

The SHORT WAVE Magazine

4/-

VOL. XXVI

MARCH, 1968

NUMBER 1

BACK BRITAIN — BUY KW EQUIPMENT



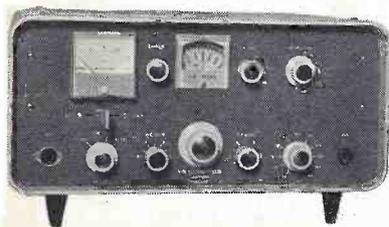
KW 201 Amateur Bands Communications Receiver

The KW201 is now being manufactured with 2 detectors (i) product detector for SSB and CW (ii) diode detector for AM. The KW201 has been specifically designed for optimum performance on SSB. 11 ranges give coverage 1.8 mc/s. to 30 mc/s. A mechanical filter gives an IF selectivity of 3.1 kc/s. at 6 dB, and 6 kc/s. at 60 dB. A "Q" multiplier is available giving a variable range of 3.1 kc/s. to 200 cycles selectivity.

BASIC PRICE **£105**

additional extras if required

100 kc/s Crystal Calibrator £6. 0.0
'Q' Multiplier £8.10.0



KW Vespa MkII

TRANSMITTER

£128

Transmitter for all H.F. Bands. 220 watts PEP, SSB, AM, CW. Now in full production, complete with psu.

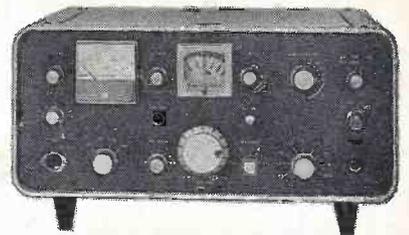


KW1000

LINEAR AMPLIFIER

£128

1200 watts PEP complete with built-in psu and SWR indicator.



KW2000A

Deliveries from stock.

inclusive **£220**

SSB TRANSCIVER or £182 (transceiver only)

The finest value available, with no extras to buy. 180 watt PEP operation on all amateur bands 10-160 metres, complete with AC psu, VOX control, crystal calibrator, Independent receiver tuning, Upper/lower sideband tuning, Top band included, Automatic linearity control or transmit. Special attention to TVI proofing.

Write for our list of KW Tested, "Trade-in," equipment

Agents for Collins, Sommerkamp, Swan, Mosley, National, Galaxy, etc. Microphones, coaxial cable and all your amateur radio equipment.

KW
ELECTRONICS
LIMITED

KW ELECTRONICS LTD.

1 HEATH STREET, DARTFORD, KENT.

Telephone: Dartford 25574

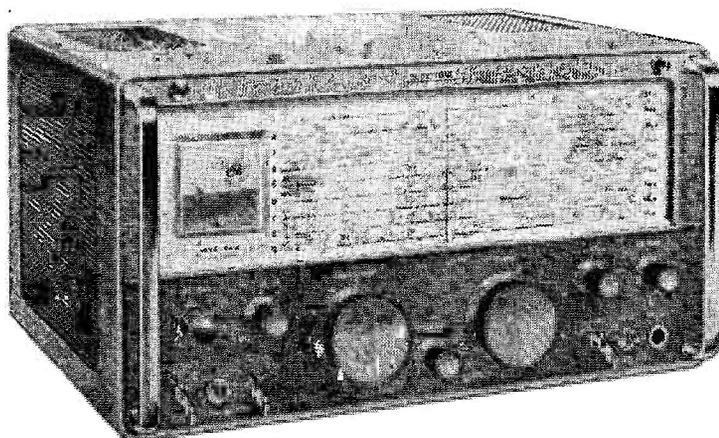
Cables: KAYDUBLEW Dartford

KW
ELECTRONICS
LIMITED



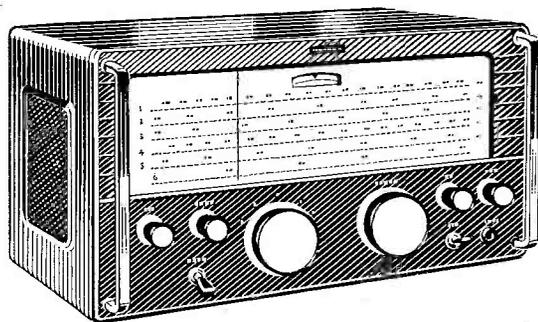
Eddystone

Amateur communications receivers



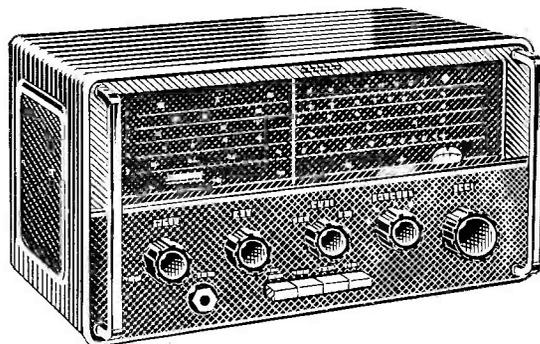
EA12 An amateur bands double-conversion superheterodyne receiver, for a.m. c.w., and s.s.b. reception. For all amateur channels between 1.8 MHz and 30 MHz in nine 600 kHz bands with 28 MHz to 30 MHz in four bands.

Primary features. Crystal-controlled 1st oscillator, 2nd oscillator with continuously variable selectivity to 50 Hz, muting switched or by external relay, twin noise limiters, for a.m./c.w., and s.s.b., short-term drift better than 20 Hz and less than 100 Hz in any one hour, 'S' meter calibrated in nine levels of 6 dB and dB levels beyond 'S9', two a.g.c. time constants, deep slot filter, independent r.f., i.f., and audio gain controls with outputs for f.s.k and panoramic adaptor. **£185.**



840C A.C or D.C communications receiver

An 8-valve receiver with gap-free coverage from 500 kHz to 30 MHz metres providing excellent reception of broadcast programmes and all major s.w. channels including marine and international distress frequencies. The famous Eddystone extended band spread and logging scale is an essential feature. Suitable for a wide range of a.c. and d.c. voltages. Fully tropicalized. **£66.**



EC10 communications receiver

The fully transistorized EC10 communications receiver, supreme in its class, covers both medium-wave broadcasting and all shortwave service to 30 MHz. Incorporating the famous Eddystone tuning drive, with logging scale and auxiliary vernier, shortwave reception is particularly simple. Battery operated or from optional a.c. mains unit. **£53.**

Comprehensive information from your Eddystone distributor or: Eddystone Radio Limited, Eddystone Works, Alvechurch Road, Birmingham 31. Telephone: Priory 2231. Telex: 33708

J. B. LOWE

51 Wellington Street, Matlock, Derbyshire

Tel.: Matlock 2817 (2430 after 6)

I imagine that all of you will possess a Bible (I don't mean the ARRL Handbook of course!) so turn to Luke 14, 28 "For which of you, intending to build a tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it." Pretty shrewd cookie, old Luke. Another bit I like comes from Shakespeare's Tempest, Act 3, Scene 3—"The isle is full of noises, sounds and sweet airs that give delight and hurt not." Old Caliban must have caught 10m. when it was wide open, then he went on to 80 because he goes on to say "Sometimes a thousand twangling instruments will hum about mine ears, and sometimes voices." Tell you what—let's have a contest—I will give free, gratis and for nothing (Bill Lowe giving something away? Must be a catch somewhere!) a brand new dynamic PTT mike to the chap who sends in the best classical quotation appropriate to Amateur Radio. Give full details so that I can check the authenticity, and we'll publish the best of them. Course, it depends what you call "classical"—personally I exclude the works of James Bond, Simon Templar and Modesty Blaise, but then I'm just an old square. My ramblings this month seem to have strayed from the paths of Amateur Radio but I just wanted you to know that in dealing with Bandit Bill you are not dealing with a crook, but with an educated crook! Utterly couth in fact. Incidentally, if ever I hear any of you lot saying "CQ Dog Xray" I will personally make a waf effigy of your rig and stick trimming tools into it. Beware the dreaded Bandit Curse—your PA will melt, your VFO will jump and S9 images will gibber at you through S1 signals. I warn you—the local nut house is full of Amateurs who for their "liddish" behaviour got the full force of my Curse. They sit, saliva trickling down their dirty chins, huddled in a dark corner, staring wild-eyed into space mumbling inanities. Oh dear, I'm off again—better shut up.

NEW STUFF:

Sommerkamp

FR-500 Rx.—All bands including all of 10 and top band. 500 cycle, 2.1 kc. and 4 kc. mechanical filters. Notch filter. 100 kc. calibrator and multivibrator giving calibration points every 100 kc/s. or 25 kc/s. Sensitivity, selectivity, stability and general handling right up with the best of 'em. Price: £130.

FL-500 Tx.—30-10. This actually is virtually the same as the previous FL-200-B model, merely re-styled to match the companion receiver. Price: £145.

FT-500 Transceiver.—This looks a winner to me, lads. 500V, p.e.p. 80-10 (all of 10 in 4 segments). SSB (selectable sidebands, AM & CW, MOX, PTT, VOX. 4 crystal controlled channels by plugging in the appropriate xtal (not supplied). 3 tunable Auxiliary bands again by using the appropriate crystals. Noise limiter, slow/fast/off AVC, R.I.T., 1 kc/s. readout, 100 kc/s. or 25 kc/s. xtal marker. P.S.U. built in. All you need is a suitable piece of wire at one end, a speaker and a mike at the other for a complete, and I do mean complete, station. Price: £250.

FT-150 Transceiver.—120V, p.e.p. 80-10 (all of 10 in 4 segments). SSB (selectable sidebands), AM, CW, MOX, PTT, VOX. 4 xtal controlled and 3 auxiliary VFO channels like the FT-500. R.I.T., 1 kc/s. readout, 100 kc/s. calibrator, all transistor except driver and P.A. Both 12v. d.c. and 240v. a.c. P.S.U.'s built-in. This midget (7" high x 13½" wide x 10½" deep) is a little gem. I honestly don't know how they do it for the money. Everything you want for base station or mobile in such a small package—remarkable. Price: £215.

Paros 22TR Transceiver.—3 bander. Paros, from the Greek meaning pull the ladder up, Jack, I am aboard. Seriously, look at this:—

80, 40 and 20m. 80W. p.e.p. SSB/AM/CW, 100 kc/s. calibrator, 9 mc/s. xtal filter, solid state premixed linear V.F.O., transceive vernier (R.I.T. or whatever you want to call it) adjustable noise limiter. VOX, MOX or PTT, grid block keying. 2 r.f. stages. This is a beautiful sounding signal and one of the quietest yet very sensitive (½ microvolt) Rx's on the market. Complete with P.S.U./speaker. Price: £120.

This must surely be the answer for the impecunious—everything you want for the price of a Rx (and I'll bet you won't get as good a Rx either!). Don't forget, lads, there's lots of Dx on 20m. Your present gear will likely cover the HP deposit—so come on in, in the water's fine.

Other new stuff:

DAI electronic keyers, £16; Bug keys, £4 10s.; Teisco DM501 dynamic PTT mikes (excellent job), £2 15s.; VT300 valve voltmeter, £15 5s.; TE65 valve voltmeter, £16; 100 kc/s. xtals—new, not surplus, to Mil. Spec. HC131/1, £2; 28.5 mc/s. walkie-talkies, £12 10s. a pair (amateurs only). The Tavasu mobile whip in stock—darned if I can remember the price, but it's jolly good. Lovely sounding name, Tavasu—you wouldn't think they were made by ole George over in Chesterfield! Makes 'em jolly well, too. Sommerkamp Linears, £90. SPECIAL: AR88D and HRO manuals—reprints beautifully done, 15/-. SP-600-JX manuals. Imported from Hammarlund at enormous cost, so awful sorry, lads, you have to pay through the nose, £3 10s. You won't believe me, I know, but I'm selling these at a loss. It breaks my heart, but if I charged you what they cost me, you would have a fit. "S" meters 1 mA, 1½" square, 18/6. Boom mike/headsets, excellent, £3.

SECOND-HAND:

Usual lot of old diehards including HRO's, £25; AR88LF, £30; Eddystone 750, £45; AR77E, £30; and £25; NC190, £55; SB300 with all filters, £130; 75A4 with all filters, £250; 888A, £65; LG300 r.f. deck, £20; KW77, £65, etc., etc. Note that all these have been checked, serviced and re-aligned.

SUNDRIES:

'Scopes: CR52 brand new, £22 10s.; Dartronic, £20; Laboratory audio oscillator, a thing of beauty, £25; Marconi TF1100 VTMV, £25; Marconi TF390G, 16-150 mc/s., £20; Power units, 234A for 1132 or 1392 sets. A1 bench supply giving 300 or 250v. d.c. and 6.3v. a.c., 30/- carriage paid. Tuning unit 421B containing amongst other things no less than 3 rotary inductors, 30/- carriage paid. Boom Mikes—at last a comfortable effort, Nice padded low impedance earphone and a nice high output, high impedance mike. Really excellent and only £3.

COMPONENTS:

New: Tubular trimmers either ½-5pF or 3-15pF, 1/- each, 10/- a doz.; Feedthroughs 1000pF screw type, 1/- each, 10/- a doz.; Disc ceramics -001, 3/6 a doz.; -01, 5/- doz.; Standard coax sockets, 1/- each; Standard coax plugs, 1/4 each; PL259 plugs, 5/- each; Alligator clips, 6d. each; Plugs (Octal, B7G, B9A), 2/6 each; 2pF and 3pF ceramics, 3d. each, 2/6 a doz. Electrolytics—brand spanking new can types, complete with mounting clips. 10mF 350v., 1/8; 20mF 350v., 2/3; 20mF 450v., 2/9; 100mF 350v., 5/6; 100-100mF 350v., 6/8; 100mF 450v., 7/2; 40-40mF 500v., 7/3; 100mF 500v., 7/9; 100-100mF 450v., 13/2. Silicon rectifiers—Current manufacture, NOT surplus, NOT seconds. You can rely on these. SE-05 1000 piv 500mA, 4/6; IS1066 1000 piv 750mA, 8/-.

New Surplus: Resistors, most values from 2d. each. I can make up a batch of 100 useful values for 10/-. Capacitors from 2pF to 150mF from 2d. each. Again I can make up a very useful lot of 200 for 25/-. Mica trimmers 1000pF, 1/-; 2,800pF solid dielectric variables—ideal top band loading, 1/-; Oil filled 8mF at 750v. d.c., 2/-; Pots—from 5 ohms to 1 meg, 6d. each. I can make up a useful bunch of 25 for 10/-. The guts of the 19 set variometer, 5/-, post free.

TRANSFORMERS: All new:

Primary	Secondary
Tapped 110, 120, 200-250	325-0-325 200mA 5v. at 3A, 30/-
" 180-250	300-0-300 50mA 2-0-2 at 2.5A, 6.3 at 1.5A, 20/-
" 210-250	250-0-250 100mA 0-4-6.3 at 4A, 0-4-5 at 2.5A, 30/-
" 240	250-0-250 5v., 6.3v., 20/-
" 220	0-1860 at 4mA (5KV insulation), 20/-
" 105-250	325-0-325 at 10mA, 6.3 at 6A, 6.3 at 3A, 15/-
" 220-250	400-0-400 at 400mA, 80-0-80 at 10mA, 63-0-63 at 6A, £6 10s.
" 110-230	315-0-315 at 60mA 5V2A 6.3v. 1A, £1.
" 230	12v. at 0.4A, 12v. at 0.4A, 15/-
" 230	350-0-350 95mA, 5v. 3A, 6.3v. 3.7A, £1 15s.
" 230	2-1KV-0-2-1KV 40mA 4v. 2.2A, £5
" 240	250-0-250, 6.3, 5v., £1 10s.

Autotransformers 0-110-150-190-230 at 1.6KVA, £3 10s.

Service Department: Word is getting round—we're still booked pretty solid.

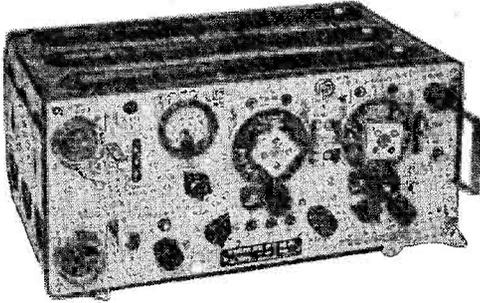
Postage: Except where items are marked "carriage paid" post is extra. Please remember the days of the penny black are over and something weighing 2 lbs. 1 oz. costs 4/6. Don't be frightened of sending too much, I'll return any excess.

A s.a.e. will get you my latest blurb.

H.P.—Certainly—get it now lads before the budget.

73,

Bandit Bill,
VE8DP/G3UBO.



FAMOUS ARMY SHORT-WAVE TRANSRECEIVER MK.III

This set is made up of three separate units (1) a two valve amplifier using a 6V6 output valve; (2) (some only, not built in the very latest models) a V.H.F. transceiver covering 229-241 Mc/s. using 4 valves; (3) the main shortwave transmitter/receiver covering, in two switched bands, just below 2 Mc/s.-4½ Mc/s. and 4½ Mc/s.-9 Mc/s. (approx. 160-37.5 metres) using 9 valves. For R.T., C.W. and M.C.W. The receiver is superheterodyne having 1 R.F. stage, frequency changer, 2 I.F. (465 Kc/s.) signal detector, A.V.C. and output stage. A B.F.O. included for C.V. or single side-band reception. T.X. output valve 807 other valves octal bases. Many extras, e.g. netting switch, quick flick dial settings, squelch, etc. Power requirements LT 12 volts, HT receiver 275 volts D.C., HT transmitter 500 volts D.C., size approx. 17½ x 7½ x 11 ins. Every set supplied in new or as new condition in carton with book including circuits, only £4 10s. 0d., or Grade 2 slightly used 50s., or Grade 3 used but complete 35s., carriage all 15s. 12 VOLT D.C. power unit (used) good condition 40s., carriage 5s. WE MAKE A MAINS 200/250 VOLT POWER UNIT in louvered metal case to plug direct into set power socket to run (1) receiver, 70s., post 5s.; (2) TX and RX, £6 10s. 0d., post 7s. 6d. A charge of 10s. to unpack and test the receiver of these sets is made only if requested. Headphones and mike new boxed, 15s., post 2/6.

FEW ONLY LEFT

WALKIE-TALKIE MK III and CRYSTAL CALIBRATOR No. 9

This set is housed in a waterproof diecast aluminium case made by Murphy Radio for the Govt. having only reliability and quality in mind. Range 7.3-9 Mc/s. also on side of set is crystal calibrator No. 9 which gives pips on marks provided on the tuning dial. Set uses a total of 5 valves; power required L.T. 4 volts D.C. H.T. 100-175 volts D.C. Sets supplied in NEW or as new condition, boxed, only 37/6, carriage 7/6.



V.H.F. TRANSRECEIVER MK.1/1

This is a modern self contained tunable V.H.F. low powered frequency modulated transceiver for R.T. communication up to 8-10 miles. Made for the Ministry of Supply at an extremely high cost by well known British makers, using 15 midjet B.G. 7 valves, receiver incorporating R.F. amplifier, Double superhet and A.F.C. Slow motion tuning with the dial calibrated in 41 channels each 200 Kc/s. apart. The frequency covered is 39 Mc/s.-48 Mc/s. Also has built-in crystal calibrator which gives pips to coincide with marks on the tuning dial. Power required L.T. 4½ volts, H.T. 150 volts, tapped at 90 volts for receiver. Every set supplied complete with valves and crystals. New in carton, complete with adjustable whip aerial, and circuit. Price £4 10s. 0d. carriage 10s.

JOHN'S RADIO

(Dept. F)

OLD CO-OP, WHITEHALL ROAD,
DRIGHLINGTON, BRADFORD

Telephone: DRIGHLINGTON 732



Fast Mail Order for the Amateur Radio Enthusiast!

AERIAL EQUIPMENT

TWIN FEEDER. 300 ohm twin ribbon feeder similar K25 8d. per yard. 75 ohm twin feeder, 6d. per yard. Post on above feeders, 2/- any length.

COPPER WIRE, 14G, H/D, 140ft., 30/-; 70ft., 16/-; Post and packing 3/3. Lengths are approx. only, actually sold by weight.

FEEDER SPREADERS. 6" Ceramic type F.S., 10d. each. Postage 2/6 up to 12.

CERAMIC CENTRE PIECE for dipoles Type AT, 1/6 each. P. & P. 1/-.

2 METRE BEAM, 5 ELEMENT W.S. YAGI. Complete in box with 1" to 2½" masthead bracket. Price 56/-; P. & P. 4/-.

SUPER AERIAL, 70/80 ohm coax, 300 watt very low loss, 2/3 per yard. 50 ohm 300 watt, 2/6 per yard. P. & P. 2/6.

TOUGH POLYTHENE LINE, type ML1 (100lb.), 2d. per yd. or 12/6 per 100 yds. Type ML2 (220 lb.), 4d. per yd. or 25/- per 100 yds., ML4 (400 lb.), 6d. per yd. Ideal for Guys, L.W. Supports, Halyards, etc. Postage 1/6 on all line.

MIDLAND AGENTS FOR EDDYSTONE

Receivers & Components

TRIO

Transmitters, Receivers and
Sundry Equipment by

- KW ELECTRONICS
- HALSON
- T.W. ELECTRONICS
- CODAR RADIO
- PARTRIDGE (Joystick)

NEW BOXED VALVES. 3/6 each, 4 for 10/- P. & P. 2/-.

Types 6N7GT, 6AB7, 6AC7, 6SK7, 6SF7, 6SH7, 6F7, 956, U10, MSP4, IJ5, 6G6G.

ABSORPTION WAVEMETERS. 3-00 to 35-00 Mc/s. in 3 Switched Bands. 3-5 7, 14, 21 and 28 Mc/s. Ham Bands marked on scale. Complete with indicator bulb. A MUST for any Ham Shack. ONLY 25/- EACH. P. & P. 1/6.

SHORT WAVE KITS. One valve only, 45/-, phones, ant. and batts, 40/- extra if required. Ideal for Junior op.

VARIABLE CONDENSERS. All brass with ceramic end plates and ball race bearings. 50pF, 5/9; 100, 6/6; 160, 7/6; 240, 3/5. Extension for ganging. P. & P. 2/-.

SEALED RELAYS, 12v, 105Ω Coil Type A. 4 Pole, C.O. 15/-; Type B. 2 Pole, C.O. + 2 Pole Norm. on, 12/6. P. & P. 1/6.

AMATEUR RADIO
CHAS. H. YOUNG LTD.

At your service G2AK, G3LAY, G3VFW

Please print your address. No C.O.D. under £1.

The Widest Range in the Midlands

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T.W. COMMUNICATORS

HALSON MOBILE AERIALS

DENCO Catalogue 2/6, post paid

'Q' MAX CHASSIS CUTTERS

We have tremendous stock of small components
for Valve and Transistor Circuits, Meters, Test
Equipment, G.D.O's. Field strength Meters.

Specialists in repair, alignment of all types of
communication receivers.

Stamped addressed envelope please, for any
inquiries.

Receiver Unit R3673 20 to 90 Mc/s. Size 13in. x
8in. x 8in. 10 channel. Motor selected. High
quality converter unit into 7.5 Mc/s. IF strip. 19
valves. (13 EF91, 3 EB91, 1 EL91, 1 6J6, 1 EAC 91.)
Small blower, 2 relays. Supplied with circuit and
modifications. £3 10s., plus postage 10/-. All tested
before despatch.

Coaxial Relays, 'Londex' 24V. D.C. 70 watts.
RF at 200 Mc/s. Supplied with 3 plugs (ex-cable),
22/6, plus 2/6 postage.

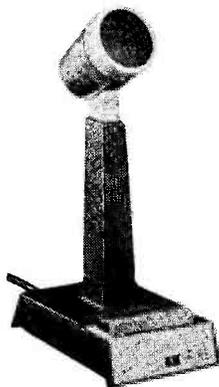
We still have some items from previous adverts.

G3SMI

G8SB

You can depend on Shure quality MICROPHONES For amateur radio communications

Shure Model 444 Controlled Magnetic Microphone



Specially designed for radio communications, giving optimum performance from single sideband transmitters as well as AM and FM units. Response cuts off sharply below 300 c/s and above 3,000 c/s, with a rising characteristic to 3,000 c/s. This results in optimum speech intelligibility and audio punch to cut through noise interference. High impedance. Dependable under all operating conditions. Complete with switch for instantaneous press-to-talk or VOX operation; finger-tip control bar; long-life switch; adjustable microphone height; sturdy, high-impact base and case; 7 ft. two-conductor shielded cable.

Shure Model 201 Diaphragm Type Ceramic Microphone



- *Provides clear, crisp, natural voice reproduction of high intelligibility
- *High impedance *Ideal voice response and omni-directional polar pickup characteristics
- *No humidity or temperature problems
- *Light, strong and compact
- *Heavy duty push-to-talk (non-locking) switch
- *Frequency response: 200 to 4,000 c/s
- *3-conductor retractable cable.

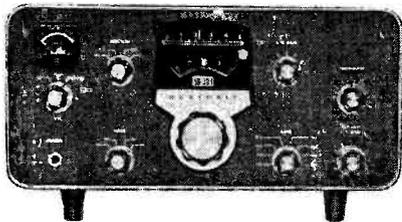
SHURE

Setting the
world's standard
in sound

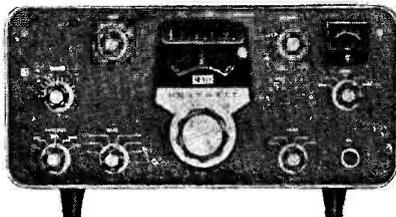
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84 Blackfriars Road, London, S.E.1. Tel.: 01-928 6381

Selection of Amateur Radio Equipment

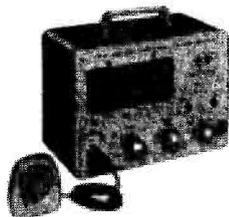
THE ULTIMATE IN VALUE AND PERFORMANCE



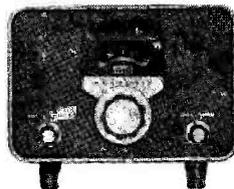
SB-301E Amateur Band Receiver . . . SSB, AM, CW and RTTY reception on 80 through 10 metres + 15 MHz WWV reception. Tunes 2 metres with SBA-300-4 plug-in converter.
Kit SB-301E, 23 lbs. (less speaker) £140 . 12 . 0
 Ready-to-use £170 . 12 . 0



SB-401E Amateur Band SSB Transmitter . . . 130 watts PEP SSB, 170 watts CW on 80 through 10 metres. Operates "Transceive" with SB-301—requires SBA-401-1 crystal pack for independent operation.
Kit SB-401E, 34 lbs., £157 . 10 . 0 Ready-to-use £192 . 10 . 0
SBA-401-1 crystal pack, 1 lb., £17 . 3 . 0



HW-30 2 Metre Transceiver . . . For fixed, portable, or mobile. Ideal for local and RAEN purposes. Input 5 watt. CC. Tunable regenerative RX. Size 9 3/4" w. x 8" h. x 6" deep. (For 230v. operation if required).
Kit HW-30, 6 1/2 lbs., £26 . 8 . 0 Ready-to-use £36 . 8 . 0
Kit GP-11 (Power supply 6 or 12v. D.C.) £10 . 13 Ready-to-use £13 . 13

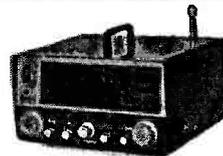
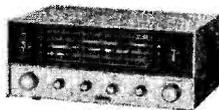


SB-640 External LMO for SB-101 . . . Provides Linear Master Oscillator frequency control or either of two crystal controlled frequencies for a total of five frequency control options. Power supplied from SB-101 Trans.
Kit SB-640, 9 lbs., £51 . 6 . 0 Ready-to-use £56 . 6 . 0



HA-14 The World's Smallest Kilowatt Linear . . . 80-10m. Only 3 3/8" x 12 3/8" x 10" deep.
Kit HA-14 £55 . 13 . 0 Ready-to-use £67 . 13 . 0

HD-10 All Solid-State Electronic Keyer . . . 15 to 60 w.p.m. with 10 to 20 w.p.m. slow speed option
Kit HD-10, 6 lbs., £23 . 12 . 0 Ready-to-use £30 . 12 . 0



GR-64E Short Wave Receiver . . . Covers 1 Mc. to 30 Mc/s., plus 550 Kc/s. to 1620 Kc/s. AM band. Many special features for such a modest price. For 115, 230v. 50/60 c/s. A.C. mains operation.
Kit GR-64E £22 . 9 . 0 Ready-to-use £29 . 9 . 0
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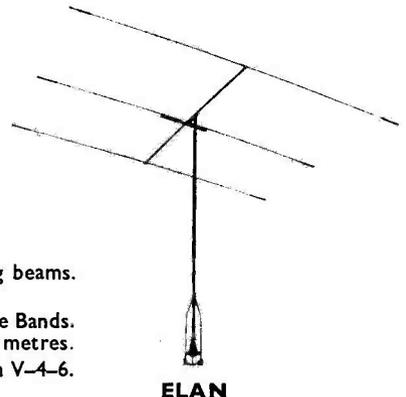
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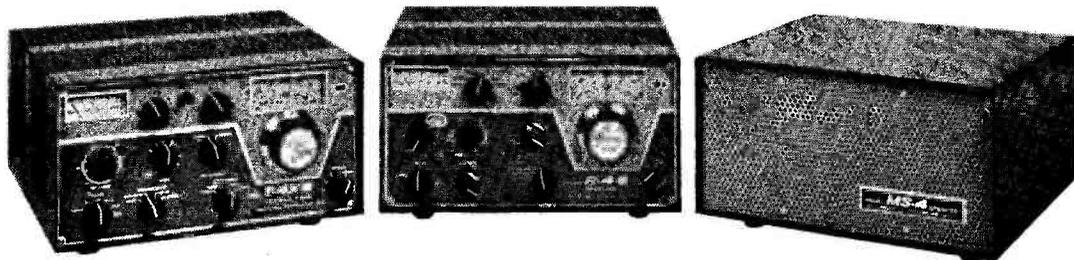
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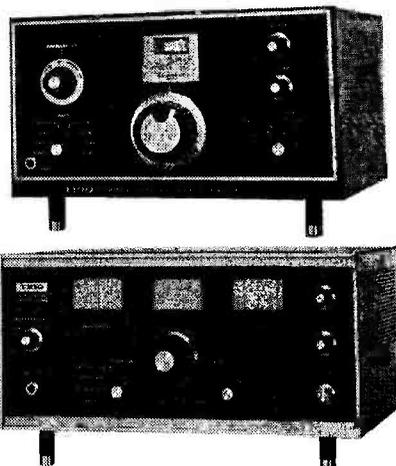
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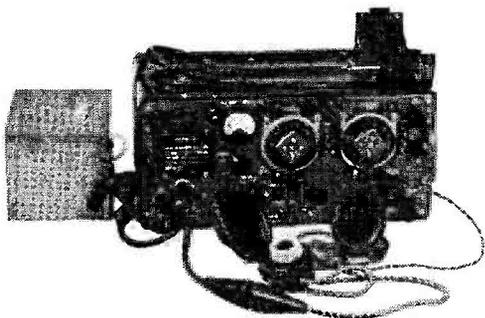
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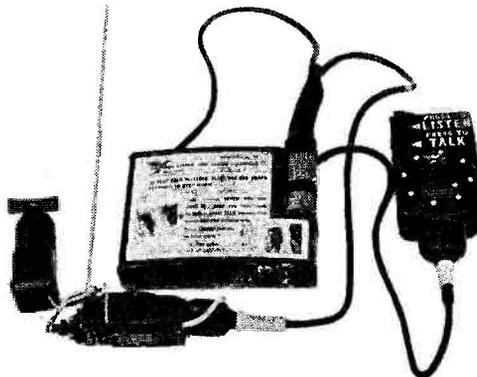
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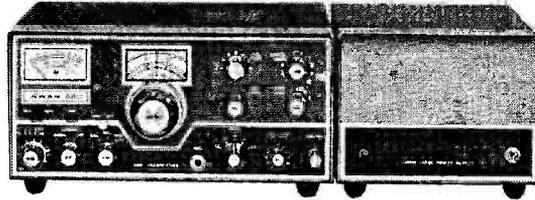
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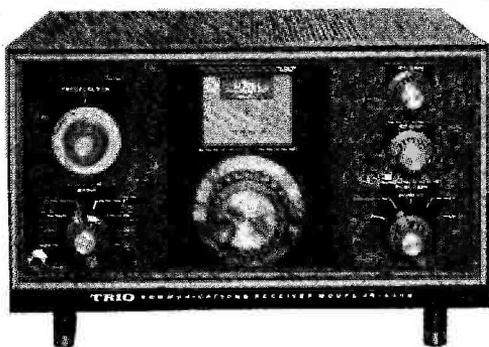
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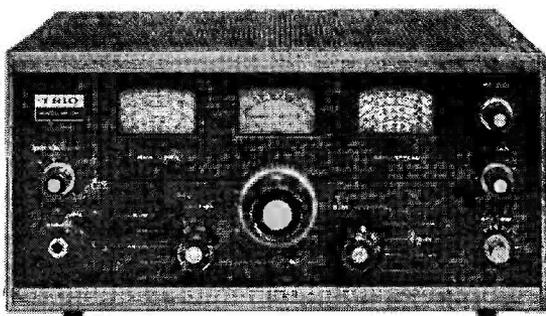
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INDEX TO
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SHORT WAVE MAGAZINE

(GB3SWM)

	PAGE
A. J. H. Electronics	59
Amateur Electronics (G3FIK)	6
Baginton Electronics	64
Data Publications	55
D. J. Bean	55
Charles H. Young	2
D. Cursons	63
Daystrom	4, 5
Derwent Radio	55
Eddystone Radio	<i>cover ii</i>
Eley Electronics	55
Finnigan Speciality Paints ...	56
George Francis	<i>cover iii</i>
Globe Scientific, Ltd.	64
G.W.M. Radio	58
Hamgear Electronics	63
Henry's Radio, Ltd.	56
Home Radio, Ltd.	8
A. Imhof, Ltd.	61
Jack Tweedy, Ltd.	64
J. B. Lowe	1
John's Radio	2, 8
JXK Converters	61
K.W. Electronics	<i>front cover</i>
Lasky's Radio	7
Minitenna Products	56
Mosley Electronics	6
N.W. Electrics	3
Peter Seymour, Ltd.	9
Practical Electronics	60
Radio Shack, Ltd.	7, 60
Rex Radio	58
R. T. & I. Electronics	62
Shure Electronics, Ltd.	3
B. Slater	55
Small Advertisements	57-64
Smith & Co., Ltd.	12
Spacemark, Ltd.	56
S.S.B. Products	59
Stephens-James, Ltd.	63
Swanco Products, Ltd.	56, 57
S.W.M. Publications <i>cover iii and iv,</i>	<i>54, 55</i>
Taurus Electrical Services ...	62
Trio Corporation	10

Vol. XXVI

MARCH, 1968

No. 293

CONTENTS

	Page
Editorial	13
Vertical Radiating System, by S. E. Janes, G2FWA	14
More About Solid-State Modules, Part III, by D. R. Dryden, G3BKQ	16
Practical Top Band Transmitter Circuits, Part II, by F. G. Rayer, A.I.E.R.E., G3OGR	18
Getting the Best from an Old Receiver, by A. D. Taylor, GW8PG	21
General-Coverage Preselector, by P. D. G. Milloy	23
Mobile Notes and News	26
"SWL"—Listener Feature, by Justin Cooper	27
HPX Rules	30
Communication and DX News, by E. P. Essery, G3KFE... ..	33
VHF Bands, by A. H. Dormer, G3DAH	39
The Month with The Clubs—From Reports	43
Eddystone Essay Competition—The Winning Paper	50
The Other Man's Station—G3FTQ	52
New QTH's	53

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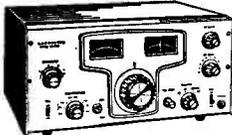
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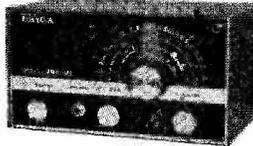
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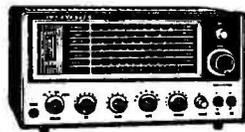
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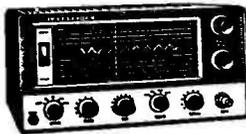
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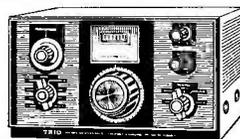
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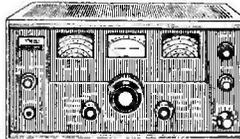
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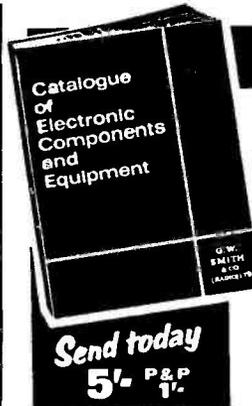
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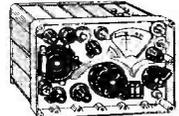
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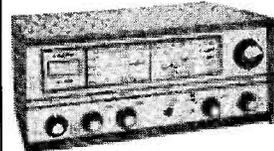
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PART EXCHANGES WELCOME

The SHORT WAVE Magazine

E D I T O R I A L

Ambience *It is an interesting fact—and it has been with us since our beginning—that whatever the subject discussed in this Magazine, on whatever aspect of radio technology or practice, whether amateur or professional, somewhere at the back of the class sits, figuratively speaking, the greatest living expert on that particular subject. Sometimes he makes us aware of it—sometimes he only thinks he is—very often he does not make his existence known at all. But always we are conscious that he is there. This dictates the utmost care in the processing of material for publication.*

Then we have to remember, nearer the middle of the class, the highly intelligent reader—a qualified man in one of the professions, say—who knows next to nothing about Amateur Radio, and just wishes to be instructed. This also involves very careful attention to what we publish.

For the great body of our regular readers—who, between them, know a great deal about every aspect of radio amateur technique and practice—anything we put out has to be most carefully worked over before being committed to print.

Interlarded with these more or less definable categories are the professionals, at various levels, with specialised knowledge of some branch of electronics having no connection with radio communication. There are also those who are either very young or are getting on in years. Some are well qualified in the radio amateur sense, others regard themselves as beginners. Individually, either they want it all in simple language—or prefer technical articles to be technical, with mathematical proofs—or never could cope even with simple arithmetic—or expect every article appearing each month to be just right for them. These conflicting requirements also demand great care in the selection of material for publication.

Well, broadly speaking that is the background against which we work, and have done for so many years. What makes it possible is that all our readers are united in one common interest, that of Amateur Radio. It is the theme and essence of the whole undertaking, the single factor drawing all together.

But it is also the reason why, in our sort of ambience, we could never please everybody all the time—indeed, it would be folly to try. We never have tried!

*Austin Foster,
G6FO.*

VERTICAL RADIATING SYSTEM

AND A VERSATILE ATU

S. E. JANES (G2FWA)

THREE or four years ago an ex-Service vertical aerial became commercially available for about £3, consisting of 10 x 3ft. sections screwed together in a manner similar to the old chimney sweep's rods. The top is surmounted by a 14ft. whip, making the overall length almost 45ft.—the optimum height ($\frac{3}{8}\lambda$) for a 20-metre vertical. The whole is supported on a large insulator with spike and has two sets of guy lines. The insulator can be placed between any 3ft. sections, making it suitable for different feed arrangements.

The writer suggests that this aerial system may have proved to be difficult to erect under Service conditions and possibly is the reason for it coming on to the market. The complete vertical is whippy like a fishing rod and it is very difficult to erect unless any a my of helpers is available. However, this effect is reduced considerably if two 3ft. sections are left off initially and it is then possible for one person to raise the assembly. With loose attachment of the guys the bottom section can be supported on a stool and, with a helper holding it in place, another section can be screwed into position after the assembly is ased a little higher. With the end a clear 3ft. the new section can be screwed in, to rest on the ground. Again, with careful adjustment of the guy lines the assembly can be eased back on to the stool, guys checked again, and finally raised a little more to enable the last section to be attached complete with insulator and spike.

A wooden support several feet high and complete with strong stand-off insulators or insulating device makes the erection much easier. Furthermore, substitution of the rather coarse rope guys by neater and thinner nylon line makes the appearance more pleasing and the whole array capable of better withstanding all weather hazards.

The photograph shows the base of the assembly at G2FWA, supported by a veranda pillar. The tuning unit is a modified arrangement of a unit of model TCS-14 radio equipment. It is a type CML-47205 "antenna loading coil," these units coming on to the market from time to time; this particular item was purchased for 7s. 6d.

Beneath the housing is an SWR indicator built and sealed from the weather in a plastic lunch-box. The whole is then further protected by a canopy of clear perspex, in addition to the protection already provided by the veranda. Heavy coax cable (in a protective wrapping) is built into the surrounding cement work, likewise the quarter-inch copper tubing, which can be seen emerging from the concrete and connected to the earthing point on the ATU. This copper tubing is joined to three radials of the same material and these fan out to 6ft. lengths of $\frac{1}{2}$ in. copper pipe driven into the bed of a stream which, fortunately(!), runs through the garden at a distance of about 30ft. from the base of the

vertical. (See May 1966 SHORT WAVE MAGAZINE for further ideas on earthing arrangements.)

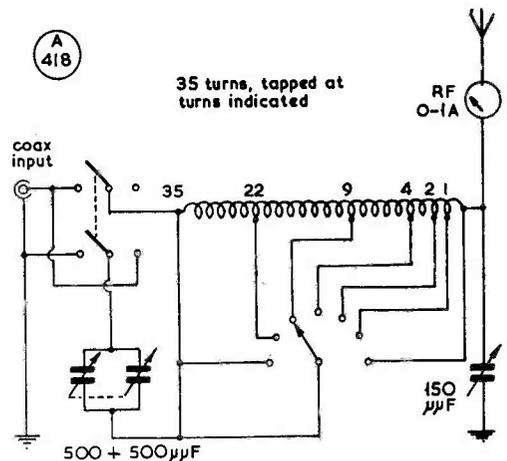
Coverage

The tuning unit as modified can well be used with any wire in excess of about 45ft. The inductance as given is just sufficient for Top Band working with this vertical. If required for a shorter whip or length of wire, then more turns should be added. As shown it is a very versatile ATU for any aerial length on the HF bands, with switching for series feed or a π -arrangement.

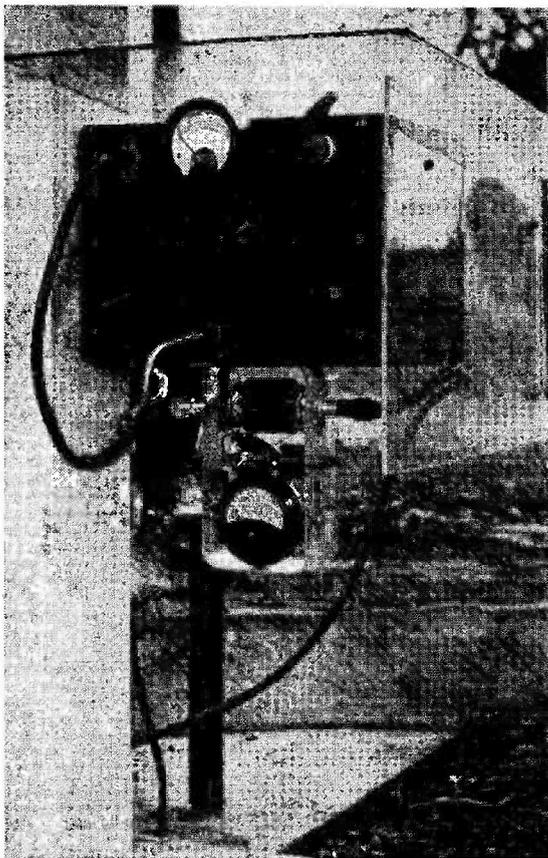
First of all the coil in the original unit must be dismantled and the wire removed. Take care with your fingers while carrying out this operation. The author's unit had been tropicalised with some very hard varnish and this came away with the wire with small flakes adhering to it. The edges of these flakes were very sharp indeed and can cut one's fingers quite deeply. The same wire is more than enough to rewind 35 turns (as indicated in the diagram) although it would probably be easier to use new 14g. enam. copper.

The original tapping clips can be used again to secure joints being made to the coil. Before re-mounting the coil attention should be given to the heavy-duty ceramic switch. The original arrangement was quite complex with two wipers. In order to achieve straight switching as shown in the diagram, one of these wipers must be raised but on examining the switch this will be quite clear.

Of course, this ATU need not necessarily be made from a TCS unit. It can be built as shown in the circuit, using other parts and a conventional switch, although this latter item should be capable of handling the power involved and be built on a ceramic base. It is possible that the tapping at 1 and 2 turns will not be required and this means that a 5-position switch would be quite satisfactory. The tapping points as shown were chosen because of the available studs and to give as wide a choice as possible. If this ATU is to be built from parts on hand then it should be stated that the coil former diameter is $2\frac{1}{2}$ inches. If any other is used it will be



Circuit of the all-band Aerial Tuner Unit described by G2FWA.



View of the ATU as mounted for convenient operation out-of-doors. It loads into a vertical radiator—see text and accompanying circuit diagram.

necessary to arrive at the total number of turns and the optimum tapping points by experiment.

A stout DPDT switch is mounted below a coax, socket which replaces one of the original aerial feed-through insulators. Some may frown on the use of such a switch for changing from series-fed to a *pi*-arrangement, but in practice it has proved to be completely satisfactory over many months of use. A small twin-gang 500 μF (each section) tuning condenser is mounted in the space below the switch. In the corresponding space on the right hand side of the panel is fitted a 100 or 150 μF variable capacitor, with spacing as wide as the available area permits. It is possible that some may find a wider-spaced 40 or 50 μF to be all that is required for their particular system, with power and aerial length being taken into consideration. This control is necessary for bringing some systems to resonance. Better efficiency is obtained, however, if the coil tap and the twin-gang tuning positions are chosen for *minimum* output capacitance.

An RF ammeter completes the components, the value of which will depend on the power in question

although 1-amp f.s.d. should prove to be satisfactory for 160 metres and up to about 100 watts on the other bands, using the complete arrangement as described. In order to mount this meter some of the TCS unit panel metal backing has to be turned back or drilled so that the instrument is not shorted, or arcing.

With switching for series-feed or a *pi*-arrangement the author has not found any length of wire that will not load up, subject to the special requirement for Top Band as mentioned earlier.

Editorial Note: Further to the foregoing, we have since been informed by G6QM (Cheltenham) that he is using a similar ATU, with very satisfactory results—and by combining it with an SWR Bridge, he can get maximum output for minimum input on any band.

A refinement introduced by G6QM is to use screened earth lead, with the components of the ATU not connected in any way to the metal case housing the whole assembly. This results in a perfectly screened Aerial Tuning Unit, which minimises stray RF and appears to improve efficiency.

MORE RECIPROCAL ARRANGEMENTS

Added to the lengthening list of countries with which our G.P.O. has arranged for reciprocal licensing are Sweden and Denmark (*acknowledgements "IARU Region I Bulletin"*). This means that if you hold a U.K. AT-station licence you can obtain a permit, under their regulations, to operate in OZ or SM merely by showing your British amateur licence to the appropriate authority—usually the P.T.T. Dept. in the capital city of the country concerned.

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"... Just starting to modify some ex-Admiralty gear..."

MORE ABOUT SOLID-STATE MODULES

FURTHER APPLICATIONS OF FET'S—AND A TRANSFORMERLESS AF AMPLIFIER

Part III

D. R. DRYDEN (G3BKQ)

The topic of design and construction of solid-state modules for various purposes was opened in our December issue and continued in February. Here are some further circuits.—Editor.

FOR the BC-454 modification suggested in the February issue, a good transistor audio amplifier, for working into a 3-ohm speaker, is shown at Fig. 11 below. The quiescent (no-signal) current is about 1.5-2.0 mA, and the drive required for full output is 100 mV or so. The frequency response of this transformerless AF unit is good enough for hi-fi applications. It needs a 12-volt supply and, as a plug-in module, could be built on to a 12A6 type of valve base. Note that R7 is adjusted to give 6v. above earth with 12 volts HT.

At Fig. 12 is shown the arrangement for a two-metre front end, which will be found to give excellent results—but it does need full protection from surge-RF radiated by any transmitter in the near vicinity. All values are given in the table, p.17.

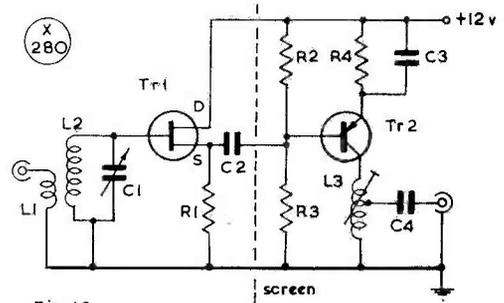


Fig. 12

Fig. 12. Solid-state arrangement for a two-metre RF stage, by G3BKQ.

There are other applications of the FET, some of which are shown in Fig. 13, which is self-explanatory.

As a matter of interest, appended is the AVC curve obtained on the BC-454, modified to all-solid-state, as discussed in the February issue of SHORT WAVE MAGAZINE.

Table of Values

Fig. 11. Transformerless Audio Amplifier

C1, C3,	= 10 μ F, 12v.	R8	= 15,000 ohms
C2, C4,		R9	= 3,300 ohms
C5	= 270 μ F	R10, R12	= 3,900 ohms
C6	= 25 μ F	R11	= 1,000 ohms
C7	= 270 μ F	R13	= 120 ohms
C8	= 100 μ F, 12v.	R14	= 470 ohms
R1	= 100,000 ohms	R15, R17	= 47 ohms
R2	= 12,000 ohms	R18, R19	= 1 ohm
R3	= 6,800 ohms	Tr1	= OC44, 2N599
R4	= 10,000 ohms	Tr2	= OC201, OC205
R5	= 1,800 ohms	Tr3	= OC81
R6, R16	= 33 ohms	Tr4	= ZT82, ZT83
R7	= 25,000-ohm potentiometer	Tr5,	
		Tr6	= OC23, OC24

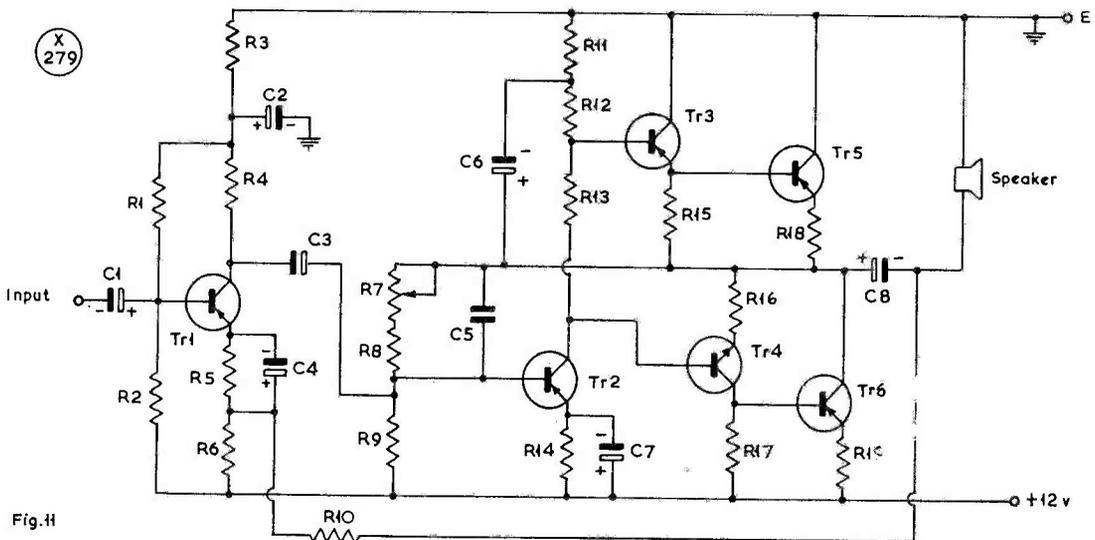


Fig. 11

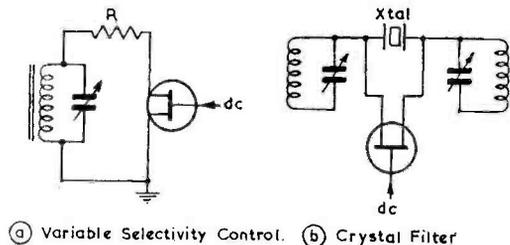
Fig. 11. Transformerless Audio Amplifier, solid-state.

Table of Values

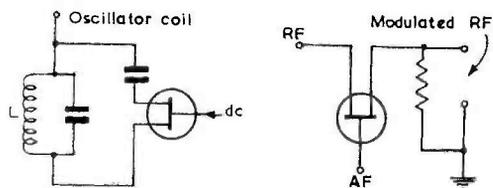
Fig. 12. Two-metre RF stage, by G3BKQ

C1 = 0.3/7 $\mu\mu\text{F}$ trimmer	R2 = 22,000 ohms
C2, C3, C4 = 470 $\mu\mu\text{F}$	R3 = 100,000 ohms
R1 = 3,300 ohms	R4 = 1,000 ohms
	Tr1 = 2N3819
	Tr2 = AF139

COIL DATA: L1, 1 turn $\frac{1}{2}$ in. i.d., 16g. L2, 3 $\frac{1}{2}$ turns $\frac{1}{2}$ in. i.d., 16g. L3, 5 turns 24g. on cored former, tapped one turn from cold end.



(a) Variable Selectivity Control. (b) Crystal Filter



(c) dc Controlled Tuning (d) Low Level Modulator

Fig.13



OLD-TIME SURPLUS

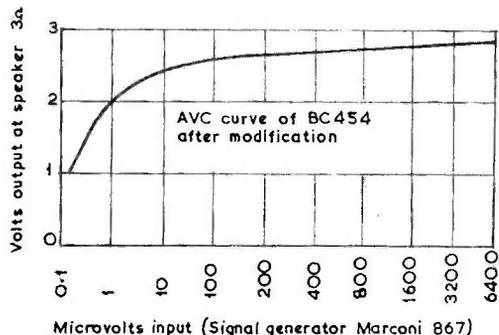
It is probably hardly realised by the newer generation of radio amateurs that, until only a few years ago, there was a well-known establishment still selling surplus from the Kaiser's War (1914-'18). The stock included items like large meters encased in brass; Morse keys of many shapes and sizes, but all of the pump-handle variety; wires of numerous types and weights; a truly remarkable range of switches; motor-generator sets giving up to 2000v. DC at 500 mA and more; large and small bright-emitter receiving and transmitting valves of every sort—and much else in the way of "wireless apparatus" that ranked as surplus after 1918. This fascinating establishment used to be in Upper Thames Street, E.C.4, and was the mecca for the keen young amateur of the 1920's.

NEW DIRECTOR — CITY & GUILDS OF LONDON INSTITUTE

One of the most important of our national educational institutions—setting examinations over a wide range in the field of applied technology, the certificates for which are accepted throughout the world as unquestioned qualifications—is the City & Guilds of London Institute. The office of director-general of City & Guilds is thus a very important appointment, held always by a distinguished and highly qualified educationalist and administrator. The new head of the Institution is Mr. C. R. English, B.Sc. (Eng), C. Eng., M.Inst. Mech.E., M.I. Prod.E., A.M.I. Man. E., who has been associated with City & Guilds for many years. He started his career as a mechanical engineer and technical teacher and served in the Royal Navy as an engineer officer. After Hitler's War he became a chief inspector of schools with a particular interest in technical training.

FARADAY MEDAL—I.E.E.

The institution of Electrical Engineers announces this year's award of the Faraday Medal—one of the world's leading scientific distinctions—to Mr. L. H. Bedford, C.B.E., M.A., B.Sc., C.Eng., F.I.E.E. for his "outstanding contributions to the advancement of electrical engineering, both in war and peace, and his leadership of the design teams by which these advances have been developed." The reference is to Mr. Bedford's work on the early cathode ray tube (1931), the development of the radar receiver (1937), and the design of much military radar equipment during Hitler's War (1939-1945)—including the devices known as Rebecca, Eureka and Monica (of blessed memory!). Later, he became engaged in TV receiver design and manufacture and the development of an X-band radar system for marine applications. Mr. Bedford is now Director of Engineering, British Aircraft Corporation (Guided Weapons) Ltd.



The AVC curve of a BC-454 modified to solid-state—see February.

PRACTICAL TOP BAND TRANSMITTER CIRCUITS

MORE ABOUT MODULATION—AND TRANSMIT/RECEIVE SWITCHING

Part II

F. G. RAYER, A.I.E.R.E. (G3OGR)

The first part of this article appeared in our February issue, pp.757-760.—Editor.

CONTINUING from methods of driving the PA from a Class-A modulator (see p.760, February), next to consider is a push-pull modulator, as often used. Fig. 6 readily gives enough output with 250v. HT. An audio amplifier producing 5 watts or more output may indeed be already to hand. If so, it may only be necessary to change the speaker transformer for a small modulation transformer.

C1 helps keep RF out of the amplifier. C2 value provides a little increase in higher tones. Various other valves, such as 6V6's, etc., can be used equally well.

In Fig. 6, the numbers for T1 and T2 are for surplus SCR-522 transformers. An alternative for T1 is a currently available 1:3 intervalve transformer (*Radiospares*) with two 270K resistors across the secondary, their junction forming the centre-tap. Circuits with a valve phase-splitter are also suitable.

Modulation Transformers

The *Woden* UM \emptyset is multi-ratio type, for up to 10 watts audio and 20w. PA input, and will match "anything to anything." Various surplus transformers are also available. Many have a single ratio, for two 6AQ5 modulators into a 5763 PA, or similar purposes.

Tests by substituting a small mains transformer, Fig. 7, made no audible difference to results. The ratio in this case is 2:1. This proved successful with a 6BW6 and similar valves.

To work out the PA modulating impedance, divide voltage by anode+SG currents of the PA. For example, with a 250v. HT supply and 40 mA anode current (10w. input) and 10 mA SG current = $250v/0.05 = 5,000$ ohms. Again, 300v. at 30 mA = $300/0.03 = 10,000$ ohms.

The modulator valve optimum load will be found in the valve data. For example: 8,000 ohms for 2/6BW6, 2/6V6 (285v.), or 10,000 ohms for 2/6AQ5, 2/6BW6 (250v. HT supply), etc. Then the correct ratio for the modulation transformer is:

$$\sqrt{\frac{\text{Optimum Load}}{\text{PA Modulating Impedance}}}$$

Assume 5K PA modulating impedance and 10K optimum load for the modulator. The ratio is gener-

Table of Values

Fig. 6. Push-pull modulator for crystal microphone

- | | |
|------------------------------------|---|
| C1 = 25 μ F | R3, R4 = 270,000 ohms, $\frac{1}{2}$ w. |
| C2 = .001 μ F, mica | R5 = 22,000 ohms, $\frac{1}{2}$ w. |
| C3 = 8 μ F, 350v. | R6 = 2,200 ohms, $\frac{1}{2}$ w. |
| C4 = .01 μ F, mica | R7 = 470 ohms, 2w. |
| C5 = 25 μ F, 6v. | VR1 = 1 megohm |
| C6 = 50 μ F, 50v. | T1, T2 = see text |
| C7, C8 = .002 μ F, mica | V1 = 12AX7 |
| R1 = 2.2 megohm, $\frac{1}{2}$ w. | V2, V3 = 6BW6 |
| R2 = 47,000 ohms, $\frac{1}{2}$ w. | |

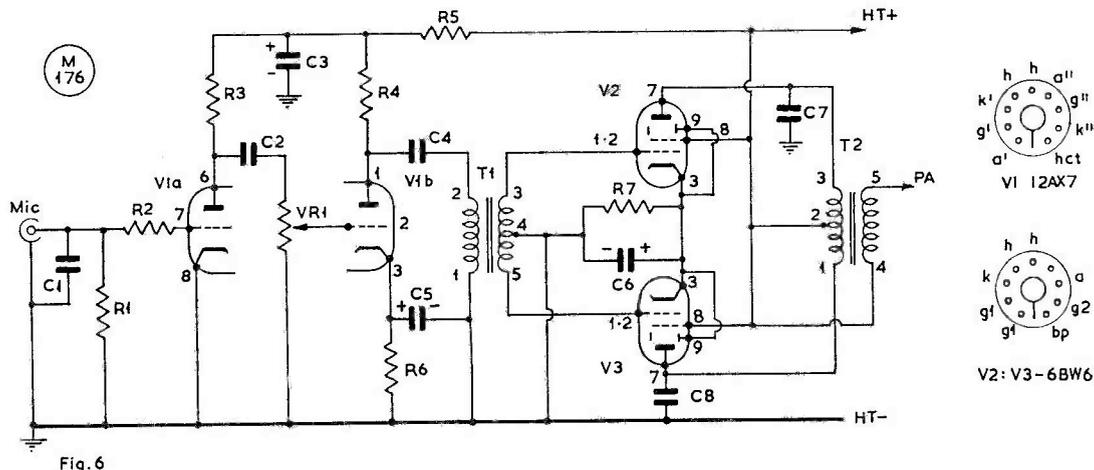


Fig. 6. Push-pull Modulator for a Crystal Microphone.

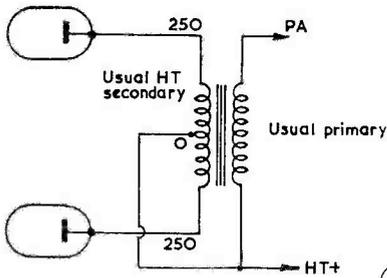


Fig. 7

M 177

Fig. 7. Connections to use a small mains transformer for push-pull modulator output.

ally around 1.5:1 to 1:1 and some deviation is unimportant in terms of actual results. But primary and secondary windings should be rated to carry the expected currents.

Valve Splitter and Carbon Microphone

A 12AU7 used as in Fig. 8 allows a carbon microphone to be employed without a transformer. This is occasionally handy. Fig. 8 also shows a valve as phase splitter, avoiding the need for a push-pull input transformer.

The 12AU7 can work into a transformer, driving two valves in push-pull. Or it can be resistance-capacity coupled to a single valve as a Class-A modulator.

If preferred, a twin-triode as a high gain amplifier, as shown earlier, may replace the 12AU7, so that a crystal microphone can be employed.

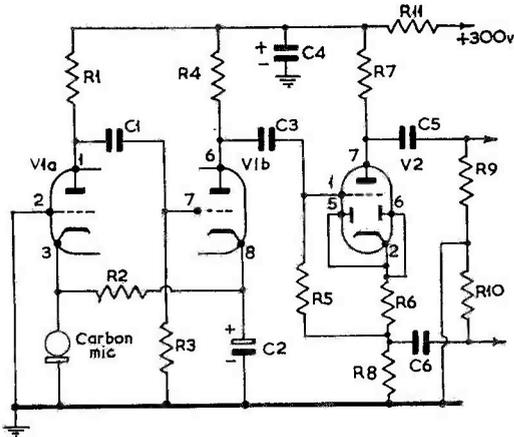
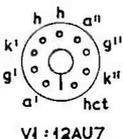
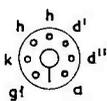


Fig. 8



V1: 12AU7



V2: 6AT6

M 178

Fig. 8. Carbon microphone amplifier needing neither transformer nor valve phase-splitter.

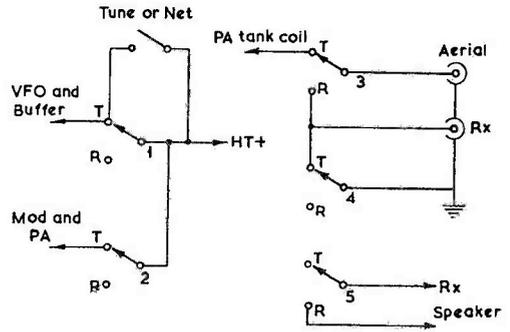


Fig. 9. Switch for Transmit/Receive

Q 363

Fig. 9. Suitable switching for send-receive in any amateur station running moderate power. The five sections can be ganged for Tx-to-Rx. This is a simple arrangement and will give adequate receiver protection for normal Top Band working.

Transmit/Receive Switching

Fig. 9 avoids any external relay, and gives immediate send/receive change-over, with any valve receiver. Position (1) Completes the HT circuit to VFO and buffer, a separate parallel "Tune" switch allowing tuning and netting; (2) Supplies HT to the modulator and PA; (3) and (4) Change over the aerial, and short the receiver aerial to chassis on "transmit," while (5) Opens the speaker circuit on "transmit." This arrangement has proved very handy and reliable, over thousands of operations. A two-wafer receiver type switch is suitable, with one wafer for (3) and (4) circuits.

Power Packs

It is worth noting that mains transformers and smoothing chokes as made for receivers and amplifiers have continuous ratings. With a transmitter, operation is intermittent (listening following transmission). Experience suggests that it is normally safe to up-rate these components 25% for intermittent use. This does not apply to rectifiers.

Fig. 10 is a singularly straightforward power supply circuit for a 10-watt transmitter, using readily available items, and with no need to exceed continuous ratings. A typical transformer is the Elstone MT/MU, providing 120 mA at 300v. with 6.3v. at 4A in all for heaters. Somewhat similar transformers, but for 5v. rectifiers, such as the 5U4G, are equally satisfactory.

R1 is a safety bleeder, and can be reduced in value to take any surplus current. This improves regula-

Table of Values

Fig. 8. Carbon-mic. amplifier and phase-splitter

C1, C5,	R4 = 47,000 ohms, 1w.
C6 = .01 μF, mica	R5 = 1 megohm, ½w.
C2 = 50 μF, 12v.	R6 = 3,300 ohms, ½w.
C3 = .01 μF, mica	R7, R8 = 100,000 ohms, ½w.
C4 = 8 μF, 350v.	5%
R1 = 100,000 ohms, ½w.	R11 = 22,000 ohms, 1w.
R2 = 1,000 ohms, ½w.	V1 = 12AU7
R3, R9,	V2 = 6AT6
R10 = 470,000 ohms,	
½w., 5%	

tion. Suppose a meter in the HT circuit shows that the transmitter takes 95 mA. Then $120 - 95 = 25$ mA maximum bleeder current, so the bleeder can be 15K, 10-watt.

Should a 350v. or 400v. transformer be to hand, a good way to reduce the voltage is to employ choke output, by placing another smoothing choke at X. Should a receiver type pack be used, it should give at least 250v. on load, unless the full 10-watt PA input is not required.

Valve Substitution Table

OA2	— 150C4, QS1207, G150/4k, GD150M/S, CV1832.
OB2	— 108C1, QS1208, G108/1K, HD52, CV1833.
6AM6	— CV138, EF91, 8D3, Z77, SP6, 6F12.
6BW6	— CV2136, (6AQ5, B7G, 250v. max.) (6V6, octal).
6C4	— CV133, L77, EC90.
6CH6	— EL821, 7D10.
5763	— QV03-12, CV2129.
EZ81	— U709, 6CA4, UU12, CV5072.

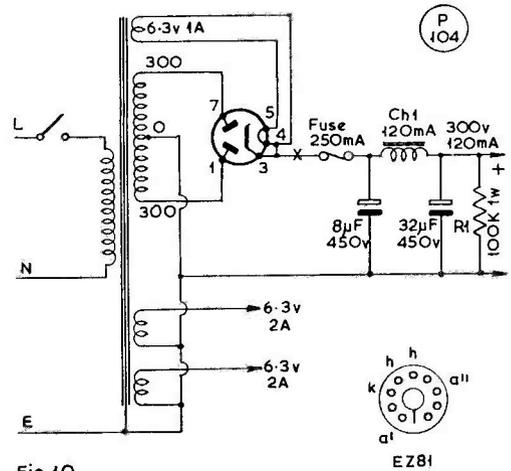


Fig. 10

Fig. 10. A suitable power supply circuit for the Top Band transmitter circuits shown in the article by G3OGR.

“TOP BAND Tx/Rx for MOBILE”

With reference to this article in our February issue, we are asked to explain that the 12AH8/20D3 valve type specified for the V2 position (see pp.745-747) is now virtually unobtainable, even from the original manufacturers, Thorn/AEI. A suitable substitute is the ECH81—but it should be noted that this not only has a different base-connection from that given for V2 on p.747, but also has a 6.3v. heater, which would necessitate a rearrangement of the heater circuitry, shown as Fig. 10 on p.744 the article. And in the main circuit diagram on p.746, the inter-connection from the anode of V8 should read “To C1, V1.”

USAFE/U.K. BID SALE

We have been asked to point out that manuals for the U.S. equipment offered at these sales are not normally available. A reader who remarks that he has had dealings with the Marketing and Distribution Centre, R.A.F. Molesworth since 1963, says that he has never been able to obtain the appropriate handbook covering anything he has purchased. The point here is that though in some instances manuals might be available, it is of no use to apply to us if they are not. We are currently assailed by keen types who, having acquired a piece of unknown American surplus gear, write to us asking either for “the circuitry and full details” or “advice on where to obtain the appropriate manual.” Unless the equipment happens to be covered in one of the *Surplus Manuals*, there is usually nothing we can do to help. In all the business of dealing with attractive surplus items, the lack of manuals is a constant bother and one of the least satisfactory aspects of what is otherwise a useful trade. The fact is that most of the manuals on obsolete equipment were “reduced to produce,” i.e., either burnt or sold as paper salvage by keen supply and equipment

officers who wished to cut down on space and the loading on their shelves. Thus, the detailed information on some very good surplus items still in current use, and worth quite a lot on the second-hand market, has been lost for ever.

“RADIO LEICESTER”—DO YOU READ

The first of the BBC's local radio stations has now been on the air for nearly four months. “Radio Leicester” has as its signature tune a sort of Morse jingle, with the characters sent very fast. The frequency is 95.05 mc and local coverage (QRP, horizontally polarised) is good. Part of the station's equipment is a Cortina Estate car fitted for outside broadcasting, and designed for one-man operation, transmit-receive, using Pye mobile VHF apparatus. As to the progress being made by these local broadcasters, planned for various parts of the country (there are now four on the air), it seems that so far they have not been able to attract the audience hoped for, nor the commercial support expected.

QUERIES FOR THE EDITORIAL Dept.

While we are always glad to hear from readers on technical matters that we can discuss in the *Magazine*, we do *not* run a Technical Enquiry Service in the accepted sense. In particular, we cannot in any circumstances undertake to provide individual designs for required apparatus, nor can any technical enquiries be dealt with over the telephone. However, if you do have a problem or query, write it in (with an s.a.e.) and if it is answerable without a great deal of research, it will be dealt with in due course by somebody who knows. In fact, in the field of Amateur Radio, there can be few practical matters that have not been covered in our issues of the last three years. It is just a matter of checking the Index!

GETTING THE BEST FROM AN OLD RECEIVER

PRACTICAL SUGGESTIONS FOR METHODOICAL MAINTENANCE PROCEDURE

A. D. TAYLOR (GW8PG)

NO amateur with any regard for his own welfare or that of his family would run his car without regular servicing. If he did, he would only have himself to blame if after a period he was faced with poor performance, breakdowns and possibly a serious accident. The same man only too often expects his communication receiver to run for the equivalent of 100,000 miles with no servicing unless it actually breaks down completely. Under these conditions the performance deteriorates steadily and eventually a lot of money is wasted in trading the receiver in for a new one. In this article hints are given on how to do a "50,000 mile service" on the older type of communication receiver, thus largely restoring its performance to the original level. Only the minimum of tools and test gear is required, and the expenditure on new components should be less than the cost of a routine car service.

The Power Supply

Just as the most immaculate car will perform poorly if the engine is due for an overhaul, so a communication receiver will not perform properly if its power supply is badly smoothed and low in voltage. In any old receiver it is almost certain that the rectifier valve emission has dropped and the leakage current of the electrolytic smoothing capacitors has increased appreciably, lowering the voltage on the valve electrodes and degrading the overall signal-to-noise ratio. The first job, therefore, is to replace the rectifier and all the smoothing capacitors. New condensers of the correct value must be used. Note that "new" means exactly what it says. It is perfectly in order to buy new components at low prices from *Magazine* advertisers, but components salvaged from the junk box should never be used for this sort of job as their performance may be worse than that of the items which they replace. When replacing the rectifier it is well worth while considering replacing the conventional valve with semi-conductors. This will improve reliability and also considerably reduce the amount of heat generated. Fig. 1 shows a suitable circuit for converting conventional full-wave power supplies in the 250 to 350 volt range to silicon rectifier operation.

Too Few Electrons?

The next step is to ensure that all the valves in the receiver itself are up to standard. This can be done either by getting your local dealer to test them on a valve tester, or by substituting a new valve for each different type used in the receiver and seeing if there is any improvement in performance. Any valve found to be below standard should be replaced.

Next, tackle the replacement of all decoupling (by-pass) capacitors. In an ageing receiver, particularly if it is of wartime construction, replacing the screen and cathode decoupling capacitors associated with the RF and IF amplifier stages produces a marked improvement in overall sensitivity, usually particularly noticeable in the R.1155, R.107 and HRO. In all these sets leakage in old decoupling condensers is a major cause of performance deterioration, the multi-capacitor cans in the R.1155 being particularly bad in this respect. It is a simple matter to locate the screen grid and cathode pins on the valveholders concerned, and from these the leads to the decoupling capacitors can be identified. The old condenser can then be disconnected and the new one installed. In almost every instance 0.1 μ F, 350 volt working capacitors are a suitable substitute. The remarks made about "new ones" when discussing the power supply apply equally to the decoupling capacitors. It is also a good idea to change the interstage AF coupling condensers and any electrolytics which may be used for decoupling AF stage cathode bias resistors.

— And Resistors

All the fixed resistors in the receiver should be visually inspected and any which show signs of having been

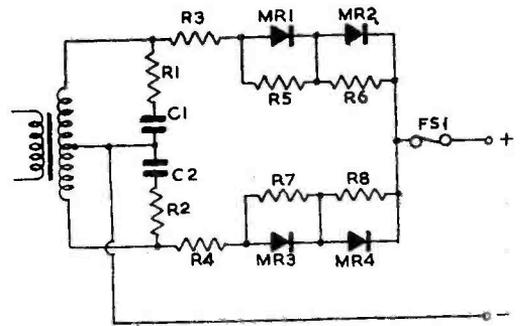


Fig. 1

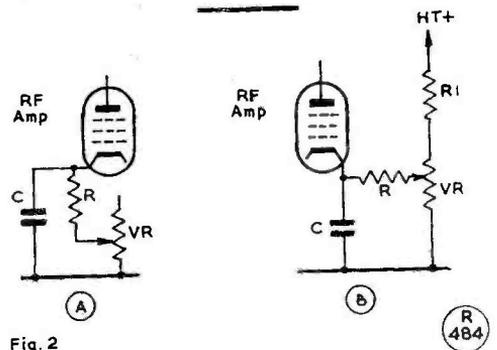


Fig. 2

Fig. 1 (above). Converting a conventional valve PSU in the 250-350v. category to silicon-diode operation. C1, C2 are 0.1 μ F, 500v. working; R1, R2, 1.8K, 1/2-watt; R3, R4, 15-ohm, 1/2-watt; R5, R6, R7, R8, 100K, 1/2-watt; MR1-MR4, BY-100 rectifiers, or equivalent. Fuse FS1 should be rated 1 amp. Fig. 2 (below). Two methods of providing a separate RF gain control, where R is the existing resistor for cathode biasing and C is the decoupling condenser as fitted. R1 is 150K, 1-watt and VR a 10K potentiometer.

overheated or otherwise damaged should be replaced by new components of the equivalent value and wattage rating. A check should also be made to see if any of the resistors are of the wartime varieties, in which the connecting leads were embedded directly into the carbon compound or attached to it by means of push-on brass caps. These types are notoriously unreliable and noisy, and they should be replaced irrespective of how new they may look.

Quiet and Flexible

Noisy RF and AF gain controls are a common fault in older receivers, so these controls should be checked throughout their range of travel and if any noise is present the offending component should be replaced. If the receiver uses a single potentiometer to control the gain of both the RF and IF amplifier valves, it is well worth while taking the RF stage or stages off the common manual gain control line, using a second potentiometer to give independent control of RF gain. This will considerably enhance the flexibility of the receiver, allowing the RF and IF stages to be adjusted independently so as to give minimum overloading and cross-modulation when strong interference is present. Fig. 2 shows two methods of providing the new gain control circuit. That shown in (a) is the easiest to fit, but the circuit at (b) will provide greater control as the range of bias voltage provided is not nearly so dependent on the amount of cathode current flowing (see p.21).

Lubrication

Noisy and intermittent wavechange switches are a major source of annoyance in old receivers. This can be largely overcome by lubricating all the contacts on the wavechange switch with one of the modern switch cleaning fluids stocked by most large radio dealers. This will greatly improve the overall stability of the receiver. The cleaning fluid can be applied with the aid of an ordinary pipe cleaner, one end of which is dipped in the fluid and then applied to the contact being treated. It is easy to bend the pipe cleaner so that awkwardly located contacts can be reached. Note that it is false economy to try and use carbon tetrachloride or similar fluids—they do not have the long-term cleaning action of the proprietary switch cleaners.

Alignment

The method of lining up the receiver will vary according to type, and the handbook for the receiver should be consulted if at all possible. Most receivers can be aligned with the aid of a signal generator and simple output meter, such as the lowest AC range on a multimeter. One exception is the IF stages on the CR-100 receiver. These require the use of a wobulator and oscilloscope, so they should not be touched unless these instruments are available.

The following hints should help to supplement the maker's handbook for those who are not too familiar with the lining-up of a superhet receiver: Before starting, let the receiver warm up for 30 minutes or so. The alignment procedure must be carried out with the AVC switched off. When lining-up the IF stages connect the signal generator to the signal grid of the mixer

valve and disable the local oscillator by temporarily connecting the moving vanes of the oscillator tuning capacitor to earth. To avoid overloading, use a fairly weak signal from the signal generator.

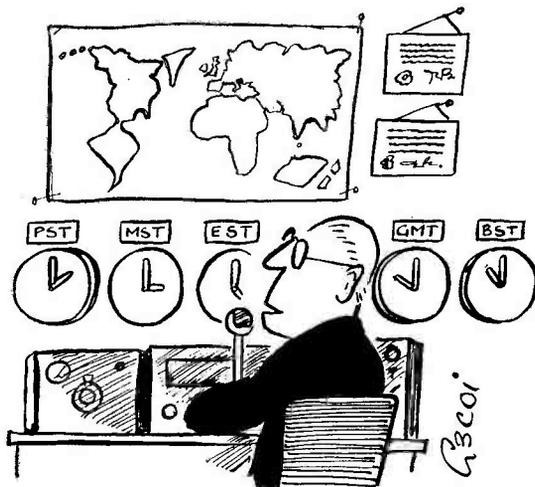
If no handbook giving the signal frequency alignment points for the various ranges is available, on each range peak up the local oscillator, RF and mixer trimmers with the main tuning gang set to approximately 10 per cent above minimum capacity. Adjust the local oscillator padder or coil slug and the RF and mixer coil slugs (if fitted) with the main tuning capacitor set to approximately 10 per cent below its maximum capacity. If a front panel aerial trimmer is fitted in addition to a pre-set RF trimmer, put this to mid-scale before commencing the alignment. Repeat the whole operation several times to get the best signal strength/calibration accuracy compromise between the two adjustment points.

When dealing with the BFO set the panel control to mid-scale, then adjust the preset trimmer or slug as appropriate to give zero-beat with a signal in the centre of the IF passband. If the receiver is mainly required for amateur band use, once it has been aligned, peak up the RF and mixer trimmers to give best results on these bands.

The suggestions made in this article may seem simple, but the effect which they produced on a 30-year old receiver recently acquired by the writer has to be heard to be appreciated!

WE ARE ALWAYS . . .

. . . on the look-out for good articles, particularly of the constructional variety, and interesting photographs, for possible use in SHORT WAVE MAGAZINE. All such material is paid for on publication, at generous rates. It should be addressed to: Editor, SHORT WAVE MAGAZINE, BUCKINGHAM. By "recorded delivery," if you want to feel safe.



"... Sorry I'm late on sked but didn't realise the time . . ."

GENERAL-COVERAGE PRESELECTOR

THREE STAGES—
LOW-IMPEDANCE OUTPUT—
TEN METRES TO TOP BAND

P. D. G. MILLOY

With any good modern receiver, what is called a preselector should not be necessary—it will only degrade the signal-noise ratio, since there should already be adequate front-end gain. However, there are large numbers of ex-Govt., early post-war and even pre-war receivers still in general use which have a poor HF performance, only to be improved by major internal modifications. It is with such receivers that a preselector is worth trying.—Editor.

MANY SWL's and radio amateurs own old receivers, and in many cases receivers without an RF stage. Modifying a receiver to increase sensitivity is often the answer, and sensitivity does mean a lot. As the old maxim puts it: "If you can't hear 'em, you can't work 'em," and the writer felt the same thing—from the SWL's point of view. However, the Rx here, a CR-100, did look, at the time, rather bewildering inside, so external additions were

decided upon in the form of some sort of RF amplifier.

The idea of a basic RF amplifier was dismissed as, while it was cheap, it would not provide sufficient gain where most needed. A tuned RF amplifier and cathode-follower seemed a good idea. This was tried, and very good performance was realised on all bands. So, to give better results, a second RF stage was added.

Circuit Arrangement

The circuit is shown in Fig. 1, and is quite straightforward. V1 and V2 act as RF amplifiers; these valves may be either EF183's or EF80's if the latter are to hand. The two types have identical base connections, and only a change in anode and screen resistors is necessitated by changing the valve type. The advantage of the EF183 lies in its greater slope, which provides more gain. At this QTH an EF183 is used in the first stage, and an EF80 in the second. V3 is a cathode-follower, giving no

Table of Values

Fig. 1. Circuit of the Preselector

C1, C2,	R2, R4 = 200 ohms
C3, C5,	R3 = 5,000 ohms
C6, C7,	R5 = 100,000 ohms
C9 = .01 μ F, 350v.	R6 = 1,000 ohms
C4 = 100 μ F	R7 = 180 ohms
C8 = .005 μ F	VR1 = 5,000-ohm, var.
TC1 = 30 μ F, var.	S1 = 4-pole, 3-way
VC1,	L1, L2 = Weyrad, Denco or
VC2 = 500 μ F, twin	Osmer (see text)
R1, R8 = 33,000 ohms	V1, V2 = EF183 (see text)
	V3 = EF80

Notes: All resistors rated $\frac{1}{4}$ -watt. Commercial coils can be chosen for the coverage required; see Home Radio catalogue.

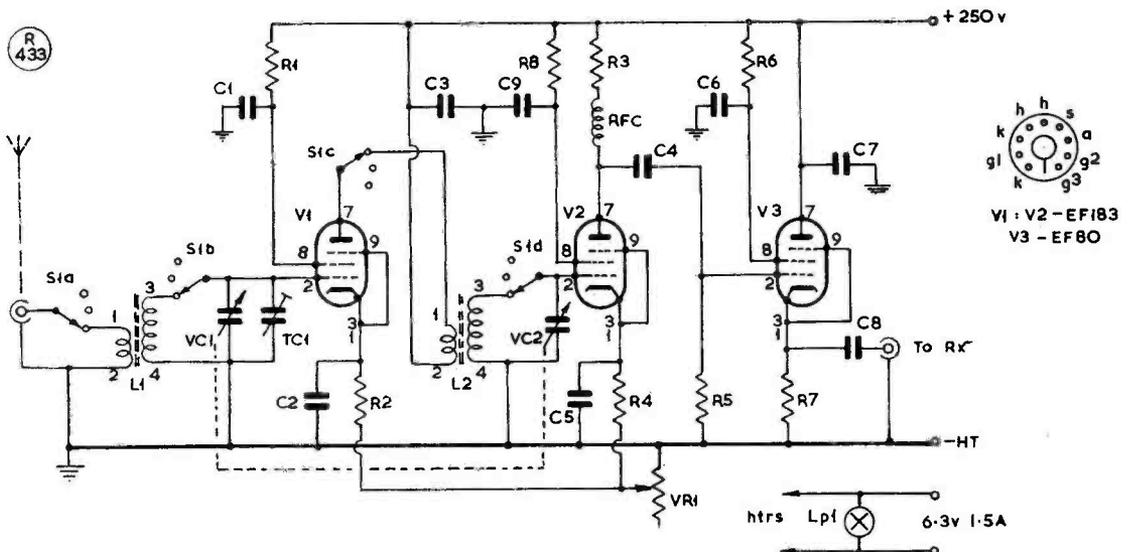


Fig. 1. Circuit of the three-stage RF preselector, with V1, V2 as gang-tuned amplifiers and V3 as a cathode follower to give a good match, through 75-ohm coax line, into the front end of almost any receiver.

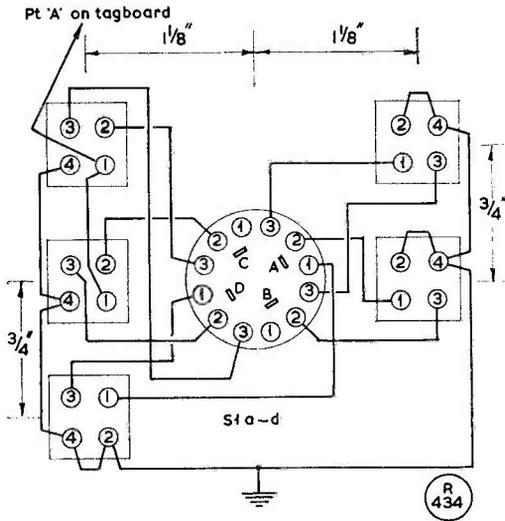


Fig. 2. Showing how the switch assembly can be wired for five "Weyrad H" coils, the ranges being 10-35m., 33-100m., and 90-250m., with two coils for MF and an (optional) LF range. Other coil types could be used similarly, or a set of windings to cover the HF amateur bands only. On the switch centre contacts, point "A" goes to the aerial (or ATU), "B" to VC1 and grid V1, "C" to anode V1, and "D" to VC2 and grid V2.

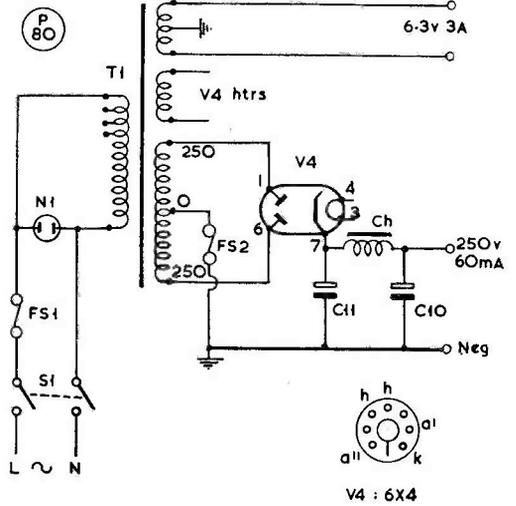


Fig. 4. Suitable PSU for the preselector—which could equally well be run from the main Rx power supply, if it has sufficient output capacity. Values are: C10, C11, 16 + 16 μ F, electrolytic; T1, 250-0-250v, 60 mA transformer, with necessary 6.3v. LT windings; Ch., 5 Hy 100 mA LF choke; V4, 6X5G or similar rectifier; F1, 750 mA mains fuse; F2, 100 mA anti-surge fuse.

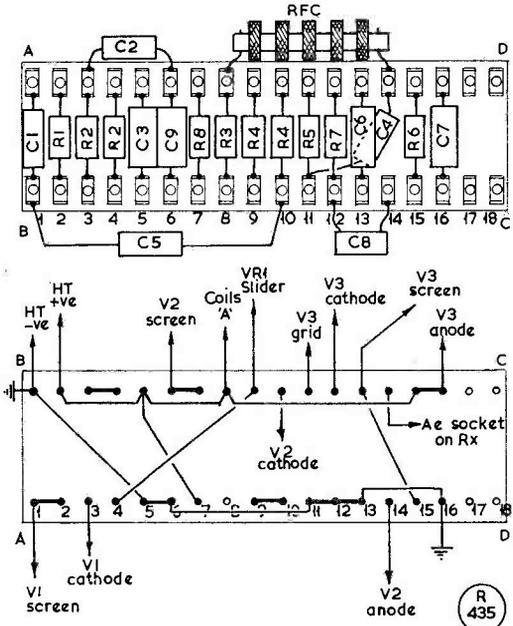


Fig. 3. Most of the small items can be accommodated on a tag board, wired up as shown here, and mounted underneath the chassis. The underside wiring of the tag board itself is with the assembly "turned over."

extra gain, but ensuring a good match to standard 75 ohm coax, and hence into most receivers.

As five or six coils are used, it was decided to wire the switch up separately, and insert the coil and switch assembly afterwards. The wiring of this is shown in Fig. 2. To simplify construction with the depth of chassis used, most of the components were fitted to a tag board and screwed to the chassis as a unit. Although this is not always good practice when dealing with RF, the preselector has functioned satisfactorily here for many months.

It will be noticed that a trimmer TC1 is used in the grid circuit of V1. This is to keep the two stages in line, otherwise some loss in gain would be experienced. A rough tuning of the two tuned circuits was first carried out by means of bee-hive trimmers across VC1 and VC2, but it was found that no advantage was to be had by this, and rough tuning was effected by adjusting the dust cores of L1 and L2. It is a good idea to unscrew the core of L1 a little more than necessary so that final trimming can be done more satisfactorily by TC1.

It will probably be found that if the gain control, VR1, is advanced too far the whole thing will take off, i.e., burst into violent oscillation. This can, of course, be used to advantage as it allows extra gain to be obtained if the control is adjusted to the point just before oscillation commences. If desired, the tendency for oscillation can be checked by the insertion of grid and anode stopper resistors (47-ohm).

The preselector is mounted in an aluminium chassis about 6in. x 4in. x 2½in., the latter dimension being to accommodate the switch and coil assembly.

A front panel 7½ in. x 5½ in. was used, and though a tuning scale was tried, it was retrieved for use in another project, and no real advantage is to be gained from using a scale, as tuning is peaked up on the station being heard or worked.

Coil Coverage

Three ranges were decided upon, 10m.-35m., 33m.-100m., and 90m.-250m., the latter mainly for improving reception of not too strong BC stations. Consequently, only a single RF stage was used on this range. The coils chosen, *Weyrad* "H," were only used as the local shop had them, and other types would be equally suitable—perhaps even the now-available amateur-band coils. The tuning condenser in the model came out of the junk box, probably a 2 x 500 μμF, but a 2 x 400 μμF would only alter the band covered by each range.

The preselector unit can be run from the main Rx PSU, or from a separate power supply, as at this QTH. The PSU here is quite straightforward, and is shown in Fig. 4. Silicon rectifiers of the BY100 type would be better than the 6X5 which happened to be to hand. The LF choke was included because it was available, and could equally well be replaced by a 1K resistor of adequate wattage.

In conclusion, the writer can only say that the preselector described has been in regular use at this QTH for about 12 months with much success; it

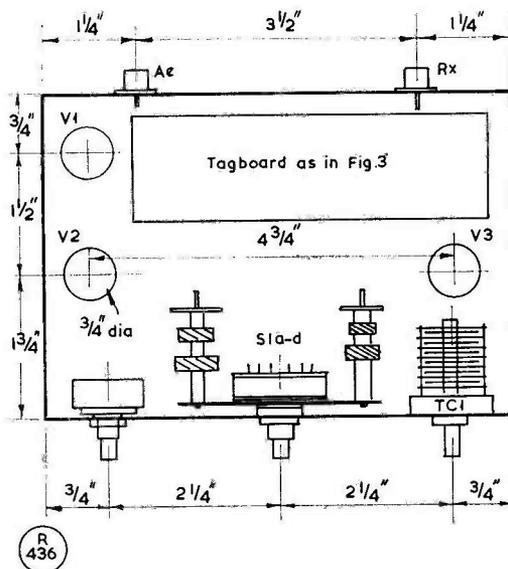


Fig. 5. General under-chassis layout sketch. The assembly is 6in. long by 4in. wide by 2½ in. deep, and the front panel (not shown) is 7½ in. long by 5½ in. deep.

produced a tremendous improvement in the performance of the CR-100, and added to the already good performance of another Rx, an HRO-5R.

"73 MAGAZINE"—PRICE REVISION

We are informed by the American publishers of *73 Magazine* that the U.K. subscription rate will in future be 42s. for one year, or 75s. for two years. We can accept subscription orders, in sterling at these rates, with immediate effect. Orders to: Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

MORSE CODE TEST RUNS

On the first Tuesday of each month, on 3520 kc from 2000z, the Hq. station of the Royal Naval A.R.S. conducts Morse proficiency transmissions (for receiving operators) under their own call sign G3BZU, at H.M.S. *Mercury*, Petersfield, Hants. The sending speeds are 20, 25, 30, 35 and 40 w.p.m., and a proficiency certificate is issued for 100 per cent copy at any of these speeds—and we would like to hear who are the holders of the one for solid copy at 40's. Note the sked, listen, try it and send your results in to: Hon. Secretary, R.N.A.R.S., H.M.S. *Mercury*, Leydene, Petersfield, Hants. To take part in this exercise, you do not need to be a member of the R.N. Amateur Radio Society, membership of which is for those who are, or have been at any time, connected with the Royal Navy and its associated services.

ELECTRICAL ENGINEERING EXHIBITION

The 14th International Electrical Engineers (A.S.E.E.) Exhibition will be held at Earls Court, London, during March 27—April 3. This is always a very interesting Show, which gets bigger every year, and through which much important business is done, especially on the export side. P. A. Thorogood, G4KD, has a large part to play in its organisation and management.

BOOKS FOR THE RADIO AMATEUR

Our lists of selected titles, appearing in every issue of *SHORT WAVE MAGAZINE*, cover the whole field of Amateur Radio. In general, the titles are self-explanatory. We hold stocks of all books shown in our lists and the aim of our Publications Dept. is to despatch the day that your order is received, securely packed against damage in transit—indeed, we have had special sleeves designed for the purpose. All prices quoted in our lists are post free.

Books not listed can usually be obtained without delay if we are given title and the name of the publisher. If the publisher is in the U.K., or has a U.K. agency, the price and availability can usually be quoted within two or three days. All book orders and enquiries should be addressed to: Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

More than 80% of licensed U.K. amateurs are regular readers of "Short Wave Magazine" — which is independent and unsubsidised and was established as long ago as 1937.

MOBILE NOTES AND NEWS

There are over 2,400 /M permits in issue in the U.K.—forming a sizeable proportion of the 13,500+ transmitting amateurs now licensed in Britain. These figures show substantial increases over the same period last year.

For those thinking of taking gear abroad, under mobile operating conditions, we are informed that the Automobile Association will issue Customs *carnets* (to A.A. members only) for vehicles fitted with amateur-band Tx/Rx equipment. This can save a great deal of bother at points of entry (and on return to the U.K.), but inevitably certain formalities have to be gone through. These *carnets* are issued under the A.A.'s "5-Star Travel Service." Because the whole *carnet* situation is at present somewhat in a state of flux, due to certain of the Insurance Companies imposing new conditions on motorists taking their cars abroad, those A.A. members interested should not delay in applying for details to: The Automobile Association, Documents Preparation Dept., Fanum House, Leicester Square, London, W.C.2.

As regards the programme for the Mobile Rally Season, following are the dates already booked:

April 28: North Midlands Mobile Rally, at Drayton Manor, near Fazeley, Tamworth, Staffs.

May 11-12: International Week-End at the Hotel Lido, Rue de Limalst, Rixensart, Genval, Belgium. A big programme has been laid on, of interest to mobiles (but *no* Top Band in Belgium) and their families. Temporary mobile licences for U.K. visitors will be available on request (*before 30 March*) to M. le Directeur-Général des Radiocommunications R.T.T., 42 Rue des Palais, Bruxelles I, Belgium. Full programme details, including accommodation arrangements, can be obtained from: M. Freddy Detraux, ON5KP, 42 Rue de Renivaux, Ottignies, Brabant, Belgium—it you have it in mind to go over for this occasion, get in touch right away.

May 19: Northern Mobile Rally, at Harewood Park, near Leeds, Yorkshire, organised by Northern Amateur Radio Mobile Society.

June 16: Hunstanton annual Rally.

June 16: Rally to be organised by the Painton Radio Society, Northampton, with all the usual attractions and facilities.

June 30: Annual Mobile Rally at Longleat Park, Warminster, Wilts., organised by Bristol Group assisted by the Bristol Amateur Radio Club.

July 6-7: Cheltenham Festival Rally— *details later* .

August 18: Torbay Amateur Radio Society Mobile Rally, at Dartmouth, South Devon.

August 25: The Swindon Club's annual event at Lydiard Park, near Swindon, Wilts.

September 2: Peterborough Mobile Rally.

Well, the dates are beginning to fill up, and organisers should let us know about their plans as soon as possible. As usual, we will be giving main details about each event as information is received. For the April issue, the closing date must be *March 11* , addressed "Mobile Scene," SHORT WAVE MAGAZINE, BUCKINGHAM.

CLAMP-DOWN ON IMPORTED WALKIE-TALKIES

The Post Office announces that w.e.f. April 1st, the manufacture or import of walkie-talkies operating in the 26.1-29.7 mc and 88-108 mc bands is prohibited without the authority and permission of the Postmaster-General. The whole object of the new order is to protect the public from being offered radiotelephone apparatus which they cannot legally use, *e.g.* walkie-talkies in the 27 mc region.

This order in no way affects either radio amateur operation in our licensed bands or what is known as Business Radio, *i.e.* , those firms, institutions, business and trade organisations, and individuals (such as doctors) who are already, or can be, licensed to use apparatus approved by the G.P.O. for operation in the frequency bands internationally agreed for Business Radio services.

K.W. EQUIPMENT—PRICES HELD

The well-known firm of K.W. Electronics, Ltd., manufacturers of a wide range of modern amateur-band Tx and Rx equipment of all types, now does business in more than 60 countries. To maintain this position against strong foreign competition involves not only holding prices down but also keeping up a good volume of sales. Every owner of K.W. equipment can help here by telling his contacts about it when discussing the gear he is using—this is in no sense "advertising" within the meaning of the licence, any more than it is when an overseas AT-station operator tells you about the (American or Japanese) gear he is using.

Similarly, a good demand for K.W. equipment in the U.K. market will help maintain quantity production—and the more units that can be manufactured, the lower the price per unit can be. The point of the foregoing is that (a) Any satisfied user of K.W. apparatus can do a lot to get it better known abroad, and (b) Anyone considering the purchase of new apparatus should endeavour to buy British. And if they go in for any item in the K.W. Electronics range they cannot go wrong.

SOME RECOMMENDED BOOKS

Though the *RCA Transistor Manual* naturally covers only the products of the Radio Corporation of America, it is nevertheless full of valuable information and circuitry relating to transistors. Running to more than 500 pages, it costs 27s. post free, and is available from our stock. Much the same comment applies to the RCA manual entitled *Transmitting Tubes* , which will be found an invaluable reference by all users of valves—and, looking at the current situation as it actually is, valves still play a dominant part in all radio communication systems! The price of *RCA Transmitting Tubes* is 20s. 6d., from stock.

For all those starting out, or already active, on VHF a good standard text covering the practical aspects of the subject is the ARRL's *VHF Manual* . Like all ARRL treatises, it is of unimpeachable technical accuracy and reliability. Price of the *ARRL VHF Manual* is 23s.

These books are immediately obtainable from our Publications Dept., at Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1. And our aim is always to despatch books on the day your order is received.

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SHORT WAVE LISTENER FEATURE

THE CHOICE OF EQUIPMENT — GETTING GOING ON SWL/VHF—TECHNICAL POINTS AND DISCUSSION — READER NEWS AND COMMENT —HPX RULES AND THE LATEST LADDER

By *Justin Cooper*

A NUMBER of readers have come back to the comment last time round on British versus American gear; indeed *C. J. Tomes (London, S.W.12)* devoted his whole letter to it. As there seems to be quite a lot of misunderstanding of the situation it is perhaps appropriate to discuss the question further in this preamble.

A large proportion even of the more thinking public has the idea that nothing good can come from a British factory. In particular, people are so dazzled by the amounts of money being spent in the U.S. on rocketry that they assume our electronics must be years behind the times. In terms of Amateur Radio, this is just not true. Of course, American amateurs are not generally using British equipment, but there is a discerning minority who are—K.W. Electronics, Eddystone and J-Beams being good examples. In any event, British and American requirements in terms of the HF bands are somewhat different, in that our maximum permitted power input is much lower (150 watts against one kilowatt!) and we are extensive users of Top Band, which is very much a minority interest in the States. The cost of developing a piece of Amateur Radio gear of the common-or-garden variety is miniscule compared with the development cost of, say, an ILS/VOR navigational aid test equipment—but even in the latter field a private-venture design of U.K. origin is the only one of its type in the world, and in neither case is there any need to use components at all out of the ordinary. Integrated circuits are generally available, for instance, but to use them in either of the areas named smacks of the ridiculous. There is a subtle difference between what is “sophisticated” and what is “elegant.” To use a couple of cheap transistors to make an El-bug key may be elegant, while the use of a couple of dozen integrated circuits to achieve *exactly* the same result is undoubtedly sophisticated but also faintly comic. What matters is the reliable achievement of the specified end in the simplest and most elegant manner. As far as Amateur Radio gear goes, the requirements are sensitivity, selectivity, stability, and appearance, and the equipment must achieve its specification or better in every case when it leaves the manufacturer's door, and be easily kept up to that standard when maintenance is necessary. The requirements of a particular amateur are unique to him—for instance selectivity that is adequate to an SSB-only operator is absolutely useless to a DX-chaser in a pile-up

of CW stations. Unless a manufacturer is quite large the increased expense required to attack the export field seriously can be crippling, and far greater than the cost of development of any normal piece of AT-station gear.

Summing it all up, in the general run of cases, the U.K. operator is best suited with equipment of British origin, and the American by American, but always there are the odd exceptions; for these, praise be, the importers provide the facilities for sales and service in an excellent manner, generally speaking. What it boils down to is simply that if the prospective buyer of amateur equipment takes the trouble to set down on a piece of paper just exactly what his requirements are, in terms of a specification and price-range, and strikes out all the facilities for which he has no earthly use in his particular context, then a little shopping around will, in most cases, demonstrate that he will be best suited by buying British.

And in conclusion, your old J.C. would remark that he has, in the course of his professional career in the electronics business, had the chance to measure the essential parameters of a large proportion of the most interesting equipment over the last many years, and enough operating experience to know just what these mean in terms of daily knock-about use on the bands.

Technical Points

Quite a few this time, and some of considerable interest such as the notes from *A. P. Legg (Sutton, Surrey)*, *B. W. Lowe (Worsley)*, and *P. A. Spindler (Ilford)*, all of whom are contemplating VHF or UHF operation. In terms of the techniques required for reception successfully at these frequencies, the best advice one can give is to say that a crystal-controlled converter is the answer, and it is best to use a published design of good reputation and stick to it closely for the first try. A difference of a quarter-inch in the length of a lead can make all the world of change in the behaviour of a converter, from a good performance to crazy instability. As the limiting factor on reception is usually the signal-noise ratio, this is far the most important thing to check, either by instruments if one is competent to use them, or by direct comparison with another known “good” converter under controlled conditions. As for the location, it is a little difficult to lay down hard-and-fast rules. In general, an aerial of maximum gain, as high as possible, should be the objective, although

there is probably some case for so arranging matters that height is adjustable. Careful reading of a good book on VHF helps no end. And, of course, the aerial system needs to be so contrived that it collects the maximum signal, which then has to be transferred with as little loss as may be to the feeder, and from the feeder to the converter—which is where many a beginner comes unstuck! Perhaps the best advice of all is to find a *real* expert in the game, and pick up from him all the things he learned the *hard* way!

* * *

John Edwards (Penze) has trouble with his SX-24 receiver. Seems as though every time the crystal phasing control is touched the IF amplifier "takes off," and produces a raspberry noise in the output. Without a circuit it is difficult to guess just what is causing the trouble, but one rather suspects that the phasing control is a capacitor, and the rotor is losing contact with earth when the knob is touched. As a first move, J.C. would be inclined to take a squirt of one of the proper contact lubricants—ordinary oils are worse than useless—and apply it to the panel-bush concerned, and to the bearings of the rotor. If that fails, a good look around for a dry joint seems to be called for, and replacement of all the 0.1 μ F capacitors in the IF strip, with particular attention to those in the crystal-filter stage itself. Megger each one—a low-voltage test with an AVO or similar could give a different story from that of the more arduous megger test, although if the correct voltages for the circuit are known, the voltage readings will almost certainly give the clue.

B. Geary (Leicester) seems to be a little dissatisfied with his R.1475—a fine receiver if in good order. He wonders about kit receivers and their qualities? All your conductor can say to this is that the only one of which he has personal knowledge is the Heathkit RA-1, several of which are in use around the locals, and most of which have been, for one reason or another, through his hands. These were all good performers after correct alignment, and the only criticism levelled at them by their owners was in connection with the string drive—but it is only fair to say that when the drive is *properly* adjusted it is very good indeed. And it could be added that all the receivers concerned worked first time, apart from one that suffered from an error introduced by its builder.

The Rx owned by *J. P. Scragg (Stockport)* was unjustifiably in trouble last time; for the fault was found to be due to the batteries. It is always best to use them as a set and change them as a set. If this is not done there will always be a high-impedance section, since at least one of the cells will be "going home." By changing batteries as a set, one tends to have all four cells in the case of, say, the EC-10 going high-impedance together, which results in them being thrown out a little earlier.

Points on Measurements

Reverting back to the question of using instruments, and the pitfalls thereof, *G. T. Theasby (Keighley)*, who with *Gordon Wells (Bradford)* has been operating on a 19 Set, gives quite a good example. They have obtained measured AF output from a 19 Set to the tune of 50

milliwatts for an RF input of 1 microvolt. This is a statement that makes your old J.C. wonder just a little; Geoff and Gordon may be right, in which case they will not (we hope!) mind being used as an example—or they may be wrong, in which case the reason will turn out to be none of the things mentioned! For a starter, there are few, if any, signal generators that do not radiate more than 1 μ V, in the sort of class amateurs are likely to own. The TF-144 types of Marconi origin that have been kicking around in surplus occasionally of late are about the only ones, if restored after purchase to good condition. Now, what about the signal-to-noise ratio? Given enough gain, the receiver could, no doubt, generate sufficient noise to give a 50 mW reading on the output meter—if this were the case, pulling out the plug between the aerial terminal and the generator would produce a "no change" sort of reaction. Again, was the 1 μ V specified as the generator output, or the receiver input—not the same thing, as a moment's consideration of Ohm's Law will show—and how closely can the attenuator on the generator be trusted to give the right answers? What it comes down to is that one can only really give a receiver performance factor in closely specified terms—such as a sensitivity of 1 μ V e.m.f., for a signal plus noise/noise ratio of 10 dB, with a signal of 2 μ V e.m.f. being capable of giving 50 mW of AF output, the signal used in each case being 40% AM from a generator, itself checked and calibrated. Complicated, ain't it?

* * *

D. Rollitt (Navenby) is interested in Eighty and Forty, but does not run to an aerial for these bands, being restricted (!) by a TA-33. There is a quick answer to this little problem, which is to connect both legs of the feeder of the TA-33 beam together, and, with the help of a loading-coil (if necessary) load the whole bag-of-tricks up as a Marconi, when the beam will work quite nicely as the capacity hat. Both David, and *Bill Felton*, are getting themselves ready for the day the ticket comes through, Morse being the preoccupation at the moment.

M. Watson (Williton) has thoughtful things to say on the relative merits of Phone and CW, but rather spoils it all by wondering why the authorities do not allocate a Citizens' Band here! Perhaps if a recording were made by some W station in a metropolitan area, such as New York, of the bedlam to be heard as one tunes the 27 mc band over there, and played at the beginning of every Club meeting, these ideas would die. The plain truth of the matter is that something less than 10% of the CB'ers in the States make any serious try to stay within the terms of their licence, and there seems to be very little co-operation between the two groups of licensees. Even the present amateur licence has not enough toughness to ensure that there is no liddery on our bands, which is probably the reason why the Americans have gone back to "incentive" licensing, with quite large chunks of the band reserved for the top classes of licence.

A final one under the heading of Technical comes from *R. G. Preston (Norwich)* who is usually very brief but this time is quite chatty. R.G. has a nice new shack

indoors to operate in, and has been busy making it even more of a contrast with his old one. Photographs of it are promised when all is done; so this is the time for us to remind you all that photographs must be pin-sharp—or sharper!—and rather contrasty in the print both these requirements spring from the very nature of the reproduction process. For the rest, the size should be about half-plate, and the paper glossy; and the print should be glazed, which has the effect of improving the apparent depth and contrast, and gives a good surface for the man with the ink-bottle to perform the magic tricks which make the best of the print. If glazing the print is a trick beyond your experience, try doing it on the dressing-table mirror, or some other bit of glass. The theme is “cleanliness above all things,” starting the process with soap-and-water on the glass, following with a mixture of equal parts water, meths. and French chalk to which a 10% dose of concentrated ammonia has been added. When this has dried and been polished off with a clean cloth you can follow it with a fresh cloth and a little talcum rubben in. The prints are just squeegeed on the glass, and left to dry, when they will fall off—but if the glass is not clean *nothing* will shift them except a resoaking in water, and since they are picture-side down you can't even kid yourself you like them there!

The theme of several letters this month has been Just Who is This J.C.? To J.C.'s amusement, all conjectures were well wide of the mark! There is no point in pursuing this, and we don't want to encourage any guessing games!

Norman Hembrey (*Northiam, Rye*) seems to have been somewhat affected by the words in this piece last time and threatens to consider the R.A.E. seriously. One cannot help feeling that son David has a hand in this; it is noticeable that the healthy competition between the Hembreys, *père et fils*, is making sure that both keep moving in the Tables. Incidentally, we understand that David has acquired a Joystick and tuner, and the aerials belonging to Norman are therefore being anxiously

compared with it, no doubt to the benefit of all concerned.

HPX Queries

Here we can make a start by reprinting the Rules, which you will find in the box on the next page.

A first list comes in from *D. Palmer (Fareham)* who has missed out a bit through only taking up the game since the previous time we published the rules (May, 1957). It is of interest in that among the calls he lists is that of W2ZXM/MM. Wonder how many readers remember the epic of the *Flying Enterprise* and the efforts of Captain Carlsen to get her back to England, foiled almost within sight of safety when she finally sank and took with her his kilowatt home-brew rig, after gripping the headlines for many days?

I. Cooper (Alnwick) mentions hearing a 7P8 in his list and queries it; quite OK, Ian, it is the prefix for Lesotho. On the other hand *M. A. Lount (Leicester)* found a “ZA1ER”—phoney as can be, as the Albanian authorities do not allow Amateur Radio. 9K1 sounds a bit “off” also, albeit it may be a misreading of 9K2 or 9K3, which are from Kuwait.

A first entry from *G. W. Brind (Kingston-upon-Thames)* poses the problem of the legality or otherwise of 9Y4 as a prefix—perfectly good is this one, which hails from Trinidad and Tobago. UV3 is also OK, and is included in several lists, notably that of *I. Poole (Leeds, 17)*.

A two-way swap appears in the letter from *R. Allisett (St. Peter Port, Jersey)* who raises a question-mark about the 4Z4 stations, which are likewise legit., being variations on the theme of 4X4, from Israel. The other part of the swap is Dick's reminder that for those looking for GC there is a Guernsey net every Sunday morning on 3-600 mc at noon, using AM mostly. The Jersey crown are to be heard slightly higher in frequency at the same time, although they are predominantly SSB users.

[continued overleaf]

When this photograph was taken Paul Tuddenham, of 9 Cobbold Road, Felixstowe, Suffolk, was an SWL just about ready to wrap up the R.A.E. and the Morse Test. As we went to press, he wrote to say that he is now G3XFF.

Picture courtesy “Felixstowe Times.”



Here and There

It really is surprising how many correspondents complain about QRM from work—not a little of which is really due to the winter-time conditions which result in the bands being closed by the time one has returned from earning the daily crust.

W. Moncrieff (Hampton), and one or two others, managed to hear GB5QM/MM, this being one of only three he put in this time, due to the pressure on his spare time with studies. *S. Cusworth (Wakefield)* also has a brief list, but in his case there is a “very best” reason—getting on with the Morse, and preparing the station for the great day. During the period under review there has been further QRM, partly aerial troubles, and partly due to a receiver which chose this, of all times, to play up.

Work has been the cause of a short list from *S. Foster (Lincoln)* although the heart was gladdened by CR8AH, heard on 21 mc AM after stalking him for a year; when Stew turned the trick the blighter added insult to injury by being RS59! The “5K4RCA” call mentioned last time out brought comment in various letters, the most likely being that it was 5J4RCA, the contest call of HK4RCA, or a misreading of the latter on CW.

The “hot seat” into which the locals have put him—the committee membership of the local Club—has continued to eat into the time of *J. A. Ennis*, to the detriment of his listening. The Ennis QTH is in *Saltash*, so you have no problem should you wish to guess which Club!

Also from the West Country, *P. A. Cayless (Exeter)* has become so engrossed in CW that he has requested that his Phone score “be now deleted” as he has achieved his ambition of topping the 1000 mark. His daily work has been made the more interesting by the presence of two amateurs and three SWL's, the logical result of which should be a station operational in the lunch-break.

R. T. Jackson (Leigh-on-Sea) is doing A-Levels, and also the R.A.E. at the Southend class run by G3VGR; not satisfied with that there is also time being spent on Morse, and one can only keep fingers crossed for him and hope that the load does not become too heavy.

A. Long (Coventry) has had his free time very drastically cut into by the full-time Telecommunication course he is doing at the local Tech. College, and the piles of homework that are thus generated. He should not worry—the worst chore of all is the marking which is enough to drive strong men to tears on occasion! He has a good point when he mentions the use of a tape-recorder for practising Morse and, possibly even more important, checking on the quality of the sending.

A frantic rush to catch the post and avoid “blotting his PX escutcheon” succeeded, the letter landing on time—just! so that *G. Bowden (Crawley)* could tell of the collapse of the far end of his aerial. However, thanks to the ATU, all was not completely lost, and a few new ones were booked in. Geoff, and son Phillip seem to be, as with the Henbreds, gaining from a certain amount of competition, which keeps them moving forward.

HPX RULES

- (1) The object is to hear and log as many *prefixes* as possible; a prefix can only count once for any list, whatever band it is heard on.
- (2) The /M and /MM suffixes create a new series; thus G3SWM, G3SWM/M, and G3SWM/MM all count as prefixes, and where it is known to be legal, /AM also.
- (3) Where a suffix determines *location*, the suffix shall be the deciding factor, thus W1ZZZ/W4 counts as W4. Where the suffix has no number attached, e.g. VE1AED/P/SU, VE2BUJ/P/SU, they are arbitrarily counted as SU1 and SU2 respectively, and the same holds good for similar callsigns.
- (4) When the prefix is changed, both the old and the new may be counted; thus VQ4 and 5Z4 both count.
- (5) The object is to hear *prefixes*, not countries, thus there is no discrimination between, say, MP4B- and MP4K-, which count as one prefix.
- (6) Only calls issued for Amateur Radio operation will be included. Undercover and pirate callsigns will not be credited, nor may MARS stations be claimed.
- (7) G2, G3, G4, etc., all score separately, as do GW2, GW3, GW4, etc., and in the same way, K2, W2, WA2, WB2, WC2, WN2, all count even though they may be in the same street.
- (8) Send your HPX list, in alphabetical and numerical order, showing the total claimed score; with subsequent lists it is sufficient to quote the last claimed score, with the new list of prefixes and the new claimed score, with your name and address on each sheet, to “SWL,” SHORT WAVE MAGAZINE, BUCKINGHAM, to arrive *before* the SWL deadline for that particular month.
- (9) Failure to report for two consecutive listings, *i.e.*, four months, will result in deletion from the Table, although there is no objection to a “Nil” report, in order to hold your place.
- (10) **Starting score 200.** Phone Table is mixed AM/SSB, with a separate CW Table. No mixed Phone/CW Table, nor will AM-only or SSB-only entries be accepted.
- (11) Lists will be based on those shown in the current *Short Wave Magazine* list of Countries and Prefixes, as given on pp.561-566 of the November 1966 issue, and with the current edition of the *DX Zone Map*.

NOTE: The *Dx Zone Map* costs 14s. 9d. and includes the latest Prefix List. The *Prefix List* alone, by countries, prefixes and zones, alphabetically both ways, costs 6d. with large s.a.e. Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

José Montoya-Gómez, P.O. Box 631, Glendora, California 91740, U.S.A. is a keen SWL of 15 years' standing who would like to correspond with U.K. listeners who also follow our SWL feature. His languages are English, French and Spanish.



J. Fitzgerald (Great Missenden) has been with us for four years now, and says that he still has the same gear, a transistor portable used for 7 and 14 mc with the BFO being provided by another BC set local oscillator. A friend has a similar portable which covers 21 mc, and things are spread yet further by yet a third portable—his brother's Christmas present—which covers the bottom end of Eighty. Time for John is now very tight, as he has only a few months to go to his Finals in Birmingham, and so has the nose firmly in contact with the academic grindstone.

Sadly, *Iain Patterson* has found it necessary to withdraw from the HPX Ladder; the reason is rather novel, and is that *Carstairs Hospital* is undergoing redecoration, with consequent upheaval, in the course of which his laboriously-gained prefixes list has gone astray. So—until he can make a new start, Iain is going to withdraw his existing list to avoid confusion. Sorry indeed we are to hear of this mishap, and it is to be hoped that the gap will not be too long.

Eastleigh is the home of *H. N. and K. Plumridge*, who have both topped up their entries. *H. N.* has now managed to get his BFO “perking” rather better on his PCR-3, although he is not yet satisfied. *K.* on the other hand mentions no electrical troubles, and has been “having a ball” on the LF bands, with W's in the morning, and a late-night hearing of VS6DO on 3.5 mc as catch of the month.

Business has had its compensations for *D. L. Hill (Edinburgh)* who has been away from the receiver for quite a while, but managed to get down to the Science Museum at Kensington as a result and see the station there; also a copy of our *DX Zone Map* was collected in person to decorate the shack. R.A.E. being out of the way, Morse is now being studied, the target for the “ticket” being set as late Spring.

Someone signing only as “Mick” from *Ilford*—could it be *M. G. Toms?*—has a long letter full of interesting news. Prefix-hunting has been slowed down somewhat by the interest in 160 metres and the DX thereon, with several W's and other DX stations heard, including VO1FB at 599. “Mick” is another of those, mentioned earlier, who are trying to fit a call to your scribe, and is as unsuccessful as the others!

Like so many others *H. M. Graham (Harefield)* has found things very quiet on the HF bands, and has turned the bandswitch in the direction of Eighty and Forty. This exercise produced a YV on 7 mc, and various interesting calls on Eighty, but most had already been booked in on other bands, so only three go in to the total. One of the missing prefixes, to his amazement, is VE6; nonetheless quite a long way away.

Up in Scotland, *D. S. Henry (North Berwick)* has rechecked his logs and finds his previous total was not correct, so a revised list has been entered in to the Ladder. In the course of a letter touching on many topics, *K. Southgate (Leigh-on-Sea)* says that he believes your scribe is somewhat over-estimating the skills involved in SWL'ing, and says that he feels it is merely a matter of being on at the right time and place. This

SWL's TO NOTE

Next appearance of this feature is in our May issue, due out on April 26. Closing date for all SWL correspondence is Friday, March 22, addressed “SWL,” Short Wave Magazine, Buckingham. Remember also that we are always interested in good photographs of SWL stations (and operators), any that can be used in these columns being paid for on publication—but they must be clear, sharp prints.

reminds one of the old joke about the invoice. "To kicking TV set—6d. To knowing *where* to kick—£4-19-6." Seriously, there is more to it than merely being around. For instance, one may hear half the world calling some DX station, and advertising his presence. Under this rumpus somewhere, will lie the actual station wanted, and to make a positive identification is far from easy usually. As he says anyone can identify the distant stations such as YV, VK or ZL—but it is quite another matter to find a "new one" successfully, possibly much nearer home, under the crowd calling him when he is sending.

A last entry to the lists comes from *Colin Squires (Saltash)* to whom our congratulations are due on his new call of G3XCS. And, incidentally, it is interesting to notice that the last prefix in Colin's 738 total is—GW3/M!

S. M. Phillips (*Dukinfield*) remarks on a rather less worthy call from Wales, heard working G3M-- and signing "HN4PQ"—this gibbering idiot claimed to be the club station of the "Free Wales movement" and the QSO came to an abrupt stop when the station was heard to proclaim "Wales for Ever." The sentiments the operator expressed may be all very laudable, but the 40-metre band is hardly the place to air them, and

G3M-- is to be praised for terminating the QSO. One wonders what the Marcher Lords of old would have done about it!

A couple of new chums next. First comes *J. Weiner (Coventry)* with an entry into the Tables. The other is from *C. Ekberg (Grimshby)* who was an SWL way back in 1938. Then 1965 saw Charles promoting an exhibition at which there was an Amateur Radio station, and the bug again bit hard. Now there is an R.107, ex-Martin Goldman, and an Eddystone 840C in the shack, with studies coming on for R.A.E. in May. A very interesting twist to this is given by the fact that the first South American heard in 1966 was CX2CO—a station from whom a card had been received in 1939!

In the course of his letter this time, *D. Douglas (Dundee)* goes all poetic; but he has a solid point when he offers to collate a list of non-QSL'ing AT stations. Rather a touchy one this, but there are problems in it. Many stations are non-QSL'ers as a matter of policy, and others only QSL DX cards. Many stations find that they receive many SWL cards of the "I hrd u at 599 from round the corner. Pse QSL, and can I collect personally?" variety, which is a discourteous way indeed of asking to see a station, and a waste of a good QSL card. On the other hand there are undoubtedly operators who will not come across even if the report was of considerable value to them.

Finally, another letter signed with only a Christian name—"Dion"—which is a little easier to identify than "Mick" already mentioned, and belongs to *Dion Stuart (Caistor)*. Aerials have been troublesome by their tendency to fall down rather often, and he is reduced to 100 feet of wire at twelve feet only. The gear is a Heathkit RA-I which is sometimes used with a PR-30X preselector, and has the QPM-16 Q-Multiplier fitted. The aerial is tuned to resonance by means of an ATU.

Deadline

And there, for this time, you have it. Your news and views for the next piece should be sent, as ever, to "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM, together with your prefix lists, to reach us by first post **Friday, March 22**—and even if you sign, in your usual friendly way, with a Christian name (and we like it that way!), *please* remember that with so many letters it is very difficult to recognise a handwriting with certainty, so put your full name on your letter as well. Meantime, 73, and happy hunting.

CORRECTION NOTE—R.A.E. ANSWERS

On p.777, February 1968 issue, the last paragraph of Answer (6) is incorrect. It should be read as follows:

"The total resistance of the circuit is given by E/I equals R. Inserting figures, 6/1 equals 6 ohms. However, since the external resistance is given as 4 ohms, the internal resistance of the battery must be 6-4 ohms, or 2 ohms."

Apologies to all candidates who may have been misled by this error, missed when the proofs were read.

HPX LADDER

(Starting January 1, 1960)

Qualifying Score: 200

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
S. Foster (Lincoln)	925	A. Pyne (Budleigh Salterton)	349
A. W. Nielson (Glasgow)	868	M. Broadway (Selby)	336
D. Rollitt (Navenby)	857	R. Glaister	
K. Southgate (Leigh-on-Sea)	765		(Haywards Heath) 336
W. Felton (Lincoln)	758	R. Geary (Leicester)	329
P. Milloy (Doncaster)	755	I. Copper (Alnwick)	332
J. Singleton (Hull)	755	K. Jeeves (Huddersfield)	322
C. Squires (Saltash)	738	J. M. Dunnett (Singapore)	319
R. G. Preston (Norwich)	670	I. Poole (Leeds)	315
T. Pinch (Plymouth)	627	R. Hannis (Chester)	309
G. Bowden (Crawley)	622	C. P. Davis (Leicester)	298
J. Fitzgerald (Gt. Missenden)	618	M. L. Jones	
J. Dutton (Ilkeston)	616		(Leamington Spa) 293
S. Swain (Hayling Island)	603	A. Long (Coventry)	290
R. T. Jackson (Leigh-on-Sea)	597	D. Richards	
N. Henbrey (Northiam)	560		(Welwyn Garden City) 284
W. Moncrieff (Hampton)	550	B. W. Lowe (Worsley)	282
A. P. Ashton (Stowmarket)	519	H. H. Symonds (Manchester)	278
A. Hydes (Enfield, Middx.)	515	P. L. Spindler (Ilford)	274
J. P. Scragg (Stockport)	514	D. Stuart (Caister)	273
E. Parker (Hove)	502	M. Watson (Williton)	267
A. P. Legg (Sutton, Surrey)	496	T. J. Bucknell (St. Albans)	263
W. L. Rees (Llandudno)	488	S. M. Phillips (Dukinfield)	262
Mrs. M. Worby (Dartford)	487	I. A. Lucking (Stanmore)	259
R. Allisett (Guernsey, C.I.)	487	G. T. Theasby (Keighley)	253
D. Sapsworth (East Ham)	480	J. Carter (Balham)	243
M. A. Lount (Leicester)	468	H. N. Plumridge (Eastleigh)	242
C. Claydon (Kinghorn)	453	J. N. Weiner (Coventry)	241
B. Thomas (Castleford)	448	J. A. Ennis (Saltash)	238
W. C. Torode		G. W. Brind (Kingston)	233
(London, W.C.1)	445	L. Phillips (Inverness)	224
M. G. Toms (Ilford)	443		
H. M. Graham (Harefield)	436		
K. Plumridge (Eastleigh)	411		
J. Edwards (London, S.E.20)	385		
R. A. Gape (Leigh-on-Sea)	375		
S. Susworth (Wakefield)	375		
D. Henry (North Berwick)	361		
D. Henbrey (Northiam)	361		
D. L. Hill (Edinburgh, 4)	355		
D. Holbrook			
(Newport, I.o.W.)	352		

CW ONLY

C. Claydon (Kinghorn)	492
P. Cayless (Exeter)	457
A. F. Hunt (Lossimouth)	453
J. M. Dunnett (Singapore)	424
C. Harrington (Maidenhead)	380
J. Edwards (Penge)	202

(NOTE: Listings only include recent claims. Failure to report for two consecutive issues of "SWL" will entail removal from the Table. Next list, May issue, for which the deadline will be March 22.)

COMMUNICATION and DX NEWS

NOTING that recently W9WNV has done a short spell on Geysers Reef, signing VQ8CB/A, is a reminder that one of the greatest survival stories of recent years occurred on Geysers Reef, when a group on Tongans managed to pile up on the Reef. There they survived for several months by a series of makeshifts which are quite incredible. The story has been made into a very readable book, which may be available from your local library.

Now, over to the correspondence and let the scanning of the bands for this month commence.

Two Marconicycles

First thing to do here is to see what arose from G2DC's comments on the use of QRO on Top Band.

Taking the letter from G3SED (Portsmouth) first, Mike rightly makes the point that the key to whether the station concerned is strong due to QRO or a good aerial system lies with the reports he is giving out. Obviously, on Top Band, most everyone has a receiver far more sensitive than is justified by the noise level that prevails, and hence, if the chap is able to give reports of 589 (when others can only offer 339 to the same DX station) then the radiated signal will also be pretty strong. On the other hand, if the Big Signal gets 589 and gives 339 pretty consistently, then the discrepancy could be due to excess power. As Mike puts it, he is not unaware that he is often classified as QRO, but the GPO know (and Mike derives considerable satisfaction from the fact) that he himself is playing it fair. On the other hand, G3SED is strongly in agreement that there are QRO stations about, and that big signals at distance with click and chirp are not condemned loudly enough.

G8HX (Mansfield) chimes in on this, with a comment that he regularly works two stations at the same distance from him—ten miles—where the difference in S-meter reading is 2 points, or in other words, 12 dB. Now, as Frank says,

he knows the two stations are both running the same input, and getting about the same RF out of the transmitter—but on the basis of the dB, if one is running 10 watts, the other uses 160 watts!

A tape-recording made by VO1FB last season is mentioned by GM3IAA (Inverness), and your conductor has heard himself one made by GM3SVK when he was in Shetland, which present another facet of the question. In both these recordings a certain G3 was spluttering the whole of Top Band with his "5 and 9"—and at GM3SVK was wiping up the local Coast station as well! Both these recordings have been heard by Clubs in this country. Your scribe (who himself heard the GM3SVK recording) believes, from listening to the tape, which included many other normal G signals, that there is not much doubt that the receiver, or its operating, was in no way responsible for the appallingly heavy signal.

What it boils down to is that there is much unjustified criticism of big signals on Top Band—probably no more than sour grapes in many cases—but it is also true that there is a hard core of cases where the owners seem hell-bent on "making a mark" on Top Band irrespective of what it might cost.

From WIBB we have a couple of interesting reports on the band. The first one deals with the Transatlantics, and suggests that for the test of December 3, 17, and 31, and on January 14, conditions were fair up to 0500 GMT but after that things were distinctly NG. On December 31, PZ1AH made the Big Stir, while on January 14 PY2BJH gave many W/VE stations a thrill. As for the First-timer sessions, quite a few made it over the water, albeit in several cases before the start of the "official" proceedings, on December 17—but on January 7, things were such a washout that Tests were called off at 0600z. Also deserving a mention is what is claimed to be the first WAC on 160m. by a DL—DL9KRA who did it by ringing the bell with

E. P. Essery, G3KFE

PZ1AH; the contact was also a DL/PZ "first."

The second bulletin mentions another WAC on 1.8 mc—this one by no less a personage than W0NWX. He did it by way of a most unusual QSO: He worked KA9MF in Japan, for the deepest penetration yet made by the JA's into the Eastern States, even though it is fair to say that KA9MF has heard W8ANO, though no QSO resulted. In terms of the gear W0NWX used a home-built 50 watts to a 700-foot wire, 75ft. high at one end and 50ft. at the other, and the contact was made during the CQ WW 160-metre Contest. Stew is of the opinion that this makes only four Top Band WAC's ever, but your E.P.E. guesses there have, in fact, been as many as that from U.K. alone. (Any claims?)

Turning to the domestic front (well, slightly!) we have a line from G3UOF, still slowly progressing towards his /MM call. The letter was dated December 9, and gradually "grew," until the date of its eventual posting on January 14! In skimming through the various bands and reports as G3UOF progressed from the general area of Biafra towards Capetown, an interesting entry was that of hearing G3SED on AM, apparently working G3CTM, who was not audible, at 1400z, when the ship was located off NW Spain; G3SED, on 1850 kc, was 57.

* * *

A first letter comes in from G3XAP (Stowmarket), for long a supporter of the "SWL" feature, and still a keen listener. Phil is

ALL-BAND ZONES AND PREFIXES TABLE

Starting date: January 1, 1968

Station	Zones	Prefixes
G3LZQ	34	119
G3SED	20	73
G3WJS	6	72
G3VPS	4	57

now on 160 metres, on which band he has already managed to work round England, and into OK, although, as yet, he has not found any GW or GM signals. On the other hand G3VEK writes to assure us all after his long silence that he is indeed still with us in spirit, and ere long should have the new transmitter organised—altho' he would dearly love to borrow one in the interim!

Another new one is GW3WNN (Neath); he starts his letter by saying a word of thanks to GW2FRB and to GW3HNZ, who gave him such a deal of encouragement, and from whose station he made his initial contacts. An entry in the ladder is enclosed, the QSO's being made with a transmitter consisting of a home-built ECF80 /6BW6 rig, to an aerial described as "160 feet of best bent wire." Along with GW3VPL, GW3WNN has every intention of making an appearance in the First-timers Tests, and it will be interesting to see how they fare.

Yet a third newcomer is G3XDY—at the ripe old age of fifteen, who received his call on January 16, and should by now be busy knocking them off on Top Band CW.

G2HKU (Sheppey) comes back on the preamble to last month's piece, expressing his own unhappiness with the practice of creating

"new countries" at every low tide. Ted has noted an increase in the OK/OL representation on the band, both by way of Stations and SWL cards. A few discreet enquiries showed that the OK's have a three-Class licence structure, Class C having a 25-watt limit; Class B 75 watts; and Class A 300 watts. After three years the Class A limit here may be raised to a kilowatt, provided there has been a minimum of 1500 contacts. In the mundane matter of 160-metre QSO's, G2HKU has hooked GI's, PA's, many OK /OL's, EI9J, GM's (including GM3JUD in Thurso using an indoor aerial), OH2KH, HB9TT and GW3CW. Heard included VO1FB, W1BB, GD3TNS, HB9UD, GM3FSV, GM3PFQ, and GI3RNY.

The two outstanding counties in GI which were missing from the G2NJ 'phone log have been filled in, thanks to GI3OQR in Tyrone, and GI3RXV (Londonderry), which bring G2NJ to 96/96 in the Phone Table.

GW3PMR comments sadly that his plans for VK have fallen through, so that he is now plain G3PMR (Tirley, Glos.), and QRT at that. Nevertheless, Alan brings his Table score from the old GW QTH up-to-date, and is eagerly awaiting the day when he can make a reappearance on the band.

In his first week on the air G3SVK

(Oakham) stirred up 160 metres to no mean effect, putting in a signal all over the country strong enough to give him 51 counties and 14 countries in the period, using an inverted-Vee, his K.W. Vespa and an HRO on the receiving side. By the time this piece appears, Fred should have made another trip to Orkney, and possible future activities could well include Jersey, with possibly Alderney and Sark as well. G3SVK mentions that for those still searching for Shetland QSO's, GM3SNO is on Bressay, on most Saturdays to give the lads a chance.

Up in Leeds, G3VTY brings up his scores to date, and mentions that a new SSB rig has temporarily diminished his CW activity, although Keith believes it to be only temporary. Similarly G3VSL (Southampton) has recently acquired a KW-2000A, which he finds much better for Phone than the old AM gear, to the extent that he has considerably lost interest in CW operating.

One never stops learning in this game! When G3VLX has been reduced last October to working the Expedition stations to better his score, he thought the limit had been reached—but he was deceived and the score has been climbing fairly steadily ever since; indeed the period under review brought three, in the shape of GW3RTZ for Monmouthshire, G3SVK/A for Rutland, and GM3JUD (Thurso).

Yet another new reporter is G3WQQ (Brighton) who was first licensed on August 12 last year, since when he has rolled up a total of 56 counties, of which 35 are confirmed, and 11 countries, all hooked on an 85ft. wire, "fed against everything earthy in sight," and fitted with a loading-coil half-way along.

Robert, G3UAN (Harrow) is on the final run-up to his A-Level examinations, and he has, therefore, adopted the sensible approach to his radio, by allocating just a small amount of recreational time to it each week. Only the receiver has been employed as far as Top Band goes, but that yielded W1BB/1 and VO1FB around midnight in the CQ WW 160 Contest, peaking 579 on an HE-30 fed from only 30 feet of aerial.

It may be recalled that last time

SIX-BAND DX TABLE
(All-Time Post War)

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc	1.8 mc
G3IGW	202	123	146	163	123	86	41
G3SED	—	—	—	26	23	29	35
G2DC	335	167	305	326	162	108	20
G3IDG	114	65	82	54	27	18	11
G3LZQ	232	111	144	183	70	37	8
G8DI	184	80	132	161	77	46	8
G3PQF	132	78	41	59	82	48	7
G3WJS	34	—	—	2	12	34	2
G3NOF	308	149	201	292	34	39	1
G3IAR	192	81	125	171	64	56	—
G3VDL	130	42	92	93	45	22	—

Note: Placings this month are based on the "1.8 mc" Column.

out G3WUD (Manchester) was threatening to open negotiations with the local publican about a loan of his pub to prop up the aerial. This duly happened and the pub seems quite able to bear the weight. The result, of course is reflected in the Tables.

That chap G3AAQ turns up all over the place—this time in the letter from G13WSS (Holywood, Co. Down). Seems Jake had earlier been worked on CW, and they followed it up by a personal QSO, and look at the log of G3AAQ, who has done wonders with his Joystick. As far as the G13WSS log is concerned, new counties are still hard to come by, albeit G13WEM for Armagh kept the ball rolling.

G3VPS (Hailsham), usually has some pertinent comment to demonstrate the world to be less black than it is painted. This time he remarks on the pleasant friendliness displayed by all and sundry during the *CQ WW* 160m. Contest, with people on their Sunday-morning natters breaking off for a few moments to give a point; the patience of the DX which he found difficulty in copying; and in particular to fellow-contestant G3KMI who took the trouble when things were going slowly for G3VPS to come up and point-out the presence of PAØPN a little lower down the band. As a result of all this G3VPS was to the good by four new countries and several counties.

Bits and Pieces

From March 21 to April 1, the University of Manchester group are going to activate GB2IS from St. Agnes, one of the Scilly Is. All bands Top to Ten will receive coverage (possibly also 420 mc as well) and this year, they say, it will be more of a DX-pedition and less of a holiday than last time—which rather suggests some *intensive* activity!

Grafton come in, rather late in the day, unfortunately, with a reminder about their Annual Top Band Contest, for which the dates are the weekend of March 16 (*CW*) and March 23 (*Phone*). For full details, refer to p.47 "Month with the Clubs" in this issue. The contact man is G2CJN, *QTHR*.

A "marathon contest" is the



Two intrepid chaps—left, Norman Addison, G3POA, with Mike Coombs, G3VTO, kitted up for a sky-dive (free fall parachute jump) from 10,000ft. Both are serving members of the Royal Air Force and belong to No. 2 Field Parachute Sqdn., R.A.F. Colerne, Chippenham, Wilts—and, when they are on the ground, are active members of the Chippenham Amateur Radio Club. G3POA remarks that "nowadays, sky-diving is a fairly safe sport" though recently when doing a jump from 10,300ft. his main chute failed ("it looked like a bundle of washing hanging over me") and he had to release the reserve parachute, to make a safe, if hard and bumpy, landing. The ambition of G3POA/G3VTO is to have a portable-mobile QSO, using miniature transistor rigs in the two-metre band, during the 30 seconds they are in free fall. They would like to hear if anyone else, also qualified sky-divers, who would be interested in a multi-way free fall contact—don't write to us, ring up Norman (cheer!).

best term to apply to the event being run by the Derby club, from February 11 to April 27, when the object is for members to work other members, using both HF and VHF bands, so that both A and B class licensees and SWL's may join in the fun—although one feels it to be rather a bad thing to restrict contacts to A3 operation.

Some news on the VP8 activity, which is in a state of flux just now, due to the change-overs, completion of duty tours and so on, that are occurring in Antarctica. To summarise the situation, since the procedure was always to take the logs daily by way of skeds, it now

becomes impossible to deal with further QSL's until the operator gets home, after he has left VP8. In the South Orkneys, VP8JD is now QRT, and has passed the gear on to VP8JG, Stonington Is. VP8IU will leave during March for U.K.; his G QSL's go to G3NMH, and the rest of the world to VE7AON. But VP8JN, on Argentine Is., will be there for another year. VP8JO is posted to Signy Is., South Orkneys, but has no gear other than the base station stuff which can be fired up on our frequencies; however, it is understood that there is a Heathkit SB-100 heading in that general direction from G3NMH, although

there is worry as to whether it will connect with VP8JH, due to the trans-shipments involved, the connection being particularly tight at Montevideo, where CX9AAN is standing by to push things along if necessary. VP8JT also is on Argentine, and is equipped with a KW-2000A; VP8JI in the same place, but G3NMH is in some doubt as to whether he is staying there, moving to some other spot, or returning to U.K. VP8JH QSL's for G's are handled by G3NMH—but Hal says that he has not yet received the cards from the printers, and asks that apologies be offered for the delay.

Last time out we mentioned a letter from Sgt. Higgins in which he quoted him as saying he was now DL2DF; this was slightly in error, in that it should have said he was negotiating with the DL authorities for the re-issue of this, his old call.

G3NLY takes up the comments on the CQ WW SSB Contest results, last time, and points out that he himself put in an entry. Fair enough, but we were talking in the context of the callsigns given by CQ as the winners and runners-up in each section.

A couple of comic ones heard on

the band during recent listening sessions are worth repeating here. G3---, to an obvious pirate with a G3Y-- call, during the CQ WW affair, says "Go away." Pirate, full of politeness, comes back with the snappy answer, "With pleasure!" 'T'would seem even the pirates on Top Band are polite—or would it? The other one was a WN, working a DJ, who said "Your dipole sure sounds like a beam." Wonder what sort of noise a beam *does* make?

G30XA, who is ex-VQ8AX, comes in on the discussion about W9WNV and the ARRL, last time. It seems he helped W9WNV quite a lot in his rather complex negotiations with the authorities in Mauritius over the obtaining of a licence, and personally handled the ticket which he sent to W9WNV. Fair comment, and it should be mentioned—but it is also fair to say that in some cases there is dispute over the licence, and in others where there is no dispute over the legality of the call for the territory claimed, the argument is as to whether Dr. Miller was in fact operating from where he claimed to be. However, it would perhaps be best at this stage to say no more, and just wait and see as to which way the cat jumps.

In the W9WNV context, it should be noted that K0TCF has handed over the QSL job to W0QQC, together with the incoming cards received, and W0QQC will be seeing to the QSL chore in future.

* * *

A letter which unfortunately missed the deadline last time was that from BARTG, announcing their Spring RTTY Contest, which takes place from 0200z on March 2 till 0230z on March 4. All five HF bands are permitted, but stations may only be worked once on a given band. Country status will be as defined in the ARRL Country list, with the exceptions that KL7, KH6, and VO will be considered as separate countries. Exchanges must take the form (a) Message number, (b) Report in RST, (c) Time in GMT, and (d) The country. Score two points for all RTTY contacts with stations in one's own country, ten points for all RTTY contacts outside own country. Bonus of 200 points per country worked, including own, is given, and the

Countries Worked total is the accumulation of the countries worked on each band. Scoring is as follows: Multiply the QSO points by the actual number of countries worked to give total "A" and then multiply the (countries worked) bonus points by the number of continents worked for total B. The final score is the sum of A and B. Logs and score sheets should be received by G2HIO, Alan Walmsley, The Firs, 3 Trinity Close, Ashby-de-la-Zouch, Leicestershire, not later than May 1. The Top Ten scorers will receive an illuminated parchment as a prize.

The LF Bands

DX from the other end is the point covered in the letter from 9M2DW (Muar, Johore). In spite of the QRM, in mid January, Tan was hearing them well around 2300z—but although he was trying his utmost, the chaps just were not listening between overs, and most times his luck was out. But, of course, if someone catches on to the presence of DX—then there is a pile-up. Tan suggests the EU stations should try to keep the area 3790-3800 kc clear for the DX, or alternatively listen for them between 3800 and 3815 kc. As 9M2DW's letter arrived too late for last time, the chances are that by now 80m. will be dead for them anyway, but the point has been made and could be of interest when the season comes round again. On a different tack, 9M2DW has worked quite a large number of legit. stations in Indonesia on Eighty, including PK8YAY, PK8YHR, PK8YBC, and PK8YFE, all in Bandoeng; PK7MAA, PK7MAC, PK7SAF, and PK7SAC are in Semarang, and it is understood that there are others in Djakarta, Solo, and other places in Java. However, their quality is enough to raise a chuckle in many cases; Tan points out they can hardly be blamed for this as the supply of bits-and-pieces is non-existent, and it is a wonder they are able to radiate anything. Strange that they should still be using the old PK prefix, though.

G3LZQ (Brough) returns to the fold, and reports that on 7 mc his vertical produced HK3AAG, while Eighty yielded VE1, 2, and 3, W1 to 4, EP2GI, and ZB2A. An odd opening to VK on Eighty is

TOP BAND LADDER

(G3V-- and G3W-- stations only)

Station	Counties	Countries
G3VMW	95	19
G3VGR	94	16
G3VTY	86	13
G3VYF	83	17
G3VLT	80	16
G3WDW	79	8
GW3VPL	78	16
G3VMQ	73	15
G3VMK	63	17
G3VES	63	16
G3VOK	61	15
G3VSL	58	10
GI3WSS	58	9
G3VLX	56	8
G3WQQ	56	11
G3WUD	54	10
G3WDG	52	8
G3VWC	34	7
GW3WWN	28	5

mentioned by G3NRU, who found VK5HV on February 4 at 0155z, strength nine plus umpteen, working an OH. VK5HV followed up with contacts with PA, and G3ECU, before exchanging reports with G3NRU. The interesting part of it all is that the VK thought it was his leg that was being pulled, at the same time as G3NRU was wondering whether this was a pirate!

Agreement with the idea of "Be kind to the LF Bands" is detectable in the letter from G3WJS (Dorchester) albeit he also says: "Don't broadcast it too much—all the Layabouts on Twenty will come and spoil it!"—which is possibly putting it a little more strongly than your E.P.E. would! Incidentally, that ZA1AB character—about as legitimate as sparrows' milk—has been heard by G3WJS polluting the bands again. There have been so many comic and unprintable versions of the *genus* phoney-Albanian that one wonders whether the Albanian authorities are not indeed wise to prevent AT operation—the first one to come on would get a nasty shock from the boys classifying him as NBG! On Eighty, G3WJS managed TF5TP, and sundry EU's, while a quick look on Forty yielded YO's and an escapee in the form of VP2AD, all on Phone. Using CW on Eighty gave W's, VE/VO and an assortment of Europe. It all adds up to a pretty unproductive sort of month, but for a good reason—bringing the new SSB rig to fruition!

G8DI and G3AAQ have been getting together again, and it seems that the G8DI activity was more than a little restricted by his school activities and professional commitments—but a look at 80m. yielded the unedifying sound of a contest in full fling. Forty was not *quite* as bad as that, but Bert could only steel himself to work the U.K.

A Good Question from G2HKU; Ted has recently had a QSO with LA8OJ/K, but wonders what precisely the suffix in this case signifies? PY7AHO, 9H1BA, and 9V1LK were all heard on Forty CW, but the going was distinctly rough at times.

The HF Bands

A combination of Winter conditions and, Flu, seems to have hit

our HF band correspondents harder than the more resistant Top Band types, and so we will have to lump all three allocations together for mutual protection until the Spring comes. But—don't forget that the sun this Spring will be very spotty indeed and we are not likely to see the like of this year's conditions for a long time to come.

Though G3UAN has his nose to the educational grindstone, he has taken the odd look at 10 metres, where PY5, W's, LU's, 7Q7, 6W8 and ZF1E were all worked on Phone; CW gave a rather similar pattern, including CE3ZK, 8P6BU, 5R8, TGØ, EA8, VP9 and UM8, G3VSL has his nice new KW-2000A which has been wielded to some considerable effect. Being a methodical sort of chap, efforts have been concentrated on clearing up and dealing with the W and EU areas first, before turning to the more exotic DX.

A special mention for KC4USQ, who is aboard U.S.S. *Calcaterra*, 900 miles south of New Zealand, and 300 miles from the Ice Cap, at which chilly location he is taking part—appropriately enough—in "Operation Deepfreeze." G2FWA, who mentions this one, uses a SB-100 to a Lazy-H on the HF bands, and hooked KC4USQ on 14296 kc.

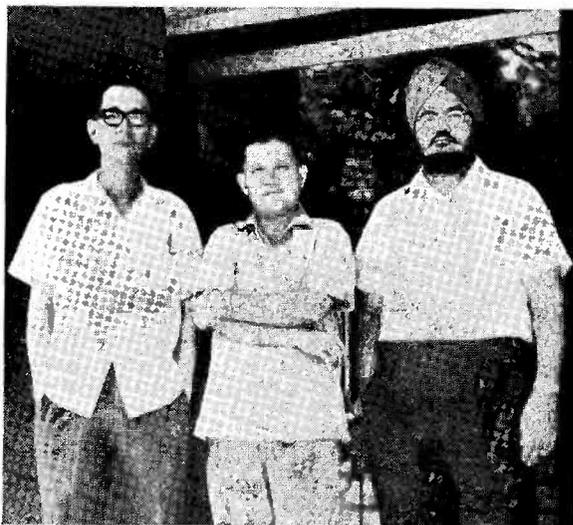
G3SVK/A from his new lair in Rutland, has been doing most of his hunting on Top Band, but a little time spent on 14 mc produced a QSO with 7XØAH and VK9XI on Christmas Island was worked on 21 mc.

An odd one was VK3MR, worked at 1450z by GM3IAA (Inverness), after the VK had been peeling off EU stations for some time. The VK said he was running a rhombic which he had got up early to test out.

G3VDL (Chalfont St. Giles) has had very little time on the air during the period under review—however, he has brought up-to-date the Tabular entries.

His new callsign is reported by G3XFF (Felixstowe) who is on the bands with an LG-50 transmitter and Heathkit RA-1 receiver.

The next one is the epistle of G3NOF (Yeovil) who is still of the opinion that things are not as good this year so far compared with the equivalent time last year. As a comparison, the log during the ARRL Phone Contest showed that in 1967 G3NOF was working the W's with good reports at 1915, whereas this time and band was all but dead by 1830—talking of Ten, of course. Contacts were made



Three Singapore personalities in the Amateur Radio firmament. Left to right: 9V1NQ, 9V1JG (president of the local Club) and 9V1NR.

TOP BAND COUNTIES LADDER

Station	Confirmed	Worked
<i>Phone and CW</i>		
G2NJ	98	98
G3HIW	98	98
G3VYF	77	83
G2HKU	75	78
GW3PMR	72	78
G3VLT	57	80
G3IDG	55	59
G3VTY	54	86
G3WDW	53	79
G3VLX	36	56
G3WQQ	35	56
GI3WSS	26	58
G3VWC	12	34
<i>Phone only</i>		
G2NJ	96	96
G3VYF	61	67
G3MDW	52	73

(Failure to report for three months entails removal from this Table. Claims may be made at any time.)

during the month with XE1AE and all W call areas, including WA5PHP (New Mexico). As for 21 mc, G3NOF heard VK, ZL and JA during the mornings on this band, but only worked the U.S.—his favourite band was clearly Twenty. Here the story was one of first openings around 0700 with short-skip, which would give way by about 0800 to real DX. In the early evenings a few Africans, ZS, 5Z4, 9J2, have been heard, with good openings to W7, and KL7 about 1700, followed by ZL over the South Pole at about 1800. SSB was used to raise EA9EJ, HV1CN, HV3SJ, KL7BJC, VE8ML, W7HO, W7UMJ, ZL1KG and '1ABO, various ZS's and 7P8AR. A couple of gotaways included CE0AE and HK0BKW.

G3LZQ, having settled into the new homestead at Brough, has finally managed to work up enough enthusiasm and got things ready to fire up—a Quad at 35 feet for Ten, a "G5RV," and a vertical seems to comprise the aerial farm. The "G5RV" on Twenty produced signals from W7FGI (Idaho) as the

most notable of the month, and more attention seems to have been paid to 21 mc. Here there were QSO's with OH0NH, IS1EP, VK, ZL and sundry South Americans to record on Phone, while CW yielded YS1WKE. Ten was even more used, and here the CW list contains UM8AP, UD6KBO, UL7's, VK's, ET3USA, YS1WKE and all W call areas, including a couple in Arizona. Phone was used on 28 mc, producing contacts with OD5BZ, VS6AJ, CN8's, DU1FH, MP4BBA (on AM), VS9MB, ZS, KR6, CR4 and 7, HS, 9L1, HZ1AB, KV4's, GC2JZ /KV4, all ZS areas, all VK areas, all W areas. While writing his letter (just to show there was nothing up his sleeve) he added VU2JM and HR1JMF to the collection.

Now to hear from G8DI, who offers, on 28 mc assorted UA9's and UA0's. On 21 mc UI8, UJ8 worked, and YA1ZC heard. Band more favoured was 20m, and contacts were secured with LX1DC, 6W8DW, UH8CI, ZB2BG, EA8EX, IS1PPB, while the toll of those heard adds up to HK7XI, FG7XX, FP8CY, KV4CI, CR6AI, 9J2GJ, KP4DBR and 9F3USA.

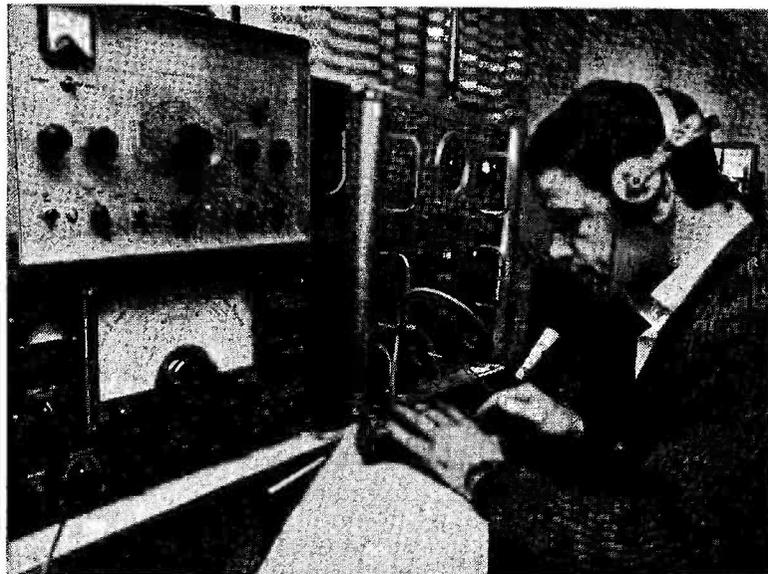
Finally, to G2HKU who, like

G8DI, is always on the look-out for humour in his hobby. For him 14 mc was the band used to work PY1ACD, VK3YU and a few rarer Europeans on CW, while the application of a little SSB produced VK2ARZ, ZL2KP on the regular sked, and IT1GLC. Conditions around 0800 in the morning is the time when Ted can come on, sometimes gave contacts with KW6EJ or EL2AR, while on other mornings a North-country voice could be heard proclaiming that there was "Nowt but blasted teleprinters!"

Deadline

And so there you have it. Comments, printable or otherwise, news, views, and what-have-you about the bands and what we do with them, as usual, please—and the more the merrier—but first post, **Monday, March 11**, addressed: CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM.

And, for the benefit of those who correspond by airmail, here are some forward closing dates for this feature. Mondays: March 11 (for April issue); April 8 (May); and May 13 (June). Till then, 73 es DX.



Station of G3MPR, Felixstowe, Suffolk, who is a keen CW operator. His main Rx is a Radiovision "Commander"—a design years before its time—incorporating full amateur bands spread with general coverage, by switching. A good "Commander" compares favourably with many modern receivers. Above it is a Labgear LG.50 transmitter.

Picture courtesy "Felixstowe Times."

VHF BANDS

A. H. DORMER, G3DAH

GREETINGS! I am very pleased to be your new conductor through the VHF/UHF maze, and hope that our association will be a long and interesting one. Many thanks to those who have already sent me their good wishes.

I am aiming to cover activity on four metres, two metres and 70 centimetres from personal observation as well as from external sources, including such information as you, the readers, send me. I cannot do anything personally about either 23 or 13 centimetres at present, and although those bands may be regarded by some as rather mysterious and esoteric, I am sure that there is a growing interest in them and as such they must be newsworthy—so reports from devotees will be very welcome.

The Annual Tables start again from January 1, 1968, so claims should be in as soon as may be. Final results from last year's Tables appear herewith, to complete the record. Conditions for entry in the current Annual Tables will be the same as for last year. To appear next month will be a complete list of the Tables for which claims can be accepted. *Crystal Exchange* and *Skeds Wanted* panels are being re-opened so, again, details please.

* * *

Conditions on all bands have been pretty unexciting recently, although

there was a slight lift on both two metres and seventy centimetres around January 21 and again about the 28th. The SSB boys also had it reasonably good for their Contest on January 8. Best DX heard was DJ9DL, worked by G2JF and G3LTF among others, so it was hardly a world-shattering opening.

This Contest was the second in the series and once again repeat-contacts were allowed, although the rules had been changed somewhat in order to avoid the situation which prevailed on the previous occasion, when some stations got into a three-way huddle to work each other in sequence, which made rather nonsense of the whole thing. This repeat-contact clause was introduced into the rules at the request of the SSB operators themselves because at the time that the first Contest was prepared there were far fewer SSB stations on the band and it was felt that there was a danger of running out of contacts. The idea was adopted for the second Contest, again at the request of the SSB chaps, and the impression gained here was that it worked reasonably well this time. But at the rate at which new SSB stations are coming up on two metres, it looks as if it could, with advantage, be abandoned for the next Contest, which takes place on June 24.

It was good to hear G3LAS back on the two-metre air during the Contest, this time operating G3VZN, the Enfield College of Technology station. John is now active on four and two metres from the home QTH at Hertford Heath, and expects to have 70 cm. going again shortly. The Essex boys are going in for SSB on Two in a big way. In addition to the regulars, G3SJO is putting out a big, clean signal, and both he and G3AMF are planning linears with 4CX250's. G3WRA is busy with a G3BA-type transverter into a QV03-20A final.

A bit further North, G3RHJ of Sudbury, Suffolk, plans to come on SSB when he gets his antennae up again.

* * *

The 144 mc CW (Open) Contest on January 28 was not characterised by any spectacular opening. The

general impression seems to have been that conditions were a little below average, activity severely limited, and most paths over fifty miles or so subject to considerable QSB and general instability. Many notes varied from T9 to T7 and back again within quite short time-periods, indicating the possibility of Auroral activity, and a very careful search was made round a notherly bearing but without any positive indication of an Aurora. There was undoubtedly some form of ionospheric disturbance about as, apart from the variation in the tone of signals from all bearings, there was pronounced scatter present of a type more usually associated with the reception of very much lower frequencies. A check was made with G3LTF which produced the interesting fact that there was an altogether unusual rise in solar noise during the two days preceding the Contest, from 6 dB above normal on the

TWO METRES

COUNTIES WORKED SINCE
SEPTEMBER 1, 1966

From Home QTH only
Final Placings

Worked	Station
67	G5NU
59	G3COJ, G3DAH
49	G3USF
43	G3SZX (256), G3OZP
42	G3OHH
38	G5UM (254)
37	GW3PWH (91), G3KQF
36	G2CDX, G3FIJ (115)
34	G2AXI
33	G3FNM
31	E12A
30	G3IOE
28	G3TQZ
27	GW3CBY (112)
26	G3SML, G3FVC (159)
22	G3TDL, G3WKH
15	G8VN

This is the final Annual Counties table for 1966-'67, to keep the record up-to-date. The new Annual Counties started w.e.f. January 1st, 1968, and claims should be made immediately. The Table will run till December 31 this year.

26th to 12 dB on the 27th, rising to the astonishing level of more than 30 dB on the Sunday! This coincided with a large sunspot which made its appearance at about that time and again hopes were high that we might see something of an Auroral nature—but, alas, nothing transpired.

Very little was heard of the GM's during the Contest in spite of the fact that the Dundee Beacon, GB3ANG on 145.8 mc, was audible at G3DAH most of the Saturday and all the Sunday at S5. (It also reappeared on the following Tuesday but intermittently and at greatly reduced signal strength.) For a beacon that is only running about 16 watts of RF they are doing very well. It is possible, one supposes, that the absence of the GM stations in the South was due to conditions—but it might have been just lack of activity due to storm damage(?)

Best DX worked from Herne Bay was into GW, with GW3NUE/P as the most consistent signal, followed by GW3FSP and GW3MFY. One that got away was GW2HIY, who was a good RST 559 until about midday and then disappeared completely. Bill Scarr, G2WS was doing his usual sterling stuff from Weston-super-Mare, with G2BHN (Yeovil) a good second from the West country. Very little was heard from the EU's, the only Continental being PA0WKY, and he was only RST 559 instead of his more usual 589.

G3TIR was lucky to get going in time for January 28 from a new location on top of a 65ft. water tower at 450ft. a.s.l. He was having keying trouble after midnight on the previous day. G3IMV appeared to be using two different transmitters at times, one with very soft keying and the other normal. G3FRV seemed to be having himself a ball at the bottom end of the band but should finish among the leaders. He was giving 049 towards the end. After this CW Contest was over, the barograph readings for the period came to hand. Pressures had been oscillating gently around the 30in. mark for the early part of the week and started to rise steadily from midnight on the Friday, reaching a peak of 30.5 Monday—

nothing like as high as the previous weekend when pressure rose to 30.7.

G3BHW is correlating weather charts and pressure tables with conditions on two metres (as a result of a New Year's resolution) and was able to predict at least one of the few "lifts" during the month—this in spite of the fact that it was the leading edge of the frontal system crossing the country on January 20-21 which gave the improvement, rather than the more usual trailing edge.

News and Comment

Those who worked the GC3OUF boys in Jersey last September and have not yet received a QSL card must not despair. David tells me that cards are being printed and will be distributed in the near future.

The "Kentish beacon" on two metres, G2JF, is no longer rock-bound. Jim now has a mixer-type VFO and, although he will normally use his old frequency—since half Europe know that they can find him on 144.675 mc and get an idea of conditions—you can expect him to pop up on other frequencies from time to time. "John Fox" has taken advantage of the long winter nights to do some extensive rebuilding of the two-metre gear. He now runs a pair of 4CX250B's to a 24-ele beam (two 6-over-6's) and that, with a height a.s.l. of over 600ft., should make him a big signal over large areas of the country even under poor conditions.

G3OZF is back on Two after his move from Nottingham to Great Baddow, Essex. He runs 40 watts to a QQV03-20A and a four-over-four slot. An FET converter is in use on the reception side.

A very good-looking converter for 23 cm. has been produced by G8AOL. At present it is in prototype form only but Chinese-copies are being made, by G8ARM among others, for extensive trials. When these are satisfactorily completed it is hoped that Brian will do a write-up for us. The line-up as it stands is a 2N3826 xtal oscillator on 50.76 mc with a 2N3826 tripler,

followed by a GM378 doubling to 608 mc. A second doubler, using a GEX-66 or OA-70, gives output to the mixer cavity at 1216 mc from whence the IF at 27-30 mc is derived after suitable amplification by a BF180 and a 2N3819.

Another interesting new converter, this time for two metres, is that designed by G3JWZ. This uses the 2N3570, 3571, 3572 series which have F's of 1500, 1200 and 1100 mc respectively. With his higher power SSB rig now in full action, Alan is consistently one of the big signals into the South, in such good company as G3BA and G6CW.

G3IDG of Basingstoke reveals that time has not stood still for him since his debut on two metres in 1958. Although all the receiving gear is the same, he has a new transmitter and, what is more important, a new QTH at 275ft. a.s.l., which is a vast improvement on the old London QTH where his record two-metre contact was five, yes *five*, miles! He managed 36 miles in the CW Contest but reckons that he still needs something new outside.

It was good to hear GB3GEC back on the air again. Frequency is 434 mc, power is 300 watts from a pair of 4CX250's and the antenna system two Yagis at right angles, to fire West and North. Funny thing is, though, he is a much better signal to the East than he ever was, in spite of the change in antenna direction—now usually about 35 dB above noise!

There has been a considerable increase in the number of French stations using SSB on Two, with F1CF and F9FT usually audible during the activity periods on Monday evenings. Fifteen stations can come up in the Paris area alone. F5BH and F9FT are also QRV with SSB on 70 cm.

Look out for the Frenchmen during the two-metre Contest over March 2-3, as they have their own contest to coincide with ours. The French Championship Contest this year takes place during May 4-5, 1800-1800z, on the three bands 155, 432 and 1296 mc.

* * *

In the offing, there is the possibility of a contact with Iceland. With

others, TF3EA, (P.O. Box 1080, Reykjavik), is hoping to come on with high power and as good a beam as 100-knot winds and sub-zero temperatures will allow. K2IME will also be active on Two till April 15, with 150 watts and a system gain adequate to give a reasonable chance of a contact with the U.K. Skeds can be arranged with D. B. Collins, K2IME, c/o FEC-DYE 5, Keflavik, Iceland.

Further E-M-E tests are scheduled for April 12-14, on 1296 mc. Alternate dates are April 19-20. This could be a push-over for anyone with effective 23-cm. gear. (All correspondence and reports to W2IMU, Dick Turrin, Box 45 RR2, Colt's Neck, N.Y.) While on the subject of E-M-E we hear that G3LTF is very busy preparing for future 70 cm. tests. The new converter has a TIXM-101 and BFY-90 front end and that little lot, with the parametric amplifier, should take him places. Lots of luck, Peter.

An interesting letter from G3CCH suggests that there should be four annual MS (meteor scatter) activity periods to coincide with the four major Meteor Showers. It is perhaps a little difficult, without special equipment, for the average amateur to work effectively under MS conditions but if sufficient interest is shown, we could do a small piece explaining what can be done to improve one's chances without ginormous expense or considerable modification of existing gear. One might hear some interesting DX even if one can't work it!

* * *

There is not much to report in the way of an advance on the Oscar front. The *Australis Oscar* is packed up and ready to go on a similar orbit to the last—that is, a nearly circular path at 500 to 600 miles up with an inclination of 70° to 80° so that all parts of the world can be covered. The *Euro Oscar*, built by DJ4ZC for Region I of the IARU, on arrival in California was found to be below standard in certain respects and was returned for modification. It has now arrived back in the States, but no information is available on launching. There is no up-to-date information on the

American Oscar, but it is understood that it will be similar in performance to *Oscar IV*, working a combination of two metres and 70 centimetres with a translator from one band to the other. It will probably be put into a semi-synchronous orbit. Of course, the thing to have to resolve the telemetry of these satellites is a Digital Frequency Counter, such as that which the Marconi Company have kindly loaned to G2AOX for the purpose.

The new French F1 stations, who, with their restricted "Phone only" licences, correspond to our G8/3's, have really livened up the bands, and are getting rapidly more numerous. They have now got to F1/3, as FIABA was heard here the other day working G2JF.

Contests scheduled for March include the RSGB Third 144 mc

(Open) over March 2-3, from 1900 to 1900z, and the Cumulative Contests on two metres and 70 cm., March 9 and 23. Times are 1900 to 2030z on two metres, and 2030 to 2200z on 70 cm. Modes are A1/F1 on the 9th and A3/A3j on the 23rd. (You would think they would give us a break during the evening, wouldn't you?)

* * *

The Leicestershire VHF/UHF Group is now well established and meets monthly at the Regional College of Technology, Leicester, at 7.0 for 7.30 p.m. The February meeting was addressed by G3BNL who gave a talk on the practical aspects of getting results on 23 cm., and as Les is one of the top men qualified to address any meeting on this subject, it was a very interesting and instructive evening. Their next

THREE-BAND ANNUAL VHF TABLE

September 1966 to August 1967

Final Placings

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL pts.
	Counties	Countries	Counties	Countries	Counties	Countries	
G3EDD	36	3	67	15	35	5	161
G3LAS	39	5	49	11	29	4	137
G3BNL	21	2	37	7	34	4	105
G3OHH	41	6	42	7	4	1	101
G3FIJ	31	6	36	10	6	3	92
G5UM	14	2	38	10	24	3	91
G3DAH	—	—	59	14	9	5	87
G3COJ	—	1	59	13	11	2	86
EI6AS	29	6	35	7	3	2	82
G3EKP	31	7	18	6	12	4	78
G3AHB	11	2	36	8	12	3	72
G2AXI	24	2	34	10	—	—	70
G3KQF	—	—	37	10	12	3	64
G5FK	26	3	13	4	13	2	61
G3FDW	52	8	—	—	—	—	60
GW3CBY	10	3	27	7	9	3	59
GW3PWH	5	3	37	9	3	2	59
G3TLB	9	2	39	6	—	—	56
EI2A	5	2	31	7	—	—	45
G3WHK	1	1	22	3	11	1	39

This is the final Three-Band Annual Table for 1966-'67, to bring the record up-to-date. The new Three-Band Annual started w.e.f. January 1, 1968, and will run till December 31 this year. Claims to start the Table should be made immediately.

meeting is on March 21 when G3BKQ will demonstrate the FET converter already described by him in *SHORT WAVE MAGAZINE*, and will also show some of the FET modules on which he has done so much useful pioneering work. So, Room 45 at the College it is. Further details from G5UM, *QTHR*.

The South East UHF/VHF Group had another successful meeting on January 26, when the speaker was Bert Allen, G2UJ, who gave his listeners the benefit of his long experience with oscillators. Bert's new mixer-type VFO for two metres is worth listening to! The next Group meeting is at Rutherford College, University of Kent, Canterbury, on March 8 at 7.30 p.m., when G3FRV will be talking about Portable and Contest operation. He should know!

* * *

J-Beams, Ltd. have an interesting new two-metre beam in production. It is a 14-element job with a gain of 15.5 dB over a dipole. Have you read some of those extravagant claims for high-gain antennae and got all excited only to discover that the gain-figure quoted is referred to an isotropic radiator, the gain of which is, of course, some 2 dB down on a free-space dipole? The J-Beam figure is an honest one, arrived at from proper engineering principles. Cost of the J-Beams product is £11 11s. and delivery is from stock. Incidentally, they say that now that the Contest season is upon us, they are receiving many orders asking for "delivery within seven days." It may be possible to meet this request assuming that the item is in stock and that British Road Services are functioning normally. Fourteen days' notice is that much better, since it allows for possible B.R.S. delivery delays and also gives time for replacement of items that might have been damaged in transit(!).

* * *

G8APX now has gear for 2.8 cms. and is looking for contacts on Phone. G18AYZ is active



Members of the Lothians (Edinburgh) Radio Society are keen on VHF portable. Here they are on West Kip, 1800ft. a.s.l. in the Pentlands, near Edinburgh. The chaps who humped all the gear up there are, back row, left to right: GM3OWU, GM3PSP, GM3RV SWL Roe—and in front, left to right, SWL's, Brown, Flynn and GM3VZL.

on 432.07 and 432.2 mc—can go /P at weekends from a site 1000 feet up with a Parabeam and a good path to GM and northern U.K. G5QA finds that he is ploughing a lonely furrow on 23 cm.; Herbert has 40 watts to an 8/8 or 32-element stack. G3TOZ is at Robertsbridge, just north of Hastings; he is using two-metre gear lent by G3TDP, to a halo (all Matron would allow!). He is looking for contacts on 144.53 mc at almost any time, to relieve the monotony. G3VZN, the Enfield College of Technology, has gear for CW and SSB on two metres and is looking for two-metre skeds, at long distance, between 1300 and 1400 hrs. daily; G3LAS at Hertford wants GDX skeds on Sunday mornings on two metres. John is hoping to conduct tests with six-metre stations across the Atlantic during the summer, working cross-band with ten metres, or even four

metres if he can get the W's interested enough to build the converters! If there is sufficient interest in this project, John says that it may be possible to arrange a beacon firing West from London.

Stop Press. The activity level seemed to be fairly high during the four-metre contest on February 11, but conditions were below average. Best scores heard here towards the end were G3NZS/A with 85; G3OIT/A with 89; G3MEH with 95 and (last year's winner) G3LAS with 88. More about this next time.

Deadline

That about wraps it up for this month. Hope to have more gen. from you, and for you, next time. Deadline for the April issue is first post on Saturday, March 9. Address is: "VHF Bands," *SHORT WAVE MAGAZINE*, BUCKINGHAM. Cheers for now and 73, *de A.H.D.*

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for April Issue: March 8)

(Please address all reports for this feature to "Club Secretary," SHORT WAVE MAGAZINE, Buckingham.)

JUST for a change, the reports have been sorted into four groups this time, plus one for those that cannot be conveniently dropped into a territorial classification. However, your Club Secretary is not very hot on geography, so if you don't find what you want in the right place—read on, it may be in some other slot!

Wales and West

Here the first reporters are **Saltash**, who have a talk on Transistors slated for March 8, followed by a "Club DX Attempt" on March 22. We have no information at the time of writing as to what the latter portends, which makes it all the more intriguing!

Barry College of Further Education seems to have made a flying start on the Amateur Radio front and the current newsletter gives advance notice of a memorable "first." They have the distinction of being the first Club to set up and operate an amateur-band station at the National Eisteddfod in August, and plans are already at quite an advanced stage. They are also running a Top Band Phone contest on March 10, details of which they have already circulated to Club Secretaries. Thursdays each week see this crowd in session, and each month there is a "formal" at least once, when a programme is laid on.

Chippenham recently had their annual session with the Bristol lads, and more recently made the trip to Swindon for the latter's Junk Sale; March has one firm date on the agenda, namely the 26th, when a Bring-and-Buy Sale will be held. In addition, there is to be, on a date not settled at the time of writing, a Junior Members' construction display, when a prize will be awarded to the best exhibitor.

EI, as we all know, is nothing like so well populated by radio amateurs, particularly the South-Easterly area. Thus the formation of the **South-East Amateur Radio Club of the Republic of Ireland** is doubly welcome, not only to keep scattered members in contact, but also as a means of generating more enthusiasm for the hobby. Coverage is aimed at the area Waterford, South Tipperary, Kilkenny, Carlow, and Wexford, the majority of the licensed types being in the area of Waterford; thus it is but natural that the Hq. should be in Waterford—at the Granville Hotel—on alternate Saturday evenings. We hope to hear much more of this venture, and, incidentally, understand that it is reckoned that the ferry route through to Rosslare ought to produce the odd G /M, which types are earnestly invited to drop in and join them for an evening.

Back home, and to a report from Devon—the

Exeter group, who are to be found in the hall at the rear of the George and Dragon, Blackboy Road, Exeter, on the first Tuesday in each month, kick-off being at 7.30. The menu for March is Part II of the series on VHF, by G3PBV.

Over the border in Wales, we hear from the **Rhondda** crowd, who also seem to be getting along very well indeed. Monday evenings, at the Pencelli Hotel in Treorchy, twice in each month. Informals with facilities for some practical work are laid on for the 18th, while April sees a session of the same type on the 15th. In addition, at the same venue, March 4 is given to GW3PHH to discuss "Resonance, its causes and effects," and April 1 will be an "Any Questions" session. The high spot of the programme for the Spring comes on April 29, when Rhondda are "At Home" to all the radio amateurs of South Wales who care to join them, for a Social Evening. It is known that several other groups are making arrangements to be there, so the party should go with a swing—and the Barry Tech. Coll. Club will present their Top Band contest award.

Co-operation between groups is something that is always a pleasure to write about; and the more so when it concerns the publication of a newsletter or similar, which is such an important part of the life of a group. **Swindon's** "letter" has developed into a sizeable production, and so arrangements are being made to include the news from other clubs, notably Oxford and Nailsworth, and to circulate *Wiltshire Hams* to all members of the groups concerned. This is indeed a fine idea, and cannot but be of advantage to all concerned. March shows a formal meeting on the 27th, with the informal dated a fortnight earlier, on the 13th. Penhill Junior school, Penhill, Swindon, is the address to search for.

When you penetrate really far to the West, you need to remember that the locals are members of **Cornish**, and whatever your tastes, there is some part of the group which caters for you. The main meeting is on March 7, at the SWEB Clubroom, Pool, Camborne, and the fare is an Equipment Review—which title sounds as though it could be of great interest. VHF and SSB groups are in existence, and both of these seem to have their being in Truro—a few enquiries at the "Barley Sheaf" would not prove unrewarding.

Still in the West, look in now at **Torbay**; but to do this you will have first to contact the Hon. Sec.—see Panel—as our information and our deadlines are a little out of phase. Nonetheless, we can say that there has recently been a lecture on TVI, and one on Semi-

conductors, while there is an Annual Dinner organised for March 9 at the Templestowe Hotel. A Mobile Rally in August and participation in the Newton Abbot Trades Fair in June are also planned.

Wales again, this time to **Pembroke**, who get together on the last Friday of each month at the Defensible Barracks, Pembroke Dock; this means March 29, when a Film Show will be given, and arrangements made for the Saundersfoot Mobile Rally, to take place later in the year.

A school group is a little unusual in our piece, but **Llanelli Boys Grammar School** mention that they do not want to stay completely cut off from the outside world, so welcome anyone who cares to pop in for a chat, either after 3.30 p.m. on Fridays, or at the Hon. Sec.'s home QTH.

Then we have the group calling itself the **Welsh Radio Club**, centred on Newport, Mon., where they are making excellent progress, with a membership increase of no less than 20 since last month. A regular meeting place has been found, and a programme is being organised—they already have an instructor in Morse.

Extra-Territorial Set

First among these we must mention Britains Invisible Exports—the **Ex-G Radio Club**. Members being, as they are, scattered all over the globe, contact is by way of the nets, and the *News Letter*, which is truly an impressive effort.

A bit nearer home we have the **Royal Navy A.R.S.**, who also have members fairly well spread. Again, there is a newsletter at regular intervals and an Hq. station (G3BZU), plus various other facilities too numerous to detail here. For serving or ex-personnel of the Royal Navy interested in Amateur Radio, joining this one seems to be a "must."

British Railways, having got themselves "away," now put out a *Newsletter* each month, with much of interest in it; as they are affiliated with other groups of railwaymen in other countries, all united by the Amateur Radio interest, once again it is suggested that those who work in British Rail or allied organisations ought to sign up.

Mobile News is the magazine of the **Amateur Radio Mobile Society**; here the form is meeting and rallies during the summer, but a quiet period during the colder months. There is no doubt that *Mobile News* keeps the group together during the Winter.

The **Radio Amateur Invalid & Bedfast Club** of course rely on their *Radial*—well produced regularly each month by Mrs. Frances Woolley, G3LWY—to keep touch among the members. From the latest issue, we see that they now total exactly 300, of whom 98 are licensed; and with the 202 SWL's are spread over 11 countries. Remember that the R.A.I.B.C. is most worthy of radio amateur charity—always needing money, which is spent wisely and carefully by a devoted committee.

Midlands, Scotland and The North

This is a difficult area to assign limits to, but we try to balance it with the other regions. The very first one is rather a borderline case, namely **Hereford**, a place your Club Secretary always associates with travelling into the setting sun, and with cider-barrels. Both are

surely products of the West Country! Hereford have already collected two-thirds of the annual subs. for 1968, and the Annual General Meeting does not come until March—so here is one Treasurer who is smiling. For further details, contact the Hon. Sec. at the address shown in our Panel.

It is the enthusiasm of the committee that makes things go; and enthusiasm fairly bubbles over in the letters from the **Salop** Hon. Sec. each month, which accounts in part for their great success. This month the dates are the 7th, 14th, 19th, and 28th. Thus the first is given over to a lecture by Eddystone Radio Co., in the person of their Mr. N. V. Scobie; he is followed a week later by a speaker from Royal Signals, who will discuss Army Signals. The 19th is, unlike the other dates, a Tuesday, and is set apart for further work on the Club Project, which is a "Z-Match." The final date is that perennial Guaranteed Success, a Junk Sale.

Midland is quite definitely in the middle—in Birmingham, in fact, at the Birmingham and Midland Institute in Margaret Street, where they have a monthly meeting on every third Tuesday in the month, starting at 7.45 p.m. However, an easier way to find the lads will be to take a trip to the Birmingham Boat Show, before March 2; here they are to have a display, which is one of the highlights of their year.

Mid-Warwickshire notify a change of Secretary, which is duly taken into the Panel; perhaps this has caused a slight hiccup in the system, as we have no details to hand of "Whats What," so we will start him off the right way by suggesting intending members contact him for details.

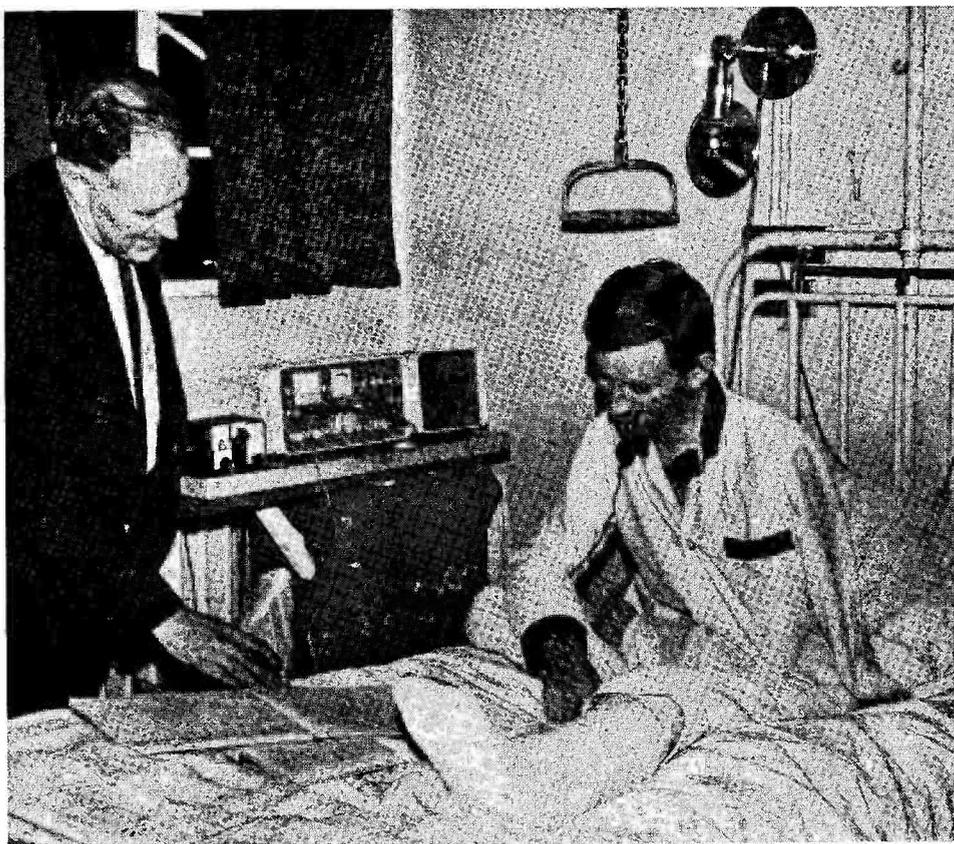
Northwards now, to **Ashton-under-Lyne**, where the main objective at the moment is preparation for the Northern Radio Societies Convention which is to be held at Belle Vue, Manchester, in May. They themselves are now installed in their new Hq., (6 Stamford Street, Stalybridge), where they are to be found every Friday evening at 7.30 p.m.

March 13 is time for G30GC to talk about "Mobile," while on the 27th there is time set aside for the rather important matter of NFD, since last year they were rather too near the bottom for comfort. The Sportsman Inn, Ogden, Halifax, is the location, and the group is called the **Northern Heights A.R.S.**

South Shields are still in business. Friday evenings in the Trinity House Social Centre, Laygate, South Shields, is the place to find them. March 8 is the date for the Construction Competition, which will be adjudicated upon by G3LIV, the chairman of the Durham City club; having done this, he will then give the chaps a talk on Receivers.

Last time out we seem to have got the address of the **Sheffield** Hq. a little wrong; so to put the record straight let us say it is the Beauchief Hotel, Abbeydale Road, Sheffield, 7. No formal programme is set for the evening of Tuesday March 26, but there will probably be some discussion of ideas in connection with the proposal to form a separate contest group.

Bury and Rossendale have a Film Show slated for March 12, with at least three films of GPO origin, at the George Hotel, Market Street, Bury. Incidentally, they were, we gather, very pleased with the talk they heard in January, on Merchant Navy Communications,



Our photograph shows G3NOH, a member of the Verulam Radio Club (St. Albans) who is sorting them out on all HF bands from Mt. Vernon Hospital, Northwood, Middlesex. He had a nasty road accident last July, involving long and complicated treatment for a serious leg injury. He is making good use of a KW-2000 A (loaned by G3OPR, standing left), and is pulling in the JA's and VK's on a Joystick. Though skin-grafting operations neutralise G3NOH's left arm for long periods, this does not prevent him energising the KW-2000A on SSB—nor, for that matter, keeping up with the HF/DX on CW—and he is a dab-hand on the key.

which was extremely well done by Jim Barlow, G3VOU.

March 13 and 20 are the dates for **Pudsey**; the former for a lecture on Mobile Operating, and the latter for another one on Transistor Circuitry. Their seven entrants for the December R.A.E. recently heard the results, and were quite pleased when three passed.

A briefest possible note reminds us that the **Culceth** crowd are meeting every Friday, in their Club room which is at the rear of the Chat Moss Hotel, Glazebury, Near Leigh, Lancashire.

Electronic Organs is not often a topic for club lectures, but G3MPN is to cover this at the March 4 meeting of the **Norfolk** group; the following Monday is an informal, and on March 18 there is a Team Quiz, this in turn being followed a week later by an informal. Thus is established the pattern of things, namely, alternate meetings with lecture, filled in with informals on the other Mondays each month. The Hq. is at Old Lakenham Hall, Mansfield Lane, Norwich, and the name of the Club the Norfolk Amateur Radio Club. Incidentally, they recently had an AGM, when a new Hon. Sec. took over, so the address in the Panel changes accordingly.

The latter happening—a change of Secretary—has also affected **Shefford**, and here the reason is the increased business commitments of former incumbent G3VMI. Shefford met at the Church Hall, Ampthill Road, Shefford, weekly, this month's dates being as follows: on March 7, G2AUA discusses the use of the HRO for Sending (!) and Receiving CW, while on the 14th, there is a film on ICT Digital Computers. The 21st is set apart for programme planning, and the month is rounded off by a discussion about NFD, the new transmitter, and general planning, which takes place on March 28.

G5PP is booked to do his lecture on Mobile Equipment for the East **Worcestershire** crowd, the *venue* being, as usual, the Old People's Centre, Park Road, Redditch, where they get together on the second Thursday of each month.

Foot-and-Mouth disease has hampered the activities of the **Bromsgrove** chaps, by putting the shack out of bounds. However, there is the matter of the AGM to get through on March 8, when the get-together will be the Co-op Hall. After the AGM there is to be a dis-

cussion of NFD plans.

We have to take care when Clubs in the Northampton area are mentioned, as there are several with very similar titles. The **Northampton Radio Amateur Social Club** is the one under scrutiny here, and their Hq. is at the Old White Hart, Cotton End, Northampton. For Wednesday, March 13, they have arranged a talk by Mr. K. Wilkins of Eddystone, on that Company's latest range of receivers. April sees an AGM, followed by a talk in which an engineer of the Post Office will discuss the various facets of the relationship between themselves and the radio amateur fraternity.

Talking of AGM's it is nice to hear of one where the attendance so surpassed expectations that there was only standing room in the meeting-place! A new Hon. Sec. was elected, for the best reason of all—to allow the outgoing chap to concentrate on the rather important matter of getting his ticket. For all details of the **Leicester** group contact the hon. secretary, as in panel.

Hull & District A.R.S. report a membership of 81, and have their own c/s G3AMW. Their meetings are normally weekly on Fridays, fixed right through till the end of April, though April 9 (a Tuesday) is slated for a talk on Eddystone equipment, by G3AG. Some lecture titles are: ATU's, by G3FCY—Transistor Circuitry, G3PQY—Working DX, G3LZQ—Hints and Kinks, by G3FCY/G3OHT. Meetings are at 592 Hessle Road, Hull.

Our Scottish friends, the **Lothians**, come in again, to report successful events during January—GM3OWI, on closed-circuit TV as a teaching aid, and a visit to Nuclear Enterprises, who manufacture radiation measuring equipment. Next meetings are on March 14 (a Quiz, conducted by GM3PSP) and on the 28th, a talk on "Pinhole Detection." This group use the board-room of the YMCA, 14 South St. Andrew Street, Edinburgh 2, as their place for meetings, which start at 7.30 p.m.

At **Mansfield**, they have the AGM on March 1 (good attendance, please!) when a programme will be discussed and arranged. Hq. is the New Inn, Westgate.

On March 1 the fare for **Halifax** is rather different—a talk on Superhet Receivers, by G3BXF. A visit to the radio and electrical depts. of Huddersfield Tech. is also planned, and there is to be the annual dinner towards the end of the month.

From **Derby**, we hear that their fully paid-up membership at year's end was no less than 178, of whom 86 are licensed. To stimulate local interest in contest working, a marathon affair in the form of activity periods has been planned, running over week-ends till April 27. Meetings are shown as weekly from March 6—though in the hon. sec's. letter *two* lectures are down for March 20, and for the 29th Bob Palmer, G5PP, is given as the speaker—on P/M, no doubt. All meetings are at the College of Art, Green Lane, Derby.

The **Sutton Coldfield** chaps now use the local Town Football Club's premises in Coles Lane for their meetings—the club-room, that is, not the pitch!—on the second and fourth Mondays each month, commencing at 8.0 p.m. On March 11, they are to see a film on Ship-Shore Radio and the Trans-Atlantic Link, and the 25th is the regular "natter night." On April 8, G3LXR will take the floor on the subject of Lasers.

Southern England

Here we have **Reading** first; and we find that on March 12, G8AAG is to discuss the use of unusual tools in the radio amateur context, followed on the 26th by a session discussing contests, at which meeting the details of the annual Constructional Competition for this year will be given. The latter event has been moved to later in the year owing to the number of members who have projects which are "still stewing." Hq. is at St. Paul's Hall, Whitley Wood.

A change of *venue* for the **Mid-Sussex** crowd—the old place was felt not to be as central as it could have been, and so they are to be found at Marle Place, Further Education Centre, Laylands Road, Burgess Hill, as from the February meeting. Informals are to be held on a rota basis at various members' homes, and details are obtainable from the Hon. Sec. As for the dates, the Marle Place evenings are on the first Thursday in each month, while the informals come up on the third Wednesday. Thus March 7 sees a Sale of Surplus Equipment, which is guaranteed to be full of KW-2000's and similar goodies(!).

March in **Echelford** is a couple of home games—on the 16th, there is G3TBS talking about the Georef system, while the 28th is set aside for the AGM. Both the meetings, as always, at The Hall, St. Martins Court, Kingston Crescent, Woodthorpe Road, Ashford, *Middlesex*.

For once in a while the usually so well organised **Verulam** newsletter has slipped up this time, to the extent that we do not know what is on, nor when, in March. However, to judge by the current newsletter there has been no falling off in the normal standard, which must be one of the best in the country. Example of what we mean is given by the fact that they used G3NOH, while in Mt. Vernon Hospital, as their "B" station in the recent Club contest—and then dropped a brick on G3UNX's toe to give him a second operator!

Chelmsford have March 5 booked at the Marconi College in Arbour Lane, Chelmsford, to hear a member of the GPO discussing Interference Problems. On the other side, we find ourselves so far out of sync. with the **North Kent** boys that we just haven't a clue, apart from the Annual Dinner and Dance, which comes off on March 2, at the Falconwood Community Centre, Welling, and is a ticket "do." Normal meetings are at the Congregational Church Hall, adjacent to the Clock Tower, Bexleyheath, and the full and up-to-date story can be obtained by contacting the Hon. Sec.—see Panel.

Model railway enthusiasts in Farnborough assemble at 310 Farnborough Road, **Farnborough**. Here also the radio amateurs foregather, and in time, no doubt, something spectacular will result from a combined effort; but for the moment we must confine ourselves to the doings for March, when they have two meetings. On the first, at Hq., on March 12, G3TR is to be the speaker. On March 26, also at Hq. there is an informal.

The Hawker Siddeley Dynamics Senior Staff canteen, in the Gunnels Wood Road works, **Stevenage**, is (and has for several years now) been Hq. to the **Stevenage** chaps; they also seem, to have got themselves an Hon. Sec. who is a whizz-kid, which is having quite an effect on the programme. March 7 is devoted to a Junk Sale,

which is being organised by G3TIK, while a fortnight later the Electroniques lecture will be given by Mr. Mann, the Sales Manager. Idea is to have a membership at least tripled by the end of the year, which certainly is a nice hard sort of target for anyone to set or be set.

Reigate have a slight change in the arrangements to mention; they are now foregathering on the first Wednesday in each month, at the George and Dragon in Redhill. This means that the date for the March session is Wednesday 6th, although at this point in time it is not possible to say what the entertainment will be; but by the time the meeting is on someone will have done something—these chaps always have it fixed for the night.

Peterborough so much enjoyed their last film show that a second one is fixed for Friday, April 5, at the Technical College, Eastfield Road—to which anyone interested is invited, for 7.15 p.m.

Next sessions for Crawley are Wednesdays, March 13 (informal) and March 27, when there will be a lecture on Colour TV, by G3NGS, at Trinity Congregational Church Hall, Ifield. The winner of their constructional contest deserved to—G3LHZ's entry was a full-size three-band Cubical Quad!

The Colchester group recently had a very interesting tour round the University of Essex, and saw the electronics dept. Topics for future meetings include a talk by G8VR and a lecture/demonstration of Colour TV by G3FIJ (well-known in the VHF field). Also in hand are plans for a "better mobile rally" at Colchester Zoo—and they don't need any of those funny cracks about visitors to the anthropoids!

At Maidenhead, they have their AGM on March 4, and on the 19th Dud Charman, G6CJ, will be giving his famous lecture/demonstration on Aerials—not on any account to be missed. He will show you things you would never have believed possible. Other Clubs, or their members, within reach of the Victory Hall, Cox Green, Maidenhead are specially invited to join the locals for the occasion, 7.30 p.m. on March 19.

The London Area

Headline news in this area must undoubtedly be the sad fact that the South London Mobile Club has been forced, by a combination of circumstances outside their control, into a very difficult position—so much so that their SARA associates—Wimbledon and Purley—stepped in to save the club from extinction. As a result, South London is now formally part of the Wimbledon crowd, but keeping a separate entity, the SLMC banner, and the Club call, until such time as it is felt that once again they can have a separate existence. SARA as an association of Clubs, for mutual help, has proved itself up to the hilt, and the way things have gone is a credit to all concerned.

The letter from Clifton this time makes no mention of the immediate programme, but rather concentrates on the long term aspects; and we gather that they have every intention of making things hum—but for the immediate present, we have to pass you on to the Hon. Sec., at the address given in the Panel.

Civil Service have a new Hq.—at the Civil Service Recreation Centre, Monck Street, where they have Room 66. At the moment the shack is *sans* skywires,

owing to its semi-basement location, which raises feeding problems, but this should have been sorted out before very long. The routine is back to normal now, with meetings on the first and third Tuesdays in each month, starting at 6.30 p.m., although refreshments are usually taken from about six. April 2 is a redletter day for them, as they also have secured the lecture on Aerials given by G6CJ, Dud Charman.

Grafton's Hon. Sec. has been ill recently, and so we have not heard much of them; however, G2CJN writes in to mention the Annual Grafton Top Band Contest, for which the CW end is to be played off on March 16, followed on the 23rd by the Phone leg. Both sections run from 2130 GMT till 2359, and the scoring is on the usual basis of one point per contact, any station being worked once only in each half of the contest. Exchange RS(T) plus a serial number starting with 001, and rising by one throughout the *whole* contest—in other words if you end the CW session with contact 100, you start off on the Phone section at 101. Call "CQ GRS" on CW, or "CQ Grafton Contest" on Phone. Logs, bearing the usual signed declaration, to G2CJN, 145 Uxendon Hill, Wembley, Middx., to arrive not later than April 3. G2CJN also has blank log-sheets and copies of the rules in full, which will be forwarded on receipt of an s.a.e. Certificates will be awarded to the two highest scorers over the whole contest, and further ones to the winners of each half.

Surrey get together at the Blue Anchor in South Croydon once a month, and usually have something of interest, albeit this time we have no details—so we have to leave you to contact the Hon. Sec. Just up the road, we have Addiscombe, who are to be found at the Toc-H Hall, 158 Addiscombe Road, East Croydon, and who have during February celebrated their corporate first birthday. Their dates for March are the 12th and 26th;

SECRETARIES—PSE NOTE!

To ensure orderly coverage and smooth production, all Club reports must be in by the date given each month—those late on the deadline cannot be written into the current "Month with The Clubs," because the feature is prepared and goes to the printers over the ensuing weekend, the deadline date always being a Friday.

Also, we must have, with each report every month, the name, QTH and c/s (if any) of the hon. secretary. Some p.r.o.'s and scribes are omitting this, which leads to confusion.

Reports should be concise and complete for the period under consideration, i.e., it should not be left to us to pick up information from previous reports. The reason for this is that all paper associated with this feature has to be disposed of immediately after the current "Month with The Clubs" appears in print—otherwise we would be knee-deep in it!

The only, and the correct, address for this feature is: "Club Secretary," Short Wave Magazine, Buckingham. Closing dates for the next few months are, first post Fridays: March 8, April 5, May 10, for the issues dated April, May and June respectively.

we believe that there is to be a talk on UHF on the latter occasion, to be given by G8AYN.

Over on the other side of the Thames is Southgate, where the meeting place is Parkwood Girls School, at the rear of Wood Green Town Hall. Here again we are somewhat lacking in detailed information, in this case because the newsletter was printed and sent on to us before the new committee had a chance to sort out the programme.

Harrow must be one of the most successful groups in an area which is full of good Clubs—their total membership is up to 128, and over 80 attended the recent 21st Birthday Supper. Here again there has been an AGM recently and the new committee is still working on a programme for the coming year—but with that sort of a past record it should be good even if we don't know what it is!

Saturday March 16 is the date, and the venue is the local Civil Defence Hq. for the Film Show being given to the members of Crystal Palace. Kick-off is at around 8 p.m.

Cray Valley have two places to assemble, the lectures being at the Congregational Hall, Court Road, Eltham, London, S.E.9., where on March 7, the lecturer is to be G2MI, who will talk about "An American Tour." The other sport is the All Saints Church Hall, Bereta

Road, New Eltham, where the informal is to take place on March 21.

Sutton and Cheam seem to be running through a quiet time, albeit there seems to be no lack of activity—we gather they have only two blank dates in the whole year's programme. Details of the current month's diversions can be obtained from the H.n. Sec.

Purley have a Junk Sale laid on for March 15, at the Railwaymen's Hall, 58 Whytecliffe Road, Purley, in the large hall; in addition there is an Informal, in the small hall at the same address, which is down for March 1.

As we have already remarked, the Wimbledon crowd have "taken aboard" the South London Mobile Club, and the result can be assessed by going along to their Hq. on March 8, when G3EPU will be discussing that most fascinating topic, Radio-Astronomy. Hq. is at the St. John Ambulance Hall, Kingston Road, South Wimbledon.

Acton, Brentford and Chiswick have recently had an AGM, which possibly accounted for their absence last time, but they make up for it this time; G5ACX/9A1AA/3A0AE will be showing a film of his DX-pedition to Monaco and San Marino. This one is, as usual, at the Hq., which is the Chiswick Trades and Social Club, 66 High Road, Chiswick, and the date to reserve is March 19, at 7.30 p.m.

At about the time this reaches the readership the

Taken at the Christmas Party of the Wimbledon, Purley, South London Mobile and Addiscombe Clubs, held at the Wimbledon Hq. on January 6. There was an attendance of over 90 members and friends, and we are told that it "all went with a great swing." As hosts for next year, Purley feel that they will have to lay on a really big occasion to equal Wimbledon's effort this time.



NOTES ON THE R.A.E.

By the time this appears, individual applications for the next Radio Amateurs' Examination, in May, should be in—or immediately in hand for going in. See note p.760, February SHORT WAVE MAGAZINE.

The statistics on last May's R.A.E. are interesting. The number of candidates sitting was 1,519 of whom 918 (60 per cent) satisfied the Examiner. This pass-rate of around 60 per cent has, in fact, been maintained for the last three years. Since the marking is strictly pass-or-fail, half-marks are over being the pass standard, one

feels that the success ratio should be rather higher than this. In other words, one would expect that in an Examination with a syllabus defined within fairly narrow limits and a choice of questions (with two that ought to be certainties), the pass-rate would be 70-75 per cent. For the last three years, the figures show that 2,766 candidates have passed out of 4,419 taking the R.A.E.—which is set by the City & Guilds of London Institute, as Subject No. 55 in their examination syllabus. Good luck to all who are in for the next one.

To keep in touch with all that is going on in Amateur Radio in the U.K., become a Direct Subscriber to "Short Wave Magazine" — 45s. per annum, post paid.

Paddington chaps will be getting used to a change of evenings from Wednesdays to Thursdays, at the Beauchamp Lodge Settlement, 2 Warwick Crescent, Paddington. The change occurs on all meetings occurring *after* March 1. As for what is going on, the AGM has only recently been cleared and the new committee is still trying to fix things up for the rest of the year—the way to find out is either to attend a meeting or get in touch with the Hon. Sec.

Deadline

Which brings us to the bottom of the pile. Before signing off may we ask all who write in to this feature to make sure the honorary secretary's name is the same as the one in the Panel, by writing it out somewhere where your old Club Secretary can see it; to make quite

clear *where* and *when* your group is getting together, and what is happening; and most important of all, to ensure that your news is for the right month—which means that in the majority of cases where a newsletter is sent, it is necessary to be *three* months ahead in the news in your sheet. If the straight gen. comes by way of letter, then you are, for instance, writing in the beginning of March or earlier, of an event which may take place at the end of April. Please don't forget—history is not good publicity!

And that's it for now; all the best with the Club and may your plans always succeed, and your membership grow. Deadline for next time is first post on **Friday, March 8**, with news for the April issue, addressed as always to "Club Secretary," SHORT WAVE MAGAZINE, BUCKINGHAM.

Names and Addresses of Club Secretaries reporting in this issue :

- ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London, W.3.
 ADDISCOMBE: S. E. Fuller, 116 Shirley Way, Croydon, CRO-8PE. (01-777-1298).
 A.R.M.S.: N. A. S. Fitch, G3FPK, 79 Murchison Road, London, E.10. (LEYstone 6700).
 ASHTON-U-LYME: D. Hobson, G8BEU, 9 Matteredale Terrace, Stalybridge, Cheshire.
 BARRY (Tech. Col.): D. H. Adams, GW3VBP, 49 Colcot Road, Barry, Glam.
 BRITISH RAIL: H. A. J. Gray, Eleven, Swanton Drive, Dereham, Norfolk.
 BROMSGROVE: J. Dufrane, 44 Hazelton Road, Marlbrook, Bromsgrove, Wores.
 BURY & ROSSENDALE: A. Cooper, G3VVQ, 411 Holcombe Road, Greenmount, Nr. Bury.
 CHELMSFORD: G. C. Cutting, G3GNQ, 35 The Street, Galleywood, Chelmsford.
 CHIPPENHAM: N. Cutter, G3PQG, 1 Fosseyway Close, Colerne, Chippenham, Wilts.
 CIVIL SERVICE: D. MacLennan, G3KGM, 52 Pinewood Avenue, Sidcup, Kent.
 CLIFTON: A. J. Gould, G3OGE, 60 Merlin Road, Beckenham, Kent.
 COLCHESTER: V. Levitt, Lark Street, Stoke-by-Nayland, Suffolk.
 CORNISH: W. J. Gilbert, 7 Poltair Road, Penrhyn, Cornwall.
 CRAWLEY: R. G. B. Vaughan, G3FRV, Tralee, 5 Filbert Crescent, Gossops Green, Crawley (23359), Sussex.
 CRAY VALLEY: D. Buckley, G3VLX, 234 Halfway Street, Sidcup, Kent. (ELTham 6945).
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London, S.E.23. (FORest Hill 6945).
 CULCETH: I. J. Sumner, G3VPX, 406 Warrington Road, Glazebury, Warrington, Lancs.
 DERBY: F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby. DE3 7GE.
 EAST WORCESTERSHIRE: J. Bazley, G3HCT, Brooklands, Ullenhall, Solihull, Warwickshire. (Henley-in-Arden 2176).
 ECHELFORD: D. Walmsley, G3HZL, 153 Worple Road, Isleworth, Middx. (POPesgroy 3239).
 EXETER: G. Wheatcroft, G3HMY, 27 Lower Wear Road, Countess Wear, Exeter, Devon.
 EX-G RADIO CLUB: F. Fletcher, G2FUX, 53 St. Ives Park, Ringwood, Hants.
 FARNBOROUGH: D. G. Arigo, G3NVM, 6 Frensham Close, Yateley (2174), Camberley, Surrey.
 GRAFTON: A. W. H. Wennell, G2CJN, 145 Uxendon Hill, Wembley Park, Middx.
 HALIFAX: W. Millar, G3WLW, 17 Brooklands, Bradley, Huddersfield, Yorkshire.
 HARROW: R. H. Medcraft, G3JVM, 134 Dulverton Road, Ruislip Manor, Ruislip, Middx.
 HEREFORD: B. Edwards, G3RJB, 5 Powys Walk, Hereford.
 HULL: Mrs. M. Longson, 4 Chester Road, Wold Road, Hull, Yorkshire.
 LEICESTER: N. Tomlinson, 33 Merton Avenue, Leicester.
 LLANELLI GRAMMAR SCHOOL: P. S. Murray, 146 Sandy Road, Llanelli, Carmar.
 LOTHIAN: A. J. Masson, GM3PSP, 20 Merchiston Park, Edinburgh, 10.
 MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead, Berks.
 MANSFIELD: F. N. Bewley, G8HX, 116 Westfield Lane, Mansfield, Notts.
 MIDLAND: C. J. Haycock, G3JDJ, 29A, Wellington Road, Handsworth, Birmingham, 20.
 MID-SUSSEX: E. J. Letts, G3RXJ, 87 Meadow Lane, Burgess Hill, Sussex.
 MID-WARWICKSHIRE: J. F. Coggins, G3TFC, 59 Dawnford Close, Walsgrave, Coventry.
 NORFOLK: M. J. Cooke, 76 Falcon Road West, Sprowston, Norwich, NOR-73R.
 NORTHAMPTON (Social): B. Hayes, G3JBU, 51 Beverley Crescent, The Headlands, Northampton (33944).
 NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (44329).
 NORTH KENT: P. T. Baber, 64 Latham Road, Bexleyheath, Kent. (01-303-8655).
 PADDINGTON: M. A. Pawley, G8AWV, 52 Sumatra Road, West Hampstead, London, N.W.6.
 PEMBROKE: R. J. Wilcox, GW3TSH, Hazelhurst, 33 Treowen Road, Pembroke Dock, Pems.
 PETERBOROUGH: D. Byrne, G3KPO, Jersey House, Eye, Peterborough.
 PUDSEY: Secretary's Name and Address wanted.
 PURLEY: A. Frost, G3FTQ, 62 Gonville Road, Thornton Heath, Surrey. CR4-6DB.
 R.A.I.B.C.: Mrs. Frances Woolley, G3LWY, 331 Wigan Lane, Wigan, Lancs.
 READING: M. F. Taylor, G3LFM, 58 Nightingale Road, Woodley, Reading.
 REIGATE: D. Thom, G3NKS, 12 Willow Road, Redhill, Surrey. (Reigate 45033).
 RHONDDA: C. M. Parry, GW3PHH, 34 Ca'er-Gwerlas, Tonyrefail, Porth, Glam.
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 SALOP: W. Lindsay-Smith, G3WNI, 22 Kingswood Crescent, Conthorne, Shrewsbury.
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 SHEFFIELD: G. Watson, 25 Underwood Road, Woodseats, Sheffield, 58-8TG.
 SHEFFORD: M. B. Goodwin, G3WKR, 16 Roe Close, Stotfold, Hitchin, Herts.
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 SOUTHGATE: R. Wilkinson, G3TXA, 23 Ashridge Gardens, Palmers Green, London, N.23.
 SOUTH SHIELDS: D. Forster, G3KZZ, 41 Marlborough Street, South Shields.
 STEVENAGE: W. P. Sheppard, G3WMA, 83 Spring Road, Letchworth.
 SURREY: R. Morrison, G3KGA, 33 Sefton Road, Croydon, CRO-7HS, Surrey. (01-654-5982).
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 SWINDON: E. J. Andrews, G3JAP, 56 Windsor Road, Swindon (21402), Wilts.
 TORBAY: D. T. Hind, G3VNG, 46 Thurlow Road, Torquay, Devon.
 VERULAM: J. Thomas, G3RXA, 9 Highland Drive, Hemel Hempstead (55136), Herts.
 WELSH: S. W. Rees, 10 Tudor Crescent, Rogerstone, Nr. Newport, Mon., South Wales. NPI 9BS.
 WIMBLEDON: K. Alexander, 23 Pepys Road, West Wimbledon, London, S.W.20.

Eddystone Essay Competition

— The Winning Paper

SUBMITTED BY B. G. TAYLOR (GM3NZI)

GM3NZI chose as his Essay subject the theme "What major developments are needed in the design of Communication Receivers to cover the increasingly stringent requirements of international Amateur Radio?" In our January issue the result of the competition was announced and the presentation of the prize (an Eddystone EA-12) covered in a short, illustrated article. And if anyone, on reading this, thinks he could have done better within the limits of 1,500 words—well, he should have tried for that £185-receiver prize!—Editor.

ONE key requirement is paramount in the radio amateur's station receiver, whether his prime interest is in operating, equipment, construction or technical innovation. It is a major factor in his initial choice of instrument and the pleasure it gives him in use. It determines whether he identifies with the receiver as an extension of his own perceptive powers, or sees it as just one of several signal processing boxes in his station. In this time of ever faster change in a hobby built on technology, it makes an important investment one of enduring efficacy and value. This requirement is "versatility."

Even ten years after purchase, veteran AR88D's and 888's were serving their owners admirably because their designers had the engineering foresight to build into them the versatility that made them effective performers in a communications situation which could not have been envisaged. An Eddystone S.750—offered on the amateur market 20 years ago—has tunable BFO, independent RF, IF and AF gain controls and continuously variable selectivity. That is why, although conceived before the era of amateur narrow-shift RTTY, SSB and the *Oscar* translator satellites, it remains an acquisition of value today—twenty years after it left the drawing board. A versatile receiver has many controls and facilities, and it is intended for skilled users. If tomorrow's modulation systems, band conditions, operating practice, favoured transmission modes, aerial characteristics or technical standards are not today's—and progress is an ethos of Amateur Radio—it will take the innovations in its stride and in this way encourage their adoption.

Future Requirements

Fortunately, no special talent is required to foresee in outline the path of future Amateur Radio progress, and hence the major developments in communication receiver design which will be sought. In brief: To all

amateurs actively engaged in international communication on our HF bands, it is apparent that the primary cause of increasingly stringent station equipment requirement is the conflict between pressure for *effective* channel capacity in the face of the unrelenting increase in commercial, military and amateur activity and the desire felt by most mature amateurs that their technical and operating skills should make possible true communication with their fellows in other lands. Through more than fifty years of progress in Amateur Radio, creative men have found personal satisfaction in their hobby by meeting this challenge with ingenuity and skill. In spite of this, pressure for frequency space has resulted in the degeneration of the average QSO conducted on the HF bands to an exchange of such brevity and shallowness that it insults the dignity of the skilled participants.

The launching of the first synchronous-orbit broadband UHF amateur translator satellite will not just change our operating technique, station equipment requirements, and effective communication capability—it will alter profoundly our concept of what international Amateur Radio can mean, giving us the opportunity for communication with our colleagues at a level which allows mutual recognition as individuals with a common interest, rather than as "overgrown schoolboys" playing at being radio operators. As amateurs we have the frequency allocations, the technical expertise, facilities and enthusiasm for this development, and payload space is already offered on present-day launch



"... Don't really think home-built rigs can measure up to the commercial jobs..."

vehicles. For the few who provide and the many who exploit, the rewards clearly justify pursuit of the goal with the radio amateur's customary dedication and vigour.

Is there then any development in communications receiver design which can save an expensive Rx from premature obsolescence when with notice of only a year or so our primary communication band may become 23, 13 or 3 centimetres? When we may want an IF bandwidth of 1.5 mc, for an amateur magnetron, or 250 kc for an FM klystron, or 100 cycles for a PRK signal from a solid state source—and the corresponding envelope, discriminator or phase-locked demodulators? Can a manufacturer produce a receiver with this order of adaptability, which would cope uncompromisingly with such a range of unforeseeable future requirements, and still cost no more—and have no less outstanding a performance—than one designed solely for SSB on the HF bands today?

The Approach

Certainly he can—simply by adopting the plug-in concept which revolutionised our idea of test instrument versatility years ago. Then every amateur, with his highly individual preferences and interests, could purchase a receiver precisely tailored to his operating requirements, and will be encouraged to alter its structure at such times as these requirements change, with the least redundancy, inconvenience and expense.

For some, the plug-in concept revives memories of tarnishing HRO coilpack contacts, or the horrors of the early attempts at modular construction of the 1950's. Let any such doubter look closely at a modern digital computer rack, or watch how smoothly an oscilloscope or electronic counter is transformed into a dozen different instruments by its range of plug-ins. The technique is developed and tested, and it works superbly.

What should be the structure of an amateur communications receiver of modern design which combines this new concept in versatility with the best features established by experience, which offers first-rate performance in terms of today's requirements and device technology and which is inherently capable of meeting the demands of tomorrow?

Essentially, in a main frame engineered to a high standard of functional elegance in appearance and technical excellence in construction, it should incorporate a stabilised and protected low-voltage DC supply to power all stages, an audio and AGC section with the push-pull output transistors thermally coupled to the assembly (and diode shunted emitter resistors to ensure operating point stability over a wide temperature range, combined with enough negative feedback to remove the resultant non-linearity in transfer characteristic) and, as primary feature, a stable, well buffered, solid state VFO, tuning one 500 kc range only, and controlled by a precision high-inertia drive coupled to clear, open, accurately calibrated near-linear frequency scales. The four ranges covering 28-30 mc, also a first IF for VHF converters, should be calibrated in zig-zag manner to allow con-

tinuous tuning of this band, conversion oscillator crystals being chosen for alternate high or low side injection.

Of course, the main frame accepts the primary plug-ins; those with controls from the front, others (VHF converters) from the rear; but the modular concept can be advantageously exploited at a second level by providing special facilities on printed cards which are accepted by both the main frame and plug-ins. Cards for the main frame would, typically, include a crystal calibrator (50 kc markers throughout the tuning range), AF filters (50-cycle bandwidth at 800 cycles for CW, 1 kc BW at 2.55 kc for RTTY) and a sidetone oscillator keyed by the transmitter.

Some Typical Plug-Ins

Initial production plug-ins would include a standard 2.8 kc bandwidth integrated circuit IF amplifier/demodulator unit and an FET 5 + 4 range crystal controlled front end. The IC/IF unit would incorporate an HF crystal filter to attain a good shape factor and minimise the cross-modulation and spurious signal problems associated with multiple conversion prior to the selective stages, while card options would provide a tunable slot filter for heterodyne rejection, a narrow crystal filter for CW and an effective pre-detector noise limiter. A product detector would be standard, with envelope detector and FM discriminator as optional demodulator cards. The FET front-end would comprise a cascode RF amplifier, rendering neutralisation unnecessary, with good quality signal-frequency tuned circuits coupled to the source of the mixer, with gate injection from the crystal controlled first oscillator. Holding the overall gain of this unit as low as is consistent with a satisfactory noise factor, excellent cross-modulation performance would result owing to the absence of cubic non-linearities prior to the high selectivity stages of the receiver.

Today, communication receiver development could hardly be entering a more exciting phase. Because of particularly stringent performance requirements not easily met by bipolar devices, it is only now that the advantages of all-solid-state design can be applied unhesitatingly in this field. Combined with the arrival of the low cost linear integrated circuit, dramatic reductions in stage volume and power consumption are immediately possible, facilitating the realisation of the versatile construction form described.

There can be no doubt that a manufacturer taking these opportunities boldly is assured of a profitable return on his investment. Although Amateur Radio is a leisure interest, its devotees are technically informed people, aware of and contributing to the pace of progress in the art. We appreciate that the pace is an ever-quicken- ing one, and when making an important investment we realise that in our electronic hobby equipments depreciate faster by obsolescence than by use. With a station receiver developed in the form outlined, an amateur would be admirably equipped for international communication as at present practised, and confident also that he was prepared to participate in the new developments in Amateur Radio as they evolve.



THE OTHER MAN'S STATION

G3FTQ

THE photograph shows the station of Alan Frost, G3FTQ, now of 62 Gonville Road, Thornton Heath, Surrey. Interest in Amateur Radio started before Hitler's War, when medium and short wave DX broadcast and Amateur stations were hunted for on a domestic BC Rx. During the War, service in the Signals section of an Artillery Regiment kept interest alive and on return to civilian life in 1945, an Eddystone 504 was obtained and SWL activity began in earnest. Many SWL reports were sent to the old *Short Wave Listener* (then published monthly by SHORT WAVE MAGAZINE)—this was in the 1946-'53 period—and studies for the R.A.E. started in earnest.

A transmitting licence was obtained in September 1949 and within a few days a station was on the air using the 504 receiver and a home-built transmitter consisting of a tritet oscillator driving an 807 PA, running the maximum power allowed then (25 watts) and xtal controlled on 7014, 7028, 14028 and 14055 kc. The impression is that it was much easier to work DX then with that simple equipment than it is today with all the elaborate and much more expensive gear now available!

Activity nowadays is CW on all HF bands, SSB on 20 and 80 metres and AM on 4 metres. Equipment shown in the photograph is: Centre shelf, left to right: 4-metre BCC transceiver, the spare receiver an Eddystone 640, a Delta control unit and SWR meter, and, on the right, the Sphinx transmitter. On the table is the main receiver, an Eddystone 888A and on the right is the

Pyramid linear, which takes 4/6HF5 valves and runs the full 400 watts p.e.p. output. Just visible on the floor is a Panda PR-120 transmitter—which is such a big hefty item that that is the best place for it!

Space for aerials has always been a problem as the garden is only 50 feet long and 19 feet wide. Various short horizontals including half-5RV have been tried but the most satisfactory solution has been found to be a vertical. The aerial in use for the past five years or so has been a Hy-Gain 14AVS, which is a trap vertical 21 feet tall and with a loading coil for 80m. operates well on all bands 10 to 80 metres. It is grounded as there is insufficient room for radials. For Top Band a short end-fed wire produces a result and for 4 metres an indoor three element beam is available.

G3FTQ is a great believer in comfort and just visible on the left of the photograph is a night-storage heater which ensures the shack is always warm and dry.

As to other activities, Alan has been closely connected with Purley & District Radio Club since its inception over 18 years ago and is at present its hon. secretary, News-sheet compiler and net controller for their Club nets. He is also on the committee of the Southern Amateur Radio Association (S.A.R.A.), a member of the Addiscombe Radio Club, and the Civil Service Radio Society.

His working life has no connection whatever with radio—in fact, his job is at the Gas Council's London Research Station in Fulham. In other words, G3FTQ is genuinely an "amateur amateur," with radio as a hobby and a relaxation.

NEW QTH'S

This space is available for the publication of the addresses of all holders of new U.K. call signs, as issued, or changes of address of transmitters already licensed. All addresses published here are reprinted in the U.K. section of the "RADIO AMATEUR CALL BOOK" in preparation. QTH's are inserted as they are received, up to the limit of the space allowance each month. Please write clearly and address on a separate slip to QTH Section.

EI8BR, J. L. McHugh, 65 Hill Court Road, Glenageary, Co. Dublin. (Tel. Dublin 807848.)

G3VPM, J. Morris, 58 Church Brow, Bolton-le-Sands, Carnforth, Lancs.

G3WJJ, G. D. Finnemore, 37 Merley Ways, Wimborne, Dorset.

G3WKC, J. W. Birkbeck, 26 Eddy-stone Road, Slades, St. Austell, Cornwall.

G3WQR, E. B. Hughes, 146 Ulverley Green Road, Olton, Solihull, Warks.

G3WSF, A. R. Hey, 7 Marlborough Crescent, Bedford Park, London, W.4.

G3WUG, I. Elvins, 40 Willow Road, Bromsgrove, Worcs. (Tel. Bromsgrove 6149.)

G3WYU, G. R. Smith, 85 Helvellyn Avenue, Ramsgate, Kent.

G3XAT, P. A. Deslandes, 56 Christchurch Mount, Epsom, Surrey.

G3XAX, A. S. Paley, 16 Birkhead Street, Heckmondwike, Yorkshire.

G3XBX, D. W. Harris, 12 Park Road, Swanage, Dorset.

G3XCI, H. T. Ellis, Hough Fold, Hough Fold Way, Harwood, Bolton, Lancs.

G3XCX, S. W. Clethro, 63 Dykes Hall Road, Hillsborough, Sheffield. S6 4GP.

G3XCX/A, S. W. Clethro, Revis Barber Hall, University of Bradford, Laisteridge Lane, Bradford, 5.

G3XCY, K. Bristow, 33 Woodland Avenue, Goole, Yorkshire.

G3XDO, D. Stevens, 44 Westbourne Road, Denton, Lancs.

G3XDQ, Mrs. C. M. Abbott, Stable Cottage, Teeton Road, Guilsborough, Northants.

G3XDS, P. J. Wilde, 7 Braddan Avenue, Brooklands, Sale, Cheshire.

GI3DXD, G. G. McDowell, Kilreed, Old Orange Avenue, Ballymena, Co. Antrim.

G3XDY, J. H. Quarmby, 10 Weekes Road, Cleethorpes, Lincs.

G3XDZ, Z. P. Skrobanski, 32 Buxton Drive, New Malden, Surrey.

G3XEB, T. R. Baker (ex-G8ANS), 12 Westland Drive, Brookmans Park, Hatfield, Herts.

G3XEL, Amateur Radio Club, North Lindsey Technical College, Kingsway, Scunthorpe, Lincs.

G3XEP, Pudsey & District Radio Club, Gamecock Hotel, Pudsey Road, Leeds 13, Yorkshire.

G8ASX, A. Hoggan, 56 Endfield Road, Christchurch, Bournemouth, Hants.

G8AVE, A. G. Emery, 7 Brunel Drive, Preston, Weymouth, Dorset. (Tel. Preston (Dorset) 3177.)

G8BBN, G. Moore, 15 Stanfield Road, Bournemouth, Hants. (Tel. Bournemouth 57092.)

G8BEU, D. Hobson, 9 Mattered Terrace, Stalybridge, Cheshire.

G8BFM, A. J. Whittaker, 18 Loughton Crescent, Hucknall, Nottingham.

G8BGG, H. G. Cane, Jubilee Terrace, Timberscombe, Minehead, Somerset.

G8BGI, B. W. Evans, 147 Malcolm Road, Tangmere, Chichester, Sussex.

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G3FMU, D. McDiarmid, The Woodside, Ashgate Road, Chesterfield, Derbyshire. (Tel. Chesterfield 4014.)

GM3IBU, A. W. Wright, Crosslea, Perth Road, Crieff, Perthshire.

G3ICH, P. N. Pitt (ex-VS6FO), 12 Summerlands Road, Fair Oak, Southampton, Hants.

G3IFB, F. H. Bliss, Coppalex, North Road, The Reddings, Cheltenham, Glos. (Tel. Churchdown 3792.)

G3JGJ, J. R. Wordsworth, Rose Cottage, Pepperdon, Moretonhampstead, Newton Abbot, Devon.

G3KFW, G. F. Ripley, 16 Curtis Road, Hornchurch, Essex.

G3LCV, N. J. Gregory, 21 Back Lane, Chellaston, Derby. DE7 1TN. (Tel. Chellaston 3516.)

G3LDJ, K. Day, 75 Crosland Hill Road, Crosland Hill, Huddersfield, Yorkshire.

G3NEE, R. J. R. Pedder, 7 Hadleigh Road, Holton St. Mary, Colchester, Essex. (Tel. Great Wenham 588.)

G3NMM, G. A. Cuppleditch (ex-VS6DS), 7 Horncastle Road, Louth, Lincs.

G3OKM, J. Mitchell, 12 Arcadia, Ouston, Chester-le-Street, Co. Durham.

G3PMR, A. H. Jubb (ex-GW3PMR), Bodfari, Ledbury Road, Tirley, Glos.

G3PQL, L. M. Holyhead, 107 Eastend Road, East Finchley, London, N.2.

G3SLP, L. Peace, Cragg House, Cragg Hill, Horsforth, Leeds, Yorkshire. (Tel. Horsforth 2888.)

G3TLB, K. R. Smith, Sheerland, Blackness Road, Crowborough, Sussex.

G3TVU, I. D. Brown, 47 Peak View Drive, Ashbourne, Derbyshire. DE6 1BR.

GW3UHE, J. R. Bolton (ex-G3UHE), 67 Ridgeway, Graig-Y-Rhacca, Machen, Mon. NP1 8RD. (Tel. Bedwas 360.)

G3VBW, E. G. Thomas, 4 Hemdean Gardens, West End, Southampton. SO3 3BB.

G3VFB, A. R. Matthews, 53 Victoria Road, Deal, Kent.

G3VHL, H. Buttress, 130 Elan Avenue, Burlish Park, Stourport-on-Severn, Worcs.

G3VKX, S. F. Cummins, 5 Clifton Road, Harlescott Grange, Shrewsbury, Shropshire.

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G3VYV, D. A. Duff, 22 Stanger Street, Keswick, Cumberland. (Tel. Keswick 670.)

G6TEB/T, G. R. J. Addis, 44 Knowle Road, Woodley, Reading, Berks.

G8ABU, M. Davidson, 1 Gilfrid Close, Hillingdon, Middlesex. (Tel. West Drayton 3275.)

G8AEL, D. W. T. Button, Police House, Podington, Wellingborough, Northants. (Tel. Rushden 3125.)

NEW JOB FOR STUART MEYER, W2GHK

Well-known in this country by reason of his connection with the Hammarlund Manufacturing Company—associated with the design and production of amateur-band equipment since the early 1930's—and also as the inspiration of the "DX-pedition of the Month" ploy, W2GHK has recently been appointed a director of Aerotron, Inc., of Raleigh, North Carolina, U.S.A. This is a large concern specialising in VHF-FM two-way radio, commercial HF/SSB equipment and the Ameco line of amateur-band apparatus and accessories. Stuart Meyer, W2GHK, was licensed in 1933, and is regularly on the air from Raleigh, N.C.

WORLD MARINE RADIO CONFERENCE DECISIONS

The recent Marine Radio Conference at Geneva came to some significant decisions affecting marine radio communication over the next few years. There is to be the gradual introduction of SSB telephony on all ships and at Coast stations over the range 1605-4000 kc—known for marine purposes as the "medium frequency band"—and later in the marine bands in the 4.0 mc to 23.0 mc frequency area. There is to be a conference in 1973 to settle a new frequency plan for ships and coast stations—it being envisaged that the universal acceptance of SSB will just about double the available channels. The long-distance ship and coast station HF/CW services in the 4.0-27.5 mc bands will also come in for

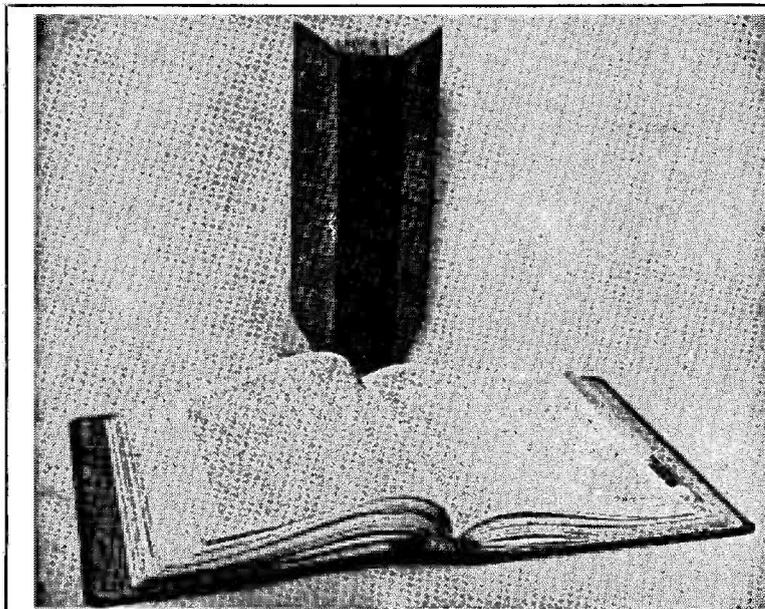
reorganisation, in the light of better equipment making reduced channel-spacing possible, so releasing frequency-areas to be reserved for teleprinter working and data-transmission to ships(!). There are also proposals covering tighter VHF channel allocation; the introduction of an automatic selective calling system, by which each ship will have its own signal code, like a telephone number, with an automatic receiver to respond only to that code when called by a coast station; a new standard of marine radio officer licensing, to cover these advances and new techniques; and various decisions affecting ships and aircraft in distress at sea.

It will be a matter of years before all these decisions come to fruition. However, the several British firms specialising in marine radio communication and radar navigation will even now be planning, designing and developing for what should be a very interesting and profitable market.

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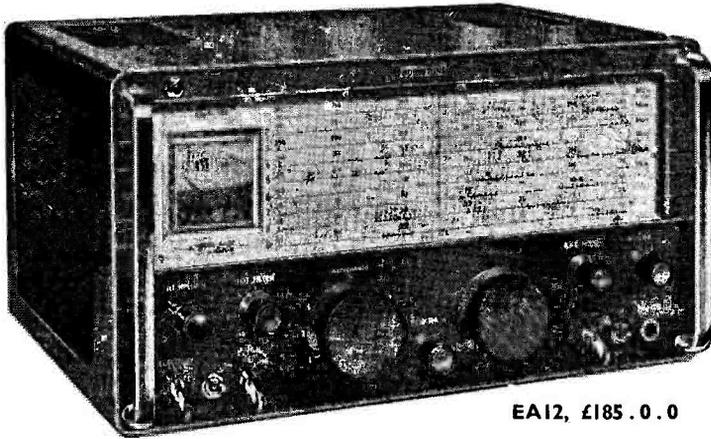
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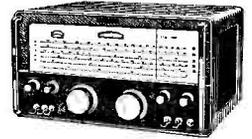


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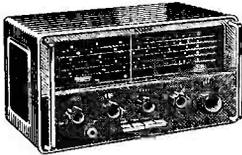
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WANTED: Heathkit HD-10 Keyer, good Gazetteer and recent copies of "Call Book", both DX and U.S. Listings. **BARGAIN Sale:** Heathkit DX-100U transmitter, in perfect condition and always getting good reports, £45. R.206 Receiver, coverage 550 kc to 30 mc, in good condition and with PSU, cheap at £14, or near offer. Prefer buyers collect or pay carriage, own risk. Also a K.W. E-Z Match, few hours' use only, £8. — Latimer, 36 Rife Street, Barrow-in-Furness, Lancs.

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54ch harmonic type channels 11, 12, 14, 15, 16, 17, 18, 19, 2/3 each.

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Single tuned transistor I.F. transformers OK for BFOs., etc., 2/-.

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EXCHANGE or Sell: HRO-ST with PSU (rough), three GC coil-packs plus four bandspread for 15-20-40-80m., circuit and data, price £18 or Exchange for working two-metre mobile rig. Cash adjustment as necessary.—McGuire, G3LNW, QTHR.

WANTED: Circuit diagram for Green TMR-5 receiver with modified front end.—Linney, G3UDA, QTHR. (Tel. Shrewsbury 51733).

QRT Sale: Heathkit DX-100U Tx, £45, also RA-1 receiver at £20. Class-D Wavemeter, 400-cycle modulation and AC working, £5. Would consider Part-Exchange these items for good frame tent or Barr & Stroud 12 x 5 Binoculars. Delivery up to 100 miles.—Barnard, G3ARK, 33 Carmarthen Street, Gloucester.

WANTED: FT-243 or similar spaced crystals for CW part of HF bands. Details, please.—Box No. 4599, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: K.W. Geloso Converter, as new, with internal one-megacycle xtal calibrator, £12 or near offer. Also as-new BC-453B as Q'Fiver, neatly modified for 12v. heaters, with RF gain control, BFO switch, slow-motion tuning and phone jack, at £5. **WANTED:** Transformer 900-0-900v. at 250 mA. Details and price.—Jones, 14 Shakespeare Drive, Caldicot, Newport, Mon., South Wales.

WANTED: Ex-German military receivers, preferably not working, but must be complete. State price and details. (Scotland).—Box No. 4600, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: American high-quality F/S Meter, 100 to 160 mc, price £7. Pye Ranger, 150 mc model, unmodified, very good condition, £9, carriage extra. **WANTED:** Command Rx, 3-0-6-0 mc coverage, also Naval B40 receiver, Model C or D. (Lancs. area).—Box No. 4601, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

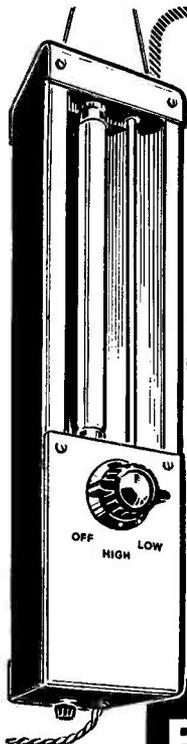
OFFERING: Eddystone 770R Mk. II receiver, coverage 19-165 mc. Hammarlund SP-600JX6, 540 kc to 54 mc. Hallicrafters SX-62, 500 kc to 109 mc. R.54/APR4. 38 to 1000 mc. Digital Frequency Meter Type U.S.M.26A. R.308 front-end, 19 to 165 mc. IF 8-5 mc. New spares for: AR88, BC-221 or HRO, gearbox, trimming tools, manuals, dials, sets of valves, crystals 455 kc, 735 kc and 1 mc, etc.—Wright, 249 Sandy Lane, Hindley, Wigan (55948), Lancs.

SELLING: Receivers, R.1147 tuning 180 to 220 mc, with manual, new, 30s.; ARC/R.28, 130-150 mc in spot frequencies, with all valves but less crystals, 30s. Meters: Thermo-couple type, 0-4 amp., 0-1 amp., 0-500 mA, 12s. 6d. each; DC, 0-100 microamp., 25s. Type BM-3 microphone, 25s. Field telephones Type F Mk I/1, 60s. pair. Dummy loads, 80-ohm 100w., 12s. 6d.; 200-ohm, 7s. 6d. American aerial relays, DPCO, 12v. DC actuation, 15s. Taylor valve tester Type 45A, 40s. or near offer. Motor generator, 12-volt DC input, output 300v. 300 mA, regulated and RF filtered, 30s., or offer. Masteradio 6-volt Vibrator Pack, 300v. 100 mA output, 30s. Mod. transformer, p/p-807's into 4K-5K. Ferranti made, 30s. Parmeko scope transformer, 750v. 1 mA, 2/4v. 1½ amp, 15s. Post and packing extra. —Cook, Little Orchard, Galwos Tree Common, Reading, Berks. (Tel. Kidmore End 2195).

WANTED: K.W. Vespa Mk.II., with AC/PSU. Full details, please.—Box No. 4605, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: Heathkit RG-1 receiver, with matched speaker, assembled by factory and in perfect condition. Price £30, buyer collects. (Middlesex).—Box No. 4603, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: Receivers BC-348, £14; R.107/1, new, £13. **WANTED:** Hallicrafters S.36, S.27 or similar Rx. —Bloom, 4 Langsett Avenue, Sheffield, Yorkshire.



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EXCHANGE or Sell: Trio 9R-59 general coverage Rx, with linear L.45A amplifier, hardly used and in FB condition, best offer, or Exchange for R.C.A. AR88D (LF), or W.H.Y.? — Seabrook, 3 Highfield Road, Rushden, Northants.

SALE: Heathkit RG-1 receiver, with Heathkit Q-multiplier, spare valves, handbooks, and Mosley trap aerial—price £31 the lot, incl. shipping by parcel post.—Corrall, 121 West Clyde Street, Helensburgh (3117), Dunbartonshire, Scotland.

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GENUINE Bargains! K.W. Vanguard Tx, 10 to 80 metres, in excellent condition and ideal for newly-licensed amateur, £20. AVO Model 7 test meter, £7. Cossor 701K VHF/FM receiver kit, printed circuitry, listed at 15 gns., accept £4. Cossor 3-watt audio amplifier printed circuit kit, list £9 15s., accept £3. (Both Cossor items new and boxed, complete with all valves and two speakers each). Solatron scope Type CD 513/2, mint condition, £18. All items guaranteed, no offers, prefer buyers collect Croydon, Surrey.—Box No. 4604, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: Marconi B.29 receiver, coverage 15 kc to 560 kc, price £5. Buyer collects or pays £1 carriage.—Hattersley, Hill Top, Gallery Lane, Holyooside, Chesterfield, Derbyshire. (Tel: Chesterfield 6040 after 7 p.m.).

RTTY: Page-type Teleprinter wanted, such as Creed 7B, etc. Details and price.—Barrow, 47 Cannon Lane, Stopsley, Luton (25595), Beds.

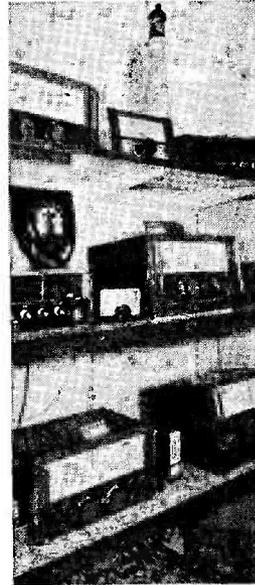
SALE: Eddystone 940 receiver with plinth speaker, in perfect condition, price £85.—Mitchell, 10 Edinburgh Road, Walsall, Staffs.

SOUTH Coast QTH for Sale: Detached house, built 1953, three bedrooms, large kitchen, garden 175 ft. long, price £5,000.—Dutfield, G3OBD, 20 Stokes Avenue, Poole, Dorset.

OFFERING: Hallicrafters SX-110, general coverage, amateur B/S, perfect, £50. Wanted: R.216, PSU not essential.—Garth, Stagbury Avenue, Coulsdon. (Tel: Downland 54130).

SALE: New Collins (U.S.A.) mechanical filter Type F455-FB21, unused, £14.—Doyle, 4 Wrinklemarsh Road, London, S.E.3. (Tel. GREENwich 7478).

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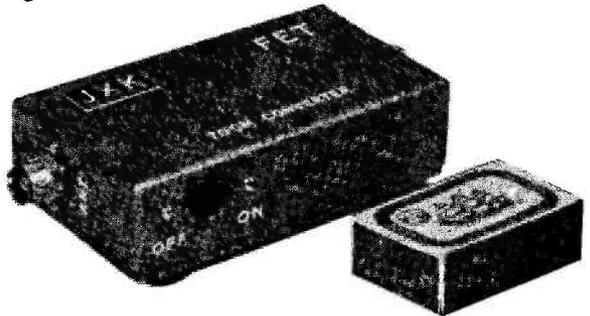
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DISPOSAL: CODAR A.T.5, with mains and 12-volt PSU's, and control unit, £24. K.W. Vanguard Tx, 10 to 80m., £30. T.W. Topmobile Rx, £15. G.E.C. BRT-400 receiver, £45. AVO Model 7 test meter, £10. BC-221 frequency meter, with charts and PSU, £18. Windsor Valve Tester, Model 45B, £5. Maxi-Q GDO, less coils, £5. K.W. low-pass filter, £2. SWR indicator SWB.1, £4. **Proceeds of sale to widow of late G2BOJ**. Buyers collect.—Waterhouse, G2CRG, QTHR. (Or ring Doncaster 65094, after 7.0 p.m.).

WANTED: Type R.208 receiver, must be in good working order, also a Joystick and Type 3A tuner.—Stanyard, 20 Cliffe Crescent, Loftus, Saltburn, Yorkshire.

SELLING: KW-2000 with AC/PSU, spare valves for Rx section, 2/6146, with Shure Type 201 microphone, £135. Four-metre Tx, 6 watts input, AM, £4. A.T.5 PSU home-built, with built-in aerial c/o, etc., nice job, suitable PSU for the 4-metre rig, £4. PSU 300.0-300v., 150v. stabilised, and 6.3v. LT's, 40s. Valves for HRO: 2/6D6, 1/6C6, 1/42, 1/6B7, 10s., 1/6BR7, 5s., 5U4G, 5s., all new. Paterson 35 Model II developing tank, 10s. Three vols. "Electrical & Engineering Theory and Practice" (by Philip Kemp, M.Sc., M.I.E.E.) price £4.—Jones, GW3TMP, 3 Bryn Clyd, Leeswood, Mold, Flintshire.

FOR SALE: Eddystone EC-10 receiver, in mint condition, with AC/PSU, £42 10s. Also R.A.E. Correspondence Course, £6 10s. Carriage extra, s.a.e. enquiries. (Cornwall).—Box No. 4606, Short Wave Magazine Ltd., 55 Victoria Street, London, S.W.1.

WANTED: A Heathkit mains power unit Type HP-23E, with or without covers, but must have instruction manual. What offers, please?—Green, G3UZF, 178 Long Chaulden, Hemel Hempstead, Herts.

SALE: Dow-Key coaxial relays, new and boxed, 52-ohm, 220v. AC activation, hand'e 1 kW RF, at reduced prices, s.a.e. for list.—Box No. 4608, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: Minimitter Mercury Tx, AM/CW/FM, 150 watts, 10 to 80 metres, with manual, £38. National HRO-MX, with PSU, two bandspread and four GC coils, and manual, £20. T.W. Topmobile Tx/Rx, £15. Mosley VTD-3JR, vertical for 10-15-20m., with 10 yds. 52-ohm coax, £5. Class-D Wavemeter, 240v. AC, £4. Modulation meter, 50s. All in perfect condition.—Wheeler, G3RTW, 22 Brickhouse Lane, Stoke Prior, Bromsgrove (3313), Worcs.

FOR SALE: KW-2000 with AC/PSU, in perfect electrical and mechanical condition, appearance as brand new, price £140. (Scotland).—Box No. 4607, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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FOR SALE: Thordarson multi-match modulation xformer, Type 8470, 25s. R.C.A. speech amp. output xformer Type 901041, 17s. 6d. New valves: 2/4D32, 60s. each; 4D22, 60s.; 4/866A, 10s. each; 2/805, 15s. each; 801A, 7s. 6d.; 4/811, 20s. each; 2/836, 10s.; 705A, 10s.; LSD3, 10s. Instruction books for SX-28A and AR88D, 15s. each. Postages extra. (Scotland).—Box No. 4609, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: Lafayette HE-30, 550 kc to 30 mc, bandspread for 10-15-20-40-80m., with speaker, headphones, handbook and all in mint condition, price £25. Also ultra-modern desk and chair, £10. (West Country).—Box No. 4611, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SMALL ADVERTISEMENTS, READERS—continued

FOR SALE: Eddystone EC-10 receiver, with mains PSU, in excellent condition and with original packing. One year old. Must go due to emigration. Price £40.—Farnell, 23 Ferndale, Waterlooville, Nr. Portsmouth, Hants.

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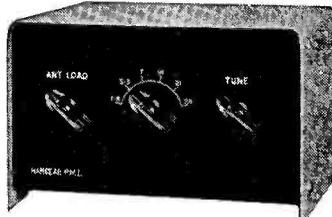
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