construction. The first section is a *Solid State Modules* pre-amp as the Rx down converter RF stage, and the second is a *Pye* 'Westminster' hi-band PA board for the Tx. The user of these two modules then leaves just the local oscillator and two mixers to be constructed.

Local Oscillator and Multiplier Chain

The crystal is a third overtone type cut to 39.200 MHz and in conjunction with TR1, L1 and L2 resonates at that frequency. L1 and L2 are wound on separate ¼" coil formers mounted so that the centres of both coils are ½-in. apart. This form of inductive coupling between stages helps to keep circuit 'Q' high and any possible nasties low! TR2 functions as a tripler stage with L3 adjusted to resonate at 117.600 MHz. RV1 is a VXO control and varies the local oscillator output frequency by ±7.5 kHz.

Receiver Down Converter

As previously mentioned the RF stage is a readily available Mosfet pre-amp. It was initially used as a temporary measure just to get the converter working; however, it worked so well it has stayed! The outputs from the pre-amp and local oscillator are mixed by the dual gate Mosfet TR3 to produce an IF of 27.6 to 28 MHz, which corresponds to 145.2 to 145.6 MHz — or simplex channels S9 to S24.

Transmitter Up Converter

Both signals from the local oscillator and the 27 MHz Tx are mixed by TR4, with L7 resonant at the sum of those signals. Great care should be taken when tuning all the Tx stages as the difference between those two signals coincides with BBC *Radio 3* at around 90 MHz; this particular point was brought to light when the XYL's hand coincided with the 50 Hz feed to the shack! (She's a 3-metre fan). Having achieved resonance within the allotted band TR5, 6 and 7 buffer the output to approximately 200 mW.

At this point in the equipment's development I thought that the job was complete; however, it soon became obvious that the Rx performance far exceeded that of the Tx. To achieve an easy and quite painless QRO conversion I resurrected an ancient *Pye* Westminster' PA strip; the extra watts made all the difference.

Table of Values
Fig. 1

R1, R8, R9, R13, R18, R19 = 100R
R2 = 2K2
R3 = 330R
R4, R15 = 10K
R5 = 36K
R6, R12 = 150R
R7, R20, R24 = 47R
R10, R11, R16, R17 = 100K
R14 = 56R, 0.5W
R21 = 3K3
R22 = 470R
R23 = 36R
C1, C2, C3 = 0.01 μF
C4 = 220 pF
C5 = 390 pF
C6, C7, C8 = 0.01 μF
C9 to C12 = 2-22 pF
C13 = 2p2
C14 = 0.01 μF
C15, C21 = 10 pF
C16 to C19 = 0.01 μF
C20 = 220 μF elec.
C22, C29 = 0.001 μF
C23, C24 = 47 pF
C25, C26 = 0.01 μF
C27 = 2-22 pF
C28, C30 = 0.01 μF
C31, C32 = 0.01 μF
C33 = 2-22 pF
C34 = 6-65 pF
C35, C36 = 0.01 μF
C37, C38, C39 = 6-65 pF
D1, D3, D8 = 9V0 zener
D2 = BA110 varicap
D4, D5 = 1N4001
D6, D7 = 1N4148
D9 = 1N5401
TR1, TR2, TR5 = BC183L
TR3, TR4 = 3N201
TR6, TR7 = 2N3866
L1, L2 = 16t total, tap at 4t, on ¼" former, 26 swg enam. copper wire close-wound
L3 = 4t, 6mm i/d, 10mm long, 24 swg tinned copper wire
L4 = 47 μH moulded choke
L5 = 15t on ¼" former, 26 swg enam. copper wire
L6 = 4t over L5, 26 swg enam. copper wire
L7 = 4t on ¼" former stretched over 10mm, 24 swg tinned copper wire
L8 = 2t wound into L7, 26 swg enam. copper wire
L9 = 22 μH moulded choke
L10, L12 = 4t total, tap at 1t, 6mm i/d, 10mm long, 24 swg tinned copper wire
L11, L13, L14 = 2½t through ferrite bead, 26 swg enam. copper wire
L15 = 4t, 6mm i/d, 10mm long, 16 swg tinned copper wire

Note: all resistors are 0.25W, all zeners are 0.4W, and all capacitors are 16V DC or greater — except where stated.

Automatic T/R Switch

TR8, in conjunction with D6 and D7, go together to make the RF 'sniffing' auto T/R switch. This feature is particularly useful as it simply removes the need to manually set the transverter, or modify the 27 MHz rig to obtain full p-t-t control. As can be seen from the circuit diagram Fig. 1, TR8 conducts when the 27 MHz rig is set to transmit, and in doing so it transfers the power supply and the 27 MHz antenna connection from the Rx converter to the Tx converter; the antenna changeover relay is switched to transmit by the Tx 12 volt supply. Note that the local oscillator runs continuously and that it is permanently connected to both converters.

The transverter has, as the time of writing, been used as a mobile system for quite some time and has behaved perfectly. It is quite surprising how one gets used to the odd (10 kHz) channel-spacing/VXO control set-up — it only took a few days to be able to translate channel numbers/frequencies/simplex channel numbers without the use of a 'look-up table' and drive a manual car at the same time!

So there it is, all circuits were built on single-sided glass fibre board and mounted in an RF-tight enclosure. Clean your soldering iron bit and re-discover amateur radio!

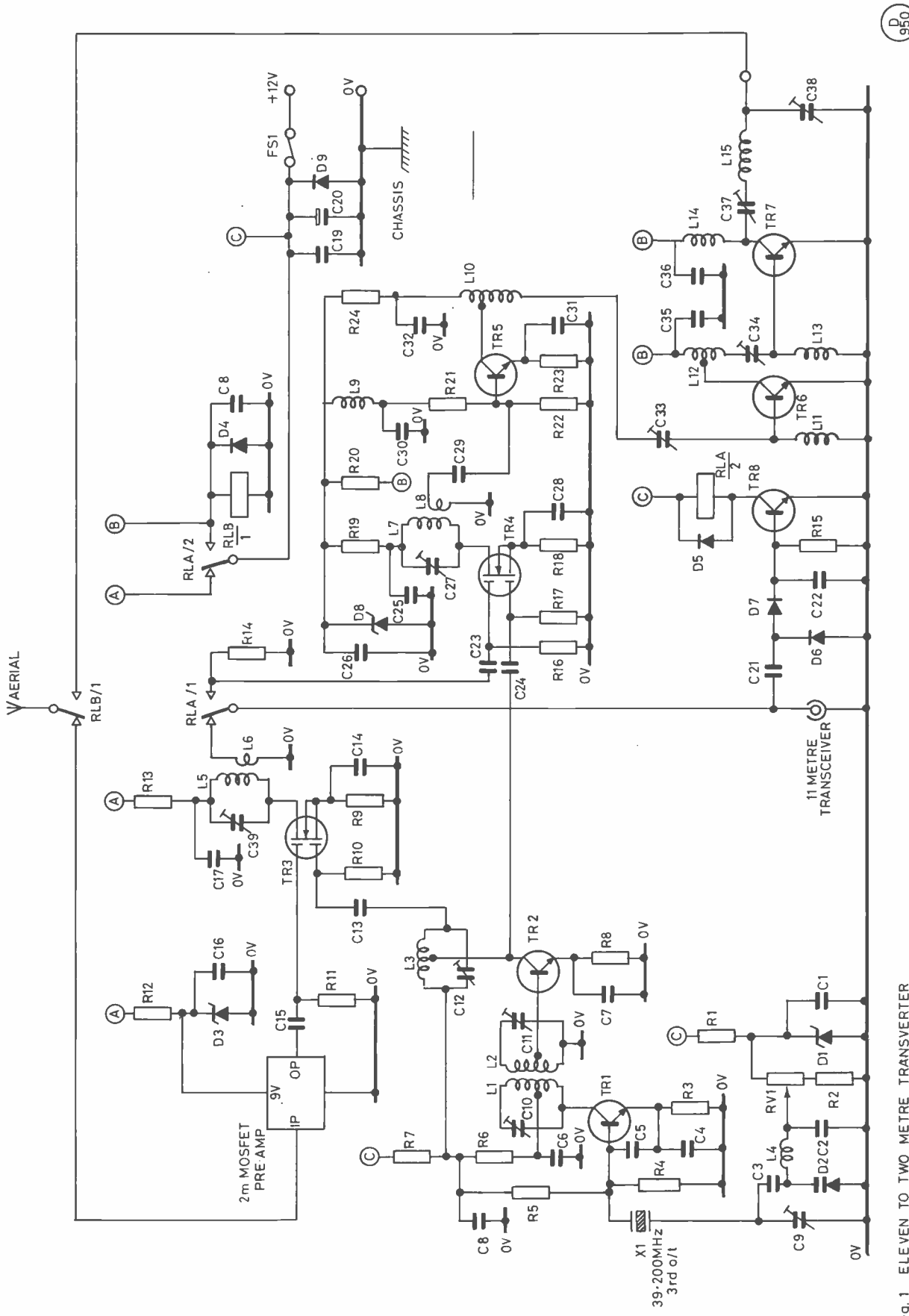


Fig. 1 ELEVEN TO TWO METRE TRANSVERTER

PLUG IN YOUR SOLDERING IRON AND BEGIN HERE, PART VI

A GUIDE FOR THE INEXPERIENCED IN THE METHODS, TECHNIQUES, PITFALLS AND FOLKLORE OF BUILDING EQUIPMENT, WITH PRACTICAL PROJECTS TO BUILD ALONG THE WAY

REV. G. C. DOBBS, G3RJV

ZL2AKW once began an article on a simple radio project by saying, "Wellington is full of clever-bodies who know all the answers, but get their rigs fixed in Auckland!" I guess a few of us know such people in the UK. If you have been following this series by now your confidence should be growing. Kitchen Table Technology should be the backbone of amateur radio and in this part we go a stage further by completing the direct conversion receiver begun in *Part V*.

The "PCB80" Receiver

In the last article the VFO (Oscillator Board) section of the receiver shown in Fig. 1 was completed using a homemade printed circuit board. The full circuit is repeated for reference in the completion of the receiver.

Following the "little bit at a time approach", the Front End Board and the Audio Board are now built. Each board is made as a complete unit and tested in its own right before addition to the receiver. When using this sectionalised method of building equipment it is best to work from the output of the receiver to the aerial input to allow testing as the work proceeds. In the case of a transmitter it is usual to work the other way round and begin with the oscillator, the source of the signal, and work through to the aerial output. This receiver diverted a little from that pattern in that the VFO was built first, but radio frequency oscillators are easy to check using the methods outlined in the last part.

The Audio Board

The Audio Board uses a single integrated circuit audio amplifier, the LM380N. This is not the best performing or even the best behaved of audio ICs, but it has the obvious merits of being very inexpensive and requiring few external components to make it work. It certainly has a fair amount of gain within its innocuous little black body but it can blot its copy book by taking off and enjoying being an audio oscillator. The circuit shown in the Audio Board section of Fig. 1, however, does show this little device at its most harmless operation. Pin 2 on the LM380N is the non-inverting input and it is possible to use this pin to give a little positive feedback by raising it above ground and feed in the input on pin 6, the inverting input. This gives wonderous gain (200-plus) but depressing problems in holding it down. However adopting this configuration and feeding the input to pin 2 seems to give reasonable gain and excellent stability. A little output filter, RFC and C3 have also been added. This may be a bit "belt and braces" as in practice I had no problems with the prototype circuit without these added components. The radio frequency choke (RFC) is just a few turns wound through a small ferrite bead, as shown in Fig. 4(b).

The Audio Board is designed for an output impedance of eight ohms and could feed a small loudspeaker or a suitable pair of headphones; like many amateurs, I prefer headphones for operational use. In theory it means that the rest of the family are not disturbed by my receiver but in practice it means I cannot hear my children. Actually I don't have a pair of eight-ohms phones but all my motley collection of headphones from a lovely pair of 1920's Marconi leather bound 60-ohm phones to a 300-ohm set of ex-office stethoscope phones worked well on the receiver.

Fig. 2 shows both the layout on top of the Audio Board and the underside printed circuit pattern. This is made up using the methods outlined in the previous part of this series. Note that the capacitors C1, C4 and C5 are all electrolytic types but each is mounted in a different way. This illustrates the various ways of using these capacitors in printed circuit boards. C5 is simply the normal tubular form of capacitor mounted on its side. The layout spacing may, as with all the components, have to be modified to suit individual types of capacitor of the same value. Being a electrolytic type the capacitor must be wired into the circuit the correct way round, observing polarity. Most modern capacitors have the positive and negative ends clearly marked but if in doubt, the positive end should have an indentation around the body of the can, and the negative end can often be clearly seen as joined to the metal body of the can.

C1 is also a tubular type but is mounted vertically, the negative end going into the hole in the board and the positive end forming a

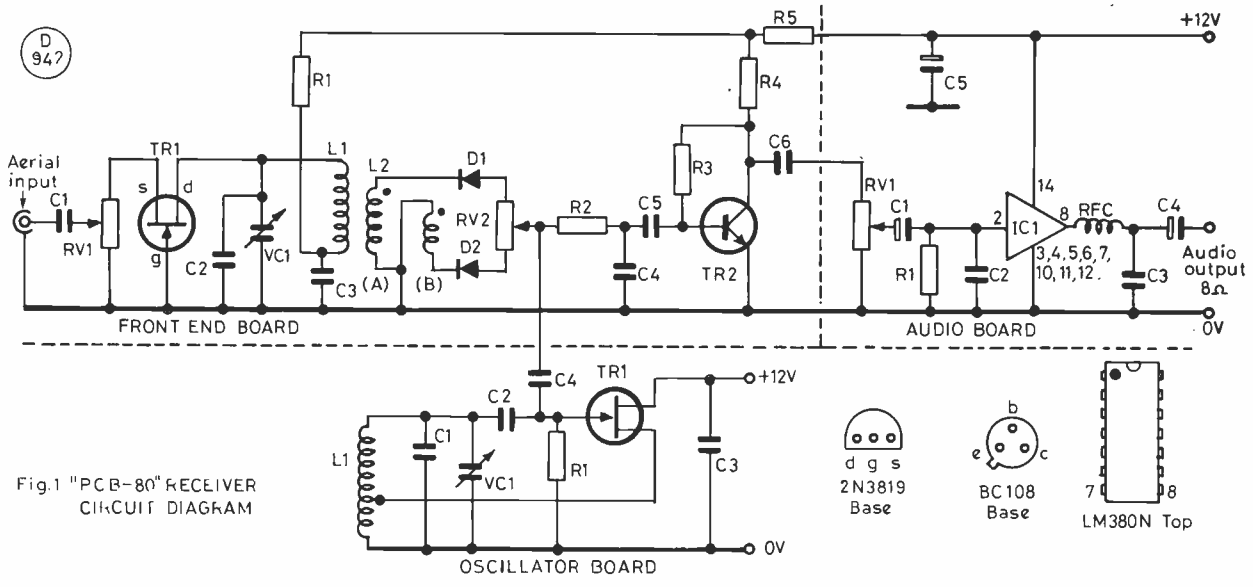


Fig.1 "PCB-80" RECEIVER CIRCUIT DIAGRAM

free lead at the top for the input. C4 is a printed circuit board mounting capacitor with both leads coming out of one end of the can; this type of housing is common in printed circuits to allow for convenience of board layout, and the polarity is usually marked on the side of the can.

Stated working voltages for these capacitors is given in the table of values, but capacitors of similar working voltages are suitable if these voltages are well above the expected voltage present in the part of the circuit where the capacitor is to live.

The volume control, RV1 (Audio Gain Control as we say to impress our friends), is not part of the board layout as it is a front panel control. It is probably best to use an integrated circuit holder for the LM380N. They cost a little money but save a lot of hassle (what a dreadful word that is . . .) if the IC has to be removed.

Testing to see if the Audio Board is working is quite simple. About the earliest method is the old "finger on the grid" method, as we used to call it in valve days. After checking out the circuit layout, apply the power and a loudspeaker. The IC noise, hopefully not too high, should be heard in the speaker, and placing a finger onto the input should produce quite a reasonable level of hum in the speaker. Connect up RV1 and repeat the test with a finger at the top end of RV1 to check if it is acting as a gain control. This is also a useful check that RV1 has been connected the correct way round so that clockwise rotation increases the gain. The check can be repeated by feeding some sort of signal into the Audio Board.

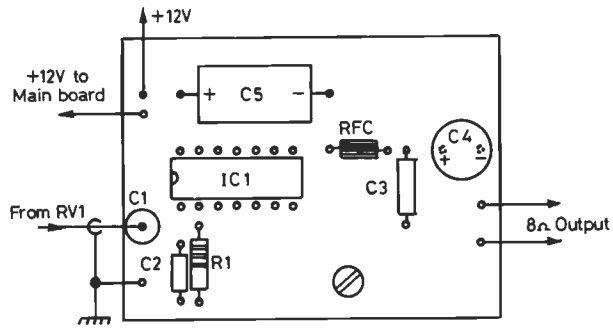
The sophisticated method is to use an audio oscillator but any audio signal, even from a medium to high impedance microphone, will do the job. The microphone is likely to produce feedback between the speaker and itself so do not be alarmed if the board squeaks a little. This Audio Board is simple and cheap but individual constructors may use any suitable audio amplifier circuit that gives enough gain.

The Front End Board

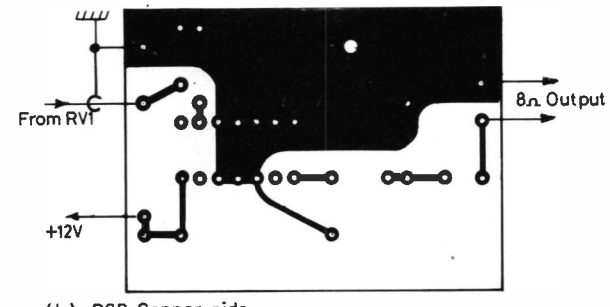
This the largest of the three boards in the receiver, the layout diagram and printed circuit board pattern being shown in Fig. 3. TR2 is an audio preamplifier and this section of the board can be built first and checked with the Audio Board as outlined above. The mixing of the RF input signals and the oscillator signal is done by the diodes D1 and D2. A variety of diodes would do the job and it can be useful to try to find a pair of diodes which are fairly well matched. Although this is not essential, a simple matching test can be done with a multimeter on the ohms setting. Try to find a couple of diodes which give about the same reverse resistance reading — this is the higher of the two readings obtained by measuring either way across the diode. RV1 is a preset resistor which acts to balance the mixer circuit. A horizontal miniature type was used in the prototype, but any preset of the same value may be used with board adjustments.

The coil L1 acts as the input tuning coil with VC1 and C2. VC1 is a polycon variable capacitor of the type used in cheap transistor radios and has a value of 180pF. It is possible to buy such variable capacitors from a variety of sources or it can be culled from a scrap transistor radio. Look for an example which has a reasonable shaft length to accept a tuning knob. It may be that a scrap capacitor of this type will be a two-gang variable capacitor, in which case examine it to work out how to use just one of the two sections for VC1. In some cases the value may be more than 180pF and C2 may have to be reduced in value to tune the 80 metre band. The rich can buy a *Jackson Bros.* variable capacitor of suitable value, but the saving involved in the use of the polycon type, which is quite suitable for this application, makes it ideal for our little receiver. VC1 is mounted as a front panel RF peaking control and so does not appear on the board.

The coil L1 and L2 are both wound on the same T-50-2 toroid former. The method of winding coils of toroid formers is discussed in *Part IV* of this series. L1 should be wound to occupy the whole core and is 40 turns of enamelled wire. L2 is made up of two lots of 6 turns, bifilar wound over the whole length of L1. Bifilar windings



(a) Board layout (top)



(b) PCB Copper side

Fig. 2 AUDIO BOARD (Actual size)

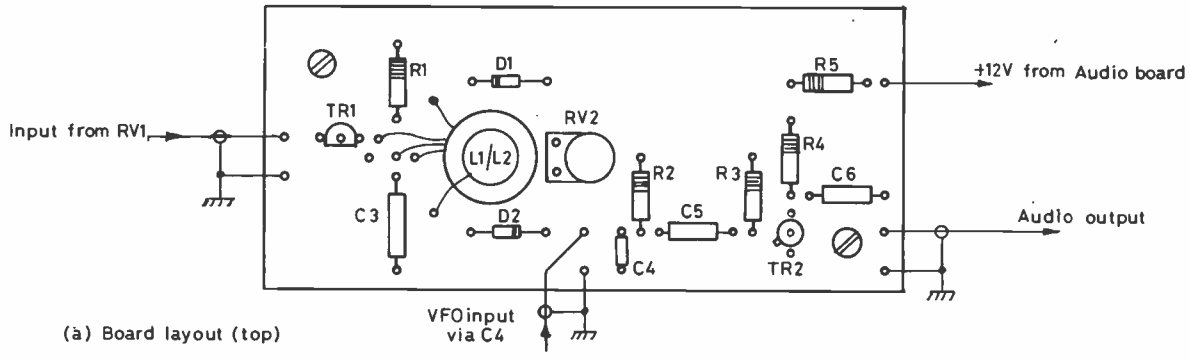
D 959

are used to maintain good coupling and correct phasing in sets of windings, in this case to provide a balance coupling from L1 to the diode mixer circuit D1 and D2. The drawing Fig. 4(a) shows how this is done; L1 is shown to the left as a simple single winding occupying the whole of the core. The windings for L2, coded (A) and (B) are to the right of L1. Notice that a dot marks one end of each (A) and (B). These dots, which are often used in diagrams for bifilar and trifilar wound coils, mark the beginning of each winding. That is, when the coil is made the ends with the dots will appear at the same end of the former or core.

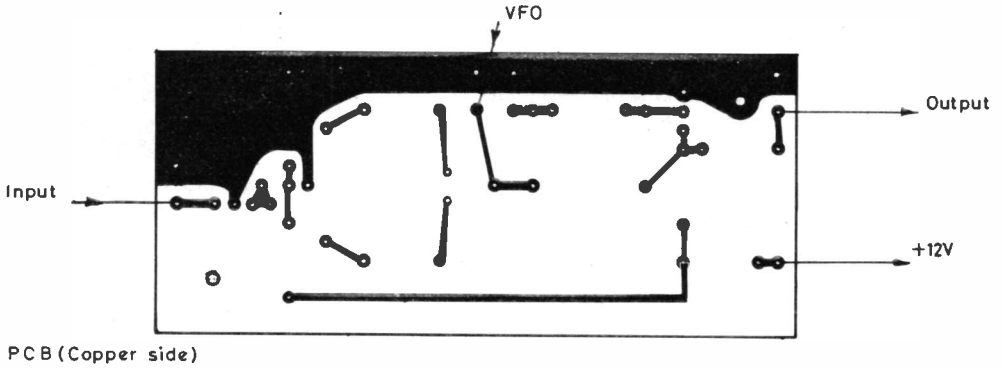
The bifilar winding is made from a pair of twisted wires. Work out how much wire will be required to make 6 turns around the core spaced out to cover the whole of L1 by winding a piece of wire around the core and measuring it. Cut two lengths of wire a bit longer than required and twist them together. The degree of twisting helps to determine the amount of coupling between the wires, about 8 twists per inch is about right for most applications. Use the two wires twisted together to make the 6 turns around the core and there are now 6 + 6 turns around L1.

The phasing now has to be sorted out from the drawing. The easiest way to do this is to check which is the start and finish of each of the two wires with the ohms range of the multimeter. As Fig. 4(a) shows we have to join the finish of L2 (A) to the start of L2 (B); this joint is taken to ground and the two free ends go to D1 and D2. The diagram also shows how this looks on the completed coil. This seems a bit fiddly but is quite easy to do, although check that the various ends of wire from the former go to the correct places on the printed circuit board. Mounting the coil flush with the top of the board makes this a little easier.

TR1 is a grounded gate RF amplifier and RV1 is a very simple RF attenuator which acts as a RF gain control in the front end of the receiver. RV1 must be a carbon track potentiometer; a wirewound potentiometer is unsuitable for this task as the wire winding will act as a coil at radio frequencies and produce all kinds of nasty tuning effects in the input circuit. RV1 is not on the board but appears on the front panel as a control. Few of the components on the board are critical in the types used but C2 ought to be a reasonable quality silver mica capacitor for a tuned curcuit. The other capacitors are used either for coupling or decoupling and can be of the cheap ceramic type. It is useful to check that VC1 and L1 will tune the 80 metre band with a dip oscillator. A simple Dip Oscillator appeared as a project in *Part*



(a) Board layout (top)



(b) PCB (Copper side)

Fig. 3 FRONT END BOARD (Actual size)

D 960

III of this series with directions on how to use it to check the frequency of coils wound on toroid cores.

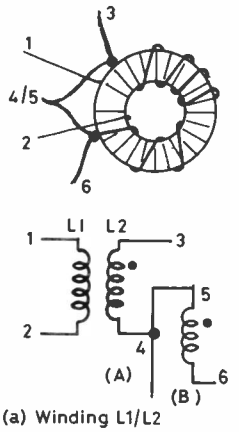
The PCB80 receiver boards are now complete and ready for testing together. Most constructors like to test their equipment prior to finally housing it in a case. I always do just that but it can give rise to problems: hooking up a series of circuit boards on the bench with lots of leads, looking like a rat's nest, can lead to troubles born of the makeshift arrangement. I have found that a prototype test-bed is a useful aid in these first tests. Mine is just a piece of double-sided printed circuit board, about 10 inches by 7 inches with an aluminium front panel some 4 inches high. The front panel has a range of holes of a size suitable for taking a variety of controls spaced out along its whole length and the printed circuit board base rests on four rubber feet. The boards under test could be screwed to the base but I solder them to the base using stiff wire in a 'Z' shape to raise them off the base, the solder connections to the board made in a couple or more convenient places in the copper connected to ground. Attempt to lay out the boards as closely as possible, perhaps as they will fit into the case, and keep the leads to the controls on the front panel short. The interconnections between the boards in this receiver should be made using screened wire.

Check that the boards are connected correctly before applying power. A good safety precaution is to wire a diode, say a 1N4001, in series with the 12 volt power lead. This provides a simple polarity protection. The diode is wired so as to allow the circuits to conduct only if the supply is connected the correct way round. For this effect the diode should be connected with the anode, the end with the marking ring, towards the source of the supply. The 12 volts can then be applied to the whole circuit and the receiver internal noise should be heard in the loudspeaker or headphones. If a signal generator is available this can be used to inject a signal into the aerial input to check the tuning range and the ability of VC1 on the Front End section to peak the signal. Testing by ear on the band is a very adequate test with this simple receiver if no such generator is available; after all, that is testing the receiver as it is intended to be used!

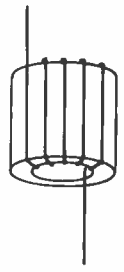
Tune a loud signal for initial tests and peak it with the peaking control. Check the output from the oscillator with a diode probe, the circuit in *Part IV* of this series is ideal. The mixer should require some 8 to 10 volts (peak-to-peak) of signal injection measured from the output side of C4 on the oscillator circuit. The value of C4 can be changed to give a suitable level of injection of oscillator signal into the mixer, but my guess is it will be about right with the value stated in the table for Fig. 1. This simplest way to set up the balancing of the mixer by using the preset control RV2 is to try alterations when listening to a weak signal. This also applies to any changes you may consider worthwhile in the value of C4 on the oscillator board. I do not think you can beat empirical testing — try it on the hoof every time! Within a few minutes the prototype PCB80 receiver was working surprisingly well on the 80 metre band, resolving and holding both CW and SSB signals with no difficulty.

Housing the "PCB80"

The little receiver now needs housing. I used to read a little magazine called *Social Work Today* in which authors frequently spoke of the problems of "case work". This could just as well apply to radio amateurs who build their own equipment. Hardware can be a problem for the amateur constructor, and it is not uncommon to find that a case and the other items of external



(a) Winding L1/L2



(b) RFC
5 turns 32 swg on Ferrite bead

Fig. 4 COIL DETAILS

D 961

hardware like control knobs can cost more than all the rest of the components put together. Early in this series I suggested that cases and various items of hardware were things to seek out at cheap prices and hoard for future use. Old cases can be revamped by adding a new front panel and often the original control knobs can be used again; look out at junk shops and radio rallies for suitable items. Those skilled with the folding press, hacksaw and file will be asking what all the fuss is about. But we lesser mortals who labour in garages, sheds or at kitchen tables know that making an attractive case for our equipment can be quite a chore. I often re-use old cases but have had some success with simple case-making using very basic tools, including a power drill, a 'Workmate' bench-*cum*-vice and a range of files. One very useful little tool I own is a 'nibbler' which looks somewhat like a pair of pliers but nibbles away at sheet metal to cut out required shapes.

Fig. 5 shows two types of case which can be built with reasonable ease by the average amateur at home. The two piece case in Fig. 5(a) is very simple and requires few bends. My usual material has been aluminium sheet but bear in mind that aluminium has an awkward habit of stretching when it is worked. The top and sides must be bent to form a snug fit onto the rest of the case. The usual way of holding on the top is to use self-tapping screws on either side to fasten the sides to the base with a small turned-up lip from the base. Fashioning such a lip can be a problem and acceptable results may be had from inserting four 'L' shaped brackets between the base and the sides to perform the same task. The sheet metal can be bent in a vice on wood strips but some claim good results using pieces of angle iron in the jaws of a 'Workmate' bench/vice. Avoid using a hammer on the aluminium as it just flattens and spreads out the surface. For most small cases 16 s.w.g. aluminium is ideal although a thinner gauge may be used. The case illustrated in Fig. 6(b) is somewhat more complex having six pieces to form the one case, but produces a better looking housing. The top and base panels ought to be made large enough to overlap the front and back panels a little. This produces a neater finish and can hide a multitude of sins. Both of these styles of case can be made in dimensions to suit the electronics they have to house.

If this all sounds too daunting several companies produce off-the-shelf cases for amateur use but many are very expensive. Reasonable cases at reasonable prices can be obtained from *H. L. Smith* of 287/289 Edgware Road, London, W2 1BE; and *Minffordds* of Sun Street, Festiniog, Gwynedd, LL41 4NE supply a useful range of inexpensive cases and an extensive range of nuts, bolts, selftappers and other hardware for the radio amateur. *H. L. Smith* will also make up cases to individual specifications and sizes at quite a reasonable price.

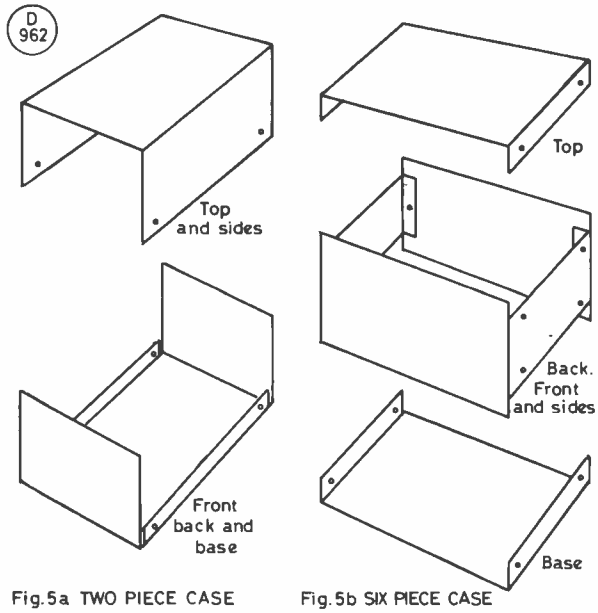
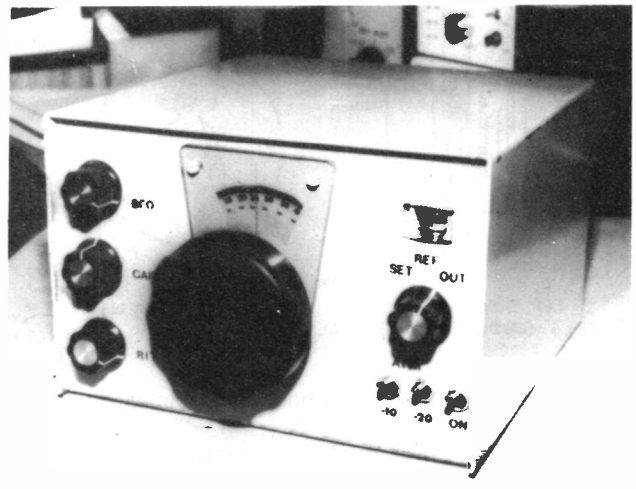
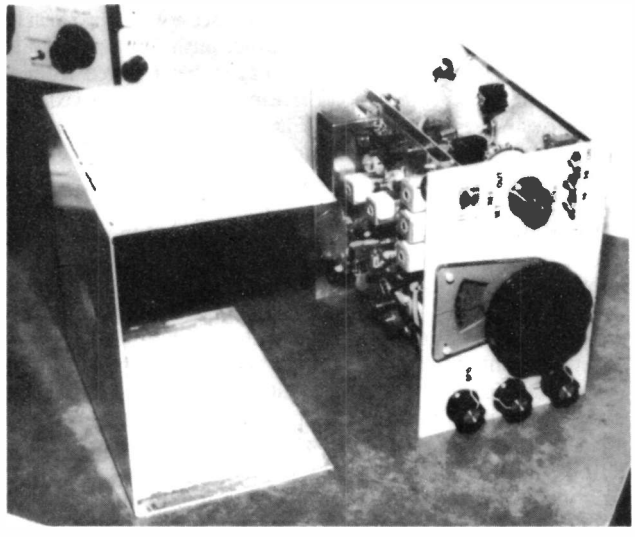


Fig.5a TWO PIECE CASE Fig.5b SIX PIECE CASE



Above and below, a G3RJV 20-metre Transceiver in a two-piece case, with home-made scale assembly and epicyclic slow-motion drive as described in this series.

Photos by G8SEQ



Putting the project into a box is only half the problem, as making and marking the front panel gives the equipment its final appeal or lack of appeal. A frequent difficulty for amateurs is to provide a reasonable slow-motion drive and tuning scale for items like the PCB80 receiver. In the last part of this series I suggested that one of the small inexpensive epicyclic slow-motion drives be used for the tuning capacitor on the oscillator board. These are small units with an in-line reduction drive which usually has a ratio of 6:1 or 8:1, one end taking a standard 1/4 inch knob and the other a screw-lockable collar for a 1/4 inch shaft. These drives do not usually include a scale plate so one has to be made. Fig. 6 shows an approach I have used. The drive is mounted onto the box housing the oscillator board which is mounted behind the front panel. Just in front of the body of the drive is a wider collar which rotates at the reduced speed of the shaft on the control, in this case the tuning capacitor for the oscillator. If a scale can be fixed on this collar it will rotate with the tuning control and can be given calibration markings. Some of the epicyclic drives have a scale mounting plate on this collar, often with a couple of tapped screw holes, in which case a scale can be made of sheet metal, plastic or even stiff card and screwed in place on this plate. If not, the scale has to be attached to the rotating collar. I use a circular scale made from thin tinplate of a size such that there is enough space to give an adequate scale reading above the height of the tuning knob. A

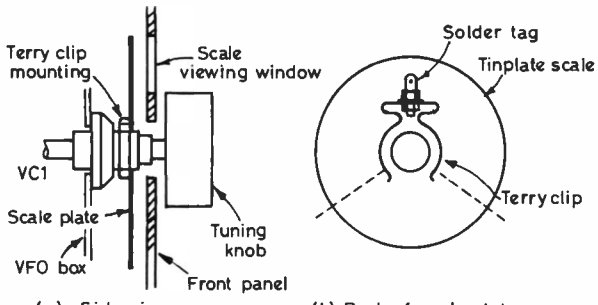


Fig. 6 SIMPLE TUNING SCALE

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nice large circular scale gives a good readout but remember that it takes up a lot of front panel space.

The scale plate can be attached to the rotating collar by making it a tight push fit but this often leads to slippage and misreadings. The engineers amongst us would solve it with their lathes but I use a *Terry* clip to hold the scale plate to the collar. The hole in the centre of the scale plate should be a snug fit onto the collar, and the clip, which is a tight fit on the collar, is attached to the back of the plate; this can be done with a solder tag. The clip should have a hole which will probably take a 6BA or 8BA nut and bolt onto which the solder tag is fastened. The tag is then bent 90 degreees and soldered onto the back of the tinplate scale with the clip in line with the centre hole; this should be a nice push fit onto the collar. In confined spaces, or if the scale has to be removed from the collar without taking the whole drive mounting apart, a wedge can be removed (*see* dotted lines in Fig. 6b) to enable the sale to be pushed onto the collar from the top. This will not be seen, as only half of the scale is used for markings on a control with 180 degrees of travel.

I find the scales look neater mounted behind the front panel with a window for viewing the calibration cut in the panel just above the control knob. A piece of perspex can be used to cover the window with a cursor marking scribed vertically for scale reference; the completed effect is shown in Fig. 7. It is easy to cover the front of the scale plate with white paper and mark in the calibration numbers with a thin felt pen or, better still, *Letraset* numbers. A little time and care spent on the main tuning control appearance really makes quite a difference to the finished item. Perfectionists mount a tiny 12 volt panel light above and to the front of the scale, inside the front panel, to illuminate the scale. Some even cover the bulb glass with green spirit felt pen trying to give that comforting glow we have come to know and love on Japanese grey boxes.

Fig. 7 shows a suggested layout for the front panel of the PCB80 receiver. In practice this is a matter of choice for the individual, but make the front panel pleasing to impress friends. There are several ways of tackling the finishing of a front panel. Some people spray them with car paint in small cans (but this easily chips off) and others like to see the aluminium itself. By the time the various holes have been made in the aluminium front panel it will be rather scratched and these marks ought to be removed. This can be done with household scouring powder and a steel wool pad, although for the best finish a soaking in a bath of strong caustic soda is advised. Strong caustic soda solution can be dangerous, however: it does nasty things to the hands and eyes and as the solution eats away at the panel it gives off a pungent smell. This is the sort of job to do outside without the children around. A good soaking for 30 to 40 minutes, perhaps after a rub down with emery paper if there are any bad scratches, does give a very pleasant matt finish to a panel.

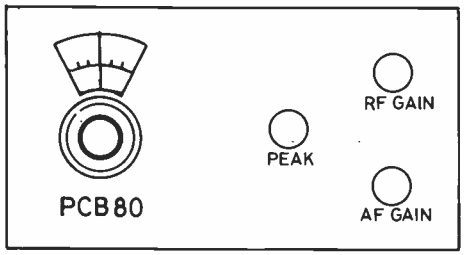


Fig. 7. SUGGESTED FRONT PANEL LAYOUT

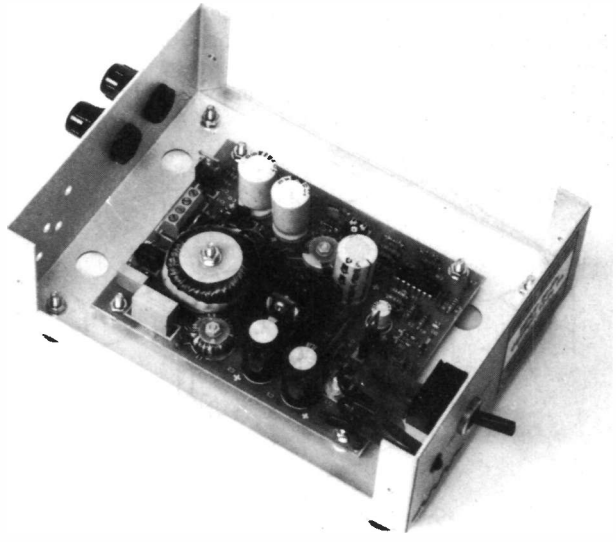
D 964

I use actually *neither* of these methods but cheat by making a front from a sheet of thin card to go over the front panel. This will hide all the nasties and in some cases I have not even bothered to put on a new panel but just drilled my required holes in an old one and the unwanted holes are hidden by the thin card. The card can be tinted or white according to taste and availability. I begin by taking the front panel with all the controls removed and pasting the card onto the front. I then cut out all the required holes from the back, using the panel holes as a guide, with a sharp pointed modelling knife. The various bits of lettering can be added to the card as required. Rub-down lettering is ideal for this marking but I have some draughtman's *Rotring* pens and stencils which do a very good lettering job. The obvious problem is that card (or even paper on some cases I have made) will quickly become dirty — and not only that, it *looks* like a bit of card stuck on the front. This can be overcome by covering the front with a layer of clear sticky-backed plastic film. This really is the secret to making it look professional, and the ideal stuff is the library film which is sold by stationers to cover books. A single layer of this over the front panel, cut to just fold over the edges, keeps the panel clean, protects the lettering and gives a pleasing finish. I also use this on plain aluminium panels which have been treated in caustic soda and lettered with rub-down lettering.

So not only will your radio amateur friends envy the equipment you have built but they could even envy the way it looks. . . .

To be continued

Components: Most of the components for the boards in this article are easy to obtain from the usual stocks and sources, the toroid cores are available from *TMP Electronic Supplies,* Unit 17, Pinfold Workshops, Pinfold Lane, Buckley, Clwyd, CH7 3PL, who, for an *s.a.e.,* will supply data and prices of the toroid cores.



A new product from *Davtrend Ltd.* is the DRAE 24V/12V Switched Mode Convertor. This neat and compact power supply unit is ideally suited to communications applications where low noise and full protection are required. Current price of the 6 amp. version is £39.95 inc. VAT (a 10 amp. version is also available), and full technical specifications will be sent on request by the designers and manufacturers, Davtrend Ltd., 89 Kimbolton Road, Portsmouth, Hants. PO3 6DA. (Tel: 0705-816237).

VHF BANDS

NORMAN FITCH, G3FPK

SEPTEMBER certainly was a month to remember for VHF/UHF operators, providing two extensive *Auroras* and a spell of superb tropospheric propagation in between. This has brought another bumper post bag.

The Satellite Scene

The most important news this month is that *UOSAT (U-O-9)* is back under the command of the *University of Surrey*. For the record it was at 1145 on Sept. 20 when the *Stanford Research Institute* station, WA6LET, in California managed to send a strong enough command signal at UHF to switch off the 145.825 MHz telemetry beacon which had been desensitising the UHF command receiver since April 4. On the following afternoon, *UOS Command* switched the command on and off several times and recorded some telemetry. Analysis of the latter revealed substantially normal working of all internal systems. A full program of control and experiments was scheduled to start on Sept. 29. So a hearty vote of thanks to the SRI folk is in order.

The European Space Agency suffered another set-back on Sept. 10 when the first of the commercial *ARIANE* launch vehicles, *L-O5,* failed. The *MARECS B* satellite, built by *British Aerospace* at Stevenage, was lost. It seems that everything went well for the first 561 seconds when a third stage turbopump apparently failed. In spite of this second failure of an *ARIANE* vehicle, *AMSAT-UK* reports that *L-O7* is scheduled for launch on Feb. 8, 1983, carrying the *Phase 3B* satellite. The specifications of the *Phase 3B* satellite are expected by *AMSAT-UK* to be available before this is published.

There have been further reports of jumbled telemetry on 145.971 MHz at times when *O-7* would be in range. *AMSAT-UK* has suggested a concerted listening watch and, from data in *Oscar News* No. 39, the reference orbit for Nov. 1 would be no. 36,425 crossing the equator at 00h.48m.19s. at 104.02°W. The period is now 1h. 54.93918m. and the track separation 28.73681°W *per* orbit for those with calculators. Reports of *any* signals exhibiting a *Doppler* shift on 145.971 or 29.502 MHz will be welcome, with exact dates and times, of course.

George Haylock, G2DHV, (Kent) is now QRV on the 145/29 MHz satellites and has worked W4NL in N. Carolina. He uses a 10m. ground plane for down-link reception. Adrian Chamberlain, G6ADC, (Coventry) reports his best DX so far *via* the *RS-6* transponder as WA5ZIB in Houston, Texas on Sept. 23, a QRB of 7,688 km. He has been copying *U-O-9* telemetry and looks forward to hearing the *Digitalker* soon.

Beacon News

The 2m. beacon, GB3VHF, on 144.925 MHz (AL52j) was switched on again at 1605 on Oct. 1. Keeper Brian Bower, G3COJ, got your scribe to check the signal within minutes and it was some 20 dB. up on what it was previously. The aerials are now two 3-ele. *Yagis* fed in phase, stacked vertically one wavelength apart, one beaming 288°, the other 348°. Of the 40w. fed to the bottom of the feeder, 24w. came out at the top, so the *e.r.p.* is about the same as before, but spread over a wider arc.

A new 4m. beacon appeared on Oct. 2 at 1815 from the Irish Republic using the call, EI4RF. The locator is WN38c and it runs 5w. on 70.130 MHz. using A1A. Keying sequence is, call, QTH locator, city (Dublin) followed by 8 seconds of carrier. One aerial is a 5-ele. *Yagi* beaming SE, the other a 2-ele. (4-ele. later) aimed NE. The aerials are switched each keying sequence. EI4RF is licensed to the national society, the *I.R.T.S.*, and was built by EI6DT. The keeper is EI6DN to whom reception reports may be sent.

On 70cm., Dave Sellars, G3PBV, (Devon) has heard a beacon signing F6GEZ/P in ZH53a on 432.003 MHz on several occasions recently. He reports that GB3VHF now averages 20 dB over noise and is copiable at Exeter University which is a poor location.

Award News

John Hunter, G3IMV, holder of QTH Squares Century Club award no. 3, was awarded sticker "250" on Sept. 27 and "275" on Oct. 2. A breakdown of the 50 QSOs revealed 36 on CW and 14 on SSB with 23 countries. There were 7 tropo., 3 *Ar,* 14 *E's* and 26 MS contacts. John has worked 320 squares, an outstanding performance for a G station.

José Mª Gené, EA3LL, was awarded his "200" sticker for QTHCC Certificate no. 14 on Oct. 4 and is now up to 205 confirmed out of 252 worked since Jan. 1, 1975. 7 QSOs were on CW, 18 on SSB, the modes being 7 MS, 10 *E's* and 8 *via* tropo.

Contest Corner

Eddi Ramm, DK3UZ, has forwarded the results of the *AGCW-DL* 2m. contest on June 26, which attracted a total of 52 entries in the three classes. The lone British entrant was G4GGV (ZL37g) whose 12 QSOs scored 645 points in the "B" class. It would seem that these four hour, Saturday night CW events are virtually ignored by U.K. amateurs.

The next *E-M-E* contest is over the weekend Nov. 6/7 and single band participation is all right, using standard procedures. The same weekend sees two 144 MHz CW events, the first a 24 hour affair starting at 1400 on the 6th to coincide with the *IARU Marconi* event, and the second, a 6 hour one starting at 0800 on the 7th. Both are either Single-op. or Multi-op. with radial ring scoring for the *RSGB* contest and one point *per* kilometre in the *IARU* version.

The final four sessions of the 432 and 1,296 MHz *Cumulatives* are on Nov. 1, 9, 17 and 25, starting at 2000 *GMT*. The first two hours for 432 MHz, the last two for 1,296 MHz. Pick your best three out of the seven, total, periods and send logs to G3VPK (*QTHR*). On Nov. 20, commencing at 1900 GMT, there is the Dutch *VRZA* Worked All Provinces contest in which Section "A" is for 144 MHz and "B" 432 MHz and above. The duration is six hours. Non-Dutch participants to give RS(T), serial number and QTH locator and the PAs will give their region numbers and provinces. Scoring is a bit complicated and rules can be obtained from C. Miedema, PE1CZQ, Korenstraat 73, NL-1773 AR Kreileroord, Netherlands. Suggest send an I.R.C.

Microwaves

The superb tropospheric conditions which occurred between Sept. 13 and 15 resulted in some exceptional contacts being made on the microwave bands. By far the best DX so far reported was the 23cm. QSO between Ken Howe, G4KDH (AL34h) and OH0NC (KU71g), a distance of 1,524 km. and a new European record for the band. RS51/53 reports were exchanged.

Syd Harden's, G2AXI, (Hants.) station was not quite ready for the lift. He now has four 23-ele. *Tonna Yagis* aloft fed with *Andrews* LDF4-50 cable, and the amplifier is nearing completion. Bill Hodgson, G3BW, (Cumbria) was copy-GB3IOW at S8 on 23cm. in the lift. G3COJ put up a 23-ele. *Yagi* on Sept. 11 and started in style on the 14th with ON1JE (BL80f), followed by SM6GWA (FS27j) and OZ1ABE (GP12j). Brian worked his first F station for nine years in the Oct. 2/3 contest, F1DPX/A (AJ14j), plus G4HWA/P (AN61c) for another new square.

G3PBV (Devon) worked G6FK (Wolverhampton) with 3w. on Sept. 11 and the next day, Dave noted good signals from the main U.K. 23cm. beacons although activity was low. On the 13th, F6DZK (AI) was worked on CW. G4CCH (Scunthorpe) with 100w. to a 2m. x 7m. dish was a phenomenal signal and Dave

had a 45 mins. QSO with G4KCT and G8SFI in York. On the 16th, G3TDG (Kent) was contacted, the 18th bringing G3JXN (London) and GJ4JWA. In the contest, F1DPX/P and G3ZUD/P (ZM) were heard.

Having used G8MWR's 3cm. gear for a while, Garry Clark, G6FSH, (Coventry) now has his own equipment. However, the Rx side needs more work, being insensitive and subject to 100 MHz break-through. Mike Hearsey, G8ATK, (Surrey) lists SM6ESG (GR72h) on 23cm. on the 14th, worked with one watt and reckons that his new amplifier should enable the same range to be achieved as on 70cm. John Lemay, G8KAX, (Essex) still only has 3w. on 23cm. and did not mention the lift. In the Oct. 2/3 contest, he got F1DPX/P and G8SFM (Gloucs.) who was running just one watt.

Gordon Emmerson, G8PNN, (Northumberland) is now up to 25 squares on 23cm. and worked SM1BSA (JR22e) on Sept. 14, at 1,248 km. He got an S7 report. He is a happy man having been granted planning permission for an aerial tower by the *DoE,* following local authority refusal last year. Geoff Toulalan, GW8AAP from Prestatyn, Clwyd, has a home QTH surrounded by obstructions so has been operating portable on 23cm. and 70cm. from 7 km. NW of Mold (YN65h). He runs just one watt, through 12ft. of feeder from his car, to four, home made 27-ele. *Quad Loop* aerials. Using an insulated frame seems to make the array more efficient. Between 1858 and 2339 on Sept. 14, Geoff's log lists QSOs with 17 PA and DL stations, plus ON1JE and SM6ESG at 1,065 km. He usually goes -/P on Tuesdays.

Seventy Centimetres

EA3LL is now up to 30 squares worked on the band including CN2BL (YV) on July 14. G3BW concentrated on 70cm. in the Sept. 13/14 opening working a fair number of D, PA and F stations. G3COJ heard UP2BJB (LP06d) at RST539, but could not raise him at 0320. A test half an hour later arranged over 2m. proved abortive, too. During one of the Auroras, Brian worked DL7QY (FJ61c) at 1415 and GM4JLY at 1648, the former being audible for some 90 mins.

EI3VKB/P (WN) was a new square and country for G3PBV on Sept. 2 *via* tropo. On the 14th, Dave managed OZ7IS (GP), OZ1HRA (EQ) and SM6ESG, with ON5RF/P (CJ) the following day. The Oct. 2/3 contest saw poor conditions with just 12 QSOs including F6CTT/P (AJ) and G4LOJ (Norfolk). On Sept. 26, Dave heard his first *Ar* signals on the band, starting with G3WOH at 1358. Mike Lee, G3VYF, (Essex) is now up to 113 squares worked on the band with 98 confirmed, so looks like being the first reader to apply for the 432 MHz QTHCC award. Recent tropo. additions include GB2XM (XM), OE5UKL/5 (GI), OZ1HTB (HP), OE3LFA (II), SM7GEP (HR) and UP2BJB.

G6ADC found the tropo. very good, with better operating practices making it possible for Adrian to work many new squares, counties and countries. Cliff Jeffery, G6ADE, (S. Yorks.) took full advantage of the mid-Sept. lift and is now up to 16 countries this year. His successes included SM7CFE (HQ), SM7FMD (HR), Germans in DJ, FI, FJ and FL and French stations in CI and DI. John King, G6ADH, (Surrey) found it all rather frustrating in the big lift. Endless "CQ" calls produced no QSOs, even though there were dozens of S9 OZs and SMs. However, he did get HB9AMH/P on the 15th, and heard later that DD0HR (FN) was copying him at 20dB over S9.

Bob Percival, G6CGY, (Cleveland) is now on the band using a *Yaesu* FT-780R and 48-ele. *Multibeam* at 45-ft. He reckons to be on most nights. Keith Hewitt, G6DER, (S. Yorks.) had just replaced his aerial feeder on Sept. 11 in time to work DF3XU (FN), then F6EYM/P (ZJ) the next day. On the 14th, the tally included PE1ALA (CM), DJ8PB, OZ7IS, DL6FAW/P (EO), and others in CL and DL squares. Welcome to new correspondent D. Hooper, G6HTJ, who enters the Squares Table.

G8ATK lists 37 QSOs made between 2045 on the 13th and 2236 the next day, this period producing eight new squares. The best include DC7UT (GM), SM6DHD (GR), Y22ME (HM), SM6GWA (FS), DF3XZ (FN), SM6FZD (FR), SM7GEP (HR) and SM7CFE (HQ). Martyn Jones, G8CXQ, (Warks.) is another reader who favoured 70cm. in the Sept. 13/14 affair and got ten new squares in the process. His list includes G, GI, F, ON, OZ and SM stations.

John Pilags, G8HHI, (Hants.) noticed severe *radar* QRM after 2300 on Sept. 13 and 14 but did manage to work a nice selection of D, G, GI, EI, SM and OZ stations to boost his scores. John Moxham, G8KBQ, (Somerset) was QRT on the band till Aug. 28 when he re-erected his two 19-ele. Tonna Yagis with their new LDF4-50 feeder cable. He lists the same, choice German and Scandinavian DX others managed. G8PNN is now up to 57 squares and worked into France and Germany in the Sept. 13 lift, and also GJ4ICD (YJ) on the 15th.

Many operators are hard put to get 20 countries in a year on 2m., but Chris Easton, G8TFI, (Gloucs.) has already managed it this year on 70cm. He lists some really choice stations worked on Sept. 13 and 14, 49 in all, including his best DX, OE3LFA (II52g) at 1,460 km. On the 13th, German and Dutch stations predominate, but the following evening OZ and SM stations appear. Rod Burman, G8ZSU, (Surrey) has just acquired a *Trio* TS-780 transceiver covering 2m. and 70cm.

QTH LOCATOR SQUARES TABLE

Station	23cm.	70cm.	2m.	Total
G3POI	—	—	379	379
G3IMV	—	—	320	320
G3VYF	—	113	307	420
DK3UZ	—	—	304	304
G4IJE	—	—	284	284
SP2DX	—	—	280	280
EA3LL	—	30	252	282
G4IGO	—	19	244	263
G4ERG	—	16	235	251
G4DEZ	—	—	226	226
G3CHN	—	—	224	224
GJ4ICD	1	102	223	326
G8VR	—	3	215	218
9H1BT	—	11	210	221
G3BW	5	35	198	238
LA8AK	23	49	195	267
GM4COK	—	26	194	220
GJ8KNV	12	76	191	279
G3FPK	—	—	190	190
GW4EAI	—	—	187	187
G3KEQ	—	—	186	186
GW3NYY	—	42	169	211
G4PCI	—	28	163	191
G8KBQ	4	75	161	240
GJ8SBT	3	—	161	164
GM4CXP	—	26	159	185
G4OAE	—	26	157	183
G3PBV	17	77	156	250
G4MCU	—	43	153	196
G3COJ	30	80	147	257
G8CXQ	—	47	143	190
G4JZF	—	68	140	208
G4HMF	—	32	140	172
G8LFB	—	—	139	139
G4NFD	—	36	138	174
G3JXN	46	91	137	274
G8RZO	—	61	133	194
G6ECM	—	—	133	133
G8HHI	11	70	132	213
G8RZP	—	62	132	194
G3NAQ	—	58	128	186
G8ATK	14	77	127	218
G6ADH	—	29	124	153
G3XDY	30	84	123	237
G6DDK	—	11	122	133
G8TGM	—	—	122	122
G8WPD	—	19	120	139
G2AXI	9	69	118	196
G4NQX	—	46	111	157
GM4IPK	—	—	111	111
GM8OEG	—	—	109	109
G4MJC	—	12	108	120
G4MEJ	—	—	105	105
G4ERX	6	46	104	156
G8PNN	25	57	104	186
G8XIR	—	—	104	104
G4GFX	7	40	103	150
G8VRJ	16	38	101	155
G4GHA	—	—	100	100
G4MWD	—	—	95	95
G4HFO	—	57	92	149
GD2HDZ	13	46	91	150
G8ULU	—	58	91	149
G3FIJ	—	29	90	119
G4NBS	13	57	89	159
G8SRL	—	21	83	104
G8RWG	—	—	83	83
G8KAX	14	52	80	146
GW3CBY	5	16	79	100
G8XQS	—	4	76	80
G8VFV	—	—	76	76
G4KLX	—	5	74	79
G8FMK	16	57	71	144
G6ADE	—	64	70	134
G8WUU	—	22	70	92
G4MUT	—	50	69	119
G6DER	—	12	67	79
G6HTJ	—	17	66	83
G6CNX	—	—	63	63
G6HKT	—	28	62	90
G8XMP	—	—	62	62
G6ADC	—	32	57	89
G8ZSU	2	18	57	77
G4NWT	—	22	55	77
GM8BDX	—	24	53	77
G4NRG	—	9	51	60
G4PEM	—	—	50	50
G6ABB	—	—	49	49
G8ZYL	—	—	46	46
G4LDY	—	3	41	44
G8LXY	—	20	34	54
G4BVY	9	72	—	81

Starting date January 1, 1975. No satellite or repeater QSOs. "Band of the month", 2m.

and is ". . . learning how to drive it"!

For Pete Godfrey, G8ULU, (Kent) Sept. 3 brought his 14th country this year in the tropo. lift to the east, in the shapes of OE2CAL, OE2KMM and OE2SCM, all in GH. Others were OE5UKL/5 (GI), DG1NZ (FJ) and DF3CK (FH). In the Oct. 2/3 contest, new squares AJ, BJ, AN and DJ were worked. Geoff Brown, GJ4ICD, has now passed the 100 squares target in the big lift, best DX being LA8AE (FT72h) for the first GJ/LA on the band. He is claiming GM4JLY (YR80a) for the first GJ/GM, too. No. 102 was DB4LT (EO72e).

Two Metres

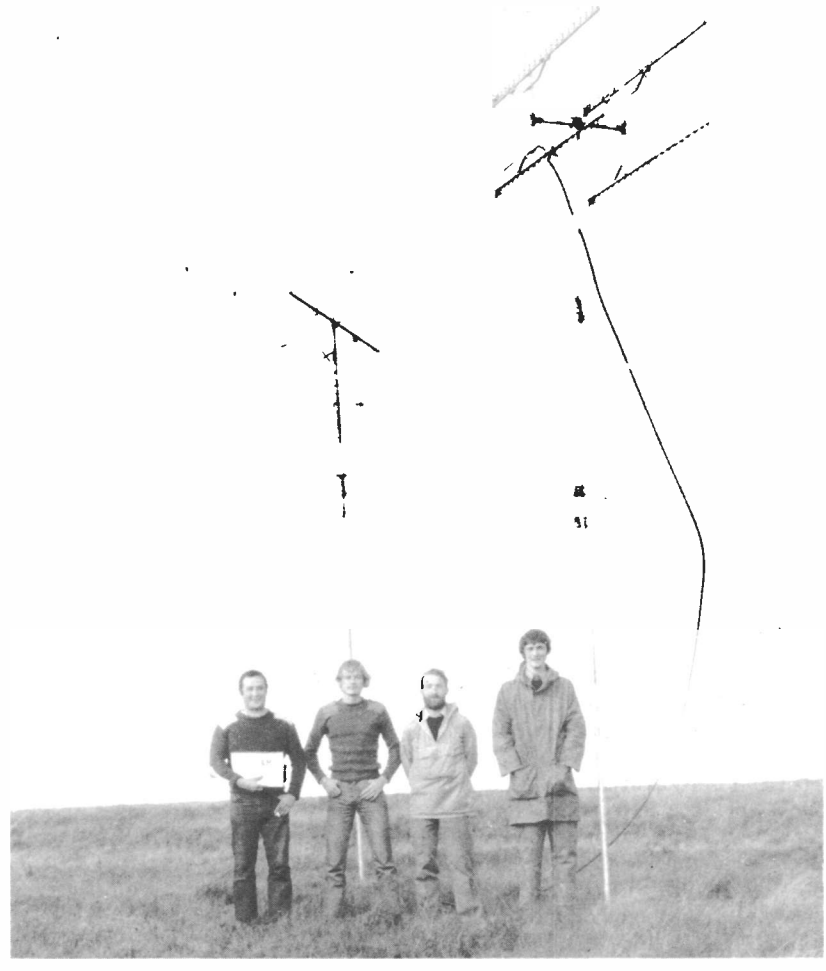
The exceptional mid-Sept. tropo. opening and the extensive *Auroras* of Sept. 6 and 26, have produced another great wad of fascinating reports. The tropo. scene for September is put into context by David Whitaker's (N. Yorks.) report revealing 30 sq. and 11 countries heard in the contest on Sept. 4, and 81 sq. from 16 countries heard in the 13/14th period. He lists many SMs and OZs in the "H" squares, and LA5IH (CU), Y38ZA (HN), SM7MVR (IQ), SM7LSW (IR) and SMIs, LPU, MKY and MUU in JR. All on SSB and David asks we state the mode used in reports.

G2AXI made the most of the Sept. 2/3 conditions, which were east/west, by working from OE to EI. Syd concentrated on Ireland in the contest with good results. On the 14th, OZ1GRF (HP) and LA8EW (DS) were new squares. G2DHV heard a couple of GWs, "in a recent contest and UB5MDP . . ." which last sounds like 10m. IF breakthrough, George. Jack Mitchell, G3KEQ, your scribe's radio neighbour, found HQ, JR and KQ squares on the 14th but failed to land an OE in II sq.

G3PBV started the month with DL6NAA (FK) but missed out on OE1XA/2 (GH) on the 3rd. Afterwards, in the *IARU* Contest, nothing further than EI and EJ to the east was heard. The major event started to build up from the 11th with Dave, with narrow ducting much in evidence. The evening of the 13th brought LA2SN (ES) and SMs in GP, GQ and GR, plus HP. At 0200 on the 14th, beacons DL0PR, SK7UHF, LA1VHF and GB3ANG were all good signals in Newton Abbot, but the only easterly QSO was with Y22ME. Conditions seemed best in the morning of the 14th and Dave writes that G3IYG (Exeter) worked EA3PV (BB) and heard EA8XS (SO) using a *Liner-2* and a smaller *Yagi* in the loft! More SMs were worked in heavy QRM that evening from G3PBV.

G3VYF mentions a beacon UP2WN (MP72j) on 144.138 MHz at S1-2, audible for two hours from 2300 on the 14th and running 2w. to a dipole. RG2WCG (OP) was a new sq. for Mike on the 14th. Ken Osborne, G4IGO, (Bristol) found conditions good in all directions in the Sept. 4/5 contest and worked EI5DD/P (VN) for a new sq. On the 13th, he lists 14 QSOs with D, LA, OZ, SM and Y stations all over 1,000 km., and a further dozen the next day over 1,200 km. all SMs. His best DX was on the 15th, UQ2IV (KQ) and SM1LPU on Gotland.

Fleming Jul-Christensen, G4MJC, (E. Sussex) did well on Sept. 13, both to the east and west working folk from HM to WN squares. The following day produced some more QSOs once he, G3CPS and G8ZWJ, all in AK12f, agreed to "triple-up" on the frequency. Best DX was SM5IXE (IS21c) at 1345, a QRB of 1,983 km. 18 new sq. and 64 QSOs resulted from the lift. After many failed MS attempts to work LA, George Gullis, G4PCI, (Wilts.) made it on tropo. on the 13th with LA6VBA (ES). The lift period brought Scandinavians in several new squares, including the rare JQ, thanks to SM1LPU/1 on the 15th, also worked by G6ADE.



Details of the GB2XM DX-pedition to XM square in August appeared in last month's column, and shown here are four of the five members of the group. Left to right, Walt Davidson GW3NYY, Peter Young GW6EWA, Richard Hope GW8TVX, and Reg Woolley GW8VHI; the fifth member was Chris Easton, G8TFI. Aerials were a 4 x 19-element F9FT for 70cm., and a 4 x 23-element F9FT for 23cm.

G6ADH managed to work all the OZ squares and lists best DX as SM1MUU (JR), Y22JE (HM), LA2SN (ES) in addition to numerous SMs in GT and HT. G6CGY now has an *MM* 100w. amplifier driven by his *FT-290*, so is finding things a bit easier now from Cleveland. G6DER's QTH is a bit hemmed in by hills, so Keith was pleased to work some Fs in the Sept. 4/5 contest. Mick Cuckoo, G6ECM, (Kent) continues to turn in lists of very choice DX. Sept. 3/4 brought five OEs in GH, GI and HH, and OK1KRA/P (GK). The 13/15 period saw many D, OZ, SM and Y entries in the log, plus HB9QQ (EH), OE5ODL (GI) and SM1MUU.

Garry Clark, G6FSH, (Coventry) used the Sept. 3/5 period to add EI2VLC/P and 8 sq. to his total, then added more in the mid-month lift, all with 25w. to an 8-ele. *Yagi*. Phil Ingham, G6HDD, (Bolton) now has two, 8-ele. *Yagis* which, with 15w. of RF, has produced his best DX at 1,100 km., OZ1BJF (HP). In addition to numerous PA and D stations, EA, F and Y

stations were copied in the Sept. 13/14 period. Sept 13th, was an historic day for G8ATK when Mike worked GI4MUE (XO22c) for the first GI in 15 years! During the lift, he worked a good selection of D, Y, OZ and SM stations.

G8CXQ highlights OZ1ASL (FO), SM7FMX (GP), SM7JIQ (HR) and SM6AEK (GQ) in the big lift and confirms that on the 13th, it favoured the GW and EI folk, and more the west country operators the next day. G8HHI lists 4 GMs and 3 GIs in the contest, plus this S1AD (AL08e) operating from an old *WW2* fort a dozen or so miles off the Essex coast and claiming to be an independent country, would you believe! Since this station cannot have been licensed by any recognised *I.T.U.* signatory, your scribe puts it in the pirate category, so not counting for anything. John lists the same selection of German and Scandinavian DX worked by many others in the mid-Sept. opening, in which FQ, HP and HS were new sq.

G8KBQ has added many new squares since his last report and lists all the SSB DX in D, LA, OZ and SM worked by many in the mid-month lift, as does Jim Rabbitts, G8LFB, (London) who quotes SM1LPU/1 in JQ as his best DX. G8PNN found Sept. a good month for new squares, listing ten acquired in the 12/14th period, the total being 104. For G8ULU, Sept. 1 brought EI2VLB/P for a new sq., county and country, and on the 3rd, Pete got OE50LL (GI) and OE1XA/2 (GH). However, he was disappointed that this lift fizzled out before the contest.

Martin Chapple, G8XQS, (Warks.) worked a number of nearer continentals at the beginning of the month and reckons the lift lasted into the contest weekend. LA1EKO (BQ37g) was a new one on the 13th when he could hear the EIs and GWs working east Europeans not audible in Harbury. The next day brought QSOs with SM7MBH (HP) and SM7FIH (GP) while a "CQ" call was answered by OZ1GAB (FQ).

In Jersey, the local lads went out portable with GJ4ICD's gear and made 952 contacts in D, OZ, PA, SM, etc. The next day, Geoff worked 38 sq., the QSOs comprising 43 GMs, 96 OZs, 72 SMs, 23 LAs and others, Andy Renouf, GJ8SBT, had an all-night session on Sept. 13/14 which brought 11 new sq. before he left the island for a term at the University of Kent. He, too, got LA1EKO who was only running 10w. and he found many OZs workable with 10w., too.

Peter Whitburn, GW4EAI, (Gwent) has written again and mentions a QSO on Sept. 13 with EA1TA (VD58b) who was "end stop" in Blackwood. On 10w. he was still S9-plus-20dB as was Peter on 5w. During the lift, he worked about 20 SMs, 20 OZs, 20 DLs and 10 PAs, but his best ever tropo. DX was SM1CJV in JR62b.

Paul Turner, G4IJE, (Essex) says his best DX mid-Sept. was RC2WBR (NP75g) followed by UQ2GDA and UQ2IV, both in KQ. Y22IC (GN) and SK7JC (HQ) were new squares and he also worked half a dozen SM1s. NE through E is a bad direction from G3FPK, so your scribe was flabbergasted to work UQ2IV so easily on CW on the 14th and UQ2GDA, but RC2WBR at 1,828 km., is far-and-away the best ever tropo. DX. As there was not even a mini pile-up, it would seem to bear out G3PBV's observation of very selective ducting.

And now to the major *Auroral* events and first to DK3UZ's reports. Eddi's log shows 7 *Ar* QSOs on Sept. 4 between 1454 and 1525, two with SMs, the rest with LAs in the "T" squares. In the intense event on the 6th, 46 QSOs are listed between 1213 and 1710, pick of the lot being RA3LBK (QP77d), UW3GU (TP31a) and UA3LBO (QO21h). Countries worked include OK, UA3, YU, HG, I, UR2, UQ2, G, UP2, F, LA, OH, SM and OE. In the same event, David Whitaker heard 10 countries and 28 sq. but surpassed this in the Sept. 26 one with 13 countries and 39 sq., all on SSB.

Using SSB, G2AXI worked IW3QBC (GG) also OE and some GMs on the 6th, but missed the *Ar* on the 26th. G3BW did participate, however, and Bill's best DX was UP2BKH (KP27j) and OH1AA (LU42f) in an event lasting from 1315 to 1912. Roger Thorn, G3CHN, (Devon) attempted 7 QSOs on the 26th and made it with 6, *viz:*— UP2KBH, SM7DLZ (IQ53h), OK1KHI (HK62d), SM5CFS (JT24j), UQ2GLO (KQ49g) and Y23JK (FK12c). RQ2GAG (MQ01g) was S2 but not worked through the pile-up of Germans calling.

G3PBV missed most of the Sept. 6 affair but noticed a weak event from 2140 on the 21st. Dave caught the Sept. 26 one at 1337 and worked EI2BBB (VM) at 1433 before QSY-ing to 4m. On Oct. 1, another weak *Ar* occurred for a few minutes from 2250, when GM8FFX was heard. G3VYF got UP2BKH and UP2AN (LO) on the 6th, and SM7GMC (HQ) on the 26th for new sq. no. 307. G6ADC got in at the beginning of the Sept. 26 *Ar* but could not get a GM in WS sq.

G6DER had only ever heard U.K. signals *via Ar* till Sept. 6 when he went on to work into PA, D and F. Keith was also QRV for the Sept. 26 event when more

ANNUAL VHF/UHF TABLE

January to December 1982

Station	FOUR METRES Counties	FOUR METRES Countries	TWO METRES Counties	TWO METRES Countries	70 CENTIMETRES Counties	70 CENTIMETRES Countries	23 CENTIMETRES Counties	23 CENTIMETRES Countries	TOTAL Points
G2AXI	56	7	73	22	50	17	*12*	*2*	225
G3BW	45	6	74	22	47	10	*5*	*4*	204
GD2HDZ	54	7	68	15	44	11	*3*	*2*	199
G3PBV	35	7	66	22	38	12	*14*	*6*	180
G8TFI	—	—	78	20	61	20	—	—	179
G4JZF	—	—	82	22	58	17	—	—	179
G8RZP	—	—	72	24	40	14	—	—	150
G6ADE	—	—	65	16	53	16	—	—	150
G8RZO	—	—	71	24	40	14	—	—	149
G3FIJ	42	4	54	17	25	3	—	—	145
G6ADC	—	—	67	13	46	14	—	—	140
GW3NYY	—	—	81	27	19	7	—	—	134
G8HHI	—	—	60	19	28	12	10	2	131
G8VRJ	—	—	46	15	33	11	20	5	130
G4MUT	15	4	52	17	32	10	—	—	130
G8ULU	—	—	60	21	34	14	—	—	129
G8VR	23	3	62	35	—	—	—	—	124
G4ARI	35	2	67	19	—	—	—	—	123
G6ADH	—	—	65	21	26	7	—	—	119
G4DEZ	—	—	77	41	—	—	—	—	118
G6ECM	—	—	80	25	—	—	—	—	105
G6DER	—	—	72	16	11	5	—	—	104
G8KAX	—	—	42	12	24	9	10	3	100
G3FPK	—	—	75	25	—	—	—	—	100
GM8OEG	—	—	74	25	—	—	—	—	99
G8LFB	—	—	72	23	—	—	—	—	95
GM4CXP	8	3	51	21	6	3	—	—	92
GW3CBY	12	4	44	15	13	2	*4*	*3*	90
GW3CCF	—	—	42	8	23	4	10	2	89
G6FSH	—	—	71	15	—	—	—	—	86
G8WUU	—	—	41	15	18	6	—	—	80
G8VFV	—	—	60	16	—	—	—	—	76
G4KLX	—	—	53	18	3	1	—	—	75
G4MEJ	—	—	51	23	—	—	—	—	74
G6CGY	—	—	51	14	4	2	—	—	71
G4NBS	—	—	24	5	24	4	11	1	69
G4FKI	21	2	23	10	9	1	—	—	66
G8RWG	—	—	54	12	—	—	—	—	66
G4NRG	—	—	34	14	12	4	—	—	64
G6AJA	—	—	49	13	—	—	—	—	62
GW4HBK	35	7	14	5	—	—	—	—	61
GM4COK	—	—	28	20	5	6	—	—	59
GW8TVX	—	—	39	11	—	—	6	3	59
G8XTJ	—	—	48	9	—	—	—	—	57
G8LXY	—	—	30	7	16	2	—	—	55
G4BVY	9	2	—	—	29	11	—	—	51
G6HDD	—	—	40	7	—	—	—	—	47
G8XHL	—	—	25	8	9	3	—	—	45
G8ZYL	—	—	35	8	—	—	—	—	43

Three bands only count for points. Non-scoring figures in italics.

PAs and Fs were worked, plus EI5EG (VM) to further boost the total of squares, etc. The EI was also one of many contacts made by G6ECM throughout the British Isles, along with 3 OZs and stations in DL, DM, DN, EL and EN sq.

G8CXQ started short time working on Sept. 6 so was able to enjoy the *Ar* by finding four new squares. Martyn picks out YU3CAB (HG), IW3QBC, F1FEN (CF) and OE3s NDA and OBC (II). He got EI5EG on the 26th for sq. no. 132. G8KBQ was around for the start of the Sept. 6th affair in which he made 63 QSOs. John's initial "CQ" from YL sq. resulted in a pile-up lasting two hours in which his best DX were YU7AR (KF01c), OK2KZR (IJ32j) and 8 OEs in GI, HH, HI and II sq.

G8ULU worked EI5EG, F1BUU (ZE) and GM8OEG (YQ) for new squares on the 26th at QTF 60° and Pete was pleased with the French contact as it is a bad tropo. direction from Whitstable. G8XQS came on on the 26th for the *RSGB* Region 1 contest but, when the *Ar* started he swung the beam around and made 24 QSOs in 18 sq. and 10 countries. Martin's best DX was OZ1DPR (EP54e) at 1412, then assorted Ds, GJ, GM and EI.

Doug Mellor, G8WPD, (Derbys.) has read the *Magazine* for years so thought it time he wrote. He has a *TS-770E* and *NAG* amplifier into two, 9-ele. *Tonna Yagis* 1,200ft. *a.s.l.* in the Peak District. He worked D, F, OE, OK and Y stations and was called by YUs and HGs who were uncopiable through the QRM from D stations. With 120 sq. already, Doug is doing well.

Derrick Dance, GM4CXP, (Borders) sent in a 6-page log of 117 stations worked on the 26th between 1410 and 1903, in 11 countries at estimated QTF 80-90°. Interestingly, only one SM was worked and no Russians so it seems there was quite a different mixture of stations than were workable from London. For example, when GM4CXP was working the I, K and L row of squares, your scribe was exchanging 59A reports on CW with UP2BKH (KP27j) at 1403. QTFs from London were between 30 and 60° and the *Doppler* shift up to 700 Hz high, a fact worth bearing in mind when transceiving in SSB.

In the Sept. 6 event, G4IJE beamed more northerly and picked up UR2EQ (NT) his best *Ar* DX, UK2RDK and UR2AO (MT), OH2TI (MU), OH1ZAA (KV), UR2RIW (LS), OH1PS (LU), UQ2GLO (KQ), UP2BKH, RR2RBD (MS) and three UB5s in LI17a out -/P. On a more easterly heading, Paul worked I, HG and YU.

Four Metres

G3PBV used the Sept. 26 *Ar* to work some GDX in the Region 1 contest, including GD2HDZ, EI2CA (Wicklow), G4APA/A (Cheshire) and G3VNQ near Rochdale. Dave heard GI3TLT, GM3UAG and GM4DIJ. GD2HDZ worked 12 stations in the Region 1 contest *via* the *Ar*, the best DX being GJ. Even so, only EI2CA and G4MID (Suffolk) were new counties for 1982. GM4CXP is off the band at present due to transverter trouble.

Six Metres

Ken Ellis, G5KW, reported reception of FY7THF on 50.039 MHz for 18 minutes from 1300 on Oct. 8. The same day, he mentions that the South African beacons ZS6LN and ZS6PW were audible, from time to time, till 1625. Gordon Pheasant, Staffs., G4BPY, copied ZS6PW *via* trans-equatorial propagation on the afternoon of Oct. 8, too.

It seems that over 180 people contacted G3WSN to express their desire to get permission to operate on 6m. All have been sent a questionnaire and eventually, when the *RSGB's* VHF Committee has carefully studied all the replies, it will recommend that a proportion of the applicants be granted operating permission. One does not envy the Committee's task for it has to be scrupulously fair and impartial. But above all, those finally selected must be completely reliable in adhering to the restrictions to be imposed.

Final Miscellany

Last month, Don Hughes of Stockport asked to be entered in the Squares Table, but forgot to reveal his call. Tony Haas, G4LDY, traced poor performance of a 2m. transverter to *PIN* diodes oscillating at 134 MHz in broadband mode. Earlier this year, Reg Woolley, GW8VHI, was in Italy and met a few VHF enthusiasts. IW0BJE is publishing a sort of Italian *DUBUS* Magazine called, *Notiziario VHF/UHF/SHF* and seeks full details of British stations active on *E-M-E*, MS, etc. Station info. and telephone numbers for skeds. would be much appreciated. GW8VHI (*QTHR*) will pass on details — his 'phone no. is:— 0639 814202 — or you can write direct to:— Giovanni Benigni, IW0BJE, at Via C. Marescotti 5, I-00151 Roma.

The Editor was approached by one person at the Leicester show who said he thought there was too much emphasis on squares and DX in *VHF Bands* and far too little coverage of repeaters. This feature is based entirely upon input from you, the readers, including clubs and specialist groups when it is more appropriate to include the latter here, rather than in the *Clubs Roundup* column. The simple fact is that very little is ever received on repeaters, either from users or those who build and maintain them. Next time you write, you may care to comment on this topic.

Deadlines

That about wraps it up for another rewarding month. All your news, claims and comments for December by Nov. 3 and for the following month by Dec. 8 to:— "VHF Bands," SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts., AL6 9EQ *73 de G3FPK*.

Danesbury Instruments **have been appointed sole U.K. distributors for the new range of British designed and manufactured RF instruments by Sharetree Ltd., of Stroud. Shown here is the Type 450 wide-range signal generator, which covers 50 kHz to 174 MHz in 10 ranges and offers AM or FM modulation, high stability and 5-digit bright LED readout. RF output is 50 mV into a 50-ohm BNC connector, with 0-80dB push-button attenuator in 20dB steps, plus 0-20db continuous. Internal or external modulation facilities — sine, square or pulse — are provided. Full details of the professional-standard Type 450, which costs £750, are available from Danesbury Instruments, 22 Parkway, Welwyn Garden City, Herts. AL8 6HG. (Tel: 07073-29112).**

"YOU DO TEND TO SAY THE SAME OLD THINGS", REMARKED "JM"

JACK HUM, G5UM

FOR years and years the fellows at the club had come to look upon one of their members with a mixture of respect and awe coupled with not a little mystification. One reason was that although he could copy the Morse code at 35 w.p.m. and sported a cat's cradle of aerials large and small at his home QTH, he had never, but never, seemed interested in obtaining a transmitting licence. To visit his radio room was to wonder why. Around its walls hung certificates from countries far and wide and QSL cards of a rarity that made the "500-countries-worked" boaster feel small indeed.

Another reason for the respect, awe and mystification was the chap's name: Horatio Jones-Minor. Already club members had difficulty enough with the name of stout Ethelbald when they came to address him personally: few could bring themselves to call him "Ethelbald" and as time wore on he came to answer quite readily to "Hey, you". But then Ethelbald, with his tattered Rugby jersey, was that kind of chap.

Not so Horatio Jones-Minor. A man in middle life, he wore a slightly "bank official" aura upon his persona — or maybe he was a solicitor. Certainly he never told any member what he did for a living. So you felt a bit diffident about going up to him and calling him "Horatio" — and he certainly didn't fall into the "Hey you" category. In all those years since he joined the club he would always take up the same position in a far corner of the meeting room, keeping his own counsel but listening intently to what went on.

The members sometimes wondered if Jones-Minor was his real name. One club evening, Mister Money Bags collecting ten pee pieces at the door ventured to ask him with a forced show of jocularity if there had even been a Jones Major. He wished he hadn't. Horatio JM murmured something about it's being rude to comment on other people's surnames, and anyway you couldn't help the one you were born with: it was your dad's fault.

Down the years, then, he had come to be known just as "JM". Even this appellation was anomalous, for members not in the know thought this was a contraction of his callsign. He was at pains to disabuse them of this belief: "I don't have a callsign and I don't want a callsign" he would say.

Well, why didn't he? The thought passed through the collective consciousness of the club committee one night when they were devilling out their forward programme. Why not ask him? Why not invite him to give the club a talk on the listener's point of view?

"He doesn't have a point of view: he has a point of hear" piped up Virginibus Puerisque (he belonged to the committee to represent the younger generation). His essay into the higher semantics was quietly ignored and the committee men went on to agree that, yes, it *would* be a good idea to invite Horatio JM to tell the members what it's like and what it takes to be a listener.

But would he accept? To the surprise of all he did so with alacrity and indeed asked ". . . to be put in to bat whenever you'd like me to". The opportunity was too good for the committee to miss: they had just suffered a let-down from A Grey Eminence from the Big Smoke who had promised to admit them into the more abstruse esoterica of logic circuitry but then couldn't: he had been posted to Guatemala.

Thus it was that Horatio JM went in to bat within a few weeks of his acceptance. And what he told the members shook them with the delight of the unexpected. For there was nothing about what kind of receiver you needed if you were a listener-only chap (he polished off this requirement by simply saying that ". . . you need a good one"). And there was even less about what kind of aerials: "Too obvious . . . it's all in the textbooks, and if at this time of your lives you need telling what sort of aerial you need for which band, then I marvel that you ever passed the RAE".

This candid commentary was only the start. And in the dissertation which JM proceeded to unleash upon the unsuspecting members there was very little electronics but a great deal of psychology.

How many of them, he challenged, really knew how to listen? How many of them retained the Morse capability for very long after they had got through the test? Indeed, how many had done no more than mug up enough dit-dahs to pass out at "twelve per" and then with a sigh had forgotten it all?

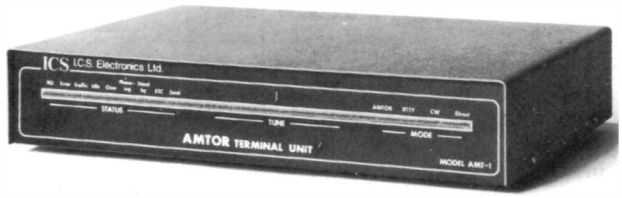
"What a waste to let it all go by default after those months of learning it and steeling yourself to submit to that nerve racking test (but weren't those professionals who passed you out nice chaps after all? They knew how you felt!)"

Anticipating that at question-time the members would suggest to him that telephony was after all more personal and much easier to use, Horatio JM told them he knew they would ask this, and if they did, how wrong they would be. Fervently he told them that a man's method of Morse sending was as personal as the sound of his own voice (so long as he didn't use one of those featureless machine-made Morse generating devices). And properly used, the A1 mode could impart almost as much information as the spoken word — and indeed more if you took into account those twenty-minute monologues he had heard on Eighty and on Bottom Band.

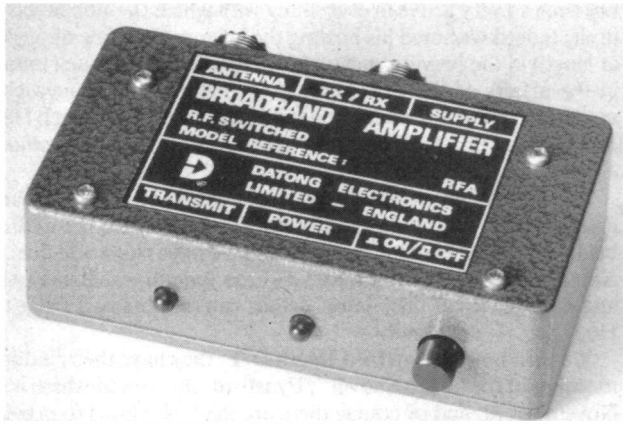
When at this point somebody in the audience said "What d'you mean, JM, by that phrase 'properly used'?" Horatio earned the opening he had been waiting for, and that was to point out that because the hand transmission of Morse was inherently slower than the voice transmission of modulation, you pressed into service all possible abbreviations and Q-signals (remember "Increase your Q-quotient"? — *S.W.M.*, May 1981) to speed the process up. You did not, as he had heard so many of the newer Morse-men do, spell everything out in longhand like TKS FOR THE QSO AND NOW I WILL PASS IT BACK TO YOU. Yes, he admitted to having heard this (and much like it) slowly pounded out at 9 w.p.m. exactly aping telephony terms and phraseology.

"Morse is a language of its own" went on JM "and the more you do of it the better you get, just like pounding a typewriter or driving a car or reading music".

("I seem to have heard that before" murmured Old Fangler in the audience to the man in the next seat. "Yes," came the whispered reply, "but it's true and worth hearing again").



At the British Amateur Radio Teleprinter Group's exhibition at Sandown Park on 29th August, *I.C.S. Electronics Ltd.* announced and demonstrated the new and unique AMT-1 AMTOR Terminal Unit. AMTOR (Amateur Teleprinting Over Radio) is a microprocessor-controlled error correcting data communication system which allows virtually error-free data transmission between suitably equipped amateur radio stations. The AMT-1 is a professionally made British product, developed by G3PLX and based on ITU Recommendation CCIR-476, designed to interface between a computer and an amateur radio transceiver to provide full text handling facilities, and is the world's first complete terminal unit to offer AMTOR. Price of the AMT-1 is £245 inc. VAT, and full details of this very interesting piece of equipment can be obtained from I.C.S. Electronics Ltd., P.O. Box 2, Arundel, West Sussex BN18 0NX. (Tel: 024365-590).



A new product from *Datong Electronics Ltd.* is the Model RFA, a low noise broadband preamplifier designed for easy external connection to existing receivers or low-power transceivers in the range 5 to 200 MHz. Send/receive switching is automatic and uses RF sensing and an internal bypass relay, and it simply connects in series with the antenna feeder. Wide bandwidth makes it ideal for use with broadband antennas and scanner receivers. Model RFA will be reviewed in an early issue of *Short Wave Magazine*, and it is available from Datong Electronics Ltd., Spence Mills, Mill Lane, Bramley, Leeds LS13 3HE.

"Shush!" ordered Mister Maths (the RAE expert) from the row behind.

That, continued JM, was what he had meant when he said at the outset "How many of you really know how to listen? If you did you'd notice how the more experienced hands went about it . . . you wouldn't laboriously spell everything out".

If at this point his audience imagined that JM intended to confine his talk to Morse procedures they would have been sadly wrong. He was in fact only just getting warmed up. He told them that although shortcomings in Morse sending were deserving of criticism, shortcomings in speech sending were far more heinous: Morse was overheard by few, telephony by many. So it behove us all, he declared, to be careful not only in *what* we say when we reach for the microphone but *how* we say it.

Noting that Old Fangler was about to interject another behind-the-palm comment to his neighbour, the speaker raised his output by several decibels and lowered his QRQ delivery to a QRS in order to say deliberately and slowly:

"Several members of my audience have heard all this, or something like it, before. Lots more haven't. And hundreds more are coming along from the last RAE output who have never heard it at all. You cannot emphasize too strongly (or I can't) that a microphone is dynamite!"

And as if to underline the point JM dramatically whipped a small black stick-like object from his pocket and held it aloft.

Virginibus Puerisque was seen to rise hurriedly from his seat and make as if for the door.

"Don't go, Virginibus" called JM with a kindly expression on his face: "It's only a mike". And it was. Virginibus sat down again.

Horatio JM went on to deploy the familiar analogy that there was nothing wrong with the marvellous inventions of man that included such things as the motor car, atomic power — and the microphone. It was the way they were used that counted. And he himself, he added, had had plenty of opportunity to hear how others used theirs, for he didn't have one of his own. (He had borrowed one for his dramatic demonstration). So what did he hear through other people's? He told them.

He told of his eavesdropping on the local weekly net, of his amused dismay at what he termed inefficiencies in communication, and these he proceeded to itemise:

There was the chap, he said, ". . . who sounded like one of those trade unionists interviewed on television . . . all 'I mean' and 'you-knows' used as punctuation points to allow time to think".

There was the synthetically bright boy who called everybody he worked over the air "Mate" (a few uncomfortable shufflings from JM's audience in the clubroom).

There was the chap who didn't want to say over the air where he worked ". . . because that would be advertising". Could there be anything dafter? asked JM. "You eulogise your TR-9000s or your IC-240s when you are in QSO and you don't call *that* advertising.

There was the operator who gave what he called "the handle" the prime position in his first transmission ("Not that word again" groaned stout Ethelbald very audibly from the body of the hall). Surely, suggested JM, the operator's name is of lesser importance than his QTH?

Still in full spate, JM went on: "Talking about forenames, why do so many of you use them as callsigns? Yes, I've heard you! You've got four Steves and five Johns in your weekly net, and you confuse me no end when one of them says 'Pass it on to John next'. Why not do what the licence says and use the callsign? After all, Christian names are common: callsigns are unique. There's nobody else in the world with yours".

Coming back to his general thesis on what he had called inefficiencies in communication, Jones-Minor said he included cliché in this category. A lot of people who got hold of a mike, he went on, were so at a loss for words that the best they could do was to drip cliché after cliché ending up with the inevitable "See you further down the log".

"You do tend to say the same things over and over again" taunted JM.

By now his hearers were getting decidedly restive. Several of them stood up and said so. Some went farther than that: they said that after all they had heard from JM that evening they would hardly dare go back home and lift the microphone again.

This was the moment when Mr. Tactful Chairman thought he ought to bring the proceedings to an amiable close by reminding members that there was still tea to be drunk from those smart new real (not tin) cups the club had recently bought. He called up Virginibus Puerisque to offer the vote of thanks. He did this deliberately, he said, because Virginibus represented the younger generation of radio amateur, and if *they* could be persuaded to adopt the operating procedures outlined that night by JM, then the future of amateur radio would, he thought, be in good hands — or voices, or fists.

Virginibus shuffled smilingly from one foot to the other, said that he was sure everybody present had learned a lot from the speaker, as he himself had, and that if an onlooker was supposed to see most of the game, then an on-listener like JM must surely hear most of it.

"So thank you on behalf of all of us, JM" concluded Virginibus, "and I really don't think there's anything more for me to say except Hope to See you Further Down the Log!"

CLUBS ROUNDUP

By "Club Secretary"

Letters

Every Thursday evening the **Abergavenny** group head for their Hq which is above Male Ward 2 at Pen y Fal Hospital, Abergavenny. Details from the Hon. Sec.

For **Acton, Brentford & Chiswick** the date is November 16, at Chiswick Town Hall, when the assembled multitude will learn all about the BBC Microcomputer, and have it demonstrated by G4FVE.

Every Wednesday evening the **Bedford** lads and lasses foregather at their Hq, the Club House, Ravensden, 100 yards from the well-known "The Case is Altered" pub; if you have equipment to work RB4, there is talk-in on their local repeater GB3BD. November 10 is a question and answer session with G8ELA, on the matter of the repeater, and on November 24, there is a talk on transistors by G4KWH. In addition, during the month they have two other items for the programme lined up — not to mention the Annual Christmas Dinner.

November in **Atherstone** means the AGM on 11th, and an informal on 18th, both at the Tudor Centre in Coleshill Road.

November's meeting for **Biggin Hill** is in the form of a visit to the IBA transmitter at Crystal Palace on 16th, for which we understand the number of places to be limited. More details from the Hon. Sec. — *see* Panel for his address.

On Tuesdays at the Mosses Community Centre, Cecil Street, you can find the **Bury** group. they have one 'set' evening and the others informal, so for November we see G8GTP and G3IXC talking about test equipment on 9th. G3IXC, incidentally, has done sterling work on the club newsletter for several years but is giving up at the AGM on December 14.

The **Cambridge University** crowd have their meetings on Mondays during term — details from the Hon. Sec., *see* Panel.

Cheltenham are based on the Old Bakery, Chester Walk, Clarence Street, Cheltenham; November 4 is down for a junk sale, and on 19th there is a natter night. This leads to the AGM on December 2.

We have a note from **Chesham** to say their foregatherings are at the new Hq at the "Stable Loft", Bury Farm, Pednor Road, on the second Wednesday in each month.

Next we come to **Cheshunt**, which means every Wednesday evening, at the Church Room, Church Lane, Wormley. November 3 means G3AAJ, talking AMSAT and also RSGB, and on November 17 they have the AGM. The other November evenings are down for natters.

Turning to **Chichester**, we find them at the Fernleigh Centre, North Street, Chichester; on November 2 they are in the Long Room, for the talk on satellite broadcasting by Jim Slater of IBA, but the informal meeting on November 18 will be in the Green Room.

From **Chiltern** we have a note that they are now based in the Sir William Ramsay school, in Hazlemere, High Wycombe, where they are to be found on the last Wednesday in each month, appropriately enough in the Science Block.

Every Friday evening the **Clifton** gang foregather in the New Cross Inn, Clifton Rise, London, SE14 for a pint; details from the Hon. Sec. — *see* Panel for his details.

We head east now, to **Colchester**, where on November 4 they have G4MYQ and G4JIE to talk about fast scan amateur television, at Colchester Institute, Sheepen Road, Colchester.

The meetings of the **Cornish** club are always at the SWEB clubroom, Pool, Camborne; on November 4 they will have a surplus equipment sale.

It was a great shock to the **Crawley** crowd to hear of the sudden death of Reg Cole, G6RC, their Treasurer, at the age of 81. Reg has been so very active in everything with which the club involved itself; indeed we noted his hosting the informal meeting discussed at length in the previous newsletter. He will be very much missed in the affairs of the club, and by the members. The next club meeting is on November 3, for a junk sale, at Trinity Church Hall, Ifield, and on November 24 they are to visit *Bredhurst Electronics*.

The new venue for the **Crystal Palace** meetings seems to be a great success, on the third Saturday in each month, the address being All Saints Parish Church Rooms, Upper Norwood. This is almost opposite the IBA mast, and the junction of Beulah Hill and Church Road. The latest details can be obtained from the Hon. Sec. — *see* Panel.

We turn now to **Dartford Heath D/F:** they have their 'indoor' meetings at the "Malt Shovel", Eynsford, the next of which is on November 10, and of course there are the D/F Hunts to provide the regular exercise and fresh air with the entertainment!

We seem to have slipped a bit with the **Denby Dale** details, so we have to refer you to the Hon. Sec. — *see* Panel.

Derby have a permanent base on the top floor of 119 Green Lane, where they meet every Wednesday. November 3 is down for a junk sale, and on 10th G4AOA will talk about paging systems; on November 17 a change of subject when George Treece talks about heraldry and on November 24 they have an evening of technical topics.

Every Monday evening is the routine for **Derwentside**, their Hq being the R.A.F. Association Club, Consett; by the time you come to read this, we have it that it will be adorned with a set of permanent, rotatable arrays for HF, VHF and UHF, so the club station G4PFQ can be on the air every Monday evening — and it should be easier to find too! Finally, we note the Hon. Sec. has decided to pass the Morse Test, in principle at least — doubtless we shall soon hear how he got on.

The **Douglas Valley** gang are based at Shevington Conservative Club, every Thursday except the second one in each month. The formal on November 4 will be a talk by G3FBH on radio controlled models.

The **Edgware** meeting on November 11 is an informal, and the one on 25th was not finalised at the time of their writing; but they will be at the club Hq at 145 Orange Hill Road, Burnt Oak,

The Leicestershire Repeater Group stand at the recent A.R.R.A. Exhibition at the Granby Halls, Leicester. G4MQS, right, is the 23cm. TV Repeater Project Manager for the L.R.G.; with him in the picture are, left to right, G8DLX, G3YQC and G8CJS.

Photo by G3XKX

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CORNISH: J. Vinton, G6GKZ, "Cheriton", Alexandra Road, St. Ives, Cornwall. *(Penzance 795860)*
CRAWLEY: D. L. Hill, G4IQM, 14 The Garrones, Worth, Crawley, West Sussex. *(Crawley 882641)*
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DENBY DALE: J. Clegg, G3FQH, 8 Hillside, Leak Hall Lane, Denby Dale, Huddersfield HD8 8QZ. *(Huddersfield 862390)*
DERBY: Mrs. J. Shardlow, G4EYM, 19 Portreath Drive, Darley Abbey, Derby DE3 2BJ. *(0332-556875)*
DERWENTSIDE: P. Howes, G8WEJ, 26 Hadrians Way, Ebchester, Co. Durham DH8 0PE.
DOUGLAS VALLEY: D. Harrison, G4NDJ, 3 Hallcroft, Birch Green 2, Skelmersdale, Lancs. WN8 6QB. *(Skelmersdale 21814)*
EDGWARE: H. Drury. G4HMD, 11 Batchworth Lane, Northwood, Middx. *(Northwood 22776)*
FARNBOROUGH: I. Ireland, G4BJQ, 118 Mychett Road, Mychett, Camberley, Surrey. *(Farnborough 543036)*
GRAFTON: J. W. Chambers, 12 Sylvan Avenue, Finchley, London N3 2LE. *(01-346 5841)*
GREATER PETERBOROUGH: F. Brisley, G4NRJ, 27 Lady Lodge Drive, Orton Longueville, Peterborough.
HARLOW: Miss P. Mann, G4KVR, 23 School Green Lane, North Weald, Essex.
HARROW: C. D. Friel, G4AUF, 17 Clitheroe Avenue, Harrow, Middx. HA2 9UU. *(01-868 5002)*
HASTINGS: G. North, G2LL, 7 Fontwell Avenue, Little Common, Bexhill-on-Sea. *(Cooden 4645)*
HAVERING: A. Negus, G8DQJ, 17 Courtenay Gardens, Upminster, Essex RM14 1DH. *(Upminster 24059)*
HEREFORD: S. Jesson, G4CNY, 181 Kings Acre Road, Hereford. *(Hereford 273237)*
I.R.T.S.: S. Nolan, EI7CD, 68 Ratoath Estate, Ratoath Road, Dublin 7.
LOTHIANS: M. Evans, GM6JAG, 4 Burdiehouse Street, Edinburgh. *(031-664 5403)*
MACCLESFIELD: D. Lucas, G6HLQ, 62 St. Austell Avenue, Macclesfield, Cheshire SK10 3NN. *(Macclesfield 28610)*
MAIDENHEAD: R. Hemmings, G3VCT, 107 Chalklands, Bourne End, Bucks. SL8 5TL. *(Bourne End 21036)*
MARCONI (Stanmore): R. B. Purdy, Marconi Radio Society, The Grove, Warren Lane, Stanmore, Middx.
MARCONI (Portsmouth): V. G. Scambell, G3FWE, 52 Freshwater Road, Cosham, Hants.
MEIRION: R. Halhead, GW3KOR, Bryn Derw, Golf Road, Dolgellau, Gwynedd.
MELTON MOWBRAY: R. Winters, G3NVK, 32 Redwood Avenue, Melton Mowbray, Leics. *(Melton Mowbray 63369)*
MEXBOROUGH: Mrs. G. Drohan, 5 Swinburne Avenue, Adwickle Street, Doncaster, S. Yorks.
MIDLAND: N. Gutteridge, G8BHE, 68 Max Road, Quinton, Birmingham B32 1LB.
MID-WARWICKS: Mrs. M. E. Palmer, G8RZR, 12 Edmondes Road, Woodloes Park, Warwick CV34 5TX. *(Warwick 499730)*
NORFOLK: P. Gunther, G8XBT, 6 Malvern Road, Norwich, NR1 4BA. *(Norwich 610247)*
NORTHERN HEIGHTS: B. Aspinall, G6CJL, 539 Moor End Road, Mount Tabor, Halifax HX2 0UH.
NORTH WAKEFIELD: S. Thompson, G6ELC, 3 Harlington Court, Morley, LS27 0RT. *(0532-536603)*
PONTEFRACT: N. Whittingham, G4ISU, 7 Ridgedale Mount, Pontefract, W. Yorks. WF8 1SB.
R.A.I.B.C.: Mrs F. Woolley, G3LWY, 9 Rannoch Court, Adelaide Road, Surbiton KT6 4TE.
REIGATE: C. S. Barnes, G8FEE, 25 Hartswood Avenue, Woodhatch, Reigate, Surrey RH2 8ET.
SOUTHDOWN: J. Pitt, G6BGT, 18 Kingsmere Court, Hurst Lane, Eastbourne. *(Eastbourne 643463)*
SPEN VALLEY: I. F. Jones, G4MLW, 54 Milton Road, Liversedge, Heckmondwike, W. Yorks. *(Heckmondwike 409739)*
ST. HELENS: D. Filer, G4OAM, 9 Heswall Avenue, Clock Face, St. Helens WA9 4DR. *(Marshalls Cross 820471)*
STOURBRIDGE: M. Davies, G8JTL, 25 Walker Avenue Quarry Bank, Brierley Hill. *(Lye 4019)*
STRATFORD-ON-AVON: D. Boocock, G8OVC, 181 Lower Binton, Stratford-on-Avon, Warks. *(S-on-A 750584)*
SUNDERLAND: A. Everard, G8PCD, 19 Roker Park Road, Sunderland, Tyne & Wear.
SURREY: R. Howells, G4FFY, 7 Betchworth Close, Sutton, Surrey SM1 4NR. *(01-642 9871)*
THAMES VALLEY: J. Axe, G4EHN, 65 Ridgway Place, Wimbledon, London SW19 4SP. *(01-946 5669)*
THANET: I. B. Gane, G4NEF, 17 Penshurst Road, Ramsgate, Kent. *(Thanet 54154)*
THORNBURY: A. Jones, G8AZT, 9 Queens Walk, Thornbury, Bristol.
TORBAY: H. Davies, G4DZH, 18 Bowland Close, Paignton, Devon TQ4 7RT. *(Paignton 523063)*
VALE of WHITE HORSE: I. White, G3SEK, 52 Abingdon Road, Drayton, Abingdon, Berks. *(0235-89559)*
WACRAL: L. Colley, G3AGX, "Micasa", 13 Ferry Road, Wawne, Hull, Yorks, HU7 5XU.
WAKEFIELD: R. C. Sterry, G4BLT, 1 Wavell Garth, Sandal Magna, Wakefield. *(Wakefield 255515)*
WEST KENT: P. Reeve, G4GTN, 2 Court Road, Tunbridge Wells, Kent. *(Tunbridge Wells 24689)*
WIMBLEDON: K. Bailey, G3EPU, 32 Strathearn Road, Wimbledon Park, London SW19 7LH.
WIRRAL (& Dist.): N. B. McLaren, G4OAR, 596 Woodchurch Road, Oxton, Birkenhead. *(051-608 1377)*
WORTHING: Mrs. J. Lillywhite, 41 Brendon Road, Worthing, W. Sussex BN13 2PS.
YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset. *(Yeovil 24956)*
YORK: K. R. Cass; G3WVO, 4 Heworth Village, York.

Edgware. More details from the Hon. Sec. — *see* Panel for his details.

Over to **Farnborough**, which means the Railway Enthusiasts Club, Access Road, off Hawley Lane, near the M3 bridge, Farnborough. November 10 is down for a surplus equipment sale, and on November 24 they have their AGM.

At **Grafton** the local club nowadays meets at the "Five Bells" in East End Road, Finchley, where they are in the small hall at the back. This venue is about a half-mile east of Manor Cottage on the North Circular Road. November 12 is down for G3AAJ to talk about amateur satellites, and on November 26 there is the annual junk sale.

Greater Peterborough now foregather at Southfields Junior School, Stanground, Peterborough, and the date is November 25 — other details from the Hon. Sec. at the address in the Panel.

The **Harlow** group attend at Mark Hall Barn, First Avenue, Harlow, on Tuesday evenings, starting at 8 p.m.

Now **Harrow**, and Harrow Arts Centre, High Road, Harrow Weald; November 5 is a Bonfire Night barbecue, and on 12th there will be either a talk or a bring-and-buy sale. November 19 is informal and practical, and on 26 we see again the statement "talk or bring-and-buy" so we expect they will have sorted out t'other from which in time for the night! Incidentally the Bonfire Night affair will *not* be at Hq; contact the Hon. Sec. for the details.

We mentioned last time the **Hastings** need for a new place for practicals and RAE classes; they managed to get a report of their problems written up in the local paper and within 24 hours had received an offer of an alternative place. For the current situation, we suggest you contact the Hon. Sec. at the address in the Panel.

The weekly gatherings of the **Havering** crowd are at Fairkytes Arts Centre, Hornchurch, on Wednesdays. For November it looks like: November 3, return visit of G3MXA of *C. & S.*

Antennas to talk on aerial measurements; November 10 and 24, informals; November 17 two talks by G8DPB — on amateur radio metalworking techniques and the construction and tuning of a 70cm transverter.

November 5 for **Hereford** is the Annual Grand Junk Sale (last year's fireworks?), and on 19th G8CGK will be talking and demonstrating his slow scan TV. The Hq is at County Control, Civil Defence Hq, Gaol Street, Hereford.

Over the water now, to **I.R.T.S.**, and this is the place to aim your enquiries about amateur radio operations in the Irish Republic, or about local clubs in Eire. They have a Sunday news-bulletin, rather like our own RSGB one; 1045 local on 144.275 MHz SSB, 1100 local on 7.043 MHz SSB, 1145 on S21, 1200 local on 3.650 MHz SSB (repeated at 1230), and a final one on 70.26 MHz AM. Inputs for this bulletin to EI3CZ by the Tuesday before the bulletin latest.

Scotland next, and **Lothians,** where November 11 is a surplus sale, and 25th a superquiz. Both these meetings at the new Hq at Drummond High School, Edinburgh.

South a bit, to **Macclesfield** where the locals get together on the second and fourth Tuesday at St. Andrew's Old School Hall, St. Andrews Road, Brough Street West, Macclesfield; the first meeting in each month is 'talks night' with demonstrations and so on, while the other one is set aside for the club to go on the air, have some Morse practice or just plain natter. November 9 is down for a talk by G6COX about ex-government communications equipment.

Maidenhead next, and this means the Red Cross Hall, The Crescent, Maidenhead; on November 4 they have a talk by G4NNS on a DX-pedition to Andorra, while on 16th they have G3FVC to talk about the history of the Maidenhead club.

The **Marconi** company, Stanmore, have formed an in-house club, details of which can be obtained by contacting the Hon. Sec. — *see* Panel for his details.

Another in-house club is based on the **Marconi** (Portsmouth) complex, and this one organises the Mary Rose award, associated with the raising of that famous ship which should occur, all being well, during October. Details of the award, and of the club, from the Hon. Sec. — *see* Panel for his details.

The next gathering of the **Meirion** group is on November 4, for a members' surplus equipment sale, at Nannau Country Club, Llanfachreth, Near Dolgellau; this new venue seems to please the members if the rise in numbers is anything to go by.

It is a bit late now, but we have had a notice of the AGM of the **Melton Mowbray** group — details from the Hon. Sec. — *see* Panel.

Another brief note advises us that there is a new Hon. Sec. for the **Mexborough** club — *see* Panel for the details.

Direct communication triumphs again! The wedding of Brian Aspinall, G6CJL, and Julie Saxton, who are both members of Northern Heights A.R.S. Indeed, Brian is the Hon. Sec. and Julie is a committee member. Julie passed the RAE last year and is now working for a G4 licence. The picture shows, left to right, G8SJA, G6CJL, Julie, G3TQA, G8NWK (chairman) and G8WFP.

Now **Midand**, where they have a surplus sale for November 16; the meetings are held at 294A Broad Street, almost opposite the Birmingham Repertory Theatre, and the Hq seems to be open on Tuesday, Wednesday, and Thursday evenings, plus a working party to complete the renovations on Mondays when possible — and an RAE class on each Friday evening. A busy lot!

Mid-Warwickshire get together on the first and third Tuesday evenings at 61 Emscote Road, Warwick; November 2 is the RSGB video-audio presentation on satellite communications, and on 16th members will demonstrate items of their gear.

The weekly sessions of the **Norfolk** gang are at Crome Centre, Telegraph Lane East, Norwich; an Open Evening on November 3 is followed on 10th by a short meeting. On November 17, G4LDG talks about QRP, and there is another short meeting on 24th.

Home wine-making is the subject of the talk by Bernard Halliwell on November 3, given to **Northern Heights,** at the Bradshaw Tavern, Illingworth, near Halifax. In fact the gang are in residence there every Wednesday although we don't have programme details for the rest of the month.

A new Hon. Sec. reports for **North Wakefield** — his details are in the Panel — and he tells us that the Hq is at Carr Gate Working Men's Club, on Thursday. A special attraction is on November 25, when G4OOC will be yarning about "World War 2 and Radio".

Deadlines for "Clubs" for the next three months—

December issue—October 29th
January issue—November 26th
February issue—December 31st
March issue—January 28th

Please be sure to note these dates!

Every Thursday the **Pontefract** gang are in attendance at Carleton Community Centre. For November, on 4th, G4KMW will be showing Teletext, a video camera and recorder, with some interesting stuff on amateur TV both in this country and in Australia; crime prevention is the thing on 11th, with P.C. Reevel as the speaker, and on 19th they have the annual dance and buffet. That leaves November 25, which is occupied by a demonstration of RTTY.

We turn now to **R.A.I.B.C.** This is the group for the blind and disabled, whether listener or licensed. If you know of anyone who might be (or already is) interested in our hobby and who qualifies for full membership, you will be doing them a good turn by putting them in touch with the Hon. Sec. — *see* Panel.

The **Reigate** meetings are on the third Tuesday of each month at the Constitutional and Conservative Centre, Warwick Road, Redhill; details from the Hon. Sec. — *see* Panel.

The **Southdown** newsletter contains a quite hilarious article by a YL member on her way of tackling — and passing — the RAE; let's hope she is now reaping the benefit in the way of enterprising QSOs on the air. The club meets at Chaseley Home for Disabled Ex-Servicemen, Southcliff, Eastbourne on the first Monday of each month.

At **Spen Valley** we find the locals meeting at Old Bank Working Men's Club, Mirfield, W. Yorkshire. On November 11 they have a talk by the President, G3YPC, and on 25th G3UGF is down to talk about gadgets in amateur radio.

The **St. Helens** group are at the Conservative Rooms, Boundary Road, St. Helens every Thursday evening; as the new committee have just been elected, the programme is still in the putting-together stage, so details from the Hon. Sec. — *see* Panel.

A change of Hq for the **Stourbridge** crowd, to the Cross Inn, Hagley Road, Oldswinford; the meetings will be in two parts — 2000 to 2100, then 2115 to 2215, and the rule is that one only visits the bar in the interval. This is a good rule, and saves the disruption

Rick Sterry, G4BLT, (centre) was the winner of this year's Pontefract & District A.R.S. Fox Hunt held on July 22nd, assisted by G6JPZ (right). On the left is the fox and last year's winner, G6BGN.
Photo by G4ISU

to any talk or activity caused by members wandering off to the bar for a refill! November 1 is constructional and natter night, and on 15th there is the annual junk sale.

Nice to hear again from **Stratford-on-Avon**, and these days they are based at the Control Tower, Bearley Radio Station on the second and fourth Mondays of each month. On November 8, there is a double bill — G3RJV talking about amateur radio on a shoestring, and John Allaway, G3FKM, this year's RSGB President.

Sunderland are based on the Brewery, Westbourne Road, Sunderland, where they are to be found on the first Thursday evening for the formal session and, we understand, the other Thursday evenings for the informals. Details from the Hon. Sec. — *see* Panel.

The **Surrey** lot are at *TS Terra Nova* (mess deck on the first floor), 34 The Waldrons, South Croydon. On November 1, G8IYS will be talking about the BT TV distribution network, and on 15th there is the informal evening with station on the air, Morse, and discussions.

Now we head for **Thames Valley** which means Thames Ditton Library Meeting Room, Watts Road, Giggs Hill, Thames Ditton, on November 2; at the time of their letter the speaker was still to be finalised. Details from the Hon. Sec. — *see* Panel.

Thanet have their Hq at Birchington Village Centre, and we note they are running an RAE course. November 5 is an operating evening, and on 13th they have a cheese and wine party. November 19 is down for a talk on aerials by G3LCK, and on November 26 they have a visit to HM Coastguard at Dover.

Thornbury now have a regular meeting-place at the "White Horse", Grovesend, Thornbury, where they attend on the first Wednesday of each month; November is down for a talk on QRP operating.

Lots of new callsigns are noted by the **Torbay** club PRO. They are based on Bath Lane, rear of 94 Belgrave Road, Torquay, informally every Friday evening and with the main meeting on the last Saturday of each month.

All meetings of the **Vale of White Horse** club are at the White Hart Hotel in Harwell village; the first Tuesday is down for the formal — a junk sale for November — and the third Tuesday is a natter.

WACRAL is a group of committed Christian radio amateurs and SWLs, and we note their numbers are increasing at a great rate of knots. Details from the Hon. Sec. — *see* Panel.

At the time of writing we don't know whether the **Wakefield** gang are back in their informal billet after alterations completed, so we must here also refer you to the Hon. Sec. — *see* Panel.

The main **West Kent** meetings are on alternative Fridays at the Adult Education Centre, Monson Road, Tunbridge Wells. November 12 is a session on HF/VHF contest plans, plus a natter if time permits, and on 26th G4DME will be talking about his visit to South Africa. Informals occur on the Tuesday following each main meetings, at the Drill Hall, Victoria Road.

For **Wirral and District** the venue is Irby Cricket Club, on November 10 they have an activity evening, to which members are invited to bring rigs, computers, printers, TUs, or whatever. The routine is to gather at the Cricket Club on the second and fourth Wednesdays; in addition they have "drink and waffle nights" at various local pubs, November 3 being at the Railway Hotel in Meols, and on 17th at the Wirral 100, Oxton.

The **Worthing** lot get together at the Amenity Centre, Pond Lane, Worthing on Tuesday evenings.

The weekly meetings at **Yeovil** are held at Building 101, Houndstone Camp, Yeovil; November 4 is down for an RSGB tape-talk "Further Thoughts on Propagation" and on 11th they have Chris Bartram of *muTek Ltd.* to talk on moonbounce. November 18 is set aside for a discussion on the uses of the Smith Chart by G3MYM, and on 25th they combine a committee meeting with a natter night.

Our final stop is at **York**, where the group are now able to have every Friday evening at the United Services Club, 61 Micklegate, York. More details from the Hon. Sec. — *see* Panel for his address

Finis

Done for another month. The deadlines for details are in the 'box' in the piece, and are for arrival, addressed "Club Secretary", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ.

Mobile Rally

November 6, North Devon Mobile Rally, Memorial Hall, Bradworthy, Holsworthy, Devon, 10 a.m. to 5 p.m., talk-in on S22. Details from G8MXI, tel: 040924-202.

RAE in Suffolk

Following the decision of the Suffolk College, Rope Walk, Ipswich, not to accept external candidates for any examination, the Ipswich Radio Club announces that, with the help of the County Education Authority, arrangements have been made for students to sit the RAE at the Kesgrave and Claydon Adult Centre, The High School, Kesgrave, Ipswich IP5 7PB (tel: Ipswich 624386). Candidates should make their own arrangements direct with the Centre, being careful to ensure that they complete enrolment by the date applicable to the examination for which they wish to sit (usually mid-January for March and late January for the May examination).

Special Event Stations

On 19th December 1982, the BBC is celebrating the 50th Anniversary of the official start of the Empire Service (now the External Service), and to commemorate this Ariel Radio Group will be using special call-signs during the period 1st-31st December. The stations will be GB2BBC, GB3BBC and GB8BBC in Central London, G3BBC in West London, and GB4BBC at Caversham near Reading; several other BBC club stations around Britain will also be participating. The bands in use will be 80/40/20/15/10/2m., and maximum activity will be centred around 19th December; SSB will be the main operating mode on HF, and a special QSL card will be issued. Further information can be obtained from K. Rainbow, Hon. Sec. A.R.G., on 01-580 4468 ext. 5328.

"A Word in Edgeways"

Letters to the Editor

The views expressed here are not necessarily those of the Editor, nor should they be taken to represent any particular SHORT WAVE MAGAZINE policy.

Dear Sir — Readers of "A Word in Edgeways" in the October issue may well ask themselves what it is that makes one Ian Keyser, G3ROO, (SSB Manager, G-QRP Club), launch such a strange attack on another member (no. 097) of that club — a member some years before him (no. 395), too.

It seems to arise from the insidious effect of amateur phoan, which can corrode the wits of even reasonable amateurs who accidentally get in touch with it. Just see what has happened to Ian Keyser, now our SSB Manager, who can't read a letter in *S. W.M.* straight. Phoanitis.

To explain phoanitis, on an ordinary HF band, if you shift the Rx frequency up past where the CW ends, you hear the terrible phoans of a lot of poor souls suffering. I once thought the disease came from the smell of paint on their black boxes, like glue-sniffing (that also explained CB), but professional RT doesn't seem to suffer that way. Maybe there's a special 'nonsense position' of the vocal chords during an amateur phoan contact which causes the trouble.

Helpful suggestions and liquid refreshment to G3ROO at Dover, please *not* to CW-only G3CWX.

Philip Short, G3CWX

Dear Sir — I was glad to see that Richard, G2DYM, found the cap fitted (*S. W.M.* Sept.). No-one would suggest anything remotely improper in recommending methods, techniques or even products over the air — we all do it. But when the manufacturer himself earwigs and then reaches for the *Call Book* to despatch the bumper bundle, I think the limit has been reached.

Yes, Richard, there was only one page of prices, but they cover every item you sell and you have underlined every price in red.

Sadly, correspondence I have received suggests that this advertising practice is far from unique; I suggest that recipients of unsolicited kindly advice closely resembling advertising material report details to the Home Office, so that the message may be authoritatively conveyed to those whose view of 'the true spirit of Amateur Radio' is somewhat flexible and commercially accommodating.

Peter Jackson, G3ADV

Dear Sir — Much as I dislike having to query your good judgment in selecting articles for the education of the, hitherto, law abiding members of our fraternity, I feel I must draw your attention to something which has been puzzling me for some time now.

After much head scratching and fruitless searching in the w.p.b. for vintage copies of *S. W.M.*, I have a strong feeling that one of your contributors is a *pirate*, no less. I refer, of course, to G9BF, who claims to hold his Old Dad's call. I seem to remember that the gentleman-in-question (or questionable gentleman) actually held the call G*1*BF — hence the piracy charge. Although, as the original call was probably issued by some authority within Wormwood Scrubs or Wandsworth, it probably doesn't matter anyway!

Further suspicion — grave, indeed — came when I read the August issue. I quote — "6V6 CO with 7 megs rock". Come now lad, don't expect us to believe that you are the infamous son of an even more infamous father! In all his cerebral machinations he would *never* have resorted to crystal control. I seem to recollect that, to him, the *ne plus ultra* consisted of a pair of 813's in a push-pull self-excited oscillator configuration, power being estimated by the colour of the anodes — from bright red to blue-white. Good grief, if you *are* genuine don't discredit the old boy's memory by coming up with a T7 note!

Anyway, pirate or not, I wonder if G9(1?)BF would have liked the emergency transmitter in one of my old ships as a QRP toy: 250 watts of spark in a wooden box, with the quench-gap in a bottle on the top. On the odd (in more ways than one) occasions when our R.O. decided to test it, it brought unfailingly rapid response on 500kc/s (not kHz, which sounds as if we now measure frequency in thousands of cans of soup).

Alec F. Foxall,
M/V "Hoveringham V"

Dear Sir — During the recent opening on the VHF bands (13-14th September) I, like many others, worked stations all over the continent and was well pleased with the results. However, digging out the DX at most times was near impossible owing to the operations of certain high-power stations in my area. These stations managed not only to work on the DX station's frequency but also, in one case, 150 kHz around it. There were also instances I experienced myself, and heard around the band, when high-power stations transmitted over a QRP station which was working a DX contact. On looking in the *Call Book* most of these stations were "address withheld". I wonder why?

I am not condemning the use of high power, but as a new callsign I look for my operating technique to the stations which have been on the air some time. Many QRO stations around me operate as they should and cause no QRM whatsoever, so it can be done.

So come on — make sure your equipment is set up correctly and have consideration for the stations like myself who enjoy QRP working. Let's keep amatuer radio a friendly world without any need for letters like this.

P. Ingham, G6HDD

Dear Sir — Radio Amateurs' Micromputer Techniques, Operation and Programs is a fast-growing field in which the chance to exchange ideas, programs, peripheral circuits and the solutions to problems is often most welcome. The Sinclair Amateur Radio Users' Group has blazed a shining path in this area but we believe there may be a need for a newsletter for radio amateurs who own other micros and have an idea for a program, an actual programme or a need for a program to apply their microcomputer to the hobby.

We would like to receive a stamped addressed envelope from any readers interested in joining in such an exchange of material and ideas. If the response is sufficient and includes offers of help from potential reviewers and testers of programs or circuits, then we would aim to circulate a newsletter in January, May, July and September, containing listings and circuit diagrams and also ideas for adapting programs written for one micro to the peculiarities of others. If anyone would like to send us a useful original program in clear black on white on a whole, half or quarter of A4 paper, then we will be pleased to receive it and may be able to include it with the replies we send out, just to get the ball rolling.

We shall have to make a charge to cover production costs and postage for the newsletter but we do *not* want any money yet. We cannot undertake to deal with telephone enquiries or with letters not accompanied by an *s.a.e.*

Richard Butcher, G4NWH,
Wellingborough School Radio Club,
The School,
Wellingborough,
Northants NN8 2BX

Address your letters for this column to "A Word in Edgeways", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ.

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(GIRO A/C No. 5476151)

Printed by K&SC Printers Ltd., Tunbridge Wells for the Proprietors and Publishers, The Short Wave Magazine Ltd., 34 High Street, Welwyn, Herts. AL6 9EQ. The *Short Wave Magazine* is obtainable through the following: Continental Publishers & Distributors Ltd., William Dawson & Son Ltd.; AUSTRALIA AND NEW ZEALAND — Gordon & Gotch Ltd.; AMERICA — International News Company, 131 Varick Street; NEW YORK. Registered for transmission to Canada by Magazine Post. *November 1982*