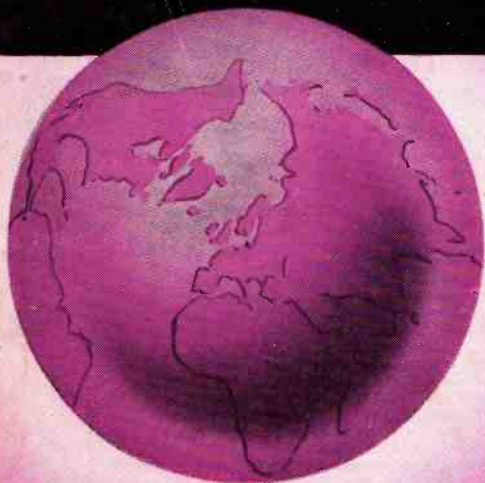


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THE SHORTWAVE

Magazine



CC-0

**EXCLUSIVELY FOR THE
RADIO EXPERIMENTER &
TRANSMITTING AMATEUR**

VOL. VIII No. 6 AUGUST 1950

H. WHITAKER G3SJ

10 YORKSHIRE STREET, BURNLEY Phone 4924

XTALS. The complete Xtal Kit in sealed cartons for the SCR, 536 (BC611) Walkie Talkie. 14 xtals in all with 14 coils, 7 osc, and 7 final covering the complete freq. range of the unit. There are 7 tx. freqs. and a further 7 xtals spaced 455 kc for the receiver. All are in Ft 243 holders with $\frac{1}{2}$ " pin spacing. The complete range is as follows: 3885/4340, 4080/4535, 4280/4735, 4397/4852, 4840/5295, 5327/5782, 5437/5892 kc.

The complete kit including coils, 56/-, post free. Set of 14 xtals less coils, 48/-, set of 14 coils, 8/-.

Any pair of xtals, 8/-, with the exception of 5327-5 and 5295, these 7/6 each. All xtals are by leading U.S. makers.

XTALS. 1000 kc Biley, Valpey or Somerset, standard $\frac{3}{4}$ " pin spacing, 20/-.

100 kc RCA, Biley, sub-standards, 17/6.

Marconi, etc., 500 kc British $\frac{3}{4}$ " pin spacing, 6/-.

Western Elec. 500 kc $\frac{1}{2}$ " Ft 243 holders, 7/6.

XTALS. 3.5 Mc Band any spot freq., 15/-.

FOR 144 Mc. Any freq. 8000 kc to 8110 kc Ft 243 fitting at 15/-.

A few Bendix $\frac{3}{4}$ " pin spacing 8007-69 kc at 12/6.

FOR 28 Mc. Any spot freq. from 7 Mc to 7500 kc at 12/6, with the following specials. 7200, 7225, 7250, 7275, 7300, 7325, 7350, 7375, 7400, 7425, 7450, 7475, 7500 kc at 7/6 each or 72/- per doz. All $\frac{1}{2}$ " Ft 243 holders.

FOR 7 Mc. 7000 to 7300 kc any spot freq. at 12/6, with the fone band specials as above.

6 Mc Band for 144. 6000 kc to 6083 kc any spot freq. at 12/6. Ft 243 holders.

FOR 21 Mc. 5250 to 5350 kc any spot freq., 12/6. Ft 243 holders.

TOP BAND. Double, 850 kc to 863.5 kc and 937 to 1038.5 kc, Ft 243 holders, by Western Elec. Prolific harmonic generators. Plated type, spot welded contacts, mounted in air gap, at 5/- each. To Commercial users and others. A complete range available from 2 Mc to 9 Mc in either $\frac{3}{4}$ " or $\frac{1}{2}$ " holders. The entire range by: RCA, Biley, Valpey, Stand, etc., and all leading American manufacturers. Quantity quotations are available on request. Export enquiries welcomed.

VALVES RX AND TX. Another exceptionally keen 3SJ offer. All are brand new in sealed cartons and carry our full guarantee.

6J5 gt, 2/6, 24/- doz.; 813 RCA or Westinghouse, 22/6, £12 per doz. 805, 12/6; 832, 12/6, all £6 per doz., can be mixed if desired.

100th, 25/-, £13 per doz.; 866/866A, 10/6, £5/8/- per doz.; 807, 6/-, 60/- doz.; VU 508 Vac Rec. 4v Fil. 2750v at 125 Mills, 8/-, 80/- doz.; 5R4 GY, 1625, 4/-, 36/- doz.; 6L6 G, 1622, 6/6, 8/-, 80, 6C4, 6AG5, 7/6, 72/- doz.; 5Z4, 6N7, 6N7 gt, 6K8, 717a, 6/-, 60/- doz.; 6V6, met. 6F6 G, 6SK7 met. 6SK7 G, 6SK7 gt, 6J7, 6J7 gt, 6K7, 6X5, 6C5, 6C5 gt, 6AC7, 6SH7, 6SQ7, all at 5/-, 48/- doz. 1T4, 1A5, 7O7, 955, 9001, at 5/6. 12C8, 12SR7, 12SG7, at 4/-, 36/- doz.

VR 150, 8/-, Sylvania Xtal diodes, 3/-, 30/- doz. VCR 97, 32/6.

BC 221. Brand new. Another small stock, £17/10/-.

POWER UNIT. Type 247. Input 230/50cy. Output 500v at 300 mills plus 6.3v 3 amp. In grey steel ventilated cases, £3/19/6, carr. paid.

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THERMADOR. 400 watt. Pri. 6,700 ohms ct—Sec. 4,500, 5,000 or 5,500 ohms, 7"×6"×5". Porcelain Standoffs, and completely screened at 50/-.

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HALLICRAFTER. Output transformers. P.P. Primary. Separate High and Low impedance secondaries. 55CO19. 30/10,000 cy, 7/6 each. BC 454 complete with Dynamotor, brand new and boxed at 50/-, carr. paid.

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THERMADOR. 230v Primary. Output 2½v 10 amp twice for a pair of 866s. Sec. test volts 7,500. Porcelain standoffs, 30/-.

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Ditto Thermador, 500 ohm line to Split Secondary 805 grids, 1 to 2.7, 20/-.

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Parmeko 8 hy 50 Mills., 3/6.

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Mallory 30+10+10 450v wkg. + 25 mf 25v wkg. met. can round at 2/- each.

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Cornell-Dubilier 40 mf 250v wkg., 2/-.

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R.C.A. 40 mf 25v, 1/6.

I.C.C. 4 mf 600v met. can round, 2/9.

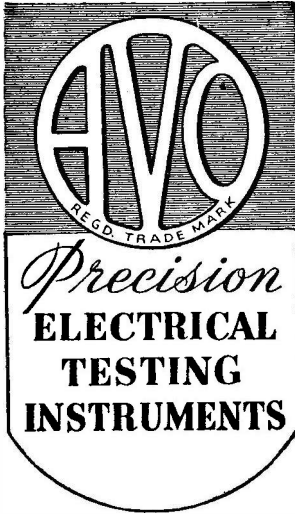
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The instrument operates on A.C. mains supply, 100-130 volts and 200-260 volts, 50-60 c/s.

Fully descriptive pamphlet available on application.

This instrument, which is an up-to-date example of current instrument practice, has been developed to meet the growing demand for an instrument of laboratory sensitivity built in a robust and portable form, for use in conjunction with electronic and other apparatus where it is imperative that the instrument should present a negligible loading factor upon the circuit under test.

The instrument consists basically of a balanced bridge voltmeter. It incorporates many unique features and a wide set of ranges so that in operation it is as simple to use as a normal multi-range testmeter.

The instrument gives 56 ranges of readings as follows :—

D.C. VOLTS : 2.5 mV to 250V (Input Resistance 11.0 megohms). 25mV to 10,000V (Input Resistance 110.0 megohms).

D.C. CURRENT : 0.25µA to 1 Amp (250mV drop on all ranges).

A.C. VOLTS : 0.1V to 2,500V R.M.S. up to 2 Mc/s. With diode probe external 0.1V to 250V R.M.S. Useful measurements can be made up to 200 Mc/s., the applied voltage being limited to 100V above 50 Mc/s.

A.C. OUTPUT POWER : 5mW to 5 watts in 6 different load resistances from 5 to 5,000 ohms.

DECIBELS :—10db to +20db.

CAPACITANCE : .0001µF to 50µF.

RESISTANCE : 0.2 ohm to 10 megohms.

INSULATION : 0.1 megohm to 1,000 megohms.

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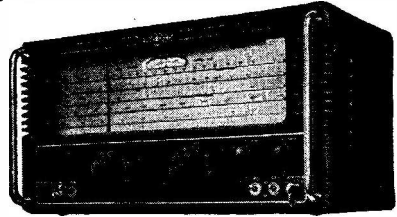
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The unit is partly stripped by the Ministry, and less valves, but a genuine bargain at 15/6.

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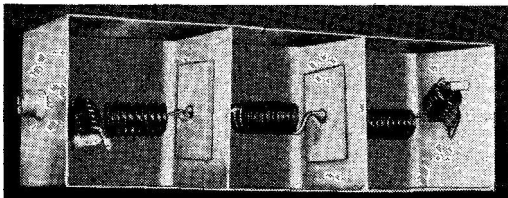
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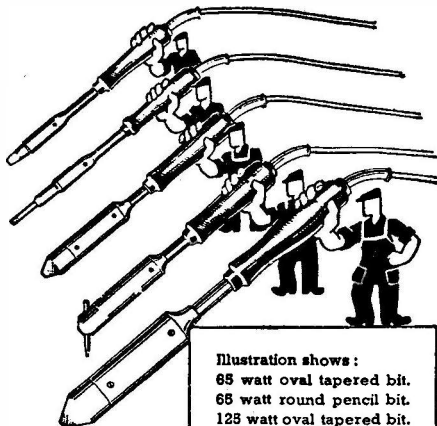


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INDEX TO
ADVERTISERS

	<i>Page</i>
Adcola	455
Amateur Radio Service	449
Anglin, T. J.	454
Ashworth, H.	451
Automatic Coil Winder	393
Barnes Radio	453
Bensons	448
B.I.E.T.	450
Brookes Crystals Ltd.	450
Brown, S. G.	451
Butler Radio	398
Candler System	453
Clydesdale Supply Co. Ltd.	453
<i>Cover iv</i>	
Coulphone Radio	395
Electradix Radios	452
Easibind	456
Electrad Radio	450
Fanthorpe	452
Fields	252
Ford	455
Frith Radiocraft	454
Gage & Pollard	396
G.S.V. Co.	401
H.A.C. Short-Wave Products	456
Henleys	401
Henry's	402
Hoile, A. C.	454
H.P. Radio Services Ltd.	450
Johnsons	455
<i>Lawrence, G. Cover iii</i>	
Lyons Radio	397
Marks, C.	398
P.C.A. Wireless	452
Powell, E.	400
Premier Radio	404
Radio Clearance	449
Radio Exchange	400
Radio Servicing Co.	400
Radio Exchange & Service	462
Rock Radio	456
Rollett, H.	455
Samsons Surplus Stores	401
Silverstone, H.	453
Small Advertisements	453-456
Smith, H. L.	451
Southern Radio	451
Stratton	394
T.C.M.	399
U.E.I. Corp.	399
Vallance & Davison Ltd.	394
<i>Whitaker, H. Cover ii</i>	
Young	397

SHORT WAVE MAGAZINE

FOR THE RADIO AMATEUR & AMATEUR RADIO

Vol VIII AUGUST 1950 No. 85

CONTENTS

	<i>Page</i>
Editorial	405
Compact VHF Transmitter, by H. L. O'Heffernan (G5BY) ..	406
"No Outdoor Aerials Allowed," by A. D. Taylor (G8PG)	411
RF Pentodes as AF Amplifiers, by E. J. Pearcey (G2JU)	413
Flea Power on Forty, by J. D. Heys (G3BDQ)	415
Balloon Aerials, by J. W. Swinnerton (G2YS)	419
More About Harmonic Suppression, by W. L. Vinicombe (GM8RV)	420
Bass Cutting, by R. C. Ray, B.Sc., A.R.C.S. (G2TA)	421
First Class Operators' Club	423
DX Commentary, by L. H. Thomas, M.B.E. (G6QB)	424
Portrait Gallery—G2PC	431
Reducing the QRM, by The Old Timer	432
VHF Bands, by E. J. Williams, B.Sc. (G2XC)	434
G1BF Here	441
New QTH's	442
Here and There	443
Other Man's Station—G3FXL	444
The Month with the Clubs—From Reports	445

Editor: AUSTIN FORSYTH, O.B.E. (G6FO)

Advertisement Manager: P. H. FALKNER

Assistant Editor: L. H. THOMAS, M.B.E. (G6QB)

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SHORT WAVE MAGAZINE

FOR THE RADIO AMATEUR AND AMATEUR RADIO

E D I T O R I A L

Amateurism

Amateurs are ever ready and able to improvise, and it has been truly said that if every amateur observed strictly the theoretical principles upon which the science of radio is based, there would not be much activity on our bands today.

Those who depart too far from theory "as laid down" and propound radical ideas of their own always run the risk of exciting derision—the long history of scientific progress is full of instances where men, either clever beyond their years or wise before their time, have been laughed at by local experts who could easily prove that they were wrong.

The interesting thing is that some of the greatest thinkers—who in their day were derided, but are now venerated for the contribution they made to the widening of human knowledge—were themselves amateurs, interested in some particular scientific subject for the sheer love of it, and with no thought of personal gain.

In our own time, those privileged to call themselves radio amateurs fall somewhat into this category. This is not to say that all amateurs are original thinkers (far from it) but some at least are able to see beyond the present boundaries. So they may one day (almost certainly long after they are dead!) be honoured for some achievement which can be counted a contribution to scientific progress.

It is this very willingness to question accepted theories that gives Amateur Radio life and helps to make it the common interest of so many differing individuals. The main objective of the radio amateur is to get results by his own efforts, and in so doing he has often to disregard theory—indeed, he is often more than hazy on the theory. But the result is an imperceptible but quite definite reaching-out that goes on continuously. And when what appears to be the boundary is finally reached, there is always some new objective on the horizon.

*Arthur Fox/R
66FO*

COMPACT VHF TRANSMITTER

CC Output on 144 and 432 mc

By H. L. O'HEFFERNAN (G5BY)

THIS little transmitter was originally designed for use in working portable on 70 cm., before the tropospheric contacts of last March put an end to thoughts of such operation for G5BY.

The unit was therefore made as small as possible and the chassis, of 18 g. aluminium, measures 9 in. × 4½ in. × 2½ in. deep, with 3 in. spacing between the two decks. Unless space is at an absolute premium the writer advises that the chassis dimensions be increased to about 11 in. × 6 in., which would greatly facilitate the wiring of the three EL91 stages.

Circuit

The circuit of the crystal oscillator, tripler and doubler stages is similar to that described by G6VX in the *Short Wave Magazine* for July 1948.

An 8 mc crystal is used, with the oscillator tank circuit tuned to 24 mc. The second tank circuit is taken to 72 mc and the third to 144 mc. The output of the 832 stage is on 144 mc and this can either be plugged into the grid

Here is an interesting and effective design for a portable QRP VHF transmitter, also suitable as a driver unit for straight PA's run at full power on the two-metre or 70-centimetre bands. This article will be of particular value to those VHF operators who want authentic data on the construction of a 430 mc RF stage; it is one of the very first such designs to be published. The author is well known for the outstanding results he has achieved on the VHF bands over a period of many years.—Editor.

circuit of the 832A valve (which triples to 432 mc) or into the socket to which the 144 mc beam feeders are connected.

The three EL91 stages are each tuned by means of a concentric 3-30 μμF trimmer (protruding through the chassis for easy adjustment) whilst the tank coils are mounted underneath the chassis on small stand-off insulators spaced 1 in. apart. A ⅜ in. diameter hole between them allows clearance for the concentric trimmer.

Construction

Care should be taken to keep the leads between C19 and the 832A grid pins extremely short (1 in. or less), otherwise the value of inductance specified will not resonate. No screen grid by-pass condenser was used on the 832A tripler stage, since greater 70 cm. output was obtainable *without* it.

The 432 mc output tank is made from soft drawn copper tubing, with the ends tapped to take 6BA screws which secure the tubing to the 832A anode pins. The tuning disc is a piece of thin copper, 1 in. diameter, soldered to the end

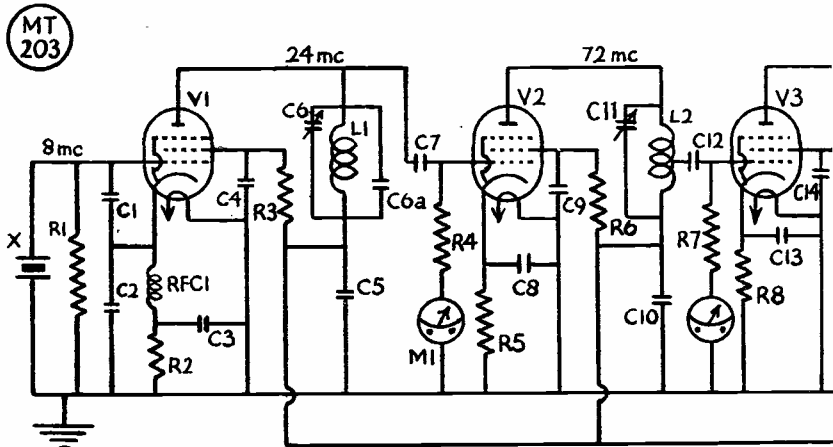
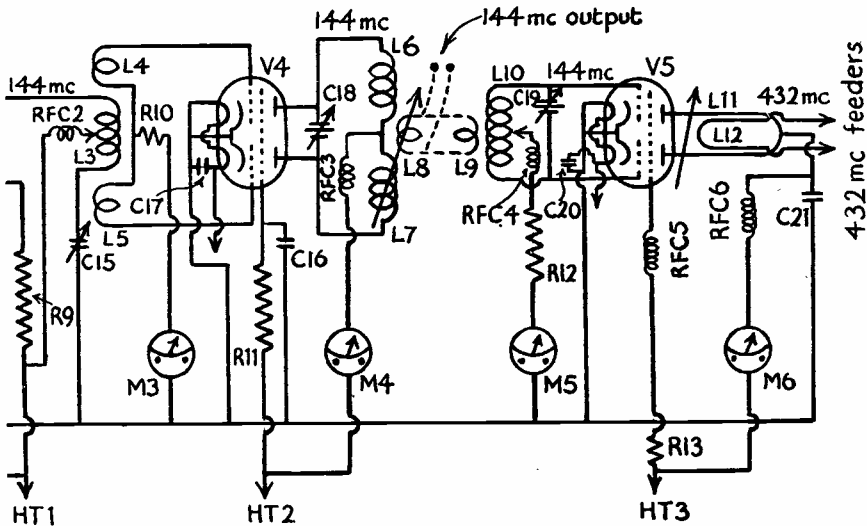


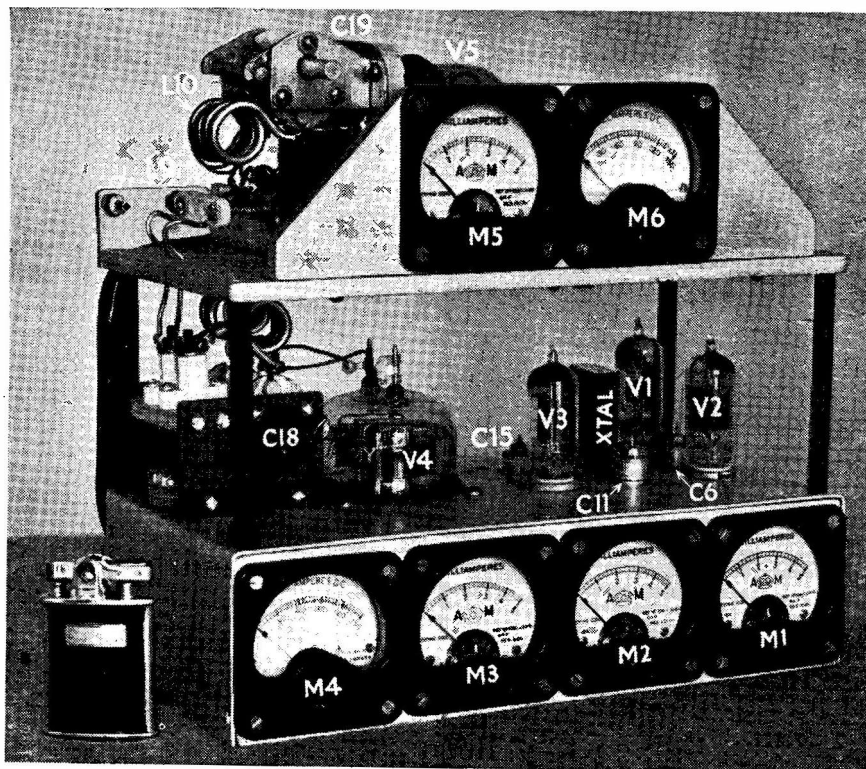
Fig. 1. Circuit of the 144/432 mc transmitter-exciter described by G5BY in his article. Power can be taken off on either band to drive a PA operated as a straight amplifier at full input.

Table of Values

Fig. 1. Circuit of the GSBY 144/432 mc Transmitter

- C1 = 30 μ F
- C2 = 40 μ F
- C3 = .01 μ F
- C4, C5, C8, C9, C10, C13 = .006 μ F
- C6, C11, C15 = 3-30 μ F, concentric trimmer
- C6A = 6.8 μ F
- C7, C12 = 75 μ F
- C16 = 200 μ F
- C17 = 700 μ F
- C18 = Split stator ex-AM No. 51486
- C19 = Split stator ex-AM No. W6861
- C20 = 500 μ F
- C21 = 75 μ F
- R1, R4, R7 = 50,000 ohms, $\frac{1}{2}$ watt
- R2 = 180 ohms, $\frac{1}{2}$ watt
- R3, R6, R9 = 30,000 ohms, 1 watt
- R5, R8 = 700 ohms, $\frac{1}{2}$ watt
- R10 = 22,000 ohms, $\frac{1}{2}$ watt
- R11 = 20,000 ohms, 1 watt
- R12 = 100,000 ohms, $\frac{1}{2}$ watt
- R13 = 20,000 ohms, wire-wound
- RFC1 = 1.5 mH
- RFC2 = 80 t., 38 SWG, enamelled, $\frac{1}{2}$ in. dia. rod former
- RFC3, RFC4 = 50 t., 30 SWG, enamelled, $\frac{1}{2}$ in. dia. rod former
- RFC5, RFC6 = 5 t., 20 SWG, enamelled, $\frac{1}{8}$ in. i.d., $\frac{1}{2}$ in. long
- X = 8 mc xtal
- M1, M2, M3, M5 = 0.5 mA
- M4, M6 = 0-150 mA
- V1, V2, V3 = EL91
- V4 = 832
- V5 = 832A
- L1 = 9 t., $\frac{3}{8}$ in. i.d., $\frac{3}{4}$ in. long, 16 SWG, enamelled
- L2 = 5 t., $\frac{1}{2}$ in. i.d., $\frac{3}{4}$ in. long, 16 SWG, enamelled, tapped $1\frac{1}{2}$ t. from grid end
- L3 = 6 t., $\frac{1}{2}$ in. i.d., $\frac{3}{4}$ in. long, 16 SWG, enamelled
- L4, L5 = 3 + 3 t., $\frac{1}{2}$ in. i.d., close wound, with $\frac{1}{8}$ in. between inside turns of the two coils. 16 SWG, enamelled
- L6, L7 = 3 + 3 t., $\frac{1}{2}$ in. i.d., $1\frac{1}{2}$ in. long, with $\frac{1}{8}$ in. between the inside turns of the two coils. Wound with $\frac{1}{8}$ in. o.d. copper tubing, silver plated
- L8 = 3 t., $\frac{3}{8}$ in. i.d., $\frac{3}{8}$ in. long, 14 SWG, silver plated
- L9 = 2 t., $\frac{3}{8}$ in. i.d., close wound, 20 SWG, plastic covered
- L10 = 4 t., $\frac{3}{8}$ in. i.d., 1 in. long. Wound with $\frac{1}{8}$ in. o.d. copper tubing, silver plated
- L11 = Constructed of $\frac{1}{8}$ in. o.d. silver plated soft copper tubing, U-shape $1\frac{1}{8}$ in. deep by $\frac{1}{8}$ in. across U
- L12 = Coupling loop of 16 SWG wire, for L11





General appearance of the 144/432 mc transmitter-exciter designed by G5BY and described in his article. The 70-cm. stage triples, and matters are so arranged that drive can be taken off for either band. (See Fig. 1.)

of a short length of 4BA rod ; this is threaded through the plywood base ; and enables the position of the disc to be varied in relation to L11. The closer it is, of course, the lower will be the inductance of the anode circuit.

In order to facilitate adjustment, and possible fault finding after the rough handling inseparable from portable operation, it was decided to install meters in all the grid circuits (except the crystal oscillator), with two more meters to measure the plate currents of the 832 and 832A valves. Since these small 2 in. meters are so cheap on the surplus market it was felt that the advantage of being able to see, at a glance, that all stages were operating correctly outweighed the saving effected by using a switch and a single meter for all the grid current readings.

The two panels on which the meters are mounted are of plywood, the necessary holes thus being easily cut out with a fretsaw.

Plywood is also used for the base of the upper unit and a large hole is cut in this, immediately below the 832A, to ensure maximum air circulation round this valve.

The 3 in. long black pillars, holding the top deck in position, are made up from standard 1½ in. pillars (threaded 6BA hole in each end) using a short length of 6BA studding to join them together.

Connections from the upper unit—earth, heater and modulated HT—terminate in a plug which fits into the socket provided on the main chassis.

Adjustment

Due to fairly tight coupling between stages, tuning is not at all critical in any stage except the 832A 432 mc anode circuit. In order to adjust this circuit—or, for that matter, any 70 cm. output tank—the writer advises the following procedure :

Construct a small Yagi beam, having say

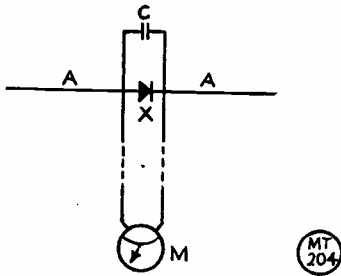


Fig. 2. Output checking device used by GSBY to set up the transmitter on the 430 mc band, as described in the text. The indicating meter M is remote and actually is placed alongside the transmitter when tuning.

reflector, folded dipole and three directors, with dimensions suitable for about 435 mc. Use open wire feeder of 14 SWG, spaced about $\frac{1}{2}$ in. to 1 in. apart, and about 5 ft. long. Make up a field strength measuring device, as shown in Fig. 2 and, at the start, position it

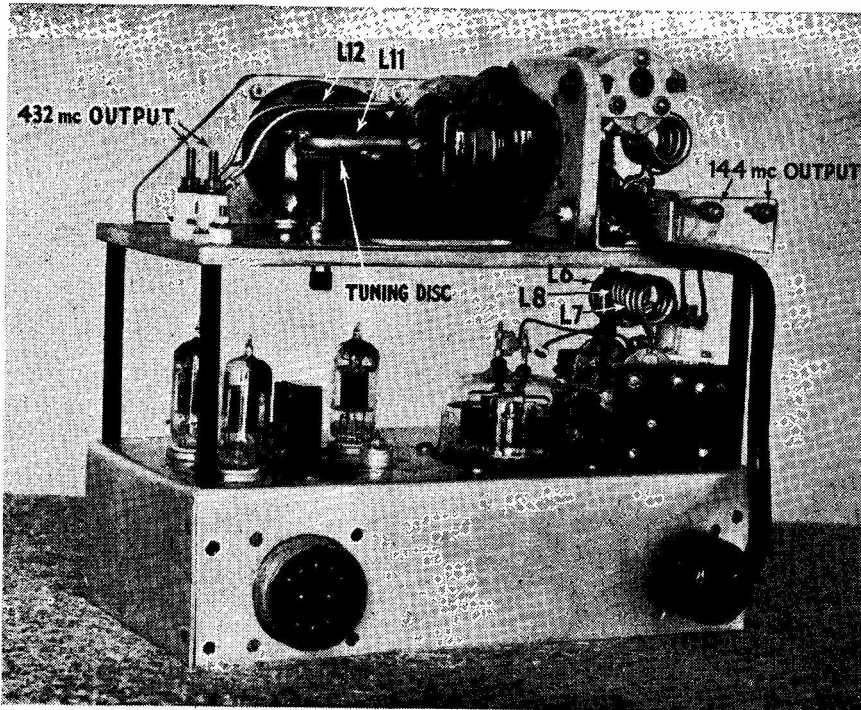
Table of Values

Fig. 2. Suggested Local FS Meter.

- A = Each 6 $\frac{1}{2}$ in. long
- C = 100 μ F
- M = 0-1 mA meter on long lead
- X = CV102, CV103 or 1N23A

about one wavelength away from the beam.

Operate the exciter unit at about 250v HT, which should produce 1.5 to 2.0 mA on the 832A grid meter. Apply not more than 200v HT to the 70 cm. tripler plate and adjust the tuning disc, watching the field strength meter all the while. If no indication is obtained, switch off all HT and move the plate loop farther along the 832A pins and try again. At some point in the $\frac{3}{8}$ in., or so, allowed for adjustment by the length of the 832A anode pins, an indication should be observed on the field strength meter. Once this has been obtained, adjustments in tuning, coupling, grid drive and so on can easily be made, increasing the distance between the field strength pick-up aerial and the beam whenever the FS meter goes off scale. Anything over



Rear view of GSBY's VHF transmitter unit, showing inter-stage coupling circuits.

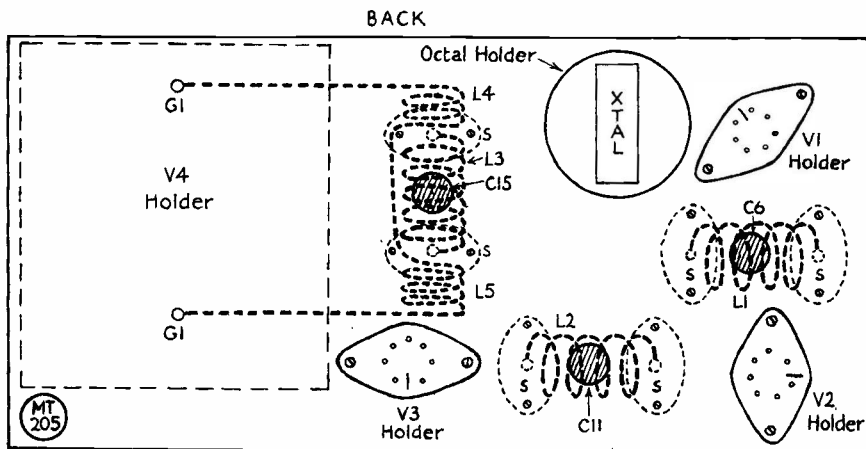


Fig. 3. General layout plan for the lower deck (see photographs) of the G5BY 144/432 mc RF unit.

300v HT (and 60 mA) on the 832A tripler stage may cause a valve failure. Particularly good 832A's can be run up to 350v or so to obtain the full 25 watts input, but this is not advised.

Keying

It is recommended that the negative HT lead be keyed, with a suitable key click filter in circuit. Whilst the resistances in the EL91 cathode circuits will limit the anode current in the event of excitation failure, there are no such resistors in the 832 and 832A cathode circuits and loss of drive will lead to high anode currents and excessive plate dissipation.

In conclusion, it may be mentioned that this transmitter is now being used to drive one of

Main chassis					Top deck (832A tripler)*		
HT	M1	M2	M3	M4	HT	M5	M6
300v	1.3 mA	1.0 mA	0.8 mA	82 mA	400v	2.45 mA	47 mA

*The 832A valve in use as 432 mc tripler is rather non-standard (usual figures are 300v HT and 60 mA).

the new Mullard QQV06/40 tetrodes, operating as a straight PA on 435 mc, with excellent results. It is hoped to describe this unit in a future issue of the *Short Wave Magazine*.

E.M.I. EQUIPMENT

A selection of high-quality equipment, mainly audio amplifiers and microphones, is being made available at "special concession" prices to *bona fide* amateurs by E.M.I. Sales and Service, Ltd., Hayes, Middlesex. They offer a wide range of attractive items in these categories, which will be of interest to many readers. Enquiries should be directed to the Amateur Radio Division, address as given.

THE DX WORLD

The shape of the DX world is rather different from the shape of the earth as usually conceived! This, and much else besides, is made clear by our *DX Zone Map*, a great circle map of the world giving a mass of information to anyone in the U.K. interested in the DX

aspects of Amateur Radio. The price is 6s., post free, of the Circulation Manager, Short Wave Magazine, Ltd., 53 Victoria Street, London, S.W.1.

TIBETAN OUTPOST

There are said to be only three Englishmen in the remote and mysterious country of Tibet—and two of them are radio amateurs, AC4RF and AC4YN. Bob Ford, AC4RF, is now at a place called Chamdo, where the western boundary of the province of Sinkiang in Communist China touches Tibet. AC4YN runs the radio station at Lhasa for the Tibetan Government, and it is these two amateurs whose duty it will be to signal to the outside world any aggressive Communist move against Tibet.

“NO OUTDOOR AERIALS ALLOWED”

Practical Indoor Systems

By A. D. TAYLOR (G8PG)

SOME few months ago the writer found himself in the enviable position of being at the top of his local housing list. The rejoicing was somewhat tempered, however, by a sinister sentence on the back of the rent book issued by the local Council—“No tenant shall erect an outdoor wireless aerial without written permission from the Surveyor.” A few discreet enquiries soon showed that this clause was no formality, and that to get permission to erect an outdoor aerial suitable for transmission would require something in the nature of an Act of Parliament! No doubt a case could have been fought on the issue, but rather than do this it was decided to see if enough ingenuity could be found to get back on the air *without* an outdoor aerial. Had the writer's main interest lain in the HF bands this would have presented no great difficulty—indoor aerials for 14 and 28 mc are common—but as it was desired to carry out efficient working on 3.5 and 7 mc, the problem was a little more complicated.

Examination of the new house showed that the loft space available measured approximately 30 ft. by 20 ft., and was reasonably free from obstructions. At first the idea of folding dipoles into this space was considered, but an immediate snag appeared. Each dipole feeder would require a fairly large diameter hole in the ceiling to bring it into the operating room and the Surveyor did not like holes in the ceiling either! It was therefore eventually decided to use a long wire aerial, folded around the loft and worked against ground through a really good aerial coupling unit. This would only mean one hole of $\frac{3}{8}$ in. diameter in the ceiling, and could be used on several bands.

The Earth System

When the question of a suitable earth was considered another snag appeared. The operating room was so placed that the minimum possible length of earth lead would be between 20 and 25 ft. It was therefore apparent that great care would have to be taken to reduce earth resistance to the lowest possible value. The system eventually adopted was as follows: A length of multi-strand rubber-covered cable was found, the inside core of which was some $\frac{3}{8}$ in. in diameter. This was used as the earth lead proper, while lengths were cut from it to

Though compelled to allow the erection of unsightly H's cocked at all angles for TV reception, many local Councils nevertheless prohibit absolutely the use of any type of long-wire outdoor aerial on housing estates under their control. It is more than probable, however, that any tenant who is a licensed amateur could (once he is safely installed in the house) contest this on the grounds that it is an unjustifiable restriction on the free enjoyment of a recognised hobby—the Acts from which local authorities derive their powers provide for this. But there are obvious difficulties and disadvantages, with the inevitable delays, in attempting to enforce such rights, and most readers in a position similar to the author of this article will prefer his solution.—Editor.

connect to the eight copper rods which were to form the earth system. These rods were each 4 ft. in length (but could be conveniently made longer if sufficient tubing is available). A short length of cable was carefully soldered to one end of each of the copper rods, the other end of the cable then being twisted round the end of the earth lead. When all the rods were connected in this manner, the twisted joints at the end of the earth lead were soldered up, using plenty of heat, then painted over and thoroughly taped. A hole was then dug in the garden and the eight earth rods driven as deeply as possible into the heavy clay soil. The trouble taken in preparing this system has been amply repaid by the results obtained.

The Aerial Coupler

It was decided to employ the well-known arrangement as shown in Fig. 1. This system is very simple and efficient and seems to give an excellent impedance match between PA tank and aerial. It is also convenient from the point of view of quick changes from band to band. Should any reader not be familiar with the method of adjusting this type of coupler, it can be found in any of the handbooks.

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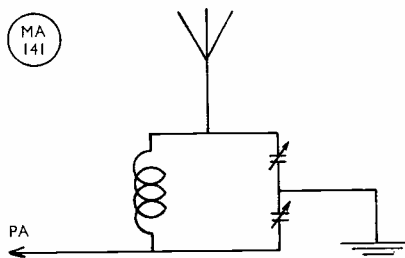


Fig. 1. Aerial coupling tuner used by G8PG to feed the indoor aerials described in his article.

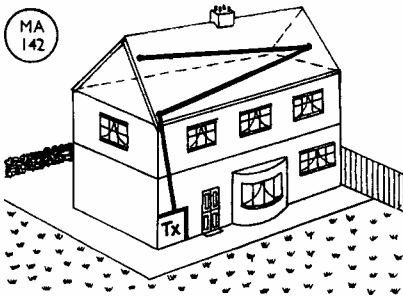


Fig. 2. A suitable 66-ft. indoor system, which can be rigged in a roof space or loft with a straight run of about 30 ft.

System for Forty

When the station was first reassembled in the new house, it was decided to commence operations on 7 mc. A 66-ft. length of 14-gauge copper wire was cut and hung in the loft in a "V" shape as shown in Fig. 2. A short length of polythene sleeving was slipped over the downlead where it passed through the ceiling and the aerial proper was supported on insulators hung from the roof beams. This aerial was worked against ground through the coupler already described.

As was only to be expected, the first tests of this system coincided with a spell of bad conditions, but contact was made with SM, even though the report was only RST 339. The next week-end produced excellent conditions and over a five-hour period the log showed contacts with an F8, three HB9's, FA3 (S7) and W1 (S6). The next week-end gave a contact with UA9CQ. (This, incidentally, producing the long-awaited WAC). In all, during the first six weeks of operation with this aerial, 4 continents and 19 countries were worked on Forty. The transmitter in use was a very ordinary 25-watt job with an 807 in the output.

The 3.5 mc System

After the initial spell on Forty it was decided to investigate the possibilities of operation on 3.5 mc with an indoor aerial. The 66-ft. system described above was first tried but although some contacts were made, loading was poor and it was obvious that the arrangement was inefficient. The writer has always believed length to be the secret on Eighty, so an extra

33 ft. of wire was soldered to the free end of the existing aerial. This was brought back to complete the "N" shaped arrangement shown in Fig. 3, giving a total length of 99 ft. The first two or three days of operation with this set-up showed 3.5 mc to be even better than 7 mc as far as indoor aerials were concerned. Distances of up to 250 miles could be worked in broad daylight, while after dark almost anything in Europe could be raised.

During the first two months that this system was in use 14 countries were worked on 80, including HA and OK1, the average report being S6, with quite a few stations giving S8. Once again the input at no time exceeded 25 watts. Great interest in the aerial system has been evinced by Continental stations worked,

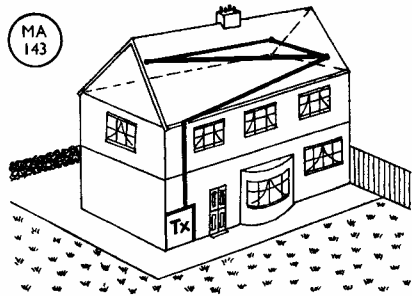


Fig. 3. The same arrangement as Fig. 2 applied to a 99-ft. aerial, which can be loaded up on the LF bands (see text).

one PAØ going so far as to demand the dimensions of aerial and house in metres!

Conclusion

This article has been written in the hope that it may encourage those who are kept off the LF bands (or off the air entirely) merely by lack of outdoor space, to consider using the free space that exists under every roof. Provided a properly handled VFO is available and a good earth and coupling system are employed, the loft aerial is capable of giving results nearly equal to an outdoor aerial, with much greater ease of erection and maintenance. From the point of view of interest, these aerials have given more fun and sense of achievement than anything else the writer has tried since Amateur Radio was resumed after the war, and the advent of the winter DX season is awaited with the keenest anticipation!

*Will Your Station Pass an Insurance Inspection?
Are Your Power Circuits Safe?*

RF PENTODES AS AUDIO AMPLIFIERS

Discussing AF Applications of the VR65 (SP61)

By E. J. PEARCEY (G2JU)

IT is the opinion of the writer that the average amateur is not fully aware of the high wastage of DC power occurring in the audio output stage of equipment such as a communication receiver when using a normal AF power valve, and that he does not know that such wastage can easily be avoided without loss of quality.

Normal Output Level

When using these receivers it is normal practice for the amateur to listen for long periods with an audio output to the loudspeaker of less than 0.1 watt, which is 0.7 volt across a 5-ohm speech coil. On account of the high "sound" sensitivity of the present day loudspeaker, this represents quite a loud signal and generally there would be no need to exceed such a level.

In high quality audio equipment for broadcast listening, it is necessary to use a final audio stage capable of large output, of the order of 10 watts. This is not so much from the point of view of high average output level, but is chiefly in order that the stage shall handle transients without distortion.

The amateur who is interested in communication work, however, has no such requirement. It is rather the average output level which he should consider, and the large excursions of output voltage occasioned by transients need hardly concern him—and in any case the average output level necessary is considerably less than that required for high-quality broadcast listening.

Modifying Surplus Equipment

It is common practice for the amateur who modifies surplus equipment to use a valve of the 6F6 or 6V6 class in the audio power output stage. The manufacturer of communication receivers is also prone to this practice, but then he usually has a "commercial reason" in making the design more competitive and more versatile. The AR88 receiver, for example, has a 6V6 output stage.

The two valves mentioned above have an output capability of 2.5 and 5.5 watts respectively, for an anode and screen DC input of between 34 and 40 mA at 250 volts. This represents a power input "to the last

As the author rightly points out, in general we have far too much available output at the audio end of our receivers—a high undistorted output capability is quite unnecessary and is in fact hardly ever used. A maximum AF output level of one watt is ample for amateur communication purposes. He shows that modern British RF pentodes used as AF amplifiers will give this with negligible apparent distortion.—
Editor.

stage alone" of 10 watts and an output capability which is rarely going to be utilised in the light of our normal amateur requirement of 0.1 watt.

The Solution

It is not generally realised amongst the amateur fraternity that the ideal solution to the problem lies in the use of the high slope RF pentode.

It may come as a surprise to many that such a valve could be used as an AF power output valve. It can be stated with assurance, however, that such a type is very well suited to the purpose.

A valve of this class operating with a DC power input of a mere 12 mA, total anode and screen, at 240 volts (3 watts) is capable of giving an audio output far in excess of the 0.1 watt we have previously found to be sufficient.

Valve Type VR65

On the surplus market at the present time, there are a number of items of equipment utilising valve type VR65. This is the Mazda high slope RF pentode type SP61, which is similar to the Mazda SP41, but having a 6.3 volt heater instead of 4 volts as in the SP41. It has a mutual conductance or slope (*gm*) of 8.5 mA per volt, and is ideal for use as the AF power output valve in a communication receiver.

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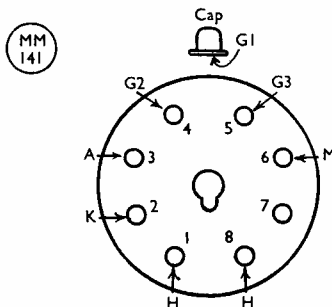


Fig. 1. Base connections of the VR65 (SP61).

Television Sound

In a television receiver being built recently the writer used a VR65 as sound output valve, and was pleased to note that the audio available was more than adequate; this was achieved for a total anode and screen DC input of only 12 mA at 240 volts. This input represents but 3 watts, enough to produce an audio output of as much as 1 watt with very little distortion.

High Slope

It is necessary to stress that for service as an AF power output valve the RF pentode *must* be of the high-slope class, and that American valves like the 6SK7 (having a slope of only 2 mA/V) are completely useless for the purpose. The reason for this is that the total anode and screen DC power input is not high enough to be converted to useful audio frequency power output.

It can be confidently stated that for use as the AF power output valve in equipment such as communication receivers and the sound channel of television receivers, the choice of the VR65 will leave little to be desired, and a worth-while reduction in DC power will result.

Operating Data

The constants of the VR65 Mazda SP61 high-slope RF pentode are as given in the table.

E_h	6.3v	G_m	8.5 mA/v
I_h	0.6a	R_a	0.7 megohm
E_a	200v	C_{gk}	10.75 $\mu\mu\text{F}$
E_s	200v	C_{ak}	5.25 $\mu\mu\text{F}$
E_g	-1.5v	C_{ga}	0.005 $\mu\mu\text{F}$
I_a	10.9 mA	Base—Mazda octal.	
I_s	2.7 mA		

It will be noted that the base is "Mazda octal"—not International Octal. This should cause little inconvenience because there is a plentiful supply of suitable holders on the surplus market, and in any case valves using this base are in current Mazda production.

Apart from other changes in the pin connections it will also be noted that in the Mazda octal the heater pins are Nos. 1 and 8 instead of 2 and 7, as in the international octal. This is a real advantage as it enables the heater wiring twist to be maintained very close to the pins instead of having to be splayed out as in the international octal. Thus, better neutralising of the AC field is achieved with consequent reduction in the possibility of induced hum in other parts of the wiring.

Circuit Details

Fig. 2 shows the circuit of the VR65 used in this manner, and also the values of the components. It is operated as a pentode and the stage gain is considerable. With the circuit

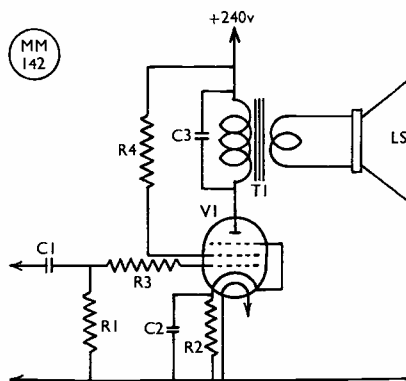


Fig. 2. The circuit suggested by G2JU as suitable for the VR65 (SP61) as an audio output amplifier. As explained in the text, it will give about one watt of audio, which is ample for normal operating conditions.

Table of Values

Fig. 2. Suitable AF Output Circuit for VR65.

- C1 = 0.01 μF 450 volt working, mica
- C2 = 25 μF 12 volt working, electrolytic
- C3 = 0.002 μF 350 volt working, paper
- R1 = 0.5 megohm $\frac{1}{2}$ watt
- R2 = 270 ohms $\frac{1}{2}$ watt
- R3 = 25,000 ohms $\frac{1}{2}$ watt
- R4 = 27,000 ohms $\frac{1}{2}$ watt
- T1 = see text
- V1 = VR65.

and values as shown, the plate current was 11 mA and screen 3 mA.

Output Transformer

In a triode, the load into which the valve works, called the "Optimum load", is usually several times greater than the internal resistance of the valve. This multiplier can easily be achieved because the internal resistance of the valve is very low.

In a pentode, however, this is not possible because the valve resistance is very high and pentodes usually work into a load which is considerably *lower* than the internal resistance.

The internal resistance (R_a) of the VR65 is 0.7 megohm and the load into which it works (R_l) can be several thousand ohms only. Much latitude can, therefore, be taken with the output transformer ratio.

Using a speech coil with an impedance of 5 ohms at 1,000 cycles (3 ohms DC resistance), transformers with ratios as far apart as 33-to-1 and 100-to-1 have given excellent results.

The load reflected back to the anode is obtained by multiplying the impedance of the speech coil by the square of the transformer

ratio. In the two examples discussed the values are, therefore :

Ratio 33-to-1

$$R_1 = 5 \times 33 \times 33 = 6,000 \text{ ohms approx.}$$

Ratio 100-to-1

$$R_1 = 5 \times 100 \times 100 = 50,000 \text{ ohms.}$$

There was little to choose between the two ratios in output and quality, the only difference appearing to be the need for different values of correction. C3 must, therefore, be chosen to suit the particular transformer in use, although the value shown in Fig. 2 is in

general good enough for the purpose.

Output Level

With values as shown and using the 33-to-1 ratio transformer, the measured output before audible distortion took place was 2 volts across the 5 ohm speech coil. This represents a power output of close on 1 watt.

From remarks in the first part of this article we can see that this is still in excess of the normal amateur requirement, and the considerable saving of DC power which results has been achieved without loss of quality.

FLEA POWER ON FORTY

Practical QRP Rig

By J. D. HEYS (G3BDQ)

ALTHOUGH the writer usually operates on the DX bands with inputs up to 150 watts, he has made occasional appearances with QRP gear. During these sessions, the receiving end has been looked after either by the HRO or the standby R.1155 receiver, and the transmitter was normally a single 6V6 or 6L6 as CO on 7 or 14 mc. It was felt, however, that for real QRP work the receiver too should be in this category, and some thought was directed towards the construction of a complete, mobile, battery operated station.

Just before last Christmas, action was taken! A trip to the local surplus stores, and a hunt through the junk box, was followed up by two week-ends of work on the kitchen table (between meals) and the rig was ready for its debut on 7 mc. It was decided to air-test away from home, and on a ten-day holiday near Cardiff, GW3BDQ/A was active with one watt to the Tx and under half a watt to the receiver.

Design

Important considerations in the design of portable QRP gear are size, weight, simplicity, and stability. The complete station had to be carried easily by the writer in addition to the usual personal impedimenta accompanying one on a ten-day vacation.

The use of 1.4 volt midget valves did away with the need for bulky, and often troublesome accumulators, and a 1.5 volt bell battery,

This excellent description of simplified portable gear for both transmission and reception will be of great interest to those many readers now turning their attention to the design of miniature stations. The equipment discussed here gives results with a total power consumption of less than two watts.—Editor.

together with a 90-volt layer type HT battery, supplied all the power needs. Adoption of midget valves also greatly reduced the physical dimensions of both transmitter and receiver.

On the transmitting side, a single valve CO was decided upon; the erratic behaviour of shock excited oscillators when miles from shack and frequency meter being thus avoided. The choice of 7 mc was largely due to the fact that operation would be in daylight hours, and also that a 66-ft. aerial system has many advantages over a half-wave on 3.5 mc when portable or fixed-portable.

Believing in the adage "If you can't hear 'em you can't work 'em," receiver design was most important, and stunt circuits were avoided. A simple 1-V-0 was finally chosen. This arrangement gives less audio output than the conventional 0-V-1, but the stability and selectivity afforded by a tuned RF amplifier more than compensated for the audio loss. Memories of swinging aeriels and heavy "pulling" in detector stages without RF amplifiers helped in this decision. Omitting the audio stage also reduces battery drain—no small item with portable equipment.

Circuit Details

The transmitter valve is a 3S4 output pentode, a type often used in what are nowadays known as personal receivers. This valve operates as a pentode CO. Many values of grid resistor (R4) were tried before 100,000 ohms was adopted. This value gives good output, low anode current and clean keying characteristics. Lower resistance values in

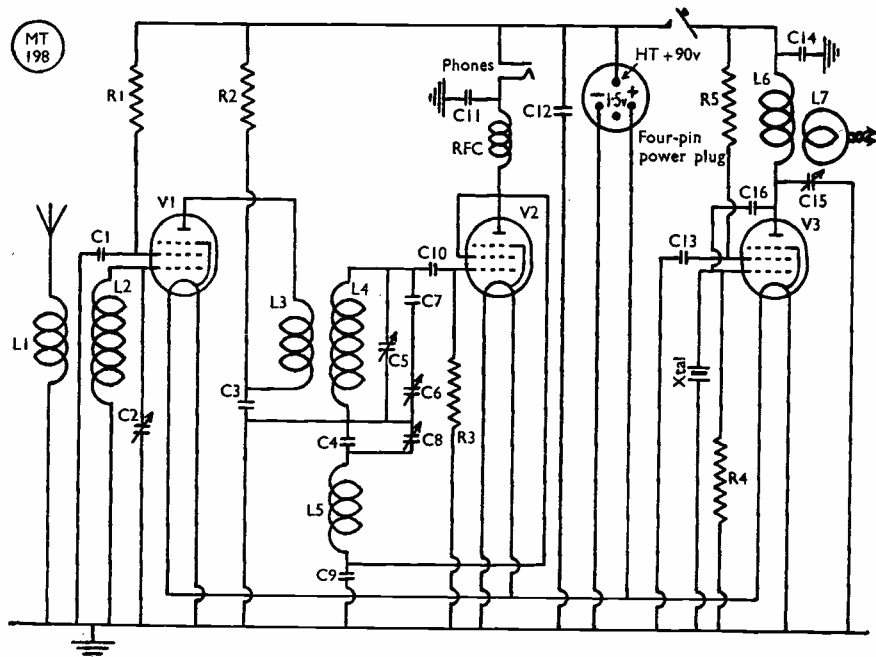


Fig. 1. Circuit of QRP portable receiver/transmitter assembly described by G3BDQ in the accompanying article. Using midget 1.4-volt valves and a 90-volt HT block, contacts can be made on 7 mc with a total power drain of under two watts.

this position increased output but also introduced an objectionable chirp.

The grid/anode capacity of the 3S4 was found insufficient to sustain oscillation, and this was implemented by the inclusion of C16 which is merely a couple of 2-in. insulated wires twisted together. Cut-and-try methods should be used to reduce this capacity to the smallest workable value.

The anode circuit is tuned by C15, and it is possible to earth the spindle of this condenser by the introduction of a good quality mica condenser between the cold side of the coil and earth. This simplifies construction and obviates insulated couplings and stand-off mountings. Transmitter output is brought to two Eddystone midget stand-off insulators via a three-turn link winding on the tank coil. A dipole can be connected directly to these stand-offs. If a long wire or Windom type aerial is used, it is advisable to make up a separate tuning unit for link coupling to the transmitter.

The Receiver.

Both the valves in the receiver are 1S5's; one functioning as an RF pentode and the

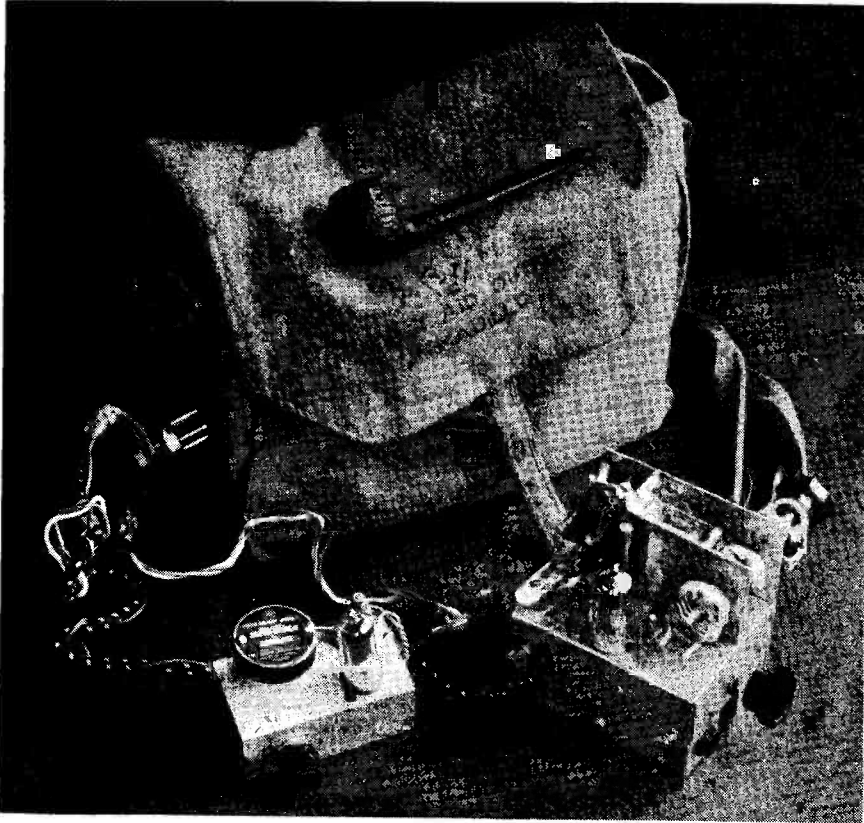
Table of Values

Fig. 1. Circuit of Flea-Power Station for 7 mc

C1, C11, C12	= .001 μ F midget paper
C2, C5, C8	= 60 μ F variable
C3, C13, C14	= .002 μ F mica
C6	= 10 μ F variable
C7	= 10 μ F ceramic cup
C4	= 150 μ F silvered mica
C9, C10	= 100 μ F silvered mica
C15	= 100 μ F variable
C16	= see text
R1	= 50,000 ohms $\frac{1}{2}$ watt
R2	= 1,500 ohms $\frac{1}{2}$ watt
R3	= 5 megohms $\frac{1}{2}$ watt
R4	= 100,000 ohms $\frac{1}{2}$ watt
R5	= 5,000 ohms $\frac{1}{2}$ watt
RFC	= 2.5 mH HF choke
V1, V2	= 1S5
V3	= 3S4

other as a triode regenerative detector (with anode and screen grid strapped). Inductive coupling has been used in the grid circuits of both stages, the advantage being better selectivity. Gain and selectivity are further improved by having high inductance and low capacity in these grid circuits.

The detector is of conventional design, although care was taken to achieve smooth



The portable station complete, with haversack containing power supplies, as described by G3BDQ.

regeneration with freedom from backlash. A $60 \mu\text{F}$ variable condenser is suitable for the reaction circuit when shunted by a $150 \mu\text{F}$ silvered mica condenser (C4). If a small $200 \mu\text{F}$ variable condenser is available it could be used in this part of the circuit instead of the former arrangement.

Good bandsread is possible by putting a $10 \mu\text{F}$ ceramic cup type condenser in series with the $10 \mu\text{F}$ bandsread variable (C6). With this arrangement, 7,000 to 7,050 kc is spread over 100 degrees on the bandsread dial. The bandset condenser (another $60 \mu\text{F}$ variable) is located under the chassis and is pre-set with a screwdriver. When the correct setting has been found, a few drops of nail varnish or Dencofix between spindle and bush of this condenser will prevent vane movement. An epicyclic or other miniature reduction gear should be used on the bandsread condenser. Some excellent midget drives for this

purpose can be bought quite cheaply on the surplus market.

C11 and C12 are both $.001 \mu\text{F}$ midget by-pass condensers soldered directly to each terminal of the phone jack. These condensers removed all traces of hand capacity from the receiver.

In the 1S5 valve the suppressor grid is connected internally to one side of the filament. In the detector circuit it was arranged that this side of the filament went to LT positive. Reaction was found smoother under this condition.

Construction

Both chassis were built from scrap aluminium sheet. All the metal work was done on a kitchen table without a vice. Bending was accomplished by cutting shallow grooves along both sides of the metal with a knife and steel rule and gently easing the bends with two large pairs of pliers.

In the receiver, rigidity is essential; and everything possible should be done to achieve this. A small sub-panel $1\frac{1}{2}$ in. behind the front panel supports the bandspread condenser and also acts as a screen for the RF amplifier, which is mounted horizontally. The chassis layout is best described by the photographs. Holes for the B7G type valve holders were easily made with a hand drill and a rat-tail file.

All the coils are wound on $\frac{1}{2}$ in. formers, and details are given in the separate table. The receiver detector stage coils are held rigidly in place by short lengths of 14 SWG copper wire, but L1 and L2 are wound on a small "P" type coil former which is bolted on top of the chassis close to C2. In the transmitter the only components above-deck are the valve, crystal, and grid leak!

The complete station is carried in a small ex-Govt. haversack measuring 9 in. \times 8 in. \times 3 $\frac{1}{2}$ in. and the batteries occupy the bottom of this permanently. Feed leads are taken to a four-pin socket fixed to the side of the haver-

sack and power leads from both transmitter and receiver terminate in a single four-pin plug. (The base of a faulty four-pin rectifier valve was used for this). Plug and socket connections save time and trouble when setting up the station.

Operation

The complete rig was operated under far from ideal conditions in South Wales in early January, and a number of QSO's with British stations were made. Signal strength reports were rather low and averaged S4/5, but the indifferent and very make-shift aerial system probably had much to do with this. The half wave dipole for the transmitter used ordinary plastic lighting flex for feeder, and the whole system was under 20 ft. high. To avoid aerial switching, a separate 33-ft. receiver aerial was slung over the roof.

A disadvantage to the operator of simple equipment of this type is the inability to "listen through" to one's transmissions. The RF breakthrough causes receiver blocking, and only key thumps can be heard. There seems to be no way of overcoming this snag with a straight receiver, unless a separate monitor stage is incorporated.

No metering is provided on the equipment, although a small 0.25 mA meter is a useful adjunct when setting up the station. With 90 volts HT the CO anode current could be brought up to 12 mA when fully loaded, although slight chirp was experienced under these conditions. Cleaner signals resulted when the loading was lighter and the anode current was brought down to 10 mA. A $\frac{1}{2}$ -watt flash lamp bulb across the transmitter output terminals is useful for tuning up and can be lit to full brilliancy. Long LT life is assured by the fact that the total filament consumption for both units is only 200 mA.

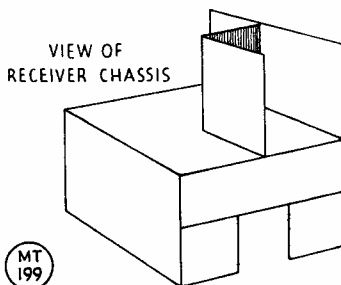
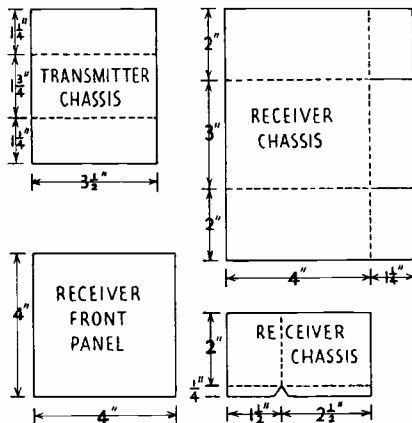
Modification for 3.5 mc

For 3.5 mc operation the transmitter

Coil Table.

- L1 = 15 turns No. 34 g. enamelled over cold end of L2.
- L2 = 40 turns No. 30 g. enamelled scramble wound on $\frac{1}{2}$ in. diameter paxolin former.
- L3 = 12 turns No. 34 g. enamelled over cold end of L4.
- L4 = 45 turns No. 30 g. enamelled close wound on $\frac{1}{2}$ in. diameter paxolin former.
- L5 = 15 turns No. 30 g. enamelled close wound $\frac{1}{4}$ in. from cold end of L4.
- L6 = 40 turns No. 30 g. enamelled close wound on $\frac{1}{2}$ in. polystyrene former.
- L7 = 3 turns thin flexible insulated wire over cold end of L6.

(Fix all windings with "Dencofix" or nail varnish)



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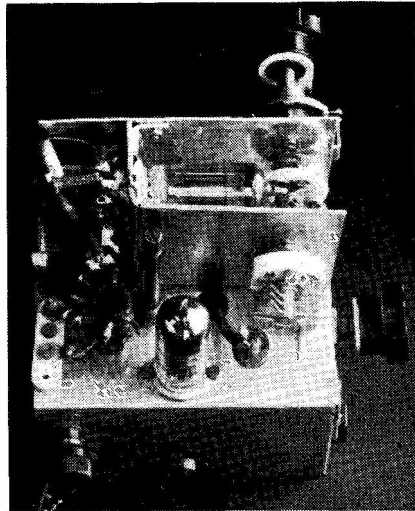
Fig. 2. Drawing detail for chassis and screen for the QRP receiver and transmitter.

requires the appropriate crystal and a larger anode coil. On this band however, the writer would prefer a long wire tuned against ground rather than attempt to work a dipole. A 132-ft. dipole involves a far greater effort in erection than its 7 mc counterpart, and has longer feeders, which result in greater losses—a point also to be considered.

The receiver as it stands will cover the 3.5 mc band if a 50 $\mu\mu\text{F}$ silvered mica condenser is shunted across the bandset condenser. If bandspreading on this band is found to be too great, the 10 $\mu\mu\text{F}$ fixed condenser (C7) can be shorted out.

Conclusion

Although no great claims are made for this type of QRP gear, a reasonably good aerial system and a judicious choice of operating times can give the operator many interesting QSO's. Working a GM when rock-bound with one watt input provides a refreshing change from routine "rubber stamping" on Ten or Twenty! A word of warning. Don't call CQ at, say, 1500 hrs. on a Sunday afternoon!



Rear view of the straight receiver used with G3BDQ's portable outfit.

BALLOON AERIALS

The Practical Considerations

By J. W. SWINNERTON (G2YS)

IN an endeavour to obtain a good DX signal on the LF bands, especially 1.7 mc during the recent winter, the writer decided to experiment with a balloon-borne aerial. The purpose of this article is to describe, not the theory of the aerial itself (which can be found in any standard textbook) but the practical problems that were encountered.

Permission to Fly

The first step was to obtain permission from the Ministry of Civil Aviation, R.L.3, Ariel House, Strand, W.C.2. This took about three weeks, and in fact did not arrive until after the first date that it was intended to operate. The following details had to be supplied:

- (a) Description of the balloon and approximate cubic capacity.
- (b) Reason for wishing to fly it.
- (c) Dates and times of elevation.
- (d) Proposed maximum height of elevation. (In this case only a proportion of the desired height was permissible).
- (e) Method of mooring.
- (f) Location of mooring by Ordnance Survey map or with reference to two prominent local landmarks.

After reading this, you may feel "I t'ink we better don't"—but nevertheless experiments with balloon-borne aerials on the LF bands can be very interesting, and results quite surprising.

—Editor.

Equipment

The equipment for the test consisted of a balloon-type M278A, a hydrogen generator, connecting tube, and lightweight aerial. The latter is actually a tubular copper braid about 300 ft. long enclosing a nylon strand and wound on a reel, all of which can be carried easily in the palm of the hand. A glance through the advertisements of surplus gear in the *Magazine* will reveal a number of sources of supply of these items.

Watch The Garden!

To inflate the balloon, the connector is screwed into the generator and the other end inserted into the balloon valve. The generator is then plunged completely into a tub of water and held upright, so that it vibrates with the generation of hydrogen. At the same time the chemical reaction produces a caustic solution. This must be kept away from the body and clothing, and especially from the lawn, as it has a "delayed action" effect lethal to the garden greenery. A large tub is essential, and this must be cleaned thoroughly after use. If the solution is poured off on to the ground, care must be taken that the natural drainage

does not carry it to a cultivated plot. Surplus liquid must also be drained from the used generator before it is consigned to the dustbin !

Choose a Calm Day

Unless one is looking for trouble the balloon is only manageable in *really* calm weather, because it has no stabilising devices, and once in the air will "buck" in even a slight breeze. When not in use it can be close-hauled to a post or pegged down with a simple network of cord. On one occasion the writer's balloon was buffeted about on top of a pole in a 12-hour gale without apparent ill-effects. A careful watch on weather forecasts will save much wasted effort, and if one can obtain a really local one so much the better.

Control is Essential

Once the balloon is in the air one must be able to return to the shack without a compelling desire to dash out to look at it every few minutes ! The anchoring point must be sited to allow the balloon to swing round in a wide arc without encountering the cherished

four-element beam or the neighbour's chimney pots. It must be remembered that a "balloon vertical" very seldom *is* vertical—the prevailing wind may cause the aerial to incline as much as 45 degrees, with disastrous effects on the desired angle of radiation.

The best anchorage is by means of a wheel or pulley with wide flanges through which the aerial runs. This will take considerable strain and vibration off the winder. The aerial cable will not break unless the wind is too high—in that event one pays the price of imprudence !

Storage

If desired the balloon may be stored in a shed, and given a "refresher" dose when required—a hydrogen cylinder might be a cheaper source for this purpose than a generator. Don't forget to anchor it, even in a shed, or it will get out if the door is left open ! Still, the balloon-borne aerial opens a field of interesting experiments, and one can always get a kick out of imagining the other chap's face when one says in QSO "Hr 300 ft. vertical, OM!"

MORE ABOUT HARMONIC SUPPRESSION

Using the Faraday Screen

By W. L. VINICOMBE (GM8RV)

THE QTH of GM8RV is a small town, and there are—or were—several amateur stations, each striving to obtain contacts with the outer world on the 20-metre band. It was felt that the second harmonic of the GM8RV transmissions on the "Roaring Forties" might interfere with their reception, particularly when working DX.

Considerable thought was given to the subject and eventually an adaptation of the Faraday screen was tried. Here it should be said that with the screen in position and a 145-watt transmitter in operation on Forty, a communication receiver situated at a short distance was unable to resolve any carrier on its 20-metre range.

In normal circumstances the coupling from the PA to the aerial was by links, joined by co-axial cable, earthed at both ends. The link itself was a length of 12 SWG copper wire, sheathed in systoflex, wound to a suitable diameter, sewn, varnished and supported round the actual PA coil.

Fitting the Screen

The screening here described was added without further preparation, except that the link was removed to make winding easier. This screening consists essentially of copper tape, one quarter of an inch wide and as thick as stout brown paper, wound toroidal fashion on to the link coil. The winding was commenced at the bottom centre, both ends ascending the sides with the edges just lapping. Arriving at top centre, one end was cut short and held in position with a few turns of empire tape. The second end was wound over this tape and the covered screening. This ensured that the link was totally covered with the copper. To the bottom centre was soldered a short length of copper wire taken to earth. As this earthed copper tape was in close proximity to the live anode coil, the whole was protected with one layer of empire tape. (It perhaps appears a little bulky but this is offset by its efficiency).

It has since been found that if the screening is applied to the link at the aerial end instead of at PA end there is no screening effect at all. It would appear therefore that the screening must be introduced at the coil where the harmonics originate.

Whilst originality is being claimed for this method of screening, the writer offers it for general use, particularly to those less fortunately situated. Those stations causing, or likely to cause, interference to TV may perhaps be able to base some experiments on this simple idea.

BASS CUTTING

To Improve Readability

By R. C. RAY, B.Sc., A.R.C.S.,
Assoc.Brit.I.R.E., (G2TA)

THE old adage "you can't work 'em if you can't hear 'em" is no doubt very true, but more properly it ought to run "you can't work 'em if you can't read 'em." That this is generally realised today is evidenced by the various designs for Q5'ers which have appeared in the literature. The idea that improved readability can be obtained by restricting the audio bandwidth has also received some attention, and there are few of us today whose receivers do not employ at least a simple "top cut" tone control. In modulator design too, more people are making use of restricted range amplifiers; they are of course essential if any form of speech clipping is used. It seems, however, that few operators realise the advantages to be obtained by cutting out the bass notes, and it is proposed to mention these briefly at this point.

The Factors

Extensive tests carried out during the war have shown that the normal bass tones (up to about 300 cycles) contribute relatively little to readability under weak-signal conditions. However these same bass tones comprise quite a large proportion of the power in normal speech. So it can be seen that if modulation is restricted to 100 per cent on peaks, then the lower frequencies will be the ones which set a limit to the modulation depth when using "high fidelity" equipment. Restriction of the bass therefore enables the carrier to be modulated more deeply by the intelligence-carrying tones before 100 per cent. modulation is reached. This simple fact is of course the origin of the idea that you "want plenty of top to work DX"—though admittedly there are two schools of thought on the subject.

From the receiving point of view, too, restriction of the bass offers several advantages. For example, a signal read through a crystal filter will show an apparent increase in low tone due to attenuation of the higher frequency sidebands. This often makes the speech boomy, and in the presence of noise and splatter the readability can be very poor. But if the incoming signal starts by lacking in bass tones this effect practically disappears, and readability is not impaired. So, to the transmitting amateur, bass cutting gives improved readability owing to the greater useful modu-

Our contributor argues the case for bass attenuation to gain the advantages of more intelligible speech under QRM conditions, deeper average modulation and more efficient operating conditions on both receiving and transmitting sides. He suggests some simple circuitry, worth trying to establish the facts.—
Editor.

lation depth which can be employed and to the greater readability obtained under QRM conditions.

Receiver Side

To those requiring the utmost in receiver performance, the inclusion of a simple bass reducer will also be found very beneficial. In addition to improving the readability of normal signals through the crystal filter, bass cutting makes an even greater improvement where the signal is frequency-modulated at power frequencies, as is often the case with some of the mid-European and Latin-American stations. Here the crystal converts the unintentional FM to AM with the result that the speech is drowned out by hum on bringing in the crystal. This is normally of such a low frequency (25-50 cycles) that it disappears completely when the bass cut is employed. Low frequency heterodynes are correspondingly reduced (especially the "zero beat" type) while rapid flutter is also reduced to some extent. In addition, ignition noise is surprising-

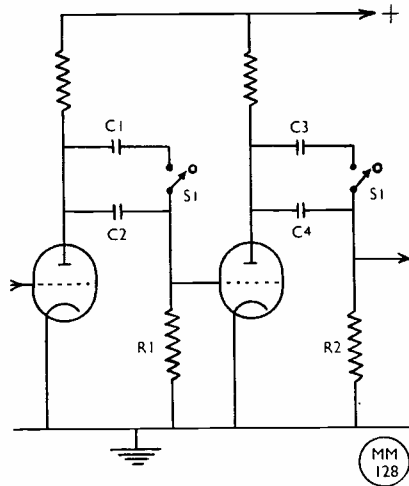


Fig. 1. Applying bass attenuation to a receiver or speech amplifier having two stages suitable for modification (see text). Values are: C1, C3, 0.1 to .01 μ F; C2, C4, .01 to .001 μ F; R1, R2, 500,000 ohms.

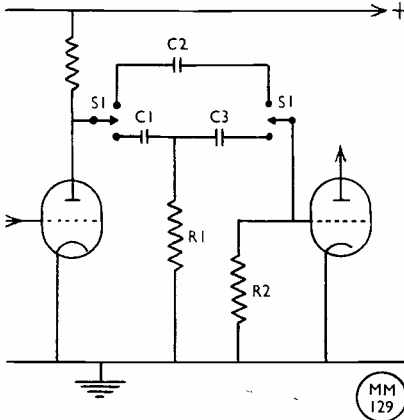


Fig. 2. Where only one inter-stage AF coupling unit can be opened, a suitable circuit is as shown here. C1, C3, $.01$ to $.001 \mu\text{F}$; C2, 0.1 to $.01 \mu\text{F}$; R1, R2, $500,000$ ohms.

ly reduced when the circuit follows a not too effective noise limiter. The limiter removes the high frequency components, but leaves a low pitched buzz which the bass attenuation

takes out completely. Finally, a useful check on incoming "quality" is provided by switching in the attenuator—if it makes practically no difference to the voice quality then the signal may be reported as having very little bass component.

The above arguments show that the inclusion of a bass attenuator is very desirable in both receiver and modulator, and once installed, the average operator would never be without it. The circuit changes are fortunately very simple, and both receiver and modulator can be modified in about an hour.

Circuits

Generally speaking, interstage coupling condensers are of the order of $.01$ to $0.1 \mu\text{F}$ and at least two such couplings usually exist. These should be replaced by condensers of *one-tenth the original value* and arrangements made to return the original condensers into circuit by means of a switch (Fig. 1). If only one stage of capacity coupling can be changed, then the circuit of Fig. 2 should be used, since a better cut-off characteristic is obtained by several small steps than is possible in one large one. A simple DPST toggle switch will handle two stages satisfactorily and no trouble due to AF instability should be experienced.

FORMATION, No. 3700 R.R.U.

The Air Ministry announces that a Radar Unit of the Royal Auxiliary Air Force is to be raised in Central London, with its HQ at 77 Hallam Street, W. Formation of No. 3700 R.R.U., which is to function as part of the R.A.F. Control and Reporting System and will thus be similar to existing Fighter Control Units, originates from discussion between the Air Ministry and the Radar Association. The idea is to give members of that Association, as well as those interested in radar, an opportunity to serve as auxiliaries in a specialised unit. The C.O. of No. 3700 R.R.U. is to be Gp.Capt. E. Fennessy, O.B.E., who will be well remembered by those of our readers who served in and about 60 Group during the last war.



SUMMER CALL BOOK

The latest issue of the *Radio Amateur Call Book* (Summer 1950) contains over 50 columns of G callsign/addresses, the lists being complete up to and including those appearing in our "New QTH" feature in the May issue. A useful new feature of the format is a bold heading reference showing the callsign coverage for each two-page opening.

RUNBAKEN TV TESTSCOPE

This is a device designed to effect circuit, component and polarity tests on all equipment and wiring, operating at potentials between 350 and 12,000 volts. Though described as for TV testing, such an instrument—it is a glow discharge tube with the necessary resistors, all contained in a suitable housing of the test prod type—obviously has many useful applications in the radio field. Write Runbaken Electrical Products, 71-73 Oxford Road, Manchester, 1.

CARDS IN THE BOX

We hold card(s) for the operators listed below, in respect of whom we have no postal address on file. Please send a large S.A.E., with name and callsign, to BCM/QSL, London, W.C.1. The callsign can also appear in our "New QTH" feature, and in the *Radio Amateur Call Book*, if a request to that effect is made at the same time.

G2FOD, 3CRA, 3DMQ, 3EYV, 3FUM, 3FZN, 3GFS, 3GJQ, 3GKC, 3MW, 3OD, 5CJ, 6LW, GW3CPU.

FIRST CLASS OPERATORS' CLUB

President :
GERALD MARCUSE, G2NM

Hon. Secretary :
Capt. A. M. H. FERGUS, G2ZC

Asst. Hon. Secretary :
J. E. CATT, G5PS

With close on 300 members on the current roll, and many important matters to be brought to the attention of everyone in the FOC, it has been decided that during August Circular Letter No. 37 will be sent to every individual member of the Club.

Marathon Contest

For some time now, the FOC has held its own annual marathon event—in previous years, it tended rather to be that the entrant who could keep awake longest won, though this is no reflection on the efforts of the distinguished operators who succeeded in completing the course first. However, acting on the suggestions of members, the Committee has decided that this year's contest—to be held in October—will be run over a defined period for a given number of operating hours, the winner to be the station working most FOC members during that period. Full details will be given in C/L 37.

FOC DX Contest

There is general support for the idea of a members' DX contest, and the month of November has been selected by the Committee as the best time for it. Dates and rules will appear in C/L 37.

The Club Dinner

Dated for Saturday, November 25, with G2NM again in the chair, this should be another good evening as many members have already "signified willingness." As it is essential to have a reasonably accurate idea of the eventual total, members are particularly asked to let either of the Honorary Secretaries know as soon as possible if they wish (or think they can) be there. Provisional bookings can be accepted, but must be confirmed within a week of the actual date.

The new Club membership list is in preparation, and will include rules in full, with blank pages for amendments and other information given about members in the Circular Letters.

DX Highlights

The FOC distinguished itself in the recent ARRL DX Contest. Three members were top scorers for their respective countries :

GW3ZV, KV4AA and ON4QF. Only two scores were higher than the staggering total of 377,187 points amassed by GW3ZV—one was KV4AA himself with the astronomical figure of 691,782 and the other a W3. The DX listings in the *Short Wave Magazine* continue to show that FOC members generally are holding their own in this field of amateur achievement.

Election Notice

In accordance with the Rules of the Club, the following new members are declared elected to the active membership list of the First Class Operators' Club :

P. W. F. Jones, G3ESY (Hereford); G. Schiere, PAØGS (Amsterdam); F. Ward, G3BGD (Eastwood, Notts); H. Grist, GD3FBS (Douglas, I.O.M.); R. C. Bennison, G3BRV (Brighton); I. Morris, EI6U (Co. Dublin); F. A. Grant, G3FTV (Wakefield); E. H. Trowell, G2HKU (Sheerness).

All communications respecting the First Class Operators' Club should be addressed direct to Capt. A. M. H. Fergus, G2ZC, 89 West Street, Farnham, Surrey. (Tel. : Farnham Surrey 6067).

XTAL XCHANGE

Here are the current offerings—for the few simple rules in respect of insertions in this space, please see p. 351, July.

G3ARX, 4 Marian Avenue, Mablethorpe, Lincs.
Has QCC P5 1770 kc crystal, certificated.
Wants 1000 kc bar

G3EDG, 4 Devonshire Street, Brighton, 7, Sussex.
Has QCC Type P5 7028 kc crystal, certificated.
Wants similar crystal 3700-3800 kc.

G3FSW, 57 Longley Lane, Northenden, Manchester.
Has 1000 kc bar, $\frac{3}{4}$ -in. pin spacing, no certificate.
Wants frequency 7161 kc or near, $\frac{3}{4}$ -in. mounting.

G3FTU, Jesmond, Hartley Park View, Pontefract, Yorks.
Has FT243 crystals for 7100, 7300, 7450 kc, no certificates. Wants 1.7 mc crystals.

SWL, 1 Grantock Road, London, E.17.
Has Brookes Type C 1750.5 and 3575.5 kc crystals, $\frac{3}{4}$ -in. holders. Wants similarly mounted frequencies 3510-3530 or 7020-7050 kc.



DX COMMENTARY

CALLS HEARD, WORKED & QSL'd

QUITE a pretty month, on the whole, with nice DX about on 14 mc. But not so obvious or enticing that the whole of the world has been chasing it—with the exception of FP8AC! It's a remarkable thing, but our own announcement regarding FP8AC, last month, appears to have been the only advance news published; *QST* and *CQ* maintained complete silence on the subject. And yet, the first time he showed his face, there was a ready-made queue of about 200 bodies all practically formed up. But more of that later.

Starting at the Top

We will start with 1.7 mc and work downwards this month. Top Band activities have fallen off somewhat, but they are due for a substantial lift from now on. By August 1, we shall be pleased to be able to decide on the winner of our Top Band Marathon for the year. At present it seems that G6AB and G2YS are running neck and neck with scores of 61 and 16. Will one of them spirit up an extra county by August 1? There will be holiday portables in action from various parts of Scotland, and who knows?

Note the announcement in the large Box, relating to our Top Band Transatlantic Tests next January and February. This should be quite an event and not in any way comparable with its forerunners, because there has never at any time been such a high level of Top Band activity in this country. This means, of course, that the "select few" (if they still exist) will not find things so easy on account of QRM,

By **L. H. THOMAS, M.B.E. (G6QB)**

but that all and sundry should compete on more or less equal terms, the spoils going to the best operators. There will be very solid support from across the Pond, our old and valued friend W1BB being at least as keen on the whole thing as anyone is at this end. The ARRL will be publicising it in detail and everyone who matters will know all about it with heaps of time to spare. All we can add now is "Watch This Space".

Top Band News

G2YS (Chester), putting in his new score of 61 Counties, tells us that OZ2NU has WAEC and a total of 73 British Counties worked, though not all, of course, on the Top Band. G3ALE/A (Co. Durham) also enters a new score—considerably higher than before—but he has not had much time on the air. He thinks the band has been poorly populated of late, probably because of QRN. G3BOC (Cheshire) finds it very hard to work anything new at present, but he has hopes of operating portable from Brora, Sutherland, for the first two weeks in August.

G3FZW (Lichfield) is making a portable sortie into Wales (from Llanbedr, Merioneth), and expects a fair demand for QSO's if he can pump some RF back over those hills. His active dates as GW3FZW/P will be July 27 to August 5, so you're too late by now unless you read this quickly!

GI6YW (Belfast) is an Old Timer who has come back fairly recently and has a great liking for the Top Band. In fact he uses six watts up there and 20 watts on 28 mc—otherwise nothing else. With the said six watts he has worked 60 counties this year and has 50 of them confirmed. He needs Hereford for WAEC. 'YW remarks "There are a few cranks and odd bods on the band, but the general average of operating is really good, the manners much better than on some other bands, and I find it a delightful band for a chat." It is good to read his last paragraph: "I am most definitely as interested as ever I was, and very glad to renew old friendships over the air, or by letter as I am doing now". Yes, Top Band work is especially good for this sort of thing.

G2CZU (Bath) is also closing up towards his WAEC, but does find that he is "scraping the barrel" at present. He wonders, by the way, how many other amateurs have at some time visited the underground factory at Corsham, Wilts, where he works. GM3FBA (Helensburgh) says Dumbarton is going to be a difficult county again, because he is liable to be a bit spasmodic in his operation. Week-ends only, among other things. 'FBA reports, though, that GM2BUD, near Prestwick, is putting Ayrshire on the map. He works phone on 1750 and 1872 kc. A nice QSO for GM3FBA took him right down to G6GM in Devon—368 miles in broad daylight.

Eighty Metres

One short paragraph on this band, based merely on our own spasmodic activity, since no one else has anything to say about it. We have heard VK5KO several times—he must have a freehold right to a bit of the band by now. We have also heard two or three ZL's, both in the early mornings and early evenings. W's and VE's, both on phone and CW, complete the picture, although we have a feeling that the odd PY or LU must be about sometimes. Eighty is so extensively used in the summer for local ragchewing that the DX is pretty hard to find, and no one ever seems to call it—but it *is* there, in case you're interested.

The Forty-Metre Picture

Now here we are on a different kind of wicket altogether. Either you like 7 mc DX or you don't. Those who do, stick to Forty through thick and thin, and find something of interest all the year round. G3ABG (Cannock) worked VQ4AR at 1930 GMT—signals 569—and he heard later that a VQ2 and an ST2 were up at the same time. G3ATU (Roker) heard OA4BG at 578, working Yanks around 0300 GMT. G5FA (London, N.11) went one better and heard the

OA at 0700—a much more comfortable hour. He has also heard a ZL3. G6QB (Bexhill) put out a hopeful CQ at 0600 one day and collected a ZL4, a KZ5 and two W's on the one call.

DL1FV (Rendsburg) writes to say that he very much doubts whether W6SA1 is correct when he talks about the W6 signals reaching Europe the long way round in the winter (at 1500 GMT). As '1FV says, most of the *short* path is dark (via the North Pole) at that time of day. Those who use a Solariscope will be able to confirm this at once. Only unidirectional beams or D-F equipment will give us a definite answer on this one. We are inclined to agree with DL1FV.

G8VG (Dartford) managed to work VP4TAB on 7 mc, but he doesn't say when. G3BDQ (St' Leonards) has notched up UA9WC, EA9BB, KZ5RG, W3 and W4, and tells us that ZS3K will be on the band at 2300 on Saturdays and 0530 on Sundays.

DX on 14 mc

In spite of what you may think when you survey this band at odd times (and we have chosen some pretty "odd" ones lately) it cannot be denied that it is bearing the brunt of all our DX communication still. There is just as much DX on the band as there ever was



General view of the station of PAØDR, Middelstum, who has a rack of his own design carrying transmitting and receiving equipment for the Two, Ten and Eighty Metre bands.

—trouble is that it's much more difficult to dig out.

G3ATU has been one of the lucky ones—he has worked FP8AC, and at 1800 GMT, of all times. He heard the queue in the small hours, with 190 stations "listed" and organised by KV4AA, who was trying to prevent what he called a Rat-Race. Two other new ones

for 'ATU were PK6LN and CR5AD. Also heard: FO8AC, BM7KA and VQ8AU. Now several chasers question the latter, but 'ATU says that he said "QTH Box 13, Gagos" and kept that up for three days, after which he switched to the call ZL2AU, "QTH New Zealand"! He was T3 or T4. Others please note—and we will *not* count him for Zone 39—he smells!

G3ABG has raised CX4CZ, MI3IM, MS4FM and VP6SJ. G2VJ (London, S.E.22) using Phone only, worked SP1CM, VQ3BVT, VP6AL, YN4CB, OA4DE, CE1AM, VP3MCB and HE1JJ, the last six all on one crystal when the VFO went haywire. G6TC (Wolverhampton) added two to his total with the elusive EA9 and TA.

G5FA has been on a Phone orgy, filling up some gaps in the log with DX like ZB2A, LX1DC, TF5TP, SP5AC, VQ4RF, VP4TI and the like. On CW he worked VS2CP, MS4FM, TA3FAS, MP4BAO and "the usual W6, W7, VK and LU". G8VG mentions a contact with VQ4SGC, who was using only 10 watts.

G3COJ (Hull) did nicely for himself with a couple of phone contacts with U18KAA and UA9KSB; he also raised EQ3FM (phone) who told him that the only stations in Iran are EQ2L, EP5B and himself. The T3 fellow signing EQ3B didn't come back when he was asked which part of Europe he was in.

G2HKU (Sheerness) seems to have been having a good time, and his list includes TA3FAS and 3GVU, MD2PJ, MF2AB, CE3AG, YV4AX, KS4AC, TI2PZ, ZD2LMF and many more. On the QRP theme, he says that W7AOL was using 30 watts, VP1AA 25 watts. He adds that he once worked G2SO on the Top Band, when his input was 0.006 watt!

G3FTQ (Thornton Heath) reports for the first time, having just migrated from 40 to 20. The introduction of a VFO brought along the DX and the TVI almost simultaneously! The former included EA8LP, PJ1UF, KV4AQ, UA9KCC, PY, VK and VE. 'FTQ says he wonders whether some of the chaps who grumble about bad conditions realise how *good* they really are. At one given time, as he says, you can hear only a very small proportion of the stations on the air, and it is fairly easy to work them without too much QRM. But if they all came in at once

News From YI

Y13ECU, ex-G3ECU, has been on the air, with official sanction, since July 1. The CSO at Habbaniya has received permission from the Iraqi Government for amateurs on RAF Stations to operate in the amateur bands. 'ECU says conditions have not been

FOUR BAND DX

Station	Countries Worked					Power
	7 mc	3.5 mc	28 mc	14 mc	Total	
G6BS	112	28	4	182	191	150
G5FA	95	19	68	131	146	35/150
G6QB	76	41	133	182	204	150
G3ATU	70	26	100	187	193	150
W2QHH	69	71	100	188	193	35
G3AKU	66	31	58	137	153	100
G2VD	60	29	98	161	168	150
G8PW	60	15	58	108	122	25/100
G6BB	60	25	52	118	131	10/85
G8VG	56	24	26	108	124	60/75
G2WW	52	21	105	170	181	150
G3ABG	52	22	6	120	121	150
G5WC	50	1	12	120	122	45
G3FXB	48	21	30	81	94	25
G6AT	46	21	1	88	94	100
G8KU	45	9	70	132	148	50/120
ZB1AR	45	31	44	113	120	150
G6TC	43	11	18	98	107	20/75
G8IP	42	13	66	115	132	3/150
G2HKU	38	1	13	106	116	4/25
G3FGT	37	32	47	90	112	60/100
G2YS	32	24	34	113	127	150
G2FYT	31	5	31	124	131	150
G6QX	29	16	46	106	120	30/150
G3BOC	25	17	72	34	83	15/60
G2BJY	24	4	105	100	141	25
GM3EST	23	20	2	102	106	150
G2DHW	20	22	7	89	93	25/60
G3ACC	13	21	6	105	114	150
G2VJ	13	4	56	87	104	150 Phone



This is "Smitty" of VP2GG, Grenada, who runs 25 watts into a pair of 6L6's on Ten, with an Eddystone 640 receiver. Until recently the only VP2 active on 28 mc phone, VP2GG has worked 76 countries in 24 zones. He asks us to apologise for the QSL's outstanding, but the matter will be rectified as soon as he gets his new printing.

good, so far, but he has worked quite a number of G's and will be only too pleased to work many more. Activity is on 14 mc only; QSL 100 per cent., as soon as printed.

G3CTM (Southampton) was thrilled to raise Y13ECU, as they used to work regularly on the Top Band when 'ECU was a G. G3DIJ (Gateshead) also mentions a QSO with him. DX from 'DIJ includes CM, VE 6 and 7, CE, VS1, AP, CR7, ZS and all the usual. An interesting QSO was with W3OVV, who came back with "GE OM Txn for call—Ur RST 579—Name here is Jane—I am 11 years old"! G3DIJ has a 150-watter on the way, but he says he will use it for replying to the DX calls from Europeans who insist on calling CQ DX on top of AP's, PK's, ZL's and the like. (Hope he doesn't mean that—it's bad enough already).

G3BDQ found the FP8AC party in full swing on 14400 kc. Having called fruitlessly while thousands of W's worked him, 'BDQ worked some DX up there—mostly, as he says, "Other nail-biters and tooth-gnashers bent on FP8". Among them was CM2CT, who wants it known that he would like skeds with Grimsby or Cleethorpes. Other QSO's by G3BDQ were MS4FM, CX4CZ, VU2CP, VQ2AB and 2JN, VQ3SS and 4SC, VS6AC

and 7KR. Funny ones which need not count were ER3Z and the ubiquitous BM7KA.

Do We Count VO ?

Last month we replied somewhat definitely to G6AT on the subject of counting VO as a country. We have asked all contestants in our lists to delete it, following the example of CQ, whose DX Committee state, this month, that they are gradually subtracting it from all scores. Now up comes G2BBI (Westcliff) with a copy of a letter from ARRL Headquarters, in which they state that all VO contacts made after April, 1949, will count as Canada. In other words, they are still admitting earlier claims, in spite of a statement to the contrary some time back. We will side with CQ for the present, as we share the WAZ scheme, and ask you all to disregard VO as a country, *WHENEVER* you worked it.

'BBI has not been very active, but reports a phone contact with TF5TP, and another with TA3FAS/Airborne, flying in from Rome to Marseilles. Some personal QSO's in CN8, FA and possibly ZB1, are likely to result from a cruise that G2BBI is doing in the course of his business. (Does anyone know of a job giving personal QSO's with FO8, ZK1 and ZK2? If so, here's an applicant!) (over)

TOP BAND TRANSATLANTIC TESTS, 1951

With the full co-operation of the East Coast U.S.A. stations, we are proposing to run a series of Transatlantic Tests on the 1.7 mc band during next winter.

Peak conditions should prevail during January and February, and the following dates and times have been fixed for the main tests:—

Jan. 14 and 28, 1951 : 0500-0800 GMT

Feb. 11 and 25, 1951 : 0500-0800 GMT

Mar. 11, 1951 : 0500-0800 GMT

It has been suggested, chiefly by stations in VE1, that schedules should also be arranged round about midnight GMT. Without interfering in any way with the main tests, therefore, it has been decided to run two special trial periods as follows:—

Jan. 20-21, 1951 : 2200-0200 GMT

Feb. 17-18, 1951 : 2200-0200 GMT

Full details of times and frequencies will be published later. It is proposed that W and VE stations should call DX at the hour and each succeeding ten minutes, with the DX stations calling W and VE at five minutes past and each succeeding ten minutes.

Frequencies will also be tied fairly tightly, to obviate the useless jamming of distant transmissions by locals on their frequency. Further details will appear next month and each month thereafter until the tests begin.

Start planning NOW.

GW2CLP (Swansea) has been doing some nice early morning work, including some really solid phone contacts with YN4CB. Others have been HE1JJ, YS1MS, TI2OE, XE1AC, TG9AI and CM9AA. G2GM (Torquay) weighs in with PK1TM, KG4AD, YS1O, VS7NX, KG6GD and yes, FP8AC! He also heard XE1VA at 0430—someone was enquiring after XE on CW.

GM3EST (Motherwell) asks whether MP4-AMO and CR5AD are genuine. So far as we know, they are as good as gold. See list for QTH of CR5AD, and note, of course, that he still gives you a new country even if you've worked CR5UP.

Apologies to G2BJY (Wolverhampton) for quoting his new country last month as UQ2AB, when it should have been VQ2AB. New ones this time are CX6AD and EA9AQ, plus YV5EH, EK1WX (all CW) and sundry West Coast Americans on phone.

New Slant on Aerials

G8IP (Hampton) has, more or less acci-

dentally, been working with his folded dipole considerably tilted—pending the erection of a new 68-ft. aerial. He has found that the sloping aerial has brought in a considerable quantity of DX, considering that he is rock-bound on one frequency and has only worked to any extent between the hours of 1800 and 1900 GMT. He finds it surprisingly easy to raise DX on CQ calls, but, as he says, the chief disadvantage of being rock-bound is that if one *does* raise a choice piece, the frequency goes bad on one at the end of the QSO, and it's impossible to get out of the way. But he is so pleased with the tilted aerial that he would like to make it a rotary!

G3AIM (Liverpool) explains the query about HPILL, whose card has arrived. The QTH is in Panama City, but mail is forwarded through a Box No. in the Canal Zone. He also gives YS1O's QTH. Some new ones for G3AIM on CW have been EA9BB, YI3DYN, PK6LN, PK1RI, VU2CP—and YV5AB on phone. 'AIM asks for particulars on applying for DXCC. Simply send your 100 cards to ARRL Headquarters; and you need not be a member of ARRL. They will grant the certificate on the first hundred cards; this means, if you have a bigger score, that you can keep back the valuable ones and send them by registered post later, for an endorsement sticker.

G3FXB (Hove) bagged CM6AH, HE1JJ, MS4FM, YS1O, ZD2LO and TA3FAS. The latter, by the way, is going to operate on the Top Band during the coming winter; he is hoping to handle his USA traffic by that means "without QRM". Let us see to it that he has plenty—but in the nicest sort of way! 'FXB adds to the month's list of suspicious characters with SU2AF, CT2AG, ZLISS, SUISS and K6TTT—all probably the same person and possibly in Brighton. G2FYT (Bristol) has added EA6, UF6 and DU to his score, and has sent off "104 lovely cards" for DXCC, hoping to see them back safely.

News From Overseas

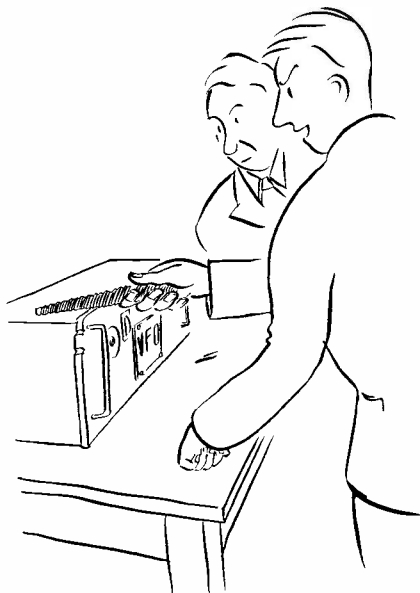
Here is the gen. on VP7, straight from VP7NM himself. On CW you will find VP7NM and 7NU—no others are genuine. On phone, however, the following are active: VP7NG, 7NH, 7NJ, 7NK, 7NL, 7NM, 7NN, 7NP, 7NR and 7NU. VP7NM (QTH in list) is QSL Manager, and he says he finds it a very unpleasant task to "advise honest men that they heard a phoney".

F3HK (Louvécienes) suggests that if G3CJV (see June issue) wants a call to make it clear that he is in the mood for chatting, he should join the RCC and sign "RCC" at the end of his transmissions. F3HK mentions "a BM7KA type", who came back to him with an RST 599 report in perfect French. He

doubts whether BM7KA is even as far as Hungary, which is the latter's story at present.

'HK has some amusing comments to make on bad sending. He quotes "An exponent of the famed French doctrine of equality . . . Dashes = Dots = Spaces" ! and adds "Of course, you may have a fist like an intermittent short-circuit and still be a fine and courteous operator . . . lots of same everywhere (G's, too), but the point is that nobody ever tells them". F3HK awards a large Black Mark to a G working phone on 14030 kc ; when called on CW (for a ticking-off) he complained about a strong French CW signal causing QRM !! And a special moan about the Russian commercial RDLA, smack on 14065 or thereabouts. F9RO works at the Frequency Control Centre and says that letters go off every time commercials are found in the amateur bands ; they usually move pretty quickly, except for the Russians, who "never even QSL".

ZBIAR (Malta) was delighted to work KX6BA (14005 kc) and quite a lot of more usual DX. He heard AR8AB calling CQ on 28 mc (band dead) wound a coil and a link for his aerial coupler, got on the band using the PA as a doubler, called 8AB and made a QSO of it ! As Mike says, it's quite something to wind a coil practically during a QSO.



" . . . Always cut a notch in the VFO for all the real DX, old boy . . . "

ZONES WORKED LISTING

POST WAR

Station	Z	C	Station	Z	C
Phone and CW			Phone and CW		
G6ZO	WAZ	222	G2FYT	36	128
G6RH	WAZ	222	G2YS	36	127
G6QB	WAZ	204	G3ABG	36	118
G2FSR	WAZ	196			
G4CP	WAZ	195	G2AKR	35	123
G3ATU	WAZ	193	G6OX	35	120
G3DO	WAZ	191	G2HKU	35	116
G8IG	WAZ	175	4X4CJ	35	114
G5YV	WAZ	172	GM3EST	35	110
G2VD	WAZ	168	G6TC	35	107
G3BI	WAZ	162			
G3AAM	WAZ	154	GW3AHN	34	129
G3YF	WAZ	152	G3ACC	34	114
G3AZ	WAZ	133	G3FDV	34	100
G8IP	WAZ	132	G6AT	34	94
G5BJ	WAZ	126	G2DHV	34	93
G5VU	WAZ	124			
			G3FGT	33	112
G2WW	40	181			
G3TK	40	162	GM3CVZ	32	97
G3AKU	40	152			
G6BB	40	131	G2BBI	30	98
G3BNE	40	128			
G5MR	40	125			
ON4AZ	39	156	Phone only		
G3DCU	39	148	G3DO	37	154
G8UK	39	148	G6WX	37	128
GM3CSM	39	147			
G5FA	39	146	G2WW	36	130
G3BDQ	39	135			
			G3COJ	35	115
G3COJ	38	142			
G2BJY	38	141	G2VJ	33	104
G3A1M	38	130			
G3CVG	38	124	G2HIF	32	111
G8PW	38	122			
			G2BBI	30	95
G3WH	37	138			
G3AWP	37	138			
G5WC	37	122			
ZBIAR	37	120			
G2GM	37	109			

Query, in passing, from ZBIAR—How does one go about getting a card from GD? One station worked on 80, 40, 20 and 10—but not a QSL. Sorry, we don't know the answer—unless it's a personal QSO.

4X4CJ (Tel-Aviv) applies for "membership" of the WAZ Listing, and reminds us that he is ex-ZC6AA. His score is 35 Z and 144 C.

Miscellany

There is so little 28 mc news this month that it can be squeezed into the "miscellany"—a bad sign for that band. Let us hope it will awaken in August or September, for the sake of the overcrowded 14 mc band. G2BJY says he just managed HK1CV for a new country before taking his beam down for an overhaul. G3FXB has worked a few Europeans and also ZP6CR, with 12 watts. He reports that poor conditions have brought up a little more CW on Ten, and less Phone.

(over)

TOP BAND LISTING Starting August 1, 1949		
Station	Counties	Countries
G6AB	61	16
G2YS	61	16
G4LX	60	14
GM2HIK	58	13
G2AJU	57	13
G3AKU	56	10
G3GDW	56	8
G6ZN	55	10
G3FZW	54	8
G8NF	54	14
G3AGO	52	10
G6VC	52	7
G6HD	51	11
G5XF	50	8
G2AOL	49	10
GW3CBB	49	10
GM3FBA	48	6
G3NT	47	8
G3BOC	47	7
G2CZU	46	7
G3ALE/A	43	7
G3EJF	43	7
G3BTP	42	11
G3FGT	41	8
G2BON	40	9
G3GGN	38	11
G3ATU	37	8
G3BEX	37	7
G2ABT	36	6
G3ABG	34	10
G6OM	21	5
ZBIAR	13	4

G6XS (Ashton-under-Lyne) quotes EQ3Q for a possible phoney, quite apart from BM7KA. He adds that VP8AD has recently sent out another batch of cards—'XS has just received his for a QSO two years ago, so keep on waiting patiently! G3FPS (East Molesey) would like to know more about HO5MN, said to be a ship in the South Atlantic. He was on 14 mc CW at mid-day. Can anyone help!

Very sad news for quite a lot of people comes from G3TK (Leigh). He has had a letter from C8FP, whom a lot of DX-chasers worked

—or thought they worked—round about last Christmas. Well, *this* C8FP has sent 'TK a list of all the stations he QSO'd while in Zone 23 (he left there for Peiping, in C7, last October). The only G's were G2FSR, 3BQ, 4CP, 2VD, 2COP and 6ZO. (And, of course, G3TK himself). I seem to remember other stations who worked a C8FP on Christmas Day, or thereabouts, and had actually received cards from him, about which they were somewhat suspicious, the QTH being "High Street, China" or something similar. So this may be a nasty blow to a few who thought they had eliminated Zone 23.

G3TK has also worked, during the past month, VP1AA, KX6BA, VR1C, HC1CW, DU1FG, JA2CU and PK1RM—one of the nicest small collections we have seen.

G2WW (Penzance) is off the air for a major rebuild, and also hopes to be spending some time in F, HB and even HE. He would love to take a portable to the latter place but finds it is not practicable.

GC2CNC (Jersey) has a considerable moan about the manners of some of the leading DX exponents. He says that several people who wrote him effusive letters when they needed a GC QSL have since "cut him dead" on every occasion. The same thing, he says, has happened to other GC's. Further, 'CNC says that hospitality offered to amateurs visiting GC has by no means been reciprocated on sundry occasions when he has visited England. But he does go out of his way to compliment a few particular people on their true amateur spirit.

GC2CNC, by the way, is well placed for catching pirates, as he also owns the call

DX QTH's

CR5AD	Box 206, Bissao, Portuguese Guinea.
CS3AA	APO 406, c/o PM, New York (Str. in Azores).
HC1SA	Maj. S. A. Stricklen, U.S. Embassy, Quito, Ecuador.
HS1SS	American Air Attache, Bangkok, Siam.
VP3MCB	H. McCombe, Mackenzie City, Rio Demerara, Brit. Guiana.
VP6HM	Box 252, Barbados, British West Indies.
VP7NM	C. N. Albury, Box 362, Nassau Bahamas.
QSL Bureaux :	
HK1/2	Box 134, Barranquilla, Colombia.
HK3	Box 584, Bogota.
HK4	Box 1173, Medellin.
HK5/6	Radio Club de Valle, Cali.
HK7/8	Box 584, Bogota.

GC3DVC. So when he heard a GC2CNC calling CQ one evening, he went after him with the other call, hoping for a QSO with himself—but no luck.

Other Pirates

G8LZ (Gravesend) works on crystal frequencies 1764, 1868, 3528 and 3585, but has evidence of misuse of his call on four bands, both phone and CW.

G3GBS (Birmingham) says that his call is being used by someone calling himself

"Phil", and is getting tired of receiving cards addressed to this character, especially as he has to reply to them all explaining why no return QSL is forthcoming.

And there we must leave you for this month. Deadline for the September issue will be first post on August 15; and, for the benefit of overseas correspondents, the October deadline will be September 12. Address everything to "DX Commentary", *Short Wave Magazine*, 53 Victoria Street, S.W.1. Good Hunting, 73 and BCNU.

Portrait Gallery

G2PC

A. G. DAVIES of G2PC owes his interest in Amateur Radio to the 1914-18 war, in which he was just old enough to become a "Sparks." Having successfully carried out one return trip to the U.S.A. he got back to Liverpool to find that it was all over. His enthusiasm for radio remained, and he was licensed as G2PC (in his father's name) in 1920.

G2PC was one of the first to hear the Americans; he was associated with G2KW in the 1921 Transatlantic Tests and jointly they managed to get first prize for hearing seven of them.

After a little DX work and the usual phase of collecting wall-paper, 'PC found that his interest began to wane. But the virus was only lying dormant, and it broke out in a more severe form after he had acquired a new home, an XYL and a junior op. An extra piece of land behind the bungalow, a couple of 62-ft. masts and some breadboard layouts confirmed that the disease was virtually incurable.

Before the last war to end all wars G2PC was in the RAF/CWR as MQC; he was with the RAF from August 29, 1939, until 1944, and then it took three more years before the



bug broke out again. So he was back on the air once more in January 1948, and has been ever since.

G2PC himself says he is not a "100 per cent. Ham," because he is much interested in mechanical things and rather prides himself on working to the odd half-thou. in his well-equipped workshop. He must also be one of the very few amateurs who print their own QSL cards! At present he is rebuilding an ancient M.S.S. Disc Recorder to his own ideas and getting a great kick out of it.

Rabid DX-chasers take heed! There are more things in Amateur Radio than new prefixes, and some of these Old Timers know how to get the best out of their hobby.

KNOWING ABOUT DX

If you are interested in the theory and practice of DX, and want an authoritative guide to the subject, you should have our *DX Operating Manual*. There are those of the old hands who affect to know it all (but confess to finding some particular chapter "useful" or "interesting"). Those who are not so experienced will assuredly agree that the *DX*

Operating Manual is practically a standard work of reference—it is certainly the first and, so far as we know, the only attempt yet made to cover the subject in manual form. Price is but 2s. 8d. post free, of the Circulation Manager, *Short Wave Magazine*, Ltd., 53 Victoria Street, London, S.W.1, and delivery is immediate on ordering.

REDUCING THE QRM

By Cutting the Cackle

By THE OLD TIMER

ON all sides we hear the mystic phrase "QRM" being bandied about by all and sundry. It always has been, and it always will be. It is, unfortunately, something that is always increasing and never diminishing. The growth of Amateur Radio has been the growth of QRM, caused simply by the ever-increasing numbers of stations pouring into our all-too-narrow bands.

It has been splendidly coped with, in the five years preceding the war and in the post-war years, by the improved quality of transmissions and, even more, by the development of more and more selective receivers. If you want to know what it could be like, use a 0-V-1 receiver on the CW part of the 3.5 mc band any evening after about 2230. (And then reflect that there may be anything up to another 300 or 400 "G 3-plus-3" stations using the band when the next batch of licences is issued!)

The almost universal adoption of good VFO's giving T9 or T9x notes has improved the state of the CW bands; the general increase in the use of speech-clipping, or, at any rate, modulation monitoring, has reduced the "splash" trouble considerably. But still we suffer from worse QRM than we used to in the days when most notes were T6 and most receivers were 0-V-1, simply on account of the population.

What is the obvious thing to do to reduce it further? I suggest that the matter is largely in our own hands. It could be reduced to pre-war level *to-morrow* if we all cleaned up our operating procedures, both phone and CW.

Cut the Cackle

The proverbial Sussex farmer who said "Cut the cackle and come to the 'osses" must have had a vision of Amateur Radio. Had he seen it more clearly, he would have added "And after the 'osses, cut the cackle again!" Our chief cause of suffering, believe me, is the trait of not knowing when to stop.

Listen to the average QSO (on either phone or CW—I don't hold a brief for either method). The long-drawn-out good-byes, the afterthoughts, the multiple signing-off. Several times I have heard QSO's drag on for twice the length they should have been if the participants had only collected their thoughts. You all know the stuff: "Well, old man, I can't really think of any more to say . . . oh,

Not everyone will agree with the views so forcibly expressed by our aged mentor, steeped in many years of practical experience—but he does at least offer some useful suggestions on a topic of pressing importance.—Editor.

by the way, did I tell you that I had tried out that so-and-so . . ." and then we're off again.

But even *then* it isn't over. "Well, I may as well sign off now, if you haven't anything further. So I'll come over for your final and then I must QRT. Just tell me whether you've heard anything of so-and-so . . ." And so the other chap's "final" leads on to another lengthy discussion, for at least another two "overs" from each end, after which the same thing happens in reverse.

Recently I heard two phone stations give four "finals" each, and then, as they were signing off, a third station called them both and the whole thing turned into a three-way which went on for another half-hour. What was so striking was the fact that at least fifteen minutes of this half-hour was spent in saying "Well, I really shouldn't stop on any longer . . . we were just going to QRT . . . I really intended that one to be my final . . . This time it really *must* be my final . . ." (But was it? You bet your life it wasn't!).

For goodness sake let us cut out this sort of senseless prattle. It wouldn't take place over the landline, where people have to *pay* for time; but on the air, where everyone else has to pay for it, there is no limit to it.

Keep to the Point

In the "good old days"—and they really were good in many ways—we were licensed as experimental stations and the subjects of conversation had to have a pretty close bearing on technical matters. Nowadays they seem to be invented as the QSO goes on, so that many contacts bear a close resemblance to a languid conversation alongside a bar or a weekly Sewing Circle.

Why should our narrow slices of the spectrum be used for time-wasting conversations that wouldn't even take place in the street if two people met face to face? If we all used needle-sharp beams and conversed with one another only, it might not be so bad, but all at large have to put up with the pointless chatter. Furthermore, some operators sound suspiciously as if they know this and therefore show off their "knowledge" all the more.

For the love of Pete, talk to some effect and stick to the point; if you happen to know what it is!

Detail Improvements

Consider these 100 per cent. time-wasters: Long strings of "dah-de-dah-de-dah" on CW

before calling CQ or another station ; Long calls of "Hello, hello, hello, G6ABC, G6ABC, G6 Able Baker Charlie in Hogs-norton, this is G6 Charlie Baker Able, G6CBA, G6 Canada Baltimore America located in the village of Much-Prattling-on-the-Air, five miles South-East of Little Twaddleton in the County of Bunkshire" before getting to the subject matter. I am not referring to first calls but to calls in the course of a QSO.

Not done? Don't you believe it—just listen for yourself. You will hear them every day in many languages. On CW you will hear a man who has just been given an RST 589 report go back and tell the other chap that he is "RST 589, 589, 589, RST RST 589, 589"; five minutes later you will hear him repeating his QTH and name three times.

I have heard a G and a W6 get through an entire fast ragchew, exchanging quite a lot of news on either side, in the time it has taken another G to tell a *local* his name, QTH and the fact that he is using 150 watts and a dipole.

Slow Morse is all very well for those who have just passed the Morse test; but why don't some of them ever improve? I'll tell you—because the man at the other end sends doubles, slowly, and because a slow CQ is usually answered by another slow station. It's time we had more fast operators on the air, considering the time that some of them have been using CW. Remember that fast operating is not just a matter of showing off: it gets through the QSO in a shorter time and does more to reduce the QRM than any other single factor.

Fast operating on phone can also be learnt and put into practice. It doesn't sound abrupt or rude; it merely gives the impression that the operator knows his business, knows what he wants to say and is keen on finishing a QSO when it really is finished, instead of letting it die painfully for ten minutes.

Time-Wasting on Nets

"Nets" are a prime cause of wasted time, largely because all those who are dragged into them have to be "genned-up" with everything that has gone before, and also because everyone seems to feel that it is incumbent upon him to add tone to the conversation and to wax humorous over something or other. Remember, please, when you're in a net that you are a radio operator and not a star in the Bob Hope Programme.

By now a lot of people reading this will be ready to form the impression that all the friendly side of Amateur Radio would be killed if these suggestions were adopted. I refuse to believe a word of it. Personally I feel a far more friendly glow towards the man at the other end who has given me a slick, well-operated QSO than I ever do towards

someone who has kept me chained to one frequency listening to a string of platitudes and a description of a by-no-means clever rig which at the moment is not working very well. If there is one thing that does *not* strike me as funny it is being told that "My PA seems to be full of parasitics (Hi); this 807 doesn't like 700 volts (Hi); and I don't know what's happened to the modulation but the monitor isn't working (Hi); I really ought to take time off for a rebuild (Hi)."

Without the "Hi" part of it I might feel a small amount of sympathy for a struggling sufferer whose gear really is playing him up; but the "Hi's" put such an air of self-satisfaction into the whole thing that I feel like advising him to carry out future QSO's on a postcard (Hi).

The reason why I have dwelt on all these points (which to many may seem trivial) at some length is this: That by cleaning up our procedure along the lines as suggested we can *at once* reduce the QRM by an amount which would not be possible by any technical means in less than ten years. No number of Q5'ers, Rotary Beams, audio filters or even reductions in power could possibly effect such an instantaneous clean-up as this simple domestic reform among ourselves. And don't argue that the other countries won't do it—*someone* has to start it. We once used to have a reputation for starting things, and that isn't a bad reputation to have; let's do it again.

First, do it yourself—and then don't hesitate to suggest to the other half of your contact that he should do likewise. You may even work someone who suggests that *you* should cut down the verbiage a bit—and that will be the first sign that things are moving.



" Goodnight, everybody, goodnight. Dud-dud-dud-dah-dee-dah"

VHF BANDS

By E. J. WILLIAMS, B.Sc. (G2XC)

*G5BY/DL3FM Make New Record—
South Gets DX Conditions—
VHF DX Contest Results—
News, Views and the Tables*

ONCE again new VHF records have been set up and one begins to wonder what the ultimate on these frequencies is to be. On this side of the Atlantic G5BY (Bolt Tail) and DL3FM (Mulheim-Ruhr) worked on 2 metres over a 470-mile path, on June 28, at 2225 BST, while in the U.S.A. the record for that band has been raised to something over 1,180 miles by a contact between W5VY (San Antonio, Texas) and W8WXV (Shiloh, Ohio).

According to W2PAU of CQ, this new American record—an outstanding achievement—was effected at about 1100 EST on June 24. W8WXV, listening on 6 metres, heard W5VY announcing he was changing over to 2 metres. W8WXV tuned to two metres, and immediately heard W5VY's signal, fading somewhat, but speaking to S7. Three calls were necessary to raise W5VY (who thought he was the victim of a hoax!) Conditions were far from stable and the QSO was completed on CW.

W8WXV was heard by other W5's, and W5VY was also receiving FM broadcasts as high as 108 mc. These DX paths appear to have been due to sporadic-E, rather than to temperature effects.

The new G5BY/DL3FM European record, made on June 28, came in the middle of a spell of good tropospheric conditions in the final week of June. G5BY was called by DL3FM after signing off on phone with ON4IF. The German had been receiving G5BY's phone at S9, but by the time of the contact it had dropped to S5, although still 100 per cent. readable. Contact, which lasted 15 minutes, was absolutely solid. Others who worked DL3FM included G2CPL, G2NH, G2XC, G3BLP, G3DIV/A, G3FOD, G5MA

and G6VX. G2NH and G8VR are known to have worked DL3NQ, while G2CIW, G3EHY and G4AU were among the many who heard the German signals but were not lucky enough to raise them.

Excellent two-metre transmissions were also received in the South of England from numerous French, Dutch and Belgian stations, particularly on June 28 and 29, and July 2. On the last-named evening, DL3FM was heard again at G2XC. These openings serve as compensation to the southern stations for their omission from the previous European session, as this time little or nothing of the DX was heard in the Midlands or North! On June 28, in fact, the opening appeared to be very restricted. At G2XC, for instance, all the Continental signals heard lay almost due East, and nothing was logged from the Paris area or from Holland; only Frenchmen in the Lille area, Belgians and the German were audible. Others have commented on this, and it would appear that the duct which produced the condition was confined to the English Channel and the Straits of Dover.

The DX Contest

This contest, laid on at rather short notice, was primarily intended to ensure good activity on 2 metres during the Dutch VHF event. In that purpose it succeeded beyond all doubt. However, with about 90 per cent. of the VHF stations in this country operating from the South, there was a limit to the number of over-100-mile contacts which could be achieved by stations in and around London, and many thought their score too small to warrant an entry. Your conductor, personally, heard 63 fixed stations active during the Contest and at times the band was reminiscent of 40 metres. It is therefore somewhat disappointing to receive so few entries.

Conditions were good, although after the amazing Continental openings a few days previously, they could hardly be called excellent. Once again G5BY has led everyone by a wide margin. That he was going to occupy first place was obvious soon after the

Contest started—though it is hoped that this did not discourage some from sending in entries. At any rate, there can be no doubt about the consistently good signal which G5BY puts down at 200 miles or more; to have added the winning of this Contest to his achievement of gaining both the 2-metre and 70-cm DX records, all within a few weeks, is indeed fine work and a tribute not only to the station and its operator, but also the time G5BY puts in on the VHF bands.

Most successful station from the point of view of working PA was G2CPL (Lowestoft), who raised no less than 11 of them. G5BY heard PAØPN, but was unable to hook him. G8IP worked two, G2NH two, and G2XC one. Dutch station PE1PL was called many times by G2XC. Inter-G working during the period produced a 275-mile contact between G2CPL and G5BY.

PAØPN worked the DL stations, and at 1945 GMT was called by an HB, possibly HB1IV, but the call was too weak for certainty, and a QRZ ? produced nothing further. In all, PAØPN knocked off 12 G's, two F's, three DL's, and 27 PA stations during the Contest.

Operating Note

This month's mail has brought a large number of complaints about operating procedure and general behaviour on Two. Many of them your conductor can endorse, and here they are. No call signs this time, but if the cap seems to fit, please give the matter some thought—and action accordingly!

Long CQ calls with infrequent signing are still prevalent. The signal does not go any further if you send CQ 50 times and sign once! All that happens is that the other fellow gets fed up with listening to you and tunes to someone else. (At least G2XC does!)

It is usually the same type of operator who calls CQ for five minutes, then searches the band (or part of it) for 30 seconds, and then starts another five-minute CQ. This is not exaggeration for, believe it or not, the other evening, after three calls to a rare piece of GDX had only brought forth further CQ's from him, we timed him. He called for 4½ minutes, and searched for exactly 52 seconds before he started on his next CQ.

Thirdly, there is the station who, according to correspondents, calls CQ every night at the same time and always goes back to the same station! Hardly fair, as some nights this particular CQ raises at least a dozen replies!

Lastly, a word to those who have a liking for MCW. Personally, we see no point in it, but if you *must* use it, please do not *over* modulate.

The Zone Plan

The many letters this month in support of the Plan are very encouraging, and confirm us in the belief that this piece of band-planning has the backing of the majority—and we are quite prepared to drop it if the majority want it that way! We derive no advantage whatever by advocating the Plan for its own sake!

Among the comments received are the following: "Stations not conforming to the Band Plan are an absolute nuisance" (G4NB). "I heartily approve of the Plan and the good it does for everyone. I *never* hear *serious* QRM within this zone, and what little there is is due to DX stations squatting in the London zone" (G3GBO). "A number of stations in the London area are springing up on frequencies far removed from their zone and in many cases slap on top of weak DX. There are clear spaces in the London zone, but the selectivity of some receivers is inferior" (G3BLP). This selectivity problem may be much of the cause of the trouble. With 5 kc selectivity there is room for 80 stations in the London zone with no QRM at all except possibly a little cross-modulation, and that should not be serious on another local signal. As for DX, well, if a DX operator persists in operating in Zone J, then he must expect QRM on his signals. (By DX, is meant here DX to London, of course.)

G3ABA and G3CXD are others who express support, while G3COJ is critical of those Yorkshire stations who operate on incorrect zone frequencies. Up in the North East, in Northumberland and Durham, your conductor is told that everyone is in the correct zone. The same is very nearly true of the south-coast stations. GW5SA is also in his

TWO METRE DX CONTEST			
July 1 and 2, 1950			
Position	Call sign	Points	Best DX
1	G5BY	258	275 mls.
2	G2CPL	105	275 mls.
3	G2NH	61	260 mls.
4	G2OI	57	234 mls
5	G2XC	45	200 mls
6	G8IP	41	205 mls
7	GW5SA	12	176 mls
8	G3FIJ	7	142 mls
9	G4LX	1	103 mls

correct zone, but some operators seem to think the band finishes at 145.5 mc.

The Best Twenty

The change in the rules for this contest has brought only one protest; namely, G3EHY, who certainly makes a point when he says "The table would seem to be named to purport to be a record of the best twenty contacts made by any station over a period of one month, but evidently this is not so, since a contact is to be called not a contact if it happens to be too close in time to another contact over the same path." That there can be two points of view on what constitutes a contact is made evident by the very next letter off the pile. In it G4HT says, "I can't help thinking that as a measure of the all-round working of a station it would also mean something if the table contained exactly what it said, that is, the twenty best contacts—all different!"

So what is your earnest and anxious conductor to do? A compromise seemed the only answer—hence the ruling, re-introduced last month, that for the purpose of the "Best Twenty" contest a given station may be worked again only after a lapse of 7 days.

Too severe a rule would make it impossible for stations in outlying districts to enter at all, as 20 different contacts in one month might well be beyond all hopes. On the other hand, 20 different stations worked does seem to be more meritorious than 20 QSO's with the same station! As well as that, it assists in promoting more activity.

This is *not* any argument against schedules. During periods of low activity, in particular, the well-known schedule between GW2ADZ and G3EHY has (as an instance) provided a welcome check on conditions for many operators in the North and the South-West; it has, in fact, been invaluable. But there are many operators who are deeply interested in VHF work, and who are not just "opportunists" to use a word quoted by one correspondent. Due to force of circumstances, they are unable to appear on the band at a regular time every day. Even on the radio side, there is often much constructional work to be done, and the experience at G2XC has been that schedule-keeping means little bench work.

A point on much the same lines is made by G8IP (Hampton), who regrets the apparent lack of new recruits to the band outside the

TWO-METRE ACTIVITY REPORT

G3FAN, Ryde, Isle of Wight.

WORKED: F8GH, G2ANT, 2CIW, 2CPL, 2DSW, 2FMF, 2HCG, 2HDZ, 2XC, 3ABH, 3AHB, 3ARL, 3BHS, 3BNC, 3BOB, 3CGE, 3DEP, 3DLG/A, 3EJL, 3GQP, 3SM, 3VM, 3WW, 4CI/P, 4HT, 4KD, 4NB, 5MA/P, 5TP, 6LK, 6XM, 6XM/P, 8KZ, 8LY.

HEARD: F3LQ, 8JR, G2AVF/P, 2FNW, 2OI, 2WJ, 2XV, 3AGA/P, 3BLP, 3CGQ, 3DAH, 3DUP, 3ESS, 3FD, 3FYR, 4MW, 4RK, 5BC, 5BY, 5LK, 5UD, 6JK/P, 6UH, 6VX, 6WT, 8SB, 8DM/A, PAØAJA, ØPN. (June 1 to July 10.)

G4NB, Coventry, Warwickshire.

WORKED: G2AOK/A, 2ATK, 2BFT, 2FWW, 3ABA, 3APY/P, 3BFL, 3BPW, 3FAN, 4CI, 4DC, 4HT, 5ML, 5SK, 5TP, 6CI, 6LK, 6XM.

HEARD: G2IQ, 2OI, 2RI, 2UJ, 3CQC, 3EHY, 3ENS, 5BY, 6NB, 6VX. (June 24 to July 12.)

G3BOB, Hayes, Kent.

WORKED: G2XC, 2XS, 2XV, 3ANB, 3BK, 3COJ, 3CXD, 3DIV/A.

HEARD: G2AOL, 2CPL, 2IQ, 2OI, 3CGQ, 3DMU, 3EHY, 4MW, 4RX, 5UF, 8KG, GW2ADZ. (July 4 to 10.)

G3GSE, Kingsway, Middlesex.

WORKED: G2BMZ, 2HCG, 2XC, 2XV, 3ABH, 3BHS, 3BNC, 3CFB, 3CZY, 3DGN, 3DIV/A, 3EBW, 3EIV, 3SU, 3WW, 4CI, 4MW, 5DS, 5LK, 5UF, 5UD, 6LQ/A, 6OT, 6PA, 6VC, 6WT, 8IL, 8KZ/P, ON4IF, PAØPN.

HEARD: G2AOK/A, 2FNW, 3AUS, 3EHY, 5JU. (May 18 to July 4.)

G3DIV/A, Eastbourne, Sussex.

WORKED: DL3FM, 3FM/P, F3DC, 3LQ, 8GH, 8LO, 8OB, 8OL, 9AE, 9DI, 9MX, G2AOL, 2UJ, 2XC, 3AFV, 3AXL, 3BOB, 3EBW, 3GHI, 4HT, 5LK, 6LX/P, 8KG, 8TB, ON4BZ, 4HN, 4XB, 4YV, PAØAJA, ØCB, ØHRL, ØPN, ØUN.

HEARD: DL3NO, 4XS/3KE, F8JR, 8NW, 8KI, G5BY, PAØIK, ØLDG, ØOD, PE1PL. (June 12 to July 11.)

G3COJ, Hull, Yorks.

WORKED: G2CPL, 3BOB, 3CGQ 3FIJ, 3FUM, 4DC, 4LX, 4MW, 5MA, 6JK/P, 6NB, 8AO, 8IP, GM3EGW, GW2ADZ, 3ATZ/P.

HEARD: G2AJ, 2BUJ, 2HCG/P, 2NH, 2XC, 2XV, 3CU/P, 3DA, 3EBW, 3EHY, 3FD/P, 4CI, 5BY, 5DS, 5JU, 5RP/P, 5UF, 5WP, 6LK, 6LX/P, 6VX, 6XM/P, 8JO, GM3ENJ, GW4OS/P. (All over 100 miles. July 1 to 9.)

G3VM, Norwich, Norfolk. NGR 63/182101

WORKED: G2BUJ, 2CPL, 2NH, 2XC, 2YU, 3ABH, 3CFK, 3COJ, 3EBW, 3EHY, 3FAN, 4HT, 8IP, 8QR, 8SM, 8VR, GW2ADZ, PAØHM, PE1PL.

HEARD: G2AJ, 2CIW, 2HCG, 2IQ, 3AFV, 3APY/P, 3FIJ, 3ASE, 2XV, 4DC, 4MW, 5MA, 5UD, 6LL, 6WL, 6WU, 6XM, DL3FM, PAØJW, ØPN, ØXN. (June 11 to July 9.)

G4HT, Ealing, Middlesex.

WORKED: F3LQ, G2AOK/A, 2FJD/A, 2FNW, 2IQ, 2OI, 2UJ, 2XC, 2XV, 3ABA/P, 3AHT, 3CFK, 3CXD, 3DIV/A, 3DUP, 3EJL, 3FAN, 3FMI, 3MY/P, 3VM, 3WW, 4LU, 4MW, 4NB, 4RX, 5BY, 5LK, 5MA/P, 5UD, 6LX/P, 8KZ/P, 8OY, 8SY, GW2ADZ.

HEARD: G3ABH, 3AGA/P, 3APY, GW3ATZ/P. (June 12 to July 10.)

G4RX, Ashcott, Somerset.

WORKED: G2AJ, 2BMZ, 2CIW, 3AHT, 3AUS, 3AVE/P, 3BLP, 3GGE, 3CQC, 3FIH, 3FUM, 4DC, 4HT, 4MW, 5BM/P, 5QA, 5UF, 6LX/P, 6NB, 6WT, 6ZO, 8IP, GW2DUR.

HEARD: G2BUJ, 2NH, 2OI, 3AHB, 3BOB, 3CGQ, 3DAH, 3EDN/A, 3FMO, 3MY/P, 3WW, 4KD, 5BC, 5BY, 5MA, 5TP, 6LK, 6XM, 8SB, 8UZ/P, GW2ADZ, 5SA.

TWO-METRE ACTIVITY BY ZONES AND COUNTIES

Zone A (144 to 144.2 mc)

Ayr : GM3DDE, GM3DIQ
 Dumbarton : GM3FOW
 Dumfries : GM2OL
 Fife : GM3EGW, GM3ENJ, GM3FVB
 Lanark : GM3BDA, GM3EHI, GM5VG
 Midlothian : GM3BBW, GM6SR
 Stirling : GM4QV, GM6XW

Zone C (144.2 to 144.4 mc)

Cumberland : G3BW
 Durham : G2FO, G3EHZ, G4WB, G8AO, G8JO
 Northumberland : G2BDQ, G3CYY, G4LX
 Lancashire : G2DCI, G2OI, G3A00, G3CSC,
 G3DA, G5TH, G5VN, G6LC, G8SB
 Yorkshire : G2HQ, G2IQ, G3CC, G3COJ,
 G3DMK, G5QU, G5XT, G6TF, G6YO,
 G8GL, G8SJ

Zone D (145.8 to 146 mc)

Co. Down : GI2FHN, GI3GQB

Zone E (144.4 to 144.65 mc)

Cheshire : G2CYN, G3ATZ, G3AYT, G3FMI,
 G3GMX, G4OS, G5CP, G6TL
 Derbyshire : G2DLJ, G2FZU, G3EMJ, G5RW
 Leicestershire : G2ANL, G2FNW, G2RI, G3ENS
 Lincolnshire : G3DMU
 Nottinghamshire : G3APY, G3CZV, G8UZ
 Staffordshire : G3CXD
 Warwickshire : G2ATK, G3ABA, G4NB, G5JU,
 G5SK, G5ML, G6CI, G8QY

Zone F (145.65 to 145.8 mc)

Glamorgan : GW2DUR, GW3EJM, GW5SA
 Monmouth : G4GR
 Montgomeryshire : GW2ADZ
 Shropshire : G4LU

Zone G (144.65 to 144.85 mc)

Bedfordshire : G3CGQ
 Buckinghamshire : G3AHB, G3CVO, G3FSO,
 G3GBO, G3MI, G6JK, G6NB, G8QC
 Cambridgeshire : G2AIQ, G2XV, G3BK, G3WW,
 G4MW, G5JO, G8SY
 Hertfordshire : G3FD, G5UM, G6LL
 Huntingdonshire : G2FQP, G3AKU, G3AVO/A
 Norfolk : G2XS, G3CFK, G3VM, G5UD
 Suffolk : G2CPL

Zone H (145.25 to 145.5 mc)

Berkshire : G8DM/A
 Dorset : G3ABH, G5UF
 Gloucestershire : G2AOK/A, G3MA, G5BM,
 G6ZQ
 Hampshire : G2DSW, G2NS, G2XC, G3ARL,
 G3BHS, G3BNC, G3CFR, G3CGE, G3DEP,
 G3DLG/A, G3EJL, G3FAN, G3GOP, G3RI,
 G6XM, G8LY
 Oxfordshire : G5TP
 Wiltshire : G8IL

Zone I (145.5 to 145.65 mc)

Devonshire : G2BMZ, G3AVF, G5BY, G6WT
 Somerset : G3EHY, G4RX

Zone J (144.85 to 145.25 mc)

Essex : G2CIW, G2WJ, G3ANB, G3FIJ
 Kent : G2AJ, G2AOL, G2KF, G2UJ, G3AFV,
 G3BOB, G3CAZ, G3FOD, G5MR, G6VC,
 G6VX, G8KG
 London : G3BPM, G3EYV, G3FXG, G4AU,
 G4DC, G5DT, G5LI, G8KZ, G8VR
 Middlesex : G2AMP, G2DD, G2FMF, G2HDZ,
 G3CWW, G3FYR, G3GSE, G4HT, G5BC,
 G6UH, G8IP, G8SK
 Surrey : G2ANT, G2BN, G2MR, G2NH, G2YL,
 G3BLP, G4CG, G5DS, G5LK, G5MA, G5NF,
 G5US, G5WP, G6CB, G5LK, G8SM
 Sussex : G2AVR, G2JU, G2MC, G2NM,
 G3DIV/A, G3EBW

Note : *The frequencies given above are those recommended by the Two-Metre Zone Plan, but a few stations are not conforming.*

London area. He suggests that when new stations do start up, the old-timers are so busy working amongst themselves that the newcomer is not noticed, and, accordingly, loses enthusiasm and leaves two metres. He quotes examples of this, and it is felt that the new "Best Twenty" ruling may serve to overcome this state of affairs, at least in some measure.

It is regretted that it is impossible to satisfy everyone on this matter of rules ; it can only be hoped that everyone interested will appreciate our dilemma and give their support to the Table, in spite of varying opinions.

Seventycems

There are no new records to report this month, although the W's are making serious attempts to overtake us. W1PBB and W2QED worked over 156 miles on June 13. It is believed the former had a CC Tx with an 832A PA driven by an 832 tripler, while W2QED had an SEO. Full details are not yet to hand, so they must wait until next month. The news may serve as a spur to the London group to make a serious effort to work down to G5BY and so put the British and world record at a still higher figure !

(over)

G2CIW (Romford) is now active on 435.6 mc, with an 832 tripler and a 90 degree corner reflector. The receiver line-up is a G3EJL mixer with a 9002 oscillator giving third harmonic injection. So far, only local contacts have been made, but tests have been carried out with G2XC, G3ABH and G5BY; although these have not produced results, it is hoped that further attempts under better propagation conditions will bring success. If so, the 200-mile mark may well be passed.

At G2XC, a two-way contact has been made on 70 cm. with G8LY (Lee-on-Solent), and although the distance is only about 7 miles, the path goes either through or over 350 ft. of Portsdown Hill. Signals are S7 both ways. This contact was made on July 14, only 30 minutes before the ammunition barges blew up in Portsmouth Harbour, the point of the explosion being on the path from G2XC to G8LY. What effect this would have had on the 70-cm. signals is not known, but it would have been interesting had the contact been just that little bit later. G8LY has 15 watts to an 832 tripler for transmitter, and a G3EJL type converter. The beam is a multi-element Yagi. G2ANT (Godalming) has also been heard at G2XC over a 30-mile path at RST559. There is much high ground up to 800 ft. or so, in between.

G5BY, who is now using a Mullard QV06-40 as a straight amplifier on 70 cm., installed up alongside the 24-ele. beam to eliminate feeder losses, has been heard by G8DM/A in Shrivvenham, Berks, the distance being about 150 miles, while G6LK has logged G5BY on several occasions.

In the Oswestry area, GW2ADZ, G3AHX and G4LU are all active on Seventycems. GW2ADZ is on 432.84 mc and G4LU 431.55 mc. G4LU has a separate Tx for 70 cm., so that he can, if necessary, work simultaneously on 2 and 70. His Rx is a G3MY/G5BY type, with modifications by G4LU! He finds car QRM to be slightly less than on two metres. (That agrees well with experience at G2XC.) G4LU's QSO with GW2ADZ is, one imagines, the first G/GW 70-cm. contact. On the night of July 8, a weak, unidentified signal was heard from the South-East, and G4LU pleads for *signing on CW*. He also asks that some stations build a Tx as well as an Rx for the band, as everyone in the North appears to be waiting to hear a signal before they start transmitting! Apparently there are some doubts about risking an 832 on 70 cm. Experience shows that if the HT is kept under 300 volts, the plate current can be run at up to 90 mA for quite long periods without any signs of deterioration in the 832. To reduce the plate current, without too great a drop in RF output, increase the screen

resistor, and do not leave the drive on with HT off as it may increase to much too high a value for an 832. For CW, key the previous stage.

G3DA (Liverpool) has a converter similar to that of G5BY but with home-made lines. The oscillator is a 955 tripling and the first IF an EF54. A 30-element beam is up and a 832 power-tripler about ready. He will be listening most nights at 2200 BST; his frequencies are 432.72 and 432.9 mc. G2OI (Eccles) is also ready for operation on 70 cm. and looking for QSO's, so a Liverpool-Eccles contact should be a fact by next month.

GM3DIQ (Saltcoats) is putting a 16-ele. 70-cm. beam above his two-metre array; a converter on the lines of the G3EJL circuit is under construction. GM3DDE also is preparing for activities. GM3FYB and GM3ENJ, both of Dunfermline, work on 70 cm. occasionally.

G3GBO (Denham) has made a beginning with his converter. He proposes using a 6J6 as oscillator and doubler and an EA50 as diode mixer. G3COJ (Hull) has his 832 tripler ready and is now building the G3EJL converter. He will be on 432.6 or 435.7 mc.

G3CXD (Newcastle, Staffs) wants information on using a CV53 as PA on 70 cm., while G2ATK and G2BFT (Birmingham) have been working with SEO's. Crystal control is envisaged for the near future.

G3AHB (Slough) has a 4-element stack with wire netting reflector up at 36 ft. The Rx side is taken care of with ASB8 and 1294 receivers. Probable frequency for the transmitter is 436.86 mc.

G6TF (Sheffield) has produced a modified version of the G3EJL converter and has heard G3APY and G5RW. G3EHY (Banwell) has succumbed to the temptation to commence operations on 430 mc and has a 16-ele. beam; his receiver is a lumped butterfly oscillator circuit coupled to a similar mixer circuit using crystal diode, with 25 mc IF. A weak phone signal was heard from the South on June 26, and this might have been G5BY. GW5SA is also preparing for action.

PAØLU (Voorburg) would be interested to hear from East Coast G stations willing to co-operate in 70-cm. tests. G3FZL is known to be interested. PAØZQ is mass producing co-axial lines for the G3MY converter in order to get other stations on the air!

Two Metres

G3ANB (Rochester) is using 60 watts to an 815 and has a 150-watt PA with 826 triodes under way; he hopes soon to try out the "cascode" circuit in his receiver. G3BOB (Bromley) has a 12-ele. stack up, and finds it much better than his old 4-ele. Yagi. G3DIV/A (Eastbourne) tried a 4-over-4 but

was not satisfied with it. He has worked G5BY and G2XC "through" the Sussex Downs; numerous Continentals have also been raised, as usual.

General activity continues high in the Portsmouth, Southampton and Isle of Wight areas, and some of the Continental DX is recorded.

G5BY (Bolt Tail), in addition to Continental QSO's, worked G8GL (Northallerton) on July 8 for an excellent overland contact. G3EHY (Banwell) found conditions generally good and heard much of the DL, ON and PA stations. His signals have been received frequently by GM3BDA. GW5SA (Neath) logs plenty of activity, but thinks stations don't tune the HF end of the band.

G3ABA, G4NB and G5SK (Coventry) and G6CI (Kenilworth) have all been active. Some of these calls were omitted from last month's Activity List. The reason was just that neither the operators themselves, nor anybody else, told G2XC that they were on! The Activity List is kept up-to-date and alone takes a good two hours or more to compile each month. All calls not reported are dropped so that the list shall present a true picture of who is on where; so while we are sorry that there were omissions of stations who were actually operating, it must be emphasised that the list is not compiled by guesswork.

The Continentals reported earlier in this space were not heard in Coventry. All the group in that area are keen supporters of the

TWO METRES BEST TWENTY June 1950			
Station	Total Miles	Best Contact "Call" "Miles"	
G3EHY	3766	G3BW	232
G2XC	3640	DL3FM	340
G2OI	3377	G2XC	190
G5MR	3298	GW2ADZ	216
G2CPL	3113	DL3FM	230
G4HT	2863	F3LQ	230
G3FIJ	1386	F3LQ	135
G2FNW	1222	G6XM	115

For this table send details of date, Mileage and callsigns of best twenty contacts made during previous calendar month. No station to be counted more than once in any seven-day period.

TWO METRES COUNTIES WORKED SINCE SEPTEMBER 1, 1949 Starting Figure, 14	
Worked	Station
43	G3BLP, G6NB
40	G6NB
39	G2OI, G6XM
38	G3EHY
35	G3CGQ
34	G3ABA, G4HT
33	G2XC
31	G2AJ
29	G2XS, G3VM, G8SB, GW2ADZ
28	G2CIW, G2CPL, G8IP
27	G8IL
26	G2FNW, G5UD, G8QC
24	G3FXG, G6VC
22	G3FIJ, G6CI
21	G2NH, G3AVO/A, G3COJ, G3GSE
20	G3GBO
19	G3BHS, G3EJL
18	G3BK, G6CB
16	G8VR, GW5SA
15	G2AOL, G4RX, G5MR, G5SK
14	G3CAZ, G3CWW, G3DCC, G4LX

NOTE: This table is cumulative and it will run for one year to August 31, 1950.

Zone Plan and G4NB has done good work regrinding crystals. G3ABA has been proving the necessity of correct matching to aerials. G5SK and G6CI are active every day. G4NB has an 8-ele. stack.

G2ATK (Birmingham) is also on the band, and has been throughout the past winter. In Derby there are two stations: G2DLJ and G3EMJ. The latter is running a 3-ele. Yagi and the former a 4-ele. job; both would appreciate contacts and no doubt there will be much friendly rivalry. G3DMU (Scunthorpe) emerged from his winter hibernation, but was unfortunately too late for the PA opening last month.

G3COJ (Hull) puts in 150 watts and reports

TWO METRES	
ALL TIME COUNTIES WORKED LIST	
Starting Figure, 14	
From Fixed QTH only	
Worked	Station
46	G2OI, G3BLP (300)
43	G5WP, G6NB
41	G2NH (283), G3EHY, G5MA
40	G2AJ (225)
39	G3ABA, G6XM (208)
38	G2IQ, G4HT (251), G5BY
36	G3CGQ, G3CXD
35	G2XC, G3COJ, G3WW, G4LU, GW2ADZ
34	G4AU (165), G4DC, G5BM
33	G3DMU (115), G3VM
32	G8WV
31	G2CPL (168), G2XS (136)
30	G6LK, G8SM (172)
29	G2CIW (209), G8SB, G8IP (207)
28	G2HDY, G6VC
27	G3DAH, G5JU, G8IL (103), G8QY
26	G2ADR, G2FNW, G3BW, G8QC (126)
25	G6UH (184), G6WT
24	G3FXG (100), G8KL
23	G2NM, G3BOB, G3EJL
22	G3FIJ, G4RK, G6CI
21	G2FMF, G3AVO/A, G3GSE (140)
20	G3FD, G3GBO (139), G8KZ
19	G3BHS, G5SK
18	G3BK, G6CB, GM3OL
17	GM3BDA
16	G5MR, G5PY, GW5SA
15	G2ANT, G3CWW, G4LX, G4RX, G8VR
14	G3CAZ

NOTE: Figures in brackets after call are number of different stations worked; starting figure, 100.

some DX heard, including GM3EGW and GM3ENJ and G2XC. G4LU (Oswestry) is also active on Two working DX, which includes GW5SA. G4LX (Newcastle) hears and works GM stations, but asks the West Coast GM's to look his way. The same request is made to G3ENS, who is often logged in QSO with Yorkshire stations.

GM3DIQ has a cascode converter under construction. GM3EGW (Dunfermline) sends a list of active stations in and around Fife. GM3ENJ raised G2FO for his first QSO on a new beam. Later, he found the beam was pointing North! GM3EGW runs 55 watts to a 3E29, and has a G2IQ converter.

G2CPL (Lowestoft) is running a daily schedule with PE1PL, a Dutch experimental station. Schedules are also being worked temporarily with G8AO in South Shields at 0700 and 1800 daily. G2CPL has now got his 100 cards for VHF CC. G3VM (Norwich) hopes to have a new 3-over-3 up soon. G2FMF (Hillingdon) uses two fixed arrays, each with 6 elements, and arranged at right-angles. The Tx runs 75 watts to a 3E29. G4HT (Ealing) ended his first year on Two by notching up several new counties. (He remarks on the pleasure he gets in working G5LK (Reigate) who, as most readers probably know, is blind.) G3GBO (Denham) says that with him G3EHY is the signal from the west country. G3FSO (Slough) is a newcomer to the band.

G3GSE (Kingsbury) worked the Continental DX in the early hours of June 29. G4AU (Grove Park) has returned to VHF after "a few months on the long waves." G8VR (Upper Abbey Wood) using only 18 watts to an 832 and a 4-ele. Yagi, did well during the June 28/29 period. He has called G3EHY 50 times and G5BY 27 times, so far without success!

Having got an 829 cracking with 50 watts input, G4RX (Bridgwater) reports a few new contacts over the 100-mile mark, which, he says, is DX for him! He put in a checklog for the July DX Contest, which shows some excellent work with the South-East stations. G3MI (Chesham, Bucks) has come up on 144.7 mc with 18 watts to an 832 and, though in what seems a bad location, is looking for contacts most evenings.

G8QY (Birmingham) went /P at Hay in Breconshire on July 2, but had a lot of Rx trouble—the HRO-converter combination was being run from a motor generator, hash from which built up a high background noise; however, some 14 contacts were logged, including G6LX/P, also portable not far away.

News from PAØLU mentions DL1DA (Stuttgart) and DL1FV (Elbe) as active. The latter has heard OZ2FR. PE1PL has a 16-ele.

broadside colinear beam while his transmitter is a QQE06/40 with 100 watts input.

From the May 1950 issue of *ZL's Break-In* we get it that ZL3AR has put his 144-mc signals over the 154-mile path to ZL4BN—they are still licensed for 50 mc in those parts, so can use six metres for cross-band working.

In Conclusion

G2XC will be away from home during the period August 11 to 25 (when there is certain to be a big DX break!) so that any mail addressed to the home QTH at Portsmouth and arriving between those dates will remain

on the door mat until August 26! This will be too late for the September issue. The moral is—please send all material for “VHF Bands” direct to the London office. While on the subject of correspondence, your conductor would like to apologise for such delays as sometimes occur in answering correspondence; unfortunately, only limited time is available each day for dealing with letters, and if detailed information is wanted, there is bound to be a delay. Next month's mail should be sent to E. J. Williams, G2XC, *Short Wave Magazine*, 53 Victoria Street, London, S.W.1, to reach there by August 17 at latest. Good luck with the DX.

G1BF HERE

More Good Ideas

THOUGH July issue hardly out, stream of two letters asking full *technical* details rig at OMØTO (this of course is me G1BF). Stream includes one signed PANSY but do not recognise phoney call signs used by operators unknown to me. Have kept sked on Forty for years with station signing well-known call SUSIE, but no QSL yet. (Susie, Pse QSL).

Most readers now anxious for gen what ant in use at OMØTO. How does famous station OMØTO knock off super-DX like ZQ2PU and PS3LI with only 700 watts to T20? Have always advised beginners (only beginners ask what ant you using) that secret my success lies in generating max urge at Tx end, aerial consisting any convenient piece wire hung out of shack window. This of course strictly in accordance with classic dictum “Higher the DC input to PA, better DX must be”—always respect classic dicta at G1BF. For example “Short CQ never raised real DX”, “Always swing VFO with power full on”, “Never listen before calling”, “Competitive DX only worked by eliminating competition”, “Always promise full QTH with QSL”, and “Never use PDC with DX call.”

Above principles absolutely guaranteed produce FB contacts with eager DX operators in Zone 16. And if good enough for them should be all right for the others too.

So pse do not waste time asking what ant I use. Am more interested really technical problems like how to get max mills through T20, obtaining sharp T3 note from VFO, design auto CQ sender with pre-selection rare DX calls, and similar fundamental new ideas.

Station OMØTO (this-of-course-is-me-G1BF) naturally equipped full BK working. No trouble about this as keying relay (note I use *relay*) in HT feed to Tx. Thus whole bag of tricks follows keying to produce signal characteristic for which G1BF now world famous. Agreed slight difficulty listening-through due hash from rectifiers and pronounced arcing across relay contacts. But this easily cured by hefty parallel condenser on relay thus improving note by introduction effect of keying lag. Hence my CW always slow dashes only.

Do not accept contention jealous locals S15EH and UU3UU that Popoff did it better with spark discharger and couple of pint-size Leyden jars. This suspiciously like attempt to drag in politics and therefore laughed off with some crack like *Have you worked an F3 lately.*

Beginners strongly advised keep sharp eye this space for further authentic gen on How to Work The Stuff.

(If only three readers asked us to stop this, we would'nt.—Editor).

★ ★ ★

“SURPLUS 45 mc IF UNIT MODIFIED FOR TV”

This is the title of a useful and interesting article in the August issue of our *Short Wave Listener & Television Review* and describes the conversion for TV of the IF strip associated with the R.3531, R.3547, R.3553 and R.3583 range of surplus receivers. The concluding part of the detailed treatment of the BC-348 also appears in the same issue, together with much else of interest to the general reader. The inexorable law of the penny bun has compelled us to increase the price of *Short Wave Listener & Television Review* slightly—it now costs 1s. 6d., or 1s. 7d. post free, from the Circulation Manager, *Short Wave Magazine*, Ltd., 53 Victoria Street, London, S.W.1.

NEW QTH's

This space is available for the publication of the addresses of all holders of new U.K. call signs, as issued, or changes of address of transmitters already licensed. All addresses published here are reprinted in the quarterly issue 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.

- DL2QD** 22126344 Sigm. Ratcliffe, D., Royal Signals, att. 1st Royal Tank Regt., B.A.O.R., 15.
- DL2DY** Capt. W. S. Robinson (*GW2BJL*), R.E.M.E., M.E., Directorate H.Q. British Army of the Rhine, B.A.O.R., 1.
- EI7A** T. J. McCrossan, Newtowncunningham, Co. Donegal, Eire.
- G2BDD** H. Jessop, Kingston, Hillway, Tranmere Park, Guiseley, nr. Leeds.
- G2DDD** E. C. Cosh, 27 Beach Road, Littlehampton, Sussex.
- G2FWI** C. F. Scott, Miners Arms, Eyam, nr. Sheffield, Yorkshire.
- G3AS** F. C. H. Hinton, Lutterworth, Clarence Road, Dorchester, Dorset.
- G3AYS** R. A. Watson, 147 Fitzwilliam Road, Rotherham, Yorkshire.
- G3CIV** J. M. F. Sweet (*ex-MB9AF*), 147 Chapman Street, Manchester, 18.
- G3CKC** S. L. McAteer, 28 Rockcliffe Road, Middlesbrough, Yorkshire.
- G3COV/A** G. B. Woffinden, Electrical Wing, R.E.M.E Training Centre, Arborfield, Berks.
- GW3DNN** G. H. Saville, 22 Delyn Road, Greenfield, Holywell, Flint.
- G3EAY** D. M. T. Wood, 192 Colchester Road, Leyton, London, E.10.
- G3ECX/A** Catford Central School Radio Club, Brownhill Road, London, S.E.6.
- G3EFB** Dr. A. H. Walker, 38 Woodhall Drive, Pinner, Middlesex. (*Tel. : Hatch End 1880*).
- G3EPG/A** M. N. Fletcher, Electrical Wing, R.E.M.E. Training Centre, Arborfield, Berks.
- G3EUB** J. N. A. Hudson, 53 Rudolph Road, Bushey, Herts. (*Tel. : Bushey Heath 2700*).
- G3EYH** M. T. Pullen, 11 Mortimer Road, Hereford.
- G3FCL** D. Ratcliffe, 98 Gantshill Crescent, Ilford, Essex.
- G3FIL** L. T. Robinson, 24 Central Avenue, Whitehills, Northampton.
- G3FNF** R. Hargreaves, c/o 5 Leon Avenue, Bletchley, Bucks.
- G3FNX** Flt./Lt. A. E. White, 9 West Street, Ilchester, Yeovil, Somerset.
- G3FZG** A. Treanor, Ward 5, Mill Lane Sanatorium, Wallasey, Cheshire.
- G3FZX** S. A. Money, 52 Hollam Road, Milton, Southsea, Hants.
- G3GFH** S/L. M. E. Pulvermacher, Rosemary, Orchard Road, Old Windsor, Berks.
- G3GGF** C. Atkinson, 8 Bain Street, Swinton, nr. Manchester, Lancs.
- G3GHP** C. F. Marjoram, 231 Spring Road Ipswich, Suffolk.
- G3GLJ** F/Sgt. S. L. H. Jones, Amateur Radio Club, R.A.F. Swanton Morley, Dereham, Norfolk.
- GM3GME** R. B. S. Braid, Vaila, Sheriffbrae, Forres, Morayshire.
- G3GMM** E. McFarland, 34 Maple Avenue, Audenshaw, nr. Manchester, Lancs.
- GM3GOF** T. A. Macaulay, 55 Park Avenue, Elderslie, Renfrewshire.
- GM3GPN** R. Jardine, Achtercairn, Gairloch, Ross-shire.
- G3GPP** R. G. Hitchcock (*ex-VS6BK*), 45 High Street, Burbage, Wilts.
- G3GPQ** B. J. Killick, 75 Willoughby Road, Boston, Lincs.
- G3GPV** J. Chown, 16 Cheap Street, Newbury, Berks.
- GI3GQA** W. P. Hewitt, 77 Benmore Drive, Finaghy, Belfast.
- G3GQC** Mansfield District Radio Society, Westfield Folkhouse, Westfield Lane, Mansfield, Notts.
- G3GQF** W. Bartle, 78 Dolcoath Road, Camborne, Cornwall.
- GI3GQI** D. Watson, 438 Merville Garden Village, Whitehouse, Belfast.
- G3GQK** J. Wall, 30 Shad Thames, Bermondsey, London, S.E.1.
- G3GQM** R. A. Stevens, B.Sc., 15 Northfield Grove, Merry Hill, Wolverhampton.
- G3GQP** A. G. Higby 162 Abbs Cross Lane, Hornchurch, Essex. (*Tel. : Hornchurch 4792*).
- G3GQV** F. Wilson, 284 Verdant Lane, Catford London, S.E.6.
- G3GQZ** W. H. A. Burnet, 45 Station Road, Harpenden, Herts.
- GI3GRD** F/O W. J. C. Curtis, R.A.F. V.R.(T), 21 London Road, Belfast.
- GM3GRG** D. R. Rollo, B.Sc., 44 Woodhead Avenue, Kirkintilloch, Glasgow.
- G3GRO** D. Atter, 43 Breck Lane, Dinnington, nr. Sheffield, Yorkshire.
- G3GRP** B. R. Plant, 66 Ferguson Road, West Derby, Liverpool, XI.
- G3GRV** G. L. Halse, 26 Monmouth Road, Hayes, Middlesex.
- G3GRX** E. L. Simpson (*ex-D21B*), 4 Gray Street, Workington, Cumberland.
- G3GRX/A** E. L. Simpson, c/o Mellfell, Newlands Place, Penrith, Cumberland.
- G3GSA** T. V. Livesey, 11 Higher Shady Lane, Bromley Cross, nr. Bolton, Lancs.
- G3HWM** J. F. Cowling, 46 Queens Road, Rayleigh, Essex.
- G6LO** E. H. Leamon, 30 Chesham Road, Penge, London, S.E.20. (*Tel. : SYD 5984*).
- G6LO/A** E. H. Leamon, c/o E. W. Yeomanson, 9 Trewsbury Road, Sydenham, London, S.E.26. (*Tel. : SYD 7373*).

CHANGE OF ADDRESS

- EI5R** P. F. Colbert, 141 Cork Road, Waterford, Eire.
- GC2AGP** W. H. Nuttall, c/o The Crabpot, Grande Havres Bay, St. Sampson's, Guernsey.
- G2FCC** W. Warburton, 38 Railway View, Great Harwood, nr. Blackburn, Lancs.
- G2SX** J. D. Ordish, 23 St. Georges Road, Petts Wood, Kent.
- G3AGQ** R. Eldridge, Fair View, Gomeldon, Wilts.
- G3AGZ** S/Ldr. R. A. Evenett, A.M.Brit.I.R.E. (*ex-ZE2JD*), Grasmere, Burntwood Road, Sevenoaks, Kent.
- G3AJK** R. J. A. Earland, 1 Southlands Avenue, Orpington, Kent.
- G3ATI** R. W. Pinfold, 6 Station Road, Upper Poppleton, York.
- G3BJB** E. Dandy, 213 Pickersleigh Road, Malvern, Worcs.
- G3BRW** R. G. Wyatt, 34 Boley Drive, Clacton-on-Sea, Essex.
- G3BUF** B. J. Fost, 99 The Avenue, West Wickham, Kent.
- G3CJB** C. A. Limbrick, Field Aircraft Services, Bovingdon Airport, Herts. (*Tel. : Bovingdon 2145*).
- G3FP** B. R. Arnold, 26 Windsor Road, Thornton Heath, Surrey.
- G3FPR** K. A. Eaton, 48 Southwood Road, Ramsgate, Kent.
- G3GEN** C. F. Cole, 113 Stroud Road, Gloucester.
- G3RF** D. W. Harries, 33 Hertford Place, Coventry.
- GM3XO** J. R. Macpherson, 7 George Street, Dunfermline, Fife.

Here and There

Big Time TVI

For some time now, TV viewers buttoned to Sutton Coldfield have been afflicted by a particular type of vision interference, most noticeable in the southern part of the SC fringe area. This was finally traced as being due to the fourth harmonic of the BBC's own high power 15 mc transmitter at Daventry, operating on one of the overseas services! The interference was promptly named the "Daventry Pattern", and the matter was taken up on behalf of their viewer-constituents (and the dealers) by the local Members of Parliament. The PMG's reply admits the interference, but explains that because of the "great technical difficulties involved in suppressing harmonic radiation in high-power transmitters" it will be *at least three months* before any cure can be effected! In the meantime, the transmissions from Daventry are to continue, owing to their pressing importance—presumably in the field of politics and propaganda.

So for any amateur in the Midlands area who finds himself being pursued on the subject of TVI, the quick first answer can be "Daventry Pattern"! And this is only the beginning of all the trouble which is going to be caused to TV by QRO transmitters operated not only by the BBC itself, but by the Services and many other authorities active on the HF bands.

Belling-Lee Catalogue

The latest issue is a big 90-page general guide to the very wide range of small components manufactured by them for radio, TV and electronic purposes, and also contains an extremely interesting 25-page section on interference suppression and suitable devices for use in this field, daily becoming more urgent and pressing. The catalogue is fully detailed and excellently produced. Belling & Lee, Ltd., Cambridge Arterial Road, Enfield, Middlesex.

"Errors Crep' In"

In G3CCD's very useful article on Speech Clipping (*Short Wave Magazine*, May 1950), some essential component values were unaccountably dropped from the table appearing on p. 187; what is even more unaccountable is that they were not corrected in June. However, here they are: C19, C20, .001 μ F;

R9, 30,000 ohms; R22, 250,000 ohms; R27, R28, 50,000 ohms.

And in the circuit diagram on p. 335 of the July issue (the GM6LS Two-Metre Transmitter) the HT feed to the screens of the triplers V3/V4 is neatly shorted to earth by that quite unnecessary junction between the top end of R9 and the earth return for C17!

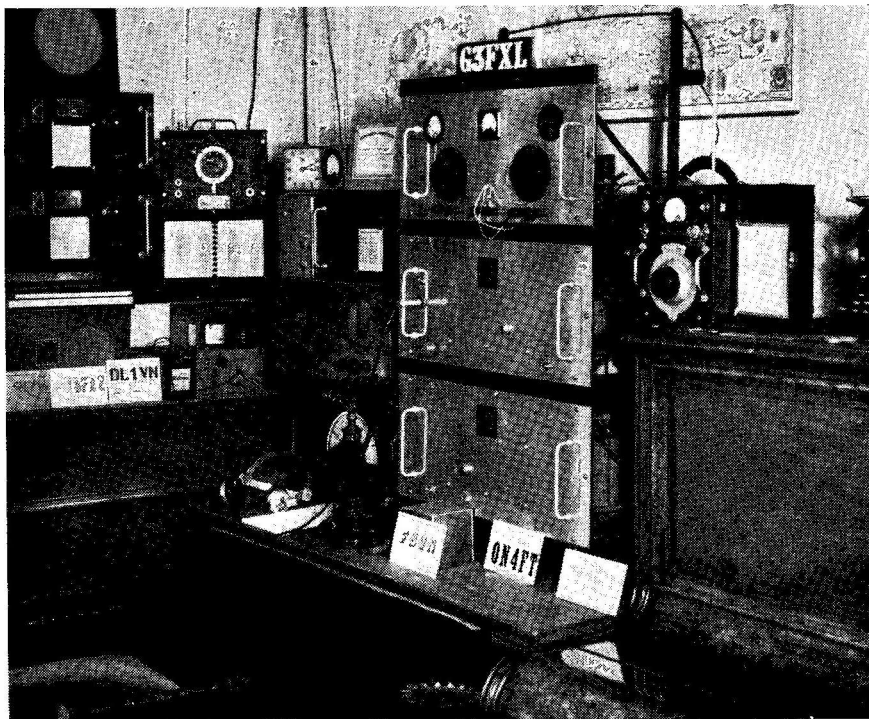
Verily, we cannot all be humming birds, no matter how hard we may try.

Our Office Address

No. 53 is a large building which accommodates the offices of some 60-70 different business concerns, as well as being the editorial or publishing address of several periodicals totally unconnected with our own activities. Hence, a letter addressed simply "The Editor, 53 Victoria Street", is almost certain to go into the wrong box. So when writing to us, it is most essential to direct your letter not only to the department or section for which it is intended within our own organisation, but also to put in our name as well. For instance, Circulation Manager (or The Editor, or DX Commentary, or QTH Section, as the case may be), *Short Wave Magazine*, 53 Victoria Street, London, S.W.1. No more, but no less!

Popov or Marconi

Periodically, there is a revival of this barren controversy, the basis of which is "Who was first?" There are those, and they are many, who would say it hardly matters, because about the only thing now certain is that many people had a hand in "inventing wireless"—though it is generally accepted that what the world owes to the creative genius of Marconi is the *practical application* of wireless as a method of communicating human intelligence. If Popov was, in fact, first with a system of wireless signalling, nobody else knew about it at the time, because even in those days everything that went on in Russia was shrouded in secrecy behind a hedge of distrust and suspicion. Hence, Popov made no contribution of any practical value to other workers of his day, whereas their results were freely published. There is an interesting article discussing this and related problems of first claims to scientific discoveries in the June issue of the *American Proceedings of the Institute of Radio Engineers*.



The other man's station G3FXL

THE photograph illustrates the outfit operated as G3FXL by S. H. Scragg, 212 Trafalgar Street, Ashton-under-Lyne, Lancs. He is holder of a Class "A" licence issued in October 1949, so that G3FXL can be regarded as representative of the G3-plus-3's active at the present time.

On the transmitting side, the main Tx is CO 6L6-807 PA run at the 25 watts and capable of being operated either CC or VFO on all communication bands. The VFO actually consists of a series of unmodified TU units—TU5B, TU6B and TU8B—selected to provide drive on the band required, either on the fundamental or harmonically. These TU units can also be operated on their own as QRP transmitters, and have been used successfully in this way on the Top Band, Eighty and Forty.

Against the day when a Class "B" licence is obtained, about October 6, 1950, a speech amplifier-modulator has been installed which runs 6J7-6SF5-6C5 from the microphone end

to drive a pair of 6L6's for anode-and-screen modulation of the 807 PA. It is expected that it will be possible to modulate a 40-50 watt carrier under these conditions.

The receivers in use are a Sky Champion and an R.1155, and for frequency control G3FXL is equipped with a BC-221 and a BC-906D, the latter modified to operate as a monitor. Also provided is a band-edge marker with a modulation indicator under construction.

Operated with an 84-ft. end-fed aerial, this equipment is giving very satisfactory results and G3FXL is able to enjoy himself on all bands from Twenty to the Top Band. Clearly, the station has been designed and equipped on sound principles, with an eye to future development. Many G3-plus-3's, themselves the new generation in Amateur Radio and its backbone for the future, will read this brief description of G3FXL with the greatest interest.

The Month with the Clubs

FROM REPORTS RECEIVED

This month sees the smallest number of reports received for some time, only 26 Clubs having written in. This doubtless indicates a spate of outdoor activity—at least on the part of the Secretaries and Scribes! In addition to the Reports we have received the following News Sheets:

CQ CF from Cardiff; *The Bull Sheet* from Plumstead, Woolwich and Abbey Wood; *The Brighton Link*; and *News Letters* from Chester, Midland and West Somerset.

Secretaries who have enquired about this year's MCC will find preliminary details in the accompanying box; they will be receiving the Rules and Entry Forms in due course, provided that their Club has been reporting to us some time during the last six months.

Deadline for next month's reports will be first post on August 15. And for the October issue, please get them in by September 12. The address is "Club Secretary," *Short Wave Magazine*, 53 Victoria Street, London, S.W.1.

Worthing and District Amateur Radio Club.—The big event down at Worthing is to be the "Bucket and Spade" Party on August 27. This will be held on the beach in front of Beach House, and its purpose is solely to ensure an enjoyable day for the families of amateurs in the South-Eastern area. It is not even suggested that the amateurs themselves will enjoy the day out or even talk shop! Anyone can turn up and there is no charge. From September 4 to 9 the Club is running a stand for 12 hours a day, Monday to Saturday, at the Worthing Model Engineers' Exhibition in the Assembly Hall. Contacts with G3DRC/A (7 mc and 1.7 mc) will be appreciated during the period.

West Kent Radio Society.—Fortnightly meetings continue at Culverden House, Tunbridge Wells. During July a visit is being paid to the London-Birmingham TV Radio Link and to the Museum Auto Exchange. During August it is proposed to visit the EMI

factory at Hayes. An exhibition will also be staged in the local museum, and another D-F Contest is being organised. Membership is around the 35 mark. A new Radio Quiz programme was recently tried out successfully, and there is a Junk Sale on July 19.

Stourbridge and District Amateur Radio Society.—At the July meeting G6WF gave a very instructive talk, with demonstration, on Directional Antenna Systems. Meetings continue on the first Tuesday and third Friday of the month.

Slough Radio Group.—In July the members of the local Group got together with the Slough and District Radio Society and set up 1.7 mc and 146 mc. stations at Langley Sports Fete, many visitors being attracted by the display and operation of the equipment. The Mayor of Slough had a cross-town QSO and showed great interest in the stand. The complete 1.7 mc station seems to have been finally removed from the site in an erambulator, due to lack of more suitable transport.

Slade Radio Society.—July meetings included a lecture on Police Radio and a Film Show. On August 18 there is to be a visit to Elmdon Airport, for which early application should be made to the Programme Secretary. On August 20 there is a D-F Test, and on September 1 a lecture on Constructing the Viewmaster Telesvisor.

Midland Amateur Radio Society.—Further instructions on the building of the "MARS" receiver were given at the last meeting by Mr. A. W. Rhodes, the Hon. Sec. and designer.

M.C.C., 1950

The Fifth Annual 1.7 mc Club Transmitting Contest will be held this year between the dates November 11 and November 19, beginning at 1700 hrs each day.

Some changes have been made in the rules, and the full set of rules will be circulated, in due course, to all Clubs which appear in our list as "active."

Chief among the changes is the alteration of the times of transmission so that each day's work will finish at 2300 GMT instead of midnight.

The scoring system has also been amended, although not altered in principle. This year each contact with a non-entrant in the contestant's own prefix area will count three points; a contact with a non-entrant in another area will count four points. All contacts with other contestants will count six points.

We hope that an even larger number of Clubs will take the field this year. Even at this date it is not too early to start preparing and planning—so Do It Now.



When the Rugby Group went out with G4KK/P and G3GG/P, not only did they have a "mascot and tea-boy" (marked Rugby in this photograph) but they also utilised the services of an archer from the local Toxophilite Society to shoot the hoisting cords for the aerials over the trees. There is nothing we admire more than enterprise!

Lincoln Short Wave Club.—Recent items have included a debate on Crystal-versus-VFO and a visit to the Post Office, for which there was a very good turn-out of members. On September 10 it is hoped to visit GKZ, but there will be no meetings during August. Membership stands at 18.

Radio Society of Harrow.—Activities continue, in spite of the holiday season, and some overseas visitors have been welcomed to meetings. On August 10 there is to be a VHF talk by G2TA and G2DD; on August 24 the subject is Frequency Changing (G2TA). The Club Tx will be on the air on the 3rd, 17th and 31st. A Field Day is being arranged for the first week-end in September. The Club will be glad to extend hospitality to anyone on holiday in the Harrow area.

Eastbourne and District Radio Society.—Two stations, G3D1V/A and G4FV/A, operated from Beachy Head on NFD, with the assistance of fellow-amateurs from the Bexhill and Hastings areas. The second op. of G2FTS created a local record by hitch-hiking 110 miles to be present for the event! At the next meeting (on July 7) it is

hoped to have news of a new Headquarters.

Coventry Amateur Radio Society.—A very Old Timer has assumed the Presidency in place of G6WX, now retiring; the new President is "Freddy" Miles, G5ML, a founder member and one who has played a prominent part in the Club. Future meetings will be held at the BTH Social Club, Holyhead Road, at 7.45 p.m. On July 31 there will be a Ladies' Night; August 14, Preparation for RAE (Theory); August 28, Five-Minute Lecurettes. A MARS/CARS Team Contest has been arranged again this year, the date fixed being October 15.

Clifton Amateur Radio Society (S.E. London).—Clifton's second Field Day was won by a team consisting of G3GQK and Mr. W. Wooller. Lectures are being run on Antennas; a one is scheduled for Radio in the Merchant Navy. Weekly meetings are well attended and G3GHN is on the air every Friday, also in the Club CW Net, Sundays mornings on 3.5 mc. Membership totals 34, average attendance being about 22.

Brighton and District Radio Club.—This Club remains active, although holidays and outdoor activities have caused attendances to drop somewhat. Several visitors from other Clubs have looked in while on holiday. The Club Tx has been on the air, with good results. Future items include a talk on the Q Meter and an exhibition of QSL cards. Membership total is 84, with an average attendance of about 28.

Warrington and District Radio Society.—Meetings continue at the Sea Cadet HQ, off Wilderspool Causeway, on the first and third Mondays at 7.30 p.m. On August 27 there will be a Field Day, run in conjunction with a regional event.

Wanstead and Woodford Radio Society.—This Club is appealing for more SWL members, who will be specially welcome to the Tuesday meetings; apparently the transmitting members prefer their own transmitters to the Club Tx, since only four turn up at meetings out of some fifteen who "signed on." The Gear Building Contest is still open—until October 3. There is a guinea prize waiting for the best item.

Thames Valley Amateur Radio Transmitters' Society.—Members at the July meeting heard an interesting lecture by Dr. Aughtie, G6AT, of the NPL. He spoke on Electronic Computers and gave a lucid explanation of a complicated subject. Some members of the Sutton and Cheam Club were present as guests. At the September meeting there will be a demonstration of VHF Transmission and Reception, given by the Marconi W/T Co.

Sutton and Cheam Radio Society.—The July programme included a Junk Sale and a talk on The Cable Systems of the World (Cable and Wireless, Ltd.). No meeting will be held in August, the next being on September 5.

Sheffield Amateur Radio Club.—“Nothing to report” is the news from here, but the meetings are continuing right through the summer months. Present paid-up membership is 52.

Kingston and District Amateur Radio Society.—At a recent meeting members saw a demonstration of the radio control of Model Aircraft and Boats, by Electronic Developments, Ltd. Future lectures are on “My Station” (G8HY), and The RF 27 as a Converter, by Mr. Frank Lee. Attendances have been good, and membership totals 40, increasing weekly.



The central figure in this group is G2YS, now chairman of the Chester and District Amateur Radio Society. He will be well remembered as the energetic and very successful secretary of C.A.R.S. Chester is heir to a great tradition in the Amateur Radio Club world—see the note on p. 300 of our issue for June last.

Grimsby Amateur Radio Society.—A recent event was a talk on the Theory and Operation of the Oscilloscope. The AGM was also held, fresh officers elected and new rules formulated. The Club Tx, G3CNX, is active on 3.5 and 7 mc. Meetings are held every Wednesday, 7.30 p.m. at 50 Welholme Road, Grimsby. See panel for new Secretary's QTH.

Grafton Radio Society.—Having held three meetings a

week for a very successful year, Grafton are now closed for a well-earned rest. The new season opens with the Fifth AGM on September 18 and meetings resume thereafter, on every Monday, Wednesday and Friday, as before.

Gateshead and District Amateur Radio Club.—This Club has just been formed and has about 20 members. Club night is Thursday, 7 p.m., when Morse practice is given.

NAMES AND ADDRESSES OF CLUB SECRETARIES :

BOURNEMOUTH : P. R. Lockwood, G3EMX, 1149a Christchurch Road, Boscombe East, Bournemouth.
 BRIGHTON : L. Hobden, 17 Hartington Road, Brighton.
 CAMBRIDGE : T. A. T. Davies, G2ALL, Meadow Side, Comberton, Cambridge.
 CHESTER : R. Windsor, 17 Hough Green, Chester.
 CLIFTON (S.E. LONDON) : W. A. Martin, G3FVG, 21 Brixton Hill, S.W.2.
 COVENTRY : K. Lines, G3FOH, 142 Shorncliffe Road, Coventry.
 EASTBOURNE : R. Nugent, G2FTS, Field House, Windmill Hill, Hailsham, Sussex.
 ECCLES : H. Rayson, 11 Hartington Road, Winton, Lancs.
 GATESHEAD : L. Blackie, G3DIJ, 109 Brighton Road, Gateshead 8.
 GRAFTON (N. LONDON) : W. H. C. Jennings, G2AHB, Grafton L.C.C. School, Eburne Road, London, N.7.
 GRIMSBY : W. Atkinson, 43 Sidney Road, Grimsby.
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 WEST KENT : A. C. Pollard, 28 Greentrees Avenue, Tonbridge.
 WORTHING : R. Forge, G3FRG, 2 The Plantation, Worthing.

The Club owns an S.640 and a stand-by Rx, and enough gear to start building a Tx in the near future. New members will be heartily welcomed.

Eccles and District Radio Society.—At a recent meeting a new committee was formed, and officers elected. The new HQ is The Eccles House Club, Half Edge Lane, Eccles. Meetings are held every Monday at 7.30 p.m.

Chester and District Amateur Radio Society.—On July 4 there was a talk on Amateur Operating Procedure; July 11 and 18 saw the members working on G3GIZ; on July 25 Mr. Myatt discussed "Some Unusual War-Time Circuits." As a result of a recent talk on

"My Station" by one of the members, several licensed members have arranged "Open Nights" at their individual stations. Membership is 41 and still increasing.

Cambridge and District Amateur Radio Club.—Next meeting will be held at the Jolly Waterman on August 18 at 8 p.m. No special programme has been fixed, but there will be a general ragchew and a report on the committee's work since the Club was formed.

Bournemouth Radio and Television Society.—This Club now owns two transmitters, thanks to G3CPB, who has made an indefinite loan of a complete 150-watt outfit. G2ZB is undertaking the construction

of an all-band aerial system. Next meetings are on August 4 and 17.

Richmond and District Radio Society.—Members and friends attended the last function of the present session at the National Physical Laboratory, by kind permission of the Director of the N.P.L., on July 8. They were extremely fortunate in having many of the activities explained and demonstrated to them—surely, this must be one of the Club visits of the year. The programme for the 1950/51 session is now being planned, and those who would care to consider joining Richmond are invited to get into touch with the Secretary—address in panel.

RADIO TRIMMER KIT

The Newman Master Set Trimmer Kit consists of a very complete supply of small tools, in a pocket-size case, designed for the easy and accurate adjusting of trimmers, switch contacts and fixing screws of the type

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F.S.3.	Input 200/250v. Output 350/0/350v. 80 m/a .. 19/6
F.S.2X.	Input 200/250v. Output 250/0/250v. 100 m/a .. 21/6
F.S.30X.	Input 200/250v. Output 300/0/300v. 100 m/a .. 21/6
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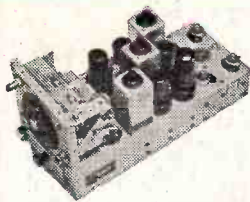
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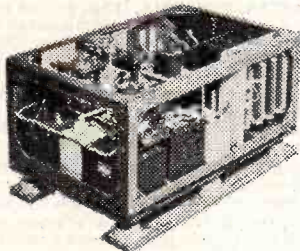
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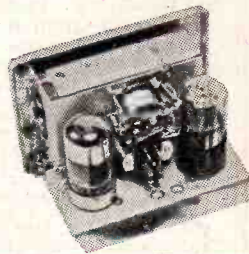
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