

The SHORT WAVE Magazine

VOL. XXVI

APRIL, 1968

NUMBER 2

KW 2000A

Deliveries from stock.

SSB TRANSCEIVER

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 transinit. Special attention to TVI proofing.



KW VESPA Mark II

BACK BRITAIN BUY KW EQUIPMENT

KW VESPA Mark II TRANSMITTER

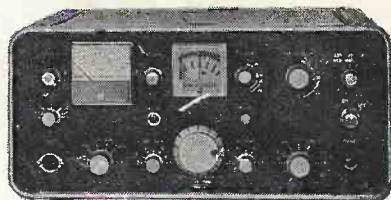
Transmitter for all H.F. Bands. 220 watts PEP SSB, AM, CW. Now in full production, complete with psu.

KW 1000 LINEAR AMPLIFIER

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

KW 201 Amateur Bands Communications Receiver

The KW 201 is now being manufactured with 2 detectors (i) product detector for SSB and CW, (ii) diode detector for AM. The KW 201 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 mc/s. to 200 cycles selectivity.



KW 1000



KW 201



There are alternative crystals available for full coverage of the 10 and 15 metre bands.

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

K. W. ELECTRONICS LTD.

1 HEATH STREET, DARTFORD, KENT

TELEPHONE : DARTFORD 35575 CABLES : KAYDUBLEW DARTFORD

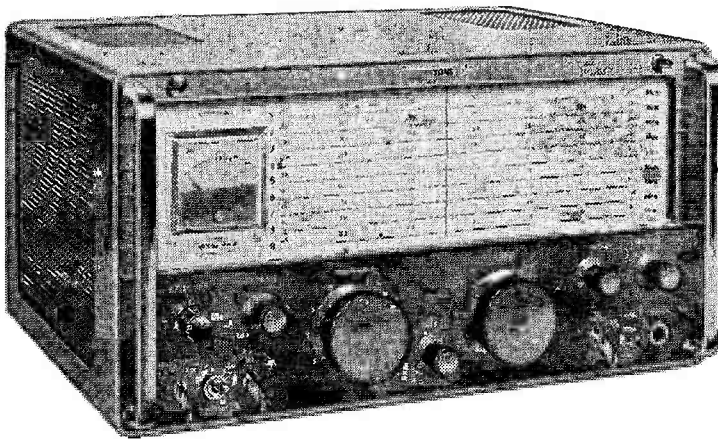
KW

ELECTRONICS
LIMITED

Eddystone



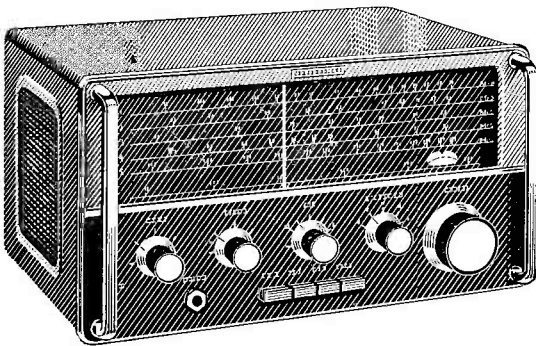
Amateur communications receivers



EA12

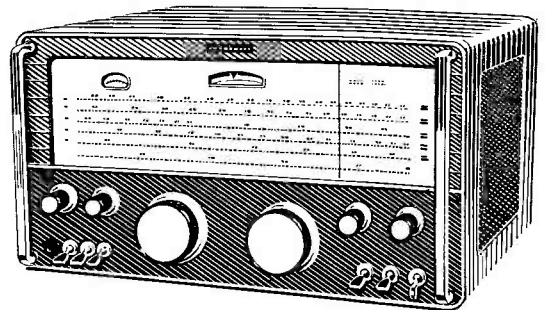
An amateur bands double-conversion superheterodyne receiver, for a.m., c.w., and s.s.b reception. For all amateur channels between 1.8 MHz and 30 MHz in nine 600 kHz bands with 28 MHz to 30 MHz in four bands.

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. **£193.**



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.**



940 H.F communications receiver

An outstanding 13-valve receiver with two r.f and two i.f stages, silicon diode noise limiter circuit and high quality push-pull output. Built to a professional specification, facilities include provision for c.w, a.m, and s.s.b reception over the range of 480 kHz to 30 MHz in five bands. Suitable for 110/125 V and 200/250 V. 40-60 Hz a.c mains. **£143.**

Comprehensive information from your Eddystone distributor or: Eddystone Radio Limited, Eddystone Works, Alvechurch Road, Birmingham 31. Telephone: 021-475 2231. Telex: 33708

N. W. ELECTRICS

52 GT. ANCOATS STREET
MANCHESTER 4

CEN 6276

G3MAX

Business hours : 9 a.m.-6 p.m. Tuesday-Saturday
CLOSED ALL DAY MONDAY

THE NORTH'S
LEADING STOCKISTS

OF

EDDYSTONE RECEIVERS &
COMPONENTS

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.

Transistor Boards. 2, 3 and 4 transistors plus components. Diodes, etc. Mixed boards with at least 20 transistors, £1 lot, plus 2/6 post.

'S' Meter. 200 u.A. Scaled 0-200 marked in 'S' points +20+60 DB's. 2 3/8" dia. 2 3/32" mounting hole, 30/- plus 1/6 postage.

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.

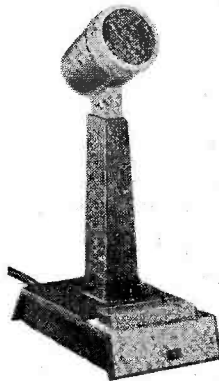
We still have some items from previous adverts.

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

SHURE ELECTRONICS LTD.

84 Blackfriars Road, London, S.E.1. Tel.: 01-928 6361

J. B. LOWE

50-52 Wellington Street, Matlock, Derbyshire

Tel.: Matlock 2817 (2430 after 6 p.m.)

It's a bit early to announce the winner of my Classical Quote competition as this is being written whilst we are still in February. However, I've had one or two real beauties and I'll publish the best of 'em in next month's blab. Incidentally, dig the crazy address, man. Like a malignant growth we are expanding—our tentacles reach out and engulf adjacent property. We can now display even more lovely stuff, make lots more money and get even fatter. Our new shop is loaded with Rx's, Tx's, test gear, etc., we have a spacious basement for components, surplus goodies and nameless horrors and best of all, we have a very nice showroom for the shiny new exotic stuff—fully fitted carpet no less. You really must pay us a visit, even if it is just to wipe your feet on our new carpets. Here you can try out stuff on the air and compare performance. We're only 20 minutes from the M1, so drop in and take a perfunctory butchers hook. I suppose I should add that you will not be subjected to high pressure salesmanship—but this would be telling a fib—I'll do everything I can to get you to empty your wallet. You should see me go into my act—real tears stream down my face as I brokenly moan about devaluation and unfair competition from British Industry—I hungrily gnaw on a piece of dried bread as I tell you that times are hard. I have hired a bunch of local waifs who continually grizzle "Daddy, I'm hungry." Man, I tell you it'll melt the hardest heart, so when you come along to see the latest gear for goodness sake leave your money behind, or you'll get it taken from you!!

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.—80-10. 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. 500W. 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 A.V.C. 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.—120W. 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 pre-mixed linear VFO transceiver 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, the water's fine.

STAR LINE :

Come along and play with the new Star equipment. By importing direct I have got the prices down to rock bottom.

SR700A Rx.—80-10 : Triple conversion, tunable I.F. 5 extra band positions for any additional 5 600 kc/s. segments between 4 and 30 mc/s. Notch filter, xtal calibrator. A very sensitive, selective Rx designed to operate either separately or transceive with the companion ST700 Tx. The VFO is really tops with direct readout to 1 kc/s. Price : £115.

ST700—SSB/CW/AM. 200W. p.e.p. Selectable sidebands, VOX, MOX PTT, a beautiful rig. Price : £135.

These two represent to my mind an extremely good buy. It is rather interesting to note that in Japan (and they should know!) the SR700A is more expensive than the FR500 and the ST700 is the same price as the FL500. In the States the SR700 is £165 and ST700 £220—this must surely be the only time when an imported piece of gear is cheaper in Great Britain than the States! Anyway, it helps bear out what I say and that is that the Star line is excellent value for money. If you don't believe me, what about this then :—

Star SR200—160 to 10m. (all of ten) plus 10 mc/s. WWV. Single conversion, 1650 kc/s. single xtal filter, product detector, noise limiter, xtal calibrator, amplified a.g.c. An excellent Amateur Band Rx at the very reasonable price of £40.

Special :—Two National 200's left in stock at the pre-devaluation price of £185 complete with P.S.U. kit.

Other new stuff :

DAI electronic keys, £16 ; Bug keys, £4 10s.; VT300 valve voltmeter, £15 5s.; TE65 valve voltmeter, £16 ; 100 kc/s. xtals—new, not surplus, to Mil. Spec. HC13/U, £2 ; 28.5 mc/s. walkie talkies, £12 10s. a pair (amateurs only). The Tavasu mobile whip in stock—£12 10s. complete with all loading coils ; Sommerkamp linears, £100. 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. Boom mike/headsets, excellent, £3.

SECOND-HAND :

Usual lot of old dihedrals including HRO's, £25 ; NC190, £55 ; SB300 with all filters, £130 ; 75A4 with all filters, £250 ; HR22, £80 ; Collins 75A1, £80 ; LG300 r.f. deck, £20 ; Hammarlund HX50, £120 ; Collins 32V2, £40 ; Geloso Miniphase, £45. Note that all these have been checked, serviced and re-aligned.

SUNDRIES :

'Scopes : CR52 brand new, £22 10s.; Laboratory audio oscillator, a thing of beauty, £25 ; Marconi TF1100 VTVM, £25 ; Marconi TF390G, 16-150 mc/s., £20 ; 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/- a 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 spanning 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. Capacitors from 2pF to 150mF from 2d. each. Mica trimmers 1000pF, 1/- ; 2800 pF 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.

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

Postage : Except where items are marked " carriage paid " postage 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.

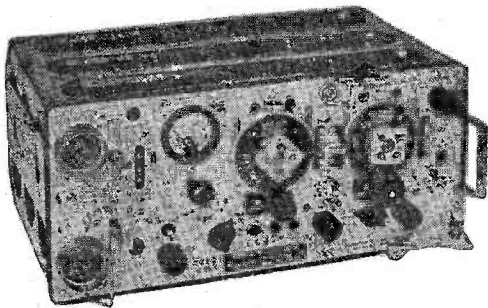
A s.a.e. will get you my latest blurb.

H.P.—Certainly (PROVIDED THE BUDGET HASN'T KILLED IT!).

73,

Bandit Bill,

VE8DP/G3UBO.



FAMOUS ARMY SHORT-WAVE TRANSRECEIVER MK.III

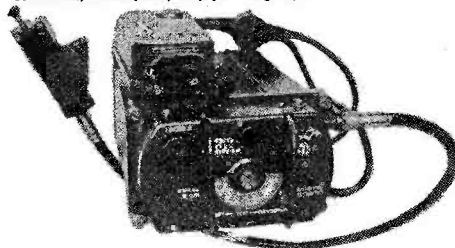
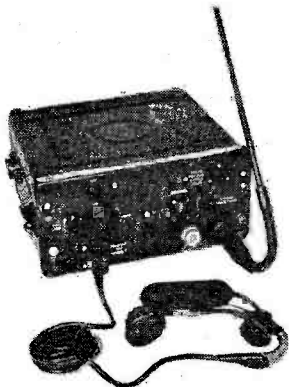
This set is made up of three separate units (1) a two valve amplifier using a 6V6 output valve (2) (some only, not built in the very latest models) a V.H.F. transceiver covering 229-241 Mc/s. using 4 valves; (3) the main shortwave transmitter/receiver covering in two switched bands, just below 2 Mc/s.-4 Mc/s. and 4 Mc/s.-8 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.W. 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. 17 1/2 x 7 1/2 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

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. 4 1/2 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.

**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 7-9 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.



JOHN'S RADIO

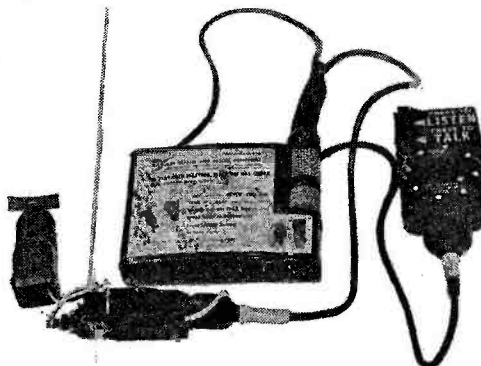
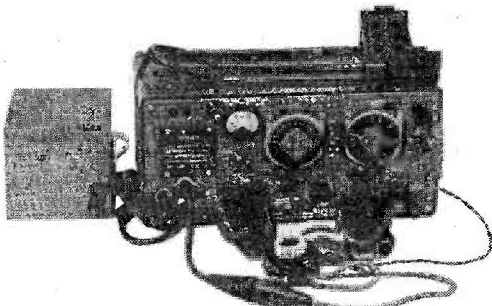
(Dept. F)

OLD CO-OP, WHITEHALL ROAD,
DRIGHLINGTON, BRADFORD

Telephone: DRIGHLINGTON 732

TRANS/RECEIVER TWO TWO

This is one of the latest releases by the govt. of an extremely recent R/T set covering 2-8 Mc/s. in two switched bands, containing 13 valves (3 EL32s in Tx output) which can be used for Morse, CW or R/T. Also has netting trimmer, BFO, RF and AF controls, switched meter for checking all parts of set, size 17" x 8" x 12". Power required LT 12 volts D.C., HT 325 volts D.C. Supplied Brand New and boxed with Headphones and Mike also Two Spare Valves and circuit of set. Few Only at £5/10/-, carr. 30/-, New plug-in power supply made by us for either 12 volts D.C. input, £3/10/- or 200/250 volts A.C., £3/17/6.



LARGE QUANTITY OF SARAH V.H.F. TRANS/RECEIVERS

AVAILABLE FOR IMMEDIATE EXPORT

General Information. This set is normally carried in the life jacket of Airmen, it is a complete miniature lightweight radio Trans/Receiver, which is used to give a Beacon plus two-way speech communication in the event of finding themselves in the sea. It comprises a Transmitter-Receiver, a speech unit, a coding unit and a power supply either Battery or Transistor. These three items are permanently interconnected and all units are completely sealed and water tight using a combined speaker/mike, press to talk or listen buttons, fold-up aerial, a total of three valves is used, power required 6.3 volts LT 90 volts and 435 volts D.C. HT. Frequency 243 Mc/s. Transmitter output pulse power—Beacon 15 watts, Talk 3 watts. Supplied in maker's boxes in Grade 1 condition, singly at 45/-, post 5/- with circuit. New batteries if available, 7/6 each.

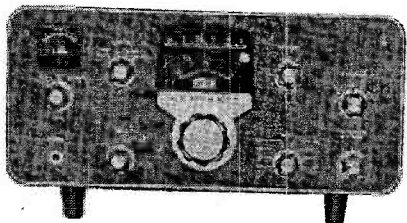
JOHN'S RADIO

OLD CO-OP, WHITEHALL ROAD,
DRIGHLINGTON, BRADFORD

Telephone: DRIGHLINGTON 732

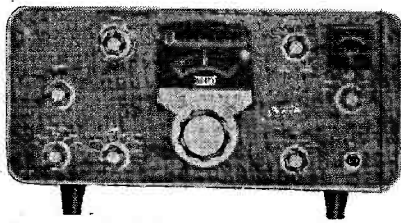
HEATHKIT Amateur Radio Equipment

THE ULTIMATE IN VALUE AND PERFORMANCE



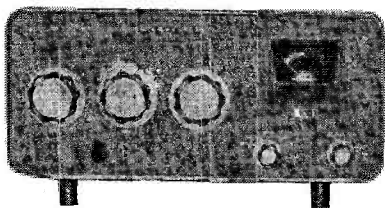
SB-301E Amateur Band Receiver . . . SSB, AM, CW and RTTY reception on 80 through 10 metres + MHz WWV reception. Tunes 2 metres with SBA-300-4 plug-in converter.

Kit SB-301E, 23 lbs., (less speaker) £140. 12. 0
Ready-to-use £170. 12. 0



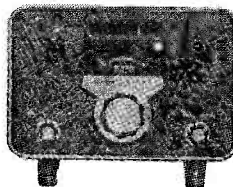
SB-401E Amateur Band SSB Transmitter . . . 180 watts PEP SSB, 170 watts CW on 80 through 10 metres. Operates "Transceive" with SB-301—requires SBA-401-I crystal pack for independent operation.

Kit SB-401E, 34 lbs., £157. 10. 0 Ready-to-use £192. 10. 0
SBA-401-I crystal pack, 1 lb., £17. 3. 0



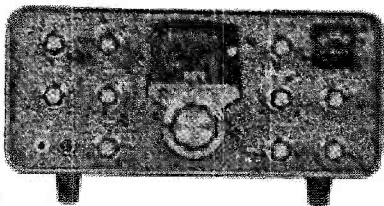
SB-200 KW SSB Linear Amplifier . . . 1200 watts PEP input SSB, 1000 watts CW on 80 through 10 metres. Built-in antenna relay, SWR meter, and power supply. Can be driven by most popular SSB transmitters (100 watts nominal output).

Kit SB-200, 41 lbs., £120. 18. 0 Ready-to-use £145. 18. 0



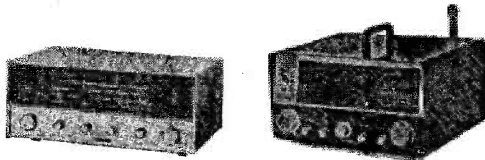
SB-640 External LMO for SB-101 . . . Provides Linear Master Oscillator frequency control or either of two crystal controlled frequencies for a total of five frequency control options. Power supplied from SB-101 Trans.

Kit SB-640, 9 lbs., £51. 6. 0 Ready-to-use £56. 6. 0



SB-101 80 Through 10 Metre SSB Transceiver . . . 180 watts PEP SSB, 170 watts CW (the practical power level for fixed/mobile operation). Features USB/LSB on all bands, PTT & VOX. CW sidetone, and more. Unmatched engineering and design.

Kit SB-101, 23 lbs., £185. 12. 0 Ready-to-use £225. 12. 0



GR-64 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

GC-1U "Mohican" General Coverage Receiver . . . 10 transistors, 5 diode circuit. Tunes 580-1550 Kc/s. and 1-69-30 Mc/s. in 5 bands. 6" x 4" speaker.

Kit GC-1U £37. 17. 6 Ready-to-use £45. 17. 6

HEATHKIT

Please address all mail order enquiries to—
DAYSTROM LTD., Dept., SW4, GLOUCESTER

Enclosed is £.....post paid U.K.

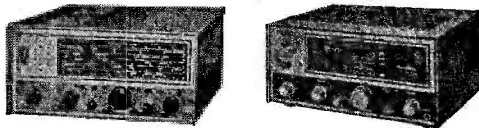
Please send model(s)

Please send FREE Heathkit Catalogue.

NAME

ADDRESS

Prices and specifications subject to changes without notice.



RG-1 High Sensitivity General Coverage Receiver . . . High performance at lowest cost. Covers 600 Kc/s. to 1.5 Mc/s., 1-7 Mc/s. to 32 Mc/s. Full specifications available.

Kit RG-1, 18 lbs., £39. 16. 0 Ready-to-use £53. 0. 0

RA-1 Amateur Bands Receiver . . . Covers 10-160m. Half-lattice crystal filter at 1.6 Mc/s. Switched USB and LBS for SSB. Provision for fixed, portable or mobile uses.

Kit RA-1 £39. 6. 6 Ready-to-use £52. 10. 0

£125 KIT

EXTENDED PAYMENT PLAN

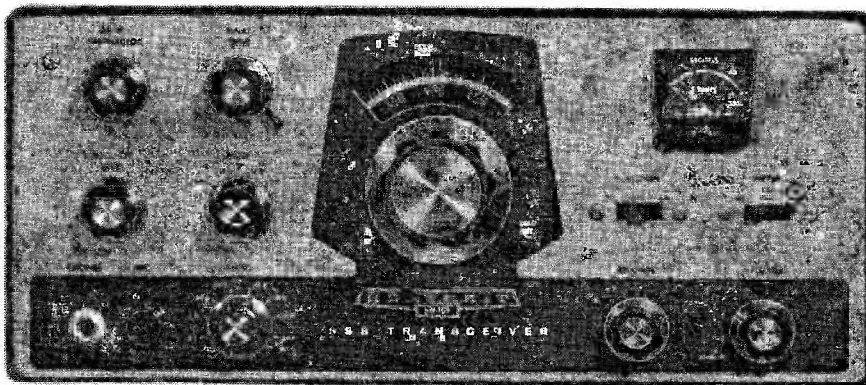
Deposit £31.16 0

19 monthly payments £5 9 0

Total Credit

Price:

£135 7 0



NEW HEATHKIT HW-100 5-BAND SSB-CW TRANSCEIVER

You asked for it . . . a multi-band version of the Heathkit "single-banders" . . . low-cost SSB operation on 10 or 15 metres . . . an SSB transceiver equal or superior to many assembled rigs, but at *much lower cost*. That's the HW-100.

How did Heath do it? We expanded on the "single-bander" design . . . borrowed from the heritage of the famous SB-101 . . . took a look at the competition . . . and produced the most SSB equipment you can get for the money.

Check the features and the specifications:

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HW-100 SPECIFICATIONS — RECEIVER. Sensitivity: Less than 5 microvolt for 10 dB signal-plus-noise to noise ratio for SSB operation. Selectivity: 2.1 kc/s. minimum at 6 dB down, 7 kc/s. maximum at 60 dB down (3.395 Mc/s. filter). Input: Low impedance for unbalanced coaxial input. Output impedance: 8 Ω speaker, and high impedance headphone. Power output: 2 watts with less than 10% distortion. Spurious response: Image and IF rejection better than 50 dB. Internal spurious signals below equivalent antenna input of 1 microvolt.

TRANSMITTER. DC Power input: SSB: (A3a emission) 180 watt P.E.P. (normal voice; continuous duty cycle). CW: (A1 emission) 170 watts (50% duty cycle). RF Power output: 100 watts on 80 through 15 metres; 80 watts on 10 metres (50 Ω nonreactive load). Output impedance: 50 Ω to 75 Ω with less than 2:1 SWR. Oscillator feed-through or mixer products: 55 dB below rated output. Harmonic radiation: 45 dB below rated output. Transmit-receive operation: SSB PTT or VOX. CW: Provided by operating VOX from a keyed tone, using grid-block keying. CW Sidetone: Internally switched to speaker or headphone, in CW mode. Approximately 1000 tone. Microphone input: High impedance with a rating of —45 to —53 dB. Carrier suppression: 45 dB down from single-tone output. Unwanted sideband suppression: 45 dB down from single-tone output at 1000 Hz reference. Third order distortion: 30 dB down from two-tone output. RF Compression (TALC): 10 dB or greater at 1 ma final grid current. GENERAL. Frequency coverage: 3.5 to 4.0; 7.0 to 7.3; 14.0 to 14.5; 21.0 to 21.5; 28.0 to 28.5; 28.5 to 29.0; 29.0 to 29.5; 29.5 to 30.0 (megahertz). Frequency stability: Less than 100 c/s per hour after 30 minutes warmup from normal ambient conditions. Less than 100 Hz for ± 10% line voltage variations. Modes of operation: Selectable upper or lower sideband (suppressed carrier) and CW. Dial calibration: 5 kc/s. Dial mechanism backlash: Less than 50 kc/s. Calibration: 100 kc/s. crystal. Audio frequency response: 350 to 2450 c/s. Front panel controls: Main tuning dial. Driver tuning and Presetector. Final tuning. Final loading. Mic and CW Level control. Mode switch. Band switch. Function switch. Meter switch RF Gain control. Audio Gain control. Side controls: Meter Zero control; Bias; VOX Sensitivity; VOX Delay; ANTI-TRIP; Neutralizing. Valve complement: OAZ Regulator (150 V); 6AU6 RF amplifier; 6AU6 1st receiver mixer; 6AU6 Isolation amplifier; 6AU6 1st IF amplifier; 6AU6 2nd IF amplifier; 6BN8 Product detector and AVC; 6AU6 VFO Amp.; 6CB6 2nd transmitter mixer; 6CL6 Driver; 6EA8 Speech Amplifier and cathode follower; 6EA8 1st transmitter mixer; 6EA8 2nd receiver mixer and relay amplifier; 6EA8 CW sidetone oscillator and amplifier; 6GW8 Audio amplifier and audio output; 12A7T Heterodyne oscillator and cathode follower; 12A7T VOX amplifier and calibrator oscillator; 12AU7 Sideband oscillator; 6146 Final amplifiers (2). Diode complement: 6 Germanium Diodes: Balanced modulator, RF sampling, and crystal calibrator harmonic generator; 9 Silicon Diodes: ALC rectifiers, anti-trip rectifiers, and DC blocking; 1 Zener Diode: cathode bias. Transistors: 2N4304 FET-VFO; 2N3393 —Voltage regulator. Rear apron connections: CW Key jack; 8 Ω output; ALC input; Power and accessory plug; RF output; Antenna; Spare. Power requirements: 700 to 850 volts at 250 ma with 1% maximum ripple; 300 volts at 150 ma with .05% maximum ripple; 115 volts at 10 ma with .5% maximum ripple; 12 volts AC/DC at 4.76 amps. Cabinet dimensions: 14-13/16" W. x 6-5/16" H. x 13-3/8" D

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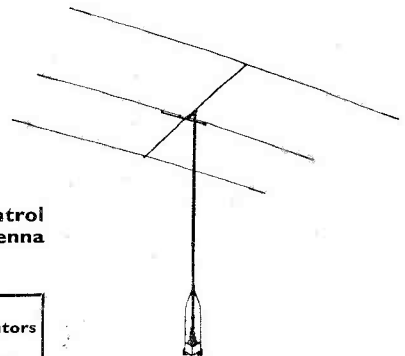
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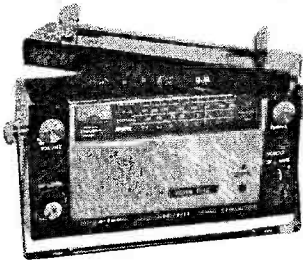


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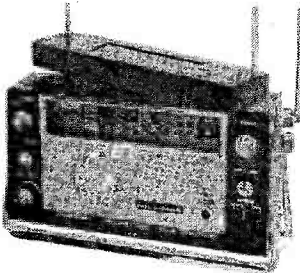
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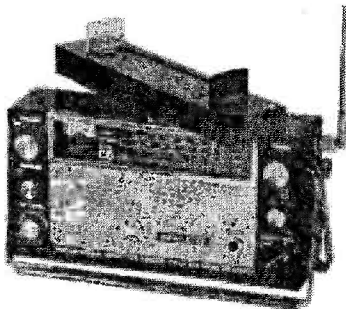
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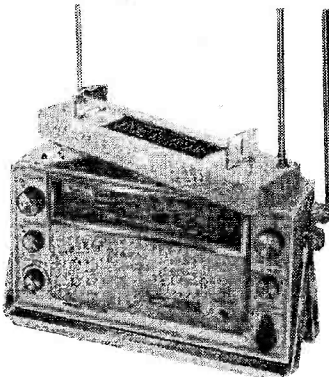
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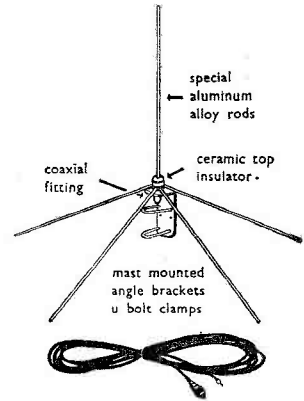
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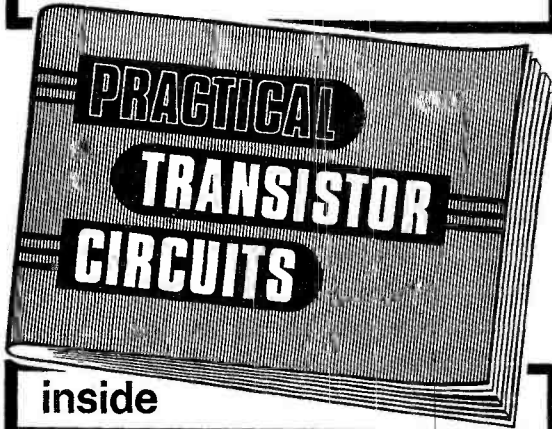
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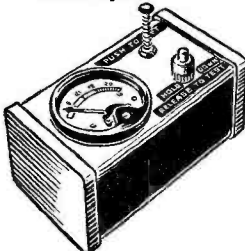
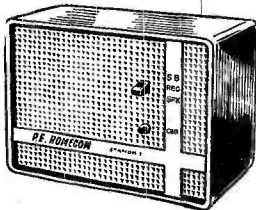


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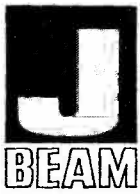
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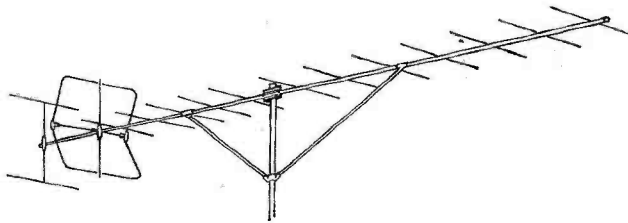
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	4/6Y	6 Element folded dipole yagi with 1 1/2" boom	8.7	8 14 6
	4/8Y	8 Element folded dipole yagi with 1 1/2" boom	10.0	12 13 0
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	2/6Y	6 Element folded dipole yagi with 1" dia. boom	8.7	2 8 6
	2/8Y	8 Element folded dipole yagi with 1" dia. boom	10.0	3 0 6
	2/10Y	10 Element "Long Yagi" with 1 1/2" boom and braces	13.2	7 2 0
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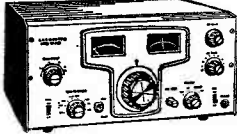
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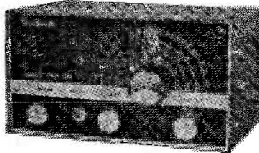
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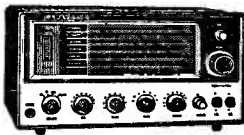
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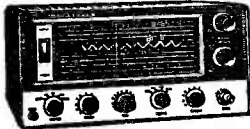
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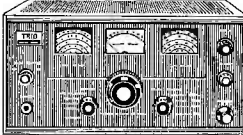
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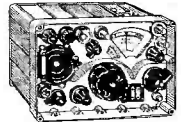
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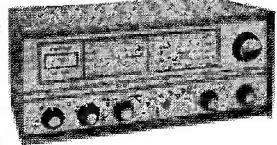
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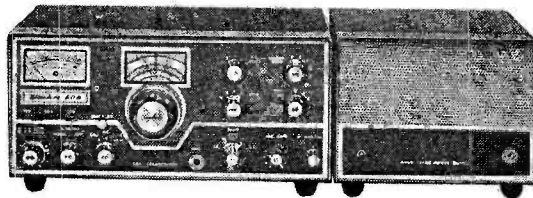
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The SHORT-WAVE Magazine

EDITORIAL

Practicalities *The unexpected (and apparently off-the-cuff) announcement by the PMG in the House of Commons on March 11 that a new "Beginner's Licence" would be introduced in the autumn "to encourage interest in radio by young people who have not yet reached the standards of qualification needed for a full (sic) 'A' or 'B' licence"—has naturally aroused considerable interest in radio amateur circles. He went on to say that "the details have not yet been settled"—well he might!*

Let us look at facts as they are at this moment. In the first place, the PMG is himself bound by the international agreements on amateur licensing—hence the R.A.E. and the Morse Test. He simply has not got the power to vary the principles of radio amateur licensing as they at present exist.

Secondly, any regular reader of SHORT WAVE MAGAZINE will know that numerous "young people"—school-boys of 14-17 years of age—already find no great difficulty in qualifying for an A-permit (let alone a B-licence) while simultaneously grappling with their O- and A-Levels.

Thirdly, if our keen and intelligent 15-year olds can go through the mill and qualify under the existing regulations, on what presumption should it be made easier for those not able to make the grade—for it is a serious matter to let anyone, young or old, loose on the air.

Fourthly, who is a "Beginner"? We have readers aged from 17 to 70 who regard themselves as beginners in Amateur Radio, working to qualify for their licences. Fifthly, what bands are at present available under the international frequency allocations for amateurs that are either open, suitable, technically feasible or effective for Beginner on-the-air operation? The Postmaster-General is about the last authority in a position to create them.

However, there are possibilities. What the PMG might do—and in this he would have not only the full support of SHORT WAVE MAGAZINE (with all its years of experience in these matters) but also of many U.K. amateurs with recollections of the early days—is to re-introduce the Artificial Aerial Licence and the twelve months' CW probation period for all would-be AT-station operators (whether aged 15 or 50) who are unable to qualify for permits under the existing quite bland and easy regulations.

In the meantime, we do not envy that branch of the PMG's Department having the responsibility to make good the Postmaster-General's undertaking, given in the House of Commons on March 11. But by the autumn, many things may have changed!

*Austin Forster,
G6FO.*

TEN-METRE CUBICAL QUAD

FROM TV AERIAL MATERIAL

With the ten-metre band getting livelier, it becomes an economic proposition to have an aerial specially for it. While one is about it, this aerial might just as well give gain and directivity. Because dimensions for 10 metres become manageable, a Cubical Quad is worth considering, a type which is well known for its efficiency and effective DX performance. Here is a mechanical design that meets the electrical requirements, is strong and weather-proof, not aesthetically objectionable, can be built from standard TV aerial parts and (in districts where it matters) looks very like a rather special TV aerial.—Editor.

THE Cubical Quad is capable of a gain of 10 dB over a half-wave dipole and its front-to-back ratio can be in the region of 35 dB. Apart from this, the angle of radiation is low—about 15 degrees at a height of one wavelength, and with no waste in any minor lobe at a high angle, as is the case with a normal beam at the same height.

As is well known, the Cubical Quad system consists of two elements, the driven element and the reflector (See Fig. 1), each of which is in the form of a square. Both elements are the same overall size but the reflector is made longer electrically by the insertion of one or more stubs. The driven element is fed at the centre of the lower side of the square and, with the reflector spaced at about one-fifth of a wavelength, offers quite a good match to 80-ohm coax.

Constructional Points

The finished assembly is shown in Fig. 2. The sides of the driven element are 9ft. lengths of $\frac{3}{8}$ in. alloy tubing, each end of which is bent round to fit inside the $\frac{1}{2}$ in. alloy tubing which forms the top and bottom sides of the square. The bends can be made fairly easily provided a little care is taken; the best way to do this is to insert a solid alloy rod or something similar in the ends and gently hammer them round a water pipe of about $1\frac{1}{2}$ in. diameter. Another method is to fill the tube with dry sand, which is afterwards run out. The top and bottom sides are 8ft. 9in. in length and the lower one is cut at the centre for the coax feed. At this feed point a television dipole insulator is inserted, chosen to fit the $\frac{1}{2}$ in. elements and a 1in. boom. A similar insulator is inserted at the centre of the top side, but here the element goes right through without being cut and the insulator should be bored through accordingly.

Having inserted the bends previously made into the ends of the top and bottom sides of the square they should be made secure by two small self-tapping screws and the joint taped up and weather-proofed.

The reflector is made in exactly the same way, except that at the centre of the top side of the square the element is broken at the insulator and a stub made to bridge it. If this top stub is omitted and the lower stub relied on to

tune the reflector the symmetry of the system is upset and the main lobe, instead of being at right angles to the plane of the elements, will fire a little to one side. With stubs at top and bottom the beam fires directly ahead and a slight gain also results.

The top stub is made of a length of $\frac{1}{2}$ in. tubing, which is bent round in the form of a "U." The ends are flattened, bent round the element each side of the insulator and a 4 BA bolt clamps each end to the main element. The lower stub must be made adjustable so that the reflector can be tuned for maximum gain. This is done by taking two 21in. lengths of $\frac{1}{2}$ in. tubing, flattening the ends and clamping them round the element on each side of the bottom insulator. The shorting bar can be made from a piece of $\frac{1}{2}$ in. tubing, the tips being flattened as before to form a clamp at each end to grip the sides of the stub. It does not matter in what direction the stubs protrude, but the neatest result is obtained if they are made to look towards the mast and inside the booms.

It only remains to hold up the assembly with the elements six feet apart. Two 6ft. lengths of 1in. 20g. tube from the booms and these fit into the insulators which have been provided at the top and bottom of the two squares. Having got thus far, do not be disappointed if the whole thing seems fragile and wobbly. The assembly will become rigid when the stub mast is clamped to the two booms. This mast is a 9ft. length of $1\frac{1}{2}$ in. tubing fixed to the top boom by the appropriate TV mast head fitting and to the bottom boom by a clamp designed to fit by "V" bolt action. This short mast can then be fixed to a main mast, rotary or otherwise, which the constructor will already have or about which he will have his own ideas. The completed assembly is quite light and can be carried up a ladder singlehanded.

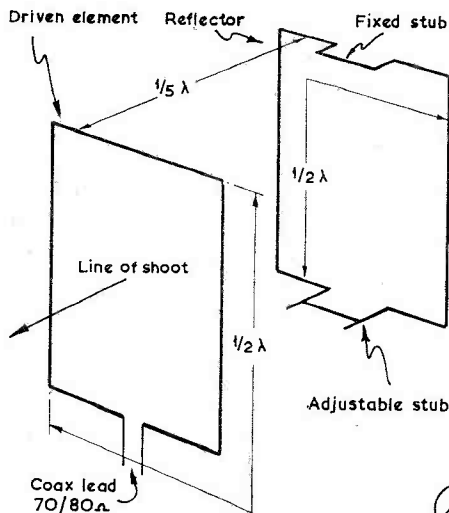


Fig. 1

Fig. 1. Layout for a Cubical Quad, from which the design at Fig. 2 was evolved. The electrical dimensions shown above apply, of course, to a Quad design for any band.

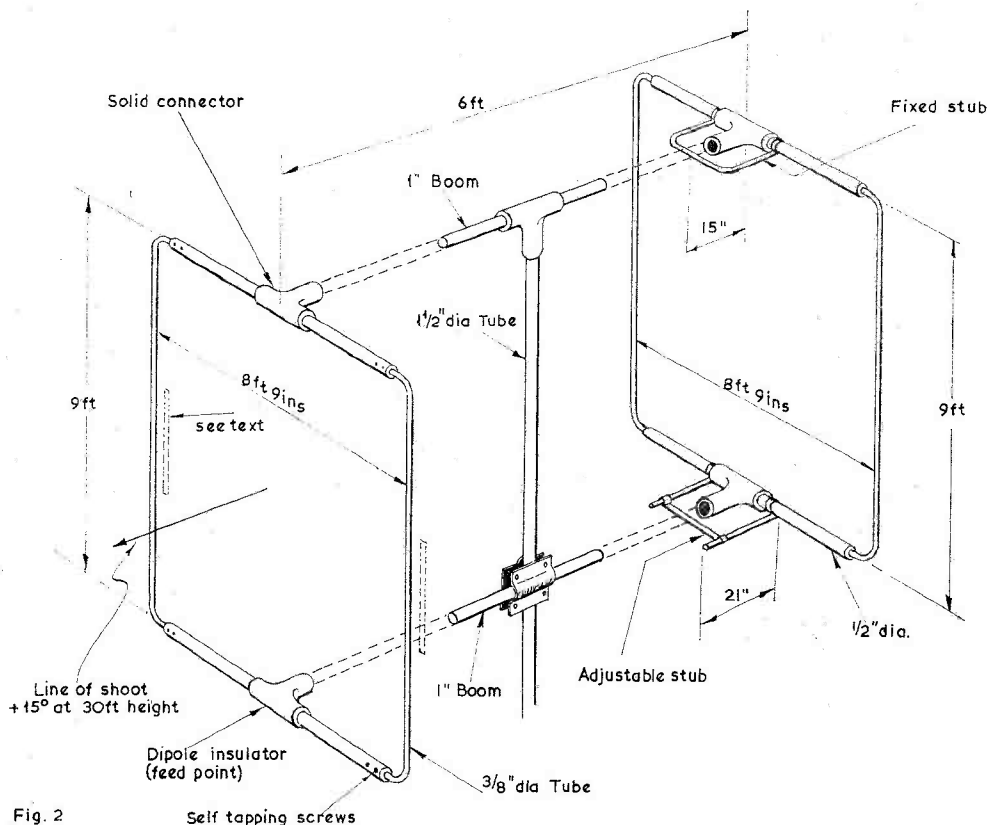


Fig. 2. Construction of the ten-metre Cubical Quad, using TV aerial parts.

Tuning Up, Adjustment and SWR

As described and illustrated here the driven element should be resonant somewhere near 28.5 mc. To bring it lower in frequency, *e.g.*, for the CW man, it is possible to load it with capacity at the voltage points, as shown dotted in Fig. 2. Rods can be clamped to the centre of the sides and this will not only lower the resonant frequency but also broaden the bandwidth. The reflector can be tuned for either maximum forward gain or maximum front-to-back ratio, using a field strength meter at a suitable distance. However, it has been found more convenient to arrange an RF ammeter to bridge the tuning stub and the point at which the meter shows *maximum* current flowing in the reflector will be the point to bridge the stub for maximum gain.

The dimensions may appear at first sight to be rather high but it has been found that the normal formula, if used, produces a Quad which is actually resonant in the vicinity of 30 mc or higher! With the dimensions given a

MATERIAL

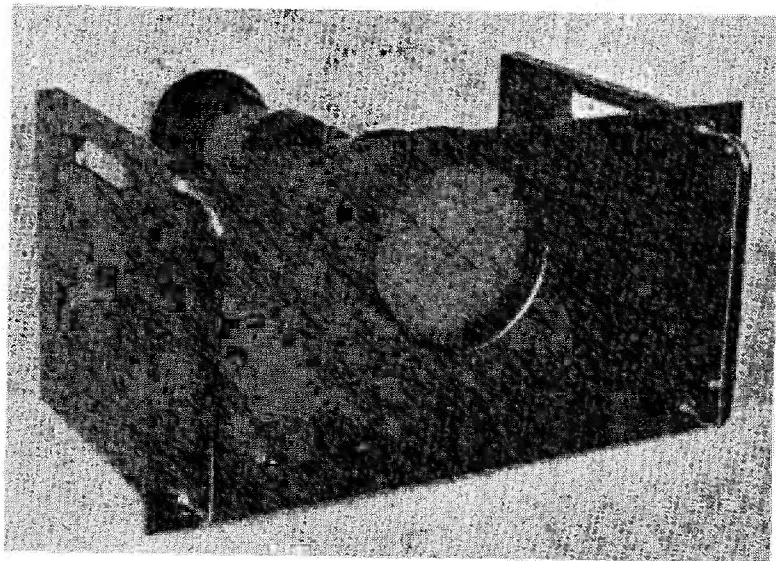
The Ten-Metre Cubical Quad

Four lengths, 8ft. 9in., of $\frac{1}{2}$ in. alloy tubing.
 Four lengths, 9ft., of $\frac{3}{8}$ in. alloy tubing.
 Two lengths, 6ft., of 1in. 20g. alloy tubing.
 One 9ft. length $1\frac{1}{2}$ in. 16g. alloy tubing.
 Seven feet $\frac{1}{2}$ in. alloy tubing for constructing stubs.
 One masthead mounting, 1in. cross arm, $1\frac{1}{2}$ in. pole fitting. Four insulators. One universal mast clamp.

SWR of practically 1 : 1 has been achieved on 28.5 mc and the RF current across the tuning stub for 120 watts input to the PA has been over 1 amp.

For a Quad on similar lines for 15 metres, the elements should preferably be of $\frac{3}{8}$ in. tubing and a look through a TV aerial manufacturer's catalogue would provide plenty of ideas with regard to the fittings to use.

General impression of the shift monitor unit for RTTY (radio amateur teleprinter) setting up, designed and constructed by G8LT and described in his article. As photographed, the instrument shows the calibration for an 850-cycle shift, centre-frequency of 2550 c/s, and smaller marks for narrow-shift T/P signals, at 170 c/s. The diagonals are respectively the "mark" and "space" indicating traces on the face of the tube—see text.



is made resonant at 2550 c/s and at this frequency the voltages appearing at the anodes of V2 and V4 are phased 90° and produce a vertical straight line or narrow ellipse. As the input frequency is varied from this point, the vertical line tilts either side of the vertical about an axis in the screen centre to some 45° either side of the vertical. These limits occur when the voltage on the X and Y plates are, on one hand, in phase and on the other phased 180°.

The circuit is straightforward. V1 accepts the mark and space frequencies and amplifies them normally and is followed by V2, a cathode follower stage where the amplitude equalisation of the traces is achieved and V3 and V4 feed the display tube with two signals, one of which is shifted in phase by 180° to the other by means of C8, L2. Valves V1 to V4 are all EF86's triode connected. (There was no magic in this choice, they were on hand and any comparable valve would do equally well.)

A word on the two inductances may be helpful although here again their use is by no means mandatory. Both L1 and L2 can use a Mullard Vinkor 25 mm. assembly No. LA-2330:

$$\left. \begin{array}{l} L1 = 136 \text{ mH} = 314 \text{ turns, } 31\text{g.} \\ L2 = 500 \text{ mH} = 600 \text{ turns, } 35\text{g.} \end{array} \right\} Q = 350/450$$

If a 35 mm. assembly is used, No. LA-2130:

$$\left. \begin{array}{l} L1 = 136 \text{ mH} = 253 \text{ turns, } 26\text{g.} \\ L2 = 500 \text{ mH} = 486 \text{ turns, } 35\text{g.} \end{array} \right\} Q = 600/700$$

The CRT is a 6in. VCR-97 (Mullard ECR60) which gives a large enough display to carry easily-read and accurate reading of shift. The tube size requires a fairly large chassis and the author's unit has been made to mount on a standard rack. Two power supplies are incorporated; one of 250 volts which supplies V1 to V4 and their heaters and an EHT supply of 1.4 kV. A separate heater winding for the VCR-97 is essential and

it must be insulated to withstand the full working voltage on the tube.

Care should be taken to insulate the spindles of RV2 and RV3. In the unit described it is possible to vary the EHT by secondary tapings on the mains transformer and the value used depends on the deflection sensitivity of the tube. Any change of EHT may require changes to R10, R15, R16 to enable the focus and brilliance controls to operate at mid-travel. A *mu*-metal screen round the tube is highly desirable. It has also been found that the geometry varies from tube to tube and some tubes failed to give a satisfactory X-trace despite all efforts.

Adjustment

Setting up requires an audio source giving at least 2125, 2550, 2975 cycles per sec. An accurate audio oscillator is desirable so that intermediate shifts, such as 425 c/s and 170 c/s can be plotted. As soon as the CR tube is proved to be working and an X-shift obtained in some form, inject 2550 c/s and adjust R5 by substitution to give as narrow an ellipse as possible consistent with sufficient amplitude. Next, switch to 2975 c/s at the same input level and note the amplitude. Switch to 2125 c/s and it may be found that a slight change to C3 will give a similar amplitude to that previously marked. At these frequencies, the trace should be effectively a straight line. Mark on the tube face the positions of the ends of the trace, using a felt pen, or better still *Lettraset* transfers.

The "mark," "space" and centre frequencies should be clearly indicated for the 850-cycle shift; intermediate shifts can be noted using the audio oscillator. Align the tube mechanically—see photograph above.

Interpretation

Reference to Fig. 2 will show what the unit can do. When first received, a standard RTTY signal may look as at (a) Indicating that the audio frequencies at the Rx output are high. As the tuning is varied, the whole

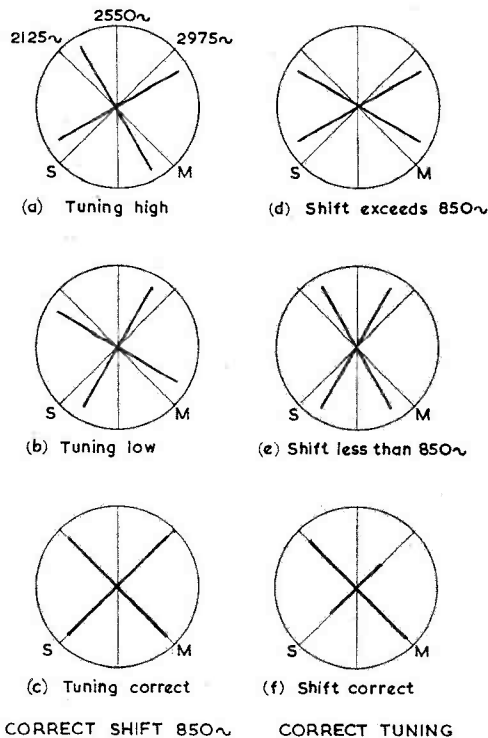


Fig. 2

Q
373

Fig. 2. Diagrammatic representation of the traces to be expected—see text.

X-trace rotates about its centre and if the tuning is low, will look as at (b). At (c) is shown the signal correctly tuned with the trace aligned on the calibration. The printer can then be switched in. Sometimes, it is found that the mark and space signals are reversed and most TU's have a switch for correcting the reversal. Very little practice is required to recognise this condition from the CRT display as the "mark" signal tends to predominate and it can be seen whether it shows against "M" or "S" on the tube.

A received signal whose shift is in excess of 850 c/s will look as at (d) and conversely, a narrow shift appears as at (e). There is a tendency for some DX stations to use a narrow shift of 170 c/s to combat QRM. This can be seen on the monitor quite easily but usually requires a change of filter in the TU itself. Sometimes the amplitude of the two arms of the X-trace will be seen to be unequal and varying due to the presence of selective QSB. The monitor shows clearly the presence of adjacent signals, which appear as extra arms on the pattern and it may be used easily to zero the station transmitter on to the distant station with complete accuracy. If a TU of the AP.100386 type is used the monitor input can, with advantage, be taken from the front jack socket since this is preceded by some very good audio filtering which enhances the display.

SIDELIGHT ON SANCTIONS

A subscriber in Rhodesia, writing about some *Magazine* matters, mentions *inter alia* "... things go on much as usual here, all supplies are available and the only difficulty is getting currency for imports, but even this can be arranged through the local Radio Society ... Sanctions are not really having the expected effect ... QSL's are even arriving from some of the staunchest supporters of the United Nations resolutions on Rhodesia! ... But I do look forward to the day when we can be friends again with Britain ..."

"PETREL," U.K. SPACE RESEARCH INSTRUMENT

From South Uist in the Hebrides, the Science Research Council is now operating a new high-altitude rocket, called *Petrel*, for investigations above the upper atmosphere. The current programme is intended to yield more precise information about the high-energy particles, arriving from outer space, that are believed to cause one of the most spectacular of Nature's phenomena—the Aurora. And, as is well-known to all VHF workers, it can give pretty spectacular results in the way of EU/DX on two metres.

TV LICENCE SWEEP

Retailers of TV receivers and equipment (whether for sale or on rental) are now registering with the Post Office. Some 11,800 retail firms are already on the GPO books, representing about 24,000 outlets throughout the country. Since February 1 they have been notifying the Post Office of all sales and rentals of TV receivers. If you have a TV Rx, you must pay the licence—or find yourself facing a £50 fine. And it's no use saying you only use the thing to watch Continental TV when conditions are right for VHF/DX!



"... No idea what they are but they were so cheap thought they might come in useful ..."

USEFUL CIRCUITS FOR CRYSTAL OSCILLATORS

BAND EDGE MARKING, RECEIVER CALIBRATION AND CRYSTAL CHECKING

THERE are large numbers of surplus crystals, to be obtained quite cheaply, apparently on frequencies of no practical value. Many of these crystals are not so useless as might at first be thought.

Although they may be of little value for transmitter control, it is often the case that some odd harmonic may fall into, or close to, an amateur band; the harmonic can then serve as a check point for a receiver operating on that particular band, and will also assist in compiling a calibration chart for the receiver.

Surplus crystals can be obtained with widely differing fundamental frequencies, so that an oscillator is required which is to a large extent independent of crystal frequency, and will also oscillate readily with "difficult" crystals. The Pierce circuit, as shown in Fig. 1, satisfies these requirements admirably; crystals of almost any frequency will oscillate immediately in the circuit, provided that the fundamental is not lower than the resonant frequency of the anode side of the Pierce oscillator. Uses to which the oscillator may be put come to mind at once: When grinding crystals to a required frequency, the crystal after having been ground can be tested by connecting it into the circuit, when it should oscillate easily; for it is a general rule that a crystal which will not go off in this oscillator will not perform in any other type of circuit, and will have to be reground and reactivated before further use.

One version of the circuit used an EF54, which oscillated strongly enough to produce S9 harmonics on

2 metres—strangely enough, the least efficient EF54 (for ordinary amplifying purposes) produced strongest harmonics.

A modulating valve is useful for identifying the signals, and a resistance-capacity oscillator, V2, connected as shown in Fig. 1, is found sufficient to modulate the signal up to about 50 per cent.

Modifications

For low-frequency crystals, a small feedback condenser may be needed; this is shown as Cf in the circuit diagram, and will usually be about 20-50 $\mu\mu\text{F}$, but the smallest value necessary for stable oscillation should be used to prevent the frequency of the crystal being "pulled."

A number of crystals may be incorporated in the unit and brought into circuit by means of a multi-way switch, thus giving numerous calibration points. If the harmonics are too strong for the required purpose, the output can be reduced by lowering the HT on the oscillator screen by means of R3.

Originality is not claimed for the circuits shown, but it is hoped that they will illustrate the usefulness of the Pierce oscillator, besides giving some idea of its performance.

The next unit, shown in Fig. 2, was developed for the

Table of Values

Fig. 1. The Pierce Oscillator

C1, C3 = .001 μF	R6 = 250,000 ohms
C2 = 10 $\mu\mu\text{F}$	R7, R8,
C4 = 150 $\mu\mu\text{F}$	R9 = 470,000 ohms
C5 = .005 μF	R10 = 1,500 ohms
C6, C7,	RFC1 = VHF RF Choke
C8 = 500 $\mu\mu\text{F}$	RFC2 = S/W RF Choke
C9 = 2 μF	V1 = EF50, EF54 or
Cf = see text	similar
R1, R3 = 50,000 ohms	V2 = SP61, or similar
R2 = 500 ohms	S = Crystal Selector
R4 = 25,000 ohms	Switch
R5 = 2 megohms	

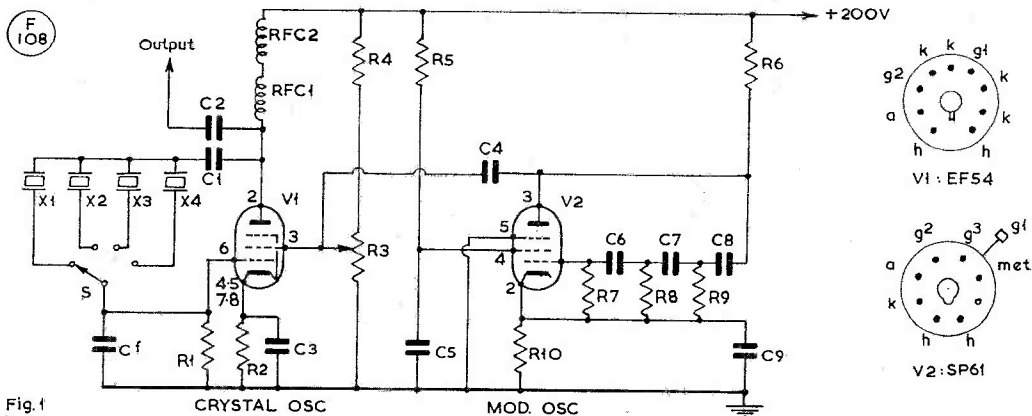


Fig. 1

Fig. 1. Section V1 in this circuit is in the Pierce mode—one of the sure-fire crystal oscillators, which will go off with any crystal having life in it—followed by a resistance-capacity coupled audio oscillator, V2, to modulate the output. The circuit will produce beats recognisable among the many that may be heard when tuning across an unfamiliar band. Good output is obtainable at C2 over a wide range of harmonic frequencies, and R3 controls the output level.

Table of Values

Fig. 2. Marker Unit for Two Metres

C1 = 22 $\mu\mu\text{F}$	L1 = 200 turns, 40 SWG, on slugged polystyrene former
C2 = 100 $\mu\mu\text{F}$, variable	L2 = 3 turns, 24 SWG, on slugged polystyrene former
C3, C7, C8, C9 = 500 $\mu\mu\text{F}$	L3 = 2 turns coupled to L2
C4, C5 = .003 μF	Valves = 6AK5, 9001, 9003 (see text)
C6 = 80 $\mu\mu\text{F}$	Xtal = 500 kc bar—see text
R1 = 500,000 ohms	
R2, R3, R6 = 10,000 ohms	
R4 = 100,000 ohms	
R5 = 220 ohms	

express purpose of giving 500 kc marker points in the 2-metre band. Most converters and receivers acquire a certain amount of frequency error due to drifting or voltage changes, so a suitable frequency standard to check this point from time to time adds up to better operating efficiency.

With a 500 kc crystal, five marker points are provided in the 2-metre band; these are useful for making a suitable calibration chart. When the calibration is completed and can be relied upon, stations not already listed can be measured and their actual operating frequencies filed. The unit was designed to be really accurate all the way from 500 kc to 150 mc. Power consumption is so small that it could probably be bled off the HT/LT supplies to any existing receiver. With 100v. or so HT and using 6AK5 valves, harmonics in the 144-146 mc band are strong enough to be picked up with only a few inches of wire connected to the calibrator output terminal. The physical size can be kept small for the convenience of tucking the unit out of the way in some corner, to be switched on as required.

The circuit is not at all critical and once it has been well constructed with good components (the most important being the crystal) no further adjustment is required other than to zero the crystal beat-note with one of the WWV transmissions, or MSF on 2500 kc. The particular components specified are correct for a QCC Q5/500 bar. Should some other make of crystal be used it may be necessary to change the values of the 22 $\mu\mu\text{F}$ and 500 $\mu\mu\text{F}$ condensers (C1, C3) slightly in order to have an equal amount of frequency correction either side of zero beat. The frequency correction is adjusted

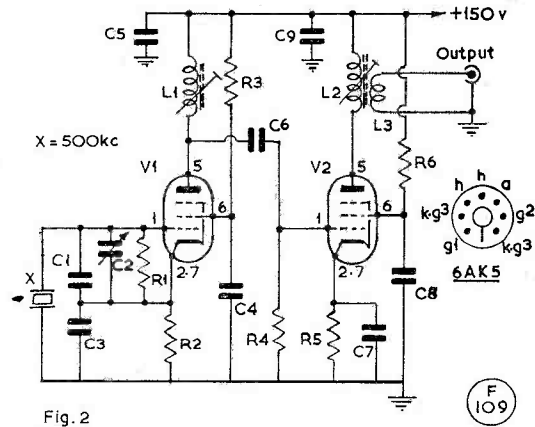


Fig. 2

Fig. 2. For accurate marker points through the two-metre band, this circuit is suggested, with a 500 kc bar as the primary oscillator. Variable capacity C2 enables the oscillator side to be brought to zero-beat with a standard-frequency signal, such as WWV or MSF. In most cases, a calibrator unit of this sort can be run off the Rx power supply.

by the variable 100 $\mu\mu\text{F}$ condenser, C2. Several crystals were tried in this circuit, including a 1000 kc bar, and all worked very well.

The valve complement can be quite varied—types 9001, 9003 (EF91, EF92 with wiring modification) and 6AK5 are all suitable. The 6AK5 gives the strongest harmonics, but the 9001 is good enough.

There are no particular tuning adjustments other than to peak the oscillator plate circuit on either 3 or 4 mc. This can be checked by listening for maximum signal on the regular communication receiver adjusted to 3 or 4 mc. The three-turn plate coil L2 is peaked for the strongest signal by listening on 145 mc. The coil formers are small polystyrene type. The 200-turn coil L1 can be either wave- or scramble-wound and doped to keep the turns in place. The output coil L3 is three turns of 24g. enamel.

The chassis size of this unit is 4in. long by 3in. high and 3in. wide. Actual size is not important so long as grid and plate leads are kept to one or two inches. Once constructed, it will be found essential for its purpose, and it is cheap and easy to build.

INTERNATIONAL I.E.A. EXHIBITION

Described as the "greatest technical show in the world," this year's International Instruments, Electronics and Automation Exhibition will be held at Olympia, London, during the week May 13-18. More than 800 exhibitors will occupy the whole of the building, and the value of their exhibits, from all over the world, is put at "scores of millions of pounds."

GONSET TAKEN OVER BY AEROTRON

We are informed that the American Gonset concern—manufacturers of amateur-band equipment—has been absorbed by Aerotron, Inc., of which one of the directors is Stuart Meyer, W2GHK—see p.54, March issue. It seems that the products now being offered to U.S.

amateurs from the Aerotron, Ameco and Gonset stables will henceforth be marketed under the name of Ameco.

concluded from p.85]

core is then peaked around 3-6 mc, and L4 trimmer around 3.75 mc. L2 is set for minimum adjustment of the panel aerial trimmer, across the band.

The Top Band cores and trimmers are set up in a similar way. After peaking up all adjustments, the tuning scale can be calibrated and marked.

These Denco coils could no doubt be employed in the same way for a home-constructed 160/80m. receiver, or when modifying a surplus or other old receiver. To use the coils specified, the receiver IF should be around 465-470 kc.

THE 19 SET Mk.III Rx BANDSPREAD

FOR 80/160 METRES—SUGGESTING
A PRACTICAL MODIFICATION

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

THE November 1967 issue of SHORT WAVE MAGAZINE contained various details for using the 19 Set, in particular as a transceiver for the 160 and 80m. bands. The two original tuning ranges of the receiver section were left basically unchanged, except to extend coverage to 1.8 mc. These bands were 1.8-4.5 mc, and 4.5-8 mc. As the transmitter section of the equipment covers 1.8-2.0 mc, and 3.5-3.8 mc (when modified as described) it is a logical step to adjust receiver coverage to band-spread 160 and 80 metres. This gives much more open and easy tuning, and ready identification of frequency. The original circuit has aerial, mixer and oscillator coils for 2.0-4.5 mc and 4.5-8 mc, with a multi-pole two-way rotary switch. The modification consists of removing these coils, fitting new coils, and replacing the large 4-gang capacitor (one section unused) by a 3-gang 20 $\mu\mu\text{F}$ or similar condenser pack, near value.

Circuit Details

The diagram shows the circuit after modification, other circuits being left unchanged. The new coils are *Denco*, Range 2 for 160m. coverage, and Range 3 for 80m. The aerial coils L1, L2 are *blue*, mixer coils L3, L4 are *yellow* and oscillator coils L5, L6 are *red*, these being the nomenclatures used for the *Denco* range.

VC1/2/3 is the new ganged capacitor, operated by the existing drive. A 3-gang 20 $\mu\mu\text{F}$ unit gives a little spare

rotation. Actual frequency coverage can be modified somewhat by adjusting the cores and trimmers. The existing 50 $\mu\mu\text{F}$ aerial trimmer (panel mounted) remains. Each mixer and oscillator coil has its own 30 $\mu\mu\text{F}$ or similar trimmer T.

The 80m. band coils are not modified. However, it is necessary to remove about 32 turns from the 160m. aerial and mixer coils, and 20 turns off L6, the oscillator coil. This is done by unsoldering the winding outer end, taking off turns, and re-soldering.

Modification

If the switch click-plate is unscrewed, the shaft pulls out of the wafers, which are bolted to chassis members. This allows the leads to be reached and gives room to work.

The new coils occupy similar positions to the old ones — aerial coils in the small screened box, mixer coils behind, and oscillator coils in the rear box.

When the old coils are out, screws holding the large ganged capacitor can be seen. One IFT at the rear has to be loosened to get the condenser pack out.

The front plate of the new capacitor was bolted to the drive mechanism, in place of the old one. The click-stop device was also removed.

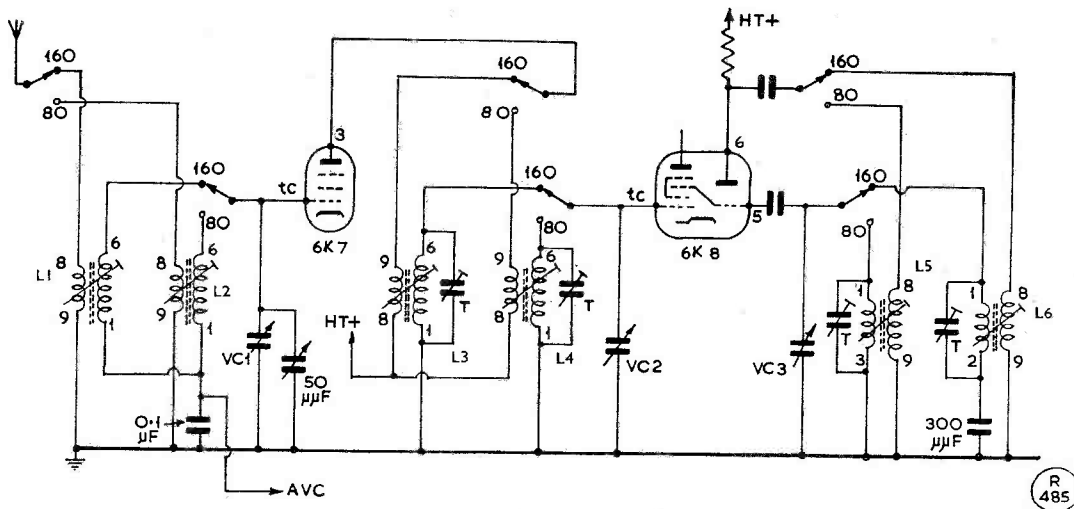
Adjustments

Coverage can be checked by usual method, or by switching on the transmitter VFO and looking for the VFO beat with the receiver section (aided by the tuning meter).

With a given tuning capacitor value, dial readings are extended by reducing coil inductance and increasing capacity of the parallel trimmer. Extreme maximum and minimum setting positions of VC1/2/3 are not wanted, however.

L5 core and its trimmer may be adjusted for 3.5-3.8 mc (which a little to spare each end of the band). L4

[cont'd at foot p.84



The 19 Set receiver band-spreading circuit for
80/160 metres.

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

THE rise in the predicted smoothed sunspot number for April to 110 does not seem to have produced the eulogies on conditions which one would have expected. As far as your conductor is concerned, it is rather difficult to make any firm conclusions, in that the gear has undergone a very marked change as well as the aerials, but he gets the impression that, in general, conditions have not been as good as expected. However, let us see what the correspondence says about it.

Ten Metres

The first thing one is struck by is the size of the pile—which goes to show that things are not as bad as they are painted!

G2DC (Ringwood) comes up with the comment that Ten is certainly taking its time about settling down, but has had access to the daily sunspot count figures which show that on occasion it has fallen to below half average. A couple of new ones for the band were PZ1AH and XW8BP, while other QSO's included all W districts, VE1, 5 and 7, PY and LU, VS6FX, VK2, 4, and 8, 5R8CQ, and hordes of JA's.

Nice to hear again from G3DO (Four Oaks); Doug mentions 8P6CC (who was until recently VP6WR), with a cracking signal on 28680 kc, around 1500z. QSL's for this one go to W4OPM. G2HKU (Sheppey) comments on an excellent signal from 9J2BK, but otherwise damns the band with faint praise.

G3PQF (Farnborough) re-entered the fray during the ARRL Contest weekend, when he put the Quad back up. He managed to find a KR6, and a horde of W's, but was mortified to obtain reports of S9 from three local TV sets.

From GM3SVK comes news of his DX-pedition to Orkney, where, although he tried hard, conditions were so poor that no contacts resulted on 28 mc at all.

Over the six weeks prior to writing his letter, G3TLX (Edgware) has spent a large proportion of his time on the HF bands. AM on Ten

yielded 9J2DF, CP6EK, W's, VE's, and ZS's, while CW turned the key with all W districts, VE1 to 5, PY and LU, UA9s, UF6, UM8AP, UL7s, UH8AE, LA2HK/MM, CR6, CR7, CX4, G6ZY/CN, VK8HA, KZ5QN, HK3AVK, TA's, 8P6BU, 4X4's, ZS6J/ZS6AD (G5ZO), ZD7DI, ZS1AC, XW8BP, 9H1BA, 9J2WR, ZC4GB, 7X0AP and 9J2MX.

G3IGW (Halifax) has suffered a change of heart—or something!—as he spent quite a while during the period under notice working AM Phone on Ten and Fifteen! This unaccustomed exercising of the vocal cords resulted in a surprisingly large number of quite DX'y contacts, mainly with CR6 and CR7, although the best on the band was ZD3E.

Nice to hear from G3MDW (Halifax) again, with a Table entry, but not so nice to know he still has troubles with Aerials, both for the LF bands and at HF. However, one bright spot was an all-time new one, in VS9 (Maldivie) which was successfully angled for and caught on Ten.

Robert, G3WUD (Manchester) has been sampling the joys of the HF bands with a 50-watt transmitter loaned to him, with which he managed, using the Top Band aerial, to collect some W stations; however, the approach of examinations and consequent increase in the homework have both tended to reduce the activity somewhat.

The statement made by G3NOF last time out that in his view Ten has been less good than at the equivalent time last year is repeated once again. There have been some good openings for Don from his Yeovil QTH in the mornings to S.E. Asia, ZL and JA, with the W's appearing during the afternoons, usually the East Coast types, but occasionally the middle-west and West coast stations. However, the band has been closing earlier than it did this time last year.

But the opposite view is taken by G3LZQ (Hull) who has been away on business most of the time but managed to be on for the ARRL

Phone contest and the odd day here and there. In the Contest John rolled up a total of 956 W/VE QSO's, including all VE districts and 47 U.S. States, the missing one being Wyoming. To balance this one shortage, he had eight in Utah, two from Montana, one Nevada and 87 W6's! The best of the month in DX terms were EP2GI, VU2DKZ and HC1PC on SSB, with 9J2's, VS6, 5Z4, VP7DX, VQ8CC and 4S7RN collected on CW.

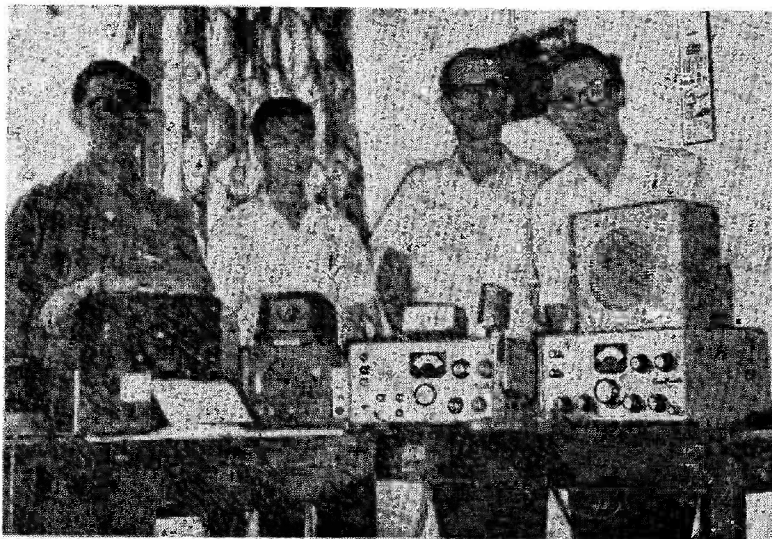
A newcomer to this piece is G3XGT (St. Annes-on-Sea) who mentions the assistance he received from local amateurs G3TNN and G3UIS in getting on the air. Geoff is using a Sommerkamp set-up into a Mosley vertical on the HF bands, plus the Joystick which remains from his SWL days. As he says, there is much to be learned yet, but he has already discovered that hasty-tuning up can reduce a report from S9 to S4!

Here and There

Without dragging it into the 160-metre news, space must be found to comment on the Top-Band QRO remarks which have peppered almost every letter to this piece during the last few weeks. Perhaps the first comment is that your scribe's mention of GM3SVK's tape was not to imply that Fred was hawking a tape of signals around telling all and sundry of the over-proof signals he heard and playing the tape to demonstrate the point. What he *did* was to talk to a Club—a meeting at which the writer was present—about DX in general, with particular reference to the differences between operating from Orkney and from the London area. A short time was spent on Top Band during DX sessions on the tape, and no comments in particular made about individual signals.

Secondly, one might remark that in all the letters not one iota of evidence—as against hearsay—has come in to *prove* that *any* over-power operation has occurred. Which is not to say that it does not happen.

Group of active Singapore amateurs. Left to right: 9V1OF, 9V1LG, 9V1NQ and 9V1OK. Their gear in view includes a Sommerkamp FL-200B Tx, FR-100B Rx and a BC-221, with various ancillaries. Their aerial is a two-ele Quad at 40ft., and they are always looking for U.K. contacts.



Thirdly, quite a lot of correspondents do not appear to have grasped that the basic laws of propagation are matters of fact, not opinion. Leaving all this out of account there is still a hard-core which needs sifting over. There can be no doubt that on occasion certain signals consistently receive reports a couple of S-points up on the ones they give. There are others, possibly more wily, who give reports as good as they receive to DX

stations, and spoil it all when they say "Ur 599, pse rpt ur name es QTH." To produce the discrepancies we are talking about in terms of pure power—without any reference to aerials—one would have to calculate not in terms of 100 watts, or even a kilowatt, but of several kilowatts. No, there is a strong smell of fish, but no actual corpse to pin the blame to. On the other side of the coin there has been a vast amount of solid

evidence to show that while many people are capable of generating RF there are not so many who can either get rid of it into space in the most advantageous way, or transfer the received RF into the receiver.

Furthermore, there is nothing like enough known on the important matter of what exactly constitutes a good site for Top Band. Instances occur in your letters. Quoting a couple, there is a case where two stations live at opposite ends of the same road on a hill. One, near the top, using virtually identical aerial-earth arrangements, aerial coupling, and power as the other lower down the road, receives reports consistently two to three S-points *lower* than his "less favoured" friend at the bottom of the hill. Both are, naturally, puzzled! Another one, of a station using AM, who gets better reports from DX consistently than his friend on SSB, despite the latter's apparently better aerial; this situation arose after adding a couple of "radials" to an otherwise quite innocuous system. Yet a third, of which your scribe is personally aware, where a new licensee had been in some doubt as to his ability to do any good at all with an aerial which was in his own opinion "pathetic." Worse, the earth was a four-foot stake in the ground, and the location looked awful. When the ticket arrived and our hero went on the air there were mutterings from all over the country about concealed kilowatts—but the PA was a 5763 at the time the big

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

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc	1.8 mc
G2DC	335	169	306	326	163	108	20
G3IGW	202	123	147	162	121	86	41
G3DO	333	187	230	326	90	83	9
G3IAR	192	81	125	171	64	56	—
G3PQF	134	78	41	60	82	49	8
G8DI	184	80	132	161	77	46	8
G3LZQ	238	116	146	188	70	37	8
G3WJS	35	—	—	2	20	35	9
G3NOF	309	150	201	293	34	39	1
G3SED	69	—	—	42	36	31	35
G3VDL	130	42	92	93	45	22	—
G3IDG	115	66	82	54	27	18	11
G3MDW	115	46	66	82	20	15	7

Note: Placings this month are based on the "3.5mc" Column.

reports were rolling in, as your scribe was able to see for himself.

It boils down to a situation where there are, without doubt, a few block-busters about who use excessive power, and worse, some of these have lousy signals—but there are more with equally big signals, both locally and at DX, who are using the 10 watts, or even less, from an exceptionally favourable location. Further on, it may be commented that there is a SSB transceiver which, it is widely held, cannot be operated legally at the ten-watt level—in fact, it can, and the makers will tell owners just how for the price of a telephone call. Under the conditions they quote, about five watts RF comes out for ten watts DC input, as measured. And finally, perhaps most important of all, it has demonstrated that almost nothing precise is known about the factors that make a good Top Band site.

Fifteen Metres

Turning back to the matter in hand, our next stop must be in the spectrum around 21 mc; in this area CW was used by G3LZQ to hook the following stations: 9J2MX, 9J2W, 9J2BC, 9J2VB, VS6FX, 5Z4SS, VP7DX, 5H3KJ, VP9BK, VQ8CC and 5Z4KL.

G3NOF worked HL9KI (at 0942), plus CR4BC, CR4BL, HL9KI, EP2GI, G3BID/6W8/MM, JA's, ZD3F/M, ZL's, 9G1GG, the latter possibly better known to observers of the DX scene as 5N2AMS.

Working DX at "respectable hours" is somewhat of a novelty for G3TLX, but nevertheless Ron steered himself to do it, and came out of the fray with the calls of UJ8AB, UF6LA, UH8AE, UI8IZ, all W call areas, PY and LU, IS1, VP6/8P6, HV3SJ, EA8FE, TU2BK, VE's, CR4, CR6, TF2WXX, assorted JA/JH types, KP4DAC, OA4VO, HK3BAE, FG7XX, 9H1BC, 9G1GG and 4X4's. Which just goes to show that respectability sometimes pays off.

The Top Band epic—yes we are still talking of 21 mc!—which was to have come from the pen of ZC4GM was brought to a premature end by two factors: He lost his Top Band aerial and acquired a tri-band beam. As a result ZC4GM is in business on the HF bands, and to the tune of 144 countries in 37 Zones since the thing went up. Among these, the 21 mc offerings include

7P8AR, 9U5DP, CE0AE and 9N1MM. Incidentally Gordon is at what might be described as the sharp-end of the pile-up to some extent in ZC4, and from that position remarks on the way in which the W's and the JA's in particular form an orderly queue and wait, with the result that 30 or 40 can be dealt with at a sitting, and all get their QSO, while the lids who are all making noises around the frequency get left out—or in other words cut their own throats!

Still on the "hot seat" theme, G3SVK has a few hard words about the characters who would persist in calling him on each evening, sometimes just for a natter, when the queue of those waiting for a first contact was a mile long. One thing about that is that your scribe was in a Top Band natter-net when Fred broke in, followed immediately by such a rise in the general noise-level that the net went QRT in record time so that GM3SVK/A could get on with the good work. As far as the 21 mc stuff from Orkney goes, only W's and a crop of Europeans were found, thanks mainly to conditions.

The only point of note about Fifteen in the letter from Dave, G3PQF, is harking back to the discussion on pirates of one sort and another—ET3USA on 21 mc as a country had to be scored out when the QSL card came back because the operator was in the States at the time of the alleged contact.

MP4MBC on 21 mc is the only contact which G2HKU saw fit to remark on; he is on Musirah and certainly has an outstanding signal. Another good one is mentioned by G3DO—HK0BKW, San Andres, on 21230 around 1900z. QSL address, by the way, is P.O. Box 219, San Andres.

Now to G2DC, who finds 15 metres in reasonable shape; and a new one for him on 21 mc was EA0FP, together with all W and VE districts; CO2RL, CE3AD, FG7XX, FG7TH, FB8XX, OA4PF, VK's 2NS, 2QL and 4SS and ZS2MI.

It may interest GM3VAR, GW2DXS and G6YP to know they were heard by G3UOF/MM while his ship was off the Comoro Islands, in the Indian Ocean. This was reported in a letter which unfortunately did not quite make the deadline for last month.

"Andy the Lamp," GW3UUZ⁹ in his lighthouse at Llantwit Major⁹ has made good his threat to re-appear on the air, and worked 5X5, 9V1, MP4B and a horde of assorted "U" calls on his first forays on the band, with a vertical dipole.

G3IDG (Basingstoke) remarks on the tactics of I6FRU in dealing with the non-DX stuff which came his way on 21 mc one lunch-time. If one of the non-DX types went back to him, he went straight off into the call, RST, name, and so on, followed immediately by the QRZ or another CQ. Help! the day of the one-way QSO is indeed with us. Efficiency to the nth degree—but not, please not, in Amateur Radio!

G3AAQ/M has had so many mentions in this piece that he has been moved to write in; he operates mainly /M, in which manner WAC has already been achieved, with ZD3F, VK2XT/P, and W9PFFK/0 on SSB, while CW gave VK3AZY, ZS1XT, and PY2ARX to complete the hand. Gotaways included

TOP BAND COUNTIES LADDER

Station	Confirmed	Worked
<i>Phone and CW</i>		
G2NJ	98	98
G3HIW	98	98
G3VYF	86	88
G2HKU	75	78
GW3PMR	72	78
G3VLT	57	80
G3WDW	55	80
G3IDG	55	59
G3VTY	54	86
G3WQQ	41	60
G3VLX	36	59
G13WSS	26	58
G3WJS	13	41
G3VWC	12	34
<i>Phone only</i>		
G2NJ	96	96
G3VYF	73	78
G3MDW	57	73
G3PQF	14	42

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

CT2AA, ZD7KH, HV3SJ, EL1L and TA1AV on SSB, while a Sunday session demonstrated that the VK's and JA's did not fancy a QSO with a mobile CW station!

Doings on Twenty

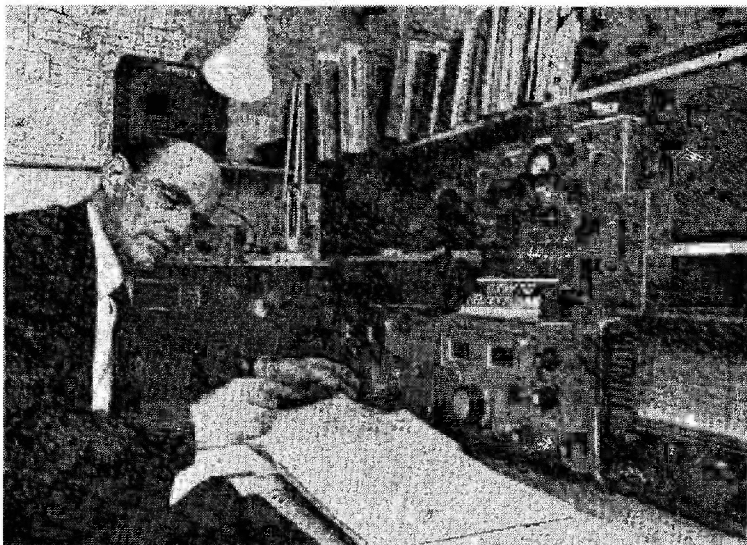
As always, this is the band to scan if you are looking for gold—which is not to belittle the other bands, but rather to say that there is *always* something doing on Twenty, while Ten on the other hand may be “dead” purely from lack of activity in the desired area, even though a path exists.

There is a lot to be said in life for people who apply that useful faculty known as common-sense to problems. Example from G3VPS (Wartling) who is nothing if not practical: Lots of SSB being heard from the Pacific but no SSB in the shack. *Solution*—try a CW CQ. *Result*—9V1OS for a new country. Also found were EA6, for another new one, UA9, VE's, PY, LJ and a crop of W's. All worked on the key with a Panda “Cub.” Incidentally, G3VPS has recently acquired a Collins 75S-1, and now understands exactly why people write in and say JA's are QRM!

Pirates again—this time it is the call G3WOP, Mary, XYL of G3ERB (Bebington). Although Mary did not commence operations until the beginning of this year, her call was used on 14 mc CW by some character identifying himself as “Paul,” during the autumn of last year. Be warned—the real one is too nice to pirate!

G3UDO (Croydon) uses a HW-32A barefoot, but has it modified to give full coverage of the band. This produced, during the month of January, the following little crop: KL7, 9V1, OH0, IT1, 5U7, TF2, VE8, LX1, ZB2, 5Z4, JX6, KV4, KP4, KG6, VK/ZL, HV3, CN8, PZ1, VS9, 5U7, HB0 and EA8. This is a pretty fair collection and used to back G3UDO in an argument over QRO/QRP. Aerials used are a dipole with reflector, beaming 310 degrees, and a groundplane.

Only one call is mentioned by G3IGW on 14 mc, that of VU2MSK, worked on CW; but Mike has been at the game a long time, and is being more than a little selective as to his mentions, no doubt. GW3UUZ, of course, after his lay-off of several months, is now exploring the HF



Station G3WYG, owned and operated by Paul Gooding at 39 St. George's Road, Felixstowe, Suffolk, who went for his ticket after many years as an SWL. He has a nice array of modern equipment and can work all bands.

Courtesy "Felixstowe Times."

bands seriously for the first time, and using SSB. This mode gave him contacts with ZL, VK1, 2, and 3; JA, YA, OD, SV, most VE and all W districts, VP6, YV, HI, HK, PY and CE.

How to hook the DX without attracting the QRM on to the frequency is sometimes a problem to G2DC, who has evolved a solution which is worth passing on. When answering the DX station's CQ, use a very short call, so as to get the QSO over before the EU stuff can go through the motions of noting, registering, QSY'ing and calling. Note, we did not mention listening—after the initial stage, anyway! Working VK8HU was a pleasure for Jack as he turned to be *ex*-VK5NO, who will be remembered as a keen DX'er. VK3AYI is *ex*-G3SYI and wishes to be remembered to all his old friends in U.K.

G2HKU continues his three-times weekly sked with ZL2KP, and they are now joined by ZL3JQ, who is an old-timer just making a start with SSB, and would appreciate G contacts. A new country and new Zone appeared in the log in the form of KG6ALV to make a total of 158C/39Z to date.

SSB was used on Twenty to a very large extent by GM3SVK/A up in the Orkneys, giving him CR6GQ, EA6BC, EL2AJ, FC2CD, JX6RL,

KP4CK and CL, KR6KN, OX3BX and KM, TF3EA, UG6AW, VP7NS, VP9GB, VQ8CC, W6 and W7, ZC4RB, ZL, ZS, 4X4VB, 7Q7JO, 9J2BC and many others.

The list from G3TLX for 20m. is comparatively short, but, as he says, this is to be expected if you concentrate on the other bands; nonetheless, all W districts, VK/ZL, JA, YV5BZH /6, KV4AA, ZP5ET, TA2EA, ZD8NK, PY/LU, CX2AM, YV5BNR and HK3HY were successfully booked in, all on CW.

G3NOF quite likes the way things have gone over the period, with 14 mc opening as early as 0730, and staying open till as late as 2300. SSB QSO's were had with CR4BC, CR7FM, CT2AA, HK0BKW, HL9KR, HS1AF, HS1AZ, K8NHW/XV5, several KG6's, KW6EJ, VK's, VR1L at 0824z, W6 and W7, ZB2BM, ZD7KH, 4S7PB, 5Z4 and 9G1GG. However, there were a few that refused the hook artfully dangled in front of them, notably FK8's AB, AU, AZ, and BK; KJ6BZ, KS6CK, ZF1ES and VR3DY.

It is surprising how few of the correspondents to this column report equally on CW and SSB, most seeming to have very marked preference in one or the other direction. Not so G3LZQ; his list this time is almost exactly balanced between the two modes. Hence, on

CW, TA1AV, HV3SJ, HKØBKW, and VP7NA were raised, while SSB yielded several 9J2's, 5N2AAF, 5Z4's, 5H3, VR4CR, 9V1NV and KH6GDO; the balance is nicely restored by an excess of CW over Phone on the other bands.

Eighty and Forty

A great pity it is that more people do not write in more regularly about their doings on these bands, because there most surely are doings, and they often do not get a mention.

Your E.P.E. spent a couple of hours on 40 metres without a QSO—but at least the dummy load helped to keep the shack warm! Operating a Club station, at the sort of hours that a Club station is able to get on, produced a lot of EU contacts in the book but nothing exotic.

GM3SVK/A worked some nice DX during his stay in Orkney, Eighty giving him W1FZJ/KP4 and CT2AA, plus plenty of EU stuff to fill out. Forty gave W6 and W7 plus a host of East Coast W's.

Turning to the clip from G3TLX, we find, for 80m., W1, 2, 3, 4, 5 and 8; VE1, 2 and 3; VO, UA9's,

UF6DF, TA2BK and HI8RV, while Forty gave all W districts and VE1-5, TA2BK again, KP4UW, SM6CMU/MM off EA8 and UI8IZ. G2HKU has only one mention for each band, in EP2GI, worked on 3.5 mc SSB, and YV1TO on Forty Sideband, notable for an extremely prompt QSL; and a CW mention on Forty of hearing SM6CMU/MM, a couple of KP4's, UA9BW, TI2WR and PY4BQC, all around 2400z.

"Greatly improved in the last month or two" is the comment of G2DC, talking of Eighty; to back this up he points out that during the period under consideration, he managed 32 Countries and 20 States. However, one contact gave him greater pleasure than all the DX—with G5WQ, who was last entered in the book 43 years ago when Jack was signing Y-DCR from Rawalpindi! And, what is more, G2DC was able to look over his shoulder during the QSO, and there was the card for that first one on the wall among the other early trophies! Turning to 7 mc, Jack's view is that this band also was well above average for the time of year. The QRM is as bad as ever, but the world can be found if it is looked for—KP4DAC, HK4EY, JA6AK, all W districts including 27 states, and a new country on the band in the form of ZS1JW.

The brief mention in the letter from G3IGW offers, on Eighty, UI8AI, and on Forty, G6ZY/CN, W5AB—at 2345z—and 9Y4RA, all of which were duly taken into the log.

Forty for GW3UUZ meant SSB, and he managed to work the Europeans, plus for good measure ZC4, UA9, all W districts, PY, CN8, 4X4 and YV. No activity as yet on 80m., although it will be only a matter of time before the ether is disturbed in this region also.

On the topic of DX, we have a note from 9M2DQ, who has a new QTH after some vicissitudes over the last year, so that the beams and towers for the HF bands are going up again, and indeed may well be in business by the time this is to be read. What is more important is that Jimmy is prepared to "have a go" on 160 and 80 metres if anyone is interested.

One way to get at the DX on 7 mc is used by G3PQF, who is in on the CHC net on Sundays; quite a few

familiar calls appear there after being missing for quite a time.

G3VSL has been operating 7 mc, by the simple expedient of strapping up the 21 mc dipole and tuning against earth. This gave contacts with JA3, UM8, UL7 and lots of W's.

G3SED (Portsmouth) enters the lists at this point, with 3.5 mc CW contacts with YN1CW, VO1, 9H1, ZL4, KV4, W's and VE's. Forty was tried in the late evenings occasionally, and produced TA2OB, 3A2AB, YV5BPJ, TF3TF, KV4CK, also PY's and W's.

Having been flogging the merits of Eighty in his letters for some months now, your conductor was a little startled when G3WJS (Dorchester) admitted this time that he had hardly looked at the band! Thus the bag was W, VE, VO, UA6KBS and a new country in the guise of 4X4BS. CN8BV and a few of the early-morning ZL's which were heard, were all, unfortunately gotaways. Forty also was rather neglected.

Finally in this clip, we have to refer to another unfortunate possessed of a pirate-shadow. G3WNO has a nice new call which he has been exercising quite inoffensively on 160 and 80 metre SSB. However, when he got his first envelope back from the Bureau only 4 out of the 21 cards were his own—the rest were for some guy from Liverpool who calls himself Mike and works 80/40 CW. (Odd, that last bit; pirates usually are too dim for CW.) Anyone who knows anything about the phoney "G3WNO," please pass the dope on.

Bits and Pieces

Sometimes one gets to hear of things which restore, for a while at least, the feeling that there really is something in the old saying about "the Spirit of Amateur Radio." Back in February, we mentioned that G3WUD wanted to get on the HF bands with CW/SSB, but that it would be somewhat of a feat of engineering on his pocket-money. Well now, G3WUD writes in this month that as a result someone unknown presented him with a Kokusai filter and a brace of matching crystals, saying they were "surplus to his requirements." G3WUD says, in thanking the person concerned, that such kindness

TOP BAND LADDER

(G3V-- and G3W-- stations only)

Stations	Counties	Countries
G3VMW	95	19
G3VGR	94	16
G3VYF	88	19
G3VTY	86	13
G3VLT	80	16
G3WDW	80	8
GW3VPL	78	16
G3VMQ	73	15
G3VMK	63	17
G3VES	63	16
G3VOK	61	15
G3WUD	61	11
G3WQQ	60	12
G3VSL	60	11
G3VLX	59	11
GI3WSS	58	9
G3WDG	52	8
G3VPS	48	12
G3WJS	41	9
GW3WWN	41	6
G3VWC	34	7

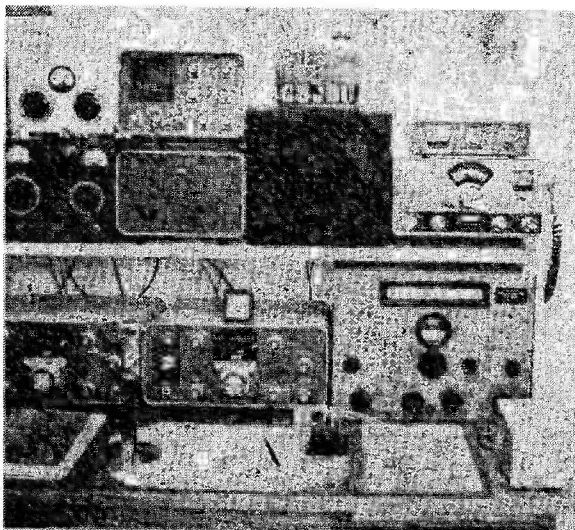
is incredible in this day and age—but your scribe is rather inclined to guess that someone was old-fashioned enough and honest enough to recognise young talent that is game enough to help itself, admire it, and help to make things easier. Anyway, it *must* be good for Amateur Radio in the long-term.

Changing tack a little, G3SVK/A, recovering his breath after Orkney, says his direct QSL's are, for the present at least, to be sent to G3TZZ, for contacts from Rutland or Orkney. He also says he is going to mount *another* DX-pedition, this time to Huntingdon, over the Easter Weekend, April 12-15. Later in the summer, of course, he has a trip to the Channel Islands; and even that is not all—there is something up his sleeve; or if there isn't there is a mighty suspicious bulge!

Ballymena Radio Club wish it to be known that their DX-pedition to Fermanagh is definitely "on" with G13FFF/A operating from 1930 to 0530z over April 13-16, on Top Band. The HF Bands are not certain, but if a PSU can be obtained for the SB-101 there will be G13XDX/A signals on the HF bands.

For those who want Anguilla, VE3CUS will be there from about the time this goes down. And for those who wonder about the reality of those PK calls, relax a little—one QSL at least is known to have come home to roost. If you are after prefixes, Mexico is permitting the use of the prefixes 4A1, 4A2, and so on, from March 31 till the end of the year—a pity. If you hear YJ8BW, stick around, as he may be in company with VR1L. Those calls VQ9JW/A and VQ9JW/C were from Astove Island and the Cosmoledo group respectively but too late to do anything about it if you missed out . . . VQ8CC is going to Caves Point Lighthouse, and it is likely that by the time you are settling down to read this he will have been and gone—a pity, he was going to be on Top Band too. A couple of useful net frequencies are the S.E. Asia affair, around 14320 kc daily at 1200z, and the Pacific Net on 14330 kc which meets at 0830 on Monday, Wednesday and Friday each week.

G3NMH is still having trouble about the VP8 QSL's. Let us try and clear it up: Hal will deal with



Station G3JBU, owned and operated by Bryan Hayes, of 31 Beverley Crescent, The Headlands, Northampton. He runs a Heathkit SB-301/SB-401 for all bands 10 to 80m., at 180w. p.e.p., with output monitored by the SB-610 'scope unit. Top Band is dealt with separately using home-built gear. Also available are a CR-100/8 general purpose receiver and a Heathkit HW-12 transceiver (single-band, 80m., 200w. p.e.p.) used for /M/P operation, or by the fire in the winter, for which a coax aerial feed point is provided. The aerial used for all bands is a K.W. trap dipole fitted into a garden length of 85ft., which means that 20ft. of it has to be draped down the mast.

QSL's posted direct to him with an s.a.c. from U.K. stations only and all the Bureaux are sending via the CX Bureau for VP8's, we hope. Hal has had too many cards sent from Bureaux, sometimes even a second time after returning the first time, which is a bit much.

Jim Parsons, G6SU, together with G3MEA and G6CY, are going on a trip round Eire, lasting for three weeks from April 4, during which they will be signing EI8BT/P, and /M, from all sorts of interesting places on all the bands 80-10 metres.

Maritime Mobile Matters

Both our regular /MM correspondents, G3UOF and G3PLQ, are off the air for one reason or another, and look like staying so, at least for the time being; it is believed that in one case there is a problem with the owners which is still being sorted out, and in the other there is a licence formality to be attended to which has to wait till the next time the ship is in a British port, which may not occur for several weeks or even months.

Prefixes

There seems to be some doubt as to what's what here; quite simple

really. All you do is to score for WPX by the WPX Rules in CQ—but if you enter our Zones/Prefixes Table, classify prefixes in accordance with the HPX Rules as given for our SWL's—see p.30, March SHORT WAVE MAGAZINE.

Top Band

The QRO/QRP controversy has already been discussed at length. This means that many letters have already been covered—probably no bad thing, as we have had a trend to 160 metres in this piece strong enough to make it unbalanced. This time, just a quick run through the essentials of the news. (W1BB, as always, is the source of a lot of this.)

W0VXO has moved to Durango, Colorado, where he is now deep in a canyon surrounded by 14,000-ft. peaks. From this unpromising situation, using an inverted-Vee with the apex at 45 feet and the ends almost on the ground, Herb was able to work KA9AK on February 20, peaking 579. Later, just to show how easy it all is, W0VXO followed up by working JA1RST at 579. They then went over to SSB and talked for a further 45 minutes! incidentally, KA9AK was also



PY2BJH is operated by Hercilio Ferreira, P.O. Box 8403, Santo Paulo, Brazil, whose claim to fame is that he is one of the very few PY's operational on Top Band. He has worked many W/VE stations on 160m., and his contacts include also CE3CZ, PZ1AH and VQ9JW—a pretty fair record for Top Band! And he has more than 50 QSL cards from U.S. novice operators on 160 metres.

worked on SSB immediately after the CW contact. It means that WØVXO has now achieved a second WAC on Top Band, and is only short of Africa for a SSB WAC.

The VK tests this time appear to have had a certain amount of success. KA9MF was audible at 579 many times, and several JA's were worked. Tragedy for W1BB was hearing VQ8CC on schedule at 439, but realising he was not responding to the calls. VK5KO heard G3LIQ and GW3XEJ/P! An SWL in Perth, 1,400 miles nearer the U.K. than VK5KO in Adelaide, has heard several JA's, also W6, 7, 9 and Ø—plus G3UNT, much to the latter's surprise! (We should say so!) At the time G3UNT was running 6 watts.

G3SED mentions his ZL tests with ZL3RB during March and the time factor involved. At the beginning, the ZL (on 1880 kc) will peak, if conditions are right, over a period of only five minutes, the exact timing depending on one's latitude—for example, at 0700z at the beginning of the month in Portsmouth; five minutes earlier in London and five minutes later in Weymouth, the time

going on by three minutes each day till at the end of the month it will have reached 0800z at Portsmouth. The actual process will see ZL3RB come up out of the noise to a peak for two minutes, stay up for a minute, and slowly subside for another couple of minutes—so timing is of the essence. In this connection, both your scribe (and A. J. Devon) remember that this was all worked out by the late G6GM, 'way back about 1953, and that G6GM in those days used an HRO modified to work off a 50v. HT rail, as he had no mains within miles of his QTH.

As usual, there was lots of more domestic Top Band news in the mail, but in view of the shortage of space this time and the load of mail, it has all had to be compressed.

World-Wide SSB Contest

Here, as ever, we owe thanks to W1WY of *CQ Magazine* for his quite excellent information service, and commiserate with him on hearing that KH6IJ was frantically calling him during the *CQ WW 160* affair recently and getting no joy. Hard luck, both!

The *CQ World-Wide WPX SSB Contest* covers the 48 hours of the period April 6-7, from 0001z Saturday to 2359z Sunday, only 30 hours' total operating-time being allowed; up to five breaks may be taken to make up rest-periods and these times must be clearly shown in the log. All bands 80-10 metres, SSB *only*, with categories under the heads: Single-operator single band; Single-operator all band; Multi-operator all band, the latter subdivided into single-transmitter and multi-transmitter classes. The Single-operator entrants are allowed one signal on the band only at any time. The Multi-operator entries may have one signal on each band simultaneously.

Scoring is as follows: Contacts between stations in different Continents count *three points*. QSO's with other countries in the same Continent count *one point*. Contacts in own country are permissible only to gain a prefix multiplier, but do not score a QSO point. WAC Continental boundaries are the standard. The multiplier is determined by the number of different prefixes worked. All-Band Entries total up the QSO points on all bands and multiply by the total number of prefixes worked. (Note that a station can be worked on any band once for QSO points, but the prefix is only countable once.) Contacts must be in the usual form: Serial starting at 001, logs to show times in GMT, with the *non-operating* (rest) periods clearly indicated. Final details next time.

Deadlines

So there it is for this month, with one of the heaviest mails ever. Apologies to many correspondents who have been squeezed, but nevertheless all claims for the Tables have been taken into the files. The press of news has caused the squeeze. For next time, all your news, views, arguments, ideas, comments, opinions and suggestions must be with us by **Monday, April 8**, addressed as usual to: CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM, for coverage in this space. For those who do not get the *Magazine* in time, or correspond by airmail, closing dates for the next few issues are: First post Mondays, **May 13, June 10 and July 8**—for the **June, July and August** issues respectively. *73 es DX.*

VHF BANDS

A. H. DORMER, G3DAH

THE big news this month is the extension of the B-Licence (G8/3) to include operation in the two-metre band. This has been expected for some time, and it only remains for effect to be given to the decision by a notice in the *London Gazette*, which may well have appeared by the time this does. Welcome to these boys on 144 mc! It is devoutly to be hoped that occupancy of the 70-cm. band will not thereby be reduced to the point where other agencies begin to cast envious eyes upon large chunks of it.

Trends On the Air

With two exceptions, conditions on all bands have been very ordinary during the month. The first exception was the opening to Europe on February 28, which was a blend of a minor Aurora and extended tropo. Many DJ/DL/G tropo. contacts were obtained by stations all over the U.K., but in the south at any rate, it was a bit of a job at times to fight through the wall of PAØ to get at the EU/DX. The Dellinger fade-out on February 27 gave a clue to a possible Aurora, and during the afternoon of the 28th a certain intermittent roughness was apparent on the Wrotham Beacon, but no positive auroral effect was observed on amateur signals, from any

direction. Continentals were heard coming through on both 144 and 432 mc at good strength from about 1700 onwards and by 2100 hours the easterly DL's were to be heard on two metres.

Supporting evidence that there were in fact Auroral manifestations during this February period comes from several sources. G3BA (Sutton Coldfield) heard (from a correspondent in the Shetlands) that there was a very fine display of the Northern Lights up there at the time. Both PAØKWY (Delft) and DJ9DL (Witzhelden) were heard calling TF2WKR. Now, that is not a path that is likely to be open under any but Auroral or MS conditions, and the activity raised a lot of speculation. However, a subsequent check with PAØKWY revealed that he had *not* heard the TF2 but was just calling on spec. DJ9DL heard him all right at 2015z, with a buzzsaw note, but was unable to QSO. The German stations were heard working LA and SM *via* Aurora, but no effects seem to have been observed in this country even as far north as Yorkshire. GM's were also being copied in Germany, but there is no record of a QSO. European 432 mc contacts made during this period were obviously by good tropo. only, since no cases of Auroral contact have as yet been reported on that band, nor is it likely that they will be.

The second event of interest was the reception in the south of England of the Gibraltar beacon, ZB2VHF on 70.26 mc. This was reported by G3JHM (Worthing), with the signal peaking to 589 during 1000-1100 on March 3. Polarisation was predominantly vertical (as might be expected from a vertical antenna at the transmitting end) but there was some evidence of ionospheric twist. This is the first reported reception of the beacon in the U.K. this year, and Don is to be congratulated on latching on so quickly. An indication that there might be some Sporadic-E about at the time came from a report from Gibraltar that BBC Ch. 1 TV was being received there on March 2. The Rhodesian beacon, ZE1AZC on 50.04 mc, was heard in Gibraltar on March 6, evidence presumably of trans-equatorial propagation. With the approach of the sunspot maximum, it is reasonable to hope for an increase in Sporadic-E activity later

this year, so that a G/ZE QSO on 70 mc may well be possible, particularly now that there is a chance that a ZE beacon may operate in the 70 mc band and so provide a guide to prevailing conditions.

Barograph charts for the month show a steady rise from 29.5in. on February 13 to 30.4in. on the 17th. Pressure then stabilised at around the 30in. mark until the 24th when an abrupt rise held to 30.7 over the auroral period, the trace starting to drop again towards the end of the week.

Barometric Pressures

Some operators seem to be having trouble over the conversion of millibars to inches of barometric pressure, and *vice versa*. There is no mystery about this, although the calculation is just a little tedious. One Bar is equal to 75.007 centimetres of mercury at 60°C in Lat. 45°. One millibar is obviously 1/1000 of this figure, *i.e.*, .075 centimetres or .0295 inches. One thousand mB correspond therefore to a pressure of 29.5 inches. The common ratio is 1000/29.5, or 33.9. To obtain millibars from inches, multiply the figure in inches by 33.9. To obtain inches from millibars, divide the mB figure by 33.9. And that is all there is to it. The chart on p.95 gives an at-a-glance conversion.

Meteor Scatter

Reference was made last month to MS communication and it is intended to go into the mechanism of this mode of propagation in due course. For those who might like to have a go without waiting for further information, the Table on p.94 lists the showers forecast for the remainder of this year. It may be noted that the various appearances differ considerably in density (Intensity) and that *Beevar's Stream* is likely to be a bit thin this year. However, all showers have been used at one time or another over the last few years, and have given results.

Two-Metre SSB

The number of stations now operating SSB on the two-metre band increases apace. G3BA (Sutton Coldfield) and G6CW (Nottingham) have already worked over 100 different G stations using this mode and the total is coming up every

METEOR SHOWERS, 1968

			Radiant	
			R.A.°	Dec.°
Lyrids	April	20-22	271	+33
Aquarids	May	2-6	336	zero
Pons-Wins-neckheids	June	27-30	213	+53
Perseids	August	10-13	46	+58
Giacobinids	October	9	262	+54
Orionids	October	18-23	96	+15
Leonids	November	14-15	152	+22
Geminids	December	10-13	112	+32
Becvar's Stream	December	22	217	+76

week. For this happy state of affairs, G3BA's article in the January issue of SHORT WAVE MAGAZINE is significantly responsible, as is the appearance of the Withers Phase Two Transverter. However, the stage has now been reached when it might be a good thing to have a look at the frequency utilisation around the SSB calling channel of 145.41 mc. In the early days, it was desirable that SSB operators should know that they could put out a call on the frequency and stand the best chance of getting a reply, but on a Monday evening Activity Period, when conditions are reasonable, a call on the channel is now likely to produce several replies with consequent QRM and general frustration. (Let it be noted also that this channel was allocated for international contacts at the IARU Region 1 Conference in May 1966.) It has been suggested that SSB operators should "spread out a bit" to the extent of ± 25 kc or so centred on 145.41 mc, and while this may be a good idea for them, what about the stations who are conscientiously operating the Band Plan and working in that Zone? They are hardly likely to welcome this intrusion into their airspace.

One solution which immediately suggests itself is that far more co-channel working should become the order of the day. A station calling CQ should do so within his own Zone boundaries and should *invariably*

check his own frequency before tuning the rest of the band. When replying to a CQ, or a call from another station, the answer should always be on the calling station's frequency. Surely, in these days of VFO's and transceivers this should not introduce too many problems. Indeed, it is accepted practice on the HF bands and during Contests. Admittedly, one would have to tune over a larger frequency range than at present, but this is already the case for ten metres for example, and seems to present no difficulty there. No specific calling frequency is allocated for any of the other bands where SSB is in general use, although there may be need of one in the initial stages of Sideband operation on 70 cms. In any case, only small segments of the band need be tuned at a time, depending upon the direction in which the beam is heading. One is hardly likely to get a reply from GM at the top end when aiming at Sussex!

Such a solution would also ease the situation which is fast approaching where several stations are using SSB in close proximity to each other and mutual QRM and cross-modulation phenomena are raising their heads. For example, there are now eight stations on Sideband in the Nottingham area, and one wonders how much their successful QSO's have depended upon good operating techniques and equipment and how much their success might be enhanced

if co-channel, zonal working were introduced.

Anyway, there is one possible answer. There are undoubtedly others. Who will start the ball rolling and give it a try?

Location Systems

The controversy still rages around the use of *QRA Locators* and other position location systems. Let us have a look at the facts.

QRA Locators are virtually a must for an operator who is aiming to make European contacts on the VHF/UHF bands. They are in widespread use during Contests in the whole of Region 1 of the IARU and, outside contests, it is rare for a Continental operator to omit giving or asking for one during a contact. They provide the simplest and shortest method of fixing and passing a position to within a mile or so. More than that they cannot do, and indeed it was never intended that they should. The available maps are not prepared or produced accurately enough to permit anything better than that, and for most practical purposes such accuracy is adequate. It is certainly easier to look up a five-figure group on a Locator map than it is to find out where Oberunterbisdeldt-bei-Pfansheimstadt is. Or even Little Piddington-in-the-Marsh on a Ten Mile O.S. Sheet. U.K. contests now require position to be established within radii of 50 Km., with provision for borderline cases, so that extreme accuracy is not required and scoring becomes a very simple matter for both the compiler and the adjudicator of the log. The use of the QRA Locator on 4 metres is perhaps more questionable since there is no Continental activity on that band, but ease of scoring and marking remain.

Another location system, which offers very much better accuracy and for which maps are available both in this country and in Europe, is also being examined. This is the GEOREF system which is in general use by the NATO nations, and even outside NATO in certain circumstances. Accuracies to within a few hundred yards are possible with these maps, given a six-symbol group. It is the intention to present a paper, based upon an evaluation of the system by G3JKV, to the IARU Region I VHF Committee

with a proposal that this system should be adopted throughout the Region. If all members accept this proposal, it may well be that GEOREF will supplant QRA as the basic location system. It is a *sine qua non* that whichever system is adopted it must be applicable in all countries in the Region. There can be no case for "Going it alone."

Other systems, such as Lat. and Long., or National Grid, are, of course, capable of giving high accuracy but suffer from the disadvantage either of requiring the transmission of more symbols for a given accuracy, or of not being widely applicable.

Place names are favoured by many operators, and certainly they are less impersonal than figures and letters, but the drawback of difficulty of location on other than detailed maps, and of ambiguity, remains. There are for example no less than five Newport in the British Isles. Measurement also becomes a bit of a chore when, in accordance with a well-known law, the other chap's QTH is always on a section of the map other than that on which your own QTH figures.

So there are some of the pros and cons for your consideration.

Annual and All-Time Tables

It is proposed to simplify the Annual and All-Time Tables by reducing their number and by operating them in a more compact form. There will be an Annual Table for each of the three major VHF/UHF Bands, *i.e.*, 70, 144 and 432 mc, which will record claims for counties and countries worked on the same basis as heretofore except that entries will be tabulated on one, comprehensive chart. At the end of the year the three columns will show, band by band, and in descending numerical order, the position of stations entered. By adding the scores in the three columns horizontally, totals are arrived at which show the result of three-band entries. The Table will be published at frequent intervals throughout the year to show the latest positions. The leading Three-Band station at December 31 each year will receive a small prize. In the event of ties, the Editor's decision will be sought and will be final.

As far as All-Time scores are concerned, Tables for 144 and 432 mc will be compiled annually and published in the February issue in this space. A reminder to submit claims will appear in the November issue. Any station working more than six countries on 4 metres will receive the acclaim of his fellows and a special write-up in the column.

If all this seems a bit complicated have a look at next month's issue and you will see how it works out. Start sending in claims now. It should save you, and the compiler, much time.

DX-peditions

G3UBI and G3UGF, both of Halifax, are planning to repeat their expedition to Northern Ireland after a lapse of two years. This time they will be operating GB2NI between July 28 and August 11, from Londonderry, Tyrone, Fermanagh and Armagh. Times and locations will have been finalised by June, and requests for skeds should be sent to G3UBI at the beginning of that month.

G3OHC, G3NZS and G3PWJ are aiming to put GM3PWJ/P on the air from Kirkcudbright on May 18-19. Operation will be on AM, CW or SSB depending upon conditions prevailing at the time. Fairly high power will be used from a site with a good take-off to the South, the radiator being a ten-element Yagi on a frequency in the Band Plan zone.

From G18AYZ, p.r.o. of the Ballymena Radio Club, comes a note of an expedition to Co.

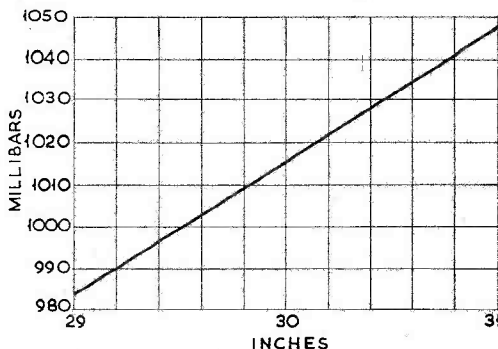
Fermanagh during April 13-16. Calls will be G13RNY/P and G18AYZ/P. Operation mainly on phone in the 70 mc band.

GM8APX/M will be looking for contacts on 432 mc from Golspie and the Moray Firth area between April 18-21. Requests for skeds to 8APX, QTHR.

Contests

Conditions were not particularly good for either of the two recent major Contests. Activity was average for the 70 mc event (February 11) and below normal for the two-metre during March 2-3. Rules for the former seem to have caught a few operators napping as in quite a few cases no QRA Locators were being passed and a request for one from one station brought the reply that they were not necessary, and from another that the locator was not known and they didn't bother with them anyway. Best DX from Herne Bay was G3RLE (Cleckheaton), G3NEO (Sheffield) and GW3NUE/P (Pandy). Highest scores heard towards the end of the Contest were from G3MEH (Coulsdon) and from last year's winner G3LAS, operating from his new QTH in Hertford.

The two-metre event was a little more lively and several EU contacts at good ranges were made from many parts of the country. Conditions were best on the Saturday night, to which time most of the SSB activity seemed to be confined. However, by Sunday morning most of the zip appeared to have gone out of the band and contacts were



CONVERSION GRAPH: MILLIBARS-INCHES

becoming more and more difficult to make. Even the usual last-minute rush at the end of the Contest seemed of minor proportions compared with previous years. It makes one wonder if these Contests are not too long. G2JF, operating from the Ashford site at 625 feet a.s.l., made 227 contacts for a score of some 36K points. QSO's were obtained with 79 G's, 69 F's, 22 ON's, three DL's, 53 PAØ's and one GW. Best DX was DLØSD in "DL66F," DL8VW in "EL61H," F9VP/P in "AH35H," DJ3ZU/P in "DK23F" and F1BL in "BG27F." Those who know Jim and his set-up will not perhaps be altogether surprised and will certainly not take this to be an average result.

Results of the IARU Region 1 Contest last September show U.K. stations at the head of five out of the six sections. Congratulations to GC3WMS/P, GC3VXK/P, G3NNG/P and G3MCS, the latter taking both the 70 and 23 centimetre leads.

Forthcoming events include the RSGB Second 4-metre (Open) on April 20-21 and First 1296/432 mc Open on May 4-5. Cumulative Activity Contests on 2m. and 70 cm. on April 6 are the last of the series. The German SSB Contest is from 2200 to 1200 MEZ on April 6-7, and the Dutch UHF Contest on 432 and 1296 mc is from 1800 to 1800 GMT on May 25-26. The French Cup Contest is scheduled for May 4-5 on 2m., 70 cm. and 23 cm.

First Midlands VHF Dinner

This pleasant event, organised as capably as ever by G6FK, with assistance from G8ARS and G8AEV, was held under the chairmanship of G8ACB/G6KQJ/T at Wolverhampton on March 16 and attracted 36 VHF enthusiasts, some from quite far afield. The dinner was preceded by a talk by G3OQB on a new technique for employing transistors at VHF, which involves the use of "Smith Charts," now being issued by some manufacturers, to enable the relevant parameters to be assessed rapidly and accurately. It became apparent that there is, at last, a tendency among producers of transistors to standardise not only characteristic measuring techniques but also nomenclature. For those who may be wondering if this dinner is

intended to supplant the regular Midlands VHF Convention the answer is No—it was in the nature of a continuity link between last year's successful meeting and the one which it is proposed to hold next year, probably in June of July.

Beacons

In an interesting letter from Gibraltar "Ossie," ZB2VHF, gives details of beacon operation from there. After his departure from the Rock in July, the task of looking after ZB2VHF will be assumed by ZB2ZL, who also operates on 70-26 mc with that call. In co-operation with the South-Coast VHF Group, centred around G3WLE, it is hoped to have a *two-metre* beacon going by June of this year, frequency 145-00 mc and coding as for ZB2VHF. The Radio Club of Monaco also plan to have a beacon on this frequency, possibly by June, with the call sign 3AØVHF, power of 18 watts to an omni-directional antenna. ZB2VHF can come up on 70 mc on request when conditions are right. Ossie operates ZB2AP on 14-260 mc at 1800z, so give him a call to fix things up and let him, or G3JHM (Worthing), have reports.

The South-East Four Metre Beacon Group are also active with plans for a 70 mc beacon. G3LWM (Worthing), G3ODB (Orpington) and G3OYO (Tatsfield) are co-operating in the venture and design work is now at an advanced stage. If all goes according to plan, semi-conductors will be used throughout for an input to the final stage of 3-5 watts and output to a ground-plane at about 650 feet a.s.l. Keying will be ICW and MCW on 70-695 mc, location possibly Tatsfield. G3OYO can be contacted on 70-425 mc for further information and, with the equipment in use at his station, can give very accurate reports on frequency and modulation depth.

News Items

The Knokke Convention dates this year are September 13-15. Further details to follow.

THE SHORT WAVE MAGAZINE VHFCC Award will again be available, so collect up those cards. Detailed information will appear next month.

Although it is not proposed to restart the "Calls Heard and Worked" feature on a full-scale

basis, it would be of general interest if you would send details of contacts over 250 miles giving date and time with the call signs.

Congratulations to G3RPE/P who set up a new 13 cm. record on February 18 by a contact with F2FO/P at Cap Blanc-Nez, a distance of 35 Km. from Dover. This is the first G/F QSO on that band.

G2HOS (Barnet Green), now has a rhombic on 144 mc and would welcome tests. For those looking for Denbighshire, good news from GW3RBM. John is prepared to come up for a sked on SSB, AM or CW, on 2m. on receipt of an s.a.e. six to ten days ahead of time. This would be a cinch in the South, as his SSB signal is regularly received in Herne Bay at good strength. Frequency is 145-450 mc, power 25 watts.

Friday night is Finnish night for G3CCH (Scunthorpe), who has a regular sked with OH2BEW at 2100z. Traffic will be at 30 w.p.m. but it may be possible to latch on afterwards at a more reasonable speed! Frequency is 144-102.8 mc and as the mode is MS, will be accurate to within one kilocycle.

G3LTF is putting out a massive signal on 432 mc, running about 200 watts p.e.p. on SSB. Many will remember that Peter was operational on this band with SSB as long ago as 1965, but other activities have prevented him using that mode very much of late. He is to be found between 432-000 and 432-100 mc every evening after 2200 local and would welcome DX reports.

G2BQC (Skegness) is back on Two Metres after many years away in Australia where he was VK2LJ. He now runs SSB from a QV06-40A and is looking for reports.

The London VHF Convention will be held again this year at the Winning Post Hotel, Whitton. Date is Saturday, April 27, and cost of tickets is 30s., to include dinner, or 4s. 6d. for the day session only. Speakers will include G3BA, G3HBW, G3RPE, G3LTF, G3JHM and G3JVL—which sounds a very impressive line-up. Applications for tickets to G3GMY, QTHR.

That's it for now. Deadline for the next issue is April 6. Address is "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM. 73 de A.H.D.

NOTES ON JXK VHF CONVERTERS

FOR FOUR METRES, TWO METRES
AND SEVENTY CENTIMETRES

A. H. DORMER (G3DAH)

SEVERAL JXK converters have been in use in this station for over a year now and it is hoped that these notes may be of interest to other users, or potential users, of this equipment.

First a short look at back history. Production started at JXK in April 1966 and at that time included a wide range of transistorised equipment such as pre-amplifiers, SWR bridges, speech compressors, megacycle markers and noise generators. All but the converters and pre-amplifiers have now been discontinued and current design and production is concentrated on gear for four and two metres and for 70 cms. There is also a 23 cm. converter on the stocks.

The original models were all constructed on copper board, but to take advantage of modern construction techniques, and to hold the price down, construction is now on fibre-glass laminate board for the four and two metre models, copper board being retained for the 70 cm. version in view of the more stringent requirements for screening at the higher frequency. All are contained in standard diecast boxes measuring $1\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{3}{8}$ inches. General layout can be seen from the photograph, p.98.

FET's are used in the front ends of the four and two metres series, a TIM-12 in the former and a TIS-34 in the latter. The 70 cm. converter uses an AF239 lead transistor followed by a TIS-34 second RF stage. This technique improves the strong signal performance, combining as it does the low noise attributes of the bipolar with the cross-modulation protection of the FET. No cross-modulation effects have been observed at G3DAH with this configuration, in spite of the massive signal radiated by G2JF a few miles distant.

During development, a single stage FET was found to give disappointing results. The noise figure was about 5 dB or so on two metres and the gain unacceptably low. However, by series-cascoding the FET's a noise figure of 1.8 dB has been regularly achieved on 2m. and about 3.5 dB on 70 cm. Converter noise below atmospheric on 4 metres.

Design Points

Gain is now about 30 dB on all converters and the response on the two- and four-metre models is flat over two mc $\pm \frac{1}{2}$ dB. The two-metre converter has been used at G3DAH to receive satellite transmissions on the 136 mc band quite successfully—albeit with, understandably, some loss of gain, because the circuits are adjusted for 144-146 mc. Normal coverage on the 70 cm. converter is 432-434 mc but by a little judicious retuning it can easily be extended to cover up to 436 mc for the amateur TV vision channel.

The two- and four-metre models use silicon planar

transistors in the oscillator chains, the 2N3826 having been chosen as the xtal stage on third or fifth overtone, followed by another 2N3826 as a multiplier.

The AF239 has been selected for the front-end of the 70 cm. version, followed by a TIS-34 amplifier and a TIS-34 mixer. The oscillator is a 2N3826 with a 2N3826 first multiplier and a TIS-18 silicon planar up on 400 mc or so. Many home-built converters the writer has seen fail to perform satisfactorily with a 2N3826 as the final multiplier because of insufficient injection voltage at the mixer. No such problems seem to arise with the TIS-18 which is driven really hard and is, in fact, capable of giving 8 mW out at 900 mc.

Protection

No front-end protection is provided for in the converters and after a self-inflicted, catastrophic failure while running up the Tx just before a contest, the arrangement shown below is now used and is recommended if there is any doubt about the efficiency of the existing change-over system. This method is to be preferred to using protection diodes since these devices considerably degrade the noise performance and add to the possibility of cross-modulation by strong local signals.

Protection against a reversal of the supply potentials can easily be arranged by adding a series diode in the supply circuit. The diode should have a forward resistance of not more than 200 ohms or the supply volts will drop excessively. A suitable type available on the surplus market is the STC Type DK10.

The converters are normally supplied with an external 12v. battery supply, but if you are a forgetful type a small mains PSU can be linked with the receiver on/off switch. The trick is to use a high value of R and C

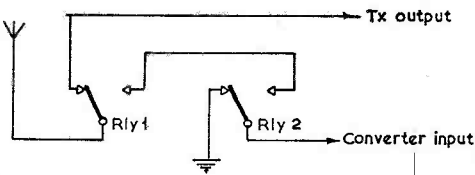


Fig. 1

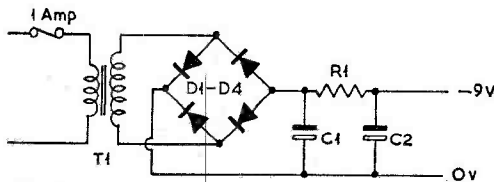
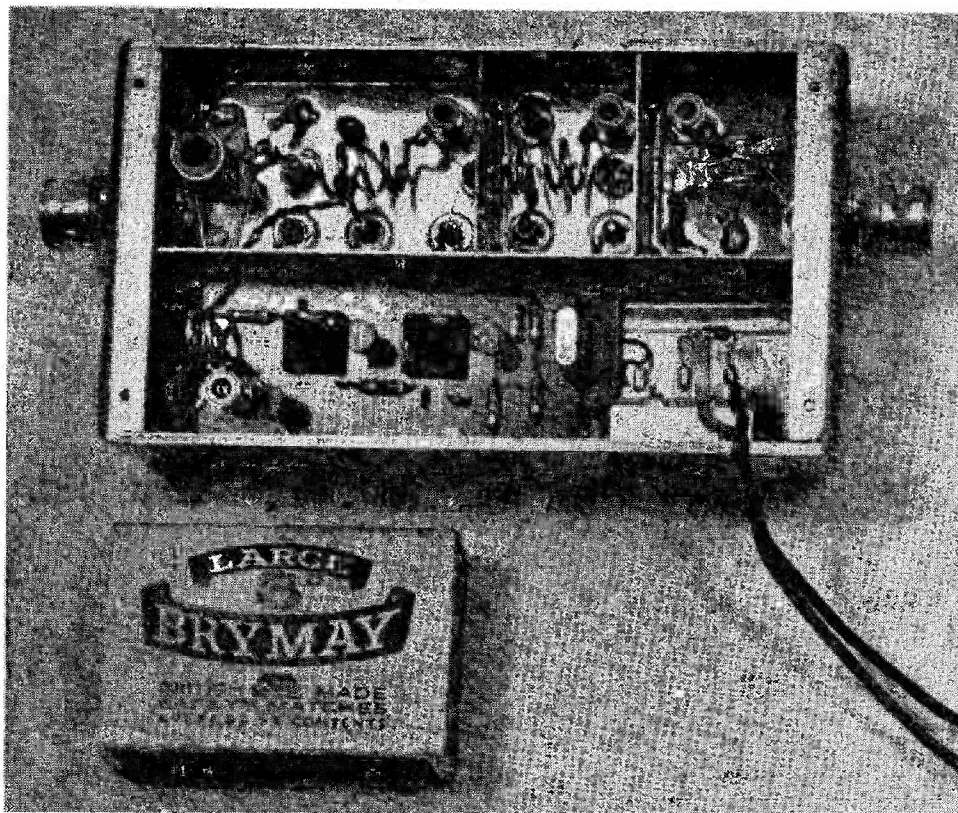


Fig. 2

A
419

Fig. 1 shows a change-over arrangement that will isolate the converter on "transmit"—the coax relays used being Magnetic Devices Type 951. At Fig. 2 is a simple mains/PSU for a JXK converter. Values are: C1, 100 μ F, 25v.; C2, 300 μ F, 25v.; R1, 2K or thereabouts but should not be less than 1K; D1-D4, STC DK10 or similar; and T, 9-0-9v. mains transformer, such as Henry's Radio MT-98.



Picture, with a size comparison, of the interior layout and construction of a JXK converter for the VHF bands. Models are produced for all bands four metres to 70 centimetres, and for each the general arrangement is similar. These converters, using FET's, are giving a very good account of themselves and it is understood that a 23-centimetre version is under development. Some notes on JXK Converters are given in the accompanying article.

in the smoothing circuit and drop plenty of volts. For this reason a 9-0-9v. secondary voltage is chosen and used with a bridge rectifier, a 2K resistor and 300 μ F of smoothing. A suitable circuit is shown (in Fig. 2, p.97) and gives a really T9 note on all bands.

In addition to their standard range of converters, JXK are prepared to produce RF strips to go with two-metre and seventy-centimetre SSB transverters. The one in use at G3DAH is a TIS-34 FET job and incorporates a high-Q break. Injection voltage is picked off via a coax socket on the side of the converter from the transverter oscillator chain. Only very small potential is required and can easily be obtained by a single-turn link at the last xtal multiplier anode (in this case a EF91 on 130 mc).

Performance of the converters was checked on receipt,

using, *inter alia*, the Marconi TF987MX noise generator, and claims were verified. In two respects the spec. was bettered.

Converter for 1296 mc

Plans for the future at JXK include the production of a 23 cm. job. This will use the 2N3570 silicon planar in the front end followed by a 2N3571 mixer. The final multiplier in the xtal chain will be a 2N3572 which has an Ft of 1500 mc. Construction will be with quarter-wave strip line in troughs on copper board. The estimated noise figure is within 6 dB. Prototypes have an IF of 144 mc and can therefore be used with an existing two-metre converter. Other IF's can be supplied, but the 144 mc frequency is probably the best answer technically, as a lower IF, such as 28 mc, would bring the injection

and signal frequencies too close for comfort, and a high degree of front-end discrimination would be required for satisfactory results. There would also be the danger of blowing the mixer transistor if the input were to be lined up inadvertently with the injection rather than the signal frequency! The noise figure would also be degraded with the second channel so close as the converter would

respond very readily to noise on that channel.

Very high engineering standards are obvious in all the converters and pre-amplifiers and in no case has the performance been below that specified. The FET two-metre model in use here regularly produces the Swansea VHF beacon on 144.25 mc when it is inaudible on the vintage converter. The distance is about 215 miles.

MOST PEOPLE ARE HONEST!

Anent those Morse test runs (see p.25, March) offered by the Royal Naval Amateur Radio Society from their station G3BZU—an exercise which has been a feature of their activities for several years—a reader has delivered himself of the opinion that the whole ideal is what he calls “cock-eyed,” because anyone could tape the 40 w.p.m. transmission and then play it back at a speed convenient for accurate transcription, to claim the certificate. Well, of course this reader is quite right—anyone could do exactly as he suggests. But in the first place 97 per cent of people are honest; secondly, by such a trick they would only be cheating themselves; and, thirdly, if we publish the callsigns of those who claim the qualification, there is a reasonable probability that somebody locally, knowing the operator concerned and his CW ability, would be able to judge the validity of the claim.

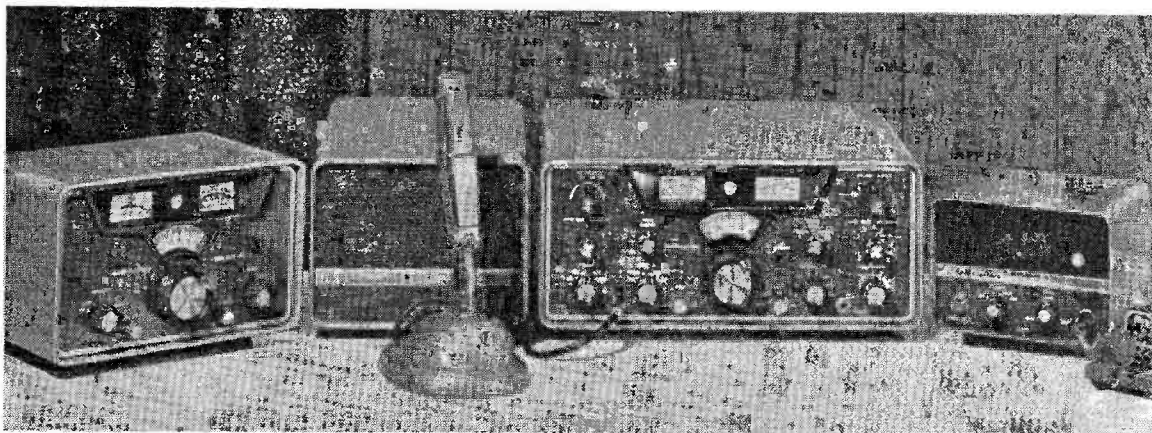
T.A. SIGNAL REGIMENT REORGANISATION

The 39th (City of London) Signal Regiment (V) is an amalgamation consequent upon the reorganisation of the Territorial Army, by which the old 65th and 92nd Signal Regiments were absorbed. The 39th now have a thriving new Amateur Radio club, holding the G3LUN and G3SIG callsigns previously allotted to the 65th and 92nd respectively. It should be noted by those interested in the T.A. that the 39th Signal Regt. is very much a

going concern, looking for recruits who are Services-trained operators or technicians. You can indulge your hobby and get paid for it, and the duties are on the usual part-time Territorial Army basis. Full information is available on application to: Lt. M. J. Francis, G3LOV, 8 Hollies Close, Newton Solney, Burton-on-Trent, Staffs. Applications are invited from any part of the country, i.e., you do not have to live in or near London to join. The 39th's Amateur Radio club runs a CW net on Thursdays at 2100 clock on 3525 kc, and on Sundays at 1130 on 3740 kc for Phone operators. The control station signs G3LUN.

THAT BBC RADIO CAR AGAIN

We have had occasion before to comment upon the rather shocking quality sometimes emanating from “the BBC radio car” (*sic*) when engaged on OB's “from the scene.” On the evening of February 27, in the BBC's Radio News Reel, it was introduced for a relayed comment. This started with what sounded like a very loud explosion and the subsequent speech transmission had that edgy quality like an FM receiver off-tune, or an SBB signal afflicted by strong adjacent-channel splash. The impression is that the output of the “BBC radio car” is never monitored, to make sure the gear is working properly. That they can produce a good quality OB is shown by the fact that the news comment from a helicopter over the driller *Ocean Prince* on March 6 was unexceptionable in every way.



At mid-right is the new Hallicrafters SR-400 “Cyclone” Transceiver, with its matching PSU-speaker unit behind the microphone. The Cyclone runs 400 watts p.e.p. in the SSB mode and 300w. on CW, over all bands 10 to 80 metres, and incorporates a notch filter, Vox control and in-built calibrator, with dial readings to 1 kc in the 500 kc tuning range for each band covered. On the Rx side, the sensitivity is given as better than 1 microvolt for 20 dB S/N ratio, and the IF's are 6.0-6.5 mc tunable, then 1650 kc second IF with crystal filtering, with the notch filter to sharpen the selectivity on CW. On independent Rx tuning, the swing is about 5 kc across the Tx frequency. The Hallicrafters Cyclone is available through the U.K. agents, Electroniques (Prop. S.T.C., Ltd.).

THE MOBILE SCENE

NOTES AND NEWS

First points to mention are that the Painton Radio Society's proposed rally at Northampton, which was to have been held on June 16, has had to be *cancelled* because of circumstances unforeseen—and that the Northern Amateur Radio Mobile Society's date has been changed to *May 12*, to avoid clashing with the Northern Radio Societies Convention in Manchester on May 19.

Eight more Rally events, additional to the list on p.26 of the March issue of *SHORT WAVE MAGAZINE*, are notified below. At the moment of writing, we are not sure what the form is as regards visitor /M permits for the Spanish event over May 22-26, though the literature talks about a "mobile station competition." For anyone likely to be in the neighbourhood at the time, the convention would probably be worth a visit anyway—but note that inclusive charges are involved.

What we can tell you is that a reciprocal licensing agreement has been concluded between our G.P.O. and the French P.T.T., so that temporary licences can be obtained by U.K. amateurs for operation under an F callsign (one wonders if "M. le Général" has been appraised of this departure from the norm!). In the first instance, U.K. applications should be made through: The Secretariat, Réseau des Emetteurs Français (R.E.F.), 60 Boulevard de Bercy, Paris 12^e, France.

We are asked to say that during the period April 4-25, G6SU will be working all bands 10 to 80 metres (but probably *not* Top Band) from EI/GI, signing EI8BT/M or GI6SU/M, as appropriate.

The Rally Calendar for the next few months is now as follows:

- April 28:** North Midlands Mobile Rally, at Drayton Manor, near Fazeley, Tamworth, Staffs.—Hon. Organiser, G. V. Farrance, G3KPT, 106 Turnberry Road, Birmingham 22A.
- May 5:** Medway Society's annual Rally event at British Uralite Works, Higham, Kent.—Hon. Secretary, P. Carey, G3UXH, 29 Miskin Road, Hoo, Rochester, Kent.
- May 12:** Thanet Radio Society Rally, at a cliff-top site in Ramsgate, attractions being fresh air, sea and sand, with AM talk-in on 160m., 4m. and two metres.—R. Trull, G3RAD, 1 Approach Road, Broadstairs, Kent.
- May 12:** Northern Amateur Radio Mobile Society's annual Rally at Harewood Park, near Leeds, Yorkshire.—Organiser, Denis Birns, G3MGI, 80 Gipton Wood Road, Leeds 8, Yorkshire. (Tel.: Gledhow 426.)
- May 11-12:** International Week-End at the Hotel Lido, Rue de Limalart, 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.

May 22-26: Second international convention, organised by the Spanish Radio Amateur Union (U.R.E.) in connection with the Saragossa (Zaragoza) Spring Festival. A busy 5-day programme has been arranged, the mobile events taking place on May 22-23. The all-in registration fee is 1,500 pesetas (say, £9 sterling). Address for applications and information: Delegación U.R.E., Apartado 86, Zaragoza, Spain.

May 26: East Coast Mobile Rally, organised by the Scarborough Amateur Radio Society, at the Spa Hall, Bridlington, East Yorkshire, with talk-in on Top Band (G3GBH/A) and two metres (G3PEJ/A).—P.R.O., Major J. E. Agar, G8AZA, 69A Newborough, Scarborough, Yorkshire.

June 16: Hunstanton Annual Rally (on the Norfolk coast).



"... Construction of the mobile whip here is a bit unusual ..."

June 30: Amateur Radio Mobile Society's annual Rally, being held as usual on an American U.S.A.F. base, this year at Mildenhall, Suffolk. During Hitler's War, it was one of the operational stations in Bomber Command (No. 3 Group), from which went out first the Wellingtons and then the Lancasters, of immortal memory. Now, it is one of the largest American Air Force bases in the U.K. On this A.R.M.S. occasion, entry to the Rally will be on the basis of the purchase of raffle tickets at the gate (in connection with which "better prizes than ever before" are being offered). There will also be a big Trade show (apply F. J. Barns, G3AGP, 60 Alverstone Avenue, East Barnet, Herts.) and the usual A.R.M.S. rally attractions, laid on and conducted with all their usual aplomb, *joie de vivre*, *sang-froid* and go-go Go.—Hon. secretary, Norman Fitch, G3FPK, 79 Murchison Road, London, E.10.

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

July 7: South Shields Mobile Rally, the ninth in their series, laid on by the South Shields & District Amateur Radio Club.—Organiser, Derek Forster, G3KZZ, 41 Marlborough Street, South Shields, Co. Durham.

July 6-7: Cheltenham Festival Rally, arranged by Cheltenham Amateur Radio Society and local RSGB group members, covering a wide range of tastes and interests, to coincide with the

Cheltenham Festival of Music, which for years has been one of England's intellectual occasions. On the Amateur Radio side, there will be competitions, a raffle, and a radio-controlled model power boat display, with camping and touring caravan facilities close to the Rally site. Full details as to the programme, charges and accommodation arrangements from: J. H. Moxey, G3MOE, 11 Westbury Road, Leckhampton, Cheltenham, Glos. (Tel.: *Cheltenham 24217*, or *STD 0242-24217*.)

July 14: Mobile Rally organised by the Worcester and District Amateur Radio Club—*details later*.

July 28: Saltash & District Amateur Radio Club annual Mobile Rally, to be held this year at Saltash Grammar School, Wearde Hill, Saltash, Cornwall, with the facilities and attractions of recent years.—Hon. Secretary, J. A. Ennis, 19 Coombe Road, Saltash, Cornwall.

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.

That makes it seventeen Rally events now listed—and there are a few dates yet to fill up. Closure for details to appear in the May issue must be *Monday, April 8*, addressed: "Mobile Scene," SHORT WAVE MAGAZINE, BUCKINGHAM. We cannot take in anything for May received after this date.

THE SPILSBY JUNK SALE

This well-known annual event will be held this year on Friday, April 5, at the Bull Hotel, Halton Road, Spilsby, Lincs., opening at 7 p.m. For information apply to: L. J. Coupland, G2BQC, 117 Burgh Road, Skegness, Lincs.

DANGER TO ANIMALS

A reader who noticed the cat in that picture on p.771 of the February issue of SHORT WAVE MAGAZINE draws attention to the necessity of protecting the gear not only against stray human fingers, but also soft paws and sensitive noses. Quite a low-voltage shock could be lethal, and even if not fatal the sudden reaction to it might cause considerable damage. If animals are allowed in the shack—which anyway is unwise—everything should be properly protected against "unauthorised intrusion." In the case of open gear, and such dangerous items as HV power packs on the floor, a cardboard-box cover is a good substitute for a cabinet.

ADJUSTMENT, PSE—TNX

Many of our direct subscribers use the convenience of a Banker's Order to pay their subscription. We would be grateful—and it would save us a great deal of office labour—if those concerned would be good enough to adjust their banker's order to the new rate of 45s. Thank you!

THE STANSTED RE-ENQUIRY

This touchy subject was discussed again, on BBC-1 News on February 22, the theme being the Govt's reappraisal and the decision to hold yet another enquiry. One of those who appeared in the interview was Sir Roger Hawkey, G5ZG (Takeley, Essex). He was very convincing in the discussion—as one might expect, because G5ZG's village (and his own home) is right in the path of the proposed development. From the beginning, G5ZG has been to the fore in the battle against Stansted as the third U.K. international airport.

HEATHKIT LONDON EXHIBITION AND DEMONSTRATION

During the four days April 18-21 (Sunday inclusive) at the Grand Hotel, Southampton Row, London, W.C.1, 11 a.m. to 9 p.m. daily, Daystrom will be showing their wide range of radio apparatus and test gear, hi-fi equipment and tape recorders. This exhibition coincides with the Audio Festival, being held nearby at the same time.

SOME USEFUL BEACON STATIONS

Whenever you want to check the 10-metre band, following are beacons in current operation: DM31GY (Leipzig), on 28-002 mc; DL0AR (Detmold), 29-00 mc; and GB3GM (Thurso), 29-005 mc. The frequencies are accurate and can be used for calibration purposes.

THE RF-24 UNIT ON SIX METRES

MODIFICATIONS TO TUNE

50-54 Mc

The heading to this article may surprise some readers—but the fact is that as 10 metres becomes more reliable for DX, and the MUF goes higher still, there will be plenty of U.S. amateurs to be heard on their 6-metre band, for which we over here are not licensed to transmit. However, in the States wide use is made of 50 megacycles and when signals are there, they are usually good and strong. In previous years, the few European amateurs actually permitted to use six metres have had some remarkable DX results—EI2W is a case in point, AT-stations in Eire being licensed for 50 mc. As regards active use of the 6-metre band from the U.K., though transmission is not permitted, cross-banding 28/50 mc is entirely possible, and can add a new interest to DX operation. The RF-24, though obsolete in the strict sense, is still to be had by those who care to shop around a bit, and is admirably suited to the purpose.—Editor.

BECAUSE it is basically a fixed tuned device, the RF-24 unit was never as popular as its tunable counterparts, the RF-26 and 27 units. However, providing the RF and mixer circuits can be operated as broad band stages, it is quite a simple matter to tune the oscillator from the front panel.

One of these units has been successfully modified for 6-metre (50 mc band) coverage and the work can easily be carried out in a couple of evenings (say, four hours) and the results obtained are surprisingly good.

To Provide Tuning

Remove the 3-wafer 5-position band switch, first disconnecting all parts soldered to the contacts. Extract four of the five concentric trimmers in each compartment, leaving trimmer No. 1 in the aerial input section trimmer No. 2 in the mixer grid section and trimmer No. 5 in the oscillator (rear) section. (The numbers mentioned here are those marked on the outside metal cover adjacent to the adjusting holes.) The three remaining trimmers should be stripped of any parallel fixed condensers or resistors. Remove RF and mixer coil formers.

The mixer grid coil L2 is replaced by 4 wide spaced turns of 20g. tinned copper, $\frac{1}{2}$ in. internal diameter, self-supporting, connected across the mixer compartment trimmer. The grid (top cap) of the mixer valve is then connected to the unearthed (stator) of the trimmer and the stator is also taken to the wire coming up through the chassis from the anode circuit of the RF stage. (This wire has to be replaced as it is a little too short to reach the trimmer.)

The RF stage grid coil L1 is connected in a similar manner to the grid of the RF stage, but requires five turns, tapped at one turn from the earthy end for a connection to the aerial socket. Otherwise this coil is of

the same gauge and diameter as that of the mixer.

The original oscillator coil L4 consists of $4\frac{1}{2}$ turns of 20g. tinned copper wire wound on a ceramic former about $\frac{3}{8}$ in. in diameter. This can be used as it stands, for without the stray capacities of the switch gear it can be made to tune 43-47 mc (oscillator range for 50-54 mc when using 7 mc IF). The trimmer C8 in posn. 5 is wired across the oscillator coil. In addition, and in parallel to this, a small variable single hole fixing condenser C7, of about 15 $\mu\mu\text{F}$ capacity, is mounted in the oscillator compartment using the slot vacated by the switch. Two large washers, one on each side of the partition, help hold the condenser firmly when its fixing nut is tightened. This condenser is driven from the front panel via a $\frac{1}{2}$ in. diameter shaft and two flexible couplers, passing through the slots formerly occupied by wafer switch shaft. Almost any sort of reduction drive that is conveniently available can be mounted on the front panel for easy tuning.

The concentric trimmer C8 in the oscillator compartment then acts as band-set condenser, while the range 49-55 mc (roughly) is tuned from the front panel.

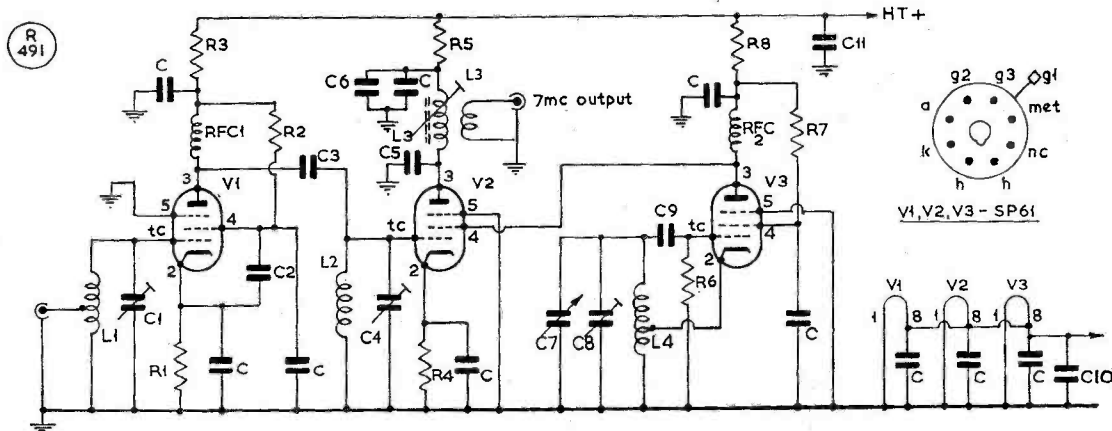
The RF and mixer circuits are left broad-tuned. If peaked at about 51 mc the sensitivity is reasonably uniform (though by no means "flat") over the range. A front panel operated aerial trimmer in place of the concentric trimmer in the aerial compartment would probably be a worth-while refinement, though this has not been tried.

Stage Two—Below Chassis Wiring

Whilst there are quite a lot of wiring changes here, none of them are in the least bit difficult. In both RF and mixer compartments remove all "stopper" resistors in series with various electrodes (between 10 and 47 ohms). All the by-pass capacitors, C in the diagram, can then be connected direct on to the valve holder tags and their lead lengths shortened considerably. The RF stage anode load resistor is replaced by a small choke (about 7 feet of 36g. enamelled close-wound on a 1 megohm, 1 watt resistor will do). The choke and coupling condenser ends are connected direct to the valve holder tag and *not* to the connector board, as in the original circuit arrangement.

Join G2 and cathode of the RF stage through a miniature 500 or 1000 $\mu\mu\text{F}$ condenser. The IF output coupling condenser C5 (10 or 15 $\mu\mu\text{F}$) is unsoldered at the end feeding the cable and returned to earth. (This is to compensate for the reduced stray capacities with link coupling.) A 5-turn link is wound round the IF coil (beware of breaking and fine wire termination) using 22g. p.v.c. wire. One side is earthed while the other feeds the IF output coax. The HT side of the IF tuning coil is by-passed to earth with a 0.01 $\mu\mu\text{F}$ tubular condenser C6 added in parallel with the existing 350 or 500 $\mu\mu\text{F}$ component, marked C in the diagram, above V2.

Remove all leads to the mixer cathode and take them to earth via a 220 ohm resistor, R4 (see later) and 500 $\mu\mu\text{F}$ condenser C in parallel. Disconnect all items connected to G2 of the mixer and run a single wire to the oscillator valve anode tag—but first disconnect and remove the aperiodic cathode injection transformer; this will leave two holes with rubber grommets, one of which can conveniently carry the G2 lead. Having



The basic RF-24 Unit, as modified for tunable operation over the 6-metre (50-54 mc) band. In the original, the RF-24 was intended as a fix-tuned unit, but this modification shows how it can be altered, C7 being the variable control on the panel—see text. The RF/mixer stages are made broad-band, to eliminate tuning complication, and the IF output remains at 7 mc into the main Rx. The condensers marked C in this diagram are the by-pass capacitors as originally fitted, and should be 350 $\mu\mu\text{F}$.

extracted the injection transformer from the oscillator compartment, feed the anode of the oscillator valve (and the mixer screen grid G2) via another choke, RFC2. Remove all components connected to the oscillator cathode (the 220-ohm resistor can be used for the mixer cathode) and connect it directly on to the tapping point on the oscillator coil, L4, two turns from the earthy end.

Alignment

The main receiver should be set to 7 mc and the IF transformer peaked for maximum signal when 7 mc is injected into the mixer grid (top cap). If no signal generator is available a "piece of wire" connected to the mixer grid should produce break-through on 7 mc, which can be peaked. The signal source should then be connected to the aerial input socket on the front panel. Set the tuning condenser C7 at half mesh and the signal source to about 51.5 mc. Rotate the concentric trimmer C8 in the oscillator compartment until the signal source is heard. It should be found in two places, the highest capacity (LF side) is the correct position out of these two.* The aerial input and mixer grid trimmers, C1 and C4, are then adjusted for maximum signal on 51 mc.

When the unit is replaced into its screening box, slight re-adjustment of the trimmers is usually necessary. If no signal generator is available this procedure will have to be carried out on an incoming signal, or on ignition noise. The method of screen injection using DC coupling reduced the "through capacity," so that pulling of the oscillator when tuning the mixer grid is negligible.

No electrode "stopper" resistors have been found necessary in the models in question, though in some cases where self-oscillation of RF or mixer stages occurs, it may possibly be necessary to replace some of these

Table of Values

Modification of RF-24 for Six Metres

C	= All 350-500 $\mu\mu\text{F}$ by-pass, as originally fitted	R4	= 220 ohms
C1, C4, C8	= 3-30 $\mu\mu\text{F}$	L1	= 5t. 22g. $\frac{1}{2}$ in. i.d., tapped one turn from earthy end
C2	= 500 $\mu\mu\text{F}/.001 \mu\text{F}$	L2	= 4t. 22g. $\frac{1}{2}$ in. i.d.
C3	= 100 $\mu\mu\text{F}$	L3	= Existing IF tuned circuit, with 5t. link
C5	= 10 $\mu\mu\text{F}$	L4	= 4.3/4 turns, 22g., 3/4in. dia. tapped 2t. from earthy end
C6, C10, C11	= .01 μF	V1, V2, V3	= SP61, as fitted
C7	= 15 $\mu\mu\text{F}$, osc. tuning, see text	RFC1, RFC2	= New RF chokes, 36g. on resistor former, see text
C9	= 25 $\mu\mu\text{F}$		
R1	= 100 ohms		
R2, R6, R7	= 10,000 ohms		
R3, R5, R8	= 2,200 ohms		

until oscillation ceases.

RF-25 Modification

The RF-25 unit has also been successfully modified in this manner, though it is necessary to change the oscillator circuit to that of the modified RF-24 unit and increase the size of the coil. The RF choke as fitted in the RF-25 oscillator should be retained for sub-chassis use in the oscillator circuit. If this is put in the RF stage anode, oscillation of this stage has been found to occur. Some experiments with RF chokes in this position may prove worth while in cases of regeneration. The coaxial "pipe" in the oscillator section of the RF-25 unit is also no longer required and is removed.

These units have been found to work quite well on 150-200v. HT, but remember that they require 2.7 amps. of LT at 6.3v.

All HT and LT leads should each be de-coupled with a .01 μF condenser to earth at the rear of the Jones plug, where they enter the chassis. It helps to reduce IF breakthrough, although this has not been

(*In the event of TVI the lower capacity of the two positions may be best, but this will probably increase the frequency coverage, reducing the band spreading effect.)

found to be a serious problem.

It is noticeable in these units that the by-pass condensers have connecting wires which can be shortened considerably. Often wires up to one inch long are used, which with a little "juggling" can be reduced to a quarter-inch at each end.

Difficulty may be experienced in removing some nuts coated with varnish. Scraping first with a screwdriver

tip to remove most of the varnish, followed by a drop of thin oil such as *Three-In-One* often remedies the trouble. Allow the oil a few minutes to penetrate before attempting removal. A hot iron will also allow the nuts to be moved.

In areas where Ch. 1 Band I television is in use it may be necessary to operate the local oscillator on the HF side of the signal frequency to avoid interference.

INTERESTING STATISTIC

In looking over figures for the last four years, we find that in the period March '64 to February '68 outside contributors whose work has been published in *SHORT WAVE MAGAZINE* have been paid a total of £4,881. This is an average of about £100 a month—and every contributor has had his cheque on the day of publication of his material.

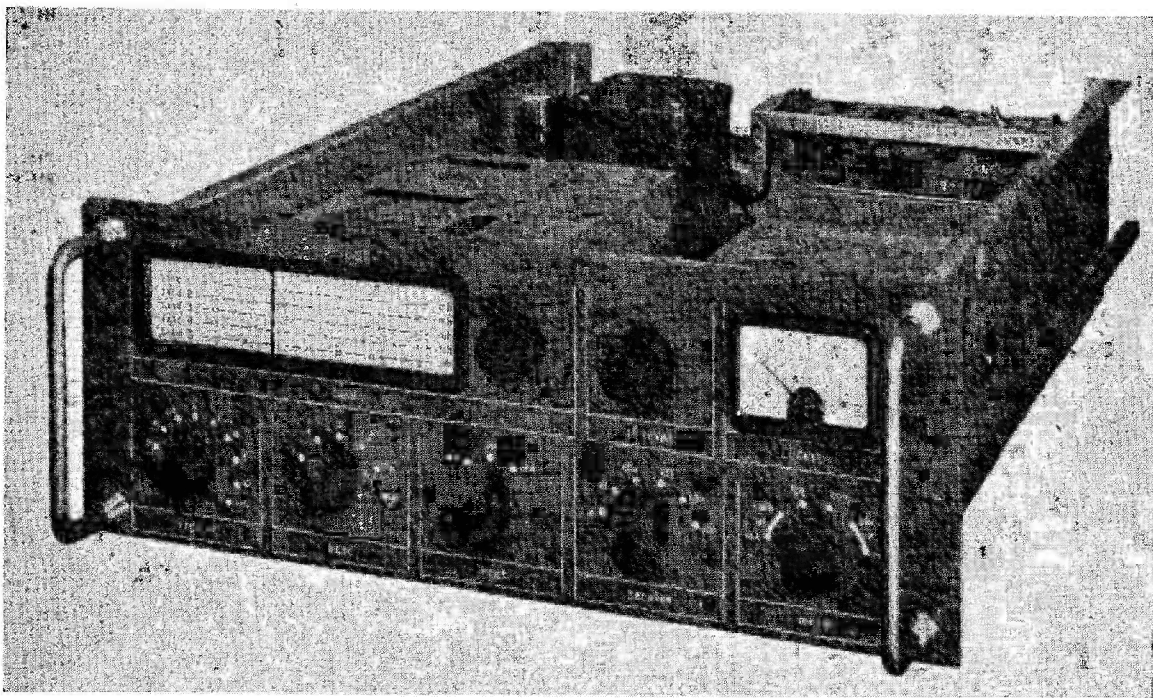
JAMBOREE-ON-THE-AIR, 1968

This annual Scout radio event, the 11th in the series, will take place over the weekend October 19-20, midnight Friday to midnight Sunday. The general organisation of the Jamboree—which is *not* a contest, but is aimed to bring Scout groups throughout the world into contact by Amateur Radio—will be the same as in previous years. That is to say, Scout formations locally without an AT-station of their own will welcome

assistance from amateurs in their district who run a station capable of world-wide communication. This year, the old Hq. station VE3WSB will not be on the air, because the whole Scout headquarters organisation, the World Bureau, is being moved from Ottawa to Geneva. The U.K. organiser for this Radio Jamboree is L. R. Mitchell, G3BHK, Katoomba, Tyneham Close, Sandford, Wareham, Dorset.

G2ACD—MAYOR OF BRIDLINGTON

For the ensuing mayoral year, the incumbent of the office at Bridlington, Yorkshire (under the shadow of the Fylingdales ballistic missile tracking station) will be Col. Arthur Dunn, G2ACD, who has been on the local Council since 1963. Keen on Amateur Radio for many years, he is one of those who held a pre-War AA ("artificial aerial") permit, which were converted to full radiating licences on the resumption of Amateur Radio in 1946, after Hitler's War.



Example of an Exciter Unit for commercial operation—as incorporated in the Redifon G.450 one-kilowatt 10-channel CW/DSB/SSB transmitter, designed for the range 1.5 to 30 mc. Though the unit shown here is part of the G.450, it can be used independently for other linear amplifiers. To this end, it is self-contained for power and entirely solid-state. The general circuit arrangement is service generator (the primary drive source) developing the input signal in the required transmission mode, which can be either A1, A3, A3H, A3A or A3J, switch selected, with IF at 1.4 mc. This is followed by a frequency translator to produce drive output for succeeding stages. A wide variety of audio inputs can be accepted.

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for May Issue: April 5)

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

ONE of the more interesting facets of the Club scene, as observed from this desk, is the variation in attitudes towards the fair sex. Some groups are proud to be able to say they have YL members, and indeed YL's on the committee and taking a share in giving the lectures; in other places there is an amused tolerance of a YL member who is clearly completely uninterested in our hobby, but has a member "marked down" so that he chases her until she catches him. However, there is another sort of group where the lads have a fear that if a YL joined up, she would be not just "a nuisance" but rather that "the wife would object!" and so, quietly, the new lady member (especially if she is past the first flush of youth) is politely made to realise she is not really welcome, until she takes the hint and does not turn up at any more meetings.

Why should this be? Possibly there are some groups that fear the loss of their informality; there may even be some that feel they just cannot offer a good enough programme. Whatever it is, it is a bit much for the distaff side, and it overlooks the undoubted fact that it is only the most talented of women who would even think of taking an interest in Amateur Radio, let alone joining the Club. And that talent is needed in every group, not just at brewing the tea and similar chores, but at things like the secretarial work and the other posts of office, operating the station during NFD, and so on—in fact as *full members*. The number of YL amateurs in this country is far lower by proportion than it is in the U.S. or behind the Iron Curtain, and it is fairly certain that the index of amateur activity in any area can be directly gauged by the activity of the local group—so if it discourages the ladies from joining is it any wonder there are few YL's on the air with a licence?

Notes and News

Talking about membership drives, but in a slightly different context, **Roding Boys Society** have now moved into a new home—at Markhouse Youth Centre, Markhouse Road, Walthamstow, E.17. Thus there is now scope for a membership drive, which is in full swing—if you want to see how it is done, and join yourself, turn up at the Centre any Tuesday evening at 7 p.m. Under the leadership of G3JIX and G3TAJ all sorts of things are planned and indeed they are already hard at work on a new

transmitter for the summer camp.

On now to **North Kent**, where the pages of the news sheet are enlivened by a debate on the relative merits of G3's and G8's, with high-power arguments on both sides; and although we have not the April programme to hand, it can be said that usually it is equally good, meetings being on the second and fourth Thursday evening, venue Congregational Church Hall, adjacent to the Clock Tower, Bexleyheath, Kent, starting time 8.0 p.m.

Over at **Bishops Stortford**, the place to seek out is the British Legion Club, which is at the top of Wind Hill; having found it, all you have to do is either home on the sociable noises at the top of the stairs, or go into the bar and enquire—provided you pick the third Monday in each month. April puts this date right on to Easter Monday—blame it on the Government—when the lecture will be on "Lasers." Before the talk, there is a draw for a bottle of wine, which is both popular and pays for the room hire.

Another crowd to make use of a room in a British Legion Hq. are **York**, and theirs is at 61 Micklegate, York; Thursday is the evening in each week, and it is understood that arrangements are going ahead for a repeat of their recent Film Show.

Cray Valley have their AGM to dispose of on April 4, with the start prompt at 8 p.m., at the Congregational Church Hall, Court Road, Eltham, S.E.9. Additionally, there is another venue—all Saints' Church Hall, Bereta Road, New Eltham—where the informal is taken each month; for April this occurs on the 18th. As for the forward programme, May has a lecture down which should interest many, entitled "Metalwork on the Kitchen Table," which will be given by G3OCC.

The last meeting in April is also the last of the winter session for the **Salop** lads, and so they have arranged that John Graham, G3TR, will make the long journey from Crawley to Shrewsbury. It is hoped that people will come from far and wide to quiz G3TR—certainly they expect quite a gang from the Birmingham area. This meeting is down for April 25; and it is the fourth in the month, which starts on the 4th with an informal, followed on the 11th by the Annual Construction Trophy event, which is to be adjudicated this year by John Pink, G3OQB. The Club Project has been taken

up with enthusiasm, and is under the control, as always, of G3UDA. All meetings are at the Old Post Office Hotel, Shrewsbury.

A new Hq. comes into use by the **Edgware** crowd in April, and is located at St. George's Hall, 51 Flower Lane, Mill Hill, N.W.7, where it is hoped to have a Club station in due course. Lectures are down for April 8, when G2UV discusses "Sounds of the Twenties," to start the ball rolling at the new Hq. He is followed by G3WDB, who has a three-valve transmitter-receiver for Top Band and Eighty to discuss and demonstrate.

Moving is also recent history for the lads of **Sutton Coldfield**, who now are safely housed in their new Hq. at the Sutton Coldfield Football Club in Coles Lane; here they are to foregather on April 8 for a talk on Lasers by G3LXR, and a natter-session on April 24.

* * *

The mobile interest is catered for by **A.R.M.S.** and their publication, *Mobile News*, which, considering the size of the society and the facilities they have, is very well turned out.

Southgate have a good piece in their *News Letter*, by G8QU, on the subject of Slow Morse—as he points out, it is very discouraging to the operator if nobody tells him they have listened! As for their meetings, we understand there is a change of venue in the wind, and so advise prospective members or visitors to contact the Hon. Sec. for up-to-date information.

This problem of somewhere to get together is also much in the mind of the **Bury & Rossendale** crowd, who are scraping together the funds to acquire a transceiver for Club use. April 9 is the date for the next session, when the George Hotel will resound to the voice of the "auctioneer" at the Surplus Equipment Sale.

Pontin's Holiday Camp at South Shore is the home of the **Blackpool and Fylde** lads, where they assemble at 8 p.m. every Monday evening. New members and visitors are always welcomed at these meetings.

A Big "Do"

Amateurs from anywhere are invited to the 1968 Open Night of the **Government Communications Club** at Cheltenham. There is to be a display with several items of new equipment on show, and refreshments at low prices; in view of the latter, it is particularly asked that all groups intending to send a party should drop the Hon. Sec. a line, *pronto*, so that there is enough in the way of rations for all the visitors. In reply, we understand the Hon. Sec. will send detailed directions as to how to reach the Canteen, Government Communications Hq., Benhall, Gloucester Road, Cheltenham. About all we need to add is that a couple of years ago this event drew 90 visitors, and was much enjoyed by everybody. The date? Friday, April 26, and this year they want to break the record attendance of last year, which means there should be rather more

than 120 people there.

Back to the more normal type of event, but still in the district, the **Cheltenham** group foregathers on April 4 at the Great Western Hotel in Clarence Street, when Mr. J. Warner, of Racal, will talk about the latest Racal receiver, the RA-919. Visitors, of course, are welcome, and we could comment that this one would be a very good opportunity to get to know the latest trends in receiver design.

Culcheth upbraid us for mis-spelling their name, for which apologies—but we can only say in our own defence that we have been spelling it like that ever since the group was formed and nobody noticed! Every Friday evening they are to be found at the Chat Moss Hotel, Glazebury, near Leigh, in Lancashire.

The Radio Amateur Invalid and Bedfast Club is the full name of the group who are usually known as **RAIBC**; there are members and supporters throughout the country, and it really is a *must* for any disabled or blind person with an interest in Amateur Radio, not just for social reasons but to enable cross-fertilisation of the useful ideas which can make the difference between being able to operate and not. Of course, there are always vacancies for helpers in RAIBC, and members too for that matter; a line to G3LWY at the address in the panel will obtain all the details.

* * *

A spot of detective work was necessary before we were able to establish the origin of the next letter, which made no reference whatever to the Club concerned! But all's well that ends well, and as a result it is for us to say that **Bradford** now have both gear and permission for aerials, so G3NN, the Club call, should be back in business quite soon now. The April syllabus covers dates on April 9, when the tape-and-slide lecture "Amateur Radio for Beginners" will be given, and April 23, which is set apart for the ritual of the Surplus Equipment Sale. The venue? Not so easy, as only a passing reference was made to "the College," but we believe that Bradford Technical College is meant; in any case a quick line to the Hon. Sec., at the address in the Panel, would resolve any doubts.

No problem at all where the **Mid-Sussex** meeting-place is concerned—they are delighted with their new Hq. at Marle Place Further Education Centre, Leylands Road, Burgess Hill, where the scope for activities is much greater. April 4 is the first date to book in the diary, when G3PEQ shows how to go about making Printed Circuits quickly from the paper diagram, by means of Projective Geometry—a little bird tells us this demonstration is quite an eye-opener. G3PEQ is also the host for the informal on April 17, as it is to be at his home—this one is to be a wives-and-girl-friends "do," albeit the shack will be available to unsociable bachelors!

Yet another Club changing address—**Mid-Warwickshire**, where also the change has already

taken place, to 28 Hamilton Terrace, Leamington, almost opposite the old home. The accommodation comprises the whole top floor, with a couple of large meeting-rooms, a shack and a "juniors' room" wherein are also the means of brewing-up. Of course there is a small rent involved in the transaction and so a full-blown membership drive is called for, plus a prospect of more, bigger and better Junk Sales. G3TFC is the man to contact for information—see Panel, p.109.

April 5 and 19 are the dates for the **Saltash** crowd this month; one the former G2AYQ will talk about the RAEN set-up, while a talk on Decca Navigating System is slated for the latter.

Sad story from **Colchester**—the new Top-Band aerial lasted only four days before a gale blew it down! By the time this note is in print it should be back up again, and on April 3 there is to be a Demonstration of SSB Equipment, laid on by various members. The College is closed and so there are no dates for meetings there during the remainder of the month. However, there is an invitation to a lecture at the University of Essex on April 24, when the subject is to be MOS Transistors. Normal Hq. for the Colchester group is Room 40 in the North-East Essex Technical College and School of Art.

Over 100 members and friends were present at the recent Annual Dinner, to see the **Crawley** chaps present an inscribed electric clock to their Chairman, G3TR, to mark his year as President of RSGB. Wednesday, April 10, is an informal meeting, for details of which a call to the Hon. Sec. is necessary, but April 24 is the big evening this month, when G2FKZ will give his well-known talk on "VHF Weather" at Trinity Congregational Church Hall, Ifield, starting at 8 p.m.

Next we have to place on record a record—the AGM of the **East Worcestershire** lads took just 150 seconds to get through! Of course there just had to be a reason—it was also the night of the Dinner, and G2RO had a packet of colour slides to show of his recent world tour. In spite of all the haste over the AGM, G2RO managed to leave them beached at Hong Kong, so that he has a moral commitment to turn up at another session



One of Verulam's most active members is Dick Wells, who is an ingenious and successful designer-constructor. On the left here is his version of a Top Band transceiver for G3LXR, involving a Sommerkamp FR-100B receiver with an outboard Tx unit using the control VFO side of the Rx to give transceive facilities. To enable independent control of the Tx frequency over a limited-kc range, so as to permit zero-beat with calling stations, a "rubberising" xtal mixer is used in the Tx. Output from the receiver VFO in the 5.0 mc region is mixed with the "variable" CO on about 7 mc to produce sufficient drive on Top Band to excite the 160-metre transverter.

and conduct them back from there. (Rather smells to your scribe of low cunning on the part of the committee, on which they are to be congratulated.) This affair, incidentally, was held at the Calthorpe Suite of the County Cricket Ground, Edgbaston, which is the sort of place an Hon. Sec. dreams of when arranging such evenings. Normally, they get together at the Old People's Centre, Park Road, Redditch, on the second Thursday of each month, April being down for a Junk Sale.

Public Relations was the theme for **Norfolk** from February 29 to March 2, when they ran a very successful show at a "Leisure Activities" exhibition locally. The Informals are down for April 8 and 22; April 1st is a Competition Quiz, being run by

G3IOR, while G3PTB is the auctioneer at a Junk Sale on the 15th. April 29 is the date for a talk by a "G5 plus three" and the May 13 date is devoted to Propagation, on which topic G3IOR is to expound Some New Theories—whether seriously or tongue-in-cheek is not known, as there is so much still to learn on this matter—but it is a certainty that the members will go home both educated and amused from this one. And what more could a member want?

The AGM of the **Cornish** group takes place on April 4, and will be followed by the compiler of the *Cornish Link*, who will talk about the problems involved in producing this fine newsletter. In addition to this meeting, there are VHF and SSB groups, the main event taking place at the SWEB Clubroom, Pool, Camborne, and the VHF and SSB sessions at the Barley Sheaf in Truro.

April 3 at the George and Dragon, Redhill, sees the **Reigate** crowd watching a Film Show, while later in the month there is a—strictly limited-number—visit to the Post Office Tower in London.

Lothians have a couple of interesting talks on the list for April; on the 11th, Mr. Spankie, of the BBC, will be talking about Colour Television, a subject which has already received an introduction to the group through a preliminary lecture given earlier by the president. Later, the date unfortunately not being mentioned, they are to hear all about Air Traffic Control from a member of the staff of the Board of Trade. For full details, contact the Hon. Sec., GM3PSP, at the address in the Panel.

Welsh Radio Club live at Newport, Mon., and we gather that they cater mainly for the younger element in our hobby. Dates of the meetings are not mentioned, although it is understood that they publish a monthly magazine which they call *Radio Review* and make it available not only to members but to anyone who cares to send the Hon. Sec. 4d. in stamps for a sample copy.

On now to **Basingstoke**, who advise that they have moved into their new Hq. at Chineham House, Basingstoke, where they assemble on the first and third Saturdays in each month. Normally the first date is an informal, but the third Saturday is given over to a lecture of some sort. April's lecture is to be given by G3MEV, his theme being the use of Transistors in Amateur Radio, while the May lecture will be by Roy Powers, who is to talk about the uses and abuses of Harmonics.

Point to Note

There is a sting in the tail of the letter from **Shefford**, who have done a survey of the reaction of members to various talks given over the years; the favourites are *not* those which are most relevant to Amateur Radio, but those where *equipment is demonstrated*—and this is a universal truth which all lecturers could well take to heart. After all is said and done, all it means is that if one is doing, say, a lecture on SSB, it is easy to take along an exciter and oscilloscope, a dummy load and two-tone generator, and maybe a projector and a few

slides. The only difficulty, apart from lugging them about, is to make sure the power supplies are available. The latter is a problem for the Hon. Sec., but all he needs to be told is that he is to produce a suitable lead with suitable power sockets of such a type and so many, which can be defined in the initial correspondence. The main reason people will not bring along their bits-and-bobs when lecturing is the time usually needed changing plugs, and jamming mains leads into adaptors with matches while the people who are going to listen to the lecture disappear into the bar for a pint! Shefford have three evenings this month, as there is no meeting on April 11; on the 4th, a GPO engineer is to lecture; a Junk Sale and Quiz follows on the 18th; and the month is rounded off admirably by a repeat of Dr. Williams' very popular lecture on the History of Radio at universal request; as this was such a hit last time, visitors are more than usually welcome to the talk. And when they say "more than usually" that statement has meaning, as your conductor knows from his own experience!

Stevenage have blackmailed G3KFE into returning to his old haunt and talking about Aerials on April 4, while the other evening—18th—is an informal at which it is hoped to test out and operate the new NFD transmitter. On May 2 there is a general get-together at which it is hoped the listeners and beginners from miles around will all congregate for a good old chin-wag and to meet the lads behind the call signs. Hawker-Siddeley Dynamics, Gunnels Wood Road is the Hq. where all these take place. In addition there is to be a class of instruction for all interested in Amateur Radio, which will run informally at 21 Cuttys Lane each Tuesday evening at 7 p.m.

Another AGM, this time that of the **Civil Service** Radio Society, is coming off on April 16, at the Civil Service Sports Centre, Monck Street, London, S.W.1. While the actual meeting begins at 7.0 p.m., there are refreshments available from as early as an hour before this. Incidentally the Civil Service wish it to be more generally known that they have *no* connection with the Science Museum, and its members do *not* operate the Science Museum station GB2SM.

Could be a Good Idea

Up North in **Halifax** there is a plot for the members entertainment which could well be copied; the idea is to split the club into two groups. One group collects together a station, nominates a band, and then proceeds to work as much as possible on that band. On the following week, the other group does the same. Using a points plus multiplier scoring system, a small trophy is awarded to the winning group. As for the rest of the April programme, this at the moment is somewhat "up in the air" until a member has been beaten into giving a talk on his pet subject. Hence, for the up-to-date information, contact the Hon. Sec., at the address in the Panel.

Still in the North, we have **Pudsey** next to consider. Hq. is the Game Cock Hotel, Pudsey Road, Leeds, 13. In recent weeks a very successful Junk Sale has been run, and the new Club call, G3XEP has been aired from Hq. At the time of writing, no details of the April goings-off are to hand, mainly because the Hon. Sec., has just moved and things are a bit disjointed.

Farnborough meet at the Model Railway Enthusiast's Clubrooms, 310 Farnborough Road twice in each month; April 9 is a talk by a representative

of RAEN, while the evening of 26th is an Informal.

On the other hand **Coventry** have only one session down in the calendar for April, on the 5th, when they are to see a Film Show—at least, that is what the *News Letter*, says, but we have a late flash which gives it that on the 12th a Night-on-the-Air is planned to give the Club Tx an airing, while the 19th is still "open" as nothing has been finalised. A Natter Night rounds off the month on April 26. However, this all is assuming they still have a Hq., as they have for some time been assembling in the

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. V. Knowles, G3UFY, 66 Oakfield Road, West Croydon, CRE-2UB.
 A.R.M.S.: N. A. S. Fitch, G3FPK, 79 Murchison Road, London, E.10. (*LEYtonstone 6700*).
 BASINGSTOKE: H. O. Sachse, 74 Loggon Road, Basingstoke.
 BISHOPS STORTFORD: A. Marriott, G3VWC, 21 Thorley Hill, Bishops Stortford (4790), Herts.
 BLACKPOOL & FYLDE: J. Boulter, G3OCX, 175 West Drive, Cleveleys, Blackpool.
 BRADFORD: E. G. Barker, G3OTO, 63 Woodcot Avenue, Baildon, Yorks. (*Shipley 58269*).
 BRIGHTON (Technical College): R. A. Bravery, G3SKI, 7 Cope Hill, Brighton (506418), S. BN1-5GA.
 BRITISH RAIL: H. A. J. Gray, Eleven, Swanton Drive, East Dereham, Norfolk.
 BURY & ROSSENDALE: A. Cooper, G3VVQ, 411 Holcombe Road, Greenmount, Nr. Bury.
 CHELTENHAM (Group): H. M. Davidson, G3TVW, 238A Gloucester Road, Cheltenham, Glos.
 CHIPPENHAM: N. Cutter, G3PQG, 1 Fosseyway Close, Chippenham, Wilts. (*Box 664*).
 CIVIL SERVICE: D. McLennan, G3KGM, 52 Pinewood Avenue, Sidcup, Kent.
 COLCHESTER: V. Levitt, Park Street, Stoke-by-Nayland, Suffolk.
 CORNISH: W. J. Gilbert, 7 Poltair Road, Penrhyn, Cornwall.
 COVENTRY: C. Jaynes, 20 Belgrave Road, Wyken, Coventry. CV2-5AY.
 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.
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London, SE.23. (*FORest Hill 6940*).
 CULCETH: A. N. Edwards, 6 Ellesmere Road, Culceth, Nr. Warrington, Lancs.
 DERBY: F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby (21931).
 DORKING: D. Underdown, G3MBK, c/o Eastfield, Henfold Hill, Beare Green, Dorking, Surrey. (*Newdigate 236*).
 EAST WORCESTERSHIRE: T. H. Westbury, 49 The Slough, Crabbs Cross, Redditch.
 ECHELDFORD: D. Walmsley, G3HZL, 153 Worpole Road, Isleworth, Middx. (*POPesgrove 3239*).
 EDGWARE: G. S. Fitton, G3RAA, 18 Beverley Drive, Edgware, Middx.
 EX-G: F. W. Fletcher, G2FUX, 53 St. Ives Park, Ringwood, Hants.
 FARNBOROUGH: D. G. Arigho, G3NVM, 6 Frensham Close, Yateley (2174), Camberley, Surrey.
 FULFORD: G. B. Widnall, G8ATJ, 5 Heslington Croft, Fulford (77501), York.
 GOVT. COMMUNICATIONS (Cheltenham): E. A. Fowles, c/o D.0508, G.C.H.Q., Priors Road, Cheltenham, Glos.
 GUILDFORD: A. Wilkes, G3SLH, Schiehallion, Hookley Lane, Elstead, Godalming, Surrey.
 HALIFAX: R. Millar, G3WLW, 17 Brooklands, Bradley, Huddersfield.
 HARROW: R. H. Medcraft, G3JVM, 134 Dulverton Road, Ruislip Manor, Ruislip, Middx.
 HEREFORD: B. Edwards, G3RJB, 5 Powys Walk, Hereford.
 HULL: Mrs. M. E. Longson, 4 Chester Road, Wold Road, Hull.
 LEICESTER: N. Tomlinson, 33 Merton Avenue, Leicester.
 LEYTON & WALTHAMSTOW: C. H. Williamson, G3VMS, 114 Farmilo Road, Leyton, London, E.17. (*LEYtonstone 4673*).
 LOTHIAN: A. J. Masson, GM3PSP, 20 Merchiston Park, Edinburgh, 10.
 MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead (20107).
 MANCHESTER: G. Tillson, G3TJX, 95 Kelverlow Street, Oldham, Lancs.
 MEDWAY: P. Carey, G3UXH, 29 Miskin Road, Hoo, Rochester, Kent.
 MELTON MOWBRAY: D. W. Lilley, G3FDF, 89 Sandy Lane, Melton Mowbray (3519), Leics.
 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, Coventry Road, Baginton, Works.
 NORFOLK: M. J. Cooke, 76 Falcon Road West, Sprowston, Norwich (44093), NOR-73R.
 NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (44329).
 NORTH KENT: P. T. Baber, 64 Latham Road, Bexleyheath, Kent. (01-303-8655).
 PORT TALBOT: H. G. Hughes, GW4GC, 20 Austin Avenue, Porthcawl, Glam.
 PUDSEY: B. Gaunt, 1 Fernbank Place, Leeds, 13.
 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.
 REIGATE: D. Thom, G3NKS, 12 Willow Road, Redhill, Surrey. (Reigate 45033).
 RHYL: A. Antley, GW3UTG, Fairholme, Fairfield Avenue, Rhyll (1362), Flintshire.
 RODING BOYS: R. T. Marchant, G3TAJ, 154 Essex Road, Leyton, London, E.10.
 SALOP: W. Lindsay-Smith, G3WNI, 22 Kingsmead Crescent, Copthorne, Shrewsbury.
 SALTASH: J. A. Ennis, 19 Coombe Road, Saltash, Cornwall.
 SHEFFORD: M. B. Goodwin, G3WKR, 16 Roe Close, Stotfold, Hitchin, Herts.
 SLADE: D. Grant, 85 Stanford Avenue, Great Barr, Birmingham, 22A.
 SOUTHAMPTON: A. Partner, Tekhi, Hound Road, Netley, Hants.
 SOUTHDOWN: L. E. Tagliaferro, 9 Tugwell Road, Hampden Park, Eastbourne (54244).
 STEVENAGE: W. P. Sheppard, G3WMA, 83 Spring Road, Letchworth, Herts.
 SUNDERLAND: F. Erskine, G3WTE, 30 Hunter Terrace, Sunderland (72423), Co. Durham.
 SURREY: R. Morrison, G3KGA, 33 Sefton Road, Croydon, CRO-7HS, Surrey. (01-654-5982).
 SUTTON COLDFIELD: A. W. Ferneynough, G8AVH, 114 Endhill Road, Kingstanding, Birmingham, 22C.
 SWINDON: E. J. Andrews, G3JAP, 56 Windsor Road, Swindon (21402).
 VERULAM: J. Thomas, G3RXA, 9 Highland Drive, Hemel Hempstead (55136).
 WELSH: S. W. Rees, 10 Tudor Crescent, Rogerstone, Nr. Newport, Mon.
 WIMBLEDON: K. Alexander, 23 Pepsy Road, West Wimbledon, London, S.W.20.
 WIRRAL: J. J. M. Phillips, G3PXX, 16 Collingham Green, Little Sutton, Wirral, Cheshire.
 WORCESTER: R. L. Avery, G3TQD, 24 Alexander Avenue, Droitwich (3943), Worcs.
 YORK: J. Rainbow, 14 Temple Road, Bishopthorpe, York.

local Civil Defence Headquarters, which closes about the time this issue comes out. So — a line to the Hon. Sec. seems strongly indicated, and it is to be hoped the accommodation problem is soon resolved.

The same advice—contact the Hon. Sec.—goes for the **Southdown** club, who are at the moment going through the business of having the Club Hq. pulled down and rebuilt; but it should all be worthwhile as there will be far better facilities when the messy part is over and done with.

At the St. John Ambulance Hall, 124 Kingston Road, South Wimbledon on the second and last Fridays of each month, you will find the **Wimbledon** and **South London Mobile** combined group. April 12, then, is the date for what should prove to be a most interesting evening, on Aerials, by the Mosley concern, and the 26th is, in conformity with the usual pattern, an Informal.

Addiscombe next—down the Coal 'Ole, Toc H Hall, 158 Lower Addiscombe Road, East Croydon, on April 9 for a Nuthin' Nite, and the 23rd for a Grand Junk Sale, kicking-off at 7.30 sharp.

Dorking are at the Wheatsheaf, Dorking on the second and fourth Tuesday in each month, although we have no details of the current syllabus, for which it is necessary to contact the Hon. Sec.

Going from strength to strength is the report on **Northern Heights**, with a membership of more than fifty. Of course the programme has a lot to do with this happy state of affairs, and this month the AGM takes place on the 10th, while on the 24th a visit to Richard Allan Speakers at Batley should be of considerable interest.

General Discussion is the theme of the April meeting of the **Acton, Brentford and Chiswick** group, on April 16, when the members and visitors are to present the problems for discussion. Hq. is at 66 High Road, Chiswick, London, W.4.

Of the three dates on the **Chippenham** calendar for April, one, on the 10th, is a visit to the Swindon Club. The 16th sees the troops scattered all over the district in the course of an evening Direction Finding. Finally, April 30, on which evening the Annual General Meeting will be followed by a tape-and-slide lecture on Radio and Aurora. Hq., incidentally, is at Chippenham High School for Boys, Hardenhuish Lane. Turning to Swindon, we find that the date on which the Chippenham lads are visiting is the evening when the Constructional Trophy is being judged. On April 24, there is an outside visit, to Plessey Semi-Conductor Division, Penhill Junior School is the venue for the "home" meetings.

Collins SSB Transceiver-Frequency Synthesizer is the topic of G3NTI when he lectures to the **Wirral** lads on April 3, while the evening of the 17th is devoted to Linear Amplifiers—an important subject which will be dealt with by G3OKA.

Echelford have just gone through the business of the AGM, and for April have organised G3JUL to talk about the ins and outs of Contest Operating, on the 25th, at the Hall, St. Martins Court, Kingston Crescent, Woodthorpe Road, Ashford, Middlesex.

The "usual venue," on April 5 is all we know

of the **Hereford** programme, as the subject is still at the time of writing unsettled, this being due to the AGM during March—so a line to the Hon. Sec., at the address in the Panel, is indicated.

Like Farnborough, **Guildford** have their Hq. with the local Model Engineering Club, which is in Stoke Park; in April there is only one meeting, this being the AGM on the 26th. The current *Natter* contains details of the Club programme for the rest of the year and into 1959, one of the entries being distinctly intriguing—a CW competition in receiving and "left-foot sending!"

Like **Coventry**, **Crystal Palace** get together at the local Civil Defence Hq.—so they, too, are on the lookout for a new place to assemble. This being the case, the whole question of the April meeting is in the melting-pot.

Recently **Surrey** moved into a new and better Hq.—but for some reason the attendances are rather down on the past numbers. Seems odd from this chair, in that the programme is always of a pretty high quality—as for instance in February, when P. Knight of the BBC came from Reigate to talk on his pet subject of Aerials.

Sadness is the note at **Southampton** this month, as they have just put out the last issue of that most admirable *QUA* owing to lack of a volunteer to take over the work. Sad it is indeed, but the show goes on, and every Wednesday and Friday the Southampton group can be found at 20 Carlton Road.

At the St. John Ambulance Hall, Asfordby Hill, **Melton Mowbray** meet on April 18 for a Film Evening, the start being timed for 7.30 p.m.

* * *

A new Club, calling itself the **Fulford** and District ARS, has recently come into being at Fulford, York; weekly get-togethers every Tuesday evening at the Old Clinic at the rear of the Social Hall, School Lane, Fulford, are to be run, and a programme is in the course of being brewed up by the committee. Visitors and new members are welcomed—and it remains for us to wish them every success in the new venture.

Slade Radio Society is a very old-established club in the Birmingham area, who assemble fortnightly in the Committee Room of the Church House, High Street, Erdington, and to judge by the programme over the recent months a first class standard is maintained. A call to the Hon. Sec.—see Panel—will produce the current information on this well-known Society, which has maintained a high standard of activity for many years.

Every Monday evening the **Medway** boys get together, and to judge by the latest issue of their *News Letter*, they have put a bomb under their corporate selves with loads of new and different activities as a result—it is unusual for such a successful group to do so. However, as always, it is bound to pay off in an even better group. April meetings are informal, except for the 8th, when an RSGB Tape is in prospect, and the 22nd, which is devoted to a discussion of "chassis-bashing methods" by G3TXJ.

A most interesting *News Letter* comes this month from **British Rail**, with much news of the associated groups of Railway radio amateurs in other countries, from which we gather that the international aspect is blooming. Another one, the *Ex-G Bulletin*, deals with a large membership of those who were born in U.K. and have emigrated to the four corners of the earth.

Anyone who knows Birmingham knows of the Midland Institute, somewhat of an institution in cultural activities for many years. The Institute, in Margaret Street, is the home of the **Midland A.R.S.**, where they assemble at 7.45 on the third Tuesday in each month.

The Cavalier Hall in St. Albans is "home" to the **Verulam** chaps, where they will foregather on April 3 for an informal evening, while there is to be a formal one later in the month, for which a talk will be organised.

On to **Rhyl**, where the recent past included an evening on receivers, at which various members brought along a varied collection, so that they could be compared one against the other; this seems to be an increasingly popular activity in many groups and well worthwhile. Hq. is at the Silver Band Room, Windsor Street, Rhyl, and the Hon. Sec. would no doubt be pleased to give all the information out to interested enquirers.

Now to **Leyton and Walthamstow** who have a room in the Leyton Senior Evening Institute, where they assemble at 7.30 every Tuesday evening for various activities.

There has been much talk in the press of "teach-ins," on this-and-that; **Derby** however are ahead of them all with an event called a "Moan-in" at which all are to come and air their grievances! This happens in May, but during April, the 3rd is set aside for a Surplus Sale, and on 10th, Derby are the guests of Burton-on-Trent Radio Society. On April 17, Amateur Astronomy is the topic to be dealt with by G3ALA, and on 24th a Technical Film Show is in prospect. The start is at 7.30, and the venue for all "home" meetings is Hq., Room 4, 119 Green Lane, Derby.

Having just passed through the AGM, **Maidenhead** are again open for business, and on April 1st they have G3UHK talking about RTTY; the second evening in April is the informal on the 16th.

A new group has been formed at **Sunderland**, where they are to get together on the first and third Tuesdays of each month, in the Physics Department of the local Technical College. Visitors are welcome, and we can say the first few meetings have been extremely popular. Once again, it is for us to wish this group all the best of luck for the future.

Quite a busy month for the **Hull** crowd, who have a Technical Quiz on April 5; the following week, as the holiday would fall on the normal evening, they have shifted to Tuesday 9th, when G3AG talks about Eddystone receivers, leaving Good Friday clear. Friday 19th is set aside for a talk on Power Pack Construction by G3OHT and G3FCY, and to round the month off G3AZO discusses the problem of Seventycems from scratch on April 26.

All these are down for a 7.45 p.m. start, at Hq., 592 Hessle Road, Hull.

From **Port Talbot** we have notice that the next session, on April 2, will be the Annual Social, which last year attracted about 80 people—and all are again welcome this time. (Years ago, there used to be a local amateur in Port Talbot who declared that his PA consisted of "a pair of pint-pots in push-pull.")

No. 35 Perdiswell Park is the Hq. address of the **Worcester** lads, where they have meetings both on Wednesdays and Saturdays. April 10 is the date of the demonstration of receivers being put on by Eddystone, and on the 27th the Annual Construction Contest will be held. For Wednesday evenings the kick-off is at 7.30, and for the Saturday affairs half-an-hour later; Perdiswell Park is off Droitwich Road.

What happens at the formal meeting of the **Purley** gang depends on what happened at the March one—in that there will be a continuation of the March Junk Sale if it is not all cleared. This is on April 19, but on April 5 there is the usual Natter Nite. Venue in both cases is the Railwaymen's Hall, 58 Whytecliffe Road, Purley, with the first meeting in each month in the small hall and the formal one in the large room adjoining.

Another Good Idea

A "first" for **Leicester**, on which they are to be congratulated; they claim to be the first group to be featured on a station of the new "Local Radio System"—which is very probable as Leicester was the first city to open up. A twenty-minute programme featured a QSO by G3MYI with W6EBJ and W1DXJ on 21 mc, followed by an interview with four of the members. One hopes that this will produce a large crop of new followers. Clubs in other large

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."

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.

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: April 5, May 10, June 7, for the issues dated May, June and July respectively.

centres where there is a local BC station could follow this up.

Brighton Technical College report in again after a short lapse, and advise that the April meeting—there is only one due to the Easter holiday break—is on the 24th, at 7.15 in the Richmond Terrace building. The Heathkit tower is now well and truly up so that thoughts are being turned to the acquisition of a beam and a rotator for the station.

Up in **Manchester**, they have been having lectures and a visit to the local Hq. on the subject of Mountain Rescue—and we are told that “if things go according to plan, by the time this is in print the Club will have suffered the long-dreaded lecture on Radar by their hon. secretary, G3TJX”—well, that’s what it says! On May 19, they will be contributing to the Northern Radio Societies’ Association convention at Belle Vue, Manchester, and will be operating GB3BVC for the Top Band talk-in.

The **Harrow** report includes the interesting information that the year’s constructional programme, already started, covers converters for the 4m., 2m. and 70 cm. bands, and an HF-band xtal-controlled converter for 10-15-20m. All these units, designed by Arnold Mynett, G3HBW, are fully transistorised, and more than 50 (yes, 50) kits have already been taken up by Club members. This is the sort of worth-while idea that many other Clubs could

adopt—but it does need a sound design, by a competent member, of pieces of gear likely to be of practical use to the majority of members. The April programme for this active and go-ahead Club is for practical nights on the 5th and 26th (when, presumably, construction of the Club projects goes forward) and for April 19 a lecture is being arranged—possibly by Rowley Shears, G8KW, of K.W. Electronics, Ltd.

Deadline

And there you have it for this month. May we just wrap things up by asking all Club Secretaries to make a point of ensuring that the info they send is for the month *after* the month in which the news is sent—otherwise it is history by the time it is read by a prospective member! If you can be a little ahead of the deadline, please do so, and for Pete’s sake don’t miss it and hope to get it in—it is extremely difficult to take in late-comers without much disorganisation at this end, and so we have to make it a rule not to—unless of course it is of earth-shattering importance, but it must be mentioned that no-one has shattered the Earth as yet!

Deadline for next month, for all the news, is thus first post **Friday, April 5 at the latest**, addressed as always to “Club Secretary,” **SHORT WAVE MAGAZINE, BUCKINGHAM.**

SPECIALLY ON THE AIR

Activities so far notified are shown below. These entries refer to AT-stations to be operated by local amateurs in connection with or in support of some special occasion at which a large public attendance is expected. The Post Office will issue, on request, a short-duration callsign, appropriate to the event. For publication in this space (which is, of course, free) the details we require are: Date, callsign, event, location of station, bands to be worked and in what mode, and the callsign/address of whoever is responsible for handling QSL’s and dealing with enquiries.

GB2OHE, March 27-30: In connection with the Hobbies Exhibition organised by the local Rotary Club, at the Town Hall, Oswaldtwistle, Lancs., working all bands 160m. to 70 cm., and including a closed-circuit TV display. A special QSL card will be issued for all contacts, and the QTH is L. D. Rooks, G3PUO, 45 William Street, Accrington, Lancs.

GB3BSE, March 28-30: For the local Leisure Time Activities Exhibition, Bury St. Edmunds, with operation mainly on 80 metres. Calls and contacts will be appreciated—P. Lumb, G3IRM, 22 Hervey Road, Bury St. Edmunds, Suffolk.

GW6GW, April 13-20: At Duffryn Junior School, Stow Hill, Newport, Mon., in connection with a model engineering exhibition featuring all forms of model design and construction. The GW6GW stand will show working amateur-band equipment, including RTTY and home-built gear—D. Harris, GW3NDR, Blackwood Amateur Radio Club, off High Street, Blackwood, Mon.

GB2MHE, April 24-27: Laid on by the Thanet Radio Society in connection with a Hobbies Exhibition arranged by the Margate Rotary Club at Lausanne School, running AM on all bands 10-80m., also VHF two metres and four metres. Contacts will be appreciated, special QSL’s will be issued, and skeds can be arranged.—P. Trull, G3RAD, 1 Approach Road, Broadstairs, Kent.

GB2LO, July 8-20: Organised by the Radio Society of Great Britain in connection with the City of London Festival, using equipment (loaned by K.W. Electronics, Ltd.) to operate SSB only on the 10-80m. bands.—Sylvia Margolis, p.r.o. RSGB, 95 Collinwood Gardens, Clayhall, Ilford, Essex.

GB3NEW, August 5-10: To be provided by the local College of Further Education Radio Society for the Welsh National Eisteddfod, to be held this year at Barry, South Wales. This is the first time Amateur Radio will be represented at this internationally known event. Further details later.—D. H. Adams, GW3VBP, College of Further Education, Colcot Road, Barry, Glam., South Wales.

GETTING THE MAGAZINE

Those who may be seeing **SHORT WAVE MAGAZINE** for the first time, or who have become readers only recently, are reminded that to ensure continuity it is almost essential to place a firm order with their local retail newsagent—this is because there is not much casual sale for specialised periodicals. So your newsagent needs to know that you really will come for it.



THE OTHER MAN'S STATION

EI8AR

THIS station is owned and operated by Brother John Shortall at De La Salle College, Castletown, Portlaoise, Co. Laois, Eire, who is a member of the De La Salle Brothers' Teaching Order—and this is what he says about himself:

“When I qualified, I was sent to teach in the same school as EI3X, and on arrival he invited me to see his shack. I was intrigued by the set-up, though at that time I did not know the difference between a condenser and a resistor! From then on I was a frequent onlooker when EI3X was operating and became very interested in his constructional projects, though my only ability was to hold components in place while he made a solder connection or drilled a hole!

“Very soon I was transferred to a new QTH in Ardee, Co. Louth. Now on my own I began to experiment and built some receivers of different designs for short-wave listening. During the years I often got the idea of trying for my licence but the thought of learning Morse always frightened me.

“However, in October '62 I decided to study R.A.E. theory and Morse seriously. Preparation for the written exam. was done on my own from the usual text books. Morse was learned from a friend who was a telegraphist in the old Post Office days, and from one of the excellent G3HSC Morse records. Both exams. were taken and passed in the summer of 1963 and after the usual routine I was issued with the callsign EI8AR in December '63.

“Being confined to CW for the first year (this rule still obtains in Ireland) operation was on 40 metres with

a CO-PA Tx running 10 watts, and an R.1155 Rx. The very first time I went on the air I had a QSO with OKIHA. On completion of my first year a new Tx, built around a Gelofo VFO, was put together and later this gave way to the present Minimitter, which runs 150 watts CW and 120 watts Phone. Last September I was again transferred, to the present QTH, and a new Rx was procured, a Lafayette HA-500.

“Operation is on all bands 80-10 metres but I prefer the homely rag-chew QSO's on 80m. and 40m. Being in that state in which I am liable to be transferred at any moment it is not feasible to erect permanent aerials. The present antenna system at EI8AR is a G8KW trap-dipole, a G5RV and separate dipoles for 10, 15 and 20 metres, at different angles to the others—all work satisfactorily. The gear is housed in a corner of my bedroom which is on the third floor of the College. As a teacher in a boarding school, time on the air is limited, and operation is mostly at weekends. Still, the limited operating opportunity is a great relaxation from teaching and text books!

“One amusing incident which might bear mention is that when I put up my G5RV aerial, one end was taken from a dormitory window and the other end went to an adjoining block. When the youngsters saw the wire coming from their dormitory they thought I had them ‘bugged,’ so, now silence is much better observed after lights-out!

“Since I became licensed I have made many new friends and my only regret is that I did not make a much earlier start in Amateur Radio.”

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.

EI4BT, J. S. J. Craig (*G3SGR* /*G13SGR*), Cloonagh, Ballymote, Co. Sligo. (*QSL via G3SGR*.)
EI7BN, G. Miles (*ex-ZE1AC* /*G2CXO* /*VK6MM* /*VE3DPA*), 84 Goatstown Road, Dublin, 14. (*Tel. Dublin 981005.*)
EI8BS, James Byrne, Communications Division, Haulbowline, Cobh, Co. Cork.
G2DTS, A. D. Monkhouse, 9 Beech Road, Chandlersford, Eastleigh, Hants. S05 1LT. (*re-issue.*)
GW3DXT, Amateur Radio Club, Candoldre Youth Club, Jockey Street, Swansea, Glam. (*re-issue.*)
GM3EQZ, S. White, Castle Cottage, Doune, Perthshire. (*re-issue.*) (*Tel. Doune 403.*)
G13WTG, G. S. Thompson, 18 Loughview Avenue, Carrickfergus, Co. Antrim.
G3WVV, R. J. Barker, 5 Cheviot Close, Bedford, Beds.
G3WXQ, E. Morgan, 1 Three Acre Close, Hoveton St. John, Norwich, Norfolk. NOR.06-Z. (*Tel. Wroxham 2653.*)
G3XAN, W. J. D. Forrester, 34 Keble Drive, Old Roan, Liverpool, 10.
G3XAY, W. Merwood Richards, 9 Chestnut Drive, Gilberdyke, Brough, Yorkshire, E.R.
G3XBN, F. J. Chamberlain, 22 Amberley Drive, Hove, Sussex. BN3 8JS. (*Tel. Brighton 735980.*)
G3XEG, H. E. Livermore, 11 Roe Green Lane, Hatfield, Herts.
G3XEM, P. K. Booth (*G3XEM/HZ*), 77 Edwards Lane, Sherwood, Nottingham.
G3XER, D. Mannix, 16 Rothbury Gardens, Leeds 16, Yorkshire.
G3XEV, J. J. Cooper, 21 Parkes Hall Road, Woodsetton, Dudley, Worcs.
GM3XFC, H. R. S. Canale, 2 Palmer Street, Arbroath, Angus.
G3XFF, E. P. Tuddenham, 9 Cobbold Road, Felixstowe, Suffolk.
G3XFG, F. A. Tickner, 139 North Cray Road, North Cray, Sidcup, Kent. (*Tel. 01-300-6480.*)
G3XFH, D. E. A. Watts, 17 Kylross Avenue, Hengrove, Bristol, 4. (*Tel. Whitchurch 2290.*)
G3XFJ, A. St. John Shaw, 23 Otterwood Lane, Acomb, York.

G3XFM, D. E. Dobson, 50 Middlethorpe Drive, York.
G3XFW, G. L. Parris (*ex-G8ARD*), 2 Ashford Grove, Yeovil, Somerset.
G3XFY, S. Sandford, 12 The Grove, Totley, Sheffield, Yorkshire. S17 4AS.
G3XFZ, G. K. Laycock, 90-A Shrewsbury Lane, Plumstead, London, S.E.18.
G3XGC, G. A. Cottrell, 19 Madingley Road, Cambridge, Cambs.
G3XGD, G. E. Watson, 25 Underwood Road, Woodseats, Sheffield, Yorkshire S8 8TG.
G3XGH, W. Jamison, 184 George Lane, Bredbury, Stockport, Cheshire.
G3XGL, L. Gould, 96 Childwall Valley Road, Liverpool 16, Lancs. (*Tel. CHI 3064.*)
GW3XGO, D. J. Winstanley, 33 Brynhyfryd Street, Brynhyfryd, Swansea, Glam.
G3XGR, G. T. Darcy, 54 Home Farm Road, Birkenhead, Cheshire. (*Tel. ARRowebrook 2587.*)
G3XGT, G. M. Hyman, 70 North Promenade, Lytham St. Annes, Lancs.
G3XGZ, M. Lambert, 35 A.M.Q., R.A.F. West Raynham, Fakenham, Norfolk.
G5AJO, G. T. Plemmons. (*QSL via WA6PKN.*)
G8BGC, D. Cannings, 40 Wessex Road, Didcot, Berks. (*Tel. Didcot 2241.*)
G8BGH, J. G. Wylie, 10 West Beach, Lytham, Lytham St. Annes, Lancs.
G8BGQ, K. A. Juson, 25 Church Lane, Sarratt, Rickmansworth, Herts.
G8BGR, W. D. Curtis, St. Fillans, Orchard Road, Farnborough, Kent. (*Tel. Farnborough 53580.*)
G8BHA, L. F. J. Thursting, 44 Rocklands Drive, Stanmore, Middlesex. (*Tel. 01-907 2028.*)
G8BHL, D. Sugden, 40 Berkeley Road, London, N.8.
G8BHN, I. C. Elston, 59 Exwick Road, Redhills, Exeter, Devon (*Tel. 0-392 75277.*)
G8BHT, L. S. Chase, 41 Rosebery Road, London, S.W.2.

CHANGE OF ADDRESS

EI7AV, T. O. Canainn, Ard Barra, Gleann Maghair, Corcaigh.
G2CYV, B. R. Meredith, 4 Stanthorpe Close, Stanthorpe Road, Streatham, London, S.W.16.
G3AGP, F. J. Barns, 60 Alverstone Avenue, East Barnet, Herts. (*Tel. 361-9737.*)
G3BNE, G. W. Alderman, 35 Eynswood Drive, Sidcup, Kent.
G3HMR, G. B. Moser, The Glen, Oxenholme, Kendal, Westmorland.
G13HNM, C. E. Davies (*E18BL*), 20 Abbey Mount, Bangor, Co. Down.
G3HVA, D. G. Pinnock, 9 Crowland Road, Luton, Beds.
G3JLC, Electronics Club, R.A.F. Wattisham, Ipswich, Suffolk. (*re-issue.*)
G3KUM, D. O. Boddey, 8 Seaton Close, Lawford, Manningtree, Essex.
G3LEJ, M. G. Hudson, 9 Gloucester Road, Wyton, Huntingdon.
G3LEX, R. J. V. Reed, 9 Trenchard Road, Ashby-de-la-Launde, Scopwick, Lincoln.
G3NBU, P. J. Bendall, 3 Alexandra Terrace, Bramley Road, Sheffield-on-Loddon, Basingstoke, Hants.
G3NGK, D. C. Chapman, 64 Heath Road, Beaconsfield, Bucks. (*Tel. Beaconsfield 3109.*)
G3OXA, A. S. Foster (*ex-GM3OXA* /*VQ8AX*), 5 Eunice Grove, Chessham, Bucks.
G3OXM, M. Hirst, 12 Green Edge, Nettleton Hill, Golcar, Huddersfield, Yorkshire.
G3PAQ, J. D. Davis (*ex-GM3PAQ*), 10 Hamilton Way, Wallington, Surrey. (*Tel. WALLINGTON 1561.*)
G3PWY, D. M. Gresswell, 38 Shaftesbury Avenue, Feltham, Middlesex. (*Tel. 01-890 2319.*)
GW3PXY, E. Thomas, Erw Deg, Tregaron, Cardiganshire.
G3SFO, R. H. Jones, Estate Cottage, Blaxton, Doncaster, Yorkshire. (*Tel. Finningley 345.*)
G3TVW, H. M. Davison, 238A Gloucester Road, Cheltenham, Glos.
G3UCV, R. Cartwright, 6 The Haven, Whitkirk, Leeds, 15.

- G3UDN**, Mid-Warwickshire Amateur Radio Society, 28 Hamilton Terrace, Leamington Spa, Warks.
- G3UEG**, D. I. Gould, Westholme, Kiln Lane, Stokenham, Kingsbridge, Devon. (Tel. Torcross 541.)
- G3UFW**, J. Stevens, Langenhoe, Rowde, Devizes, Wilts. (Tel. Devizes 2515.)
- G3ULF**, C. M. B. Newton, 25 Mears Ashby Road, Earls Barton, Northants.
- G3UYM**, H. J. Groves, 3 Halsey Drive, Hitchin, Herts.
- G3VAD**, R. A. Sinclair, 244 Stanstead Road, Hoddesdon, Herts.
- G3VMZ**, D. A. Nicholls, 39 Corsham Road, Lacock, Chippenham, Wilts.
- G3VOY**, A. R. Fortnum (DJØSR), Steinkaul, 5531 Stadtkyll/Eifel, W. Germany.
- G3VVA**, Dr. E. J. B. McArthur, MB, Ch.B.(V.U.Manc.), D.(Obst.), R.C.O.G., 14 Mount Road, Upton, Wirral, Cheshire.
- G3WBG**, H. J. R. Hindle, 6 Windsor Road, Conisbrough, Doncaster, Yorkshire. (Tel. Conisbrough 3531.)
- G6TZ**, R. Bottomley, 129 Belgrade Square, Corporation Street, Coventry, Warks. CV1 1GU.
- G8AGO**, J. Truscott, 8 South Riding, Bricket Wood, Herts. (Tel. Garston 2105.)
- G8AWK**, H. V. Jenkins, Oranjewood, Horsemarling Lane, Stonehouse, Glos.
- G8AXP**, G. R. J. Addis, 44 Knowle Road, Woodley, Reading, Berks.

“SHOP AROUND A BIT”

Part of the being of most radio amateurs is always to be on the look-out for equipment items worth buying as “likely to be of use some time”—in other words, studying the advertising and watching the surplus market. On the other hand, there are those others who, not having acquired the technique (or perhaps without the opportunity) expect to find that in the technical and constructional articles we publish they are given not only the values but also a source of supply. This is very seldom practicable, because there are so many potential sources of supply—from the junk-box, to the advertisers who publish their excellent catalogues—and in many cases substitution is anyway possible. The moral is always to have the catalogues handy, study the advertising carefully and also be prepared to “shop around a bit.”

with Stratton & Co., which later became Eddystone Radio, Ltd. on the takeover by the Marconi Company.

Now, at the age of 62, and “still a bachelor, with nothing in view” (as G6XJ puts it!), he will be indulging his interests in off-shore sailing, reading, walking on Dartmoor, and of course Amateur Radio—G6XJ is a keen CW/DX man who has been regularly active. Later, after this six months’ unwind period, he plans a round-world trip—not on a luxury liner, but on a freighter as a supernumerary, with the hope of being able to operate as G6XJ/MM. He even has ideas about qualifying, later, for the PMG Radio Officer’s Certificate, and to get himself a job as a (junior) R/O on a cruise liner, or even on a big deep-sea fishing trawler. There’s a dedicated radio man for you, if you like!

RETIREMENT OF ARTHUR EDWARDS, G6XJ —EDDYSTONE RADIO

By the time this appears in print, Arthur Edwards, G6XJ, will have relinquished his appointment as director of Eddystone Radio, Ltd. and started a six months’ holiday in South Devon, after 40 years with the firm. Joining the then Stratton & Co., Ltd. in 1927 as assistant to the general manager (who at that time was George Loughton, G6SL) he has been with the Company ever since. Closely concerned all through the years with its activities on the radio amateur side—though in fact these comprise only a small part of the Eddystone business as receiver manufacturers—he has done a great deal to influence the progress and development of Amateur Radio in the U.K. In fact, for the last 40 years, the name of Eddystone—as component manufacturers and purveyors of high quality receivers for amateur-band operation—has been practically synonymous with radio amateur activity in this country.

During the last War, G6XJ served with the Fleet Air Arm, coming out as a Lieut. Commander, R.N.V.R., and straightway took up his old post

SAVUNDRA’S LOST EMPIRES

Few readers will have missed hearing about Emil Savundra, lately of the Fire, Auto and Marine Insurance Co., who on March 6 was found guilty of fraud to the tune of £600,000. For this, he has collected a sentence of eight years (now under appeal) in addition to a fine and costs totalling at least £60,000. An ebullient, portly little black man, and a keen radio amateur—holding the call G3SDN, with a magnificent station at his palatial home in Bishops Avenue, North London, where only the very rich can live—he had ideas about forming a transmitters-only society for the U.K., as mentioned on p.332 of the August 1966 issue of SHORT WAVE MAGAZINE. What was not then said (because the F.A.M. business was *sub judice* at the time) was that in furtherance of this ambition, Savundra was prepared to offer quite substantial financial support to launch the proposed new organisation. Needless to say—and this was being wise *before* the F.A.M. crash, with all its consequences—the suggestion that SHORT WAVE MAGAZINE should be involved was politely shouldered off.

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URGENTLY REQUIRED: National HRO-MX receiver. Top price for specimen in mint condition with its full complement of coil-packs. Please write or telephone with full details and price asked. — **Ama eur Elec ronics, 518-520 Alum Rock Road, Alum Rock, Birmingham 8. (Tel. EAST 1497).**

WOODEN MASTS: 20ft. 1½in. diameter, two-section at 12s. 6d. to clear, including post. Send for full lists. — **Jim Fish, G4MH, 18 Town End, Golcar, Huddersfield, Yorkshire.**

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WANTED: Urgently, AR88D, National HRO or CR-100. State condition and price.—**Davies, Machen Fach Farm, Lower Machen, Nr. Newport, Mon., South Wales. (Tel.: Rhiwderin 449, reverse charges).**

WANTED: Manual, or circuit and data, for R.1475. Up to £3 offered.—**Burgess, 4 Marine Terrace, Rhosneigr, Anglesey, North Wales.**

WANTED: Manual for AN/APR4 receiver, your price paid.—**Ring, 39 Wiverton Road, Sydenham, London, S.E.26.**

FOR SALE: Set of nine HRO Coils, coverage 50 kc to 30 mc, price £9. Will separate, at 25s. each. Other spares available, send s.a.e. Also an Admiralty B.40 receiver, as new and in superb condition, at £20. — **Dixon, 37 Kymswell Road, Stevenage, Herts.**

EXCHANGE or SELL: Hallcrafters S.108 receiver, 1965 model, with full amateur bandspread, cost £72 new, bargain at £35, or EXCHANGE Camera. Offers "Wireless World" bound volumes and loose copies, 1932-1966.—**Habesch, 19 High Street, Rhyl, Flintshire, North Wales.**

WANTED: R.216 receiver, with PSU.—**Davidson, 19 Cavendish Avenue, Finchley, London, N.3. (Tel. Finchley 4353).**

SMALL ADVERTISEMENTS, READERS—continued

SALE: Codar PR-30X and Eddystone S.640 receiver without cabinet. Both in full working order, price £19.—McCull, 72 Elms Park, Ruddington, Nottingham.

COMPLETE Station for Sale, hardly used, comprising Heathkit DX-100U Tx and RA-1 receiver, with crystal calibrator and speaker; also Joystick aerial and matching unit, microphone and key, Labgear 5-way switching unit and relay. Nothing extra needed; all interconnecting cables and even mains plugs included. Price £160 all-in, with free delivery anywhere in Southern England.—Lovell, 5 Montpelier Road, Ilfracombe, Devon.

SELLING: A Collins KWS-1 Tx, for SSB/AM/CW, with press-to-talk or voice control, pair 4X250B's in final, capable 1 kW p.e.p., including solid-state PSU, Variac controlled. These rare transmitters cost originally about £1,000. Asking £275.—Box No. 4620, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

BARGAIN! Swan 350 Transceiver, complete with PSU. Absolutely as brand new, used only twice, log book as proof. Genuine reason for sale is that I have no time whatsoever to operate this fine example of amateur-band equipment. Price £215, no offers.—Cross, G3OZD, 38 Doncaster Road, Hatfield, Doncaster, Yorkshire. (Ring Hatfield Woodhouse 693, or 383-348 between 9.0 and 10.30 a.m.).

EXCHANGE or SELL: Heathkit RA-1 receiver, hardly used since returning from VP8, price £30 or Exchange for RG-1U.—Keeling, 14 Seaview Road, Brightlingsea, Essex.

WANTED (Stop) Your Practical Designs and Ideas for Amateur Equipment, needed for Commercial Development and Production if accepted by us (Stop) Good money paid for suitable projects (Stop) Genuine and complete proposals only, please (Stop) Delay must be expected with our replies due world travel by sea.—Box No. 4616, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: National HRO with nine coil-packs covering 50 kc to 30 mc, with mains PSU, speaker and matching transformer, price £25 or near offer.—Rigg, 139 Broad Lane, Roohdale, Lanes.

WANTED: To buy, or borrow for reproduction, manual for the National HRO-5T. Also need HRO main tuning condenser pack, gear reduction drive and HRO-5T LF coils. For SALE: Clean Collins 75A-3 with 3-1 kc filter, matching speaker and manual. Price £110, prefer buyer inspects and collects.—Kelly, GM5AFF, Box 541, R.A.F. Station Edzell, Angus, Scotland.

SELLING: Complete station, consisting of KW-2000 with AC/PSU, at £150, also DC/PSU for mobile working, £15. KW-600 linear amplifier, £90. Stud'o tape recorder, £15. Shure microphone, £3. SWR indicator, £3.—Thomson, 10 Leysings, Castlemayne, Basildon (43912), Essex.

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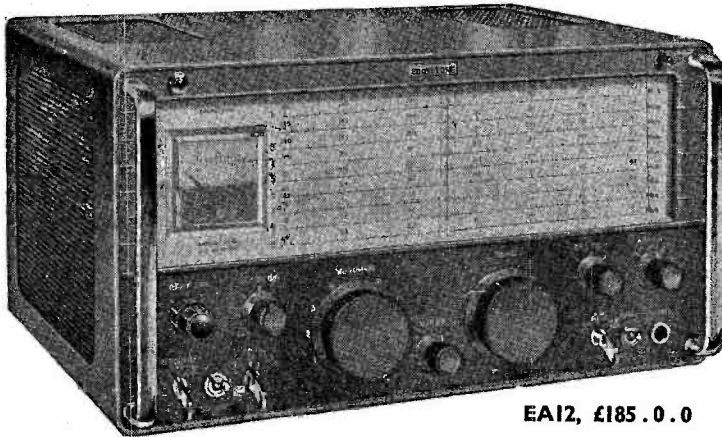
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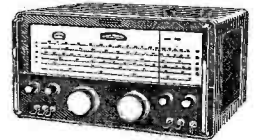


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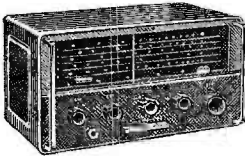
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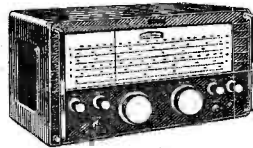
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SALE: Tiger 200-HF, an FB transmitter, 200-watt AM/PA could be used as SSB Linear. Asking £50, no reasonable offer refused.—Cayless, G3NNC, 102 Ducks Hill Road, Northwood (26419), Middlesex.

OFFERS? A Panda Explorer Tx and CR-100 Rx—both aged, but in fair condition. Buyer collects (Essex).—Box No. 4617, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

NORWEGIAN Holidays! By the sea, south coast. Rooms fully equipped for two or three persons, hot and cold water, bathrooms, electric cooking and heating, TV room, rowing boats, fishing tours with motor launch. Amateur SSB station. From only £5 per room. — Ragnar Gustavsen, LA7PA, Tjernegt, Risør, Norway.

WANTED: R.216 receiver, without PSU. For Sale: 52 Set, with crystal calibrator, £10. Type 31 Tx/Rx, complete with aerial and headset, 60s. R.208 receiver, coverage 10.0 to 60 mc, £12. R.1392 Rx, tunable 95 to 157 mc, £5. Pse include s.a.e. with enquiries.—Hayward, Sunnyfields, Lighthouse Road, St. Margaret's Bay, near Dover, Kent.

SALE: Eddystone EC-10 Rx, with JXK 2m. and 70 cm. converters, control box containing transmit/receive switching, muting, S-meter and converter selector switch, mounted on top of cabinet, price £55 complete. Also Honda E.IV 300 petrol generating set, giving 220v. 50-cycle AC at 300 watts, or 12 volts DC at 5.4 amps, complete with handbook, tools, etc., £40. R.C.A. 710A UHF Signal Generator, piston attenuator, 240v. AC, coverage 370 to 570 mc, can be used as a wavemeter, price £10.—Widger, 69 Findhorn Bay Caravan Site, near Forres, Morayshire, Scotland.

OFFERS? National Transistor Tape Recorder Type RQ-113, few hours use only, in perfect condition, original cost 16½ gns. (Yorkshire).—Box No. 4618, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

WANTED: Valves, circuit, instruction book or any information relating to Type W.1117 Wavemeter.—Abbshaw, 23 Back Eshald Place, Woodlesford, Leeds, Yorkshire.

FOR SALE: Lafayette HE-30 communication receiver, as-new condition, price £20.—Moss, 18 Whalley Road, Wiltshire, Blackburn, Lancs.

WANTED: Type 19 Altimeter, or similar instrument. Please state type, condition and price.—Taylor, G8BCG, 2 Columbia Avenue, Gorton, Manchester, 18.

EXCHANGE or SELL: R.107 receiver, with BFO, ANL, AT, coverage amateur and marine bands, offers? Or Exchange for pocket/portable VHF aircraft-band receiver. — Ring Marfleet, Watford 42691.

SALE: Lafayette HE-40 general coverage receiver, MF/HF, with bandspread, BFO, NL, S-meter, etc., £11. Complete Morse Course, at 40s. PCR-2 receiver, built in PSU and speaker, £7. All in excellent condition. — Darcy, G3XGR, 54 Home Farm Road, Birkenhead, Cheshire. (Tel.: Arrowbrook 2587).

REAL Gift, Owner emigrating: A Swan 350, with PSU, speaker, Shure microphone and headphones, all in mint condition and almost unused, price £220 or near offer.—Ring Tringham, 01-736 5395, evenings.

OFFERS? New Thordarson multi-match modulation transformer, Type T-11M77, with variable primary and secondary, rated 125-300 watts. Also new modulation transformer No. 21. (Cambridgeshire).—Box No. 4619, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: Hammarlund HQ-170A receiver, in mint condition and excellent working order, £90. Also a National HRO, with all coils and PSU, excellent receiver in good condition, price £15.—White, G3UQE, Ferndale, Troubridge Road, Helston, Cornwall.

SMALL ADVERTISEMENTS, READERS—continued

BARGAINS! Receivers SX-101A, £75; SX-111, £65; AR88D, R.C.A. S-meter, £30. BC-221AK, £15. All in good condition, with manuals; prefer collected, or carriage/packing extra. Books, sold in lots only, "QST" 1945-'65, £15; "CQ", 1952-'65, £10; RSGB "Bulletin", 1950-'65, £6; "Short Wave Magazine", 1960-'65, £4. — Burns, Mews Lane, Kirkcudbright, Scotland.

SALE: Heathkit DX-100U and SB-10U, as new, £65 or near offer. Amateur-band front end converter, using Electroniques coil pack, Eddystone dial, with stabilised PSU, £12. Geloso VFO with dial and valves, £6. AR88 mains transformer, 50s. Woden UM3 mod. transformer, 50s. — Adams, Sue-Marey, Selsey Hill, Stroud (3130), Glos.

SALE: BC-221, with charts and mains PSU, but crystal suspect. Codar PR-30X preselector, Joystick and three ATU's. Buyers collect.—Francis, 17 Priory Road, London, W.4.

WANTED: Small HF-band Tx, power 25 watts or upwards, must be capable effective CW operation. Home-built gear considered. Full details, pse.—Holden, G3VEK/A, 6 Church Street, Durham.

SWL Going QRT: R.209 Mk.II receiver, for AM/CW/FM, with pair headphones, 35 assorted radio magazines (send s.a.e.), price £15, carriage extra.—Cowell, 27 Wessex Road, Yeovil, Somerset.

WANTED: Quartz crystals, 11-6833 to 11-7833 mc, and 9-874 to 9-960 mc. Selling large quantity of valves, transformers, bits and pieces, etc. Send s.a.e. with enquiries. — Wadsworth, G3NPF, 130 Ashington Road, Rochford, Essex.

WANTED: Urgently, handbook for R.206 receiver Mk. II. To buy, or rent on loan.—Sherwood, 12 Albion Close, Heaton Norris, Stockport, Cheshire.

WANTED: Minimitter Amateur-Band Converter, the model suitable for 240v. and 12v. Please state condition and price.—Lowson, 2 Muirbank, Brechin Road, Forfar, Angus, Scotland.

EXCHANGE or SELL: Heathkit general-coverage receiver RG-1, tuning 600 kc to 32 mc in six bands, with BFO and AVC, and complete with xtal calibrator, speaker and phones, in new condition, cost £60, offered at £33, or would Exchange for stereo tuner/amplifier, hi-fi radio, W.H.Y.?—Longley, 175 Gleneldon Road, Streatham, London, S.W.16.

SINGLE-Copy orders (4s. post free) for May issue, publishing April 26, should reach us by Wednesday 24th, to ensure despatch on April 25. Copies are sent flat in an envelope, post paid. Just your remittance, name and address on a slip saying "May issue, please" will ensure action.—Circulation Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

BARGAIN For An SWL: Home-built 10-valve general coverage receiver, incorporating electrical bandspread, ANL, BFO and S-meter, complete in desk cabinet, only £10, or near offer.—Goddard, 199 Popes Lane, London, W.5. (Tel.: 01-567 2610).

WANTED: A No. 10 Crystal Calibrator. Must be in good order and condition, state price. — Foulger, 31 Woodsley Avenue, Cleethorpes, Lincs.

FOR SALE: Grampian DP4/H moving coil microphone, £4. Acos 39/1 mic., 22s. HRO S-meter, 30s. Octal-based crystal for BC-221, 40s. **WANTED:** Philips Tape Recorder, 4-track, EL-3541. Stamp please, postage extra.—Stead, 2 Cliff Road Gardens, Leeds, 6, Yorkshire.

RITTY: Wanted, Terminal Unit and PSU (audio type), 80-0-80v. loop supply, silence cover and handbook, to go with Creed 7B; must be in working order. **SELLING:** Cossor Type 339 'Scope, working, with handbook, £9 or near offer. Also 450 various magazines on Radio, TV and Hi-Fi, offers? Would deliver reasonable distance. — Smith, 17 Sutton Road, Kidderminster, Worcs.

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Eddystone Radio Ltd.:			
Eddystone EA12 Amateur bands receiver, 160-10 metres	185	0	0
Eddystone 940 Communications receiver	133	0	0
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Eddystone EC10 receiver	53	0	0
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K.W. 201 Amateur bands receiver, 160m-10m.	105	0	0
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K.W. 2000A SSB transceiver, 160m-10m. (with P.S.U.)	220	0	0

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Echelford B1/4 transmitter for 4 metres	30	0	0
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SMALL ADVERTISEMENTS, READERS—continued

REQUIRED: Good general-coverage receiver, such as Eddystone 680X, 940 or Hammarlund HQ-180, etc. What offers? Must SELL: SR-600 triple conversion amateur-band receiver, mint condition and performance, offers over £50. Also Electroniques QP-166, £6. Eddystone 898 dial, £3. HA-350 mechanical filter, £5. Leak stereo preamp, £8. Garrard 4-HF Player, £7. — Snowden, 4 Market Place, Pickering, Yorkshire.

SELLING: T.W. Phase II Two-Metre Transverter, new in Jan '68, with PSU. Original cost £99. Due unforeseen removal to bad VHF site, am sacrificing at £75, carriage paid. — Box No. 4621, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: A complete Amateur Station, consisting of M. & G. SSB transceiver, 90 watts p.e.p. on 20-80-160m. bands, Panda aerial coupler, dynamic mike, and bug key, £85 the lot, no offers. Will throw in trap dipole. Prefer sell complete. Also available CR-100, requires attention, at £5; suit anyone who has time to renovate. Will haggle. — Hurst, G3JJU, 7 The Laurels, Burnside, Fleet, Hants.

FOR SALE: Heathkit RA-1 amateur-band receiver, as new and in mint condition, £34. — Wilson, Woodlands, Dog Kennel Hill, Kiveton Park Station, Nr. Sheffield, Yorkshire. (Tel.: Kiveton 6773).

SELLING: Bendix receiver RA-1B, 150 kc to 15 mc, mains PSU and speaker, £12. Avo Universal L/R Bridge, Type 2, ranges 0.5 ohm to 55 megohm, 5 mmF to 55 mF and 50 mH to 550H, mains operated, with handbook, £20. R.C.A. AR88, coverage 540 kc to 32 mc, S-meter and handbook, clean and in good working order but cableforms deteriorating, hence only £25. Furzehill Laboratories Audio Beat Frequency Oscillator, 0.50 kc, output 0.5v. and 0.50v. metered, at 10/600 ohms, with frequency check, mains operated, £14. Marconi Valve Voltmeter TF-428B/1, ranges DC to 400 mc, with probe, mains operated, £12. McMichael Noise Generator Type CT-82, with noise and output meters, 150 kc to 160 mc, mains operated, £35. Hickok Valve Tester Type I-117, with extra range adaptor MX949A/U, for 117-240v, mains working, £10. Praktina FX single-lens reflex camera, f2.8 Tessar, leather case, 1-1/1000 sec., £22. Delivery or overseas shipment may be arranged. Offers considered. — Owen, 6 Chantry Close, Vicarage Lane, Horley, Surrey.

FOR SALE: T.W. two-metre Converter, IF 4.6 mc, less PSU, £7. Immaculate 52 Set, AC mains, £12. Large home-built PSU, runs SB-101 easily, £9. A.T.5 mains PSU, £5. Valves: 813, 40s.; QQV03-20A, 40s.; QQV06-40A, 60s. Audio generator, 13 to 13,000 cycles, 40s. Battery charger, 3 amp., 30s. Buyers to collect larger items.—G3UZF, QTHR.

FOR SALE: R.C.A. AR88D, with S-meter, wired in p.v.c., with spare valves, handbook, etc. Price £30, cash-and-carry. — Ring Passfield, 01-674 5825 (South London).

FOR SALE: Heathkit Scope Type OS-2, factory built, unused cost £32, accept £14.—Lee, G5FH, QTHR. (Ring 021-BRO 1388 after 7.0 p.m.).

OFFERS? National HRO, with nine coil-packs, PSU and speaker cabinet. Also an SCR-522. Excellent condition. Must sell, what offers?—Romans, 50 Lansdown Road, Gloucester.

EXCHANGE or SELL: Pye Type PTC-110 "Dolphin" marine radio-telephone, in good condition, complete with manual, diagrams, etc., £20 or near offer—or would Exchange for good communication receiver, or RTTY gear, W.H.Y.? — Wickstead, 11 Norman Road, Ilford, Essex. (Tel.: 01-478 5057).

WANTED: Pye FM Ranger, or similar FM radio-telephone, for 150 mc band, in good condition, any voltage; also a GDO. (Glamorgan). — Box No. 4622, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

G. W. M. RADIO LTD.

RECEIVERS

ADMIRALTY B.49. 640 Kc/s. to 30.5 Mc/s. 14 valves. Speaker, A.C. power unit built in. Bandwidth switched 1, 3 and 8 Kc/s. Crystal calibrator. Large vertical calibrated illuminated dial. Circuit diagram, £22/10/-. Also B41 low frequency version, 15 Kc/s. to 700 Kc/s., £10, carriage 30/- per set.

OSCILLOSCOPES. Cossor 339, £10. Miniature type CTS2, £20, both carriage paid. AVO Electronic Multimeter CT38 overhauled to makers specification, £25, carriage paid.

HEADSETS for 19 or 22 set with mike, used, 10/-; new Chamois padded type, 17/6. 19 set control boxes, 8/6, all post paid.

R1475. 2-20 Mc/s. Large slow motion dial, etc., with original power unit for 12 volts D.C. or 230 volts A.C. Less connecting cable, all connections marked, £10/10/-, carriage £1.

R.F. UNITS type 136 (RF27) Tunable. Ideal for 4 metre conversion, 35/-, post 5/-.

MAINS TRANSFORMERS, standard tapped input, 340-240-0-240-340 volts at 75 mA. 0-4-5-6-3 volts 2 amps, 25/-; also 240-0-240 volts at 133 mA, 5v, 2a, 6-3v, 2a, 6-3v, 2a, 6-3v, 5a, 35/-, both post paid.

10X CRYSTALS, 100 or 500 kc/s., 12/6, post paid. 813 valve bases, 6/-, post paid. 19 set rotary power unit 12 volts D.C., 30/-, carriage paid.

METERS. 2 1/2" dia. Round 500 ma., 14/-; 100 volts D.C., 12/6; 50 Mic/amps., 25-0-25 Mic/amps., 500 Mic/amps., 17/6; 1 ma in desk case, 17/6; 3 1/2" dia. Round 100 Mic/amps., 39/-; Ex-equipment 500 Mic/amps, calibrated 0-1.5, 0-500 volts, 8/6, postage 1/6 per meter.

ROLLER inductor tuners, 30 turns 1 1/2" dia., 12/6, post 4/6. Ceramic transmitting switches, 6 wafers 2 1/2" dia. each 1 pole 6 way, 7/6, post 2/6. Parmeko 230 volt transformers 24v. 2a; fused and shrouded, 25/-, post paid. Goodmans Speakers 3" 15 ohms, 10/-, post paid. All the above are in new condition.

STC absorption wavemeters, type R502. 100 kc/s. to 47 Mc/s., £5, carriage 10/-.

Spares kits for R209. 7 valves types, 75B1, 2 x 1T4, 2 x 1X5, EF92, 1R5 and 12 volt 4 pin vibrator, 12/6, post paid.

All equipment offered is complete but not tested unless otherwise stated. Carriage charges quoted are for England and Wales only.

Telephone 9097

Terms: Cash with order. Early closing Wednesday.

40-42 PORTLAND ROAD, WORTHING, SUSSEX

SMALL ADVERTISEMENTS, READERS—continued

OFFERING: An R.C.A. AR-8516L, complete with speaker and handbook, in excellent condition and little used since professional overhaul. Offers? (Cambridgeshire). — Box No. 4623, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: HW-32A, covers 14050 to 14350 kc in two bands (20 metres), ten months old and in mint condition, with calibrator and two unused final valves. Price £50. (PSU being retained for SB-101).—Ridley, G5NN, QTHR. (Tel.: Winslow 2498).

SALE: Eddystone EC-10, mint appearance and working well, but needs new RF potentiometer, price £26 collected, including both maker's PSU's. —Cowley, 32 Fenton Street, St. Helens, Lancs.

OFFERING: Heathkit DX-100U with SB-10U Side-band Adaptor, FB, the pair £70. Reason for sale: Must reduce the weight around here.—Targett, G3NUP, QTHR.

ACCOMMODATION: In the Isle of Wight, bed-breakfast and evening meal, large TV lounge. Also a 4-berth caravan with electricity and flush toilet. — Berden, G3RND, Bridgecourt Farmhouse, Godshill (606), Isle of Wight.

FOR SALE: Mullard 5-20 amplifier, with Partridge o/p transformer. £18. Bench PSU, o/p variable 150v. to 480v. at 250 mA, 6·3v. 8A, with 5-amp built in charger for 12-volt battery, metered, in neat case. £7 10s. New Garrard magazine tape-deck, 3½ i.p.s., £10. Redifon R.50 rack-mounted receiver, eight bands, in excellent order. £60. Woden UM3 mod. xformer. £4. Large rotary inductor. 30s. Transformers: 30, 60 and 100-watt, for transistor mobile/portable DC PSU's, s.a.e. for details. Transistor PSU, 60-watt, 12 to 300v. DC, £6 10s. Various other items, details on request. — Sandall, G3LGG, 21 Dale View, Ilkeston, Derbyshire, DE7 4LD.

ALL Advertisements above this line were received and acknowledged before 29 Feb. At the moment of writing, we cannot know how many more may come in before we have to close this issue for press. What we do know is that every month we have a large carry-over. This means that to ensure earliest appearance, your notice for this space should be sent in as soon as possible. Cost is 3d. a word, minimum charge 5s. (20 words, to include QTH), plus 25% for bold face, and 1s. 6d. extra for a Box Number. — Advertisement Department, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: KW-500 Linear Amplifier, mint condition, few hours' use only, and with spare 813, at £45. Also an R.C.A. AR88LF, with manual, £30. New Codar A.T.5 Tx with AC/PSU, £17 10s. (All at near offer.) Manuals for BC-610, S.27, NC-100A, Wilcox-Gay Master Oscillator (with the roller-coaster coil), Sound-Mirror Tape Recorder Model TP.411 — offers pse? — Williams, GW3LCO, 12 Penrhos Avenue, Llandudno Junction, Caernarvonshire, North Wales.

OFFERING: BC-211 Frequency Meter, with PSU, original calibration charts, manual, spare set of valves, all in very good condition, at £18 or near offer. Also a National HRO, with PSU and five coil-packs covering 900 kc to 30 mc, good condition, £20 or near offer? Buyer to inspect and collect. — Rigby, 160 Wigan Lane, Wigan (42131), Lancs.

HELP, HELP, Help! Urgently required, one Marconi CR-100 surplus receiver in reasonable condition. — Please ring Lunt, 01-399 4408, after 7 p.m. any week-day.

FOR SALE: Valves QQV03-10, 5s. 6d. each, post free. — 72 Rainham Road, Rainham, Kent.

FOR SALE: Heathkit RG-1U receiver, with xtal calibrator, year old, £30. Heath Capacitor Meter, £10. Pye portable auto record player, stereo, £12. Course for R.A.E., £6.—Darcy, G3XGR, 54 Home Farm Road, Birkenhead, Cheshire. (Tel. Arrowbrook 2587).

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 75 Ω Ordinary, 7d. per yd.; 75 Ω Low Loss, 1/6 per yd.; 52 Ω Ordinary, 1/4 per yd.; 52 Ω Low Loss, 2/- per yd.; 300 Ω Flat Twin, 6d. per yd.; 75 Ω Flat Twin, 6d. per yd.; Coax Plugs, 1/6 each; Coax Sockets, 1/6 each; Coax Couplers, 1/3 each; PL259 Plugs (Americaa), 7/6; PL259 Sockets, 8/-; PL259 Angled Couplers, 1/6; Egg Insulators, 6d. each. All in stock.

FRANCIS for MICROPHONES
 SHURE 201 £4 10 0
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 KW2000 D.C./P.S.U., £25. Eddystone EB36, £45. KW Viceroy, new PA tubes fitted, £87/10/-, SR150 complete with A.C. and D.C. P.S.U.'s, Mobile Mount, Webster Band Spanner Mobile Antenna, £175. AR22, £22.

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Rotary Converters, 12v. in., 250v. D.C. out., 12/6 each; 12v. in., 490v. D.C. out., 8/- each. Postage on either type 4/6.
Transistors, A.F., 3/9 dozen, post paid.
New Ferrite Pot Cores, 1/6 each or 15/- dozen, post paid.
Transistorized Morse Oscillator Modules. Will drive speaker or phones, 18/9, post paid.
ECC81, 1/9; ECC82, 2/-; ECC83, 3/6; 6BA6, 5/-; 6AO5, 5/-; QQV03/12 or 10, 15/-, post paid.
Magnetic Microphones. Ex-Govt., 5/-, post paid.
Sound Powered Inserts. Ideal intercom., 3/6, post paid.
New and Boxed Mains Relays, 2 pole 2-way octal base, 17/6, post paid.
New OA90 or OA200 Diodes, 1/- each. Post paid.
New Nylon Jack Plugs, 2/6; Jack Sockets, 2/9 or 5/- pair, post paid.
New TTC Viconal, 500v., 05 Mfd., 4/- dozen, post paid.
Tank Aerials. Three 4' sections making 12', 8/6. P. & P. 5/- any number. Bases, 4/6. P. & P. 2/-.
Breast Sets. Safe for Mobile Operation, 10/-, post paid.
Xtal Insets to fit above Breast Sets, 7/6. P. & P. 9d.
Creed 7B Teleprinters. Used, £15. P. & P. 30/-.
Creed 7B Teleprinters. As new, £30. P. & P. 30/-.
All spare parts for Creed 7B Teleprinters in stock.
Head Sets. 19 set, type or type DLR, 11/-, post paid.
Small Stand-off Insulators by Eddystone, 1/- each.
Roller Inductors (SILVER Conductors), 50/-, post paid.
4642 Meter Rectifiers. NEW, 1/-, post paid.
Dry Battery Packs. 72 and 144 and 144, 4/6 each. P. & P. any number 3/-.
New Key Switches. Less knobs, 2/6. P. & P. any number 1/-.
Buzzers, 4 D.C., 5/6, post paid.
New Small Condensators, Not Junk. 200 for 25/-, post paid.
Multi-Test Meters. 1000Ω/V., 37/6.
Multi-Test Meters. 20,000Ω/V., £35/-.
Xtal Lapel Mikes. Complete, 6/6.

26/28 NOTTINGHAM ROAD, LOUGHBOROUGH, LEICS.
Telephone 5131

SMALL ADVERTISEMENTS, READERS—continued

SELLING for £95 cash, no offers, new Eddystone 940 receiver, absolutely mint condition, used few hours weekends only, under guarantee May.—Davies, Ferry Inn, Salcombe (2788), South Devon.

FOR SALE: Star SR-550 double-superhet amateur bands communication receiver, brand new and with guarantee, bargain at £50.—Standing, 2 Elm Street, Colne (121), Lancs.

SELLING: Olympic T.50 Tx, coverage 10 to 160m., price £35. Tiger Tigtlet 12-watt Tx, for 80/160m., at £25. Both complete with PSU and in first-class condition.—White, 59 London Road, Marlborough (2745), Wilts.

SALE: Eddystone 840C receiver, only minimal use. Apart from odd scratch in excellent condition and working order. £28 for quick sale.—King 01-205 0627 (London). 6.30-10.30 p.m.

WANTED: Eddystone 358X receiver, in good working condition, complete with coils and PSU. Will collect.—Gallet, 36 Ashlone Road, Putney, London, S.W.15.

OFFERING: Labgear LG.50 Tx, TVI-proof, with new 6146 PA and spare valves, £25; also a Labgear Top Bander Tx, at £12; both perfect. VCR-97 cathode-ray tube, 20s. Dynamator, 12/600v. at 225 mA, 30s. Fifty copies "Practical Wireless," 80 "Wireless World," and 70 RSGB "Bulletin"—any offers?—Keeble, G3TUU, 7 Woburn Avenue, Kirby Cross, Frinton-on-Sea, Essex.

SALE: National HRO receiver, with 4 coil-packs 20 to 160m., PSU and speaker, in good condition, price £15.—Gosling, 79 Toothill Road, Loughborough (3938), Leicestershire.

UNWANTED Gift: A brand-new Eddystone 940 receiver, boxed and with guarantee, price £90.—Miller, 153 Dyke Road, Hove (735490), Sussex.

SALE: Eddystone EA-12, almost new and in immaculate condition, price £125, with delivery to reasonable distance.—Morris, G4HU, 34 Birch Avenue, Romiley, Cheshire.

NORTHERN MOBILE Rally: Harewood Park, near Leeds, Yorkshire. Please note the date—Sunday, May 12.—Further details from D. Binns, G3MGI, 80 Gipton Wood Road, Leeds 8. (Tel. Gledhow 426.)

WANTED: For rebuilding, incomplete or non-working Hallicraeters SX-28 with or without valves or requiring spare parts, but must be free of rust, and a reasonable price. Also require a Hammarlund SP-600JX, must be in mint condition, for which top price will be paid. Likewise wanting late model Hallicraeters Rx W.H.Y.?—Wise, 64b Beach Road, Newton, Porthcawl, Glam., South Wales.

BEST Offer Secures: McCoy "Golden Guardian" Bmc SSB crystal filter, complete with matching crystals, new and unused, cost £25.—McEwing, 33 Hazelwood Avenue, Newton Mearns, Renfrewshire, Scotland. (Tel. NEW 1564).

BRAND NEW from U.S.A., 6LQ6 valves, pair can run 550 watts, 37s. 6d. each.—Toby, G2CDN, 13 Wood Lane, Isleworth, Middlesex.

FOR SALE: Heathkit RG-1U receiver, with Q-multiplier and plinth-type speaker, as-new condition, £35. Scope, 3 1/2 in., £5. Triplet Signal Generator, 100 kc to 120 mc, with manual and case, £15. R.A.E. Course, £7. Also books magazines, etc. Write or call.—Bailey, 241 MSQ, Middle Wallop, Andover, Hants.

SELLING: KW-2000 of last production series, just over a year old, unmarked and indistinguishable from new. Recently returned from factory check, and with Shure microphone and low-pass filter. Price £160.—Parsons, GW8NP, 90 Maesycoed Road, Heath, Cardiff (68768), South Wales.

WANTED: Cabinet for G.E.C. BRT-400 receiver, or the Rx itself, if reasonably priced or not working.—Stephenson, Winstead Hall Hospital, Patrington, near Hull, East Yorkshire.

SMALL ADVERTISEMENTS, READERS—continued

SALE: Eddystone 358 receiver, using four plug-in coils to cover 1250 kc to 22 mc, with BFO, AVC, separate power supply and circuits, in immaculate condition, price £15 or near offer.—Ring Higgs, 01-902 8775 (London).

SALE: Codar A.T.5 transmitter and Codar T.28 mobile receiver. What am I bid?—Gere, G3WOS, 17 School Close, Braunston, Nr. Rugby, Warwickshire.

WANTED: Any of the National HRO coil packs for 1.7 to 30 mc. Offering ranges 100-200, 180-430 and 480-960 kc. sell or exchange.—Higgins, 23 Ayres Road, Brooks's Bar, Manchester 16.

WANTED: Eddystone 888A receiver, must be in perfect condition and priced at about £50. Full details, please.—Dawbarn, 8 Daylesford Close, Parkstone, Poole, Dorset.

SELLING: Command Tx, 3.0 to 6.0 mc, 75s. Command Rx, 6.0 to 9.0 mc, 25s. G3HSC Morse records, beginners and 12 w.p.m. test, 32s. 6d., delivered. PCR receiver, in excellent condition, 99s. 6d.—Holland, 61 Gallow's Hill Lane, Abbots Langley, Kings Langley (3822), Herts.

SALE: BC-1031 Panadaptor, £20. Collins 455 kc mechanical filter, £9. Two-metre PA, 90w., as "Handbook," £5. Two Vidicon tubes, lin., with scan coils and focus, lens 1.9, mount and two PSU's, and some transistorised panels, the lot for £25. Petrol generating set, 300-watt 15 volts, £15. Heavy-duty centrifugal blower, 3-phase, £5. Auto transformer, rated 1 kW, 50s. Type 1131 1 kV power pack, £5. Tower, S.V.S. 45ft., with hardware, etc., £50. Automatic CW transmitter with perforator, £12 10s.—Sharrock, G3BNL, 6 Delville Avenue, Keyworth, Nottingham. (Tel. Plumtree 2624.)

WANTED: Labgear LG.300 transmitter, with the appropriate Mod/PSU, in good condition.—Giddings, 6 Midlothian Drive, Blundellsands, Liverpool, 23.

OFFERING: K.W. Viceroy exciter unit, 8 watts p.e.p., coverage 10 to 80m., recent maker's overhaul, T9x CW performance, start haggling at £45. (Kent).—Box No. 4624, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

GOING SSB: Heathkit DX-40U and VF-1U VFO for sale, bargain at £25, carriage extra.—Farrar, G3UCQ, Elm Cottage, Ventonleague, Hayle, Cornwall.

FOR SALE: A good Eddystone 870 receiver, as new and in perfect condition, £18 or near offer. (Surrey).—Box No. 4612, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: Lafayette KT-340, at £20, including headphones and carriage.—Sangster, 13 Danestone Terrace, Bridge-of-Don, Aberdeen, Scotland.

WANTED: Faulty receiver, such as CR-100, CR-300, R.107, AR77 or what-have-you, any condition acceptable. State price, collection arranged anywhere.—Bentley, 27 De Vere Gardens, Cranbrook, Iford, Essex. (Tel. 01-554 6631.)

SALE: Complete 10-80m. SSB transmitter, including Heathkit SB-10U Adaptor, 2/6146, and PSU, price £35. Electroniques amateur-band coil pack, £5. Eddystone 898 dial, 50s. Type 19 Set Rx, with manual PSU, etc., 60s. S-meter, 15s. Cabinets: Steel 19in., 20s.; alloy 16½in., 30s. Various HT transformers. All open to offer. Postage extra.—Ledger, G3UBL, 1 Conholt Road, Andover (2766), Hants.

FOR SALE: Courier CTR-1 Transceiver, coverage all bands 10 to 160m., 200 watts p.e.p., in first-class condition, with mains PSU. £150 or near offer. BC-221 with mains PSU and all data, £15 or offer. Also two Dow-Key coax relays, type DK.60, 52-ohm, rated 1 kW, for 6v. AC, brand new, at £5 each.—Lazarus, G3TUA, 114 Beechwood Gardens, Clayhall, Iford, Essex. (Tel. 01-550 0012.)

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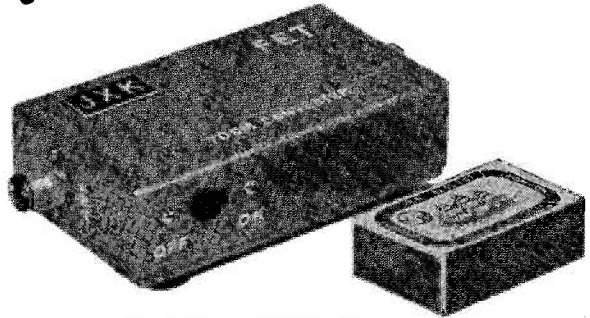
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SALE: As new CTX2, latest model, £6. Green two-metre transistor converter, £6. Coil turret, 1.5 to 30 mc, 25s. PSU, 50v, 2 amp, 30s. Record deck, S.P. 9v., on base, 25s. Choke, 40-Hy as new, 10s. Output transformer, 15w., 7s. 6d. Valves: KT66's, 7s. 6d. each; QQV03-10's, 20s. each; N78's, 7s. 6d. each; EF80's, 2s. each; ECL80's, 2s. 6d. each; 5R4GY, 4s. 6d.; 6U4GT, 3s. Mains transformer, 250-0-250v. 200 mA plus various LT's, 7s. 6d. Pettit 9v. supply, same size as PP3, 10s. Call, or all plus postage.—Cowdery, G3UKB, 275 Church Road, Hayes, Middlesex. (Tel. 848 9369.)

WANTED: Bandspread coil-packs for National HRO, to cover 10-15-20-30-40-80-160m., also general coverage packs for ranges 100 to 500 metres.—MacIntyre, 22 Olympic Drive, Strabane, Co. Tyrone, Northern Ireland.

WANTED: CR-100 receiver, must be in good working condition, £15 offered.—Bartlett, 6 Cornwall Road, Newport, Mon., South Wales. NPT 7SR.

SALE: Heathkit DX-40U transmitter with VF-1U VFO, factory built and no modifications, price £30. Also Joystick with Type 3 tuner, 70s.—Kneale, Southampton College of Technology Amateur Radio Club, Students Union, St. Mary Street, Southampton.

SELLING: Heathkit mobile PSU, HP-13, solid-state, relay controlled, up to 800v. DC out for 12-volt DC input. Unit purchased August '67 and hardly used. At present listed at £44—bargain at £30. G5RV-type aerial, 30s. Joystick and tuner, 30s. Rotary converter, 12-volt DC in for 300v. DC out, and fully smoothed, 50s.—Eckley, G3UFQ, 24 Fernwood Road, Sutton Coldfield, Warwickshire.

WANTED: An R.1155 receiver, any condition but preferably working, at under £10. Full details, please—Grant, 44 John Street, Forfar, Angus, Scotland.

DISPOSING: KW-2000A with AC/PSU (18 months old), at £190. KW-1000 (6 months), £100. Beam aerial system: MP-33 (9 months); AR-22R rotator (18 months); 32ft. tower with ladder attached; cabling includes 250ft. RG-8U—£75 the set. Digital clock, Model 201, £9. Z-match Unit, £5. Two KW LP Filters for Ch.1, one 52-ohm and one 72-ohm, 40s. each. Complete Station for £360. Inspection invited.—Bibby, G3NJY, Halla, Leckhampstead, Newbury, Berks.

FOR SALE: R.C.A. ACT-20 transmitter, 30-watt CC, for AM/CW over 10 to 160 metres, £15 or near offer. Heathkit RA-1 receiver, with audio filter, £27 10s. Pair new xtals, B7G mounting, 459-461 kc, 40s.—Blunden, G3PFH, 20 Walpole Road, Brighton, Sussex.

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SALE: A 52 Set receiver, in case, and with mains/12v. PSU, in good condition, price £9.—Whittaker, G8BFM, 18 Laughton Crescent, Hucknall, Nottingham.

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FOR SALE: Eddystone receiver model 840C, in perfect order. Only reason for selling, owner has purchased 830/7. Price £30, or near offer.—Ring Caird, Knightsbridge (London) 8074.

SALE: Collins KWM-1 Transceiver, covering 14-21-23 mc, with Type 516F-1 PSU, unmodified and in mint condition, price £175 or near offer.—O'Connor, E19U, 205 Collins Avenue, Dublin 9, Eire.

OFFERING: Collins 75S-3 communications receiver, condition as new, with handbook, insured and carriage paid, £250. (Devon).—Box No. 4626, Short Wave Magazine, Ltd., 55 Victoria Street, London S.W.1.

DISPOSING: R.C.A. AR88D, with 8in. speaker in cabinet to match, and handbook, £30, Portable American Service-type 'Scope, TS-34/AP, 110v. with auto-xformer for 240v., 2in. tube magnified to 4in. face, with plugs and cables, as new in maker's carrying case, price £13. Receiver Type PCR-3, coverage 600kc to 23 mc in three bands, £5 10s. Ringing converter (mains energised) output 75v. and 90v. at 16½ c/s, for phone bells, etc., with overload cut-out, 40s. EHT transformer, input 220v. 50 c/s. output 6 kV at 5 mA, also tapped for 180v., 25s. Type 4A mine detector, as new, complete in carrying pack, 40s. Uniselectors, 3-bank x 31-contact plus common full-wipe, also 2 c/o, 2 make, springs on rotor. 20s. Double aerial c/o relays Type 78A, 5s. Plastic-covered 40-way single strand aluminium core cable, 4s. a yard. All post/packing extra, but can deliver in South Wales and Bristol area.—Coughlin, 74 Heol Gabriel, Whitchurch, Cardiff (67746). South Wales.

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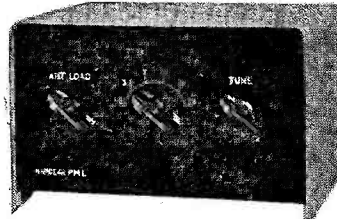
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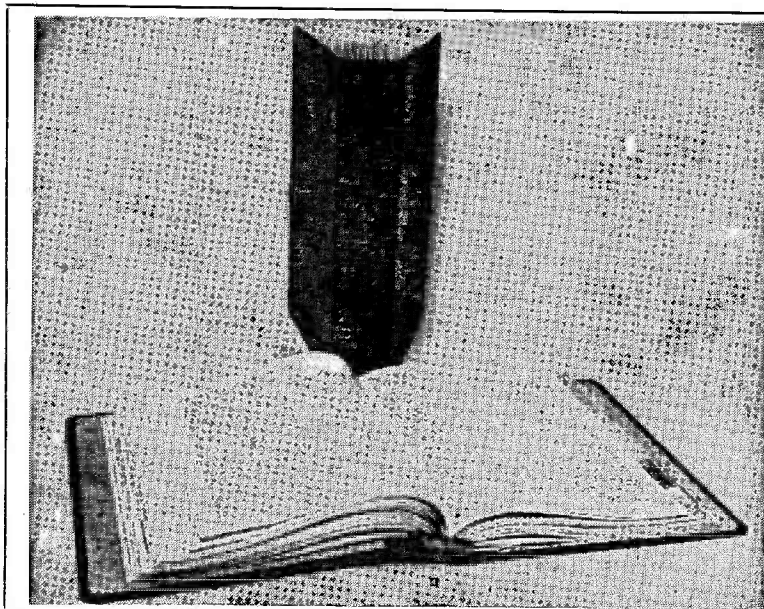
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