

The SHORT WAVE Magazine

VOL. XXV

SEPTEMBER, 1967

NUMBER 7

Europe's leading manufacturers of equipment for the Radio Amateur—throughout the world



KW201

AMATEUR BANDS COMMUNICATIONS RECEIVER

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

BASIC PRICE

£105

KW2000A

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 on transmit, Special attention to TVI proofing.

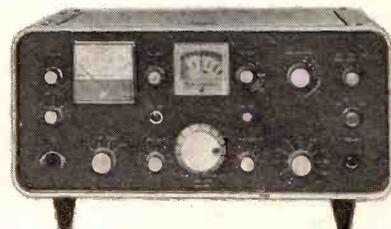
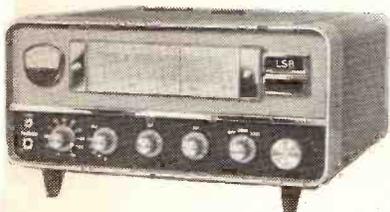
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£220

inclusive

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Just two
from our range—
designed
to increase
your range



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LIMITED

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Agents for Collins, Sammerkamp, Swan, Masley, National Galaxy, etc. Microphones, coaxial cable and all your amateur radio requirements.

11 licensed amateurs on our staff are waiting to serve you.

KW1000 Linear Amplifier—now in production—1200 watts PEP complete with built-in psu and SWR indicator—£128.0.0.

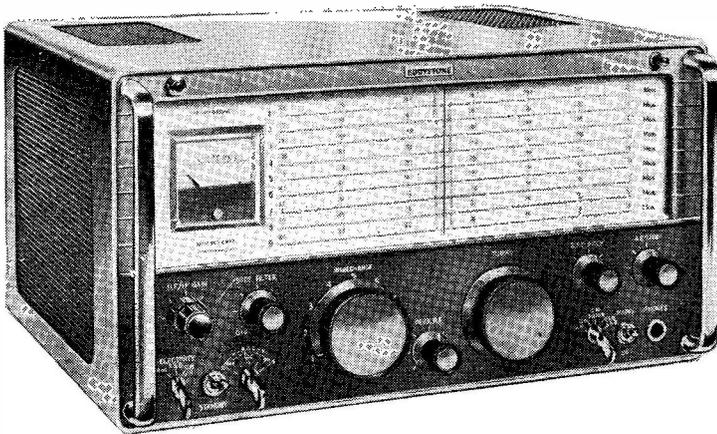
KW VESPA Mk. II—240 watts PEP SSB AM CW—now available complete with psu—£128.0.0.

KW
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Eddystone EA 12

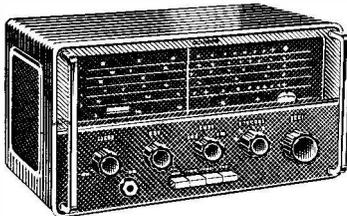
Amateur communication receiver



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

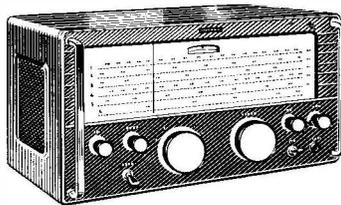
Primary features. Crystal controlled 1st oscillator, 2nd oscillator with continuously variable selectivity to 50 Hz, muting switched or by external relay, twin noise limiters, for a.m/c.w. and s.s.b, short-term drift better than 20 Hz and less than 100 Hz in any one hour, 'S' meter calibrated in nine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

OTHER RECEIVERS IN THE FAMOUS EDDYSTONE RANGE



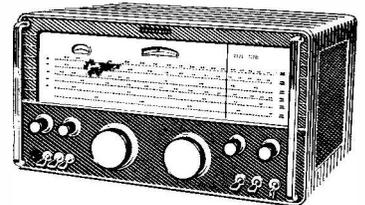
EC10 communications receiver

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.**



840C A.C or D.C communications receiver

An 8-valve receiver with gap free coverage from 600 to 10 metres providing excellent reception of broadcast programmes and all major s.w channels including marine and international distress frequencies. The famous Eddystone extended band spread and logging scale is an essential feature. Suitable for a wide range of a.c and d.c voltages. Fully tropicalized. **£66.**

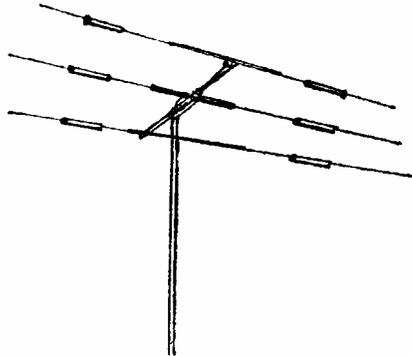


940 13-valve high sensitivity receiver

A superb high performance receiver incorporating two r.f and two i.f stages, push-pull output and silicon diode noise limiter circuit. Gap free coverage from 480 kHz and suitable for reception of c.w, a.m, and s.s.b modes. Exceptional sensitivity and stability. Built to professional standards for the serious listener. **£133.**

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

FOR ALL ANTENNA'S THERE IS ONLY ONE NAME — **MOSLEY**



TA-33 Jr.



V-3 Jr.

Avoid the last minute rush—buy an Antenna now for the coming DX season—dont be disappointed

Send for complete catalogue containing full details and technical information, 25 pages 1/-.



SOME OTHER ANTENNA'S

TA-33 Jr.	3 band 3 elements ...	£27 5 0
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TA-31 Jr.	3 band dipole ...	£11 11 0
V-3 Jr.	3 band vertical ...	£8 5 0
A-310.	10 metre 3 elements ...	£18 3 0
A-315.	15 metre 3 elements ...	£19 16 0
A-203-C.	20 metre 3 elements ...	£46 5 0
V-4-6.	4 band vertical ...	£15 10 0
TD-3 Jr.	3 band trap dipole ...	£6 15 0
RV-4.	4 band vertical ...	£16 10 0
TA-36.	3 band 6 elements ...	£60 0 0
MP-33.	3 band 3 elements ...	£32 17 0
A-92-S.	9 elements 2 metre ...	£8 0 0
Classic-33.	3 bands 3 elements ...	£50 0 0
RD-5.	SWL amateur bands ...	£7 15 0
RVL-7.	SWL broadcast bands ...	£7 15 0
RV-4RK.	Roof mount for RV-4 ...	£9 18 0
D-4BCa.	Base loading coil for V-4-6 for 80 metres ...	£9 5 0
TA-33 Snr.	3 bands 3 elements ...	£47 15 0
Lancer Mobile.	10-80 metres ...	£35 0 0
V-4-8.	40 and 80 metre vertical ...	£46 15 0
TW-3X Jr.	20, 40 and 80 metre vertical ...	£8 0 0
VTD-3 Jr.	3 band vertical for difficult locations ...	£9 18 0

Carriage and Insurance extra.



RV-4

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Telephone: Costessey 2861, orders only

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Full range of Drake & Swan in stock :

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350 £205 · 500 £233 · 230-XC £45 · 410 VFO £45

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J. B. LOWE**51 Wellington Street, Matlock, Derbyshire**

Tel.: Matlock 2817 (2430 after 6)

Let's cut out the pretty pictures this month and chunter instead. (Must be full moon again!!) Needless to say, I still peddle National and Sommerkamp, but I hate ads. which never change, don't you? If the guy can't be bothered to spend half an hour making use of his advertising space, how can he be bothered to give you any service? Incidentally, talking of Sommerkamp, deliveries of the FT-100 have improved and I have managed to work through the waiting list, so at the time of writing you can have one ex stock.

National stuff is selling well—at the price it darn' well should! One thing in particular strikes me as noteworthy—practically every NCX5 I've sold (and I've sold a few!!) has gone to a professional. By which I mean an Amateur who is also in Communications Electronics professionally. I know why, they know why. 'Nuff said. You know, it's an awful temptation sometimes to make a quick buck. Many times peoples' faith in me is really touching—"No, don't bother to hook it up for me, Bill. If you say it's O.K., that's good enough for me." Man, I could rob him blind! Yes sir, squeeze that extra fiver here and there and get some bread in the bank. Good reputation—cash in on it, man! Get smart! The answer is simple—it takes a heck of a lot of satisfied customers to build up a reputation, and only one customer with a genuine moan to destroy it! Mind you, I do occasionally boob, let's be honest, but it doesn't happen often. A real dilly the other day—I had two identical oldish AM rigs, one having been breathed on by John was perfect. The other was an untested trade-in ("never given me a minute's trouble, Bill, old boy.") I got 'em mixed up and a customer, helluva nice guy, walked off proudly bearing the trade-in. Boy, you should have heard the 'phone later that night! And was my face red!! P.A. tube U/S, dud 12AU7, which he replaced and then to crown it the v.f.o. shifted 5 kc/s. every time he closed the key! Oh boy! Whether or not my story was believed or not, I'll never know! And as for you, "never given me a minute's trouble, Bill, old boy"—just you wait until your HQ180 needs service! I'll larn yer!! By the time we've lined 'er up, she'll be about as much use as teets on a Bull!!

In spite of the odd boob, we do manage to get bouquets from time to time—heard one guy on 80 tell another that if Bill Lowe doesn't think a certain piece of gear is suited to your needs, he just won't sell it to you." Well, now, that's a real nice compliment, but I'll sell it to you if you insist. However, it won't stop me advising against it.

Enough blah for now, let's get down to the serious business of driving a wedge between you and your wallet! Coming up—a nice (I hope!) 3 band side-band transceiver at about £120. Tell you more when we've had a good go at it. Also, some very reasonably priced bits of test gear—an excellent VTVM for about £10 for example. These and other odds and ends are a result of direct contact with Japan, passing on the savings to you. I will be exhibiting these and all the other new stuff I handle at the Show later this month, to which, I should add, anyone the least bit interested in radio really should not miss. Nothing

like seeing what's available on the market and if any of you drop by my little piece of it you'll get a warm welcome and an opportunity to pander to my insatiable greed.

NEW :

NCX5 — NATIONAL 200 — SOMMERKAMP FL-200-B
— FR-100-B — FT-100 — LAFAYETTE HA350 —
HA500 — HA700 — CODAR EQUIPMENT —
GOTHAM QUADS and VERTICALS.

KEYS — KEYS — MICROPHONES.

ELECTRONIQUES FRONT ENDS AND I.F. STRIPS.

SECOND-HAND :

	£	s.	d.
DRAKE 2B and "Q" multiplier	85	0	0
GREEN TMR5	25	0	0
EDDYSTONE 840C	35	0	0
EDDYSTONE 750	40	0	0
EDDYSTONE 888A	60	0	0
HAMMARLUND HQ170A	95	0	0
HEATHKIT RAI	35	0	0
HEATHKIT DX100U	45	0	0
HEATHKIT DX40U	20	0	0
STAR SR600	65	0	0
HRO—Complete with B.S. and G.C. coils (2 sets)	27	10	0
MARCONI HR22	85	0	0
MINIPHASE SSB RIG	45	0	0
RI475	12	10	0

AND MANY MORE

BITS and PIECES :

New headsets (high or low impedance) ...	1	1	0
Acos Stethosets	1	1	0
Resistors and capacitors from Id.			
Coils, 1/6; trimmers, 1/6; feedthroughs chassis solder, 5/- dozen; screw type 10/- dozen.			
Disc ceramics 500v. .01, 5/- dozen; .001, 3/6 dozen.			
Chokes, 2/6; pots, 1/6; 12v. vibrators, 6d.			
Variometers, 5/-; Test gear, components, etc., etc.			

Well worth a visit.

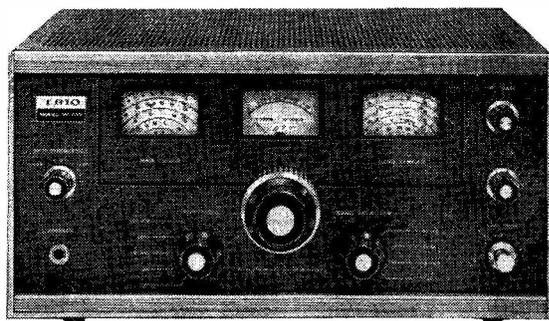
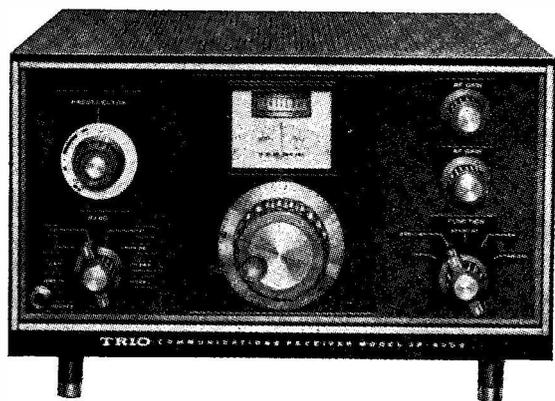
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73 de Bandit Bill,

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Model JR-500SE
CRYSTAL CONTROL TYPE DOUBLE CONVERSION
COMMUNICATION RECEIVER

- * Superior stability performance is obtained by the use of a crystal controlled first local oscillator and also, a VFO type 2nd oscillator.
- * Frequency Range: 3.5 MHz-29.7 MHz (7 Bands)
- * Hi-Sensitivity: 1.5 μ V for 10 dB S/N Ratio (at 14 MHz)
- * Hi-Selectivity: \pm 2 KHz at -6 dB \pm 6 KHz at -60 dB
- * Dimensions: Width 13", Height 7", Depth 10".

Model 9R-59DE
BUILT IN MECHANICAL FILTER 8 TUBES
COMMUNICATION RECEIVER

- * Continuous coverage from 550 KHz to 30 MHz and direct reading dial on amateur bands.
- * A mechanical filter enabling superb selectivity with ordinary IF transformers.
- * Frequency Range: 550 KHz to 30 MHz (4 Bands)
- * Sensitivity: 2 μ V for 10 dB S/N Ratio (at 10 MHz)
- * Selectivity: \pm 5 KHz at -60dB (\pm 1.3 KHz at -6dB) When use the Mechanical Filter
- * Dimensions: Width 15", Height 7", Depth 10".

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 84/88, Nelson Street, London E.1.
 Send me information on TRIO COMMUNICATION
 RECEIVER & name of nearest TRIO retailer.

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 ADDRESS : _____

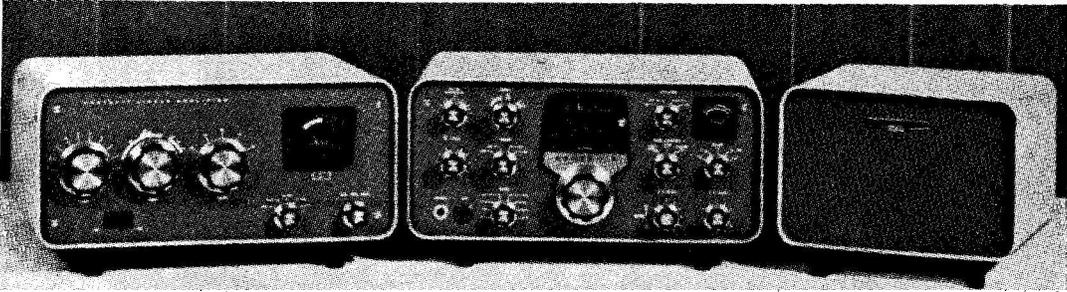
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SB-101 80-10 Metre SSB Transceiver

● 180 watts PEP, 170 watts CW ● Switch select Upper or Lower sideband or CW ● CW sidetone ● PTT or VOX ● Linear Master Oscillator with 1 kc dial calibration (resettable to 200 cps ● Provision for switch selection of optional SBA-300-2 CW filter ● Provision for external LMO ● Separate CW offset carrier ● 100 kc/s calibrator.

Assembled SBW-101, 23 lbs., write for terms £200 0 0
Kit SB-101, 23 lbs. £165 0 0

SB-200 80-10 Metre KW Linear Amplifier

● 1200 watts PEP, 1000 watts CW ● Drives with 100 watts ● Built-in SWR meter, antenna relay, solid-state power supply ● ALC ● Shielded, fan-cooled amplifier compartment ● Retuned cathode input ● Circuit breaker protection ● 120/240v. A.C.

Assembled SBW-200, 41 lbs. £132 0 0
Kit SB-200, 41 lbs. £107 10 0

SB-600 Communications Speaker

● Styled to match SB series ● For fixed station use ● 8 ohm speaker with shaped 300-3000 cps response ● Has space for HP-23 power supply.

Assembled SBW-600, 5 lbs. £10 10 0
Kit SB-600, 5 lbs. £9 0 0

HP-13 Solid-State Mobile Power Supply

● Supplies voltages for SB-101 ● Provisions for remote operation (can be located in engine compartment) ● Circuit breaker protection ● 12 to 14.5v. D.C. input (pos. or neg. earth as requested).

Assembled HPW-13, 7 lbs. £40 10 0
Kit HP-13, 7 lbs. £33 0 0

HP-23E Solid-State Fixed Station

Power Supply

● Supplies voltages for SB-101 ● Excellent dynamic regulation ● 120-240v. A.C. ● Can be installed inside SB-600 speaker cab.

Assembled HPW-23, 19 lbs. £33 0 0
Kit HP-23, 19 lbs. £27 10 0

HEATHKIT

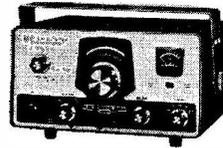
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(In kit or factory assembled form)

FILTER-TYPE SINGLE BAND SSB TRANSCEIVER MODELS. For the 80 or 20 metre bands ● 200 W. P.E.P. input TX. ● 1 μ V sensitivity RX. ● Employs easy-to-build printed board techniques with pre-aligned circuits. ● Power Req.: 800v. D.C. at 250 mA., 250v. D.C. at 100 mA., —125v. D.C. at 5 mA, 12v. A.C. or D.C. at 3-75A. Dimensions : 12 $\frac{1}{2}$ " w. x 6 $\frac{1}{2}$ " h. x 10" deep.

Models HW-12A (80m.) £53 . 10 . 0 Kit £68 Assembled
HW-32A (20.) £53 . 10 . 0 Kit £68 Assembled

GH12. Push Talk Microphone £3 . 10 . 0 Assembled



Single Band
Transceivers
HW-12A and HW-32A



1 kW Linear
HA-14

THE WORLD'S SMALLEST KILOWATT LINEAR. The Heathkit, Model HA-14 ● 80-10m. ● Provides 1000 W. P.E.P. input power. ● ALC output to exciter. ● Built-in SWR meter. ● Size : only 3 $\frac{1}{8}$ " x 12 $\frac{3}{8}$ " x 10" deep. Weight 9lb. Power supply available.

£49 . 10 . 0 Kit £61 . 10 . 0 Assembled

AMATEUR BANDS 80-10m. RECEIVER, Model SB-30IE ● This de-luxe receiver offers unsurpassed value to the Radio Amateur ● Of advanced concept, employing up-to-date design and construction techniques, its ultimate specification ensures unparalleled performance ● Full specification and details on request. Weight: 22lb. Power Req.: 115/230v. A.C. 50/60 c/s. 50 watt. Size : 17 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ " x 13 $\frac{1}{2}$ ".

£125 . 0 . 0 Kit (less speaker) £155 . 0 . 0 Assembled
Kit SBA-301-1 Optional AM Crystal Filter £10 . 10 . 0
Kit SBA-301-2 Optional CW Crystal Filter £10 . 10 . 0
Kit SBA-300-4 2 metre Converter £10 . 10 . 0
Kit SB-600 Matching Speaker Unit £9 . 0 . 0



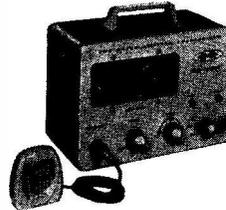
SSB Receiver
SB-30IE



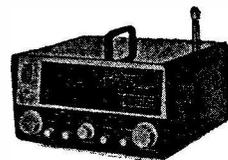
SSB Transmitter
SB-40IE

AMATEUR TRANSMITTER, Model SB-40IE ● This transmitter is designed for "lock-in" facility with the SB-30IE ● A self-powered filter type Tx covering the "Amateur" bands, 80 to 10 m. with a P.E.P. of 180 watts ● Weight : 33lb. Power Req.: 115/230v. A.C. 50/60 c/s. Size : 14 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ " x 13 $\frac{1}{2}$ ".

£140 . 0 . 0 Kit £170 . 0 . 0 Assembled
Crystal Pack SBA-401-1 £15 . 5 . 0 extra



2 Metre AM
Transceiver HW-30



General Coverage
Receiver GC-1U

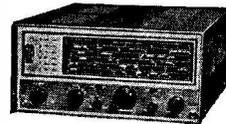
2 METRE TRANSCEIVER, HW-30 ● For fixed, portable, or mobile use ● Ideal for Local and RAEN purposes ● Input 3 watts c.c. tunable regenerative Rx. ● Size only (including handle) : 9 $\frac{1}{2}$ " w. x 8" h. x 6" deep. (For 230v. operation if required). £23 . 10 . 0 Kit
Power supply, GP-11 operates from 6 or 12v. D.C. £9 . 10 . 0 Kit

GENERAL COVERAGE RECEIVER, Model GC-1U ● Powerful 10 transistor, 5 diode circuit. ● Tunes 580 to 1550 Kc/s. and 1-69 to 30 Mc/s. in 5 bands ● Four piezo-electric Transmitters ● Pre-assembled and aligned "front end." ● Built-in speaker ●

£37 . 17 . 6 Kit £45 . 17 . 6 Assembled
Suitable Battery Eliminator, Model UBE-1 £2 . 17 . 6 Kit

HIGH SENSITIVITY GENERAL RECEIVER, Model RG-1 ● A high performance, low cost receiver for the discriminating short-wave listener ● Frequency coverage from 600 Kc/s. to 1.5 Mc/s. and 1-7 Mc/s. to 32 Mc/s. ● Send for details.

£39 . 16 . 0 Kit £53 . 0 . 0 Assembled



General Coverage
Receiver RG-1U



Amateur Bands
Receiver RA-1

AMATEUR BANDS RECEIVER, Model RA-1 ● Covers all amateur bands 10-160 metres ● Half-lattice crystal filter at 1-6 Mc/s. ● I.F. Provision for fixed, portable or mobile uses ● Switched USB and LSB for SSB ●

£39 . 6 . 6 Kit £52 . 10 . 0 Assembled

OPTIONAL EXTRAS. Crystal Calibrator CL-1 £4 . 12 . 0 Kit
Loudspeaker Cabinet SG-4 £1 . 9 . 6. Loudspeaker £1 . 4 . 5 incl. P.T.

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ADDRESS.....

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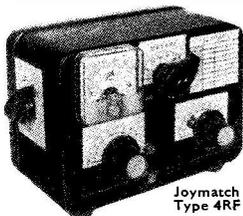


ANTENNA PROBLEMS SOLVED!

QRM—AN APOLOGY! Much of the QRM on all bands these days is contributed to by Radio Amateurs who *should* be QRT!!

The thousands of JOYSTICK V.F.A. systems sold during the past five years are making their contribution to this growth in activity. Whilst we apologise for our share of the QRM, we make NO APOLOGY for the ever growing number of Radio Amateurs all over the world who are happily operating on all bands 160 thru 10 metres, without the need for irksome beam equipment, or outdoor garden space, and . . . WITHOUT CAUSING T.V.I.!!!!

THE JOYSTICK V.F.A. SYSTEM IS SIMPLICITY ITSELF!



Joymatch Type 4RF

Heavy duty improved tuner for transmission and reception 160 thru 10 metres. Built-in RF meter ensures peak efficiency.

Your Joystick V.F.A. stockists:

- Bath:** Ryland Huntley, 15 Old Bond St.
- Birmingham:** Chas. H. Young Ltd., 170-172 Corporation St.
- Bristol:** R.S.C. Hi-Fi Centres Ltd., Gt. Western Arcade.
- Bradford:** R.S.C. Hi-Fi Centres Ltd., 10 North Parade.
- Brighton:** Technical Trading Co., Park Crescent Place.
- Bristol:** R.S.C. Hi-Fi Centres Ltd., 14 Lower Castle St., Bristol 1.
- Cardiff:** Wesak Radio, 54 Daniel St., Cathays.
- Cheltenham:** Spa Radio, 335-337 High St.
- Chesterfield:** J. & A. Tweedy (Electronic Supplies) Ltd., 64 Lordsmill St.
- Coventry:** Swanco Products Ltd., 247 Humber Ave.
- Darlington:** R.S.C. Hi-Fi Centres Ltd., 13 Post House Wynd.
- Derby:** R.S.C. Hi-Fi Centres Ltd., 26 Osaston Road, The Spot.
- Edinburgh:** R.S.C. Hi-Fi Centres Ltd., 133 Leith St.
- Glasgow:** R.S.C. Hi-Fi Centres Ltd., 326 Argyle St.
- Halifax:** R.S.C. Hi-Fi Centres Ltd., 403 Sauchiehall St.
- Halifax:** Albert Hind Ltd., 16-18 Waterhouse St.
- Hartlepool:** The Radio Shop, 58 Park Rd.
- Newcastle-upon-Tyne:** R.S.C. Hi-Fi Centres Ltd., 41 Blackett St.
- Newport, Mon.:** K. F. Paull Ltd., 14 Dock St.
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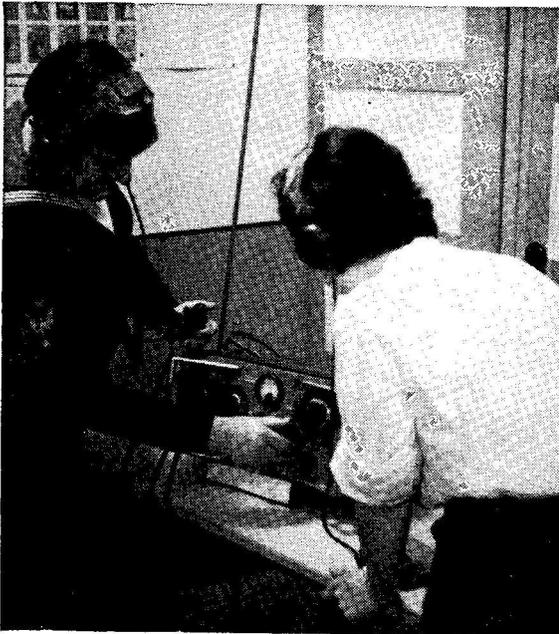


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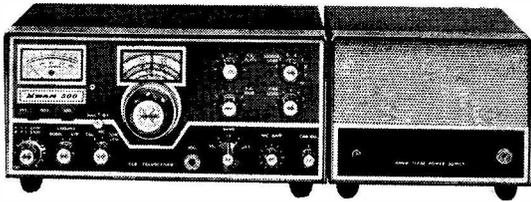


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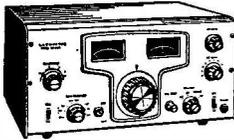
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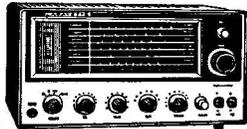
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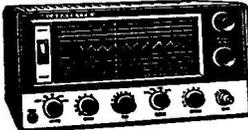
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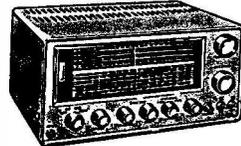
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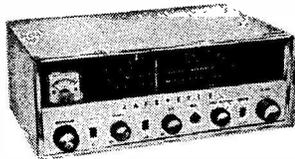
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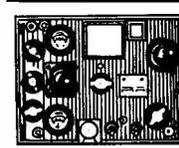


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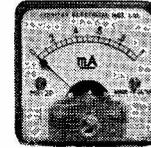


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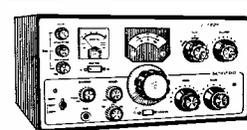
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SHORT WAVE MAGAZINE

(GB3SWM)

Vol. XXV

SEPTEMBER, 1967

No. 287

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The SHORT-WAVE Magazine

E D I T O R I A L

Convention *The big event of the year for the radio amateur fraternity is "The Exhibition," or more properly (for this year): The International Radio Engineering & Communications Exhibition, to be held in the Royal Horticultural Society's New Hall, Victoria, London, S.W.1, from Wednesday, September 27, till the Saturday, 30th, 10.0 a.m. to 9.0 p.m. daily.*

This is, of course, once again what is always known colloquially as "The Amateur Radio Exhibition," an annual event arranged—for all organisations and firms operating in the field, who are acceptable as exhibitors—by P. A. Thorogood, G4KD, who is the organiser and manager of the Exhibition, as well as being its proprietor. Under his guidance and supervision, this annual Amateur Radio event has gone from strength to strength, with rising attendances and more to see each year.

But the Exhibition is not just an equipment display, nor an annual jamboree for pressurised selling—it is the opportunity of the year to meet people and see friends. In fact, a Convention in the full meaning of the word.

We hope that all who see these lines, and can be in London in the latter part of September, will come to the Amateur Radio Exhibition. Needless to say, we shall be there, as indeed we have been on every occasion since the very beginning of the series, 20 years ago.

* * * *

Correction *In this space last month, the concluding paragraph was ambiguous and could have been misinterpreted. The reference intended was to the ARRL Convention at Montreal in July. The Region II IARU meeting proper took place at Caracas, Venezuela, last May. This in no way affects the theme of the argument, nor the point of the comment.*

*Austin Forster,
G6FO.*

HIGH-POWER MODULATOR USING SEMICONDUCTORS

DESIGN AND CIRCUITRY
FOR 50 WATTS UNDISTORTED
AUDIO

C. SHARPE (G2HIF)

THERE has been a requirement for an audio amplifier which could fill the dual roles of a modulator to a variety of transmitters and a P.A. system for sundry other purposes.

The original application called for an output power sufficient to modulate fully a 50-watt carrier without straining the last watt. A suitable output transformer rated 30 watts was available, so this was the figure written into the specification. Other essential requirements called for two independent high impedance inputs; optional frequency response controls, but with an uncorrected response nominally flat from 50 c/s to 10 kc; adequate gain to deliver the full output power into the load from a typical xtal mike; the amplifier to be capable of working (though not necessarily at full power) into any load between 3 and 15 ohms, or alternatively, through a transformer into high value loads such as might be presented by a transmitter using valves—say 2.5K to 10K ohms. Operation was to be from either 240v. 50 c/s mains, or from an accumulator-inverter supply in the field, to at least half power.

There was no question of using "difficult" components, so that special output transformers with

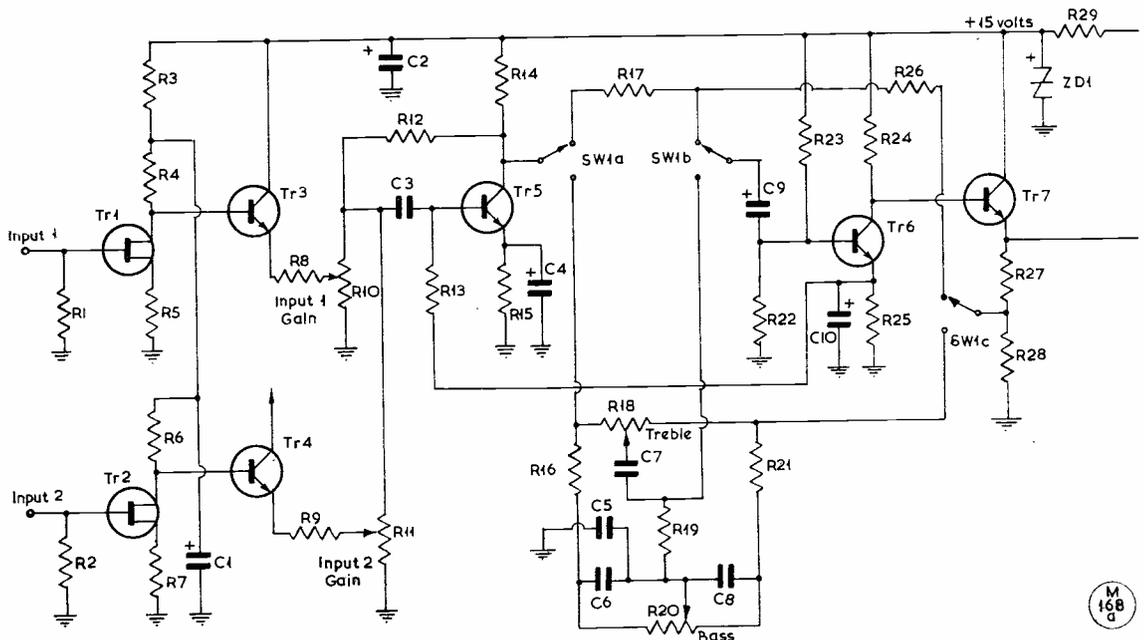
centre tapped, extra low-impedance primaries, and electrolytics with amps of AC current rating were out from the start. Finally, all the semiconductors had to be silicon.

The project demanded a little original thought since the designs to be found in all available application reports fell down on one or more of the following:

- (a) Maximum output power,
- (b) AC rating of electrolytic output capacitor,
- (c) Input impedance and low/high output impedance,
- (d) Need for special output transformer,
- (e) Silicon semiconductors.

Early in the development stage, it became evident that the power to be developed into the range of loads likely to be presented to the amplifier would prohibit the use of a 12v. supply rail. Moreover, if the need for an electrolytic capacitor with a high AC rating was to be avoided, it would be essential to balance the output voltage about ground. This automatically dictated the use of similar positive and negative supply rails, or a centre-tapped, low-impedance primary winding on the output transformer. Such an item would have to be wound especially for the application, and was therefore not considered as a solution to the problem.

Once an amplifier using balanced supply rails was accepted as being the best solution, the basic circuit of the output stages was limited to a few variations on the same theme. Several circuits were tried in which the output transistors were directly connected to a common driver stage, but since all



required this stage to be rated to handle a high voltage swing, almost equal to the potential difference between the supply rails, and at the same time have its input from the preceding stages referred to the negative (positive if stage was p.n.p.) rail, an alternative configuration which required a 1:1:1 inter-stage coupling transformer was to be preferred.

The advantages of using such a circuit are three-fold. The early stages of the amplifier can easily be divorced from AC ripple on the supply rails; the output stages may be balanced about ground without the danger of drift causing large unbalanced currents in the load; and a single type of transistor (n.p.n. or p.n.p.) may be used in the high power stages.

Transformer Construction

Fortunately the construction of a suitable inter-stage transformer proved neither difficult nor tedious. The three winding were trifilar wound with 28g. enamel wire in order to minimise leakage inductance; each winding comprises only 225 turns. Fifteen thou' Radiometal 439 size laminations were used in a standard bobbin with a core cross-section 1/4 in. x 1/4 in.

The remainder of the circuit offered few problems. The high input impedances were provided by using FET's, but all other stages take ordinary silicon semiconductors in conventional circuitry. The suggestion that the Texas 2SO34 might be a good choice for the power stages proved to be ideal. A maximum undistorted audio output approaching 50 watts r.m.s. (80 watts peak) was realised into a 5-ohm load, and

with improved regulation in the supply rails, this could be pushed to over 75 watts r.m.s. without exceeding the transistor ratings.

The amplifier presented no constructional problems, although the heat sinks, electrolytics and

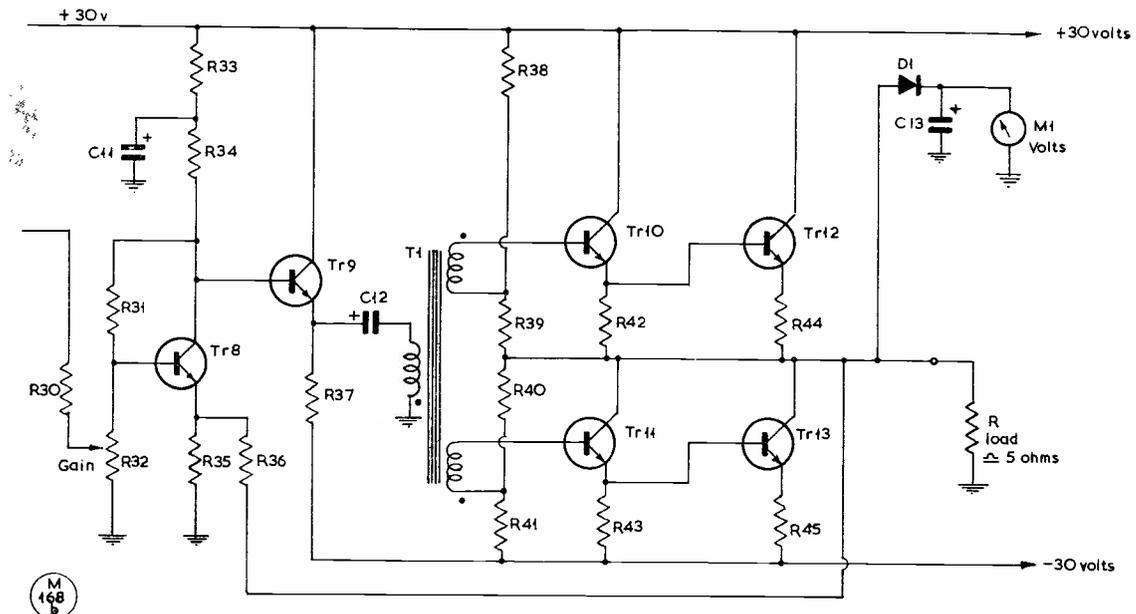
Table of Values

Circuit of the Speech Amplifier-Modulator

C1, C2, C3, C9,	R24 = 3,900 ohms
C11 = 50 µF	R25 = 1,500 ohms
C4, C10 = 100 µF	R27, R30 = 470 ohms
C5, C7 = .01 µF	R31 = 82,000 ohms
C6, C8 = 0.1 µF	R32 = 5,000-ohm pot'meter
C12 = 2,000 µF	R35 = 100 ohms
C13 = 12 µF	R37 = 680 ohms, 3-w.
R1, R2 = 3.3 megohm	R38, R40 = 560 ohms, 3-w.
R3, R28, R29, R33, R36 = 1,000 ohms	R39, R41 = 22 ohms
R4, R6, R8, R9 = 4,700 ohms	R42, R43 = 56 ohms
R10, R11 = 100,000-ohm pot'meter	R44, R45 = One ohm, 3-w.
R12 = 56,000 ohms	ZD1 = Zener diode Z2A150
R13 = 22,000 ohms	D1 = Diode ZS78
R14, R17, R22, R26 = 10,000 ohms	T1 = Driver xformer, see text
R15 = 2,700 ohms	Tr1, Tr2 = 2N3436, FET
R16, R19, R21, R34 = 3,300 ohms	Tr3, Tr4, Tr5, Tr6, Tr7 = C.111E
R18 = 25,000-ohm pot'meter	Tr8 = 2N1893
R20 = 50,000-ohm pot'meter	Tr9, Tr10, Tr11, Tr12, Tr13 = 2SO34
R23 = 39,000 ohms	

Notes: Sw1, tone compensation circuit isolated in position as drawn. T1 is not available commercially and is specially wound (see text). R-load may be standard 50w. PA o/p transformer, 5K-5 ohms, connected step-up to match into Tx. Resistors R29, R42, R43 rated 1/2-watt; R33, 1-watt; R37, R38, R40, R44, R45 are 3-watt; all other resistors 1/2-watt rating.

Circuit of the speech-amplifier (left) and the Modulator proper (below) to give 50 watts of audio.



supply transformer occupied over two-thirds of the *Electrokit* box in which the amplifier was housed!

Special care was necessary to avoid the 100 c/s ripple current through the reservoir capacitors flowing in a part of the chassis common to the input circuits, but no other precautions proved necessary to reduce hum.

A matched pair of 2SO34's is desirable, though not essential since feedback is applied to the individual output stages and to the main amplifier. Normal 5 per cent tolerance resistors were used for R38-R41, which set the standing current in the 2SO34's to approximately 60 mA. This can rise under the influence of high ambient temperatures to 110 mA, but there is no danger of thermal run-away. A lower value of standing current is tolerable with a matched pair of 2SO34's, but this should be kept to at least 10 mA if the amplifier is to operate in Class-AB correctly and not suffer from cross-over distortion at low levels. Type 2S721 transistors may be substituted for the 2SO34 emitter-follower stages if preferred, but their inferior bottoming characteristics will result in a slightly lower maximum peak output.

Ideally, the 30v. rails should be taken from a stabilised supply in order that their value does not sink under peak load. However, provided the full output power is not required the regulation of a supply derived from silicon rectifiers in full-wave, and at least a 2000 μ F reservoir capacitor, will suffice.

The recommended rectifier types are BYZ-13, which are rated to 6 amps. No smoothing choke is necessary or even desirable, since the IR drop would be prohibitive. Fuses, if fitted, should be in the primary circuit of the transformer, but in the event of any "unfortunate mishap", they cannot be expected to protect the power transistors from *all* eventualities. Fuses on the 30v. rails should not be rated at less than 3 amps, and not be expected to carry the charging current of the reservoir condensers.

The transistor C111E is a cheap general-purpose type by Fairchild; the 2N1893, a high-voltage type by RCA; and the 2SO34, a power type with a low bottoming voltage by Texas Instruments. The FET is a low noise type by Amelco. Alternative types of transistors can be used throughout provided they meet the same general specifications.

Loading

The output transformer is a 30-watt job made by Gardeners. The primary is tapped for valves in push-pull, offering plate-to-plate loads of 4K, 6K and 8K. The secondary is tapped at 2.5, 5, 7.5, 15, and 30 ohms. In this application the low impedance is presented to the Modulator and the appropriate high impedance to the transmitter. The transformer is adequate for transmitter running not more than 50 watts input, but marginal for higher powers.

MORE COMMENTS, WITHOUT COMMENT

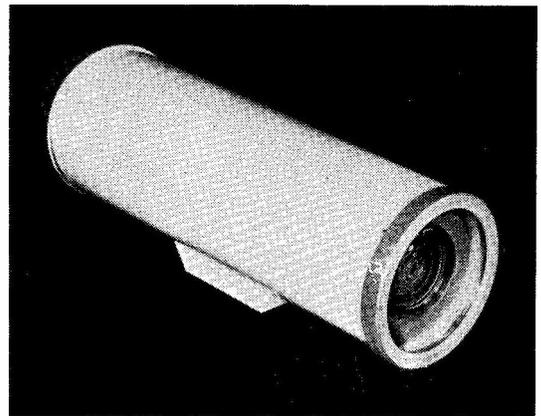
"... Am a regular reader of SHORT WAVE MONTH, which I get from a local newsagent. Would like to inform you that having now passed the RAE and the Morse Test at the age of 71, I have been allocated the callsign G3WNJ. ..."

"... I enclose my QTH for publication, as I have recently taken out a licence, having passed the RAE as long ago as 1954. I have been a regular reader of SHORT WAVE MAGAZINE for over 20 years, my interest in Amateur Radio having started back in 1932. I now look forward to taking a more active part in this very interesting hobby... G8BAB."

INTERESTING STATISTICS

The annual accounts of the NZART (New Zealand Association of Radio Transmitters) are always of interest—because they show such a (relatively) strong financial position with a (comparatively) small membership. The latest statement (*Break-In*, April '67) puts total membership at 2,409, with a profit on the year's working of £346. This goes to swell the NZART's accumulated funds to £3,972, while the accounts also show that they hold investments worth £4,062 at cost. The balance-sheet total is no less than £10,832 against

current liabilities of under £3,000. These are remarkable figures for an organisation of less than 2,500 members, with an annual subscription of 35s.



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Our regular Book Lists include all titles of general Amateur Radio interest and cover the whole field for specialised texts.

HIGH-PERFORMANCE GROUND-PLANE SYSTEM FOR FOUR METRES

CONSTRUCTION, SITING AND
SETTING UP

PART II

P. HARRIS (G3GFN)

The first part of this article appeared in our August issue.—Editor.

As with the radials, both corrected and free-space lengths were checked. The corrected length gave an SWR slightly better than 1.2:1. Free-space length showed a marked improvement. With the SWR bridge correctly adjusted for full forward indication, adjusting the capacitor in series with the vertical element reduced the reflected reading to zero, and by increasing the sensitivity of the bridge while in the reflected position, further very close adjustment of the capacitor reduced the reflected power to a level which could not be detected even with the bridge set for maximum sensitivity.

The adjustments were made at an RF carrier power of 10 watts, while the bridge in its most sensitive condition will give a full scale forward reading with less than $\frac{1}{2}$ watt of RF in a 75-ohm line.

Ground-Plane vs. Vertical Dipole

For a time, both the ground-plane and a comparison vertical dipole were operated from similar elevations, but spaced from each other to reduce, as far as possible, any interaction between them. The difference in performance is best described as astounding.

Within a radius of about 4 miles, there appeared to be little to choose between the two aeri-als, but, as the distance became progressively greater, the superiority of the ground-plane became increasingly evident. In the range 4 to 8 miles, while the signal strength of mobile stations heard on the dipole progressively decreased, on the ground-plane they did not decrease at anything like the same rate, and at distances greater than 8 miles mobiles could be heard on the ground-plane at R5 while on the dipole there was no trace of them.

In the case of fixed stations, one at a range of 23 miles gave about S2 on the dipole, but produced a healthy S6-7 on the ground-plane. In another instance, a station at 13 miles gave S5-6 on the dipole, and S7-8 with the ground-plane. The difference in the latter case is not so marked, and this is probably due to the fact that the station in question is situated some 400ft. a.s.l. while the writer's aeri-als were a mere 60-70ft. a.s.l., depending on the state of the tide(!). Apart from this exception, and other stations

operating from high ground, there was always a very marked improvement in the ground-plane over the dipole.

One unexpected benefit secured from the ground-plane was a substantial reduction in ignition noise pick-up from vehicles on an adjacent main road. This is presumed to be due to the shielding given to the vertical element by the ground-plane radials.

Siting

To take full advantage of the ground-plane it should be mounted in the clear, and so that its vertical element is not influenced by the proximity of adjacent objects, especially if they are metal construction.

Unlike a dipole, it should not be clipped to the side of an existing metal mast, even if it is held off by a swan stub arm. This is in fact bad practice with a dipole, and with a ground-plane it is sure to destroy some of its attributes. For optimum results, it should be mounted at the top of a mast and, as has been indicated, positioned in the clear and the feeder arranged to fall away directly underneath the radial elements.

Construction

The construction of this "best type" is complicated by the need to include at the base of the vertical element the tuning capacitor, but when the resulting performance is equated with the slight mechanical difficulties, such constructional complications as this condenser causes are outweighed by the benefits.

While it is not the only possible method of construction, that to be described has withstood Force 10 gales in an exposed coastal location, and may be fabricated with simple hand tools. The main requirement is a rigid platform to which the radials can be fixed, and for carrying the tuning capacitor and the mounting of the vertical element. An exploded view of the manner in which this is made, together with the way in which it is fitted to the top of the mast, is shown in Fig. 4. When securing the side plates to the platform, shakeproof washers should be used under each nut, and similarly they should be used when bolting the radial clips into position. The radials themselves are each 42in. long when measured from the centre point of the platform, point J, to their tip. Physically they are shorter than this since a space must be left in the centre for the mounting of the vertical element. After being fixed under their respective clips, a PK screw is driven through the top of each clip and into the radial beneath to ensure a good electrical connection.

The matching unit housing the tuning capacitor and insulated support for the vertical element is concocted from a comical assortment of bits and pieces, and those more mechanically inclined than the writer could undoubtedly devise a more sophisticated arrangement. Nevertheless, the unit, which is shown in section in Fig. 5, meets the need for a waterproof assembly, and is not bad to look at when completed.

Basically the housing is a flexible polythene flower

pot and its associated stand, available from most gardening shops, ironmongers and sometimes branches of F.W.W. The main requirement is that when the pot is inverted, its large open end can be "persuaded" to fit just inside the top of the piece which is the stand in such a manner that there are no gaps between the two. The vertical element of the aerial passes down through the drain hole of the pot, and to prevent water entering at this point, the rubber piece of a watering-can rose head, less the perforated metal disc, is slid down the radiator and positioned so that it encompasses the pot. The rose head is a small size with a bore through its sleeve of about $\frac{1}{4}$ in. If the bore is much larger than this, the vertical element of the aerial can be built up at this point with p.v.c. insulating tape so that it is a tight fit in the sleeve. In Fig. 5 the parts are coded *H* for the pot stand, *K* for the pot, and *L* for the rose head.

Nearly all the assembly detail can be seen from Fig. 5, only a few points needing elaboration. The vertical element is carried by the vertical parts of two brackets positioned back to back. These are made from $\frac{1}{4}$ in. perspex sheet—obtainable from most sign writers and D-I-Y stores—giving a thickness of $\frac{1}{4}$ in. at the element fixing point. The perspex should first be cut into two strips, and then it may be bent by *slowly* warming over a gas flame. Do not try to rush this operation. Let the temperature of the perspex rise fairly slowly and become fully pliable at the bending point before forming the angle. Once fully pliable, the angle may be formed by bending the perspex over a $\frac{1}{4}$ in rod held in a vice. Two cautions are in order. First, if the perspex is held too near the flame it will scorch, and second, the material will retain its heat for some time and may cause burns if handled too soon after being formed. The brackets may now be adjusted to their final size, and it should be noted from the detail sketch that they are tapered so that they rise to almost the full height of the pot. Dimensions are not given as these will depend on the pot size employed.

The radiator, which is 47 in. long for 52-ohm feed, or 53 $\frac{1}{2}$ in. long for 75-ohm feed, is constructed from $\frac{1}{2}$ in. diameter aluminium tube fixed to the vertical sections of the supporting brackets by a semi-circular clamp made from 20g. sheet and having a shape similar to that of item *D* in Fig. 4. The bolts retaining this clamp pass through both thicknesses of the bracket. In addition, and not shown on the diagram, a *brass* bolt is passed from the crown of the clamp, through the tube and the bracket at a point $\frac{1}{4}$ in. up from the lower end of the tube. On the perspex side is fitted a star washer, a solder tag and then a nut. Using $\frac{1}{4}$ in. copper strip, a connection is made from this tag to the fixed vanes of the tuning capacitor making the circuit to the radiator.

The tuning capacitor, item *P* Fig. 5, should be a double spaced air dielectric trimmer. An ideal surplus unit bears the reference 160035 indicating a 5-30 μ F capacity swing. This has a ceramic front plate and is mounted by means of two 6BA bolts fitting into captive nuts secured into the ceramic, these being fully isolated from the working parts of

the condenser. Although the maximum capacity of this unit is lower than that previously specified, it may be used as it stands for aerials proportioned to give a feed impedance of 52 ohms. Where the feed point is to be 75 ohms, two rotor and two stator plates should be removed. A commercial equivalent is manufactured by Jackson Bros., type number C801. If other capacitors are contemplated, the moving vanes must be fully insulated from the platform *A* since both sides of the capacitor carry RF.

Connection to the system is by means of a recessed chassis-mounting coax socket fitted in an inverted position to the underside of the platform. This socket must have polythene or p.t.f.e. insulation. Normally the use of such sockets is viewed with disdain, but it has been the writer's experience that provided certain precautions are taken, they need not cause trouble. Such a socket permits an SWR bridge to be easily connected at the most important point, namely at the aerial itself, and further, if the down-lead becomes damaged, or deteriorates, it simplifies its replacement. The precautions to be observed are (1) Prior to making the final connection, and after the setting up adjustments have been completed, fill the socket completely with *Radiospares* silicon grease.

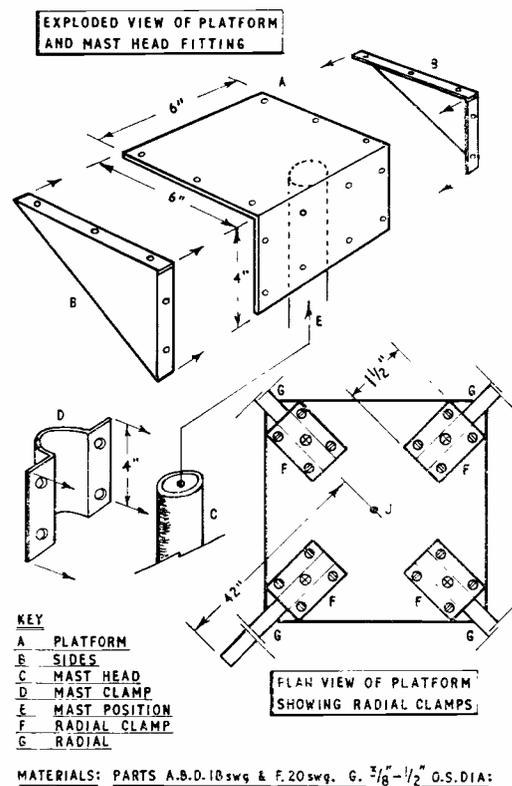


Fig. 4. Method of fabricating the ground-plane platform to carry the radials and the matching unit. Also shown is the fixing of the radials and their positions together with that of the mast head.

As this is fairly expensive by the tube, most TV dealer service departments are usually prepared to sell or give small quantities if the purpose for which it is required is explained. (2) Use a metallised plug, and after making a really good connection to the cable, bind the exterior with p.v.c. electrical tape, except that part which enters the socket, and run this binding back over the cable for a few inches. Seal the tape with a thin coating of epoxy adhesive. (3) Fill the plug with silicon grease before fitting it to the socket. (4) Anchor the cable firmly to the mast as near to the plug as possible and form the cable into a loop having a natural tendency to push the plug further into the socket. (5) Form the excess silicon grease into a "wiped joint" around the junction between plug and socket. Such a connection will give years of trouble free service. In this matching unit, the connection between the spigot of the socket and the moving vanes of the capacitor is made with $\frac{1}{8}$ in. copper strip. This is passed through a hole drilled in the vertical element supporting bracket to reduce the length of the connection.

Once the matching unit has been completed, and after the aerial has been adjusted, the joints between the sections should be bound with p.v.c. tape to make them completely waterproof. To prevent this unwinding in the heat of the sun, a thin smear of *Araldite* epoxy resin adhesive should be placed over and around each of the taped joints.

Setting Up

The most accurate method of adjusting this aerial is with an SWR bridge. Failing the ability to beg, borrow or otherwise acquire the use of such an instrument, a field strength meter may be substituted, but this will not give such precise indications as the bridge.

Prior to dealing with the actual setting up, a word on co-axial cable may not be out of place. The generation of RF is an expensive business in terms of total wattage input vs. RF output powers and for this reason, if for no other, good quality cable should always be employed, especially at VHF and UHF where cable losses can be high. Cheap Band I television downlead could quite easily soak up 50-75 per cent of the valuable RF output before it reaches the aerial at frequencies of 70 mc and higher, especially if the cable run is of any length. A good cable which is relatively inexpensive, and which just fits standard $\frac{1}{8}$ in. fittings, is the BICC T3278, which, at 70 mc, has a loss of approximately 1.7 dB per 100ft.

Although it is not essential to do so, it is good practice to adjust any VHF/UHF aerial while it is connected to the actual length and type of feeder with which it will function when installed. For this reason, and with the aerial being described, the full feeder length should be prepared prior to making adjustments.

Taking the SWR bridge method first, the bridge should be connected to the socket on the aerial platform by a very short length of cable, and the end of the feeder run connected to the other side of the bridge. With the bridge set to "Forward," and the sensitivity control at *minimum*, switch on the trans-

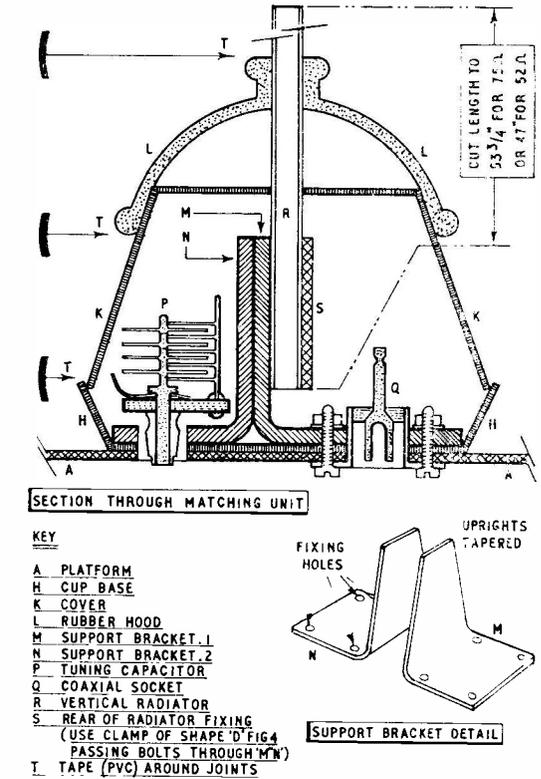


Fig. 5. Construction of the matching unit showing (1) mounting of the capacitor; (2) mounting of the vertical radiator on twin brackets; (3) form and shape of brackets, and (4) position of co-axial connector. See text for details of cover parts H, K and L. Connections to be made with $\frac{1}{8}$ in. copper strip or flattened outer screening, from co-axial cable.

mitter and rotate the bridge sensitivity control towards maximum until full scale reading is obtained. Switch to "Reflected," and with an insulated tool adjust the matching capacitor to give minimum reading on the bridge. Switch off, set the bridge to "Forward," apply power to the transmitter, re-adjust for full scale reading, switch to "Reflected" and again adjust the condenser. If everything is as it should be, it will be possible completely to null out the reflected reading, although this will depend also on errors in the bridge itself. To facilitate critical adjustment of the capacitor, the sensitivity control of the bridge may be advanced while it is reading the reflected value, and by making the reflected indication disproportionately large to the forward reading, small variations in the condenser will produce marked changes in the reflected null value and permit the capacitor to be set precisely. *Caution*: Do not switch back to the "Forward" position until the bridge sensitivity has been reduced. This completes the adjustments using an SWR bridge.

With a field strength meter, the requirement is that the meter has sufficient sensitivity to allow it

to be positioned several wavelengths away from the aerial, and so that its own aerial is just above the level of the ground-plane radials. With the transmitter operating, the capacitor is adjusted for maximum indication on the field strength meter.

During the foregoing adjustments, the aerial should be clear of obstructions for at least 14ft. in any direction, and when tuning the capacitor, keep your head beneath the plane of the radials.

Conclusion

This aerial will be found a worthwhile project for 4-metre operators who are interested in working mobiles, and for groups who use this band for nets. In terms of vertical radiation pattern, investigation with a probe on a bamboo pole indicated that it is similar to that of Fig. 1, *but without the earth losses* and a maximum height angle of 20 degrees.

BACK COMES THE TCS

SOME USEFUL REFERENCES

J. N. ROE, M.I.R.E., F.R.S.A. (G2VV)

WITH the recent release of further supplies of the popular TCS Transmitter on the surplus market, information is being sought for circuit and modification details. This equipment is probably one of the best surplus buys ever offered, and it is perhaps worth mentioning that it is still in use in the U.S. Navy!

For the benefit of readers seeking such information it will be of interest to point out that *SHORT WAVE MAGAZINE* has, in the past, published comprehensive articles—together with accompanying photographs and circuits—dealing with the TCS Equipment. The following bibliography of such issues covers the complete subject.

October 1958 **The TCS Transmitter and Receiver Assembly**
Complete details of original Equipment.

April 1959 **Modifying The TCS Transmitter (Part D)**
How to convert the existing 16-point

connector to a 4-point connector. Modified keying circuit and addition of driver stage plate meter. Removing relays and inter-locking switch. Details for crystal microphone operation.

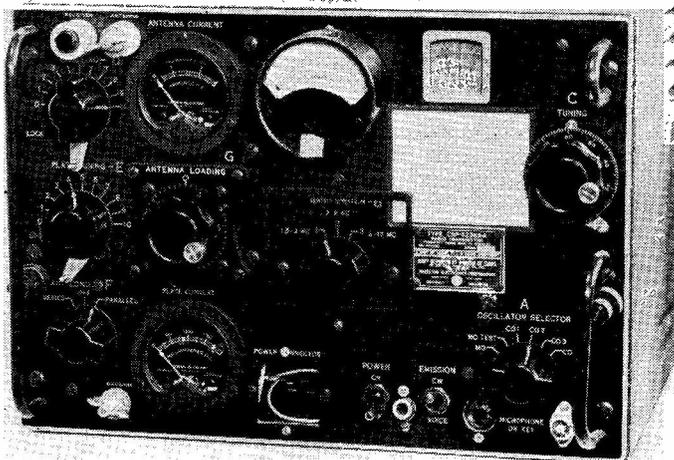
May 1959 **Modifying The TCS Transmitter (Part II)**
Constructional details of Speech Pre-Amplifier. Results obtained on 1.8 mc, 3.5 mc and 7 mc. TVI report.

July 1961 **Clamp Control for the TCS Transmitter**
Fitting an additional 12A6 valve for clamper circuit control. Details for keying VFO stage for BK facilities.

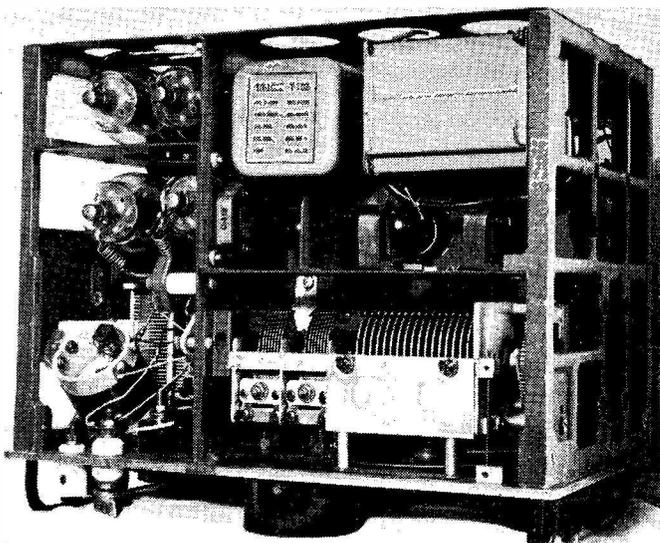
With reference to the VFO keying information in the July '61 article: One further modification has been carried out recently to remove any sign of a "tail" on the note. This only requires the removal of an original component C128A 0.1 μ F from the low voltage HT circuit.

For those unfamiliar with the TCS Transmitter it should, perhaps, be mentioned that it *can* be operated without any modification. However, in its original state it is unnecessarily complex for normal amateur working and the low order of modulation (with a carbon microphone) leaves much to be desired.

Front-panel controls of the TCS unit. At left, aerial and PA tuning; centre, additional driver stage plate meter; below centre, band-change switch; upper right, VFO dial and tuning control.



Inside the TCS transmitter. Top left, the 1625 modulator valves; left centre, the parallel-1625 PA stage; below, aerial and PA tuning circuit. Bottom centre, exciter stage tuning. Modified section for modulator, together with exciter stage valves, occupies top right-hand compartment.



Editorial Note: The issues mentioned in the foregoing are right out-of-print with us. If not held by readers interested, or not available for borrowing locally, copies could almost certainly be obtained through our Small Advertisement section.

IDEAS FOR EQUIPMENT ASSEMBLY

SOME ALTERNATIVE METHODS OF MOUNTING APPARATUS

AS many amateur constructors have already found, there is no need to be tied to the familiar rack-panel, table top or open chassis methods of assembly and layout for home-built transmitter equipment.

The emphasis is on the transmitting side rather than receivers, because in the great majority of cases the receiver is a purchased item and in any case needs to be positioned for operating convenience. Usually, it takes up relatively little space and, with proper control and change-over methods, can be placed quite a distance from the transmitter, modulator and power pack sections of the station layout.

Where space is a factor and the gear must be housed in such a way as to take up as little room as possible but yet be accessible for adjustment and maintenance, consider the methods of assembly suggested here, applicable to low- or medium-powered amateur stations.

Hang It on the Wall—

A piece of board three feet long and a foot wide will easily accommodate four shelves 12in. square held

to it by small metal brackets, spaced so that there is a full 9-inch clearance between each shelf.

The board is then hung (not fixed) in a convenient position on the wall, where there is a wooden upright or cross-piece behind the plaster. A strong hook is let into the wall at this point, registering with a hole centred near the top of the board carrying the shelves. The board is, of course, hung up on the hook with the shelves projecting outwards. The various items of what might be called the "static" transmitting equipment are then assembled on aluminium chassis in the usual way—with or without panels as may be preferred—these chassis being made, say, 11in. square to avoid overlap when on the shelves, which are used to accommodate them. Inter-connection between the units is by plug-socket on cable forms made up to carry the necessary circuits.

If desired, a dust cover made of hardboard (with an adequate number of ventilation holes) can be fitted, and painted some colour to harmonise with the room.

The result is a neat, space-saving layout, easily got at but out of the way, which in effect takes up no room at all because it is hung on the wall. The only points to watch are finding the right place to put in the hook (so that the plaster is not torn down) and avoiding too much weight on the shelves. If heavy power packs are involved, it would probably be necessary to box them away at floor level, running the HT supply in rubber-covered high tension cable.

—Or Put It on the Mantel-Piece!

If it can be cleared of the oddments with which it is usually littered, the mantel-piece is also worth considering as a "basis on which to build." Should it be flat and of reasonable width and length, say 5 to 6in. wide and 3 to 3½ft. long, the thing is easy. One simply makes up chassis of the right width to sit on the mantel-

piece without overlap, the gear then being built up on these chassis in convenient units.

The tidiness factor comes in by cutting a piece of hardboard of the correct length and depth to box in the gear, with wooden side-pieces at each end, resting on the mantel-piece, to hold the hardboard panel upright. (With a long mantel-piece, a centre support might also be required.) This cover or panel simply rests on the mantel-piece and, again, can be painted to harmonise with the general colour scheme.

To get at the gear, it is only a matter of lifting off the hardboard cover. In a bachelor establishment, of course, it might not be necessary to go to any serious lengths to camouflage the gear!

Shelving with Fitted Panels

For the accommodation of a more ambitious layout—let us say, a full-power station, fully modulated, with recording and play-back amplifiers and all the paraphernalia that goes with remotely controlled rotary beams—a different approach is necessary if floor space is a factor.

The idea is to fix strong, wide shelves to a convenient wall, in a corner of the room with the shelves at right angles, and then to fit hardboard panels (vertically to the edges of the shelves) hinged to open either like cupboard doors or as flaps.

If the shelf fitting is done by fixing wooden uprights to the wall (with *Rawlplug* or *Philplug* fastening) and the shelves themselves held in position by large metal brackets, a very strong framework results, on which heavy equipment can be carried.

The gear is assembled, as before, on open chassis. The hardboard panels can very easily be cut to carry

meters and switches, connected by "loose" leads, having enough slack to allow the panel to swing open on its hinges. In a layout along these lines, the panel sizes will have to be planned a bit to avoid having to deal with unwieldy sections.

In a particular instance where this general form of station layout has been adopted, four shelves 14in. wide by 4ft. 3in. long, with another set of four of the same width 3ft. 3in. long butted up to them, are fitted in the corner of the room, the vertical separation between the shelves being 18in. This gives a total available shelf area for the accommodation of gear of no less than 35 square feet; in addition to this, there is another 24 sq. ft. of hardboard panelling, available for meters, switches and the direct mounting (on the inside) of light chassis. All this with only a 14in. width of a corner of the room being taken up! The shelves are positioned at a comfortable level for standing at, the gear is safe, reasonably dust-proof, with the minimum of what, to the feminine eye, are "unsightly wires and bits of thing," and any unit of the assembly is immediately accessible by swinging back the appropriate panel.

Conclusion

The ideas outlined here can, of course, be varied in many ways. The whole point is to suggest that neither table room nor floor area need be taken up if there is some empty wall space available.

It is also worth mentioning that hardboard can be used for a great variety of purposes in amateur-station constructional work. It can be obtained from any builder's or D-I-Y supply stores, and is cheap, easy to work, takes paint well, has reasonable insulating properties, and is available in large sheets, with one surface smooth-finished and the other rough, for "insides."

PICTURE CAPTION CORRECTED

The caption to the illustration on p.308 of the July issue should have described the Belling-Lee L.1812 Television amplifier, to be discussed in a future issue, when the S.T.C. standard encapsulations will be shown. This error of transposition is regretted.

CLUB CALLSIGNS—FORTY YEARS AGO

In looking through a *Call Book* dated 1927, we came upon the fact that a number of local Clubs and "Wireless Societies" (as they used to be known) held their own transmitting licence at that distant time. Many of these stations were in action on the old 440-metre amateur band. The prefix used in those days, EG, was unofficial, it not being until 1928 that U.K. amateurs were authorised to sign "G." Following is a list of Clubs, with their then official callsigns:

Barnsley, 6AJ; Barrow, 2DT; Birmingham University, 5UN; Bradford-on-Avon, 6YA; Bristol, 6YN and 6YO (portable); Halifax, 2GU; Hampstead, 2IY; Ilford, 2OT; Lincoln, 5FZ; Loughborough, 2PI; Manchester, 5MT; Manchester (Stretford), 5SS;

Newark, 5GL; Sandhurst, RMC, 5PM; Sheffield, 2XJ and 2XK (portable); Southport, 2IJ; South Shields, 5QI; Sunderland, 2SN; Wimbledon, 6JB; and Wolverhampton, 2CP.

Of course, in many of these districts there are active Clubs today, though constituted somewhat differently. It would be interesting to hear from any readers who may actually have operated under the callsigns listed, or were active members at the time of the Clubs named.

INTERNATIONAL BROADCASTING CONVENTION

A convention on all technical aspects of Broadcasting, sound and television, including an exhibition of BC equipment and a discussion programme, will be held during September 20-22, at the Royal Lancaster Hotel, Lancaster Gate, London, W.2. This is essentially a professional affair, and involves a registration fee of £8 inclusive. Those interested should apply to: The Secretary, International Broadcasting Convention, Royal Television Society, 166 Shaftesbury Avenue, London, W.C.2.

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INTERFERENCE SUPPRESSION FOR MOBILE RADIO

STATIC CAUSES AND THEIR CURE — IMPORTANCE OF MAINTENANCE IN ELIMINATION OF RADIO NOISE

J. E. AUSTIN (G3REM)

THE writer has for some years been the manager of a business engaged exclusively in the field of mobile receiving equipment. The notes following, based on experience gained over those years, may be of some assistance to intending mobileers and indeed to established mobileers who are experiencing interference problems. (The writer has himself operated /M for several years.)

Many discussions with members of the general public and other mobileers has led one to believe that much has yet to be done to enable listeners and /M operators to enjoy the fruits of their labours to the full.

The most common forms of interference experienced are caused by the dynamo, sparking plugs and ignition coil. Lesser noises will be masked by the heavy interference from the above and for this reason they must be cleared first. Much has been written over the years but seldom is there any reference to *mechanical condition*, which if poor can greatly reduce the effectiveness of suppression devices!

Dynamo. Fit a 1 μ F suppressor capacitor to a convenient bolt (keeping it away from the exhaust pipe) and clip the lead to the main "D" lead terminal on the end of the dynamo. In 99 per cent of cases this will have the desired effect. If noise is still heard this unit should be inspected for bearing, commutator or brush wear. Bouncing dynamo brushes are not very conducive to interference-free listening.

Sparking Plugs. They do not always give rise to interference but of course must be suppressed if they do. The suppressed plug cable fitted on some cars is not always sufficient, especially at amateur frequencies. Where trouble is experienced normal cable should be fitted together with plug-top sup-

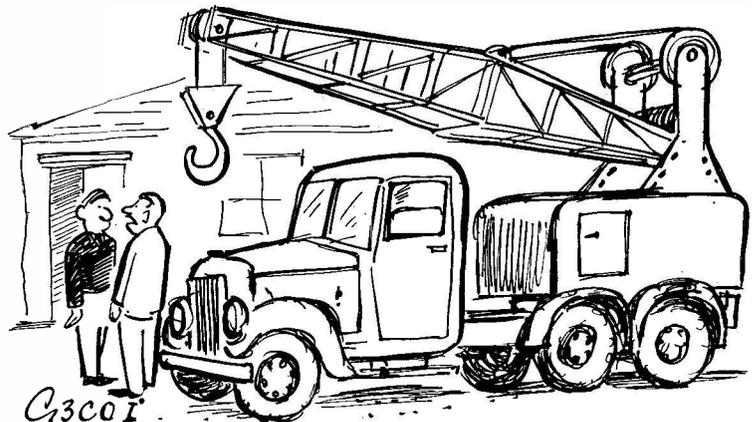
pressors. (The latter cannot be fitted to suppressed cable.) Plugs with burnt electrodes or over-large gaps will result in a greater spark intensity and they should be dealt with accordingly.

Ignition Coil. Vehicle manufacturers are required by law to fit a suppressor to the EHT lead and this is built into the distributor cap. The addition of a cut-lead suppressor in the EHT connection is *not* normally necessary and may, in some cases, degrade the performance of the engine. Ensure that the body of the coil is well earthed, if necessary bonding with copper braid. Fit a 1 μ F suppressor capacitor and connect to the "S W" terminal. Do *not* connect to the "C B" terminal as damage could be caused to the contact breaker points, and in some cases the engine may not start. Note that on some foreign cars a resistor is fitted in the "S W" lead and the suppressor will not be effective if fitted on the wrong side of it.

Bonnet. Though this is the final screen over the engine, it is all too often overlooked. A bonnet hinge or catch is *not* very good as an earth return at RF and on some vehicles the hinge pins are mounted in rubber. Check the resistance of the bonnet to the body, bonding with copper braid if necessary.

Voltage Control Unit. This unit has seldom caused trouble. The few cases investigated have been found due to malfunction because of mechanical wear or misadjustment. Replacement of the unit has cured any trouble. It should be noted that electrical equipment manufacturers advise *against* the fitting of any device on the dynamo field terminals.

Instrument Voltage Regulator. This will be found on many vehicles made during the past few years and can cause severe interference. Every single one encountered has had to be suppressed! It is not always easy to get at, being mounted in most instances behind the instrument cluster. Here it is more convenient to use a 1 μ F paper tubular condenser, but remember to tape the body to a convenient point to prevent the lead-out wires from breaking through metal fatigue. The capacitor should



"... I understand you have an AR88D for sale ..."

be connected to the battery supply terminal and earth. Do *not* make any connection to the instrument terminal of the regulator as serious damage can be caused to the instrument itself, or at best an incorrect reading.

Wheel Bearings. Static noise can be generated by wheel bearings and is caused by friction from the ball bearings or rollers between the inner and outer cage of the bearing. It is most common on the free-running wheels, bearing in mind that some cars have front-wheel drive, with the free-running wheels at the rear. Wheel static suppression devices are available and can be fitted in a matter of a few minutes on most cars. The driven wheels are not usually quite so troublesome because the transmission tends to buy-pass any static to chassis. However, static noise can occur owing to the fact that road spring shackle pins are commonly mounted in rubber blocks, leaving the whole axle floating at RF. The remedy here is to bond the axle to chassis on both sides with one-inch wide copper braid, allowing enough slack for axle movement. Further noise may be caused by the wheel bearings and if so may be cured by fitting anti-static carbon brushes. These are mounted on the brake back-plate to make contact with the edge of the brake drum. The edge of the brake drum should be cleaned to brightness.

Other Precautions

Despite the possibilities covered so far, interference can still be caused by many other parts on the vehicle and each case must be treated individually. A useful check is to start the engine and then walk round the car with a transistor portable receiver. Unsuspected radiation points can be found in this way and holding the receiver near the exhaust pipe, for instance, may bring surprising results. Don't forget that the engine and exhaust pipe are carried on flexible (insulating) mountings and if your mobile whip is mounted beside the end of the exhaust pipe interference may be induced into the whip. Bond the exhaust pipe to chassis with copper braid, not overlooking any rusty joints along the pipe which should again be bonded.

Aerial feeder cables running from the rear are best routed through the inside of the car, to take advantage of the screening effect of the body, at the same time reducing weather damage to the cable. In severe cases of noise pickup by the braid of the aerial feeder the cable braid may require bonding clips every six inches or so. Less frequent and often unsuspected interference-radiating points are items which enter the car from the engine compartment. (Examples are the choke cable and steering-column.) In the case of one current model of car it is necessary to place a screening plate between the ignition coil and the steering column to prevent radiation from the coil passing up the steering column into the car! As before, each item must be bonded to chassis and at more than one point.

One puzzling case encountered was traced to the wiring to a door-shut switch which controlled an interior light. When the door was open, no inter-

ference was present, but when it was shut interference appeared. The reason? When the door was open the wiring was down to earth at RF *via* the light bulb filament. When it was shut the live wire to the switch was floating. The cure was effected by tracing the wire to its source and decoupling with the usual capacitor. In the case of roof aerials, wiring to interior lights can give rise to similar trouble. Either decouple the wiring or fit a screening plate over the base of the aerial.

Can there be anything left on a vehicle which has not yet been mentioned in connection with interference? Unfortunately, the answer is *Yes!* Do not overlook electric oil-pressure indicator switches, temperature gauge transmitters and electric petrol pumps.

Maintenance

Reference was made earlier to the mechanical condition of the vehicle. It is surprising what can be detected with the aid of your receiver when it is tuned between signals. For instance, G3XYZ is driving along quite happily waiting for some calls on 160m., when the car ahead stops without warning. Our friend is forced to pull his steering hard over to clear. His car lurches violently and almost overturns and at this instant the receiver produces a burst of very severe static noise. He wonders vaguely what it was and then forgets about it. A pity, because his receiver had just told him that his front-wheel bearings are probably in need of attention. At least one, probably the O/S/F, is worn or requires greasing.

A few miles further on (still with G3XYZ) the road deteriorates into a series of ridges and holes. Coincident with each bump and lurch of the car he notices a brief burst of noise on the receiver. What now? Well, static electricity will result from any form of friction and the most likely answer will be a loose bumper, number plate or perhaps a worn-out shock absorber. In short, investigate the cause of *any* unusual noise on the receiver, not overlooking the earth connection on the aerial, be it a receiver or transmitter type. It is also interesting to listen carefully when being overtaken by other vehicles. Hear that brake lining rub as it goes by and the horrible noise which you can now see is caused by his broken exhaust dragging on the road and emitting sparks.

Interference problems are varied and all are very annoying but it is usually possible to overcome each one if tackled methodically.

It is hoped that the points covered will prove of some help to mobileers although it should be explained that there are other sources of interference which have not been mentioned. However, the writer has concentrated on the most prevalent forms encountered and those not covered are rather rare.

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AUDIO NOISE LIMITER

SUGGESTING A CIRCUIT WORTH TRYING

J. S. CUSHING (G3KHC)

NOISE limiters of various kinds are in such common use, in all but the simplest receivers, that no detailed introduction is necessary. It is sufficient to say that all the many types do work, though with varying degrees of success.

Noise limiters can be briefly considered under three headings:—

- (1) Those which precede the detector stage and function by momentarily reducing the gain of the IF amplifier,
- (2) Those which work by being coupled into detector stage, and
- (3) Those which are incorporated in the audio amplifier of the receiver.

The type of limiter which operates in conjunction with the IF strip, *e.g.* the IF noise blanker, is relatively complicated and would probably be difficult to add to an existing receiver. There would seem to be a risk of instability if it were not fitted and operated carefully.

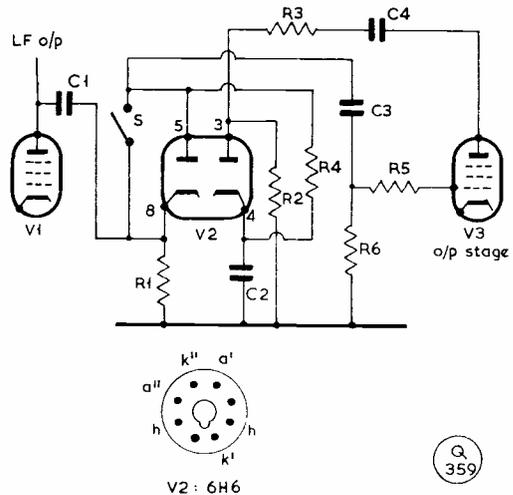
There are several noise limiting circuits which can be used in conjunction with a diode detector. They are normally quite simple circuits, consisting of one or two diodes (valve or solid-state) and a few capacitors and resistors. The great merit of this type is simplicity, and their effectiveness in reducing spikey noise is quite marked. However, all of these simple arrangements do introduce a degree of distortion, which can be bad in some cases, and additionally they can cause hum.

Looking at the circuit here of the Audio Noise Limiter, it will be seen it is built around a double-diode valve of the 6H6 or 6AL5 type and there are less than ten associated resistors and capacitors. The circuit is simply connected between the first audio valve and the output stage, and is cut in and out of use by a single-pole switch. The action of the limiter is as follows: With the switch open one diode conducts the signal. The other diode will rectify any sharp noise pulse at the audio output anode and the voltage produced will momentarily block the signal diode, cutting off drive to the output stage.

Adaptability

The author has used the circuit several times, either as an add-on unit or in a new receiver. It has been tried with simple and complicated receivers and in all cases worked well. The only precaution taken was to use screened wire for the signal leads, though this may not be necessary as the signal level should be well above any stray hum.

As for the advantages of this circuit, they are several. It is an effective noise limiter, as can be proved by listening to Loran on Top Band, when it will be found that although the pulses do not become inaudible, they are



Circuit of the Audio Noise Limiter, with values as follows: C1, C3, 0.5 μ F; C2, 0.1 μ F; C4, 0.2 μ F; R1, 40K; R2, R6, 470K; R3, 27K; R4, 4.7 megohms; R5, 10K; V1 any first AF stage; V2, 6H6 or 6AL5; V3, output amplifier of receiver.

substantially reduced. Similarly, ignition noise from motor vehicles, so troublesome on VHF, is cut down considerably. An important advantage lies in the fact that it does not produce distortion, as can be checked by switching it in with speech or music. Furthermore, while being effective on AM/CW it also works well on SSB.

Fitting

Should this limiter be built on a sub-chassis for connection into an existing receiver, no modification is called for. It is only necessary to remove the intervalve coupling condenser and to make the appropriate connections from the sub-chassis into the receiver.

There are two minor disadvantages. One is the extra components, if compared with a simpler noise limiter. The other is the space required for the valve and two bulky 0.5 μ F capacitors (C1 and C3), though in many receivers there is ample room to fit a small sub-chassis. It should be noted that C1, C3 must not be made smaller in value than 0.5 μ F.

The writer does not claim any originality for the circuit (having first seen it over ten years ago), but having used it and finding it effective and distortion free, and seemingly without snags, feels it should be more widely known.

GET IT WHILE YOU CAN

It having recently been announced that all British Forces are to be withdrawn from Libya, North Africa (5A, Zone 34), it would be as well to make sure of contacts there, on as many bands as possible, while the going is good. The amateur stations with the 5A prefix are nearly all operated by Forces personnel, mainly in the Tripoli area.

MODIFICATIONS TO THE RG-1U

SOME POSSIBILITIES FOR IMPROVED PERFORMANCE

R. BUNNEY

Though it might well be considered by many users that the RG-1U is a pretty good receiver as it is, the simple modifications suggested here may be worth trying. Since the RG-1U is a current-production receiver in the Heathkit range, it is fair to say that modifications to a factory-assembled unit might invalidate any guarantee.—
Editor.

THE Heathkit RG-1U is a general purpose receiver with a coverage of 600 kc-32 mc, there being a gap between 1.5-1.7 mc, allowing use of a 1621 kc IF. A test report on this Rx appeared in the July, 1964 issue of SHORT WAVE MAGAZINE.

It was felt that the performance of this receiver might be improved by several simple modifications and various sections were looked at to further these alterations.

The values of the cathode bias resistors of the RF amplifier and the two IF amplifiers seemed to be unnecessarily high, and accordingly were reduced to an extent providing a useful increase in gain, whilst maintaining a good signal/noise performance. The details for these three valves are in the Table:

V1, RF Amp.	EF183, R47.	470 ohms reduced to 220 ohms
V3, IF Amp.	EF183, R13.	560 ohms reduced to 150 ohms
V4A, IF Amp.	ECF82, R18.	1K ohms reduced to 390 ohms

Alteration of R18 requires re-adjustment of the tuning meter control. An additional .001 μ F decoupler was fitted on the RF gain potentiometer, from its slider to chassis.

Heathkit have advised that an increase in BFO injection can be obtained by increasing the value of R35, at present 560K, in the anode circuit of V4B. The value can be determined by experiment, and

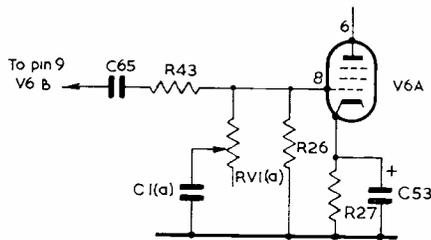


Fig. 1

R 472

Fig. 1. Suggested tone-control circuit for the RG-1U. RV1(A) can be a 500K log. potentiometer, and C1(A) .0025 μ F rated 350v. working.

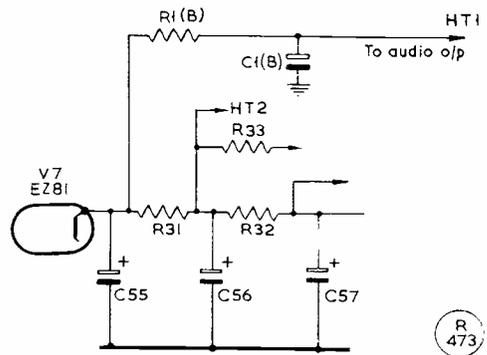


Fig. 2

Fig. 2. Modifying the HT-1 circuit in the RG-1U. R1(B) is 470 ohms, 5-watt, and C1(B) 8 μ F, 450v.

up to one megohm has worked satisfactorily.

A 56K half-watt resistor has also been connected across the BFO on-off switch, from the cathode of V4B to chassis.

In the author's model, it was noticed that in the noise limiter section, at one particular setting of the three associated controls—RF gain, AF gain, noise limiter—instability could occur. This was overcome by decoupling each end of the noise limiter potentiometer to the slider by .001 μ F capacitors.

Improved AF amplifier performance was achieved by the inclusion of a 25 μ F 50v. condenser across R44, in the cathode circuit of V6B.

A tone control was thought to be a useful addition, and a suitable circuit is shown in Fig. 1. A hole was carefully drilled midway between the RF gain and the Band-switch controls. Due to the restricted space between the front panel and the RF front-end unit, use of a miniature potentiometer such as the *Morganite* Type 30N, or *Radio spares* equivalent, will ease fitting problems, the shaft having been cut to size before bolting to the front

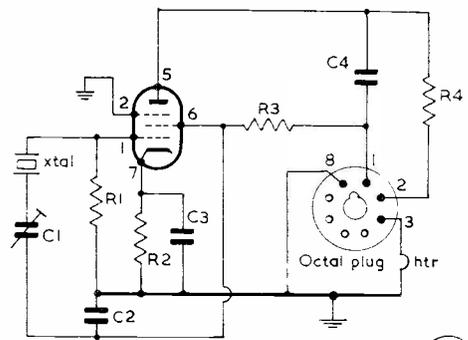


Fig. 3

R 474

Fig. 3. Modifying the crystal calibrator circuit—see text. With a 1 mc xtal and a 6AU6 for the valve, values can be: C1, 8-50 μ F; C2, 100 μ F; C3, .005 μ F; C4, 10 μ F; R1, 470K; R2, 1K; and R3, R4, 100K.

panel. The HT smoothing to the AF output stage was improved in the "HT 1" lead, as in Fig. 2.

Available as an optional extra to this receiver, is the Crystal Calibrator type CL-1M. Although this unit worked over the complete frequency range of the receiver, improved output seemed necessary upwards of 22 mc. Accordingly, the circuit of the Crystal Calibrator was modified, using one less of the existing components. The revised circuit is given in Fig. 3.

If this receiver is fed directly with an aerial, *i.e.*, no aerial matching unit, interference may be noticed upon co-sited television receivers tuned to the local Band I station. This can be prevented by insertion of a low-pass filter, in series with the radio receiver aerial lead. If no such filter is to hand, a simple filter can be made as shown in Fig. 4, which will considerably reduce if not remove completely the offending interference.

In conclusion, the value of the improved per-

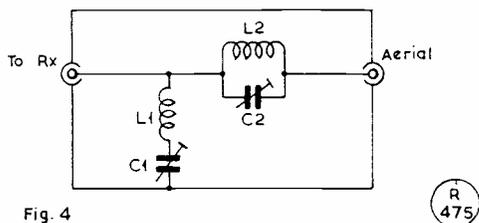


Fig. 4

Fig. 4. An aerial filter unit for the RG-1U, as discussed in the text. L1, L2 are 16 turns of 24g. enam. close-spaced, at 1/4-in. diameter. C1, C2 are 30 $\mu\mu\text{F}$ concentric trimmers. Both circuits are adjusted for minimum acceptance of the local BBC Band I TV signal.

formance far outweighs the few shillings involved in these simple modifications, and the added gain alone now makes signals once difficult to distinguish considerably easier to read.



An impression of some of the items of Hallicrafters equipment, now being factored in this country by Electroniques (Prop. STC Ltd.) as sole U.K. agents. The range includes transmitters and receivers, from one of the best-known American factories, with production experience in amateur-band equipment going back to 1935. Here, the European manager, Neal Latorraca, IIOVL (right) discusses points with David Little, sales manager, Electroniques.

BOOK REVIEW

ANTENNA HANDBOOK by Ken Glanzer, K7GCO

ONE's first reaction to this slim volume may be surprise at the price—a reaction that rapidly changes to one of admiration at the way the author contrives to explain clearly and in simple terms the complex system which makes up what we tend to dismiss as “the aerial.” This is the first volume of three, and deals, in an eminently practical way with the basic theory of transmission lines, aerials, and aerial couplers—all as one would expect in this context—and then goes on to a separate section devoted to the many and various methods of coupling the feeder to the aerial proper, most of which are either skipped entirely or given very brief treatment in the other publications aimed at the amateur aerial designer.

A further chapter is devoted to methods of feeding several arrays from a common feeder (as is so often done with VHF aerial systems) showing clearly and practically how the problems can be resolved without the need for any exotic or mechanically complex arrangements dangling in mid-air.

The discussion of aerial basics is based on the half-wave dipole; one could have wished that in a book such as this, aimed as it is at the amateur, at least a mention could have been made of the isotropic radiator concept, which, while it is not essential to the argument, is often dragged in by the clever folk writing advertising copy—without specific mention—in order to convince their readers that the product to be sold is an aerial with better gain than anyone else's. On the other hand, it has to be admitted that to mention the isotropic radiator in an R.A.E. class is a sure way of getting students into a fog, a condition that no reader of this volume need worry about.

An outstanding point is that, in discussing polar diagrams and radiation from an aerial, the diagrams are shown in such a manner as to improve on the classic “polar graph” form, by the simple expedient of drawing them as three-dimensional sketches, so that the reader can immediately realise that the polar diagram of, say, a dipole in free space, is in fact not a flat figure-of-eight, but a doughnut shape with the aerial, as it were, poked through the hole in the centre; it is easy enough to describe this pattern by the use of words and a flat sketch, but on the more complex patterns of the longer aerials and of beam arrays, the three dimensional sketch scores heavily in enabling the reader to grasp painlessly what the author is driving at.

No book is perfect; it is probably fair to say that no book ever will be, and the few shortcomings of this one are minor. One notes here and there a slight simplification in the interests of a practical grasp of the point. The index is not as comprehensive as one could expect. And, of course, there is the price; but after all, there are only a few aerial designers in the world when both the amateurs and the professionals are added together. In terms of the information you get for your money and the way that information is put over, there can be no doubt of its value, and while no professional aerial designer would ever admit to it, one suspects the majority will acquire Glanzer's *Antenna Handbook* and hide it

away where the juniors cannot see it, to be constantly thumbed over whenever a quick reference is needed to ways and means. This reviewer eagerly awaits a sight of the second and third volumes!

E.P.E.

Editorial Note: This new book from the Cowan press costs 30s. post free, and is available ex-stock from our Publications Dept. It should be ordered as “Antenna Handbook, Vol. I, by K7GCO (Cowan Publication)”.

LOCAL VHF BROADCASTING

The centres now named by the PMG for local broadcasting—which will be on low-power VHF to restrict range—are Brighton, Durham, Leeds, Leicester, Manchester, Merseyside, Nottingham, Sheffield and Stoke-on-Trent. These stations are being organised, operated and financed under local arrangements.

CANADIAN RECIPROCITY

Until recently, the Canadian licensing authorities demanded (for U.K. amateurs) proof of holding an R.A.E. pass-certificate when applying for a VE licence. Of course, many of our more senior British amateurs have valid licences from the time when certain specified alternative qualifications were accepted by the Post Office, with which it was not necessary to take the R.A.E. The Canadian authorities have now accepted this situation, and will issue local VE permits to any U.K. amateur (or amateurs of other nationalities whose Govts. are in reciprocity with Canada) on production simply of a photostat copy of a current valid licence. The issuing authority is The Director of Air Services, Dept. of Transport, in the capital city of the Canadian province in which the VE licence is to be activated.

(Acknowledgements G3DNF, who has been through it all.)

NEW “CALL BOOK” FEATURE

Starting with the Autumn (“Fall”) issue of the American section of the *Radio Amateur Call Book*, the licence classification of each U.S. amateur is to be shown by a letter-identification immediately after his callsign. As explained on p.295 of the July issue of *SHORT WAVE MAGAZINE*, there are six separate categories of U.S. amateur licence.

OBITUARY

We much regret to record the passing of the following radio amateurs:

—G2FZI, Frank Hill, of Somerton, Somerset, at the age of 67.

—G3OVY, Kenneth Shaw, of Chertsey, Surrey.

—G3VI, F. C. Turner, of Braintree, Essex, on June 29, after a long illness.

—G5GJ, F. W. Benson, M.B.E., S/Ldr. R.A.F. (retd.), of Great Missenden, Bucks.

—G6OU, Edward Willis, of Basingstoke, Hants., in his 83rd year, having held an active amateur licence since 1920.

• • • The Mobile Scene • • •

JULY SOLO MOBILE EXPEDITION—REPORTS ON SOUTH SHIELDS, WORCESTER, COLCHESTER AND SALTASH RALLIES—SIX EVENTS TO CLOSE THE RALLY SEASON

THE Solo Mobile Expedition—or “Solo Lone Ranger,” as G3VAB calls it—fixed for Sunday, July 23, appears to have attracted increased support, though we are still short of detailed reports.

Of those to quote: G3REM/M (Bearsted, Kent) went up on the North Downs, near the village of Boxley, and his first discovery was that the spot he had chosen did not appear particularly good for reception! However, he worked five fixed stations, and heard G3VAB/M and G3SYI/M. The G3REM mobile rig is home-built, the Tx being a 5763 Hartley VFO into a 5763 PA, modulated by a pair of OC26's; the Rx is a modified Smiths 230R car radio; and the Ae. an 8-ft. whip, centre-loaded, with feeder matching at the base. (He also threw out 200 feet of rubber-covered to convenient trees, and pushed the PA input up to 6 watts—so we are not quite sure whether his was strictly a /M effort!)

G3HBZ/M (from Sunbury-on-Thames) went to Combe Gibbet, not far from Inkpen Beacon, south of Hungerford, off the A.338—and met G3OUC/M on exactly the same play! About 28 stations were heard and nine of them worked; included in the “heard” list was the base station for the Bristol Group's D/F hunt. Though the site at Combe Gibbet was evidently a good one, G3HBZ considered conditions somewhat down compared with previous “static-mobile” occasions. Another of his comments is that that normally there are actual mobiles to work if the date chosen for the Solo event coincides with a big Rally occasion. Well, yes, that is a valid point—though our original idea was to get /M's out and about on a Sunday afternoon, over a wide area, when there would not otherwise be much Rally activity.

From Ditchling Beacon, Sussex, 813ft. a.s.l., a well-known spot for DX /P working, just north of Brighton, G3VAB/M raised 10 stations, four of them being /M. He also heard (as he was heard by) G3REM/M. Two others logged but not worked were G3HZJ/P and G3VPS/A.

It seems evident that while these Solo Mobile Expeditions are attracting more attention, most people do not bother to report their results in any detail—so it is still difficult for us to judge whether this desk-effort (and the *Magazine* space) is justified. However, since all who do report invariably say something to the effect “Enjoyed myself very much, please fix another one soon,” we will do just that—for **Sunday, September 10**, 2.30 to 5.0 p.m. clock. There should be plenty of mobiles out on that occasion for the Lone Rangers to work!

* * *

The South Shields Mobile Rally on July 9, the 8th in their series, was a record for two reasons: They had a fine, warm day and an attendance of about 300 people, in 110 cars. We are very glad to be able to record this, because we know full well that G3KZZ and the group

have always worked hard to make their event a success. Among the competitions was a rather cunningly-devised one involving aspects of Mobile operation, won by G3LEA/M; a driving contest (round the barrels and between the posts), by G3WGW; and another, not to be attempted by the tone-deaf, involving naming the frequency of an audio note, in which G3CDM was the one who knew. For the third year in succession, Bill Thompson, G3MQT/M, made the marathon 320m. journey from St. Leonards-on-Sea, Sussex, to gain the (soldering iron) prize awarded to the longest-travelling visitor.

* * *

And, oddly enough, it is G3MQT/M who is mentioned as the longest-distance visitor in the report on the Worcester Club's Rally at Upton-on-Severn on July 16. They, too, had a warm and sunny day, though the gusty wind caused some “spectacular crashes” in the model aircraft flying display. (But the owners of these beautifully-built and aerodynamically-accurate specimens of the model maker's art never seem to mind—after a few quick repairs and adjustments, it is as good as new and ready to fly again). With an estimated attendance of 500 people, there were 60 vehicles fitted /M, of which no less than 51 were for Top Band. The other nine were on the VHF bands, 70 mc to 70 cm. Best DX distances worked by the talk-in stations were G3PWJ/M (30m.



When members of S.A.R.A., an association of three neighbouring southern Clubs—Purley, Wimbledon and South London Mobile—visited the A.R.M.S. Rally at Alconbury on June 18, the appropriate emblems were fixed to the front of G3LXN's car and driven round “to show the flag.” The Alconbury Rally was made the occasion of a S.A.R.A. weekend out, members of all three Clubs being present.

On right, Joe Pengelly of BBC-TV News, South-West, who formally opened the Saltash Mobile Rally at Calstock, on July 30, at G3VVP's home-built console. At left are G3SCW, with G3SN. In spite of the very poor Wx, the Rally was well supported.



on two metres) and G2CLN/M (Top Band, 22 miles). On display were A/TV signals from G6KQJ/T, 40 miles away in Wolverhampton—on which we congratulate all concerned in what must have been quite a tricky link-up. The local paper, the *Worcester Evening News*, gave the boys a very readable “mention” on the Rally, with a good picture, showing G8JC, G3TQD and G8ASO at work on the talk-in station.

* * *

Also on July 16 was the first attempt at a Mobile Rally staged by the Colchester Group, at the Zoo there. As a family occasion, this was one of the best events your correspondent has ever attended. It seems that as this was also a “first-ever” such event for the Zoo authorities,

all they would permit within the grounds was the setting-up of a talk-in station. However, the ice having now been broken, and the success of a Mobile Rally at Colchester Zoo assured, the Club hopes to be able to embark on the full Rally treatment for their event next year.

* * *

For the Saltash Rally at Calstock on July 30, the Wx was a let-down—it turned out a dreary day, with mist on the high ground and drizzle out of a grey sky. Nevertheless, more than 300 people came, including 70 licensed amateurs and about 30 SWL's. Of the 40 vehicles fitted for mobile, the great majority were on 160m. (This has been a characteristic of Rally reports this season—it



The talk-in station for the Colchester Mobile Rally on July 16, at the Zoo there. As this was a first-time event for the Zoo authorities, they were uncertain about allowing the usual Rally facilities.

seems that the trend to /M operating on the other bands has been reversed). But there were three mobiles on 70 cm., so it is fitting that they should be mentioned: G8ADP/M, G8AFA/M and G8ARD/M.

Fortunately, it was possible for most of the planned events to take place under cover, and the Rally was formally opened by a local personality—Joe Pengelly of *BBC TV News*, South-West. For him, the old callsign of the pre-war BBC local station at Plymouth, 5PY, was specially revived, for one day only! He helped in judging



One of the competitions at the Saltash Mobile Rally, Calstock, Cornwall, on July 30, was for the "world's smallest mobile." G3VNT, Bristol, on roller skates and carrying a tiny transceiver, was judged the winner.



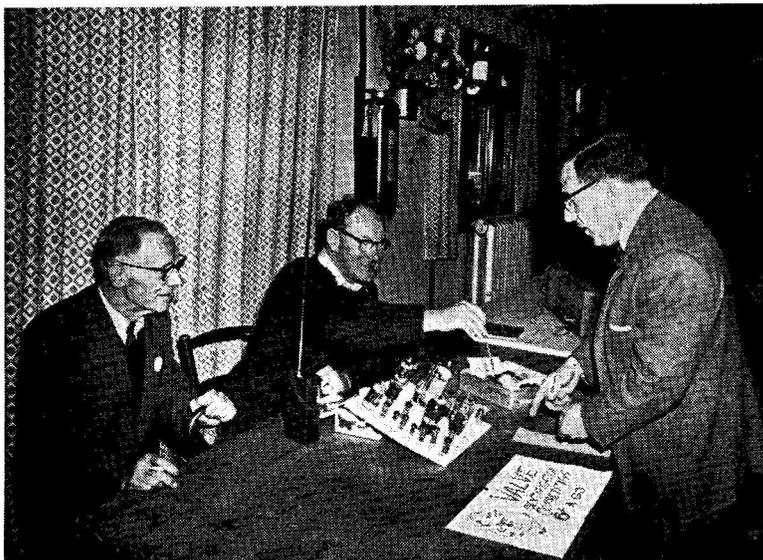
Runner-up in the Saltash "smallest mobile" competition was G3UBY, a local member. He could transmit and receive on Top Band while mounted on this equipage.

the competitions, and handed out the prizes at the end. One of these went to the /M operator travelling the longest distance to the Rally, and this was again won by—yes, you've guessed it!—G3MQT/M, from Hastings way. This feat got him involved in the local BBC/TV presentation, in their report on the Rally. Winner of what is declared to be "the world's smallest mobile station competition" was G3VNT/M of Bristol, able to operate a transceiver while on roller-skates! Not much behind in this (somewhat inelegant?) exercise in the *practique* of Amateur Radio was G3UBY (Saltash) on a soap-box trolley—oh, well!

As regards long-distance working with the talk-in station GB3SAL, *en route* to the Rally, winners were G3OLB/M on Top Band and G3XC/M on VHF. In a frequency-measuring contest (always a worthwhile Rally event, because it is of interest to those who take their equipment seriously), the winner was G3RFY (Bude), whose calibration was only 1.04 kc off the test signal.

On the trade side, the new firm of Radio Shack, Ltd., London, put on the finest display of modern amateur-band equipment ever seen in the South-West—including Drake, Sommerkamp, K.W. Electronics, Hy-Gain, Swan, Hallicrafters and Shure. We congratulate G3STS on his enterprise. And also in the business section at the Rally was the firm of Taurus Electrical Services, owned and operated by G3TED, who had G3LHB as his

One of the competitions at the Saltash Mobile Rally was to identify valves, as explained by G3TCJ, at the table. G3VUC at left looks on.



representative, doing (we are told) "a good trade in the usual commodities."

All in all, the Saltash & District Amateur Radio Club feel, modestly, that their event was a success, in spite of the ghastly weather. And because of that, they thank all who braved the Wx to make the long journey to Calstock on July 30.

* * *

With this year's Rally season drawing to a close, there are just six scheduled events yet to take place—and you may think that is enough for one month—as follows:

September 3: Swindon & District Amateur Radio Club Mobile Rally at Lydiard Park, Swindon, Wilts. The site is 3m. west of Swindon, just north of the A.420, Swindon-Chippenham. The talk-in stations will be G3PRR/A on 1925 kc; G3LLZ/A on 3735 kc SSB; and on 2m.-4m. (to be arranged). Attractions include Lydiard Mansion itself, raffles, games and competitions, with ample car parking, covered accommodation (if wet), and refreshment stalls. The hon. organiser is: I. S. Partridge (G3PRR), 104 Grange Drive, Stratton St. Margaret, Swindon, Wilts.

September 10: Annual RSGB Mobile Rally at Woburn Abbey, near Luton, Beds., with talk-in on 160-4-2m. and 80m. SSB. All the usual attractions for this popular event.

September 10: Solo Mobile Expedition, to work /M's and fixed stations from a static location, away from home, 2.30-5.0 p.m., clock. Reports by September 16, to: SHORT WAVE MAGAZINE, BUCKINGHAM.

September 15-17: Third International Amateur Radio Convention and Rally at Knokke, Belgium. For

programme details, write: Lucien Vervarcke, ON4LV, Lippenslaan 284, Knokke 1, Belgium.

September 23-24: Scottish Mobile Rally at Culzean Castle, near Ayr, Ayrshire. For general information regarding this event, see p.363, August issue. Talk-in will be given on 2-4-80m. by GB3CC, from the Castle. Full details from: R. Harkness, GM3HTI, 55 Woodend Road, Alloway, Ayrshire, with s.a.e.

September 24: Harlow & District Radio Society annual Mobile Rally, at Magdalen Laver, near Harlow (NGR. TL.5108), talk-in on Top Band, opening 10.30 a.m., with possible support on two metres. Plenty of parking space, all the usual attractions, and a junk sale. Details: R. T. Brown, G3TOF, 177 Radburn Close, Harlow (23517), Essex.

Editorial Note: Information for the next "Mobile Scene," in the October issue (due out on September 29) should reach us by September 11, latest, addressed: Mobile, SHORT WAVE MAGAZINE, BUCKINGHAM.

WANTED

Though at any given moment we always hold a vast amount of material suitable for publication in SHORT WAVE MAGAZINE, we are constantly on the look-out for good articles and interesting photographs which can be used immediately. So far as pictures are concerned, they should be clear and sharp black-white prints, with details on a separate sheet identified with the photograph—please *do not* write the story on the back of the print. As regards articles that may be acceptable, please look up p.723 of the February, 1967, issue of SHORT WAVE MAGAZINE before you commit yourself to paper. All contributed material used is paid for on publication.

Advertising in "Short Wave Magazine" ensures the widest possible coverage of the Amateur Radio field in the U.K.

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

As far as the writer was concerned, the highlight of the period under review was the meeting with W9WNV and WA6SBO in person. This occurred at very short notice and was arranged by the Midlands DX group, in Birmingham. Quite apart from the pleasure of meeting Don and Bill, and seeing the slides of various places they had visited, the organisation of such a meeting at a moment's notice was a credit to all concerned.

On a less pleasant note, it is understood that the ARRL Awards committee statement, dated July 6, announces that credit for PY0XA and VQ9AA/C are withdrawn "due to lack of travel documents," and VK9ADY/0 because there was no correct authorisation by the VK people. Leaving out of account the question of whether the charges are or are not true (as the evidence is not available for all to see) it seems incredible to the writer that the matter could have been handled so badly by ARRL, by whom there has been a great deal of dithering and decision-reversing. However, it is fair to add that the ARRL can do what it likes about its own awards—the mistake is for others interested to accept these decisions as necessarily being the right ones.

As a change from all this, but still on a rather mournful note, it seems to the writer that the summer doldrums, as far as the 28 mc band is concerned, has been much more noticeable this year than ever it was at the equivalent period in the last two sunspot cycles. On the other hand, this summer season seems to have been far and away better than it was then, and hence one's memory of the past may be of 28 mc signals coming in by various anomalous-propagation modes rather than in the conventional manner. However, conditions or no, let us make a trip round the bands—and through the mail.

Ten Metres

A nil report from GM3JZK (Isle of Mull) slightly tinged with hope for the future; it seems that on occasion he has been hearing W and PY Citizens'-Band stations. When harvesting is over, George reckons to get his V-beam turned round to fire in a southerly direction, so that he can lie in wait for the Pacific DX coming in over the long path—he cannot work them the short way, owing to a mountain just outside the back door step!

G3NOF (Yeovil) was also unenthusiastic; Don had no 10-metre contacts, but did hear ZD7DI, ZD8CX and 9J2DT several times on SSB around 1800, and sometimes during the evenings there have been openings to the U.S.

The first correspondent to mention an actual QSO is G3PQF (Farnborough) who managed EA6AR and OH0AA but says sadly, "It's been a very quiet band recently." However, not despairing, Dave is brewing up a Quad which he will hang in his garage until September when he has finished tuning it up.

Yet another to report no contacts on 28 mc is G3UTS (Newcastle-on-Tyne) who has obviously spent most of his time elsewhere—playing VHF, the traitor!

Even GM3SVK (Unst, Shetland) says "Nothing outstanding" of his QSO's on this band; but at least he had a few, and in addition, Fred noticed a few sporadic openings to Africa and Europe.

It may be remembered that some time ago in this piece there was quite a lot of discussion on the question of what entertainment could be obtained with a crystal-controlled QRP rig on Ten. This point has been rubbed home once again by G3UAN (Kenton) who runs 5 watts to just such apparatus and has, for instance, swapped reports of 9 + 20 each way with UL7OB, and an assortment of short-skip stuff during the period in question.

Possibly the pick of the crop in terms of hard news of 28 mc comes from G2VV (Sunbury-on-Thames) with his 68ft. indoor aerial (used on all bands), which in the last month hooked him LU3EX, HB0, LA2MA/MM, and an assortment of W's. To set this off, perhaps the most caustic comment on things 28 mc is that from G8DI, who says he "heard an Italian!"

Fifteen

Top of the clip here is G3NUT (Wirral) who managed to blow up his PSU at the beginning of the

THREE-BAND ZONES and COUNTRIES TABLE

Starting date: January 1, 1967

Station	7 mc		14 mc		21 mc	
	Zone pts.	Countries	Zone pts.	Countries	Zone pts.	Countries
GM3SVK	203	35	847	135	759	104
G3IAR	275	45	810	139	793	107
G3VDL	125	31	561	59	434	59
GM3JZK	158	23	516	67	592	66
G3PQF	115	28	130	24	190	17
G3VWC	22	18	67	20	118	24

Note: The placings this month are based on the "14 mc Zone points" column.

period; however, Jack made the best of things by rebuilding it with an extra HT output for a proposed linear. As for the QSO's, EL2D, CR6BX, KG6ALV, 9L1KG, an assortment of JA's, and W6 and W7 all fell into the net.

Most of the activity at G2VV seems to have been on 21 mc, to judge by the list. As a sample, all JA, all VE, all W, PY1, 2, 4, 5, and 7, OH0AA, OY2H, HK4AOY, YV, KG4, KZ5, KL7, 9J2's, 9V1NV, CR7's, VP2, VP6, VP9, 9Y4, ZE, XE, and EA6BD, all on CW. On the other hand G8DI seems to have only hooked JA and W.

It seems that G3UAN has acquired a new transmitter — a Heathkit DX-40U—with which he has been going great guns, albeit with a certain amount of TVI. Using a dipole only ten feet up, Robert worked JA's, 5Z4KL, 4X4's, ZC4's, ZS2, KP4LSM, 9J2HZ, VP7EF, UJ8 and UH8, all on the key, while Phone yielded a crop of EU-stuff, CN8MJ, and WB2UIY. Crystal control was the order of the day at the time he wrote, when the transmitter had been in use for a fortnight,

but a VFO is on the stocks, which should ease matters somewhat.

Conditions have been a little odd, as both G3NOF and GM3SVK remark; at the time he was putting pen to paper, GM3SVK was listening to an opening which gave ZC4, MP4, JA, VK8, W6, W2, 9L1, G and Europe, all at once. On CW the month yielded KH6FRI, VR2DK, 9L1KG, while SSB produced CT3AS, EP2GI, HL9KQ, JA's, MP4BGL, MP4MAY, PY1JY, W6's, ZD8, 9G1FV and 9G1BF, all of which kept him happy.

G3NOF remarks on W6NCM heard at 0730 with the beam heading north; WA6ZFF at 1430 and another W6 heard at 2300. Some days have seen W1 as early as 1030, continuing to well after midnight, with the CE and LU types around in strength at 2300. During the mornings the Pacific area has come in well at varying times, and JA's between 0700 and 1400. Don mentions particularly QSO's with HL9KQ, who is ex-F7GX, many JA's, KA2VT, KL7MF, VU2BK, ZC4's and a crop of U.S. stations.

In spite of his VHF-addiction,

G3UTS exchanged SSB reports with W6JNX. VE7BSE in Vancouver, other VE's, and several JA's, while CW yielded a QSO with JA5CEU.

CW was also the mode employed by GM3JZK, who mentions in particular CE2BC, VK9X1 on Christmas Is., CR6EI, ZD7SE, "G2DC for a new country" (!) and several of the new 4X-varieties—twould appear that 4X7 is in what was Syria, 4X9 being Sinai, although George is not claiming these until the situation is resolved. In the gotaway line, CR6 and CR7, EL2J, 9H1, KP4 and UJ8 figure, together with 4W1C who told a W "This is a dreadful country—no mails, no femails"—well, it's a way of putting it!

The offering from G2HKU (Sheppey) is a little restricted thanks to the hampering requirement to earn a daily crust—although even this had its compensations when he was able to watch Dutch, Belgian and French UHF/TV transmissions. As far as 21 mc was concerned, the score seems to be JA8XR on CW and OZ4EDR on SSB, both around 0700.

Twenty Metres

As always when things are as they have been in the last few weeks, poor old Twenty carries the traffic—and the can! None the less, for G2HKU it was not by any means an unprofitable month: XE2YP on SSB, who sent his QSL card by airmail within the hour according to the postmark, OA4MQ, VK3XB and his XYL VK3KS (who are incidentally both FOC members) and KL7AHB, who had not worked into Europe before, all fell into the G2HKU traps. Ted also mentions some gotaways, like HC2RT, YS1RCP, XE3DE with his BBC English, OA4AS, VK7GK, and XE1AAN in particular. All this lot were picked up around 0700.

Sometimes the short-skip disappeared for as long as half-an-hour, wryly comments GM3JZK, who managed to fall in with various CW signals nevertheless, among whom he mentions UF6KPA, TA1KT, FM7WD, PY's and LU's, ZD8J, KP4AXM, EA6BH, UM8AP, 6W8CQ, CR6AI (at last!), ZL3QH, ON4GK/LX, and HK's.

The list from G3UTS shows PY's and LU's on SSB, VP9DC, all W call areas, KL7MF, XE1MN, CR4BA, OX3LP, T12LCB, VK3HW

FIVE-BAND DX TABLE

(New Cycle)

Starting date: January 1, 1967

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc
G3IAR	174	61	107	139	45	48
GM3SVK	171	25	104	135	35	15
GM3JDR	165	—	137	93	—	—
GM3KLA	109	38	67	64	36	44
G8DI	107	23	75	85	37	24
GM3JZK	105	32	66	67	23	11
G3VDL	90	24	59	59	31	7
G3NUT	89	—	57	53	19	—
G3PQF	80	41	17	24	28	23
VP8HJ	69	17	9	64	1	4
G3VOK	58	7	1	46	6	36
GBGTR	44	1	12	35	12	9
G3VWC	39	4	25	20	22	5
G3TTG	38	—	—	38	—	—

Note: Placings this month are based on the "Countries" column.

Reporting the HF Bands

and KX6DR, who is on SSB looking for the U.K. in the segment from 14200 kc up, between 1700 and 1800 GMT. On the CW front there is TI2ALG, various VE's, and IT1ZGY.

As far as G3NOF is concerned the general trend has been very much along the lines of "poor during the day" but good in the evenings to the East coast of both North and South America. Several FO8 stations were heard about 0730 on the long path, and around 1700 KW6EJ and KR6MB likewise. As for the QSO's, EA6AR, FO8AA, KH6FIL, UWØIE in Zone 19, many VK's, VP6WR, XE8PLO, 4S7PB, 6Y5AK, numerous W's, including W7VEX in Utah and WAØBBI in Colorado, all adorn the log. In the way of general news, Don mentions that ZS8L (see p.359, August) is now using his new call 7P8AR, and that Lloyd and Iris Colvin have been signing 9L1KG.

The Original Sleepless Wonder, up in Unst (GM3SVK) found the band well up on the previous month; early mornings showed the odd opening to W6/W7, and VK/ZL, while daytime produced such goodies as F2WS/FC, 3V8BZ, and PX1EQ; the late evenings and through the night gave up a crop of VP8's, South Americans and the Caribbean. Thus, SSB contacts were made with CR6, CR7, CP1EE, EP2BQ, F2WS/FC, HBØLL, HK's, KG6ALV, LU9DM, PJ2CT, PX1EQ, PX1OE, VE8RCS, VK7GX and RX, VK3AHO, VP2AA, VP8HZ, 8IA, and 8IU, VS9MB, YV1AV, ZB2AP, ZE1AE, 3A2CP, 3V8BZ, 5Z4IW, 8R1G, 8R1S, and 9V1NV, with nary a mention of CW.

G8DI stuck to the morning period between 0500 and 0700 to find XE's, OA4JR, and TI2PAS on SSB, with VP1MW on CW, while VQ9B was hooked during the early evening, also on the key.

CW was also the mode used by G2VV for his contacts, among which are VK7SM, TI2PZ, KR6JZ, W, PY, and OWØSC (?).

A QSL card to Geoff Watts from BV2A says that Tim is on between 1000 and 1600 GMT, with the occasional session between 0200 and

0600 GMT, using 400 watts to a 3-element beam and a SP-600 receiver. The address is P.O. Box 101, Taipei, Taiwan, Republic of China—which means, of course, Formosa.

In spite of the power-pack burn-up already mentioned, G3NUT hooked CR6CK, CT3AS, LU3FBT, UAØKAB, and sundry W6's; our other afflicted correspondent, G3VBL, in spite of TVI, talked to CP1GD, EP2BQ, FG7XL, HC1TH, HI8LAL, many HK's and HR's, HV3SJ, LU's, MP4MAX, OA8AE, PJ3CC, PZ1BJ, TG9EP, KG6AAY, VP2AA, XE's, YN1CML, YS1MCG, VP9FO, ZD3G, ZF1GC, 6Y5's, 8R1S, 9Y4VP, and sundry "sundries." All this little crop, of course, were raised in the small hours, but one early-morning session produced VK, HP2MR and just before closing down, 9L1KG; the total therefore shot up from 42 at the start of the month to 89 at the end—a good way to end a year's inactivity, with TVI to contend with as well.

Forty Metres

A marked dearth of hard reports on this band is noticeable, although

GM3SVK remarks that it has had some nice openings if one can stand the racket—an opinion shared by your E.P.E. Fred only mentions his gotaways, which include 9J2DT, 9H1AM, W's and VPI.

A regular correspondent to "SWL" who has now made the transition to the ranks of the licensed is EI7BR (Dublin), who mentions that EI's still have to do the initial one year on CW, crystal-controlled at that, and are restricted to 7 and 14 mc. David has rocks for 7010 and 7020 kc to energise the allowed 25 watts, but only intends to drive his rig—when the bugs are out—to 15 watts. In spite of the fact that he is a confirmed Phone addict, your conductor could wish that the probationary CW-only and QRP-rule still applied in this country—all right, he knows he's flogging a dead horse!

G8DI mentions only one QSO, with PY7ARJ at 0313, the frequency being 7011 kc. Even GM3JZK, who likes the band during the winter, only had a little potter round on two occasions, raising YV5ACP, and on the second occasion, HI8RVD, although he is none too sure about the latter, thanks to the QRM which wiped up the final "R."

The test of a good CW operator is the ability to ragchew on the key, and Eighty is as good a place as any to do that. Such faint praise is about the



The station of Fritz Cramer, DL3MO, 4420 Coesfeld, Schuppenstrasse 22, Westphalia, near the Dutch border. Fritz started on the air in 1949, runs CW with an electronic key, and AM phone. The Tx is a home-built five-band job covering 10 to 80 metres, with a multi-band dipole outside.

best that comes out of the mail this month; the majority of our reporters don't even mention it. G2VV has been ragchewing on the band, and hears that VK8's are about at 0600, although he has not himself heard one. Such tidings were enough to fetch your E.P.E. out of a warm bed to investigate, but, alas, all this enthusiasm was in vain.

Only one other callsign on Eighty is mentioned in the mail, and that is GC3ODE in Guernsey, who has been putting a first-class signal in at G2HKU in the mornings, although G8DI does mention that he worked EI and GC.

Top Band News

Here, of course, the picture is somewhat different, mainly thanks to the county-chasing merchants, and their victims, although the static has been none too pleasant.



For the 12th year in succession Bob Palmer, GM5PP/M, was in Scotland during June 17-29, and again put out a remarkably consistent signal on Top Band, from six GM counties. Some 400 contacts in all were made, operating from the comfort of a caravan. Here is GM5PP/P with his mobile/portable set-up, when at his stand in Perthshire, where he stayed three nights.

TOP BAND LADDER

(G3U-- and G3V-- stations only)

Starting date, January 1, 1966

Station	Counties	Countries
G3UTS	96	15
G3VMW	94	13
G3VGR	92	16
GM3UVL	90	13
G3UBW	85	18
G3VLT	75	15
G3VMK	70	11
GW3VPL	68	16
G3VMQ	67	14
G3UXP	67	9
GW3ULZ	66	15
G3VES	63	16
G3UGF	62	10
G3VOK	61	15
G3UVT	57	11
G3UJS	51	12
G3USE	51	12
G3VTY	49	9
G3VSL	47	9
G3UGK	43	13
G3VLX	43	8
G3UMK	39	7
G3UCS	36	?
G3VSI	19	4

G2HKU mentions that he worked OLI AHU, OL4AER, PA0CDV, PA0PN, EI3SU/P, and some new counties, the latter by way of GM3OXX (Midlothian), GM3WIG (Roxburgh) and GW3UMB in Denbigh, all on CW; the last named also came up trumps on SSB.

G3VMW (Ossett) seems to have made merry during the period under review, having gone up to 94 counties, with the aid of GB2IS, GM3RVM in Selkirk, Stirling and Nairn, G3TBJ/P for Hereford and Montgomery, G3BRV for Huntingdon; he also mentions "GM3GIZ" as being in "the Scillies" (which must have been quite an effort of bilocation for them!). OL4AFI, who is now OK1ATP, was worked when Jarda was using 100mw to a brace of OC170 transistors in the PA, and coming in to G3VMW at 449. Steve also hears WIBB/1 roaring in most Sunday mornings at about 569.

Contact with WIBB/1 fell to the lot of G3VYF (North London) on the morning of August 6, the QSO holding up from 0335 until 0400;

WIBB was peaking 579 on this side, while G3VYF was 359 on the other, through S9 QRN.

All the 160-metre activity from ZB2 seems to have stimulated people: certainly ZB2AY was working G3LYW, on 1855 kc, evening July 30, and several were waiting on the sidelines, until ZB2AY's 339 CW got caught up by a G calling CQ on AM Phone. G3UXP (Kings Norton)—wonder if he is a chip off the G3NHY block?—was one of the afflicted in this way, and is even more so in that his only outstanding English county is Oxford, of all places.

Another new Country becomes possible now, with the opening up of the band 1800-1850 kc to the PY chaps, day and night. Calls to look out for are PY2PA and PY1NFC, with others also expected on.

G2NJ (Peterborough) found five new ones to bring his Phone tally of counties up to 90 worked, including GM3GIZ/P in Orkney, GM3VAR (Berwickshire), GM3ING/P, the latter being in Kinross; in addition,

Nick seems to be well on the way to going round a second time as far as the CW is concerned, having hooked GW3TBJ in five counties, namely, Brecknock, Radnor, Cardigan, Montgomery, and Hereford, plus EI3SU 'P in Co. Wicklow, GW3SIA/P in Montgomery, and G5PM/P in Westmorland—by and large a good month!

Various aerials have been tried by G3TKN/A at his location on the Isle of Wight, including a V-beam, which really pulled the GDX in. Vincent is using a Tx lent to him by the Isle of Wight Radio Society, and a Heathkit Mohican on the receiving side.

Dave of G3VGR seems to have spent so much of his holiday-time up on the roof playing with aerials that his family are contemplating providing him with a bed up there! However, he descended into the shack for long enough to work GM3VAR/P, G3BRV, and G3JFS 'A, the former being in Berwick and the two latter Huntingdon, so that only Hereford remained at the time of writing to complete the bag of English counties.

The descent of the clots on to ZB2AY seems to have niggled GM3SVK more than somewhat; Fred instances a case where he called him and immediately a GW and an OK, who earlier had been calling the ZB2, started calling *him*, smack on the frequency at that. GM3SVK also complains that the majority of the /P activity seems to be in the counties he has already worked, and wishes for Alderney, Sark, Bute, Selkirk, Fermanagh, Tyrone, Montgomery, and Radnor, to complete the 98 before he leaves Unst. On the other hand, as Fred's letter was posted early this time (so as to catch the deadline if the Wx went wrong and stopped the mail) it is quite possible that some of these have fallen by now.

GM3UVL (Glasgow) put in a distinctly tardy appearance with his letter this time—*Grrr!*—but seems to have been quite successful, thanks in the main to G3TBJ; Bill mentions that the latter, in common with most DX-peditions of this sort, not only sticks around until the customers are all satisfied, but is also ready for a ragchew after that. True enough, and the reason why so many folk become lifelong top-band-only types.



Bruce Edwards, G3WCE, 18 St. John's Avenue, Friern Barnet, London, N.11, who passed the May '66 RAE and later took the Morse test, all entirely unaided, finally getting his licence in February this year—at the age of 14. When he started he did not even know anyone interested in Amateur Radio. He now runs a Heathkit DX-100U on the HF bands and a Codar A.T.5 for 160m., the receivers being a BC-348R and a Lafayette HE-30. And besides that he compiles the Southgate Club "Newsletter"! Well, all we can say is that Bruce has made a very promising start and, with all his life before him, should in due time become one of the lions in the realm of Amateur Radio.

Contest Matters

First, a reminder that the CQ WW DX Phone Contest is on over the weekend October 21/22, with the CW section during November 25/26. An improvement in the U.K. support for this one would most definitely be a Good Thing. For an IRC, details and log-sheets may be obtained from CQ Magazine (14 Vanderventer Avenue, Port Washington, Long Island, N.Y. 11050, U.S.A.), and rules will appear in their September 1967 issue. It should be noted that although the rules have been rewritten they are not changed in sense.

A letter has come in referring to the "Columbus Contest," which is run off as some sort of commemoration of Christopher Columbus; the

rules are rather long, and so we can only say the dates are October 7/8, 3·5-30 mc, CW/AM/SSB, the Phone men calling "Columbus Contest" while the CW men use "Test I.I.C." Score one point for a contact in your own Region, two for a QSO with one of the other Regions, 5 for a QSO with I, IT, IS, 9A, M1, HV, or the Italian islands, or 30 for the Club station I0IIC. There is also a multiplier based on the ARRL Countries List. For all the details, write to Istituto Internazionale delle Comunicazioni, Genova, Italy—which is also the address for the entry.

DX-pedition Notes

Here the top of the pile is the Royal Signals Expedition to Aldabra Island (in the Indian Ocean, about

500 miles off the coast of East Africa). where they will sign VQ9JW for six months, on all bands, including 160 metres. Odd dates will see them calling on 1825 kc and listening on 1830 kc between 2300z and 0300. On even dates the LF activities will be transferred to Eighty, while CW on Twenty will occur most of the time on 14025 kc, listening on 14030 kc. SSB will also be used in the appropriate band areas. QSL's will go via G3ONU, at 67 Harcourt Road, Bushey, Herts. Incidentally, the mail schooner will not be leaving the Island before November or even December, so patience will be needed! Any suggestions for skeds with VQ9JW, should go to G4RS, Royal Signals Amateur Radio Society, Blandford Camp, Dorset.

G3RRT and G3PPU will be touring Scotland from September 9 to 17, taking with them a Codar A.T.5 and an HRO; they are open to suggestions as to where they should make their appearances, and so those who are still short of a few had better get in touch with G3PPU, The Cottage, Little London, Basingstoke, Hants, and that fairly quickly!

Here and There

The most important one in this section is the letter from G3DO (Four Oaks), who notifies that he is the European QSL manager for W3DWG/VR6 on Pitcairn Island, who is now putting a fair old signal into U.K., his SSB operating frequency being 21335 kc between 1700 and 1800 GMT, with a little CW on 21010 kc. For those who seek him before this, try, from 1600 GMT onwards, around 21300 kc SSB. Doug. says that all cards will be answered when the logs are received. Talking of QSL managers, G3DO worked 9X5PB recently, who says "QSL via DJ5DC."

9M2DQ writes in to say he will be

coming home on three months leave in August, and wishes to contact ex-VS1, VS2, VS4, VS5, ZC2, ZC3, 9M2, 9M4, and 9V1 amateurs now in the U.K., with a view to a reunion at the Exhibition, or possibly a net; VS6, VS7, 4S7 and VU types would also help to swell the numbers. Anyone interested should drop a line to: James C. Pershouse, G3KPY, Trees, 50 Brattle Wood, Sevenoaks, Kent.

It seems that VE2XPO, the "Expo-67" station at Montreal, is not attracting as much on-the-air attention as had been hoped for, at least as far as the U.K. is concerned. According to G3WBZ (Kendal), who has worked him recently, VE2XPO puts in a good signal, and has definite daily operating periods and frequencies, viz.: In the 21250-21350 kc area, 1400 and 1500z; and over 14100-14200 kc, at 2200z. All QSL's to be via bureaux only. To us, it seems odd that VE2XPO is not using the 3C prefix—never mind!

We are informed that the Club station VS9ASP, at R.A.F. Khormaksar, is now QRT. The logs are held by VS9ABF, QTHR, who will be dealing with the QSL situation until the end of the year—but please send IRC or s.a.e. ("Forces") if you want yours direct.

Often in this piece it has been said that the best apprenticeship to Amateur Radio is by a good dose of SWL'ing. On that basis, we should have a good 'un in G3WNH (West Wittering) who has made the grade after no less than 45 years as an SWL! Incidentally, G3WNH is ex-Royal Signals, and 90% house-bound. Congratulations are due from us all to G3WNH, and long may he enjoy the fruits of his efforts. Thanks also to G3IDG (Basingstoke) for passing on the information.

G2HKU, responding to your E.P.E.'s words on the matter of aeriels last time round, suggests that a

TOP BAND COUNTIES LADDER

Station	Confirmed	Worked
<i>Phone and CW</i>		
G2NJ	98	98
G3UBW	78	92
GW3PMR	71	77
G3VGR	61	92
G8HX	56	81
G3IDG	55	59
G3VLT	51	75
G3VMQ	41	67
G3VLX	29	43
G3VWC	10	27
<i>Phone only</i>		
G2NJ	87	90
G3VMQ	28	47

(Failure to report for three months entails removal from this Table. New claims can be made at any time.)

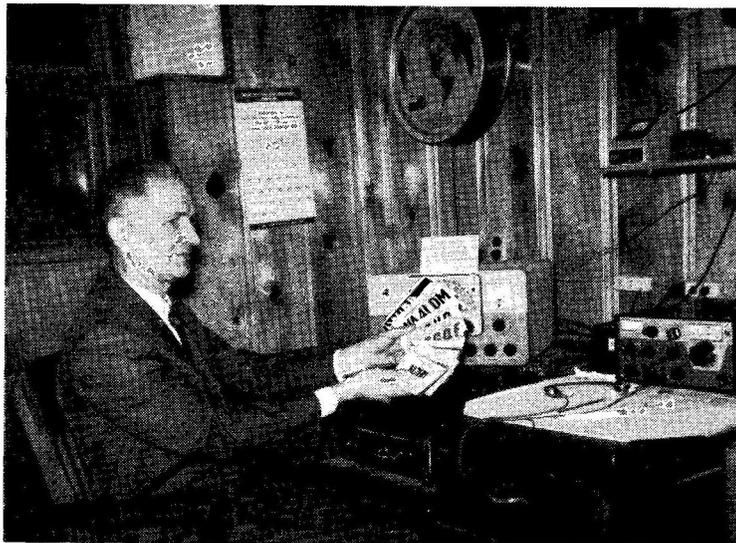
friend of his had a crook at the top of his pole, so that he could take a bow and arrow, and shoot a fine filament over the crook, to be followed by a stouter line. This also has been tried by G3KFE, but not very successfully—the first three arrows hardly reached the bottom branches, the fourth one broke the string, and as far as can be told it is still in orbit.

Various folk have mentioned OK1ATP and his 100 milliwatts of RF, which has been putting a very fine signal all over the U.K. However, the "Phantom of Top Band," as someone christened him when he was OL4AFI, is now to have his activities considerably curtailed—he has been called up for his two years' service in the Czech army.

G2VV thinks your scribe is not half tough enough with the "baddies" on the air—his particular

Zone 14 Score Card—Points for Working any Zone from U.K. (Zone 14)

Zone Worked...	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Score points ...	21	12	26	19	18	27	26	22	23	31	26	35	33	2	3	6	10	14	18	7
Zone Worked...	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Score points ...	14	21	19	25	27	27	30	32	42	49	34	55	5	10	15	19	21	26	26	6



WØGDH, John Dormois, of Kansas City, is a very well-known 160-metre DX operator and now has the distinction of holding the first WAS award for having worked 50 States of the U.S. on Top Band. This is a pretty remarkable achievement, in view of the distances involved, the very variable propagation conditions over the land-mass of North America, and the fact that in the States the 160-metre band is relatively unpopulated anyway.

(WIBB picture)

gripe is about these pestilential Phone operators who are invading the CW ends of the bands—and then having the infernal brass-neck to complain of CW QRM! One could remark that if they can't read their Phone through a little CW they aren't fit to hold a call, or, alternatively, suggest the holding of all CW QSO's smack on these interloping signals. It is about time some of these chaps were treated roughly. The CW

bands are narrow enough as it is.

Odd Situation

In the letter from G3VBL (most of which is discussed elsewhere in this piece) he mentions that immediately he opened up on Twenty SSB, he had complaints of TVI, followed by a visit from the "little green van"—all very much as usual, you may say. However, G3VBL found himself able to run his home TV on an

aerial only four feet from the transmitting ground-plane, with no interference. The trouble appeared to be with rental TV's of two different kinds, and normal techniques had failed to disclose a cure. The Post Office people exonerated the transmitter, but "suggested" that G3VBL should close down during TV hours. The approach seems to have been along the line that "Not even the GPO can fight the TV manufacturing giants."

Now leaving out of account the fact that most of these mythical giants have a large interest in what we might as well describe as "commercial" as distinct from "entertainment" electronics (where a word from the GPO is the word of law) there is also the small matter of the licence granted for amateur operation, Clause 16-2 and Note (g), which defines the position pretty clearly. It is on this that any amateur can take his stand, and force the issue to the highest levels necessary. The fact is that any severe case of TVI *must* be a matter for mutual co-operation.

Deadline

And there you have it; not so much hard news, thanks to the holidays, but more chance to air the comments. Deadline for next time will be **September 11**, addressed to CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM. Thanks to everyone for their letters and support, and, till we meet again, the best of luck.

SOME POINTS OF INTEREST

The annual—and this is the 22nd in the series—Magazine Club Contest (MCC) takes place over the weekend November 11-12. Rules and full details will appear in our October issue, due out on September 29.

* * *

The latest issue of *QRV*, journal of the R.A.F. Amateur Radio Society, lists about 290 members in current subscription. But it also gives the call signs of some 140 ex-members, under the heading "What Can Have Happened To Them?"—what, indeed.

* * *

The Science Research Council reports that our (American-launched) satellite *Ariel III*, which was flown on May 5, continues to work satisfactorily. The data-handling system has proved particularly successful and its tape-recorder has played back material of good quality whenever commanded (*Ariel III* is under constant ground control). Among interesting facts already

established is that in the equatorial region the voltage levels due to terrestrial noise (that produced by the Earth) can sometimes be more than 100 times the galactic noise (which comes from outer space). Another is that signals from GBR, the high-power LF transmitter at Rugby, can be recorded by *Ariel III* when it is over South Africa, proving that the RF energy from GBR not only penetrates the ionosphere but also that the signal travels along a magnetic field line.

DISASTER IN ALASKA

On August 16, it was announced that the city of Fairbanks, Alaska, had been inundated by the sudden flooding of the local River Chena—that all communications had been cut, and that the only contact with the outside world was through "amateur radio operators." So the KL7's have been busy again, and not for the first time. At the moment of writing, there was no further information, except that the Governor of Alaska had asked the President to declare Fairbanks a disaster area.

VHF BANDS

A. J. DEVON

THOUGH there have been a few short EDX openings during the period—notably in the early part, for Europe—the general Wx pattern has been such as to produce nothing in the way of a sustained tropospheric development for DX. So there is not a great deal to report as regards current results, and it is largely a matter of tidying up after the recent excitements.

* * *

No tabular matter this month—because it is being written while we wait for August's end, so that the Annuals can be brought up to date, for their final showings here next time. And remember that, as usual, they re-open again immediately w.e.f. Sept. 1st, which will not be long after you see this.

* * *

We are still hearing about results during the EI2AX/P and GI3BHT/P foray, with admiring comments upon their performance. The picture here will give some idea of what it involved for G3BA/G3BHT.

G6RH (Bexley, Kent) worked

EI2AX/P at their first six stands—and then had to leave them for his planned holiday in CT1. G3DAH (Herne Bay) gained eight new counties from the EI/GI operation, and G3AOS (Hale Barns, Ches.) worked them at *all* locations “and never under a 589,” says Geoff—who notched up four new EI counties thereby, and is now at 98C in the All-Time (he wonders where the other two will come from, for the century).

G3EDD likewise raised EI2AX/P-GI3BHT/P at every stand—which is pretty nice going from as far as Cambridge, and “most unexpected”, as Brian puts it. Well, it shows what can be done when you have determined operators using the right sort of gear from good locations.

Others to mention success with this EI/GI expedition include G3IOE (Newcastle) and G3LAS, who writes for the last time from Berkhamsted, as he is on the move to a new QTH at Hertford Heath, in connection with his responsibilities at Enfield Coll. of Technology, and G3VZN (*see* p.32, March). The new site looks to be quite good for VHF, and

John says he “hopes to be in touch again soon.”

* * *

EI2A (Navan, Co. Meath) in writing in with claims, mentions that he had a personal QSO with G3BA/G3BHT when they were passing through Meath—a county from which EI2AX/P did *not* operate, because EI2A continues to represent it very well, as the Tables have shown over the last few years. And here it is very interesting to record that on August 13, at the grisly hour of 0100z, EI2A had a meteor-scatter contact with OK1VHK using the *Perseids* shower, one of the denser of these regular manifestations, and forecast in our astronomical rule-book as occurring over August 10-13. Anyway, Shane caught it all right and concluded his (sked) contact with OK1VHK in 135 minutes—which means that conditions MS-wise were pretty good. Some of the bursts from the OK end lasted as long as 30 seconds, and one of 45 secs. showed a steady S9 on the S-meter of the SX-122 at EI2A. Incidentally, Shane asks us to say



The full inventory of equipment for the recent EI2AX/P expedition, reported in our August issue. On right, the Tx/Rx gear, with the portable P-E charging set beside it, and the various batteries and PSU items. At left, the spare gear and converters, and in foreground the knock-down aerial assemblies. The vehicle is a Volkswagen “Devon Caravette,” belonging to G3BHT, in which a KW-2000 is a permanent fit. The all-important “third man” in this interesting picture is Jacob-the-ladder (as G3BA puts it!). And when you think what must have been involved in loading the V.W., setting up the antennae, and so forth, you can see that that ladder was an essential item.

that he is "on two metres most evenings from 10.30 p.m.," and mentions that he uses the BBC's Band I TV signal from Belfast to alert him as to conditions on the VHF bands.

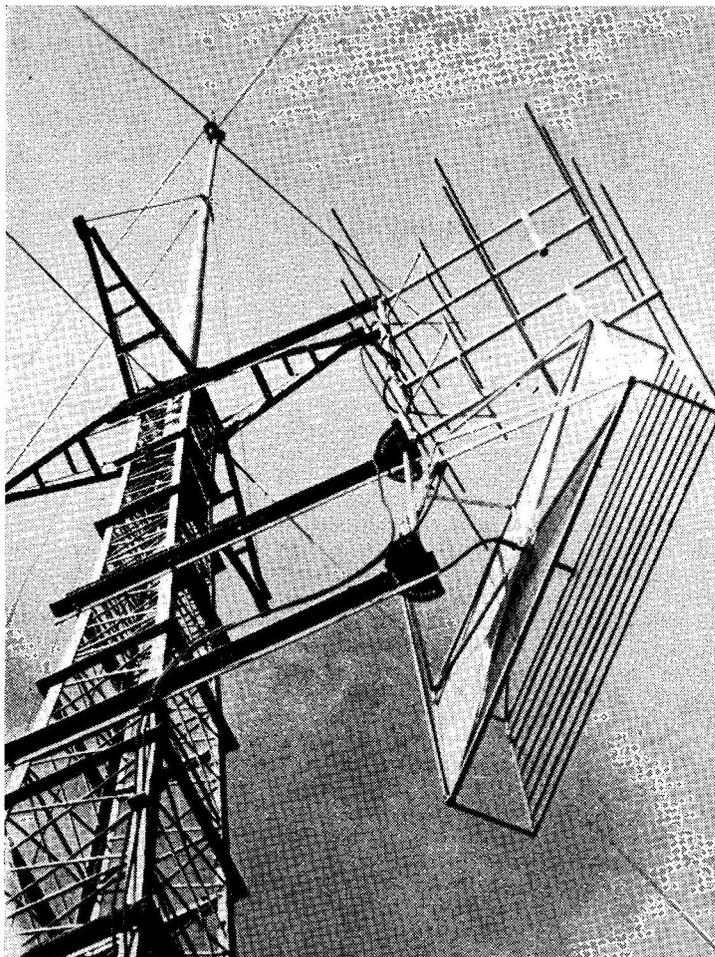
* * *

Looking at some other activities: The Lad from Mow Cop, G3OHH, wishes it to be known that he and G3OUF, G3PLX and G3TEY will be in Jersey during Sept. 23-29 inclusive (what, missing the Exhibition!) with operation on 70.408 mc in the 4-metre band, and 144.175 mc on two metres, mainly CW on both channels. Roger says that operation will be possible and available at almost any reasonable hour during their stay. They will in any case open at 8.0 p.m. on four metres, and from 9.30 p.m. on two metres (BST), each evening. Anyone wanting skeds, either band and at any time, should get in touch right away with: J. P. Martinez, G3PLX, Rose Marie, Victoria Road, North Hayling Island, Hants. They should state preferred times, operating frequency, and the mode normally used. For skeds, CW is suggested, but A3 will be available. And for those who may succeed and so might want to know, Jersey does rate as a county for our Tables (and a country, too).

Jack Hum, G5UM, writes to say that in collaboration with four other Midlands VHF types, the formation is proposed of a Leicestershire VHF/UHF Group, to cater for those in the area interested in the metre-wave bands. Apparently, Leics. is well populated in the VHF sense, and the prospects are that the new Group could be well supported and serve a useful purpose. To test the feeling, a meeting has been called for Thursday, Sept. 21, 7.0 p.m. in Room 45 of the College of Art & Technology, centrally situated in The Newarke, Leicester. We hope that there is a successful outcome for this enterprise.

* * *

On the technical side, a very interesting comment from G6RH, who says he has been taking a lot of measurements on the fashionable FET's and cannot find one that gives a better S/N ratio than a 6CW4 nuvistor—moreover, the valve will stand a lot more RF voltage on its



The very fine aerial array for the VHF Beacon ZE1JZA, near Salisbury, Rhodesia (5,609ft. a.s.l., Lat. 17°09' S., Long. 30°42' E.) running 100 watts input on 144.016 mc and 432.048 mc. The beams give a gain of 15 dB on each band, and the array can be locked at 7½° intervals through an arc of about 200° from north round to south. Operation is continuous and the keyed signal is FSK, in a sequence carrier—five ZE1JZA callsigns—carrier, the whole procedure taking 432 seconds. A pause ("carrier break") after each sequence enables recording stations to evaluate threshold noise level. Operation is 24-hour continuous. A very up-to-date transmitter set-up goes behind the beams, giving 70w. RF out on 144 mc and 55 watts on 432 mc. ZE1JZA has been installed by the Radio Society of Rhodesia, with donations and commercial support, as a memorial to the late Stephen Wright, ZE1JZ of Bulawayo. It is hoped that the new Beacon—on which we congratulate the Rhodesian group—will encourage amateur VHF research and activity throughout the southern part of Africa, as the coverage includes the ZS area.

grid! (Bob is an engineer, and this can be read as a professional opinion—*verb. sap!*).

The new SSB transmitter at G3IOE runs a pair of 4X150A's in the PA. to 300w. p.e.p., the driver being a K.W. Viceroy, the Tx giving output on 145.41 mc for Sideband, with CW at the LF end—but G3IOE is

disappointed with the response to his CQ's.

And that puts it away for this time—pse note that the deadline for our next must be **Saturday, September 16**, to: A.J.D., SHORT WAVE MAGAZINE, BUCKINGHAM. Take care over Bank Holiday, and watch for the signs. 73 de A.J.D.

WEEK IN ORKNEY ON THREE BANDS

GM3GIZ/P, CHESTER AMATEUR
RADIO SOCIETY, JULY 7-13, 1967

P. J. HOLLAND (G3TZO)

AFTER the tremendous success of last year's DX-pedition to the Isle of Arran, off the west coast of Scotland, by the Chester Radio Society, it was felt by many members that a similar venture should be mounted this year. As in most Clubs, there is a nucleus of members who prefer the portable and competitive sides in preference to operating solely from the home QTH, and so it was that early this year the same eight or so members who had taken part in the 1966 trip set about the lengthy preparation and planning. It was agreed that the objective should be to put a rare British county on Top Band, and that all other considerations be sacrificed to the efficiency of the gear on 160 metres.

The choice of target area was less simple, because most rare counties are now activated to some extent by other portable stations and keen exponents of Top Band. The idea of Orkney came about after careful study of a map of the British Isles revealed the Island's relative inaccessibility and remoteness. An estimated amateur population of six, whom nobody had ever heard on 160m. before, was revealed by scrutiny of the *Call Book*.

Accordingly, bookings were made, for three vehicles and eight people, with the shipping company for the ferry between Scrabster and Stromness. It was then necessary to arrange for the camp site and provisions. This problem was easily solved by telephone contact with GM3HXC, Kirkwall, after about two months of committee meetings (and

telephone calls to Fred).

We set off with great expectancy on the morning of Friday, July 7. The trip north was fairly uneventful and the sea crossing over the Pentland Firth much easier than we had feared.

Getting Going

On arrival at the Island, no time was lost in finding the site, which was a disused aerodrome, and the station was erected. Despite a howling gale and driving rain the station was operational in good time, but we had not reckoned on Top Band conditions from Orkney! A quick scan over the band on the KW-2000A, using the same 520ft. aerial that had been so successful from Arran, revealed a great abundance of commercial and marine activity but the bare minimum of workable GM or G stations. This was around 2100 BST and until 2330 nothing of any note was heard or worked. However, at about this time conditions appeared to open somewhat and a few Southern and Midland G's were raised.

But that strain of 20 or so hours of solid motoring had taken their toll and by midnight even the keenest amongst us had taken to his bed. GM3GIZ/P was temporarily QRT.

In the following days various different aerials were tried, including a Vee-Beam for 160m. (There was plenty of space on that airfield!) This consisted of 500ft. in each leg, coupled at its apex with open-wire feeder, the height of the apex being approximately 45ft. and the height of the legs at the far end 5ft. Very good reports were received on this until one morning we found cows cheerfully eating one of the legs! Despite repair, the V-beam never worked as satisfactorily as before and for the rest of the week we used a straight long wire at about 45ft., with varying results.

Later Results

Conditions on 160m. at night never became any good until at least 2030 BST and as most operations

The Chester team's camp on the old airfield at Orkney, when they were there for their July expedition.





The party on the Chester Club's Orkney trip, July 7-13, when they signed GM3GIZ/P on three bands. Conditions on 160m. were not too good and results were rather disappointing—but anyone who did work them can notch up one more county. Left to right in the picture are: GW3TOW, (SWL), G3ATZ, G3DRB, GW8AOC, G3UOH, G3TZO and G3FNV. Their results and experiences are discussed in the article.

took place on weekdays we found that activity began to dwindle rapidly after midnight. Accordingly, the number of Top Band contacts made was far less than had been hoped for, with only 81 QSO's in a total of five nights of full operation.

Best DX on 160m. was the South Coast, a number of stations between Cornwall and Southend being worked with good reports. No Europeans were heard at all. On the last night, Thursday, July 13, the static at 2000 was S9+10 dB and never fell below that, so at around 2330 BST we closed down (in disgust!) without having worked one station.

During the daytime, when Top Band was absolutely dead, operation took place on 80m. and 20m. using a KW-2000 into the KW-500 linear. The antenna, which was the G8KW trap dipole, performed very well, with good reports on 20m. CW from JA, and W6 as best DX. A total of 43 different stations on 20m. and 32 on 80m. helped to keep the station running during the day and allowed some of us the pleasure of operating first-class commercial equipment. Notable on 80m. was the lack of stations south of the Border during the day, with only the odd G being worked among a great proliferation of GM's.

Some Conclusions

To form definite conclusions on the conditions from Orkney would be difficult, as operation only took place during one small part of the season. However, it is safe to say that the extra 250 miles or so further north from Arran made a remarkable difference to what was even being heard on 160 metres.

One factor was undoubtedly that real darkness during the summer on Orkney never comes, and only a period of twilight around 0030 BST ever obscures the sun from view. One thing that is certain is that to work efficiently on any band (and this is true generally but even more so the further north you go) is that the aerial system must be 100 per cent, and by this venture a great deal of experience has been gained by the Chester group in this particular respect. Operators on the trip were G3ATZ, G3FNV, G3UOH, G3TZO, GW3TOW, G3DRB and GW8AOC. Acknowledgements for his great assistance to GM3HXC, without whom we could never have run so smoothly.

SUCCESSFUL AERIAL APPEAL

It was reported from the Isle of Wight at the end July that E. St. B. Sydenham, G3LOK, 1 Churchill Road, Crossfield Avenue Estate, Cowes, having been refused planning permission to put up a 30ft. mast, took the matter to a public inquiry. The inspector appointed by the Minister of Housing and Local Government to go into the case rejected the contentions of the local Council almost out of hand. He recommended that G3LOK be allowed to put up his mast, in that "being a slender structure . . . it would not be conspicuous to any significant extent." The Council had refused permission because "the mast would be detrimental to visual amenities"—a typical mouthful of bureaucratic claptrap, if ever we heard one. Anyway, the upshot of it all was that the Minister upheld his inspector's recommendation, and G3LOK gets his mast—and we congratulate him on having the fortitude to pursue the matter to a successful conclusion.

• • • **SWL** • • •

SHORT WAVE LISTENER
FEATURE

ON R.A.E. STUDIES—COMMENT AND
CRITICISM — READERS' NEWS AND
VIEWS—THE HPX LADDER

By Justin Cooper

THE GLORIOUS spell of weather that has continued from the end of June right up to the time of writing has had an inhibiting effect both on conditions and activity. While it is true that the process of designing and building a bit of gear that "goes first time" can be likened to the feeling in the bowler's mind when the batsman has been persuaded by the arts or flight and spin to throw his wicket away, and that the sound of that rare DX call sign one has been hunting for weeks is comparable with the notes of a Beethoven symphony, it is also true that when our English climate takes on its most glorious aspect, then is the time to take advantage of it.

And that does *not* mean dropping all activities in the field of Amateur Radio — far from it — there are as many things to do in the sun as in the shack. Now is the time for the aerial problems to be resolved by a spot of maintenance, or by a re-design on sounder engineering principles, so that one does not spend the November fogs, when conditions on the bands are often so good, up on the roof repairing the aerials that fell down in the first puff of wind. Now is the time to get out and do a spot of portable operation from a suitable hill-top, or just to lie in the sun and think about the ways and means of getting the next project in the shack going. On a more mundane plane, it is also the time to get the suppression equipment of the family Rolls really set up "on the nose", so that the VHF gear can be used with the car in motion when that hoped-for RAE pass slip has arrived and the Morse test passed.

Unaided RAE

That letter from SAC Fox in the July piece, in which he asked for advice on the possibility of passing the RAE without attending classes, touched off a thoughtful letter from *G3IDG (Basingstoke)* who mentions that he himself made the grade without benefit of classes, or tuition, or even membership of a club, and yet he passed at the first attempt. The secret of Allan's success, as it is for anyone in the same position, is mainly to have abundant enthusiasm, to do lots of reading, both of magazines on the subject and of text-books, and, above all, not to rush the job. There is no doubt that one can obtain a pass in a few months from a scratch start, but there is equally no doubt that a longer time spent as an SWL pays off — the long-

time SWL with a new call stands out head-and-shoulders over the other newcomers when the time comes, simply because he has a greater knowledge of the way to go about things. Your J. C. would add that he knows of others, who have made a start, not knowing a resistor from a condenser, and, like Allan, have made the grade. There is always a larger possibility of failure this way, due primarily to the lack of *examination* experience, and this possibility must be faced; after all there is always another chance. The thing to do is to answer as many questions as possible, marking them the following evening — when they will look revolting! However, this is the only way to gain facility in the art of "writing it down", which is the bit not mentioned in the syllabus.

Reports and Comments

R. A. Hannis (Chester) has been using his time since his O-level exams in intensive listening. SWL Hannis mentions the question of selectivity and bandspread, which are so often confused. Let us put it this way; If a receiver requires a lot of turns of the tuning knob to move the frequency a little way, then it is said to have good bandspread. On the other hand, selectivity is the ability to separate stations operating simultaneously on adjacent frequencies. This is a condition which no amount of extra bandspread can achieve, although it is fair to say that if a receiver has good selectivity given to it as a result of modification, it will be found that it then would benefit from a greater degree of bandspread, just because it is now "sorting out" and rendering readable a lot of signals which before would have been so far buried under QRM as to be inaudible.

Talking of selectivity, *A. P. Ashton (Stowmarket)* has been enjoying the Eddystone 888A receiver which now graces his shack. with a corresponding improvement in his HPX score. This receiver, and its older companion the 888, are really fine, particularly for the CW man, who finds the audio filter a god-send when the going is really tough.

While Phil Ashton has been enjoying the HF bands, *R. Allisett (St. Peter Port, Guernsey)* has been banging away on 3.5 and 7 mc, to such an extent that the crystal-controlled converter for the HF bands has been left uncompleted.

A new chum is *Keith Jeeves (Meltham, Huddersfield)* who is a trainee technician with the

GPO, and has been exploring the short-wave territory since March, with the aid of a Codar CR-70 and PR-30 preselector. Keith finds this combination very good, although he finds the dial calibration a little deceptive. A point to remember here is that it is rare for a receiver, even in the higher price ranges, to claim a calibration accuracy a lot better than 2 per cent, and very few signal generators in the lower price-ranges give closer accuracy.

Another new face with a professional interest is *D. Coles (Hounslow)*, who has recently completed a receiver with "all mod cons" after about six months of development. The receiver, at the time of writing, had been in use for a month, and was due to go back on the bench for a rebuild into its final form shortly. David has used parts of various receiver-circuits published in *SHORT WAVE MAGAZINE* as a basis for his design, and has no doubt been helped considerably by the knowledge he has gained in his work as a TV and Radio engineer, and from the RAE, which was passed in 1966.

This hobby of ours is often propagated by contact, and the process is well demonstrated by yet another new correspondent, *Dion Stuart (Caistor, Lincoln)* who has our old friend Geoff Cowling to thank for raising his interest, as far back as three years ago. Dion uses a 19 Set, and, more recently, a Heathkit RA-1, to which he is thinking of adding their Q-Multiplier.

Novel forms of QRM are the theme from *J. Durnett (Singapore)*, who has had almost a month of holiday in 9M2-land, and the joys of a new car to reduce his activity, while the HRO stands mute in the shack waiting for the promised overhaul.

From *N. Flatman (Ipswich)* comes a tale of woe—the R.1155 has finally given up the ghost and QSY'ed to wherever the ghosts of good old receivers go. While waiting for a 52 Set, which is the planned replacement, SWL Flatman has been amusing himself by listening to the locals on a transistor portable whose trimmers were adjusted to take in Top Band—the only snag being that the drive to the tuning condenser broke, so now he has to twiddle the gang from behind! Prefix queries in the form of PI and DK2 are mentioned in his letter, the former being a variation on the PA theme, for certain special stations in the Netherlands, while DK is a German callsign.

Father-and-son SWL teams are not so common as Father-licensed and son-SWL combinations, but there are a few, and this month there is *Norman Hembrey (Northiam)* as usual, plus a first list from his thirteen-year-old son *David*, who is using a battery-operated 0-V-0 and a vertical aerial at 30ft., matched in by a Joymatch tuner. Norman has an acid comment to make on the crystal ball used for selecting SLP dates; but he may rest assured that it has been replaced by a new one warranted never to fail!

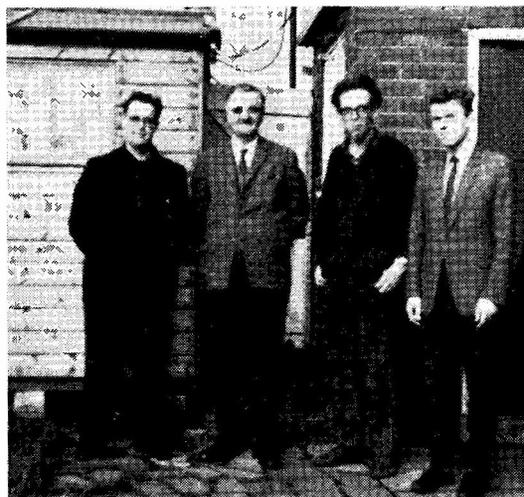
That old saying about the plans of mice and men has come true for *W. L. Rees (Llandudno)* who was all set to treat himself to a nice receiver, when his junior op. informed him that there was a marriage

in the offing, so—not only does the cash divert itself, but the CR-100, sensing that it is on the way out, takes the chance to give up work! Seems rather as though Bill will have to set to and mend it!

A radio club to join is the thing that *A. Pyne (Budleigh Salterton)* wants most of all at the moment; and there is no doubt in the writer's mind that if he drops a line to the Hon. Sec. of the Torbay crowd (*D. T. Hind, G3VNG, 46 Thurlow Road, Torquay*) he will be shown the way.

If you want a hard way of watching "Coronation Street," then follow the example of *D. Boniface (Ripon)* who managed to do just that on Lopik (Holland) TV station, on Channel 28. As for the rest, this is of course the season for the sporadic-E openings which add so much interest, and so Dennis has been plagued by a surfeit of bullfights from the Spanish T.V.E.; but he also mentions Marlow (East Germany) on Channel E8 as the best DX of the period under review.

Up in *Edinburgh, D. L. Hill* has had to start a job and so has less time for SWL'ing at the productive times of day. David has decided ideas on the subject of HPX, and suggests that a "points" system with, say, one point for a U.K. prefix, two for a European one, and so on, would provide a more interesting Table. Agreed, very likely it would, but think of the paperwork and arithmetic involved, both for the SWL and for your poor old J.C., who would have to memorise the points value of every prefix in the *Callbook*—not to mention the legitimate but somewhat oddball ones that crop up from time to time—if the checking of the entries each month were to be done at all rapidly. As a tailpiece, David wants to know whether Rockall has ever been activated as a "country," to which of course the answer



Four keen DX/TV types—left to right: *Bruce Thomas, Castleford*; *Frank Smales, Pontefract*; *Dennis Boniface, Ripon*; and *Barrie Stephenson, also of Ripon*. This was taken when the other three were visiting *Dennis Boniface* at 11 Holmefield Road, Ripon, Yorkshire. All these chaps make a speciality of DX/TV reception.

is No, but not for want of trying!

Combing out the odd ones from the log has yielded three more for the HPX entry of *M. A. Lount (Leicester)*, one of which was the 3C3FJZ/P/SU mentioned in several other letters.

* * *

T. R. Popham's feat of making the qualifying score for a new entry in HPX in *one week* is commented on by *I. Poole (Leeds)*, who wonders if Terry has a fantastic receiver to do it on. The answer to that is almost certainly not, for the main thing in the exercise is the art and craft of using the thing to its best advantage, and of concentration in picking them up out of the QRM.

This latter point is amply demonstrated by *P. C. Swann (Glossop)* who used to be MD5PS in 1947/8, and, having passed the RAE long since, is now aiming at a Morse pass in order to get back on the bands. Peter has sent in a list that shows a much higher proportion of real DX than is usual for a first list, even though he is using an AR-88 as receiver. The point is that MD5 used to be DX in those distant days, and chaps like Peter (and Pat, MD5DO) had to have sharp ears to work through the pile-ups—and once the knack is acquired, it stays for life.

Various people comment on the band conditions of late, among them being *S. Swain (Hayling Island)*, who found the summer dodrums very marked, with a complete absence of VK and ZL signals, and Ten dead every time he looked. Nevertheless, Stuart manages a rise of 25, by filling in some of the gaps in the less DX'y stuff.

Brian Lowe (Worsley) queries the use of the SV3 and CRØ prefixes. Both smell somewhat fishy, but no doubt if they are genuine someone will report the arrival of a card to the CDXN feature. The trouble with these is that they must be regarded as faintly possible—albeit unlikely—and so the best thing is to delete them from the lists until some sort of confirmation appears. Special call signs are often issued, without notice, for specific purposes. So neither of these are necessarily "wrong," but they must remain doubtful.

Our old friend *Andrew Niblock* seems to be settling down well at *Stoke-on-Trent*, and by the time this reaches print, will have returned to Ilkeston for a couple of weeks of holiday, during which time a TA-32 beam will be going up—let us hope it does not suffer in the way the old verticals did from the effects of an exposed location and high wind.

Driving an El-bug at 30 w.p.m. is the professional job of *A. F. Hunt (RAF, Lossiemouth)*, who can also read the stuff at the same rate. SWL Hunt has recently returned from the West Indies, where he often talked to amateurs in the Antilles Hurricane Warning Net. In addition, RTTY reception has been pursued and a couple of hundred stations copied. The receiver available is a Racal (R.N. version) which is hooked to a 35-foot length of wire. The future plans are along the lines of an attempt at the

RAE as soon as possible.

At various times various readers of this piece mention the building of gear in preparation for the day when they finally "make the grade." One of the most popular designs for this activity is the Mini-Five that appeared in these pages some time ago. *A. Hydes (Enfield)* planned to start in time to allow most of the summer holidays for completion, but at the time of writing he had already finished the beast and got it to work into a load, so we may expect to hear of other projects in the process of completion next time round.

HPX LADDER

(Starting January 1, 1960)

Qualifying Score 200

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
T. Popham (Exeter)	1012	D. Boniface (Ripon)	343
P. Cayless (Exeter)	993	R. A. Gape (Leigh-on-Sea)	342
S. Foster (Lincoln)	868	D. Douglas (Dundee)	342
A. W. Nielson (Glasgow)	835	N. Flatman (Ipswich)	336
D. Rollitt (Navenby)	768	S. Cusworth (Wakefield)	321
P. Milloy (Doncaster)	737	R. Glaister	
W. Felton (Lincoln)	713	(Haywards Heath)	316
C. Squires (Saltash)	711	M. R. Warburton (Sale)	316
A. Niblock (Ilkeston)	706	(AM only)	
J. Singleton (Hull)	702	J. M. Dunnett (Singapore)	315
G. S. Taylor		T. Popham (Exeter)	312
(Wolverhampton)	699	(SSB only)	
K. Southgate (Leigh-on-Sea)	662	P. Smith (Linby)	304
R. G. Preston (Norwich)	635	K. Plumridge (Eastleigh)	303
J. Tozer (Plymouth)	627	P. D. G. Milloy (Doncaster)	301
J. Hodgson (Gainsborough)	627	(AM only)	
T. Pinch (Plymouth)	620	C. K. Skelcher (Larkhill)	300
P. Coull (New Romney)	581	A. Grove (Bromley)	288
S. Swain (Hayling Island)	577	I. Paterson	
J. Fitzgerald (Gt. Missenden)	575	(Carstairs Hospital)	285
J. Dutton (Ilkeston)	574	J. Singleton (Hull)	282
G. J. Smithies (Halifax)	561	(AM only)	
G. Bowden (Crawley)	552	T. Farkasch (Benfleet)	276
N. Hembrey (Northiam)	541	R. Young/P. Barnett	
R. T. Jackson (Leigh-on-Sea)	540	(Welwyn)	269
A. G. Scott (Liverpool)	528	K. Southgate (Leigh-on-Sea)	265
S. J. M. Blaber		R. Hannis (Chester)	253
(Haywards Heath)	527	I. Lucking (Stanmore)	250
W. Moncrieff (Hampton)	527	D. Henry (N. Berwick)	248
B. Macklin (Winchester)	524	D. Richards	
P. A. Cayless (Exeter)	502	(Welwyn Garden City)	241
(AM only)		J. F. Hobson	
A. P. Ashton (Stowmarket)	493	(High Wycombe)	242
P. Baxter (Winchester)	484	D. Hembrey (Northiam)	239
H. G. Allen (Heston)	482	C. J. Carroll	
G. Watson (Sheffield)	472	(Sittingbourne)	239
C. Clayton (Kinghorn)	466	K. Jeeves (Huddersfield)	239
D. H. Foster (Swansea)	465	S. M. Phillips (Dukinfield)	238
Mrs. M. Worbey (Dartford)	462	R. Allisett (Guernsey)	226
A. Hydes (Enfield)	461	J. Carter (Balham)	218
J. Tring (Sutton)	457	D. Stuart (Caistor)	213
A. Jones (Newport, Mon.)	456	S. E. Howell (Balham)	211
A. P. Legg (Sutton)	449	B. W. Lowe (Worsley)	204
E. Parker (Howe)	433	I. Poole (Leeds)	204
A. Niblock (Alsager)	430	P. C. Swann (Glossop)	204
W. L. Rees (Llandudno)	417		
W. C. Torode			CW ONLY
(London, W.C.1)	414	R. de Buis (Felixstowe)	487
H. M. Graham (Harefield)	414	J. M. Dunnett (Singapore)	409
B. Thomas (Castleford)	407	R. Bacon (Thetford)	406
R. Sexton (Gt. Missenden)	406	B. A. Smith	
R. Gilchrist (Manchester)	405	(Ruislip Manor)	400
D. Sapsworth (E. Ham)	400	A. F. Hunt	
G. Cowling (Coole)	387	(R.N. Air Station,	
D. Edwards (Coalville)	382	Lossiemouth)	394
J. P. Scrags (Stockport)	360	P. Cayless (Exeter)	360
M. A. Lount (Leicester)	360	T. Pinch (Plymouth)	354
A. Pyne (Budleigh Salterton)	347	S. Blaber (Haywards Heath)	326
M. G. Toms (Ilford)	346	C. Harrington	
D. L. Hill (Edinburgh)	344	(Maidenhead)	309

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

Historical Note

Reading the history of any technology is always of interest—even in seeing that the fool mistakes we make these days were being made a couple of hundred years ago!—and the history of Radio is no exception. *Iain Paterson (Carstairs Hospital)* would like to know of any titles that he could read on the history of “Wireless” or of broadcasting. An interesting historical work of this kind, which, although out of print, one would think, is *History of Radio Telegraphy and Telephony* by G. G. Blake, published by Chapman and Hall in 1928, which includes a detailed first-hand account of the original amateur Transatlantic contacts and tests in 1921 and 1922, and a description, with photographs, of the station used by the Wandsworth amateur group, at the Water Board premises, the aerial being attached to the chimney-stack of the power station nearby. The first transworld tests in 1924, G-ZL on about eighty metres, are also mentioned in detail, albeit in the edition in the writer’s hands, the call sign of the G is given wrongly—Cecil Goyder’s call was 2SZ, and not “G2FZ”.

Quite a lot of the letters—too many to mention individually—are concerned with the RAE, and the fact that, at the time this went down, the results were not yet to hand. However, the time waiting is well spent on practice for the Morse Test, and getting a station together; even if a “fail” is the result, there is more incentive to have another go. In any case, the waiting time is long because there are an awful lot of papers to be marked, and because of the precautions taken to see that the marking is as fair as can be.

The noble art of stirring up controversy seems to be a *forte* with *T. Pinch (Plymouth)* who comments that Don Miller’s next DX-pedition to the Indian Ocean, when he will be far stronger than the locals, and always in control of the situation, is something to be longed for. Here is a case of a generalisation which is not quite in accordance with the facts—Don is always a good signal from his stops, with a three-element beam about fifteen feet up, but so also are other stations in the same area who use similar gear and power. Again, while W9WNV, along with W4BPD and a few others, are acknowledged past-masters at handling a pile-up, none of these top-notchers would claim to be always in control of the situation, and anyone with DX experience would laugh if they did make such a claim.

SWL's TO NOTE

The next appearance of this feature will be in “Short Wave Magazine” for November, due out on October 27. Deadline for “SWL” in that issue is Friday, September 22, addressed: SWL, Short Wave Magazine, Buckingham. Because of the pressure of Exhibition work in the latter part of September, we cannot cover letters for “SWL” received after September 22—so don’t be late!



P. Coull, Avenue House, Littlestone, New Romney, Kent, has a KW-77 receiver, with K.W. E-Zee match, to a 120ft. wire at 30ft. Doing well in the HPX Ladder, he is now at 581. Our “DX Zone Map” is on the wall at left.

Amazing—two correspondents with this piece for quite some time, from the same small place, but neither knowing of the other! This was the situation of *John Fitzgerald* and *Ron Sexton (Great Missenden, Bucks)*, who have just realised that the other exists.

Must be some queer variety of electrical gremlin around the *Lincoln* area—*Bill Felton* has added a brace of additional radials to his vertical aerial and thus has brought down the local noise level, while *Stewart Foster*, who, it will be remembered, was suffering from electrical noise, needed no assistance to get rid of it—it just went, as mysteriously as it came.

Talking of aerials, the wire owned by *M. Toms (Ilford)* does not seem to be fully house-trained; it works quite well as an aerial, but falls down too often. Michael defends his CR-150 from detractors of the breed by mentioning the DX heard on 3.5 mc using six feet of wire fed straight in. Agreed, but this DX is as much a function of the operator as the receiver, as anyone who has watched the scoring rate in a club contest change when the time comes round for the star op. to be replaced by a less competent member will realise.

Now that he has settled down at his new home near *Swansea*, *D. H. Foster* has changed over to DX/TV reception, at which he seems to be a dab hand, with a score of fifteen countries on Band I. Still another interest is Transatlantic Top Band DX.

A. P. Legg (Sutton, Surrey) who seems to be in aerial trouble, found that changing the RF valve in the SR-600 receiver from an 6BZ6 to an EF95 to make a great improvement in its performance. He

wants us to offer a circuit for a bandpass filter passing from 3.4 to 4 mc; that could vary from a ten-minute job including the construction, to a rather more ornate piece of apparatus taking six months to do the preliminary calculations! What one would need here is a specification of what is wanted in the way of a response, losses in the stop-band, and so on, with the input and output impedances defined—and then just get a book on the subject and design the thing from the formulae—the hardest part is *making* it properly.

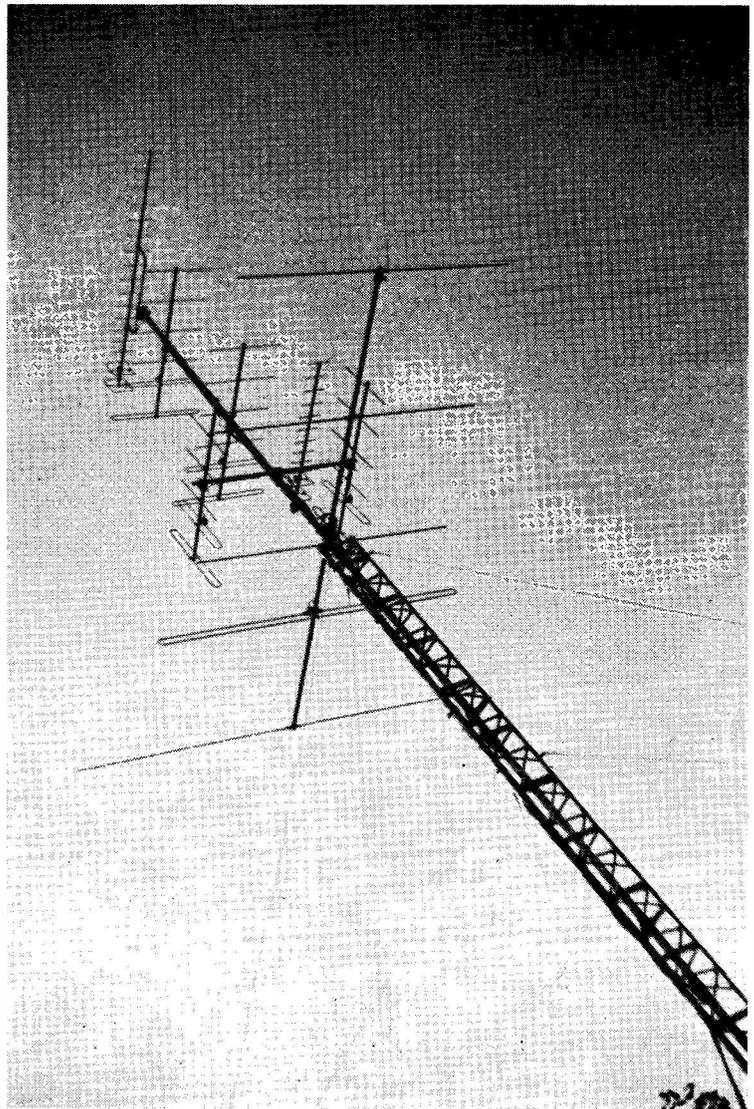
* * *

A "first" seems to have been scored by *H. M. Graham (Harefield)* who has included a WC4 in his HPX list. Quite a legitimate call, this, as WC is

the prefix we are told the American authorities issue when the current series of W, K, WA and WB calls are exhausted. Incidentally, we have a letter from *J. A. Ennis (Saltash)* which indicates there is a certain confusion about what constitutes a Prefix. Taking, for instance, the callsign G3SWM, the prefix is the G3 part, while the letters "SWM" are the part which is *individual to the station*. Thus G3SWM and G3KFE heard in QSO would only give a score of one *prefix*. All this (and much else) is covered in the periodic reprinting of the HPX Rules (See p.170, May issue).

Navenby in Lincolnshire is a village of 1,200 people, in which *D. Rollitt* lives. He and *Bill Felton*, another SWL, from Scampton, and a friend, Paul, who lives locally, had a day together recently, and

Looking up at the aerial array for DX/TV reception at Roger Bunney's, Trelawne, Cupernham Lane, Romsey, Hants. The antennae are all of J-Beam manufacture, with the exception of the Band I aerial, and the array includes an 18-ele Parabeam, horizontal and vertical double wide-band beams for Band III, and a 12-ele Parateam. Various indoor pre-amps. are used and the feeder is "Super-Aeraxial" coax cable.



as a result Paul is also chasing prefixes. With such mentors as David and Bill, we should have an interesting entry.

Points of Interest

The whole secret of successful maintenance of any electronic equipment is knowing precisely where to kick it in order to clear a given fault. This dictum, as old as the industry (or for that matter engineering generally), has been used to good effect by *C. Carroll (Sittingbourne)* who has been able thus to restore his 52 Set to running order. Chris queries the status of the NSI calls. The answer is that they were never legal.

As always there are quite a lot of points to come out of the epistle from *G. Bowden (Crawley)*, who carefully avoided any reference to RAE after missing a letter last time—can it be that Geoff is a pessimist? The rig has now been made to give on 28 mc by converting an RF-26 Unit—so that his Rx set-up now consists, not of one box, but no less than six, all of which have to be brought into play when taking SSB on Ten! Geoff mentions a thing which often puzzles people, and that is the apparent rise in gain when the BFO is switched in. But this is not so much extra gain as the noise coupled into the circuit from the oscillating valve. If the AGC is still operational, and is derived from the IF through a diode, it is far more likely that the presence of the BFO voltage on the IF strip will generate enough AVC to reduce the gain drastically, and so we normally either use an audio-derived AVC system or ground the AVC line so that the gain is not reduced, with manual control of the RF/IF gain through a potentiometer arrangement.

The recent GB2IS DX-pedition to the Scillies was accompanied by *P. D. G. Milloy (Doncaster)* who seems to have obtained G8AZP in order to join in more effectively. Whatever happened, Peter is now going hell-for-leather after the full call, and is determined to pass the Morse before he returns to University next term.

One is everlastingly surprised at the variations on the theme of the "usual" way into SWL, and the coincidences that occur in the right order, to get a given individual on the way. *Iain Ross (Halifax)* had his original interest sparked off by uncle GM3ACD, who is now QRT, and the rise of a radio club at school intensified the interest. But no sooner was Iain "hooked" than the club also went QRT!

The station at *New Romney* run by *P. Coull* seems to be pretty comprehensive, and is based on a KW-77, a long-wire fed through an ATU, and a (projected) Quad. It would be very interesting to see, if some way of measuring it could be contrived, just how good such a QTH could be in DX terms. Although it is at sea-level, there is either a sea take-off or a very flat run in the landward directions.

Additionally, one would think that the earthing conditions in the area around Romney would be extremely good, so that aerials would have the best chance to operate as the book says they should.

Up in the North *Glyn Watson (Sheffield)* comes up for air after a violent spell of examinations, and immediately sinks back into preparation for the December RAE, and Morse practice. A change to the aerial arrangements results in a Joystick decorating the wall, mounted on a suitable bracket. It seems to be giving Glyn his fair share of the signals, although he has been hampered somewhat by receiver troubles.

Strange how the long arm of coincidence works—or is it?—this time for *J. Dutton (Ilkeston)* who has been more than a little dissatisfied with band conditions. However, one session on Twenty produced on FO8 and also F2WS/FC. John is rather "anti" when he hears local QSO's on DX bands, and cites the case of a couple of kilowatt W's five miles apart heard on Twenty ragchewing. Fair comment, but if all contacts were of the rubber-stamp variety half the interest would be lost to the vast majority of amateurs on the bands.

Deadline

And that seems to be about the lot for this time. In addition to those discussed in the piece, we also acknowledge with thanks letters and HPX entries from: *W. Moncrieff (Hampton)*; *R. Gilchrist (Manchester)*; *D. Richards (Welwyn Garden City)*; *R. G. Preston (Norwich)*; *D. Sapsworth (East Ham)*; *J. P. Scragg (Stockport, Ches.)*; *S. M. Phillips (Dukinfield)*; *J. Tring (Sutton, Surrey)*; and *K. Plumridge (Eastleigh)*. Look after yourselves, wherever you may be, and watch the bands. And we hope to meet many SWL's at the Exhibition during September 27-30—Horticultural Hall, London, S.W.1, off Horseferry Road, and near Victoria Station.

Your letters for the next piece, in the November issue, should be with us by first post **September 22**—note the early deadline this time!—addressed as usual to "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM.

NORFOLK BBC INTERVIEW

On August 7, in the BBC's Midland Regional morning programme, G3IOR (Norwich) gave an interview on the local Group's success in winning NFD. The piece was notable for two reasons: It was preceded by a burst of well-keyed CW, and the interview itself had evidently been carefully rehearsed. In other words, the approach was a good deal more rational than is usually the case when the BBC concerns itself with Amateur Radio.

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

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for October Issue: September 8)

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

THERE are several things this month to be dealt with before we get into the reports proper—so, straight down to brass tacks.

The first one, obviously concerns MCC—the Magazine Club Contest—for which full rules will be published, as always, in the October issue. At this stage, it is enough just to remind everyone to note the date in their diaries: The weekend November 11-12, in two evening sessions, as usual.

While many groups go in to train operators, or to win outright, and are geared accordingly, it is felt that more fun could be obtained by individual groups competing with others in the same Zones, or even by local clubs setting out to beat their neighbours. MCC has always, throughout the years, been a friendly sort of affair, and it is to be hoped the tradition will carry on through the 22nd in the series.

The comment last time out about the poor attendance at the AGM of the A.R.M.S. brought a response from G3BID, who feels this is in fact *not* a bad thing—in fact, he considers that an empty AGM is a 100% vote of confidence. This is a valid point of view, within limits, and, however much we may have griped about this—and that, we must admit that A.R.M.S. is very successful in the things it sets out to organise. On the other hand, your old scribe may be a bit of a square, but he would feel that if a successful year's working results in non-attendance at the AGM, with not a soul present to propose even a vote of thanks to the committee (let alone be elected if one of the lads wishes to step down) then G3KVF was dead right to express his disgust—and we still admire their fortitude in carrying on for another year!

Nevertheless, G3KVF and G3BID have both got a point, and it would be interesting to see what others feel on the matter.

Another letter explains that although Verulam, to whom we gave credit for the Redbourn Village Fair, helped out a lot, the idea came from G3TXP and G3VJO. Looking back through the correspondence, we have to admit that the Verulam *News sheet* said just that, and thus we bow our head in shame—so all credit to G3TXP and G3VJO, and to the Verulam lads for providing the labour.

New Groups Formed

Four come under this heading, the first of which is **Hereford**; they are at Holmer Scout Group Hq. on the first Friday in each month, in Holmer Road. They have lots of members, but are at the moment a mite short of licensed types; this situation should shortly be improved

as there are several either waiting for the call to come through, or for the results of the RAE. The impression one gets from their letter is of a lively crowd who will "go places" and we wish them luck.

Next on the clip is another new one, at **Bishop's Stortford**. The inaugural meeting was held recently at the British Legion Club, and G3VWC appointed to the all-important secretarial chore. They will continue to foregather at this Hq. on the third Monday in each month, when it is hoped to have something of interest laid on each time.

Flint has now its own group, who get together in the local Public Library on Friday evenings; they are affiliated to the Flint Association for the Arts, along with the local Photographic Society and Art Society, both of which were also formed in association with the Public Library. This sounds a fine scheme, not only from the point of view of the publicity, but also in that there will almost surely be some element of cross-fertilisation which cannot but be to the good of all three groups. And it gives them a nice, ready-made Hq.

Last of the new ones this time is **Southdown**, who have secured premises at the Beachy Head Hotel, and a shack which is being redecorated. A nice thought here is that not only are visitors very welcome, but also that transport to meetings can be arranged from Eastbourne Pier if the hon. sec. is notified in advance. Monday, September 4, is set aside for a speaker from the GPO, while on September 14 a visit to Eastbourne Police Station has been arranged—congregate at the Station entrance in Grove Road by 7.30 p.m. for this one.

No less than seven events appear in the **Hull** list for September. The first, on the first, is a Radio Quiz, while on the 8th there is a discussion on Topics of Interest. Holme-on-Spalding-Moor is the venue for a D/F event on September 10, the 15th being given over to part one of a talk on "Test Meters" followed by Problem Night on the 22nd. September 24 sees another D/F Event, at the same venue as the previous Hunt; finally another discussion on a topic of interest is slated for the 29th. All these, unless otherwise stated, are for Club Hq. at 592 Hessele Road, Hull.

Wednesday evenings are the rule in **Derby**, in Room 4, 119 Green Lane, Derby, starting at 7.30. Taking them in order from the first session on September 6, there is a Junk Sale, A Practical Experiment (sounds ominous for a meeting on the 13th!), Part 4 of a series on Colour TV, and finally, on the 27th, a talk "For the Beginner" given by G. P. Miles, G3TOV.

Three Midlanders come next on the pile; the first of

these is **Midland**, appropriately enough, who, for September combine the home-construction contest, voting for the various awards for the best lecture, the greatest contribution to Radio Science, and so on, as well as the more mundane matter of electing the committee for the following year. The date is September 19, the place, the Birmingham and Midland Institute, 3 Margaret Street, Birmingham 3, at 7.45 for 8 p.m.

Wolverhampton are at Hq. on September 4/18, the former date being given over to a talk on Computers by Mr. Ramsbottom, and the latter to a general discussion along the line of "What do *you* want from an Amateur Radio Club?" Incidentally, Hq. is at Nechells Cottage, Stockwell Road, Tettenhall.

Next in this group are **Leicester**, who are running an RAE course on Monday evenings and hammering out Slow Morse on Sunday mornings; in addition, they are "on" at the Leicester Show in Abbey Park in the middle of the month, with a station and several other items for the public to see. The Club equipment has been considerably modified in the control and aerial change-over departments. For more details, a contact with the hon. sec. at the address in the Panel is suggested.

* * *

Sorry to say, **Southport** are in trouble again with the local louts; this time six of these gentry rolled up in broad daylight and commenced to demolish a seven-foot wall. Luckily the group "vigilantes" were right on the ball and the offenders were rounded up. It is understood that a prosecution is to take place. As if that were not enough, one of their fifty-foot masts was struck by lightning, luckily only a halyard being damaged thanks

to the aerials being earthed. All the same, they had to drop the stick and renew the halliard, which is annoying, to say the least.

Southwards now to **Crawley** who are to hear about Lasers from J. Smith of the Mullard Research Labs on September 6, and on the 14th will have an "informal." The formal meeting is at Trinity Congregational Church Hall, Ifield, starting at 8, but for details on the other, informal get-together, contact the hon. sec.—see Panel.

* * *

September 13 is the day to dispose of your surplus if you live in the **Reigate** area—but it is also required that you bring some of the necessary to do some buying as well! Seriously, the meeting is to be held at the "George and Dragon" in Cromwell Road, Redhill, and visitors will be welcome. A chuckle in the **Reigate Splatter** concerns the reaction of OK1NV, when a guest of G3JKV while on a business visit, to the political sniping of the Frost Report on TV. Seems OK1NV could not quite understand why the Government did not send the whole lot to jail for such mickey-taking—ah well!

Well-organised is the term to apply to the lads at **Spenn Valley**, who have enclosed a copy of the programme for the whole year 1967/8! September 21 is given over to a tape-and-slide lecture on "Amateur Radio for Beginners" and a week later—on the 28th—the intriguing title of "No. 47 Bus to Greece" appears; to see this, find your way to Heckmondwike Grammar School in time for a 7.30 start. Visitors and prospective members are always welcome.

Now to **Cornish**, who serve a large area of territory, and do so by spreading their meetings out both geo-



The Verulam Amateur Radio Club were fortunate recently in having Alan Hemming, ZD9BE (centre, bearded) to come to talk to them about his life and work on Tristan da Cunha, where he is postmaster, philatelic agent, and responsible for operating the commercial radio installation and running the local BC service for the 250 inhabitants of the Island. During his last tour of duty ZD8BE maintained a regular sked with GB2SM, at the Science Museum (G3JUL operating). After a spell of home leave, he goes back to Tristan da Cunha with a Swan 350 and a three-element Tribander, with the idea of making himself heard on 10-15-20m. Left to right in the picture are: G3GJX, G2AIA, ZD9BE, G3EIJ, G3VXO and G3RPA.

graphically as well as by dates. Thus, there is the main meeting, at SWEB Clubroom, Pool, Camborne, on the first Thursday in each month, followed on every second Thursday by the SSB group, who can be found at the "Coach and Horses" in Truro; the third Thursday is given over to the VHF group, also at the "Coach and Horses." In addition there is a Falmouth group, who prefer the second Wednesday in every month, at the Labour Rooms, Webber Street, Falmouth.

A works group that won the MCC affair a couple or years ago—Racal, Bracknell—write in to let us know they are alive again, and kicking strongly. They have a club station consisting of an MA-79 exciter into a linear, with RA-17 and RA-117 on the receiving side, and groundplane aeriels. (Quite a far cry from the days, not so long ago, when your scribe and the Racal club chairman, G3NCN, swapped a 1475 and an 1155 which we were respectively using as main receivers. Those were the days!)

Like the "local" we have our regulars as well as our

occasionals. It is always a pleasure to hear from one of the latter, and the line from Melton Mowbray is no exception. For September, they have their annual general meeting, and a discussion as to the programme they want for the ensuing year. This all takes place at the St. John Ambulance Hall, Asfordby Hill, Melton Mowbray, at 7.30 sharp, on September 14.

Reading, on the other hand are in session twice during the month; on 12th there is, as yet, no victim firmly booked for a talk, but on the 26th, the publicity man, G8AAG, will hold forth on "Identifying Surplus Equipment."

A new secretary and a new QTH is the story from Ashton-under-Lyne, where they have managed to get both the new secretary and the treasurer through the RAE. To meet these chaps, go to 6 Stamford Street, Stalybridge. Friday evenings from 7 onwards. At the moment there are several projects in hand, notably for a club transmitter.

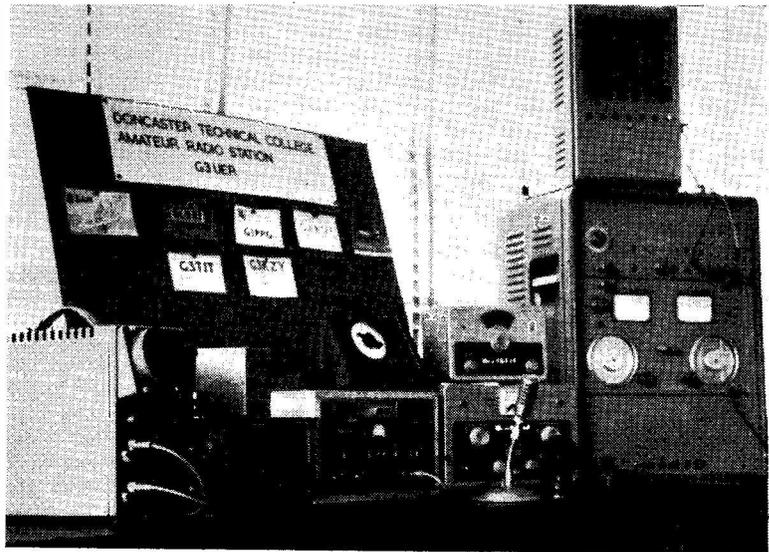
Nothing is ever quite so black as it seems, as Mansfield found out when they realised that the crowd who attended

Names and Addresses of Club Secretaries reporting in this issue :

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London, W.3.
 ADDISCOMBE: S. E. Fuller, 116 Shirley Way, Croydon CRO-8PE, Surrey (01-777 1298).
 ASHTON-UNDER-LYNE: D. Hobson, 9 Matteredale Terrace, Stalybridge, Cheshire.
 BASINGSTOKE: P. Sterrey, G3CBU, Ashley, Orchard Road, Basingstoke.
 BISHOP'S STORTFORD: A. Marriott, G3VWC, 21 Thorley Hill, Bishop's Stortford (4796).
 CHESTER: P. J. Holland, G3TZO, Field House, 19 Kingsley Road, Gt. Boughton, Chester.
 CIVIL SERVICE: D. McLennan, G3KGM, 52 Pinewood Avenue, Sidcup, Kent.
 CORNISH: W. J. Gilbert, 7 Poltair Road, Penrhyn, Cornwall.
 COVENTRY: R. Steptoe, 21 Wooton Street, Bedworth, Coventry.
 CRAWLEY: R. G. B. Vaughan, G3FRV, Tralee, 5 Filbert Crescent, Gossops Green, Crawley (23359), Sussex.
 CRAY VALLEY: D. Buckley, G3VLX, 234 Halfway Street, Sidcup, Kent. (ELTham 6945.)
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 10 Liphook Crescent, London, S.E.23. (FORest Hill 6940.)
 DERBY: F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby (21931).
 DORKING: N. Blackmore, G8ARH, 39 Dorking Road, Gt. Bookham, Surrey.
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 EDGWARE: G. S. Fitton, G3RAA, 18 Beverley Drive, Edgware, Middlesex.
 FARNBOROUGH: D. G. Arigho, G3NVM, 6 Frensham Close, Yateley, Hants.
 FLINT: c/o Borough Librarian, Central Library, Church Street, Flint (3168).
 GLENROTHES: E. H. Ross, GM3LWS, 24 Etrick Way, Glenrothes, Fife.
 GUILDFORD: A. Wilkes, G3SLH, Schiehallion, Hookley Lane, Elstead, Godalming, Surrey.
 HALIFAX: P. B. Furringier, 227 Keldregate, Deighton, Huddersfield.
 HARLOW: R. Brown, G3TOF, 177 Radburn Close, Harlow (23517), Essex.
 HARROW: R. C. Ray, G2TA, Wintons End, Springfield, Bushey Heath (1762), Herts.
 HEMEL HEMPSTEAD: J. B. Adams, 8 Lindlings, Long Chauldron, Hemel Hempstead, Herts.
 HEREFORD: B. Edwards, G3RJB, 5 Powys Walk, Hereford.
 HULL: D. J. Peacock, G3NOP, 336 Cottingham Road, Hull.
 IPSWICH: J. Rhind, G3UJR, 67 Rosecroft Road, Ipswich (42504).
 LEICESTER: J. T. McAllister, 239 Sturdee Road, Eyres Monsell, Leicester (Wigston 6157).
 MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead, Berks.
 MANSFIELD: F. N. F. Bewley, G8HX, 116 Westfield Lane, Mansfield, Notts.
 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-WARWICKSHIRE: M. Spencer, G3UOD, NBS 3rd Line, R.A.F., Gaydon, Warwickshire.
 NORTH KENT: P. T. Baber, 64 Latham Road, Bexleyheath (8655), Kent.
 PLYMOUTH: G. Clark, 19 Beverston Way, Widewell, Roborough, Plymouth.
 PURLEY: A. Frost, G3FTQ, 62 Gonville Road, Thornton Heath, Surrey, CR4 6DB.
 RACAL: M. Hearsay, G8ATK, 10 Denham Drive, Yateley, Camberley, Surrey.
 R.A.I.B.C.: Mrs. F. Woolley, G3LWY, 331 Wigan Lane, Wigan, Lancs.
 READING: G. A. A. Gale, G8APH, 1 Willwyne Close, Caversham, Reading (77423), Berks.
 REIGATE: D. Thom, G3NKS, 12 Willow Road, Redhill, Surrey (Reigate 45033).
 SALOP: W. Lindsay-Smith, G3WNI, 22 Kingswood Crescent, Copthorne, Shrewsbury.
 SALTASH: D. Bowers, 95 Grenfell Avenue, Saltash, Cornwall.
 SHEFFORD: D. A. Pike, G3VMI, 11 Hazel Grove, Stotfold, Beds.
 SOUTH BIRMINGHAM: A. Bishop, 40 Cecil Road, Birmingham, 29.
 SOUTH DOWNS: L. E. Tagliaferro, 9 Tugwell Road, Hampden Park, Eastbourne (54244), Sussex.
 SOUTHGATE: A. Dutton, 77 South Lodge Drive, Southgate, London, N.14. (LABurnum 3390.)
 SOUTHPORT: N. K. Waring, 33 Chestnut Street, Southport, Lancs.
 SPEN VALLEY: N. Pride, 100 Raikes Lane, Birstall, nr. Leeds (Batley 3925).
 STOCKPORT: G. R. Phillips, G3FYE, 6 Ross Avenue, Davenport, Stockport, Cheshire.
 STRATFORD-ON-AVON: G. Edinburgh, G3SDY, 7 Magdalen Close, Lower Quinton, Stratford-on-Avon (Pebworth 317, School hours).
 SURREY: R. Morrison, G3KGA, 33 Sefton Road, Croydon CRO-7HS, Surrey (01-654 5982).
 SWINDON: E. J. Andrews, G3JAP, 56 Windsor Road, Swindon (21402).
 VERULAM: J. Thomas, G3RXX, 9 Highland Drive, Hemel Hempstead (55136), Herts.
 WESTMORLAND: N. Stanley, G3UEC, 9 Castle View, Sedgwick, Kendal, Westmorland.
 WAKEFIELD: E. Price, G3TQV, 23 Elm Road, Horbury, Wakefield.
 WIMBLEDON: K. Alexander, 23 Pepys Road, West Wimbledon, London, S.W.20.
 WIRRAL: J. Phillips, G3PXX, 16 Collingham Green, Little Sutton, Wirral, Cheshire.
 WOLVERHAMPTON: J. P. H. Burden, 28 Coalway Road, Wolverhampton.
 WORTHING: S. G. Williams, 79 South Street, Lancing (5371), Sussex.
 YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.

Equipment for amateur-band working at G3UER, Doncaster Technical College, operational on the 20-80-160m. bands, with G3PAF in charge. The College has no less than six licensed AT-operators on its staff. On the roof, they have a 20-metre beam on a mast, putting it 100ft. above ground level, fed through 350ft. of Uniradio-67, to the operating position in the Electronics Lab. The LF bands are worked using a 102-ft. aerial at 45ft.



the recent visit to the Telephone Exchange comprised six members out of eighteen, the other twelve being visitors! Two of the twelve were ex-members, and as a result of this have been persuaded to re-join. To add to the numbers in the group, all you have to do is to turn up at the New Inn, Westgate, Mansfield, on the first or third Friday in the month.

A thing your scribe has never heard of before occurred to the compiler of the *Wimbledon QRK-5* when he was preparing the current issue. Seems a nice round hole appeared in the window—and later the police picked up a youth of 22 with an airgun. Ye Gods! Next session for this group is due to take place on September 8, at the St. John's Hall, when a film-show will be screened.

Has anyone got a plug to spare? This is, so they say, what the **Civil Service Radio Club** want. On October 9 the evening is given over to a demonstration of Hi-Fi by Messrs. West and Clifford of the Northern Polytechnic. All audio enthusiasts are cordially invited. Incidentally, this group have one of the best programmes your scribe has seen for a long time, which suggests someone is really doing his homework. The venue is the Science Museum, South Kensington, on the first and third Tuesday, and membership is open to members of the Civil Service and comparable employments throughout the U.K. and abroad.

Tuesdays are also the evenings when the **Chester YMCA** gang get together. September 5 is a Net Night, and on the 12th "The Orkney Story" will be told by those who were there (see this issue). September 19 "Norman Kendrick, G3CSG, Talks," according to their note, while the last session in the month is given over to another Net Night.

September in Cray Valley means two evenings with the lads; on the 7th, Mr. I. Lever will talk about Digital Measurement, at the Congregational Church Hall, Court Road, S.E.9, and on the 21st there is an Informal, at All Saints Church Hall, Bercta Road, New Eltham, S.E.9.

One of the most consistent reporters to this piece, and always with something of interest, is the **Acton, Brentford and Chiswick** group, who are located at the Chiswick Trades and Social Club, 66 High Road, Chiswick, London, W.4. Tuesday, September 19, is the date to book, when one of the members will show and discuss the KT-340 receiver he has constructed; of course, as always, visitors are welcomed.

Another regular reporter is **Shefford**, who really do put on a marvellous programme for such a remote area, in the radio sense; it is on a weekly basis, every Thursday evening at the Church Hall in High Street. Make it 7.45 for Morse practice, the real meeting being timed for 8 p.m. On September 7 Mr. Hudson will demonstrate equipment for the radio control of models; the 14th sees G3RXW on Transistor Converters; the 21st, "The History of Radio" by Dr. Williams, and on the 28th A Top-Band Transceiver, by G3UQP.

A working relationship with another group is often of help to both; **Guildford** and District are to be found on Friday evenings at the Model Engineering Centre, Stoke Park, Guildford, the September dates being 8th and 22nd; Q3JUL is to talk at the first session and probably G3LXP on the latter, his subject, of course, being Mobile Working.

A holiday Link-up between G3UFR, sailing on the

NOTICE—MCC 1967

The 22nd Annual MCC—"Magazine Club Contest"—will be held over the weekend November 11/12. This is a CW-only Top Band event, for which the rules in full, with the usual Club identification groups, will appear in "Short Wave Magazine" dated October. Clubs who have not previously entered for MCC, and intend to do so this year, are invited to apply immediately for identifications. Start planning now!

Broads, and G3UJF is described in a most interesting fashion in the *Newsletter* of the **North Kent** group. This is the sort of thing that really "makes" a group sheet—interesting, informative, mildly technical, and eminently readable. Turning to the question of the programme, a Film Show is forecast for September 14, and Your Questions will be Answered—you lucky chaps!—on the 28th. Both these, of course, take place at the Congregational Church Hall, adjacent to the Clock Tower. Bexleyheath.

Unfortunately, *Tamar Pegasus* and **SHORT WAVE MAGAZINE** are always out of phase with deadlines, so our information is never quite up to date. Nevertheless, we can mention that every other Friday will find them gathering at Burraton Toc-H Hall—however, check with the hon. sec. (see Panel) before you make the journey, as there seems to be a change of QTH in the wind.

* * *

If you want to get 'em in to the AGM, try the **Worthing** formula—run a lucky ticket draw for Club gear as part of the evening! September 12, at the Rose Wilmot Centre is the venue for this one.

All the lads in the **Stratford-on-Avon** area are no doubt keenly awaiting their restart, which is to take place on September 8 at Halls Croft. Quite an ambitious programme is planned, varying from a talk on "Electron Microscopes" to a simple approach to theory for SWL's, and points between. For further information on this lively crowd, write or ring the hon. secretary—see Panel.

RAIBC benefited this last few weeks from a couple of donations—one from A.R.M.S. as a result of their Alconbury Rally, reported in "The Mobile Scene" last month, and another as the result of a series of whist drives organised in Norfolk; in addition Cornish sent them a cheque, all of which go to help the good work of assisting our invalid and blind colleagues to get the most out of Amateur Radio. This is an example which other clubs could follow. There cannot be a group anywhere in the country which has not somewhere got a potential RAIBC member in the area, and while so much can be done by them, so much more can be done at the local level in the way of getting them through RAE and Morse, helping the setting-up process, or just visiting for a good old yak.

Unfortunately the letter from **Glenrothes** did not reach us until after the deadline for last month; all the same, it is still possible for interested persons to reserve the date for the next session, which will be on September 10, at YMCA, Glenrothes, Fife. It is intended to run things on a basis of a meeting every other week, for the moment, but if the recruiting drive is successful, they may increase the frequency somewhat.

One of the most interesting lectures this month has been scooped by the **Echelford** boys; they are to gather in St. Martins Court, Kingston Crescent, Woodthorpe Road, Ashford, Kent, on September 28, to hear G2NH talk about Developments in the Manufacture of Quartz Crystals. Suffice it to say that G2NH has for many years run one of the best-known firms in the business, so his talk will be real horse's-mouth stuff.

Coventry operate from Canal House, the Civil Defence Hq. in Drapers Fields, where visitors and potential

members are always welcome on Friday evenings. September 1 sees them making final arrangements for the European VHF Contest—like so many other groups up and down the country—and a week later there is a Slide Show by G3CZS; the third Friday is reserved for a Quiz, which will be run by Arthur Noakes, G2FTK. A Night on the Air on September 22 is followed at the end of the month by the annual general meeting.

It will be remembered that some time ago we mentioned the tribulations of the **Dorking** group with their ex-GPO van. Thus it is a pleasure indeed to report that, thanks to hard work by a few members, "the beast" is now fully restored to health and rarin' to go. There had been suggestions that the bias at Dorking was excessively VHF, but this has been countered by the gift of an LG-300 transmitter, which is also to be built into the van. (*Phew!*) For more details, contact G8ARH—see Panel.

A visit to the Signals Museum at Blandford Camp in Dorset is on the cards for **Maidenhead** on Saturday, September 9. For the normal sessions at Victory Hall, Cox Green, Maidenhead, a talk on Printed Circuits is slated for September 4, while an Informal and transmitting evening occupies them on the 19th.

RAE Note

In the coming month, **Westmorland** will be back at the old pitch, the Allen Technical College, Sandes Avenue, Kendal, and on September 15, they specially ask that anyone considering RAE should attend, whether or not they are club members. As for the future, there are some lectures and demonstrations booked, the Field Day, and forward planning for a Mobile Rally for *next year*.

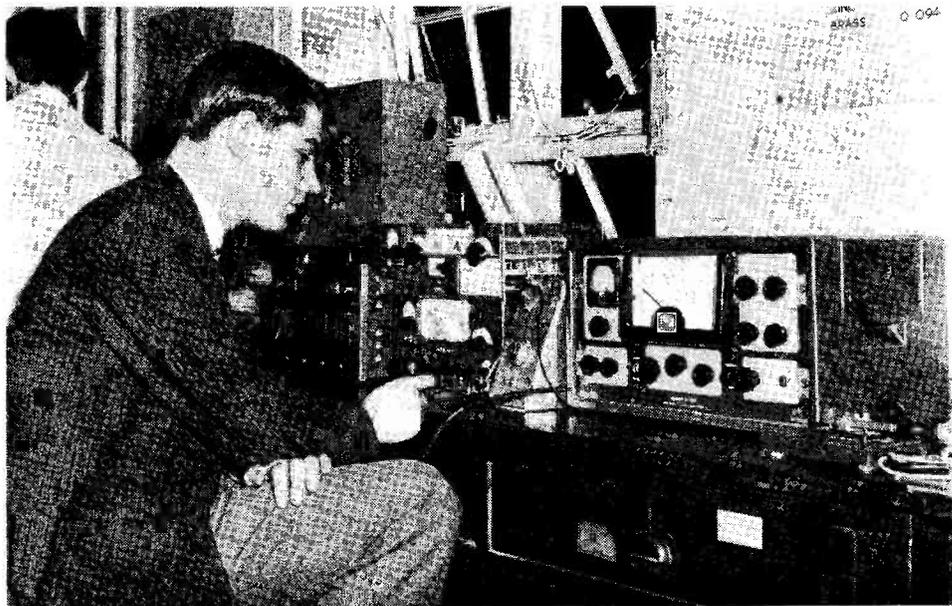
Closing in August is something that many groups feel to be worthwhile, due to the impact of holidays and heat-waves on attendances. **Edgware** followed this fashion, but write to say they are "back in business" with meetings down for September 11 and 25. For more details, contact G3RAA at the address in the Panel.

The hon. secretary at **Ipswich** is somewhat of a pessimist—he refers to a visit to a local brewery as an event to be remembered, provided the members are still capable of remembering! Changing tack, he challenges those who say such a visit has nothing to do with radio—after all, the Ipswich meetings *always* end up in the bar. Seriously, the Hq. is in fact at the Gippeswyk Hall, which is more easily identifiable as the local Red Cross headquarters; meetings start at 7.30, and are always held on the last Wednesday in the month.

Congratulations to **Surrey**, who, in association with Croydon RSGB group, have managed to become the only outfit to have won both NFD and VHF NFD. They meet at the "Blue Anchor" in South Croydon on September 19 to hear Charlie Newton, G2FKZ, discussing HF Crystal Filters for SSB.

Just up the Road from Surrey is the **Addiscombe** crowd, who start the month of September with a Nuthin Nite on September 12, followed by a Bumper Junk Sale on the 26th.

Just after this issue reaches the bookstalls, the **Shrewsbury** lads will be manning a stand at the Traction Engine Rally, Church Stretton, to which all comers are welcome, on August 28—the Holiday Monday. As for the indoor meetings at the Old Post Office Hotel, Milk Street, for dates and details, contact the hon. secretary—



Above, about half the membership of the Radio Society of Harrow, a strong radio amateur organisation in the Home Counties area. Below is the Club gear, with G3SHZ at the operating position. The committee is working towards a new look for the Society, to include lecturesses (in a separate room) on the Practical evenings, and one of the winter's Workshop jobs—the Harrow Society started the present vogue for Club constructional projects—will be a SWR Bridge, the sort of thing which will be of considerable use to all the transmitting members, and those bobbing on getting a ticket.

and congratulations to him, incidentally, on that nice new callsign tacked on to his name in the Panel list for the first time.

Stockport get together at the Royal Oak Hotel in Castle Street, Stockport, where, on September 6, G4HK talks about his prize-winning receiver. On the 20th the evening is given over to a talk by Fred Lane on Industrial Photography, which coincides with a visit to the group by the local Camera Club.

A most unusual event—we are not sure of the Verulam programme for September, or even the date! However, we can say that they are to be found once monthly at the Cavalier Hall, Watford Road, that they welcome visitors, and always have something of interest on the programme.

Harlow recently had a visit from G2BVN, and took the opportunity to show off their new catering arrangements, which featured some members of the Girls' Venture Corps. This was a success in more ways than

one—they not only improved the look of the Hq., but also the quality of the refreshments served! A visit to Harlow Telephone Exchange is planned to take place on September 5, and regular meetings are still held at Mark Hall Barn every Tuesday. However, members and visitors are specially asked to note that the *Thursday* evening sessions are cancelled, because another organisation is using the Hq., until further notice.

* * *

Mid-Warwickshire are still in the throes of re-organising the shack and finding room for the test gear, station, and bench space. Meetings are on a weekly basis, and for details of these it is suggested contact be made with G3UOD, address as in Panel.

It is unusual to hear of groups holding their meetings on a Saturday; but this is the routine at **Basingstoke**, who congregate at the Immanuel Hall, Wote Street, starting at 7 p.m. The Annual General Meeting is the function to be run off on September 16, followed a month later by the Constructors' Competition, which will be held on October 21.

Crystal Palace have the W1BB tape-and-slide lecture fixed up for their next affair, on September 16, at the Civil Defence Training Centre, Council Depot, Woodyates Road, S.E.12.

Someone has a sense of humour at **Southgate**—an article in their *Newsletter* refers to "Parasitic Osculation" in a transmitter—wonder if this has anything to do with the Kiss of Life? On a more serious plane, the venue for their get-togethers is Parkwood Girls' School, at the rear of the Town Hall; for details of dates and so on, contact the hon. secretary, see Panel.

A short note from **Hemel Hempstead** indicates that they are in session on the first and third Friday in each month, at Rucklers Lane Hall, Kings Langley. No details of the syllabus are given, but doubtless a note to the secretary would produce the information.

Rather a good idea comes from **Swindon** this time; as a supplement to the *Newsletter* they have provided a list of the names and addresses of all the members. Swindon recently had an AGM, as a result of which quite a large shake-up occurred, but the new officers seem to be going all-out to make up for the loss of continuity which results from such a change.

Wakefield also have had a rethink, coincident with a change—for the better by the sound of it—to a new Hq. at the Youth Centre in Zetland Street. The meeting on September 12 will hear G3TPX talking about the extremely important matters of Aerial matching, tuning, VSWR, and so on, starting at 7 p.m.

Completely rewiring the meeting premises has been going on at the Yeovil QTH, and they are now starting the job of getting G3CMH, the group's station, set up again. In addition, arrangements for VHF activity are well under way, and extra equipment is being constructed by members.

It sounds as though some time in September, the younger element at **Plymouth** are in for a surprise. It is understood that two of the senior members are in

the process of preparing a lecture on "Radio 1902-1967." To find them, any Tuesday evening at 7.30 p.m., look for Virginia House, Bretonside, Plymouth.

The weekly programme at **Harrow** divides naturally into two parts, practical sessions, and the formal meetings, in about equal proportions. Thus for the coming period there is practical on September 15/29, a lecture by K.W. or Daystrom on the 8th, and a lecture—details not to hand at the time this went down—on the 22nd.

Wirral are in session on September 6 and 20; the latter date is given over to a slide show to be put on by G3PXX. Incidentally, the Wirral chaps must have "it," as our spies report that a recent listen round Top Band in the area produced, as the first signals heard, no less than *three* YL's on the band. It just goes to show what can happen—when one gets on the air, others follow. One could wish it would happen more in other parts of the country.

A note from **Farnborough** to say that they will be in session at the Railway Enthusiasts Club, 310 Farnborough Road, on Tuesday, September 12, to hear a talk on "An SSB Converter for 465 kc IF," starting at 7.30 p.m.

The intention at **Purley** is that they enter, as usual, for the European VHF Contest over the week-end September 2/3. Not only will they enter, but they will have three stations, working between them all VHF bands from 4 metres to 23 centimetres. Regular meetings take place on September 1 and 15 and, in addition to all this planned activity, they run weekly nets—on Top Band, 1,980 kc, Sundays from 10.30 a.m., and on 4 metres, 70-32 mc, Wednesdays at 8.30 p.m. New or prospective members are always invited to join the nets or meet the group at the Club-room.

With regular meetings at the Scout Hut, Pershore Road, Selly Park, the *Newsletter* of the **South Birmingham** group also indicates regular activity, their next events being on August 27 (mobile picnic with the Bromsgrove Group on Doderhill Common); September 8, also joining with Bromsgrove for a talk on "A Self-tracking Transceiver for 160"; September 10, visit to the Mobile Rally at Woburn; September 20, meeting at Hq. for a talk by G3PWJ.

Deadline

Don't forget that now is the time to start planning your Club's entry for MCC. If your Club has not entered in recent years, and would like to do so this time, let us have your request for an identification group, as soon as possible—so that it can be included in the full list to appear in the next issue.

And for the October issue, our deadline is first post, **Friday, September 8**, addressed: "Club Secretary," SHORT WAVE MAGAZINE, BUCKINGHAM.

"FRAME AERIAL FOR TOP BAND"

With reference to this article, in the July issue of SHORT WAVE MAGAZINE, we would be interested to hear from readers who may have tried this aerial design, and about what results they are obtaining with it.

MORE R.A.E. COURSES LISTED

Further to the centres shown on pp.371-372 of the August issue of SHORT WAVE MAGAZINE, at which courses of instruction are offered on Subject No. 55, the Radio Amateurs' Examination, the following have since been notified:

Brighton: At the Technical College, Richmond Terrace, on Tuesdays (RAE Theory) and Thursdays (Morse), 6.30-8.45 p.m. both evenings. For details apply: R. K. Palmer, Head of Engineering Department.

Brooklands, Surrey: At the County Technical College, Heath Road, Weybridge, starting September 18. 6.30-9.0 p.m. weekly on Mondays, enrolment on September 11-12, at the College. Enquiries and information: J. E. Lacey, G3GLB, Mech. and Elect. Eng. Dept., at the College, or ring *Byfleet* 46485.

Glasgow: At Allan Glens School, Cathedral Street, C.1, Tuesdays (Theory) and Thursdays (Morse and Practical), 7.0-9.30 p.m., commencing September 12. Enrolment at the School September 4-7, evenings. Course fee 20s., and no knowledge of radio is assumed or required. Further details from: A. M. Fraser, GM3AXX, *QTHR*.

Gosforth, Newcastle: If the required number of students come forward, an RAE course can be arranged by: E. Chicken, G3BIK, 52 Marlborough Avenue, Grange Park, Gosforth—those interested should get in touch with him immediately.

Grantham: At the College of Further Education, starting Monday, September 18, 7.0 p.m. Enrolment during previous week. Lecturer: E. Pestell, G3BPB, 374 Dysart Road, Grantham, from whom information can be obtained.

Harlow: At the Technical College, starting in mid-September, on Friday evenings. Enquiries to: E. P. Essery, G3KFE, 17 Ascot Close, Parsonage Lane, Bishop's Stortford, Herts.

Heanor, Derbyshire: At the South-East Derbyshire College of Further Education, Ilkeston Road, Heanor, Fridays 7.0-9.0 p.m., commencing during September, with R. Harrod, G3RWN as lecturer. A hobbies course, called "Practical Electronic Construction," taken by B. M. Sandall, G3LGK, is also available, on Mondays 7.0-9.0 p.m. Application should be made to the College, or to G3RWN /G3LGK.

Hemel Hempstead: At the Dacorum College of Further Education, Marlowes, on Tuesdays (Theory) and Thursdays (Practical), 7.0-9.0 p.m. Fees 50s., or 25s. for juniors. Enrolment September 11-13. Course organiser, from whom all details can be obtained, is: C. Burke, G3VOZ, 30 Green Lane, Bovington, Hemel Hempstead, Herts.

Huddersfield: To be commenced at Ramsden Technical College, in September. Apply for details to the Principal.

Loughborough: At the Technical College, Radmoor, on Tuesdays, 6.0-7.0 p.m. (Morse) and 7.0-9.0 p.m. (Theory), commencing September 19. Course fee 42s. 6d. inclusive, lecturer D. R. Doughty, G3FLS.

Stockport: At the Avondale Evening Centre, St. Lesmo Road, commencing in mid-September, covering RAE Theory, Morse and Construction. Details of these evening classes can be obtained from: G. R. Phillips, G3FYE, 6 Ross Avenue, Davenport, Stockport, Cheshire.

As explained on p.371 of the August issue, readers who do not see their district mentioned in these lists should enquire at the local office of their Education Authority (*not* to SHORT WAVE MAGAZINE) about the possibility of courses in their neighbourhood. Ask about "Subject No. 55, City & Guilds of London Institute."

SPECIALLY ON THE AIR

Following are the stations to make a public appearance during the next month:

G3VKK/A, September 16: Station to be established for the Chesterfield & District Scout Association, running 10-160m., in Queen's Park, Chesterfield, Derbyshire. Easy access off the A.61, and all visitors will be welcome. Special QSL card for all contacts. Information from: L. Millward, G3VDI, Oak Tree Cottage, Ashgate, Chesterfield, Derbyshire.

GB3CC, September 23-24: Exhibition station for Scottish Mobile Rally at Culzean Castle, Ayrshire, operating on 2-4-80m. For further details see "The Mobile Scene," August issue, p.363. For QSL's and details, write: R. Harkness, GM3THI, 55 Woodend Road, Alloway, Ayrshire.

IT HAD TO HAPPEN . . .

Readers may be interested to hear about the origin of the rather odd callsign G3WET. This is a true explanation to prove how it came about: John Evans, of Sutton Coldfield, is a highly-qualified chartered engineer who specialises in the provision, control and engineering of water (by which we all live). He took his Morse Test on February 22, 1967, and at an informal gathering of radio amateurs some days later, G3BA suggested that the new callsign could be, and must only be, G3WET. So John Evans asked the GPO licensing department if this "moist callsign" could be reserved for him. (They said "Well, who could want G3WET, anyway?") Duly it was issued, and it is true that G3WET indicates the professional status of its holder. But that is not the end of it. On June 20, G3WET was touring the 14 mc band with his new callsign and heard W2DRY calling CQ. A contact followed, and there were G3WET/W2DRY happily working one another—to the enormous amusement of a large number of U.S. amateurs who were on 20m. at the time.

NEW QTH's

This space is available for the publication of the addresses of all holder 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.

- E18BP**, J. W. McCague, Newton-butler Road, Clones, Co. Monaghan.
- G3VRY**, J. Pitt, 17 Waldegrave Road, Hornsey, London, N.8. (Tel. 01-888-9482.)
- G3WBV**, R. F. Rawlings, 5 County Road, Thornton Heath, Surrey. (Tel. 01-653-5934.)
- G3WDG**, C. W. Suckling, 31 Oakwood Road, Chandlers Ford, Eastleigh, Hants.
- G3WGG**, K. E. Wright, 24 Innings Drive, Pevensey Bay, Sussex.
- G3WKB**, D. Topham, 19 Highfield Avenue, Sale, Cheshire. (Tel. 061-962-5928.)
- G3WKK**, L. Hearne, 127 Vine Road, Stoke Poges, Slough, Bucks.
- G3WMD**, J. R. Whomes, 4 Ashwell Road, Steeple-Morden, Royston, Herts.
- G3WMQ**, M. D. Watson, 36 Hamilton Road, Dollis Hill, London, N.W.10.
- G3WNH**, F. W. McAllister, 11 Furzeheld, West Wittering, Chichester, Sussex.
- G3WNI**, W. A. Lindsay-Smith, 22 Kingswood Crescent, Copthorne, Shrewsbury, Shropshire. (Tel. Oswestry 2895.)
- G3WNJ**, R. T. Powis, 14 Solent Road, Hill Head, Fareham, Hants. (Tel. Stubbington 2260.)
- G3WNO**, I. Astley, The Lindens, Bishopstone, Herefordshire. (Tel. Bridge Sollars 283.)
- G3WNT**, R. G. W. Bantock, 38 Bittell Road, Barnt Green, Birmingham.
- GM3WOJ**, C. W. Tran, Ladyburn Manse, Glenluce, Newton Stewart, Wigtownshire. (Tel. Glenluce 319.)
- G3WOM**, M. S. Muir, 73 General Graham Street, Sunderland, Co. Durham.
- G3WOU**, T. Shaw, 111 High Street, Brotton, Saltburn-by-Sea, Yorkshire. (Tel. Brotton 319.)
- GM5AHS**, S. Mendelsohn (WA2DHF), P.O. Box 574, R.A.F. Edzell, Brechin, Angus.
- G18AWF**, J. F. MacMahon, 15 Algeo Drive, Enniskillen, Co. Fermanagh.
- G8BAB**, F. E. Tilbury, 10 Romiley Drive, Bolton, Lancs. (Tel. Bolton 23982.)
- CHANGE OF ADDRESS**
- GM2FLQ**, W. D. Oliphant, Ben Lee, Scarfskerry, Thurso, Caithness.
- G3BVG**, N. Caws, 20 Hamilton Road, Ealing, London, W.5. (Tel. 01-567-3926.)
- G3DJX**, R. J. W. Brockelsby, 15 Frarydene, Prinsted, Emsworth, Hants.
- G3HSG**, T. Peirson (ZB2AJ, ex-G13HSG), 17 Wykeham Way, Townside, Haddenham, Bucks.
- G3HTC**, G. E. Storey, 12 Vereker Drive, Sunbury - on - Thames, Middlesex. (Tel. Sunbury 3840.)
- G3JFS**, P. C. Cole (ex-GM3JFS), c/o The Red House, Pound Road, Hemingford Grey, Hunts.
- GW3JNA**, A. B. Bradshaw, 7 Green Park, Pentlepoir, Saundersfoot, Pembrokeshire.
- GM3JOI**, J. Murray, 122 Kirke Park, Methilhill, Methil, Fife.
- G3KJY**, J. A. York, 7 Coniston Avenue, Barnoldswick, via Colne, Lancs.
- GM3LIB**, J. T. Armstrong, 8 Shandon Street, Edinburgh, 11.
- G3NFT**, P. M. E. Pavey, 81 Fox Road, Beacon Heath, Exeter, Devon.
- G3NJK**, Dr. V. J. De Bono, 75 Chantry Way East, Swanland, North Ferriby, Yorkshire. (Tel. Hull 633184.)
- G3NNC**, B. L. Cayless, 102 Ducks Hill Road, Northwood, Middlesex. (Tel. Northwood 26419.)
- G3NOM**, R. Gerrard, 32 Parkland Avenue, New Mills, via Stockport, Cheshire.
- G3OAB**, H. Reeves, 138 Blandford Avenue, Castle Bromwich, Birmingham, 34.
- G3OYW**, Dr. I. Sykes, The Rectory, Lanreath, Looe, Cornwall.
- G3PCG**, D. M. E. Askew, Dagwood, Audmore Road, Gnosall, Staffs. (Tel. Gnosall 553.)
- G3PEM**, C. J. W. Thomson, 15 Cloisters, Stanford - le - Hope, Essex.
- G3PJB**, P. J. Bailey, 67 Birkbeck Road, Beckenham, Kent.
- G3PLB**, R. W. Howe, 18 Vange Hill Drive, Vange, Basildon, Essex.
- G3PLF**, T. D. Howe, 18 Vange Hill Drive, Vange, Basildon, Essex.
- G3PPR**, J. R. Beavon, 94 Woodthorpe Road, Kings Heath, Birmingham, 14.
- G3RFB**, R. W. Lanchbury, 4 Tedder Drive, Waddington, Lincs.
- G3RFY**, P. Buckingham, 4 Flexbury Park Road, Bude, Cornwall. (Tel. Bude 2635.)
- G3RJX**, B. G. Elcock, 213 Perry Wood Road, Great Barr, Birmingham, 22-A.
- G3SOF**, F. G. Milsted, 18 Batchwood View, St. Albans, Herts. (Tel. St. Albans 59693.)
- G3SWL**, P. D. Symes, 36 Tatton Road, South, Heaton Moor, Stockport, Cheshire.
- G3TSN**, D. Newbould, Grosvenor Garage Ltd., 23 Grosvenor Road, Manningham Lane, Bradford 8, Yorkshire.
- G3UJB**, B. T. Davis, 17 Burne Avenue, Wickford, Essex.
- G3UOO**, J. W. Dudbridge, 39 Chesterton Park, Cirencester, Glos. (Tel. Cirencester 3389.)
- G3UYC**, J. Peirson, 8 Manor Walk, Benton, Newcastle-upon-Tyne, 7.
- G3UZM**, C. P. Haddock, 26 Featherbed Lane, Exmouth, Devon.
- G3VFX**, D. N. Davison, 5 Cheshire Drive, Moor Park, Belmont, Durham. (Tel. Durham 61630.)
- G3VIE**, P. D. de la Mothe (ex-ZE1BK), 35 Brookside, Wokingham, Berks. (Tel. West Forest 4048.)
- G3VKU**, Mrs. D. Hollingsworth, 3 Cromer Place, Orpington, Kent.
- G3VVV**, Nailsworth and District Amateur Radio Society, c/o J. E. Chandler, The Flat, Hurn's Radio, Market Street, Nailsworth, Glos. (Tel. Nailsworth 2123.)
- G13VYY**, B. G. Hamilton, 13 Abbey Dale Crescent, Ballysillan, Belfast 14, Co. Antrim. (Tel. Belfast 747466.)

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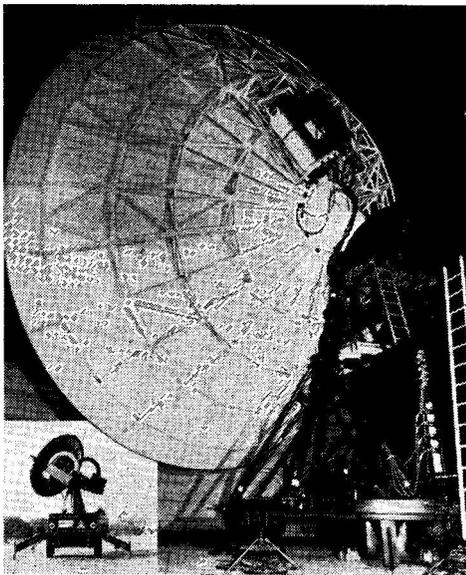
R. T. & I. ELECTRONICS LTD.

Ashville Old Hall, Ashville Road, London, E.11 Tel: LEYtonstone 4986

Royal Signals at the new Horticultural Hall

Radio Amateurs serving in the Royal Signals have again collaborated to provide one of the displays which you will find at the Radio Engineering and Communications Exhibition from the 27th to 30th September, 1967.

Whilst not strictly Amateur Radio, IDEX has been developed by a team whose main aim is the same as Amateurs the world over, communications.



The photograph shows the main dish of one of the three fixed stations mentioned below, whilst the insert shows the IDEX trailer and antenna array which will be on display.

IDEX is a highly mobile satellite communication ground station which has been designed at the Signals Research and Development Establishment, Christchurch.

This small station supplies two way communication, through a United States I.D.C.S.P. type satellite, to any one of Britain's three large ground stations. One of these is at Christchurch, England, one in the Middle East and the third in the Far East.

Many of the soldiers who provide the communications for the Army are keen Amateurs and are members of the Royal Signals Amateur Radio Society, whose HQ

Station is G4RS, located at Blandford in Dorset. This station will be operating throughout the Exhibition as GB3RCS.

ALL PART OF THE SERVICE

Would you like to know the exact frequency of the crystals you have? Our test equipment will again include Digital Frequency Meter and we will be pleased to check your crystals and provide a certificate of calibration.

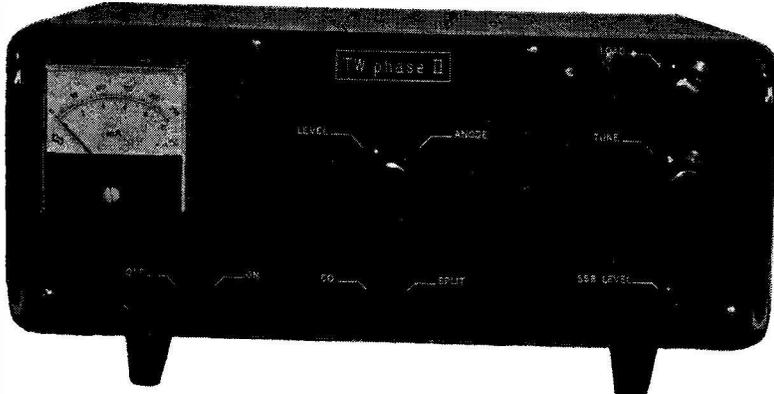
The stand will be manned by members of Royal Signals, specialists in their own fields, ready to discuss the equipment on show or just have a chat about Amateur Radio.

Would you like to have details of career prospects in Royal Signals? We shall have all the information available and will be pleased to talk it over.

WE LOOK FORWARD TO MEETING YOU AT THE HORTICULTURAL HALL

TW PHASE II . . . SSB, AM or CW with the PHASE II

2 METRE TRANSVERTER



10 + 116 = 145! With the Phase II Transverter . . . It's True! If you own a 10 metre transceiver or combination of transmitter and receiver you can operate on 2 metres easily.

The TW Phase II enables the owner of any 10 metre SSB or AM equipment to operate on 2 metres easily and without modification to existing units. Co-channel working has long been accepted for V.H.F. SSB, thus the Phase II may be used with any transceiver. Owners of separates are catered for at the flick of a switch. A built-in, low noise converter makes possible the reception of even the weakest signal. Correct termination of the 10 metre equipment is provided by an internal oil-filled dummy load. Connection and setting up of the Phase II is simple and in actual use little or no adjustment is necessary. A matching mains power supply is available and is complete with all connectors.

Drive Frequency: 28-30 mHz. SSB or A.M.
 Drive Power: 10-200 watts.
 SSB Input at 145 mHz: 180 watts P.E.P.

A.M. Input at 145 mHz: 100 watts at 100% modulation.
 Prices: Phase II £69 . 0 . 0
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SEND FOR DETAILS OF PHASE II AND OUR COMPLETE RANGE OF VHF EQUIPMENT

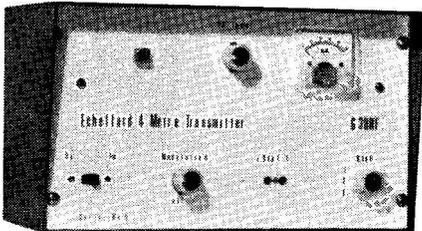
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4 Metre

Amateur Equipment

- 4 Metre Transmitter**
mains input. Model F4/1 **£30** plus 10/- p. and p.
- 4 Metre Transmitter**
mains/mobile. Model M4/1 **£40** plus 10/- p. and p.
- 4 Metre Converter**
I.F. o/p 4.1-4.7 Mc/s. Model C4/1 **10 gns.** plus 5/- p. and p.

Transmitter built and tested. Comes complete with r.f. section, with new HC/6U Xtal, modulator and P.S.U.

Model F4/1 is for mains input only.

Model M4/1 is for 12v. D.C. input +ve earth plus normal mains input. Can be used either in car or shack, no extras involved.

Takes either HC6/U crystals or FT243 type.

New HC6/U crystals available.

Size of both transmitters 12" x 7" x 7".

Converter, crystal controlled, is powered from the transmitter.

Standard I.F. output 4.1-4.7 Mc/s. Other I.F.'s to order.

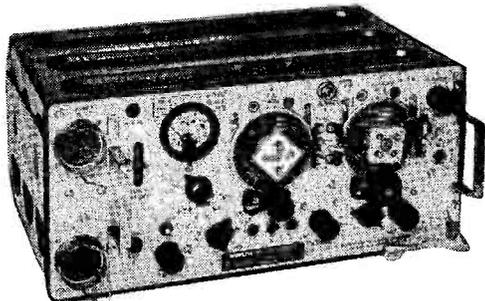
Size 7" x 5" x 5". Housed in matching cabinet.

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SWANCO PRODUCTS LTD.
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FAMOUS ARMY SHORT-WAVE TRANSRECEIVER MK.III

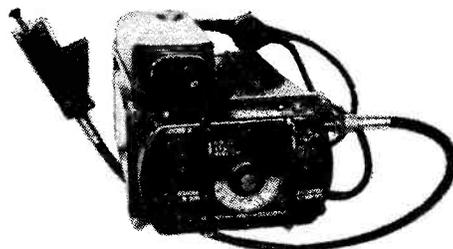
This set is made up of three separate units (1) a two valve amplifier using a 6V6 output valve; (2) (some only, not built in the very latest models) a V.H.F. transceiver covering 229-241 Mc/s. using 4 valves; (3) the main shortwave transmitter/receiver covering, in two switched bands, just below 2 Mc/s.—4½ Mc/s., and 4½ Mc/s.—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.V. or single side-band reception. T.X. output valve 807 other valves octal bases. Many extras, e.g. nesting switch, quick flick dial settings, squelch, etc. Power requirements LT 12 volts, HT receiver 275 volts D.C., HT transmitter 500 volts D.C., size approx. 17½ x 7½ x 11 ins. Every set supplied in new or as new condition in carton with book including circuits, only £4 10s. 0d., or Grade 2 slightly used 50s., carriage both 15s. A FULL KIT of brand new attachments for this set including all connectors, control box, headphones and mike, aerial tuning unit, co-axial lead, etc. at only 45s., carriage 5s. 12 VOLT D.C. power unit with all connectors to set and battery, 30s., 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.

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 8 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.—40 Mc/s. Also has built-in crystal calibrator which gives pips to coincide with marks on the tuning dial. Power required L.T. 4½ volts, H.T. 150 volts, tapped at 90 volts for receiver. Every set supplied complete with valves and crystals. New in carton, complete with adjustable whip aerial, and circuit. Price £4 10s. 0d. carriage 10s. Headset or hand telephone 30s.

WALKIE-TALKIE MK III and CRYSTAL CALIBRATOR No. 9

This set is housed in a waterproof diecast aluminium case made by Murphy Radio for the Govt. having only reliability and quality in mind. Range 7.3-9 Mc/s. also on side of set is crystal calibrator No. 9 which gives pips on marks provided on the tuning dial. Set uses a total of 5 valves; power required L.T. 4½ volts D.C. H.T. 100-175 volts D.C. Sets supplied in NEW or as new condition, boxed, only 50/-, carriage 10/-.



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"SPHINX" Mk. II TX. S.S.B./A.M./C.W. 80 watts. 160m., 80m. (40m.), 20m. Built-in power unit. Still the best quality. Attractive cabinets. Easy to resolve pleasant sigs. All complete ready to plug-in, £84.

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"NAPOLEON" S.W.R. BRIDGE. 70-80 ohm. Sens control, 800-10 watts. Will work like Delta does, even on 2 metres. For ref. sw. Small. H/BLUE steel case. Accurate. 5 gns. (4/6).

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"SILPLUG" rect. units. Replaces 5v. valves. Int. octal bases. Best quality diodes and surge res. inside. Guaranteed satisfaction. 500v., 30/-; 750v., 40/- (2/-).

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SPECIAL OFFER. Class D Wavemeters. Converted to 240v. A.C. i/p. Resmoothed, re-calibration. Respray case. A real genuine offer while our fresh stocks last. With Handbook and phones, £8/19/6. We will do your own Class D for £5/10/- (xtal must be O.K.).

6HF5 valves new, 31/6 each, 2/3 p. & p. Bases 4/- (6d.). 6146 valves. Brand new, 30/- each, 2/3 p. & p. Special purchase of the very popular DM. Dynamic mic's. H/L.Z. complete with base and stand, 92/6 (4/6).

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ADMIRALTY B40. 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. Crysta calibrator. Large vertical calibrated illuminated dial. Circuit dia gram £22/10/-, carriage 30/-.

R1475. 2-20 Mc/s. Large slow motion act. 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.

ZE12 POWER UNITS for Canadian Marconi 52 receivers, £2/10/-, carriage 12/6. Handbooks for this receiver and power unit 5/-, post paid. R209, 11 valves 1 to 20 Mc/s. 6 volt or 12 volt models available, £15 carriage £1.

For callers only, MARCONI B28 (CR100) from £18/10/-, R107, £10. TRANSISTORISED MAGNETIC BROADCAST RECEIVERS, vest pocket size. Battery operated. Fixed frequency. Epoxy resin block construction. ½ x 4½ Ferrite rod aerial. No other information. Used, good condition, 10/-, post 2/6.

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EX-ADMIRALTY Brass Ships Clocks, overhauled and guaranteed one year, £9/10/-, post paid.

ACCUMULATORS, 6 volt 40 ampour, 35/- or 2 in ministry crate for £2, both carriage paid, new. 813 valve bases, new 6/-, used 5/-, post paid. 19 set rotary power unit, 12 volt D.C., 30/-, carriage paid.

METERS. 2½" round flush. D.C. 0-100 volts, 0-500 volts, 12/6 each; 0-50 Micamps, 25-0-25 Micamps, 0-500 Micamps, 17/6 each 0-1 Ma. in desk case, 17/6, 3½" flush round, 0-100 Micamps, 30/-, Ex-equipment 0-500 Micamps calibrated 0-15, 0-600 volts, 8/6, post 1/6 per meter.

WAVEMETERS. Standard Radio R502 Absorption type 100 Kc/s. to 48 Mc/s. complete with coils and charts, £6/10/-, carriage 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.

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AMATEUR ELECTRONICS

G3FIK is pleased to announce the opening of spacious new premises in east Birmingham in order to meet the increasing demand for quality new and used equipment. We are now located three miles east of the city centre within easy access of the M1 and other major roads and in an area where parking is no problem. Please note that our telephone number remains unchanged.

We shall naturally be extending our existing range, samples of which are shown below, and shall endeavour to continue to give a first class service "by Amateurs for Amateurs."

	£	s.	d.
AR88LF RECEIVERS. Used but in first class order and alignment	37	10	0
AR88LF RECEIVERS. As above but with resprayed cabinets and resprayed and lettered front panels	40	0	0
AR88D RECEIVERS. Used but re-aligned and air-tested	45	0	0
AR88D RECEIVERS. As above but fitted tuning meters	47	0	0
AR88D RECEIVERS. As above plus re-finished cases	49	0	0
AR88D RECEIVERS. With all above features but fitted genuine RCA tuning meters	50	0	0
SP600 RECEIVERS. Fully working and aligned with re-finished front panels but less cases. Used condition from	65	0	0
SIGNAL GENERATOR TS-175/U. Brand new with correct calibration chart. Range 85-1000 M/cs. This is the HF version of the BC221	30	0	0
LM FREQUENCY METERS. Excellent condition but less charts and Xtal	5	15	0
GENERAL RADIO SIGNAL GENERATOR 804-B. 8 to 330 megs. A really magnificent instrument. Mint condition	22	10	0
BC221's. Damaged cases but in guaranteed working order and with correct charts	15	10	0
FL8 FILTER UNITS	12	6	0
MURPHY 840 RECEIVERS. Excellent condition from	15	0	0
R209 MARK II (12 volt) with manuals	14	0	0

Many other items in stock plus the largest valve stocks in the Midlands. S.A.E. with enquiries. Hire Purchase available.

Carriage on Receivers 50/-, Signal Generators 30/-.

518-520 ALUM ROCK RD., ALUM ROCK, BIRMINGHAM 8
Telephone: East 1497

K.W. CORNER

Dartford, Kent.

Dear OM,

You may recall a couple of months back I gave brief details of our new KW1000 Linear amplifier, which was primarily designed for the Export Market. This unit which is now available looks like becoming popular in this country, the main consideration being that with its power rating capacity the reduced output required by the "G" licence may assist towards the TVI problem. Measurements recently carried out confirm this, but I should like to draw the attention of those interested that it is desirable, in order to comply with the licensing conditions, that a power output meter, such as the KW PEP meter, with its appropriate dummy load be installed.

Also available now is the new KW Vespa Mk. II SSB Transmitter. This is similar to the Mark I model (which is still available), but has a larger power amplifier, which can run 220 watts PEP, and also includes facilities for AM and CW operation.

We are surprised to find that there is still a large number of radio amateurs interested in reception of AM signals on the amateur bands, and they will be pleased to learn that we have now incorporated circuits in the KW 201 receiver for a Diode detector in addition to the Product detector. The price remains unchanged. Whilst on the subject of receivers, many will recall seeing the DAVCO DR 30 transistorised receiver at last year's Exhibition in London, and I am pleased to advise that the first consignment has now arrived and are available from stock. We also have the Drake RA and 2C.

The fibre-glass spreaders for Quad antennas have arrived from U.S.A. These are made up of telescopic sections, thereby reducing the length of the package for transit purposes. They are made by expert fibre-glass manufacturers especially for Quads, and are coloured sky-blue and treated in such a way as to be unaffected by ultra violet rays. We shall be advertising details soon, but in the meantime we have information leaflets for those who are interested. We continue to stock Mosley and Hy-Gain Beams and Verticals. For those who want the best three-band performance on 10, 15, and 20 metres we have the Hy-Gain TH6DX, but if the 24ft. boom is too large for installation, there is the TH3 Mk. II with a 12ft. boom. Single band beams always seem to have a slight "edge" over a tri-bander, and for those who want optimum performance on 20 metres we have the 204BA four element full-size beam with 24ft. boom. Similar smaller models are available for 20, 15, and 10 metres.

The Radio Engineering and Communications Exhibition will be with us shortly and we look forward to meeting customers old and new. We shall be showing a number of new developments, including a 2-metre SSB Transceiver for mobile and fixed station operation. Very reasonably priced, this is sure to be a "winner."

Yours faithfully,

ROWLEY SHEARS (Sgd.),
Managing Director. G8KW

KW Electronics Ltd.

Vanguard Works,
1 Heath Street,
Dartford, Kent

Lasky's Radio

NOW AVAILABLE FOR THE FIRST TIME IN GREAT BRITAIN

TWO NEW TRIO COMMUNICATIONS RECEIVERS

These receivers offer the Ham enthusiast high quality and the latest design developments at a realistic price

MODEL JR-500SE

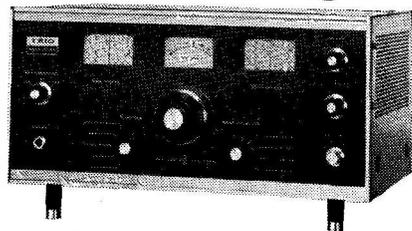
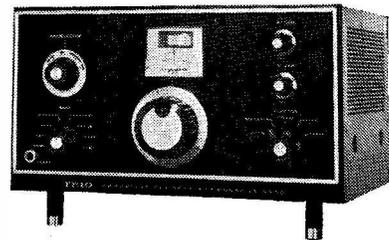
This high performance receiver is made especially to cover the amateur bands and utilises a crystal controlled double heterodyne circuit for extra sensitivity and stability. **Brief spec.:** Covers all the amateur bands in 7 separate ranges between 3.5 and 29.7 Mc/s. Circuit uses 7 valves, 2 transistors and 5 diodes plus 8 crystals; output 8 and 500 ohm and 500 ohm phone jack. **Special features:** Crystal controlled oscillator ● Variable BFO ● VFO ● AVC ● ANL ● S meter ● SSB-CW ● Stand-by switch ● special double gear dial drive with direct reading down to 1 kHz ● Remote control socket for connection to a transmitter. Audio output 1 watt. For use on 115/250 V A.C. Mains. Superb modern styling and control layout—finished in dark grey. Cabinet size 7 x 13 x 10in. Weight 18 lbs. Fully guaranteed, comp. with instruction manual and service data.

LASKY'S PRICE 59 Gns. Carriage and Packing 12/6.

MODEL 9R-59DE

Brief spec.: 4 band receiver covering 550 Kc/s to 30 Mc/s continuous and electrical band spread on 10, 15, 20, 40 and 80 metres. 8 valve plus 7 diode circuit. 4/8 ohm output and phone jack. **Special features:** SSB-CW ● ANL ● Variable BFO ● S meter ● Sep. band spread dial ● IF frequency 455 Kc/s ● audio output 1.5 W ● Variable RF and AF gain controls. For use on 115/250 V A.C. Mains. Beautifully designed control layout finished in light grey with dark grey case, size: 7 x 15 x 10in. Weight 19 lbs. Fully guaranteed, comp. with instruction manual and service data.

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TRADE

FLIGHT CONTROL Offers: Desk telephones, push-button buzzer-tone type, used but boxed, 25s. per pair. Aerial base units, 3s., post/packing 2s. Headsets, Type 19, 8s. 6d., post paid. Micro-switches, make and break, 4s., post paid. Periscope prism, 5s. post paid. Slave Clocks, half-sec. impulses, 20s., plus 5s. post/packing. Army type Morse key, new, 5s. post paid. Speakers, 3-ohm, 8in. and 9in., 10s.; 10in., 12s. 6d., post paid; ex-equipment and boxed. Relays, GPO type, 20 for £1, plus postage.—Flight Control, 478 Woodborough Road, Nottingham (69223).

FROM RADIO-VISION (Golcar), Ltd.: Silicon rectifiers, 800 v. p.i.v., 500 mA, wire-ended, 3s. Valves EF91, EF80, ECC81, ECC82, 369A, 2C51, 9001, 956, 6AS6, 6AK5, 6AL5, 6AH6, 6V6, 6AG7, 2s. 6d. each, post free. Variable condensers, fitting 1-in. cube, capacities 5 mmF, 20 mmF and 30 mmF, 2s. 6d. each. Bases: B7G, 5s. the dozen; pax. octal, 2s. doz.; 807, 1s. each; B8B, 2s. doz.; B9G, 2s. 6d. doz. (all post free). Masts, 40ft. six-section, complete with guys, ropes and fastenings, £5. Containers, with two 16ft. whips and base, 15s. each. Sky Champion receiver, £14.—Fish, G4MH, 18 Town End, Golcar, Huddersfield (52653), Yorkshire.

CLEARING OUT: HRO, with PSU, manual, five coil-packs (two bandspread), spare set valves, all in good condition, £20. Collins TCS receiver, not working on Range 3, but otherwise in new condition, £6 10s. TCS control box, includes speaker, etc., 35s. Manual on TCS equipment, 30s. Variable audio slot-filter, rack mounting, 75s. Recording Bridge Type 3D, with three meters, mark-space, etc., mains input, rack mounting, 75s. Relay Unit No. 12, includes 0.1 mA meter, two neons, 3SEI polarised relay 100-0-100 ohms, etc., 55s. RF Unit 26B, 12s. 6d. TU-5B case, with blank panel and two handles, 12s. 6d. Goodman's 12-inch speaker, 15-ohm, 25s. Candlestick carbon microphone, 30s. Oscilloscope Type 339 manual, 20s. Airmec C.864 manual, 20s. Manual for Gee ground equipment, 40s. R.C.A. 815's, 10s. each. Potted transformer 500-0-500v., 500 mA, 20s.; matching chokes, 10 Hy 500 mA, 17s. 6d. each. Xformer 315-0-315v., 80 mA, 20s.; matching choke, 10s. Also a 350-0-350v. 250 mA, 17s. 6d.; matching choke, 7s. 6d. TU-5B switches, 3s. each. EHT Osc., 1 kV, requires EY51, 10s. CRT VCR-97, 10s.; 5UP7, 10s. Londex coax relay, 24v. but works OK on 12v., 15s. R.C.A. rotary relays, 12/24v., 7s. 6d. each. Octal base xtal, 1 mc, 17s. 6d. Roller inductor, ex-22 Set, 12s. 6d. Dummy Load Resistor, 80-ohm, 7s. 6d. ORP12 LDR, ex-equipment, 3s. 6d. each. TV/Radio Service Sheets, state wants, s.a.e. Fifty new, modern TV valves, £10. Plus a lot of junk, state wants! All plus carriage, but prefer buyers collect heavy items. (Yorkshire).—Box No. 4541, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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SPARES for AR88D and AR88LF receivers. Send s.a.e. for lists. HRO Coil Packs, 180 to 430 kc range, 6s. each, postage 4s. 6d.—A. J. Reynolds, 5 Headland Way, Lingfield, Surrey.

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WANTED: AR88 or CR-100, and Top Band Command receivers. Also "Short Wave Magazine" for April 1960 and November 1965.—Crabtree, 4 Whittam Crescent, Whalley, Blackburn, Lancs.

FOR SALE: One Lafayette KT-320 Rx, with slight fault, asking £15 or offer? Callers Monday to Friday, after 6.0 p.m., Saturdays all day till 5.0 p.m., or s.a.e. for more details.—Letch, 175 Whitmore Way, Basildon, Essex.

SELLING: Codar CR-45 receiver, coverage 1.7 to 32 mc, price £6.—Edwards, 4 Stodart Road, Penge, London, S.E.20 (or ring 01-778 7165).

SALE: A specimen of the R.1475 Rx, in excellent condition, with built-in 6BW6 amplifier, price £10 plus carriage.—Smith, 50b Aldershot Road, Guildford, Surrey.

AVAILABLE: An SB-300 Rx, little used and in excellent condition, at £100, or nearest reasonable suggestion. Also a McCoy "Golden Guardian" filter, with carrier xtals, new, £18. Pair of new 4CX25B's, £9. A Collins Sideband Filter, Type F.455Z-5 with carrier xtal, £15. (Northern Ireland).—Box No. 4528, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: R.C.A. AR88LF, in FB working order, £30. Home-built 150-watt A1/A3 Tx, with Geloso VFO and TVI-proofed, excellent modulation and good appearance, no PSU, price only £17 10s. Also an RAE Correspondence Course, with model answers, 60s.—Hayhurst, G3NJE, QTHR.

FIRST £60 in cash secures an Eddystone 888A amateur-band receiver, in immaculate condition both electrically and mechanically.—Whitley, G3CZS, QTHR. (Tel. Allesley 2379.)

FOR SALE: Heathkit RG-1U receiver, with speaker, one year old and very little used, fault on its Band F range only. Price £22, buyer to collect.—Grimes, 34 Archway Road, Huyton, Lancashire.

SALE: At £35 or near offer, Complete Station based on Collins TCS-12, comprising Tx, Rx, ATU, remote control unit, PSU's for 240v. AC mains and 12v. DC battery, with manual, speaker, microphone, and all inter-connecting cables for complete set-up. Will separate if enquiries justify.—Lowson, 2 Muirbank, Brechin Road, Forfar, Angus, Scotland.

WANTED: A Lafayette HE-80 or Trio JR-60 receiver. Offered for SALE: R.C.A. AR88 with S-meter, £45. KW-500 Linear Amplifier, £45. Transistor converter for two metres, £6. Thordarson multi-match modulation xformer, rated 250 watts, 40s. Pair of 100TH's, 60s. Pair of 810's, 60s. Pair U19 rectifiers, 40s. A 4X150 at 30s.; QQV03-10, 20s.; 813, 30s.—Hodkinson, 18 Newlands, Langton Green, Tunbridge Wells, Kent. (Tel. Langton 2647, evenings.)

SELLING: Realtone transistor radio receiver, for SAM/FM bands, cost £11, new and in good condition, £5.—Hargreaves, 24 Southroyd Park, Pudsey, Yorkshire.

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SALE: Complete Station, comprising K.W. Vanguard Mk. II, coverage 10 to 160m., BC-348 receiver, Joystick aerial 4RF, tuner and wavemeter, price £50.—Ring Massingham, G3DWS (QTHR), Birmingham PRIORITY 6267.

FOR SALE: Eddystone 10-metre Converter, good performance and in excellent condition, price £5, carriage extra.—Schofield, 19 Kendall Avenue, Stratford-on-Avon, Warwickshire.

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SMALL ADVERTISEMENTS, READERS—continued

EXCHANGE or SELL: K.W. Viceroy Mk. III, complete with separate K.W. AC/PSU and all connecting cables, in excellent condition, at £95 or offer, or would consider Exchange for any SSB Transceiver, HW-12 to KW-2000, with cash adjustment either way. (South London area).—Box No. 4530, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

OFFERING: Two-metre Tx/Rx, with 12v. generator, ideal mobile rig (measures 13in. x 6in. x 8in. deep), professionally built and maintained, with speaker and microphone, price £30.—Lovell, 5 Montpellier Road, Ifracombe, North Devon.

SELLING: Self-contained table-top AM/CW Tx, for 80-160m., price £10.—To view or hear, details: G3UXP, QTHR.

SALE: Tiger 300 Tx, in immaculate condition, fitted brand-new QY3/125 with two years' guarantee, price £100 including carriage, or near offer? Also a CR-100 Rx, in excellent condition, £15 including carriage. Labgear low-pass filter, £4. New Type 62A Indicator Unit, £8. (Cornwall).—Box No. 4529, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

HRO MANUAL Information: Theoretical circuit and pictorial diagram, adjustment points all stages, with complete realignment procedure, component lists, values, etc. Installation, operation, special features, and notes, price 15s. 6d. Send s.a.e. for indexed details.—Swindon, G3ANK, 145a Station Road, Sidcup, Kent.

WANTED: Collins TCS receiver/transmitter, with original power unit, connecting cables, aerial loading box, microphone and key. Your price paid for these items.—M. Gee, 11 Whitehorse Lane, Stepney, London, E.1.

FOR SALE: Beginner's Morse Record, LP, 30s. Also a Morse practice tape, 450ft. at 14 w.p.m., 12s. 6d.—Hutchison, 2 Foggyley Gardens, Dundee, Scotland.

WANTED: Circuit diagram for Indicator Unit Type CRT-2, Ref. 10Q/16154 (Serial 061), also circuitry for R.1392 Receiver.—Hook, 21 Peak View Road, Chesterfield, Derbyshire.

FOR SALE: Heathkit Mohican GC-1U, in perfect condition and complete with all literature, price £22.—Norris, 11a Cranmore Avenue, Liverpool, 23. (Tel. Waterloo 3071.)

HARD-UP Schoolboy requires urgently a mechanical filter in range 450-470 kc. Details pse.—Shaw, 24 West Oakhill Park, Liverpool, 13.

WANTED: Good Communications Rx, coverage 10 to 160m. Will pay £10-£13. Preference for CR-100.—Fisken, 11 Thames Avenue, High Halstow, Rochester, Kent.

SALE: K.W. Viceroy Mk. II transmitter, AM/CW /SSB, for 10 to 80m. bands, 200 watts p.e.p., with Mox, Vox and BK keying, re-valved, with all-silicon PSU, complete with handbook, price £75 or offer. Pair of good 813's with bases, 20s. each.—Whittington, G3UQD, 18a Botwell Lane, Hayes, Middlesex.

SALE: Mosley RV-4 Vertical Aerial, for 10 to 40 metres, in as-new condition, price £13 10s., plus carriage. Labgear Top Band Tx and PSU, £12, carriage extra.—Beech, G3PVL, 45 Blackgate Lane, Tarleton, Preston, Lancs. (Tel. Hesketh Park 2855.)

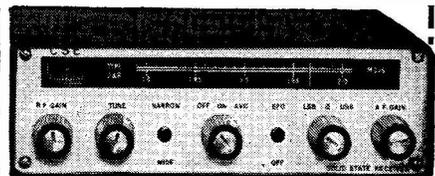
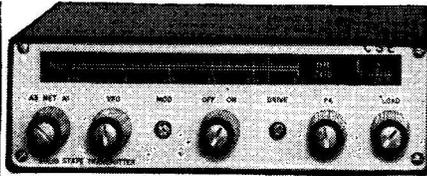
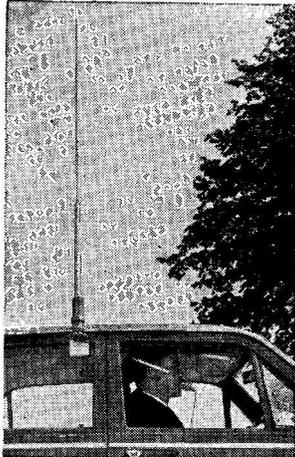
SALE: Eddystone 358 Receiver, coverage 1250 kc to 22 mc, completely reconditioned, with circuitry and separate PSU, price £18. Mullard mixer/microphone 4-channel pre-amplifier, £9. Brand new Reslo high-impedance microphone, with desk stand, £8 10s.—Ring Higgs, London 01 WEM 8775.

OFFERING: Minimitter Top 2-7 Transmitter, 25 watts, with xtal microphone, £12 or offer?—Crane, G3GOX, QTHR.

SELLING: An Eddystone 770R receiver, in perfect condition. Also P.58 UHF Rx, tunable 300 to 650 mc. And Eddystone ceramics.—Tuck, GM3BBW, 15 Bellevue Street, Edinburgh, 7.

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FOR SALE: Beam for 70 Centimetres, configuration 8-over-8 plus 8-over-8, by J-Beam, Ltd., with phasing and matching, £5.—Davidson, 49 Honeycroft Hill, Uxbridge (36715), Middlesex.

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SALE: One hundred-plus octal base valves, 30s. the lot. QQV06-40's, 10s. Also 1625's (12v. 807), at 5s. CR tube 3BP1 with base, screen and graticule, 15s. Tx for 160m., with modulator, 60s. A 52 Set at 80s. Grey metal cabinet, 15in. wide x 11in. high x 9in. deep, 30s. Speaker wooden cabinets, 10s. VHF Tx. OK for spares and bits, 20s. Type 13 'scope, working, 90s. (or offer?). Denco portable set, FM, tuner needs switch and trimmers, with its manual, 85s. (or offer?). Offers invited for Manuals: SCR-274 Command Sets; SCR-522; and BC-221. Also books: "Mathematics" and "Algebra," 10s. each; "Modern Practical Radio & Television," in three volumes, 50s. or offer?—Beauchamp, G3SYD, 9 Windrush Close, Gossops Green, Crawley, Sussex.

FOR SALE: A 19 Set, with 12v. DC/PSU, vibrator PSU, control boxes, headset and variometer, £6 10s. Pair of "Transette" Walkie-Talkies, 60s. Transistor tape recorder, as new, 40s. All in working order.—Wright, 8 Nolton Place, Edgware, Middlesex.

WANTED: Urgently, a Pye "Dolphin" or similar radio-telephone, condition not important. (Northumberland.)—Box No. 4532, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: AR88D, with cabinet, rewired in p.v.c., including S-meter, instruction book and spare set valves, at £30, no offers, buyer to collect.—Quested, 26 Baldwin Road, Minster, Sheerness, Kent.

SELLING: An AR88D receiver, in good condition, at £38 (reason for sale, just built SSB Rx). Also a Simon SP-5 Tape Recorder, £40. Both items carriage paid.—Cox, Trebell Cottage, St. Mabyn, North Cornwall. (Tel. Port Isaac 291.)

FOR THE October issue, publishing on September 29, orders for single copies by mail should reach us by Wednesday 27th. Just send a 4s. postal order, with QTH clearly written and a note saying "October issue pse." Posting back on Thursday 28th guaranteed.—Circulation Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: Vanguard Mk. II Tx, 10 to 80m., with xtal-mixer VFO, nearest £40. CR-100/8 receiver, £15. G2DAF-type Rx, in Philpott's cabinet, £25. Professionally built 80/160m. AM/CW Tx, £10.—Ring (London) 01-777 1579, after 7.0 p.m.

GOING SSB: Selling professionally built Heathkit DX-100U, £55. R.C.A. AR88D receiver, externally 100 per cent and completely realigned, £45. Or the two together for £90.—McLewee, G3OML, 111 Camborne Road, Morden, Surrey. (Tel. Cherrywood 2713.)

FOR SALE: Eddystone 840A receiver, coverage 500 kc to 30 mc, in very good condition, fitted mounting blocks and with original packing for transit. Price £25.—Cooper, G3HJP, 73 Easterly Crescent, Leeds 8, Yorkshire.

SELLING: Joystick de luxe model, with Type 3 ATU, 70s. Nev. CCT. camera, F1.9 lens, £35. Four-band Bendix TA-12 Tx, 80s. Modulator, 25 watt, 80s. PSU, 500v., 80s.—Brownlow, G3WUM, QTHR. (Tel. Brighton 65704.)

FOR SALE: T.W. Topmobile 160-metre Rx, £16. T.W. Twomobile two-metre Rx, £20. Both as new. Also KW-77 receiver, £75. LA-600 linear amplifier, £50. T.W. 160-metre Tx, £15.—Fisher, G3UBI, 64 Caldene Avenue, Mytholmroyd, Nr. Halifax, Yorkshire. (Or ring Calder Valley 3166, weekends only.)

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KW EZEE Match	12	10	0
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SMALL ADVERTISEMENTS. READERS—continued

SALE: Heathkit DX-40U Tx with VF-1U VFO, £26. Miniature home-built 25w. AM/CW Tx, taking in 20 to 80 metres, £10. BC-453 Q5'er, 50s. PSU, 400v., 40s. Telefunken stereo amplifier, £5. Collect, or carriage extra.—Marshall, G3RKH, 17 Sadler Street, Wells, Somerset.

LOOK At This: A Heathkit RA-1 (the amateur-band version), unused, with crystal calibrator and speaker, including a Joystick aerial with matching unit, price £40 complete.—Lovell, 5 Montpelier Road, Ilfracombe, North Devon.

OFFERING: A Minimitter Mk. II receiver, with speaker, very little used and in perfect condition, at £30 or near offer?—Bance, 21 Grosvenor Road, Chiswick, London, W.4. (Tel. 01-994 5696).

WANTED: R.216 receiver in mint condition, with matching mains PSU. Also copies "Short Wave Magazine" for April, May, June, October, 1959; and January 1964.—Green, 51 Bidston Road, Ixton, Birkenhead, Cheshire.

SELLING: BC-221 Frequency Meter, U.S. Navy type, having high quality components in small case, in perfect working order. Price £17 10s.—Smith, 58 Ainsty Road, Wetherby, Yorkshire.

SALE: Receiver, TCS type, range 1.5 to 12 mc. with Electroniques converter QP.166, coverage amateur bands 10 to 160m., with stabilised PSU. £15. CTX-4 four-metre Tx, 18 watts CW, with xtal and PSU, price £9 10s. Converter for four metres. 28 mc I², £5 10s. VHF/FM receiver, preset tuning, with PSU and speaker. £10. Receiver for LW/MW/VHF, AC/DC, no cabinet, £10. All in excellent working condition.—Whiteling, G3HJG, 17 Torbay Road, Urmston, Manchester.

FOR SALE: Hallicrafters HT-37 transmitter. AM/CW/SSB, as new, £85. BC-312 receiver, with PSU, £12 10s. RF Units, Type 24, etc., 15s. each.—Keen, G3PBQ, 63 Sheffield Road, Sutton Coldfield, Warwickshire.

OFFERING: K.W. Viceroy Mk. II, with PSU, £80. Eddystone 888A receiver, with accessories, £75. Hudson base/mobile equipments for four metres, £7 the pair. Or near offers?—For full details, delivery, etc., send s.a.e.: Thompson, G3MQT, QTHR.

SELLING: Lafayette HA-230 receiver, condition as new, with manual, £15.—Roth, 4 Camden Road, Somerton, Somerset.

WANTED: Heathkit HW-32A and HP-23 Power Pack. GH12 microphone; also Reflectometer. Details and price? Can collect to 50 miles.—Tucker, G3FTA, 4 St. Margaret's Road, St. Leonards-on-Sea, Sussex.

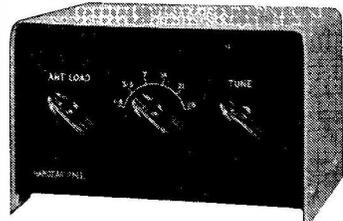
FOR SALE: Two sideband filters, USB and LSB, 50 kc, price £2 10s. each. Two professionally built, aligned and tested, seven-transistor LW/MW superhet chassis, complete, 70s. each. Oil-filled 475-0-475v. 140 mA transformer, with potted choke to match, 20s. Clearplastic meter, 0-50 mA, 15s. Miniature plug-in relays, 15K, with four change-over contacts, 30s. Also many miniature components; send your list for quote. (Yorkshire area).—Box No. 4534, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SELLING: An unused five-channel HF transmitter, Type G61S, 100 watts AM/CW, an ideal Club Tx, price £25.—Box No. 4535, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

WANTED: Heathkit SB-400 Tx, SB-300 Rx, SB-200 Linear Amplifier—or SE-100 Transceiver. Also HA-14 one kW Linear, SB-610E Oscilloscope. And Mosley TA-33 Jr. or Hy-Gain 3-Band Beam. Suitable CDR rotator (Hampshire).—Box No. 4533, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

SALE: Hallicrafters S.27/36 Rx, coverage 27 to 143 mc, for 200-250v. AC input, complete and ready to go on the air, £15 10s., plus carriage. (East Anglia).—Box No. 4536, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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SMALL ADVERTISEMENTS, READERS—continued

EXCHANGE: Overhauled CR-100 with S-meter and noise limiter, with HF-1020 speaker, plus cash, for Heathkit RG-1 or similar receiver. (South-West London).—Box No. 4537, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

EMIGRATING: R.C.A. AR88LF, with S-meter, product detector, 100 kc xtal calibrator, and manual, £30. Table-top Tx, 10 to 160m., 150 watts AM, £15. Two hundred copies "RSGB Bulletin," 200 "Short Wave Magazine," 24 "Practical Wireless," 35 "Practical Electronics" and 72 "Which," £15. Marconiphone Record Player, £10. Elizabethan 4-track Recorder, £20. Ricoh F1.8 Auto-zoom camera, in leather case, with Specto Greyline projector and stand, plus folding screen, all in at £50. Valves, transformers and bits-and-pieces at give-away prices to callers.—Burnitt, G3GXD, 24 Garden Wood Road, East Grinstead (21685), Sussex.

SELLING: Hallierafters S.36 receiver, coverage 28 to 143 mc, AM/FM, with two speakers, in lined cabinet, delivered over area Hampshire-Cornwall, price £30.—Jago, 14 Weston Road, Eastleigh, Hants.

ALL SMALL Advertisements you see in these columns are genuine Reader insertions and have been paid for at the proper rate—which is 3d. a word (minimum charge 5s.). Draft your advertisement as economically as possible (to save your money and our space), using the accepted abbreviations, and for appearance in the next issue, publishing Sept. 29, post with remittance as soon as possible. For bold face printing (like this) add 25 per cent. Largest coverage of the radio amateur interest in the U.K. is guaranteed.—Small Advertisements, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

FOR SALE: Sphinx SSB Tx, plus Delta Unit, in as-new condition, price £55, carriage paid. Also an R.C.A. AR88LF, in FB condition, at £30, buyer to collect.—Edwards, G3RJB, 5 Powys Walk, Hereford.

WANTED: Transmitter, such as a Heathkit, DX-40U, or Minimitter Top 2-7. Also rack-mounting HRO.—Marris, Flat B, 1 Fairmile, Henley-on-Thames, Oxon.

GOING! A brand-new Swan 350, less PSU, at £175.—Curristan, E1BAX, Quay Street, Donegal Town, Donegal Eire.

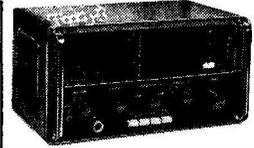
WANTED: Low-Pass Filter, 75-ohm, K.W. or similar. Also Codar A.T.5 with mains PSU: Grid-Dip Oscillator and Absorption Wavemeter. Offering for Sale or Exchange, with cash adjustment. Ham-Gear Preselector with RF control, cost £7 10s. few weeks ago.—Andreang, 10 Vermont Street, Beverley Road, Hull, East Yorkshire.

GREAT SHACK Clearance! Many valuable items offered, just what you have been looking for! **Brevell Tape Deck**, Series 5 Mk. III, with stereo Hi-Fi tape link, practically as new, £70 or offer. Heathkit **DX-100U**, factory built, in mint condition, £60 or offer. Plessey VHF transmitter, incorporating 829B in final £12. Ball-and-biscuit studio microphone, **STC 4021C**, on table stand, price £15. Also 'scope CRT's, transmitting variables, transformers, chokes, converter units and many other items. Send your s.a.e. for a comprehensive list.—Elliott, G3FMO, 17 Weighton Road, Harrow Weald, Harrow, Middlesex.

DO YOU Want "Call Books" for 1965-67; DX/QSL Manager lists; Callbooks covering the U.S.S.R.; and a copy of the "Radio Amateurs' Vocabulary," in English, French and German? Ask for further details.—Sven Elfving, SL3ZO, Polar Bears Radio Club, Solgardsgatan 15, Ornskoldsvik, Sweden. (Pse send one IRC).

DISPOSAL: Collins Mobile PSU, Type MP, for KWM-2 or any similar Tx, positive or negative ground, price £35. Webster "Bandspanner" mobile antenna, with mobile mounting, for 10-15-20-40-80m., £15.—Dall, G5AHK, 19 Copenhagen Way, Walton-on-Thames, Surrey. (Tel. 98 29044).

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OFFERING: An R.C.A. AR88 in very good condition, £35, or near offer. Offers invited for **Teletype Type 15 Page Printer**, and Type AP.100386 T.U., both in immaculate condition, also a Creed 3X resprayed but needs some repair. Will deliver to any reasonable distance.—Chambers, Old Castle Hotel, Sudan Road, Rodwell, Weymouth (4642), Dorset.

SELLING: Heathkit DX-100U transmitter, no mods. and in mint condition, price £45, or offer, delivered to reasonable distance.—Page, G3UUM, 19 Boulsworth Crescent, Nelson, Lancs.

FOR SALE: K.W. Viceroy Mk. IV, with extra filters, few hours' use only and in mint condition, price £120 or near offer, buyer to collect.—Bartlett, G5QA, QTHR.

WANTED: KW-2000 or similar, with 12v. PSU (if possible). State condition and price. Could collect North England or Border Counties.—Box No. 4538, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

ALL FOR £215 Complete: K.W. Viceroy Mk. IIIA Sideband transmitter, extra half-lattice filter and 6146B's in PA; also KW-77 receiver, with Dow-Key change-over relay, and all associated cable-work. Whole equipment in mint condition and recently over-hauled by K.W. Electronics. A station in going order.—de la Mothe, G3VIE, 35 Brookside, Wokingham, Berks. (Tel. West Forest 4048).

SALE: Pye "Reporter," modified for and working on four metres, £5. Collins TCS-12 receiver, with PSU, £8. Hallicrafters S38 receiver, coverage 540 kc to 30 mc, £8. Marconi CR-300 Rx, no PSU, £7. All items in good working order. Buyers collect.—Grigg, 72 Elmstone Road, Rainham, Kent.

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URGENT: Require information Hallicrafters SX.42 receiver. **FOR SALE:** Heathkit Mohican GC-1U all-transistor receiver, in as-new condition, complete with manual, price £25. Will deliver to 30 miles.—Perrin, G8ALY, 30 Franchise Street, Kidderminster (61752). Wores.

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SALE: A Collins 75S-1 receiver, in perfect condition, price £130. (Midlands area).—Box No. 4540, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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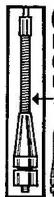
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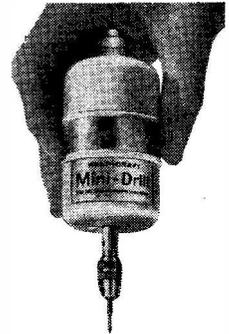
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