

# R.S.G.B.

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

## Bulletin

Vol. 30 No. 7

JANUARY, 1955

Price 2/6 Monthly

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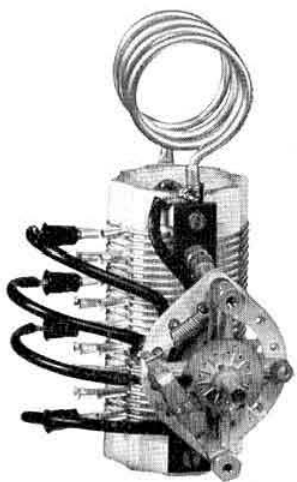
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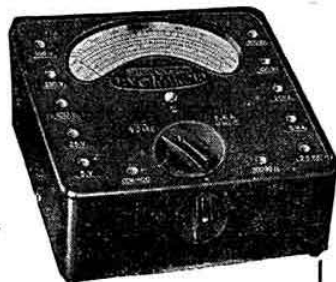
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| 0-100 "         | 0-250 "       |
| 0-250 "         | 0-500 "       |
| 0-500 "         |               |
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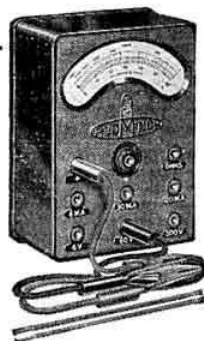
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| 0-120 "         |
| 0-300 "         |
| 0-600 "         |
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| 0- 60,000 "     |
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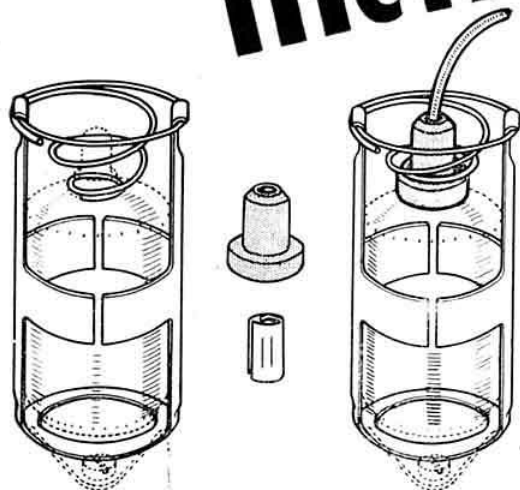
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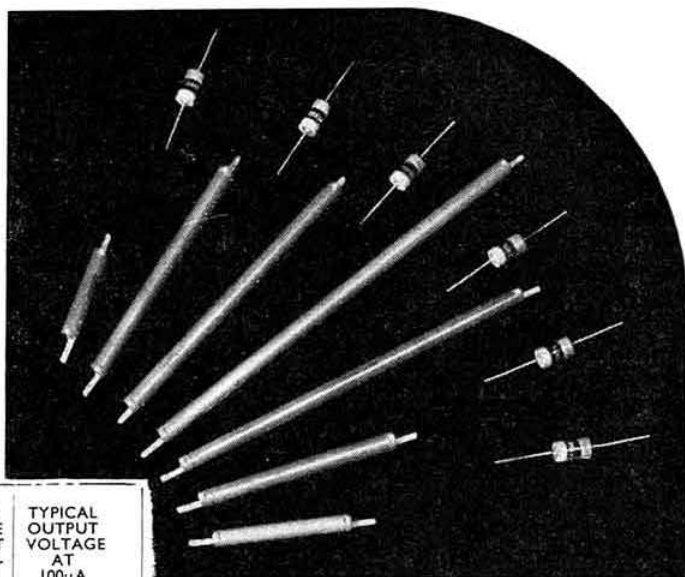
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# R.S.G.B. Bulletin

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## In this Issue

|  |     |
|--|-----|
| Current Comment (Editorial)                                  | 319 |
| A Compact Table Top Transmitter for 14, 21 and 28 Mc/s       | 321 |
| by George Jessop, A.M.Brit.I.R.E., Assoc.I.E.E. (G6JP)       | 321 |
| Presentation to the General Secretary—                       | 327 |
| Screen Modulation  | 328 |
| by O. J. Russell, B.Sc., A.Inst.P. (G3BHJ)                   | 328 |
| Low Loss Balanced Feeder for 144 Mc/s                        | 330 |
| by Rev. Walter M. Ferrier (GM3BDA)                           | 330 |
| A Universal Power Plug Connecting Unit                       | 331 |
| by C. H. L. Edwards (G8TL)                                   | 331 |
| Transitron Signal Generator                                  | 333 |
| by A. H. Koster, Dr. Ing. (G3ECA)                            | 333 |
| The R.S.G.B. in Retrospect                                   | 342 |
| by C. H. L. Edwards (G8TL)                                   | 342 |
| R.S.G.B. Amateur Radio Exhibition—A Review of the Highlights | 335 |
| Annual General Meeting                                       | 339 |
| Amateur Television   | 345 |
| by M. Barlow (G3CVO)   | 345 |
| Council Proceedings  | 346 |
| "Exercise Ilford"  | 347 |
| by W. J. Ridley (G2AJF)                                      | 347 |
| Two Metres and Down  | 348 |
| by F. G. Lambeth (G2AIW)                                     | 348 |
| Month on the Air   | 352 |
| by S. A. Herbert (G3ATU)                                     | 352 |
| Bands Available  | 355 |
| Forthcoming Events   | 356 |
| Regional and Club News                                       | 357 |
| Letters to the Editor  | 358 |
| New Books  | 358 |
| Silent Key   | 359 |
| New Members  | 359 |

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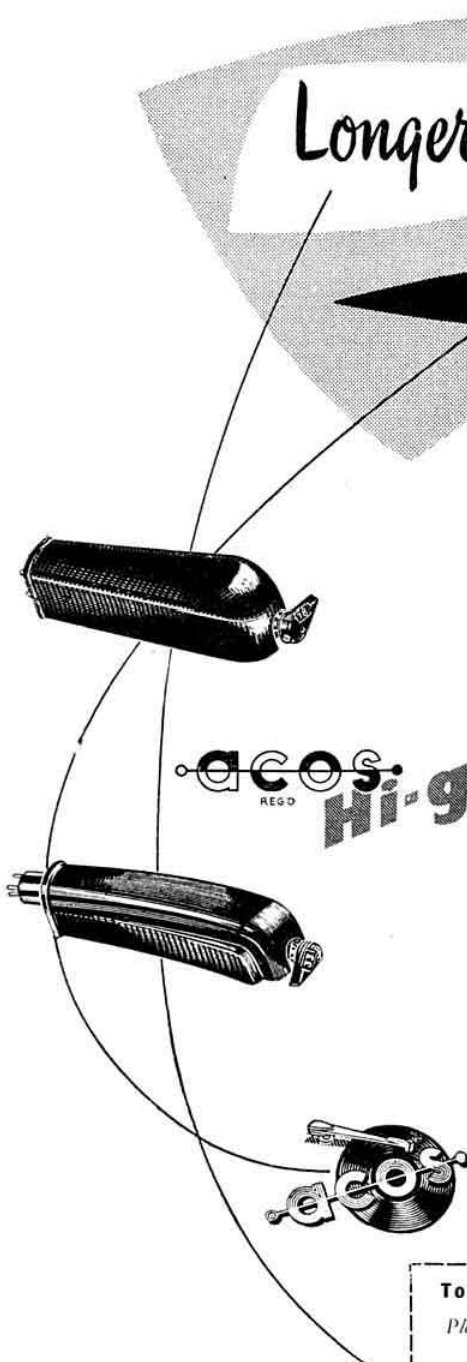
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## The General Secretary

FROM the far corners of the land members of the Council converge once a month—normally the second Tuesday—to the Society's Headquarters, lying a little way back from the main London thoroughfare of Holborn. They will have been summoned to the meeting by means of the usual formal notice convening it—and that is merely the start. Accompanying the notice will be the minutes of the previous Council meeting, reports of all the committees which have met during the last few weeks (and that could mean as many as a dozen reports which run to two or three foolscap pages); and sandwiched between this inch-thick wad will be another half-a-dozen pages of typescript on distinctive green paper. This is the Secretary's Report, setting out items which are to be discussed at the forthcoming meeting.

On the night of the meeting, members gather round the long table in the Council Room. Customarily the President takes his seat in the centre which, when you come to think of it, is a much more sensible arrangement than a seat at the head of the table where half the members would be more remote from him, and less able to catch his eye.

At the President's left sits the Executive Vice-President (who will probably be next year's President), and at his right the General Secretary.

The meeting starts at 6 p.m. and generally lasts for about four hours. Throughout this time the General Secretary will be the President's mainstay in helping him to take the proceedings to a successful conclusion, with as many points as possible disposed of, and few (preferably none) left over for another time. Through his close contact with those mysterious entities called "Official Circles," the General Secretary furnishes Council members with information which helps them to reach their ultimate decisions. Sometimes he will have the chagrin of seeing some of his good advice bypassed or completely ignored—but, remembering he is the paid servant of the Company which is the R.S.G.B., he cannot remonstrate, nor, as when it often happens, his advice turns out to be the right advice, can he say: "I told you so." Some people say, perhaps a little spitefully, that he runs the Society. They are wrong; for Council is jealous of its position as the governing body. But Council would govern far less effectively if their General Secretary was a less dominant and colourful personality.

These characteristics inevitably arouse ire or envy at times from those who have a brush with him; but they also evoke the recognition by the majority of members that the R.S.G.B. would be a great deal poorer without him. Members recall, too, how, 25 years ago, "the time found the man," as it has so often done in the pages of history.

It is the Council, especially, who witness at first hand the gigantic amount of work which the General Secretary gets through—and has made for him by the Council's own deliberations. It was in recognition of these efforts, which have now continued for more than a quarter of a century, that the President, quite unknown to the General Secretary, opened a subscription list for him, with the result which can be read about in the report elsewhere this month of what happened after the Annual General Meeting.

But that was not all. Since then Her Majesty The Queen has been graciously pleased to appoint Mr. Clarricoats to be an Officer of the Most Excellent Order of the British Empire. This is an honour not to the recipient alone but to British Amateur Radio as a whole. It is Royal recognition of the importance with which the movement is regarded in this country—an importance to which the General Secretary's 25 years of hard work have so largely contributed.

"Twenty-five years' hard"—and the General Secretary can surely look back on them with satisfaction. There remains only one nagging doubt: who will (indeed, who can) succeed him?—J.H.

## New Style Council

BY the time these words appear the new style Council will have held its first meeting. It is worth marking the occasion by recalling one or two facts about the Society's governing body.

The various detailed changes which distinguish the composition of the Council as it is now from how it was before, are described in the new Articles of Association. To many members the most significant change is the creation of the office of Zonal Representative. This came about as the result of a feeling among the membership that there was not enough provincial "weight" on the governing body. Therefore, when the Articles of Association were rewritten they specified that there should be a Council member drawn from six arbitrary geographical zones so delineated that there would be adequate representation from the whole of the country.

As it happened, the Councils of the last three or four years have, even without zonal representatives, drawn their members from many parts of the country remote from the metropolis. This year, too, the President himself comes from a city nearly 200 miles from London. The additional zonal representatives who join the Council this year for the first time should ensure that the desirable, over-all "national coverage" is effected in no uncertain manner.

## Advertising

IN a speech which he made at the opening of the last Amateur Radio Exhibition, Mr. Bartlett invited BULLETIN advertisers to be specific in the slant they gave to their announcements in this magazine. He suggested that in a specialist publication the specialist approach was important.

He was, of course, quite right. A good advertisement in an Amateur Radio magazine can be almost as informative, in its own way, as a technical article is in the editorial section. The "discussion" type of advertisement has been finding increasing favour in recent years as a means of talking to the knowledgeable buyer—and that is a very good technique to employ.

Whether the "discussion" technique is employed or not, it seems reasonable to suppose that an advertiser addressing

an informed audience will get the best return for the money he spends on his space if he makes his "copy" as detailed as he can. A great many BULLETIN advertisers need no advice along these lines. But for any who have not yet tried the sophisticated approach a pleasant surprise will almost certainly be the result when they adopt it. Greater interest, closer attention to the message, and ultimately, increased sales, will be their experience, coupled with enhanced prestige for product and firm in the minds of the very knowledgeable readers of this magazine.—J.H.

## The Things They Say

IT does all of us good to stand back for awhile and survey as dispassionately as we can this Amateur Radio pre-occupation which dominates so large a part of our lives. We may then find that many of the habits which we take so much for granted ("wallpaper" habits!) could do with a little revaluation—and, perhaps, even modification—from time to time.

These thoughts were prompted by comments which two quite responsible people were recently heard to make during the course of conversation at the R.S.G.B. Amateur Radio Exhibition.

One of them, an operator of very long standing, when asked if he ever used the 80 metre band, replied that he had very little patience with it nowadays for the very good reason that it seemed to him to be all "poppycock and handles"—and just about as bad as 40 metres was before the war—to quote his actual words.

Our second observer, who is interested in radio in its widest sense although he is not a transmitting amateur, remarked in a tone of amused indulgence that he could not become very enthusiastic about the activities of the average Radio Amateur because "every time he works somebody he seems to say the same thing."

These are, of course, no more than individual points of view; but that is no reason at all to dismiss them as not worth further heed. It does happen to be the fact that the first of them is fairly widely held by a good many of the more serious-minded operators in this country. The second is frequently voiced by those who overhear our activities but do not participate in them.

It is all very well publicising such criticisms, but it is much more practical to consider how they may be met. What is certain, however, is that neither of these two particular problems will be solved overnight. Poor operating on 80 metres (or on any other band for that matter) will always exist so long as Amateur Radio remains a cross-section of the community at large, with the unintelligent or exhibitionist contrasting with the intelligent and reasonable. Yet it does seem a pity that the behaviour of what is undoubtedly a minority should endanger the good name of the rest.

Preaching by example seldom works in attempts to cure asinine operating. Sharp words might.

Point two, now: "Saying the same thing over and over again." That, of course, is inevitable during the opening and closing stages of a contact with the necessary introductions and farewells. But what comes between? If, in fact, a contact consists of no more than an opening stage and a closing stage with *nothing* in between—and many do—is it worth making? Here arises the old bogey of the "formula QSO," calling into question the folly of occupying valuable frequency space that could be better used by those who have something more constructive to say.

The content of our communications is, indeed, something to which we should all be giving constant thought.—J.H.

## Society News

### The 420-460 Mc/s Band

FURTHER to the information published last month under "Council Proceedings" (page 298) the G.P.O. have advised the Society that they have now obtained the agreement of the other Departments concerned to an exclusive amateur allocation of 15 Mc/s within the 420-460 Mc/s band when it is replanned.

The proposed re-allocation is as follows:—

- 420-425 Mc/s: Government Services (fixed links). Amateurs to operate on a basis of non-interference to such services as at present.
- 425-440 Mc/s: Exclusive allocation to amateurs.
- 440-450 Mc/s: Government Services. Amateurs to operate on a basis of non-interference to such services as at present.
- 450-460 Mc/s: Fixed and mobile civilian services.

Although the Post Office intend to formulate proposals for the future use of the frequency space between 450 and 460 Mc/s on the basis of the above re-allocation it will probably be about 18 months before there is any material change in the present position within the band as a whole.

### The Bristol Trophy

THE Council has accepted with much pleasure a Trophy—to be known as the Bristol Trophy—which has been presented to the Society by the Bristol R.S.G.B. Group to mark the occasion of that Group winning National Field Day for the third year in succession.

The Rules governing the award of the Trophy are as follows:—

1. The "Bristol Trophy" shall be presented annually to the R.S.G.B. Town or Area Group which, having entered only one station for N.F.D. in accordance with the rules and not amalgamating with any other Town or Area for the purpose of scoring, shall succeed in obtaining the highest number of points in comparison with the scores obtained by other Groups entering on a similar basis.
2. The "Bristol Trophy" shall be held by the winning Group for one year and will be handed to the T.R. or A.R., who will be held responsible for its safe custody during the year.
3. The "Bristol Trophy" shall remain the permanent possession of the Radio Society of Great Britain.
4. The Council shall be entitled to vary the rules governing the award of the "Bristol Trophy" from time to time, should such a course seem desirable.

### Maitland Trophy

THE Council has been pleased to accept from Mr. James Maitland, B.R.S. 16925, of Glasgow, a silver trophy for annual competition.

The rules are as follows:—

- (1) The "Maitland Trophy" shall be presented annually, at the discretion of the Council of the Radio Society of Great Britain, to the Corporate Member resident in Scotland scoring the highest number of points in the November and January sections of the R.S.G.B. Top Band Contest.
- (2) If for any reason the Contest is not held in any particular year the Council shall have the right to award the "Maitland Trophy" for some other purpose.
- (3) The "Maitland Trophy" shall remain the permanent possession of the Radio Society of Great Britain.

# A Compact 75 watt Table Top Transmitter for 14, 21 and 28 Mc/s

By GEORGE JESSOP, A.M.Brit.I.R.E., Assoc. I.E.E. (G6JP) \*

High efficiency, operating convenience and reliability were the main factors which dictated the design of the transmitter described here. As a result, all the components and valves operate well within their continuous service ratings. The modulator is particularly interesting in that it incorporates intentional restriction of the frequency response to provide excellent communications quality.

THE transmitter described in this article was built to suit the author's own particular requirements and for this reason covers only the 14, 21 and 28 Mc/s bands. Nevertheless, it is thought that the general design is of sufficient interest to justify fairly comprehensive treatment.

The form of construction adopted and the use of a pi-filter output circuit ensures that TVI is reduced to a minimum. As a high-pass filter and aerial tuning unit are normally used with the transmitter, operation during television hours is possible without fear of complaints from televiewing neighbours.

## The R.F. Unit

The circuit of the complete r.f. section is shown in Fig. 1. The crystal oscillator (V1) circuit is similar to that used in the SCR522 transmitter, the valve being an N77, the output of which is coupled to the following stage through a 7 Mc/s band-pass coupler. Although the use of a v.f.o. has become almost standard amateur practice on the lower frequencies, the author prefers to use a bank of crystals, selected by S1. Provision for the use of a v.f.o. has, however, been made.

N78 valves are used as frequency multipliers, each valve being coupled to the p.a. through its associated wideband coupler. The first (V2) is used as a doubler from 7 to 14 Mc/s, the second (V3) as a tripler from 7 to 21 Mc/s, and the third (V4) as a quadrupler from 7 to 28 Mc/s. Only three valves (plus the clamp valve) are used at any time in the r.f. section, however. If desired, a single N78 could be used in a composite multiplier stage by employing an additional wafer on the band switch (S2) to select the appropriate wideband coupler. The alternative arrangement would reduce the number of valves required and provide more space for the p.a. stage at the rear of the chassis.

The drive to the final amplifier is controlled by a potentiometer in the screen supply to V1. Grid current in the multiplier and p.a. stages is read on the meter M2.

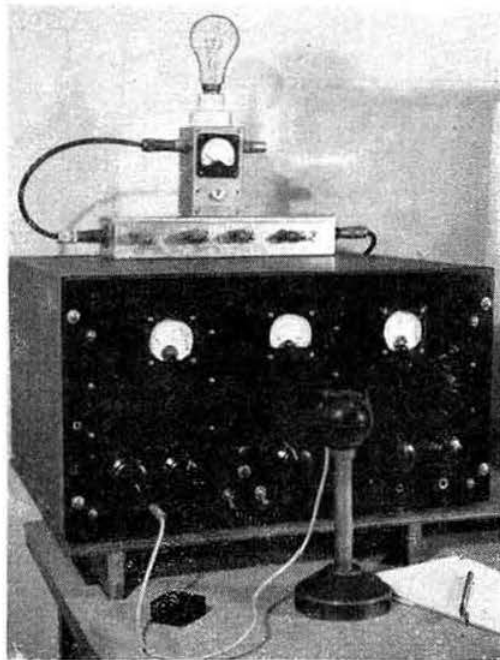
The p.a. stage employs an 829B with the two sections connected in parallel. Other valves which have been tried are the TT17 and QQV06-40, while the RCA 6146 and the 4D32, if available, would be ideal. The tank circuit is a somewhat unconventional arrangement of the pi-filter circuit which usually calls for the use of an r.f. choke capable of passing the full p.a. anode current with the output r.f. voltage across it. The design and construction of such a choke presents considerable difficulty and for that reason a circuit suggested by G2MQ (which puts the choke at a low r.f. voltage point) is used. In this arrangement, a normal

2.5 mH choke performs satisfactorily. The full d.c. and modulated r.f. voltages, however, appear across the tuning condenser (C26) which should therefore have a spacing between its plates of 0.0625 in. for a 550 volt power supply. The blocking condenser between the tank circuit on the one hand and the aerial and the loading condenser (C28) on the other is C27, a mica 2250 volt test type.

The lead from this circuit is a short piece of co-ax cable, which goes through the chassis to the aerial socket on the rear end of the r.f. chassis. A harmonic check point is also provided and located below the aerial socket. It is connected to the aerial lead proper through a 5  $\mu$ F ceramic condenser as suggested by G5RV.

## Speech Amplifier and Modulator

The circuit (Fig. 2) of the speech amplifier and class AB1 modulator is more or less conventional. The first two stages of the speech amplifier section employ DH77 valves (with their diodes earthed) which have been found to be excellent in this position: the induced hum is low, the stage gain fairly high and the valves non-microphonic. The coupling condensers between these two stages are small in order to restrict the bass response. The speech amplifier is followed by a B65 valve connected as a push-pull driver. The driver transformer is a small replacement type without centre taps to the primary or secondary, effective electrical taps being provided by external resistances. The arrangement is due to Mr. G.R. Woodville, who also carried out the audio measurements and component adjustments.



A front view of the compact table top in its cabinet.

\* 32 North View, Eastcote, Pinner, Middlesex.

The modulator stage uses a pair of KT66s, the screens of which are fed through an S130\* stabiliser valve in order to provide an almost constant potential difference between the valve anodes and the screens. The bias voltage is obtained by connecting a small heater transformer back-to-front across the main heater supply and rectifying its output with a D77 double diode strapped in parallel. The range of bias voltage obtainable enables the modulator standing anode current to be adjusted between zero and 150 mA.

With 550 volts h.t. and a no signal anode current of

\* The S130 has now been replaced by the S130P. Under no circumstances must any connection be made to pin 4 when using the S130P.

75-80 mA to the pair of valves, the power output is 55 watts. A curve relating distortion to output power is shown in Fig. 3 from which it may be seen that the distortion varies from 2 to 5 per cent for outputs between 10 and 55 watts into a 6000 ohms load. The output drops by about 10 per cent when the load impedance is lowered to 4000 ohms or raised to 10000 ohms. The frequency response curve (Fig. 4) shows that the effective range is between 270 and 3000 c/s which gives good speech quality without "splash." Restriction of frequencies below 270 c/s not only aids intelligibility but also permits less elaborate smoothing to be used in the h.t. supply.

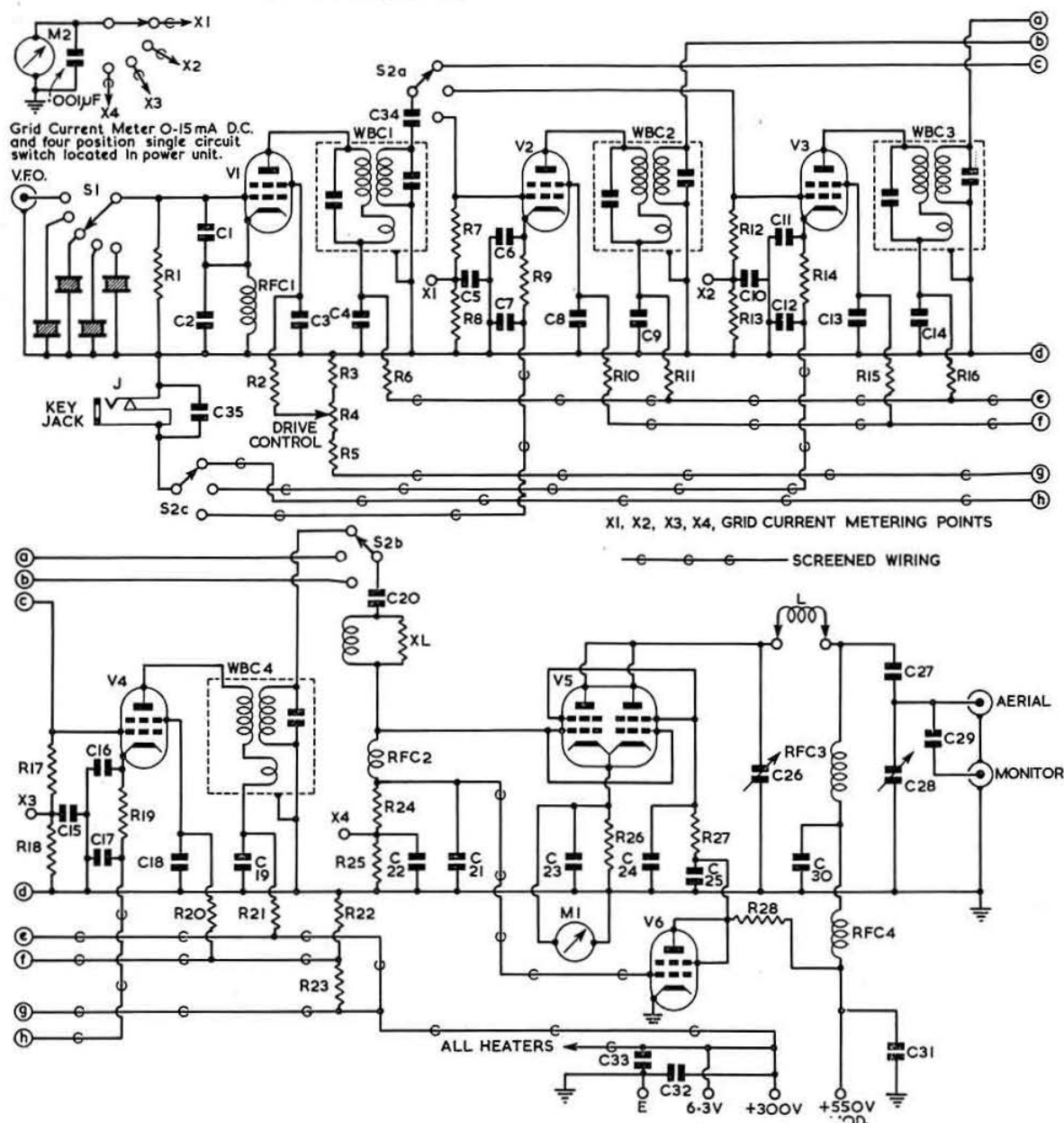
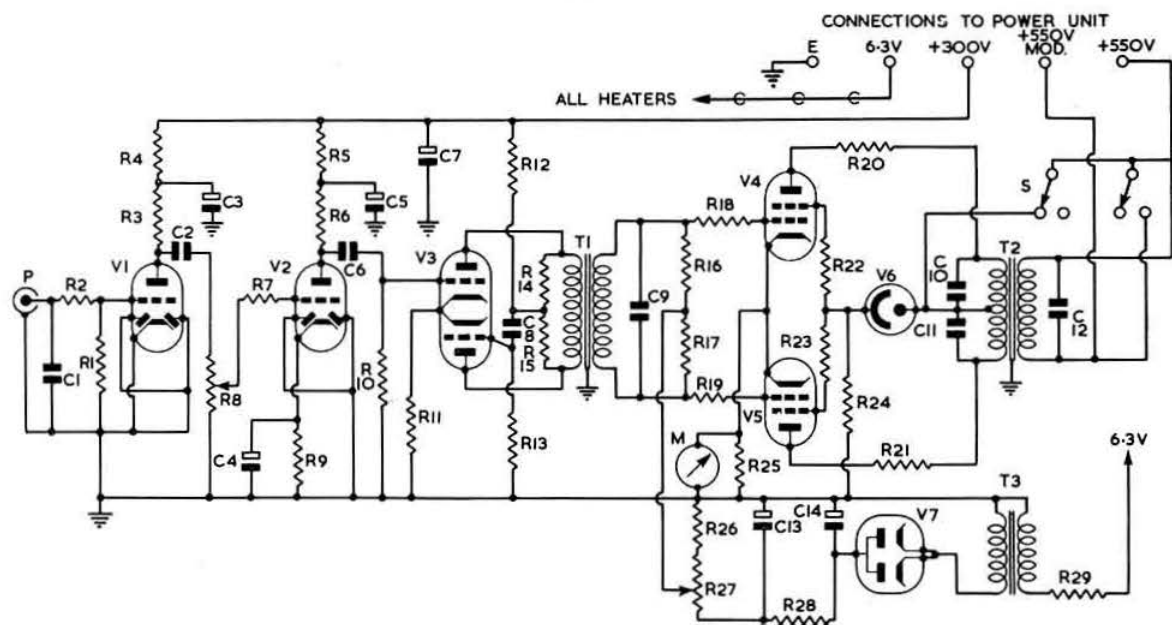


Fig. 1. Circuit diagram of the r.f. section of the compact table top transmitter.





**Fig. 2. The speech amplifier and modulator circuit.** Fig. 4 shows the overall frequency response.

### Power Supplies

All the main power supply components are mounted on a single chassis with the exception of the bias supply for the modulator stage which is carried on the modulator chassis.

The main h.t. transformer is mounted 3 in. above the chassis so that free air circulation is possible from beneath the chassis. Although a U18/20 was employed as high voltage rectifier in the original design, a 5R4GY is quite suitable.

Two control switches are provided, one for the heater transformers and the other (the stand-by) for the h.t.

transformer. Signal lamps indicate when the heaters (green) and h.t. (red) are on. A four position switch mounted directly below the central meter (M2) permits the latter to be used to measure grid currents. As a safety measure, a micro-switch, which opens when the lid of the cabinet is raised, is wired in series with the h.t. switch. Electrical safety is all too often overlooked by home constructors and it is perhaps well to remember the warning *Death is Permanent*.

The various supplies are terminated on strips mounted on the sides of the chassis so that the inter-connecting leads

### Components List for Fig. 1

- Component List for Fig. 1**
- C1, 50  $\mu$ F, ceramic, T.C.C.  
C2, 100  $\mu$ F, ceramic, T.C.C.  
C3, 4, 0.01  $\mu$ F, paper, T.C.C.  
C5, 7, 10, 12, 15, 17, 22, 0.001  $\mu$ F, paper, T.C.C.  
C6, 11, 16, 0.01  $\mu$ F, paper  
C8, 9, 13, 14, 18, 19, 0.001  $\mu$ F, mica, Dubilier  
C20, 50  $\mu$ F, mica, T.C.C.  
C21, 0.001  $\mu$ F, mica, T.C.C.  
C23, 1000  $\mu$ F, mica, T.C.C.  
C24, 1000  $\mu$ F, ceramic, T.C.C.  
C25, 200  $\mu$ F, ceramic, T.C.C.  
C26, 75  $\mu$ F, double spaced variable  
C27, 30, 31, 32, 33, 0.01  $\mu$ F, mica  
C28, 300  $\mu$ F, variable  
C29, 5  $\mu$ F, ceramic  
C30, 31, 32, 33, 0.01  $\mu$ F mica, T.C.C.  
C34, 100  $\mu$ F, mica, T.C.C.  
C35, 0.001  $\mu$ F, paper, T.C.C.  
CX1, co-ax socket (v.f.o. input)  
CX2, co-ax socket (aerial output)  
CX3, co-ax socket (harmonic check)  
J, key jack, single circuit closed circuit type  
M1, 0-250 M.A. m.c. meter  
R1, 56000 ohms,  $\frac{1}{2}$  watt, Erie  
R2, 4700 ohms,  $\frac{1}{2}$  watt, Erie  
R3, 4700 ohms, 1 watt, Erie  
R4, 20000 ohms, 4 watt variable, Dubilier  
R5, 10000 ohms, 2 watt, Erie  
R6, 11, 16, 21, 220 ohms,  $\frac{1}{2}$  watt, Erie  
R7, 12, 17, 22000 ohms,  $\frac{1}{2}$  watt, Erie  
R8, 13, 18, 25, 330 ohms,  $\frac{1}{2}$  watt, Erie  
R9, 14, 19, 220 ohms,  $\frac{1}{2}$  watt, Erie  
R10, 15, 20, 150 ohms,  $\frac{1}{2}$  watt, Erie  
R22, 15000 ohms, 3 watt, Erie  
R23, 25000 ohms, 3 watt, Erie

- R24, 10000 ohms, 1 watt, Erie  
R26, 20 ohms,  $\frac{1}{2}$  watt, Erie  
R27, 220 ohms,  $\frac{1}{2}$  watt, Erie  
R28, 47000 ohms, 3 watt, Erie  
RFC1, 2, 3, 4, Eddystone type 1022  
S1, single pole, 5 position (crystal selector), Oak  
S2a, b, c, 3 wafer, single pole, 3 position  
(wave change), Oak  
WBC1, 2, 3, 4, see Table II  
V1, N77, Osram  
V2, 3, 4, 6, N78, Osram  
V5, 829B  
XL, 12 turns on 330 ohms  $\frac{1}{2}$  watt resistor

### Components List for Fig. 2

- C1, 47  $\mu\text{F}$ , T.C.C.  
C2, 6, 000  $\mu\text{F}$ , mica, T.C.C.  
C3, 7, 4  $\mu\text{F}$ , 500 V, electrolytic, T.C.C.  
C4, 10  $\mu\text{F}$ , 500 V, electrolytic, Dubilier  
C8, 0.1  $\mu\text{F}$ , paper, T.C.C.  
C9, 100  $\mu\text{F}$ , mica, T.C.C.  
C10, 11, 0.01  $\mu\text{F}$ , 1250 V wkg., T.C.C.  
C12, 0.005  $\mu\text{F}$ , mica, T.C.C.  
C13, 14, 4  $\mu\text{F}$ , 250 V, electrolytic, Dubilier  
M, 0.150 mA m.c. meter  
P, microphone input socket  
R1, 10, 12, 1 Megohm,  $\frac{1}{2}$  watt, Erie  
R2, 4700 ohms,  $\frac{1}{2}$  watt, Erie  
R3, 6, 10000 ohms,  $\frac{1}{2}$  watt, Erie  
R4, 5, 47000 ohms,  $\frac{1}{2}$  watt, Erie  
R7, 22000 ohms,  $\frac{1}{2}$  watt, Erie  
R8, 500000 ohms potentiometer, Dubilier  
R9, 11, 2200 ohms,  $\frac{1}{2}$  watt, Erie  
R13, 10000 ohms,  $\frac{1}{2}$  watt, Erie  
R14, 15, 33000 ohms,  $\frac{1}{2}$  watt, Erie  
R16, 17, 250000 ohms,  $\frac{1}{2}$  watt, Erie  
R18, 19, 6800 ohms,  $\frac{1}{2}$  watt, Erie

- R20, 21, 25 ohms,  $\frac{1}{2}$  watt, Erie  
R22, 23, 100 ohms,  $\frac{1}{2}$  watt, Erie  
R24, 47000 ohms, 1 watt, Erie  
R25, 5 ohms,  $\frac{1}{2}$  watt, Erie  
R26, 33000 ohms,  $\frac{1}{2}$  watt, Erie  
R27, 50000 ohms potentiometer, Dubilier  
R28, 50000 ohms,  $\frac{1}{2}$  watt, Erie  
R29, 15 ohms, 1 watt, Erie  
S, 2 pole, 2 position (phone/c.w. switch), Oak  
T1, Wearite type 209  
T2, Modulation transformer (Collins or  
similar)  
T3, 6.3 V, 1.5 A, Radio Spares  
V1, 2, DH77, V3, B65, V4, 5, KT66, V6, 5130  
V7, D77.

### Components List for Fig. 5

- C1, 2, 4  $\mu$ F, 750 V, T.C.C.  
C3, 4, 16  $\mu$ F, 500 V, T.C.C.  
C5, 6, 0.005  $\mu$ F, mica, 1000 V wkg., Dubilier  
L1, 2, 5 H, 200 mA  
LX1, h.t. indicator lamp (red), G.P.O. type  
LX2, i.t. indicator lamp (green), G.P.O. type  
P, 3 pin mains plug  
S1, h.t. on/off switch, 250 V, 3A, Arrow  
S2, l.t. on/off switch, 250 V, 3A, Arrow  
S3, microswitch, Burgess  
R1, 25000  $\Omega$  3 watt (across 550 V supply)  
R2, 100000  $\Omega$  2 watt (across 350 V supply)  
R3, 10 ohms,  $\frac{1}{2}$  watt, Erie  
T1, 600-300-0-300-600 V, 300 mA, Woden  
T2, 4 V, 1.5 A, Haynes  
T3, 4 V, 2.5 A, Haynes  
T4, 6.3 V, 4 A, Woden  
T5, 6.3 V, 4 A, Woden  
V1, U14, Osram  
V2, U18-20, Osram

to the r.f. and modulator units pass through the side walls of the respective chassis. The circuit diagram of the power supply section is shown in Fig. 5.

### Construction

The complete transmitter is housed in a surplus AR88 receiver cabinet, although this is not ideal owing to the limited ventilation. A cabinet with louvered sides and a perforated lid would be better.

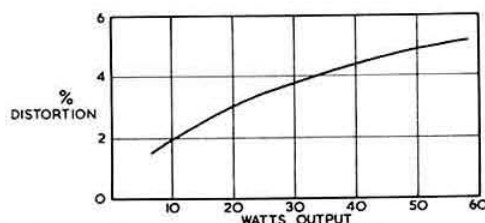


Fig. 3. Graph of the power output plotted against the percentage of distortion.

Considerable thought was given to the planning of the layout so that each of the three sections—r.f. unit, modulator and power supply—could be handled separately during the wiring up, and any subsequent servicing. The three sections are arranged side by side, the power supply being in the centre with the r.f. stages on the right and the modulator to the left. Fig. 6 indicates the positions of the main components in each section.

The chassis for the r.f. and power supply units are each 18in. long by 6in. wide by  $3\frac{1}{2}$ in. deep. The modulator chassis is 18in. long by  $4\frac{1}{2}$ in. wide by  $3\frac{1}{2}$ in. deep. All three are made of 16 s.w.g. aluminium, the rear of each being closed with a flush fitting sub-panel. The front ends are closed by similar panels fitted so that there is a space of about  $\frac{1}{2}$ in. between the panel and the ends. With the front panels set back in this way the various controls can be

fitted directly on the chassis, so simplifying servicing.

The p.a. stage is completely screened in a 6in. cube box (with a removable lid) made of 16 s.w.g. aluminium. Ventilation for the final amplifier is provided by a number of holes drilled in the tops and sides. The output co-ax sockets, covered by a simple screen made from a cut down i.f. can, are mounted on the rear of the r.f. chassis in order to avoid cutting additional holes in the cabinet.

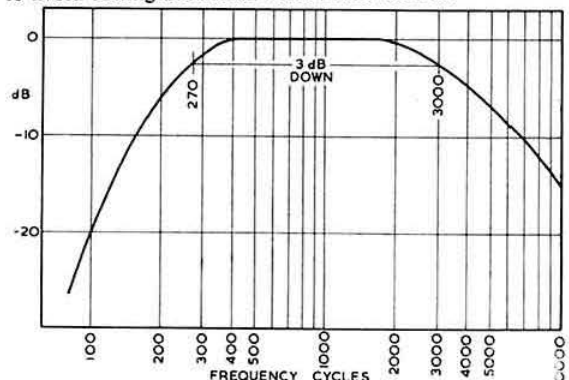


Fig. 4. The overall frequency response of the speech amplifier and modulator.

An AR88 type 60° switch is used for the bandswitch but any standard 30° type with a 12in. blade could be used. The three wafers are the standard paxolin type. There is no point in using ceramic wafers below 50 Mc/s; if available, however, they can be used although it is doubtful if any improvement in performance will result.

In the prototype, all supply wiring in the r.f. unit, metering leads and the heater circuits in the speech amplifier and modulator, was carried out using screened wire earthed to the chassis at both ends and at other convenient points.

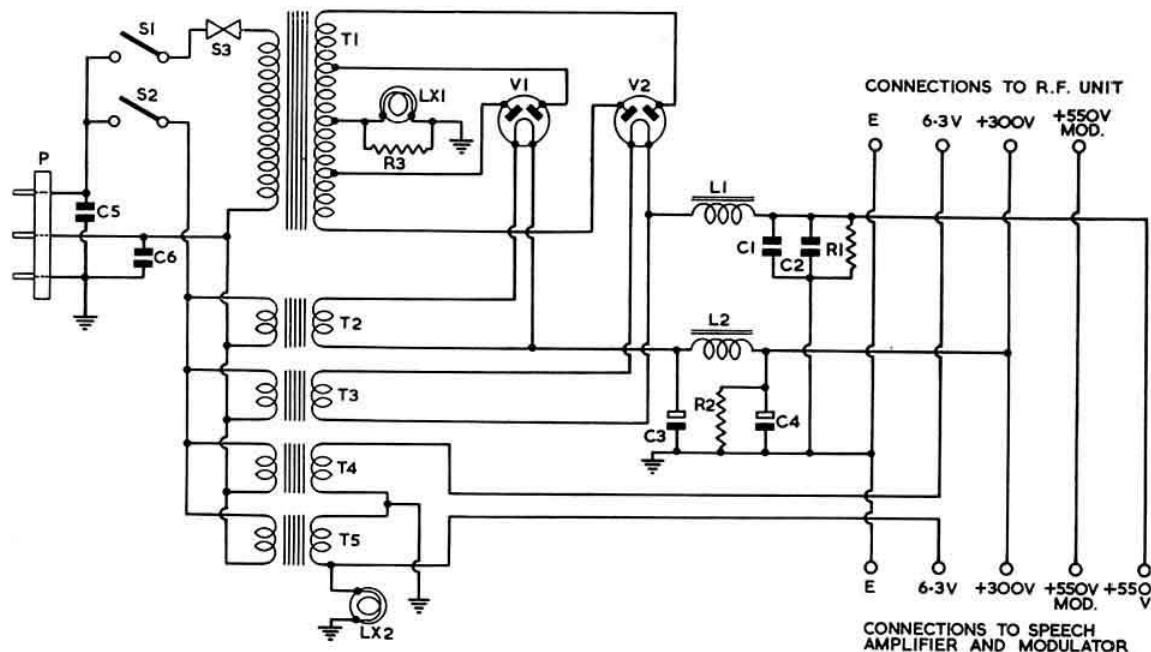


Fig. 5. Circuit of the power supply section. Note the interlock switch S3 included as a safety precaution.

### Wideband Couplers

The wideband couplers used in the original transmitter were made from R1143 i.f. transformers. No mechanical changes were required except in the case of the coil former for the 7 Mc/s unit where it was necessary to remove the threading to allow an increased number of turns to be accommodated. If a lathe had not been available, the threading could have been covered by a layer of paper fixed to the former with coil dope.

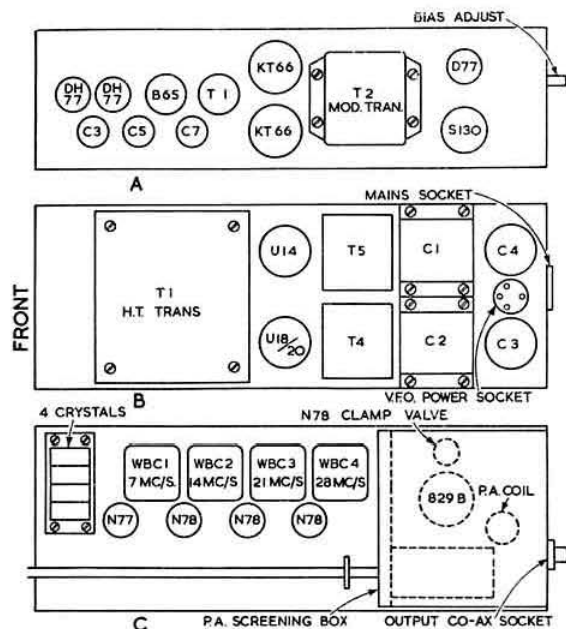


Fig. 6. Arrangement of the main components.

The layout of the reconstructed units is shown in Fig. 7. The primary fixed tuning capacity is connected across both the primary winding and the link. Winding details are given in Table I.

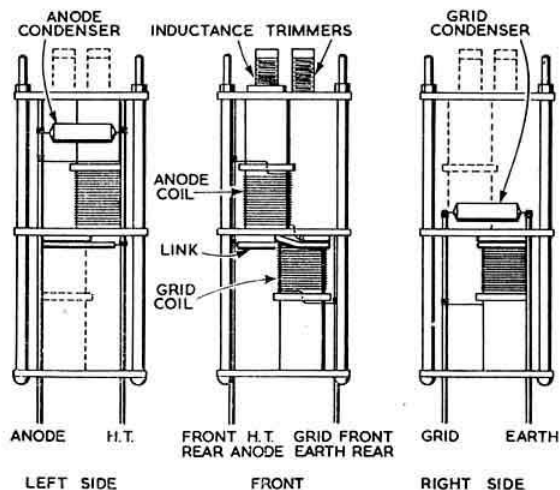
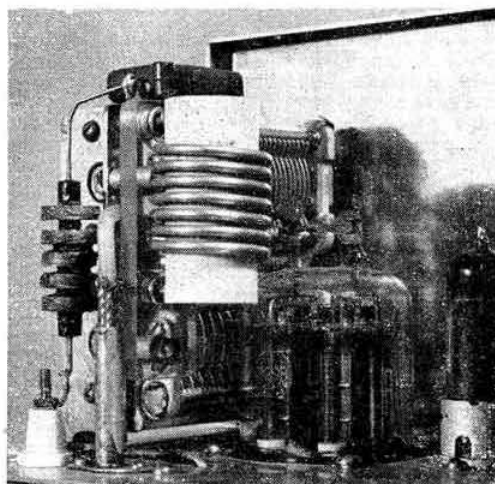


Fig. 7. Construction of the wideband couplers.



Close-up of the p.a. stage showing the arrangement of the output circuit.

### P.A. Coils and Condensers

The condensers associated with the p.a. stage—C26 and C28—were both originally 300  $\mu\text{F}$  types, C26 being reduced in capacity to a value of 75  $\mu\text{F}$  by stripping down and removing alternate vanes on both stator and rotor. By using condensers of the same physical size, the rear bracket supporting them can also be used to support the coil socket.

Details of the plug-in coils for the p.a. stage are given in Table II. The inductance of the 28 Mc/s coil should be adjusted so that resonance occurs when C26 is near minimum capacity. The positioning of the plugs and sockets for the coils depends on the actual tuning condensers used.

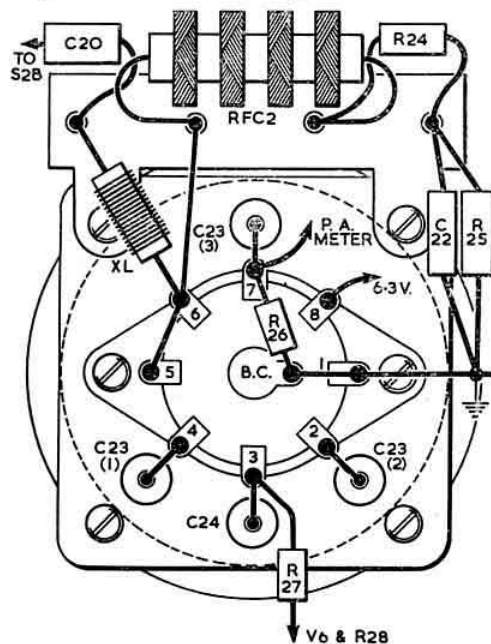


Fig. 8. Layout of components in the alternative p.a. stage.

### Tuning Adjustments

The lining-up of the exciter section is relatively straightforward and can be done without difficulty. The only auxiliary apparatus required is a calibrated absorption wavemeter to identify the correct harmonics.

With a 3.5 or 7 Mc/s crystal in position, the anode coil of V1 (the primary of the first wideband coupler) is adjusted

should be plugged in, a dummy load\* connected to the output socket, the anode condenser set to minimum capacity and the loading condenser set at maximum. Tuning of the amplifier may then be carried out in the usual manner for a pi-filter network.

Table III shows the operating voltages and currents to the various stages.

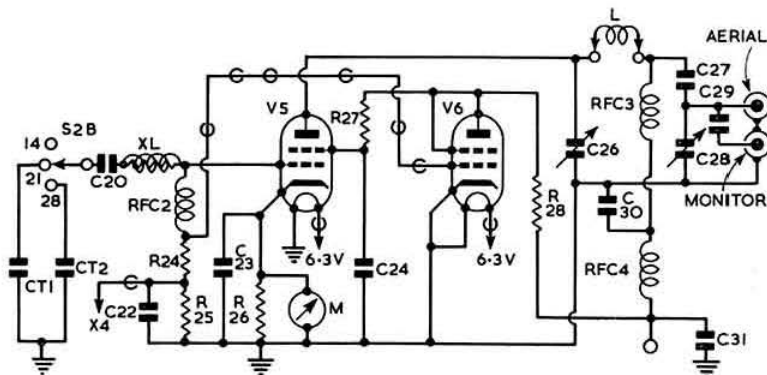


Fig. 9. Circuit diagram of the alternative p.a. stage. The component references are the same as Fig. 1 with the exception of C23 (one for each cathode connection to V5, 5B/254M) and C24 which are 680  $\mu$ F Erie stand-off condensers.

Table I

| Wideband Coupler | Band Mc/s | Primary |                 |            | Secondary |                 |            | Link Turns*     |
|------------------|-----------|---------|-----------------|------------|-----------|-----------------|------------|-----------------|
|                  |           | Turns   | Wire            | Capacity   | Turns     | Wire            | Capacity   |                 |
| 1                | 7         | 30      | 30 s.w.g. enam. | 30 $\mu$ F | 32        | 30 s.w.g. enam. | 30 $\mu$ F | 2               |
| 2                | 14        | 14      | 24 s.w.g. enam. | 30 $\mu$ F | 14        | 24 s.w.g. enam. | 15 $\mu$ F | 1 $\frac{1}{2}$ |
| 3                | 21        | 10      | 24 s.w.g. enam. | 20 $\mu$ F | 10        | 24 s.w.g. enam. | —          | 1               |
| 4                | 28        | 10      | 24 s.w.g. enam. | —          | 8         | 24 s.w.g. enam. | —          | 1               |

\* The link winding is a continuation of the primary winding.

to the centre of the common frequency range, i.e., 7125 kc/s. During the initial adjustments, it may be advantageous to remove the screening can in order to get tighter coupling to the wavemeter. When the primary has been correctly adjusted, V2 may be plugged in and the grid meter set to read grid current to this valve. The secondary of the first wideband coupler can then be adjusted for maximum drive to the multiplier. The procedure is repeated with the other couplers. Finally, all the coils are re-adjusted for maximum grid drive to the p.a. valve.

Before h.t. is applied to the p.a. stage, the clamp valve

Table II

| Band    | Turns | Inside Diameter | Wire                                       | Spacing                            |
|---------|-------|-----------------|--|------------------------------------|
| 14 Mc/s | 15    | lin.            | 14 s.w.g. enam.                            | Close wound on ceramic former      |
| 21 Mc/s | 10    | lin.            | 14 s.w.g. enam.                            | One wire diameter; ceramic former  |
| 28 Mc/s | 7     | lin.            | $\frac{1}{8}$ in. diam. silver plated tube | One wire diameter; self supporting |

### APPENDIX

#### Alternative p.a. valve

As an alternative and less expensive p.a. valve, the 5B/254M has been tested in place of the 829B. The performance was found to be almost as good although the safety margin was of course reduced. During the tests, the samples used were overloaded considerably without causing any damage.

The construction adopted in the prototype was naturally a modification of the original 829B arrangement, the valveholder being mounted on a plate attached with spacers to the original holes. The under-chassis screening collar was retained.

If it is decided to use a 5B/254M from the outset, the valveholder platform should be mounted  $\frac{1}{2}$  in. below the main chassis so that the internal shield (level with the bottom of the anode) is level with the chassis. The hole in the chassis should be  $1\frac{1}{4}$  in. in diameter. In order to minimise feedback, the lower end of the valve should be enclosed in

\* The most suitable dummy load is a 110 V 100 watt lamp which has an impedance near to that required. ("Using Lamps as Resistances," Corfield, R.S.G.B. BULLETIN, March, 1952.)



a screen in which a number of holes have been cut to allow the circulation of air, as the bulb of the valve gets fairly hot during operation. The by-pass condensers for the screen grid should present as low an r.f. inductance as possible and the arrangement shown in Fig. 8 is strongly recommended.

Due to the lower input capacity of the 5B/254M, it was found necessary to add a 10  $\mu$ F condenser to the secondary of the 21 Mc/s wideband coupler and a 15  $\mu$ F condenser to the 28 Mc/s coupler. (CT1 and 2 respectively.)

The circuit of the alternative p.a., stage is shown in Fig. 9.

Table III

| Valve Type | Stage                | Anode Volts | Anode Current | Screen Volts | Grid Current  |
|------------|----------------------|-------------|---------------|--------------|---|
| N77        | Oscillator-tripier   | 350         | 4-15 mA       | 50-200       | —   |
| N78        | 7-14 Mc/s doubler    | 350         | 16-24 mA      | 110-130      | 1-6 mA  |
| N78        | 7-21 Mc/s tripler    | 350         | 16-24 mA      | 110-130      | 1.5-7 mA  |
| N78        | 7-28 Mc/s quadrupler | 350         | 16-24 mA      | 110-130      | 1-7 mA  |
| 829B       | Power amplifier      | 550         | 125 mA*       | 160          | 14 Mc/s: 5-9 mA<br>21 Mc/s: 5-9 mA<br>28 Mc/s: 2-8 mA |
| KT66       | Modulators           | 550         | 70 mA         |              |   |

\*Anode plus screen current.

Notes: 1. The readings show the range obtained for maximum and minimum settings of the drive control.

2. The total current drawn from the h.t. transformer is 280 mA.

## Presentation to the General Secretary on completing twenty-five years' service

MEMBERS of the Society who attended the Annual General Meeting on December 17, 1954, were able to join with the President and Council in congratulating the General Secretary, Mr. John Clarricoats (G6CL) on the completion of 25 years of service as Secretary of the R.S.G.B.

To mark the occasion, the President (Mr. Arthur Milne, G2MI) paid tribute to the great services rendered to the Society by Mr. Clarricoats and, on behalf of a large number of his friends in the Society, presented him with an inscribed hand-made, pig-skin brief case and a cheque for £131 1s. In addition, the President handed to Mr. Clarricoats an illuminated testimonial, on vellum, recording the presentation, signed by the members of the Council.

The assembled company included three Past-Presidents and several Vice-Presidents and after long applause, the General Secretary thanked these and many other members of the R.S.G.B. for their friendship and co-operation over the years. In expressing his deep appreciation for the

Dear Mr. Milne,

During the 25 years I have been privileged to act as Secretary to the Society it has been my good fortune to enjoy the friendship of a great many members. It is, therefore, a particular pleasure for me to know that so many of them were associated with you in the presentation which you were kind enough to make to me at the Annual General Meeting on December 17, 1954. To you and to them—and to all our members—I give an assurance that I shall continue to do my best to further the interests of the Society as well as the cause of Amateur Radio, both at home and abroad.

Thank you all very much for your most generous gifts. I shall treasure them throughout my life even as I treasure the many kindly messages that have reached me recently.

Yours sincerely,

JOHN CLARRICOATS,

December 18, 1954

General Secretary (G6CL)



The President (Mr. Arthur O. Milne, G2MI) presenting a pig-skin brief-case and illuminated testimonial to Mr. Clarricoats to mark the completion of 25 years' service to the Society and Amateur Radio.

magnificent gift, he reminded those present of the membership figure of 900 when he first took up his duties and of the struggle to keep the office running during the war years. In particular, he referred to the loyal devotion to the Society of Miss May Gadsden who also completed her 25th year, as Assistant Secretary, on December 2, 1954. He assured members of his continued efforts to serve the Society in the future.

After the meeting, Mr. Clarricoats was warmly congratulated by many individual members who were present on this jubilee milestone in his career.

### Headquarters' Staff say "Thank you"

THE General Secretary (Mr. John Clarricoats), Miss May Gadsden, Mr. John Rouse and the other members of Headquarters staff thank the many members who sent them Christmas and New Year Greetings. These expressions of goodwill were much appreciated.

## Screen Modulation

By O. J. RUSSELL, B.Sc., A.Inst.P. (G3BHJ)\*

MUCH interest has been shown in the Correspondence columns of the BULLETIN concerning screen modulation systems, particularly those of the clamp valve variety. It is hoped that the present article will serve to remove some of the misconceptions which exist regarding the operation of such systems.

It must be clearly borne in mind that the usual screen modulation methods are all forms of efficiency modulation and a brief resumé of the main features must therefore be considered. In the efficiency modulated p.a. stage, the steady d.c. input remains constant, the efficiency varying under modulation. At positive peaks, the efficiency is twice that of the unmodulated condition. However, the instantaneous current drawn by the stage is also doubled, as it also varies with modulation. The peak r.f. output is therefore four times that of the unmodulated output. As the fluctuations in d.c. input are at audio frequency the d.c. anode meter does not respond; with linear operation the anode input is steady under modulation.

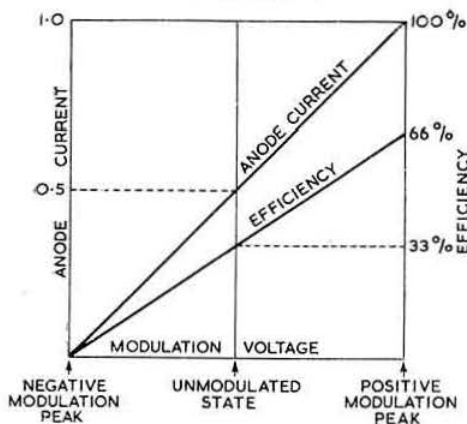


Fig. 1. Efficiency relations in efficiency systems of modulation. In the case of class B stages the input is a modulated carrier.

The d.c. input also varies at audio frequency in the usual anode modulated p.a., although the fluctuations are not shown on the anode current meter which ideally remains steady regardless of modulation.

The behaviour of both anode and efficiency modulated stages can therefore be summarised as follows:—

- In both systems the anode current is doubled on modulation peaks with 100 per cent modulation.
- The instantaneous fourfold increase of power output at 100 per cent positive peak anode modulation occurs because doubled current is drawn at doubled voltage at constant efficiency.
- In an efficiency modulated stage the fourfold increase in power output on positive peaks occurs because double current at constant voltage is drawn at doubled efficiency.

Statement (iii) applies generally to all efficiency modulated systems, so that the unmodulated efficiency can only be half of that possible with anode modulation or c.w. operation, although this is only a 3 db drop in carrier level if the same d.c. input can be drawn. Unfortunately, however, the steady r.f. output of an unmodulated "efficiency" p.a.

stage is usually only a quarter of that possible under c.w. conditions. The peak input conditions in fact correspond to the usual c.w. operating conditions so that the unmodulated condition represents one-quarter of the r.f. output possible under c.w. at full efficiency. This is illustrated in Fig. 1 which applies to all the popular efficiency methods of operation.

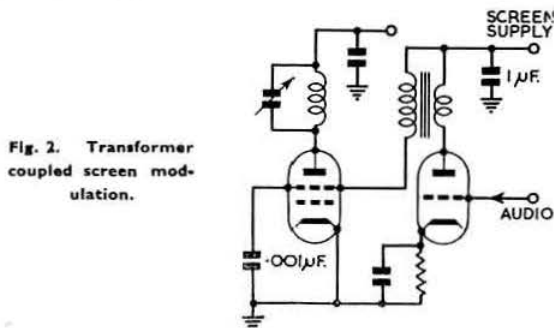


Fig. 2. Transformer coupled screen modulation.

In general, the limitation implies a 6 db drop as compared with c.w. operation. Nevertheless, for the same actual d.c. input, the r.f. carrier output is only 3 db down from the c.w. condition—not a very serious loss in power level in practice. It does mean, however, that an "oversize" p.a. valve must be used. Thus, an efficiency modulated p.a. stage running at 150 watts input requires a valve capable of running at 300 watts under c.w. conditions.

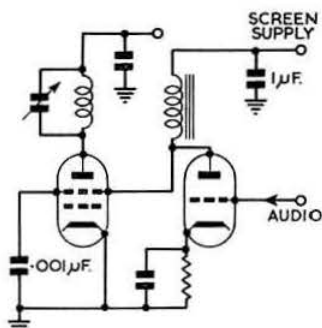


Fig. 3. Choke coupled screen modulation.

There are, however, two alternatives: (i) to use a valve capable of 150 watts input under c.w. conditions, which allows only 75 watts input under efficiency modulated conditions (the carrier output being only that of an anode modulated stage running at 37.5 watts), or (ii) to use an "oversize" p.a. valve capable of 300 watts input under

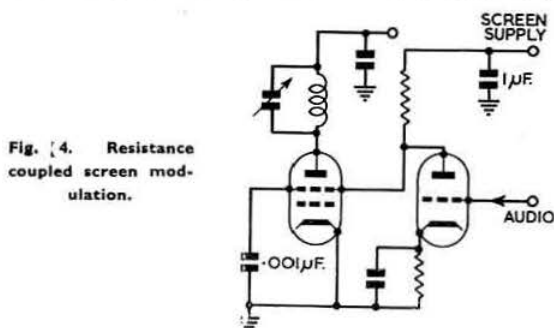


Fig. 4. Resistance coupled screen modulation.

\* 15 Reepham Road, Norwich, Norfolk.

c.w. conditions which can be run at 150 watts input for efficiency modulated phone operation. The carrier output of the latter is equivalent to that of a 75 watt anode modulated amplifier. Compared with an anode modulated 150 watt stage, the signal will be 3 db down. However, the loss of half an "S" point is negligible when the small audio requirements of efficiency modulation are considered. The high power c.w. operator can thus use phone at relatively small cost with a p.a. stage capable of 300 watts c.w. For example, if an 813 is used, rather than a pair of 807s, phone can be achieved without purchasing high power audio transformers and the appropriate power packs for a high level modulator.

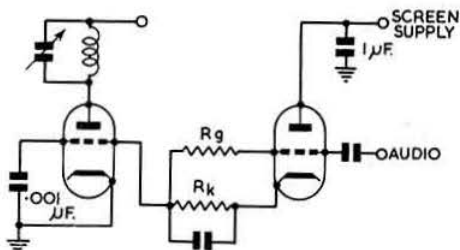


Fig. 5. Series screen modulation, a system analogous to series anode modulation.

On the other hand, low power operation is somewhat handicapped. A 10 watt Top Band rig, for instance, with efficiency modulation has its carrier power reduced to that of a 5 watt anode modulated transmitter. In any event, the modulation requirements of such a 10 watt anode modulated rig are easily met with a 6V6 or 6L6. However, for emergency or portable-mobile use efficiency modulation should not be overlooked. With a limited power supply shared between a modulator and p.a. stage, the efficiency modulated stage will give about the same carrier output as an anode modulator and p.a. stage sharing the same total supply power.

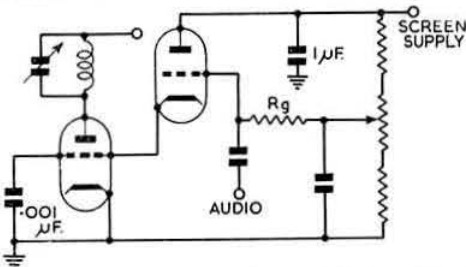


Fig. 6. "Gating" screen modulation, a system basically similar to the series modulation of Fig. 5.

In all forms of screen modulation the operating screen voltage is approximately half that used for c.w. operation. Grid drive and aerial loading are critical and initial tests should be made with an artificial load to prevent the radiation of splatter. The usual rule for the effective impedance of the screen is to calculate it from the screen d.c. input; thus if the screen draws 1.5 mA at 150 volts, it has an impedance of 100,000 ohms and the modulator should be matched to this value. This is a dangerous assumption as the screen impedance varies widely under modulation and may in fact even become negative. At low anode currents, the screen draws a heavy current so that on negative peaks the screen impedance is very low. This often causes violent negative peak clipping and tends to

limit modulation to less than 100 per cent. A triode modulator, transformer coupled, is advised, with the secondary loaded by about 25,000 ohms in order to swamp the effects of the variable screen impedance.

#### Setting Up

A variable screen supply voltage is very helpful in setting up. Taking c.w. conditions as a reference, the screen voltage should be approximately half that for c.w. operation, drive and loading being about half that for anode modulation. The aerial ammeter should give a reading of half that obtained when using c.w. An oscilloscope is very desirable but the p.a. anode meter gives some indication of the adjustments required. If violent upward kicks of anode current occur under modulation the screen voltage may be too low but gross overmodulation also produces the same effect. Violent downward kicks indicate that the screen voltage is too high. When correctly adjusted, good speech with a high percentage of modulation should only produce slight kicks on the anode meter. Any temptation to obtain higher r.f. output by raising the screen voltage should be resisted.

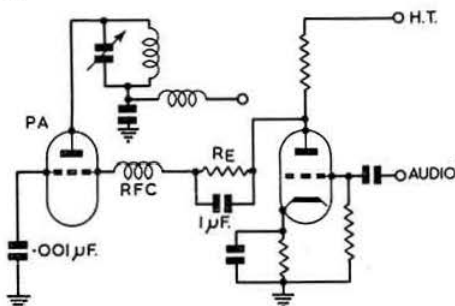


Fig. 7. Use of a dropping resistor to increase the modulation swing of clamp type modulation systems. This can also be applied to the choke coupled circuit of Fig. 3.

#### Clamp Valve Modulation

The evolution of clamp-valve modulation is shown in the circuits illustrated. Fig. 2 is straight forward transformer coupled modulation of the screen. The small power requirements of such modulation, ideally only one-half of the d.c. screen power input, permit choke modulation (Fig. 3) or even resistance coupled modulation (Fig. 4) which is, in fact, clamp modulation. The series screen system of Fig. 5 is derived from the familiar series modulation of the anode. The virtually identical system shown in Fig. 6

(Continued on page 332)

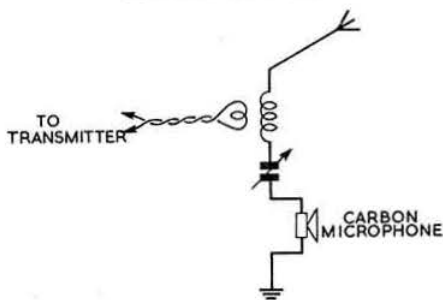


Fig. 8. The simplest possible efficiency modulation system, often employed in the early days of amateur telephony. Ideally, such a system would be equal to other forms of efficiency modulation. Practically, it is difficult to get other than a limited depth of modulation.

## Low Loss Balanced Feeder For 144 Mc/s

By REV. WALTER M. FERRIER (GM3BDA)\*

A GREAT improvement in the all-round effectiveness of the author's 2 m station was obtained some time ago by an attempt to reduce to the very minimum the losses in the 50 ft of feeder line which ran from the shack (then at ground level) to the beam-head. Reports had shown that GM3BDA was being regularly heard and called on the band by G stations at distances of 200 miles or more although these stations were not being heard by GM3BDA, except under especially good conditions, and, even then, only with great difficulty. To find out where the incoming signal was being lost, an attempt was made to eliminate the various elements in the receiving set-up.

First, on comparing the converter (a G2IQ) with others of similar type, it became clear that this was not the "guilty party." Again, this "one-way traffic" phenomenon could not fairly be blamed on the aerial (a 4-over-4 wide-spaced Yagi). Great care had been taken with its design, and it had been trimmed up with a field strength meter for maximum forward gain. The distribution of r.f. current between the two decks was reasonably equal, and the best possible match had been made between aerial and feeder. Admittedly these adjustments had been made only on "transmission," but, working on the principle that a good transmitting aerial is also a good receiving aerial, it was considered likely that the fault lay elsewhere.

The QTH was blameless, having an elevation of 500ft a.s.l., with a clear view up the Clyde Valley to the South for 20 miles or so, while the prevailing weather conditions were such as to discourage severely any belief in freak transmission effects! The feeder was a length of 72 ohm co-ax, of  $\frac{1}{2}$  in. outside diameter, not new, but believed to be in good condition. However, as one factor after another was mentally eliminated, it became clear that the feeder might well be the source of the trouble. Consideration showed that a one-way effect could occur where an r.f. feed line, in use both for transmission and reception, showed a serious loss. On transmission, the amount of r.f. energy reaching the aerial, though attenuated, would still be enough to provide a very useful signal at DX. But on reception, the same degree of attenuation applied to a tiny amount of r.f. power (already not far above the inherent noise level of the receiver), might reduce the strength of the signal so greatly that it could never be heard.

### Making the spacers

It seemed worthwhile, then, to experiment with a better feeder. Reference to the attenuation columns of the feeder tables in the *Radio Amateur's Handbook* revealed that open-wire line had by far the least loss at v.h.f. Radiation from the feeders seemed to be the only source of loss to be feared, but this could be minimised by close spacing of the conductors. If, as the *Handbook* states, a spacing of 2 in. in a home-made line is acceptable on 28 Mc/s, then one-fifth of that spacing—say,  $\frac{1}{2}$  in.—should be acceptable at five times that frequency. On that assumption, it was decided to construct such an open-wire line. Polythene seemed a reasonable choice of material for spacers, especially since it was available in quantity from the now discarded co-ax line! From the co-ax there were first cut a few workable lengths, each of approximately 2ft. This length can be "skinned" easily, and the inner conductor can be drawn out without breaking. The pieces of polythene so obtained were cut into 1 in. blanks with the help of a tool made of

$\frac{1}{4}$  in. diameter tubing, with a long bolt through it, 1 in. clear from one end. The polythene was inserted and cut off flush with a sharp knife. The blanks—thus mass-produced in a short time—were inserted into a second jig made of  $\frac{1}{4}$  in. tubing (Fig. 1a). This held the blank while holes  $\frac{1}{2}$  in. apart were made with a hot needle to take the conductors. The spacers were then cut half through at the holes, the cuts being on opposite sides as shown in Fig. 1b, so as not to weaken the spacer unduly.

The wire chosen was 18 s.w.g. enamelled copper. Half a pound is sufficient for approximately 30ft of feeder. In the writer's experience the best way to make the feeder is to stretch the pair of wires  $\frac{1}{2}$  in. apart between two trees in the garden, and go along fixing a spacer every 9 in. or so. This method helps to avoid the flexing to which this type of feeder is prone. Spacers may be placed farther apart than 9 in. If desired, they can be located at the electrically correct distance—a quarter-wave, or about 19 in.—without too much loss of physical rigidity, provided the tension is adequate. Finally, the spacers should be given a coat of "Denfix" solution of polystyrene in benzene, to fix them in position. The characteristic impedance of a line constructed in this way is approximately 360 ohms. It has been used in conjunction with short lengths of 300 ohm polythene-insulated "tape," as connecting links from the aerial relay to transmitter and receiver, for some time now, without unduly upsetting the standing wave ratio.

### Results

When the line was put into use, the matching system at the

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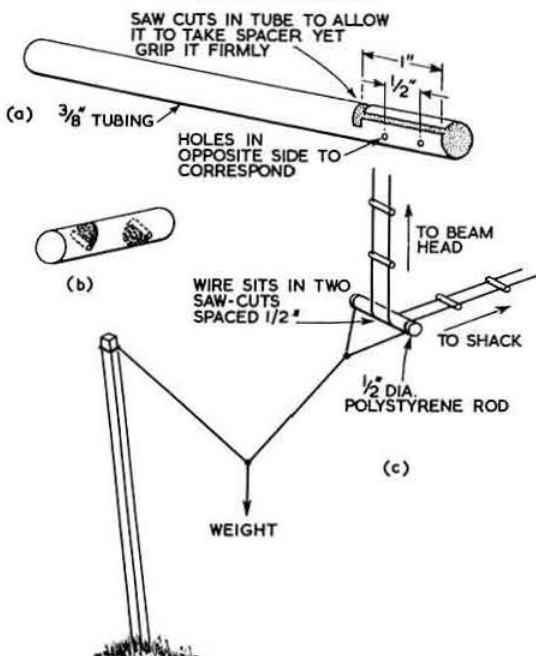


Fig. 1 (a) Jig to hold the polythene spacers while the holes are made with a hot needle. (b) The jig used in cutting the slots. (c) Method used by GM3BDA to keep the feeder under tension.

\* St. Andrew's Manse, North Berwick. The situations referred to occurred while the writer was living in Airdrie, Lanarkshire.



# A Universal Power Plug Connecting Unit

By C. H. L. EDWARDS (G8TL)\*

NO doubt many amateurs, particularly those who are frequently called upon to demonstrate apparatus in outside buildings, have had the annoying experience of finding that power plugs as fitted to their own equipment do not mate with the electrical fittings on the site. This often means disconnecting the existing plug and socket on the equipment to be demonstrated, and thrusting the loose ends into the mains outlet with matchsticks (which doubtless fall out in the middle of the demonstration).

The writer, living in an a.c./d.c. district where 15 amp and 5 amp 3-pin sockets are fitted in some buildings, and 2-pin sockets and E.S. fittings in others, decided it would be very well worth while making up a universal fittings box to overcome this difficulty.

First of all 30ft of light 3-core flexible rubber cable was purchased, to allow any mains outlet to be reached, irrespective of where the lecture table was placed. This lead was connected to a box carrying the miscellaneous sockets.

\* 28 Morgan Crescent, Theydon Bois, Epping, Essex

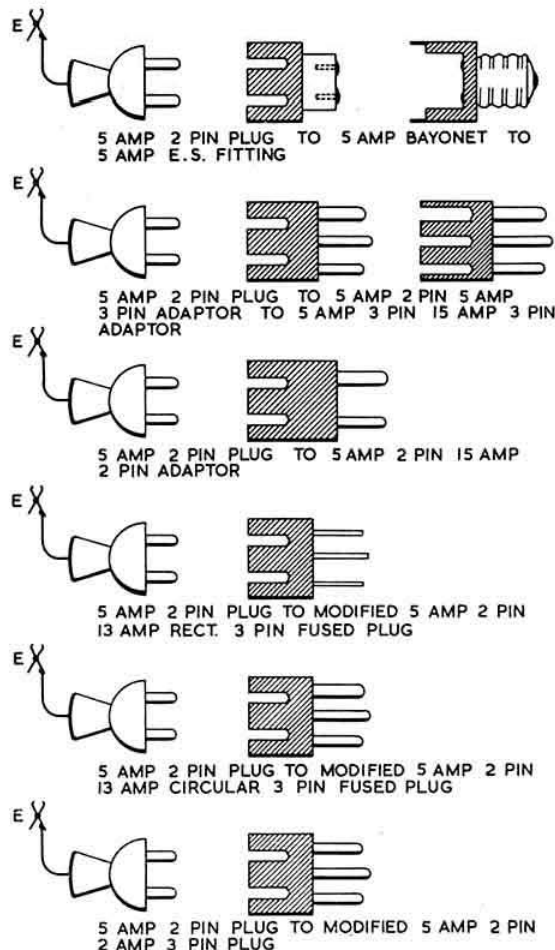
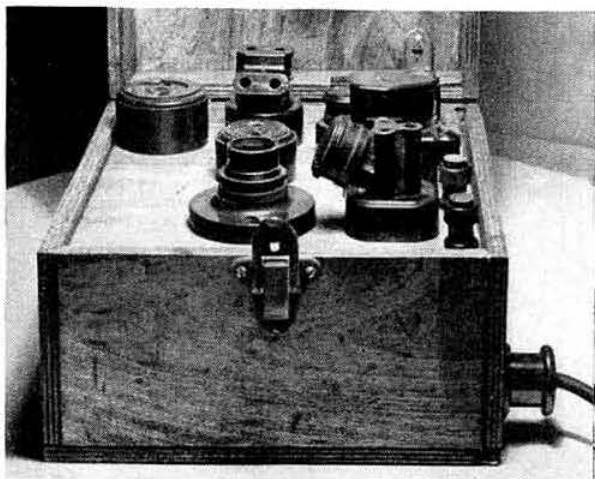


Fig. 1. Method of making the various plugs and adaptors from standard fittings.



The universal power plug unit with the lid open.

The free end of the cable was terminated in a 5 amp 2-pin flexible rubber Hoover plug, the earth wire being left sufficiently long to allow it to be attached to an earth point if desired. The Hoover plug was intended for insertion into a bayonet socket so that power could be obtained if necessary from a lighting point. A further "bayonet to E.S. adaptor" was fitted to the end of the latter in case E.S. lighting fittings were encountered. To meet the case of the 5 amp 3-pin socket, a "5 amp 3-pin to 5 amp 2-pin" multiplug was purchased. Thus the terminated 2-pin plug on the cable obtained its supply *via* the multiplug from the 3-pin socket. A further fused adaptor was procured, an M.K. "15 amp to 5 amp" 3-pin pattern; this was to mate with standard 15 amp sockets, the supply joining *via* the 15 amp 3-pin adaptor to the 2-pin plug on the cable.

As there is apparently no multiplug adaptor available down to 3-pin 2 amp, the writer purchased a Temco 250V 2 amp 3-pin plug for adaption to 5 amp 2-pin to mate with the plug in the end of the cable. This was altered in the following manner:

A 2-pin 5 amp socket (Woolworth pattern) was stripped of its two sleeves so that these could be used as separate sockets. The cover of the Temco 3-pin plug was removed and also the two cable locking screws in the pins. The holes in the pins were then tapped 4BA and the screws dropped down through the sockets to secure them to the pins. Both holes had been filed oval in the sockets to allow for their slightly wider spacing. A piece of  $\frac{3}{16}$  in. ebonite was then cut to the shape of the plug and two  $\frac{1}{16}$  in. holes drilled to ride over and steady the tops of the sockets. A short piece of 16-gauge tinned wire was secured to the E pin and bent over outside, to allow continuity of earthing by the dog clip if required.

No multiplugs are at present on the market for the new 13 amp 3-pin rectangular fused sockets, nor for the new 13 amp circular fused sockets. In both cases these were opened up and altered in similar fashion to the 2 amp 3-pin described above. Because 2-pin 2 amp sockets are seldom met with it was decided not to attempt modifications to make this pattern fit the existing cable termination, but a

30ft length of flex was terminated at both ends with a 2-pin 2 amp plug to be connected into the 2-pin socket on the box if required. The various combinations are shown in Fig. 1. All that remained now was to fix to the other end of the

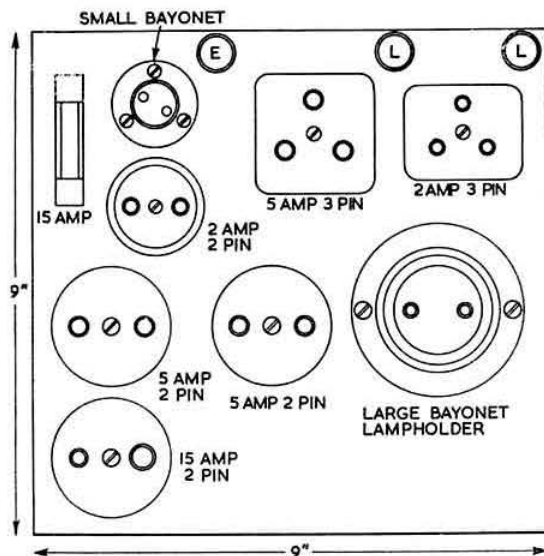


Fig. 2. Suggested layout of the unit.

30ft cable a Bulgin 3-pin plug, which was inserted into a socket in the side of a small box of convenient size. This box was made of 5-ply wood 4in. deep by 9in. square, with a lid 2in. deep; ledges  $\frac{3}{16}$ in. wide were fitted around the inside for the loose plug board to rest upon.

On the board itself were mounted the following fittings:

#### Low Loss Feeder For 144 Mc/s

(Continued from page 330)

aerial end had first to be re-designed to give a proper match to the new impedance. The improvement brought about by the new feeder was immediately evident. On transmission, S-meter reports from both local and semi-DX stations were up by 1-1½ S points whilst on reception a subtle change was noticeable. Not only were the usual local signals also up by 1-1½ S points, but the band had a livelier "feel." Man-made static was more insistent. The number of nights when conditions could be called "good" increased, and two-way contacts with stations around 200 miles became more regularly possible. The number of occasions when GM3BDA was heard at DX but fruitlessly called fell sharply. Indeed, it became possible to hear stations who were unable to hear GM3BDA! Among contacts made using this feeder were two of just under 400 miles with G2AJ (Biggin Hill) and G3BLP (Selsdon). Later, the same feeder was used to feed a 16-element stack, with successful results.

The line described has several advantages over many of those produced commercially. For example: (a) as it contains the very minimum of insulating material, its loss is very low; (b) it is not unduly sensitive to weather conditions; (c) it has no stranded conductors to fray; (d) it is cheap!

It has, however, the disadvantage that it is necessary to use it under tension—but this should not be a drawback to any amateur with his proper quota of ingenuity. Two wires and a weight will do marvels as a gravity tensioning device! The system in operation at GM3BDA is illustrated in Fig. 1c.

#### List of Components

- 1 2-pin 5 amp flexibly mounted Hoover plug.
- 1 B.C. to 2-pin adapter.
- 1 B.C. to E.S. adapter.
- 1 5 amp 3-pin to 5 amp 2-pin adapter.
- 1 15 amp to 5 amp 3-pin M.K. adapter fused.
- 1 15 amp 2-pin to 5 amp 2-pin Grelco adapter (15/52.).
- 1 13 amp 3-pin fused (rectangular) plug.
- 1 13 amp 3-pin fused (circular) plug.
- 1 2 amp 3-pin Temco plug.
- 2 2-pin 2 amp plugs.
- 2 5 amp 2-pin sockets.
- 1 batten holder, bakelite.
- 1 S.B.C. batten holder, brass.
- 1 2 amp 3-pin socket.
- 1 5 amp 3-pin socket.
- 1 15 amp 2-pin socket.
- 1 2-pin 2 amp socket.
- 1 5 amp 3-pin to 5 amp 3-pin two-way adapter (Clang).
- 1 5 amp 2-pin to 5 amp 2-pin three-way adapter (Clang).
- 1 B.C. to E.S. lamp holder.
- 30ft 3-core cable.
- 30ft twin flex.
- 1 3-pin Bulgin plug and socket.
- 1 230V neon lamp.

a 15 amp Sloydlock fuse, 3 terminals (2 line and E), a miniature and standard flush bayonet fitting, one 2-pin 2 amp socket, two 5 amp 2-pin sockets, one 3-pin 2 amp socket, one 5 amp 3-pin socket and one 15 amp 2-pin socket.

All these were wired in parallel and connected by a flexible lead to the rear of the Bulgin connector. As can be seen from the illustration there is still room left for further additions if these prove necessary. A small neon lamp is plugged into the miniature bayonet socket and used as a pilot indicator.

Any number of combinations of inter-connection can be obtained by using the adaptors not in use in the box. As many as seven pieces of equipment have been connected to the board in one demonstration. Still more could be added. The amateur who has equipment that needs to be moved from place to place and demonstrated can be assured that it is well worth the trouble to build this universal unit.

#### Screen Modulation

(Continued from page 329)

has recently been described in America under the title of "gating" modulation.

One aspect of the resistance coupled (clamp) screen modulation system is often overlooked. The negative excursion of screen voltage is limited by the distortionless anode swing of the modulator anode. With some triode modulators the minimum anode swing may only go down as far as 50 volts. Thus, with a screen potential of 150 volts only about 70 per cent depth of modulation can be achieved. In this case the solution is to use a bypassed auxiliary dropping resistor so that the modulator operates with 50 to 100 volts higher anode voltage than the screen (Fig. 7). This enables adequate audio output for 100 per cent modulation to be achieved. Even with sufficient modulation voltage, the low impedance of the screen circuit tends to limit the permissible maximum modulation depth to about 90 per cent in the average case.

The claim that a clamp-valve system cannot over-modulate does not mean "cannot cause splatter"—a point brought out by the splatter noticed on badly adjusted p.a. stages of this type. However, with reasonable care, the use of screen modulation does produce excellent quality speech. Moderate clipping can even give a "crisp" effect that is not objectionable.

PLEASE RENEW YOUR SUBSCRIPTION  
PROMPTLY

# Transitron Signal Generator

## A Simple Unit covering 80 kc/s to 56 Mc/s

By A. H. KOSTER, Dr. Ing. (G3ECA)\*

THE transitron oscillator made its first appearance in Amateur Radio circles more than 10 years ago<sup>1,2</sup>. In a modified form it has since found notable application in c.r.t. time bases, but has been neglected as a source of r.f. signals. Nevertheless, it has a number of useful properties, particularly as a signal generator. Its outstanding features are good stability, wide frequency range, and a double-ended LC circuit, one end of which is earthed. Attenuation can be arranged very simply. The apparatus to be described was built in 1946 and has given trouble-free service ever since.

Employing a pentode valve, the transitron utilises the negative resistance characteristic which exists between the screen and suppressor grids. When the negative resistance is suitably shunted by the positive dynamic resistance offered by an LC circuit, the system will oscillate provided the magnitude of the negative resistance is smaller than that of the positive. In order to work at high frequencies it is desirable to choose a valve with the lowest possible negative resistance.

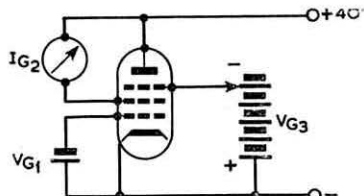


Fig. 1. Test circuit for determining the  $V_{g3}/I_{g2}$  characteristics.

At the time the signal generator described was built the most suitable valve available was the EF50. There are, no doubt, equally good or even better valves. The points to look for are high mutual conductance, high permissible screen dissipation and a suppressor grid brought out to a separate pin on the valve base. If the  $V_{g3}/I_{g2}$  characteristics

are not available they may easily be obtained from first principles. The test circuit is shown in Fig. 1. The control grid is biased for maximum  $g_m$ . This bias may be zero if low anode and screen voltages are used. The bias on the suppressor grid is varied in 1.5 volt steps with a grid bias battery, and a milliammeter connected in the screen supply. The resulting  $I_{g2}$  values are plotted against  $V_{g3}$  voltage as shown in Fig. 2 for an EF50. It will be seen that over a certain range the current increases considerably as the bias goes more negative, in contradistinction to the more familiar  $V_{g1}/I_a$  curves. To determine the negative resistance the slope is measured at the steepest point by finding the change in current for the change in bias over that part of the curve. Thus, there is a change from 8.2 to 5.2 mA (3 mA) for a change from -6 to -3 volts. The negative resistance is therefore  $-1000$  ohms ( $R = -3/0.003$ ). The corresponding values for other valves vary widely; e.g. for a 6J7 it is  $-10,000$  ohms which is far less suitable.

### A Practical Design

The circuit of the transitron signal generator is shown in Fig. 3. V1 is the transitron oscillator and V2 a conventional

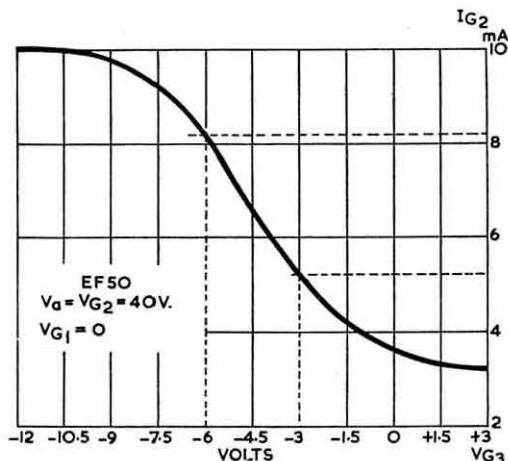


Fig. 2. Curve showing the bias on the suppressor of an EF50 plotted against the screen grid current.

\*195 Woodford Avenue, Ilford, Essex.

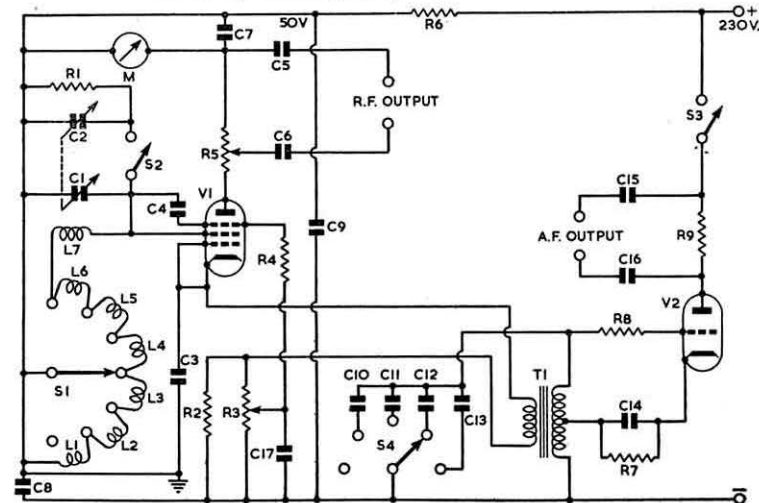


Fig. 3. Circuit diagram of the transitron signal generator.

C1, 2, see text; C3, 4, 100  $\mu$ F; C5, 0.003  $\mu$ F; C6, 300  $\mu$ F; C7, 11, 0.01  $\mu$ F; C8, 12, 0.1  $\mu$ F; C9, 8  $\mu$ F, 150 volts; C10, 0.001  $\mu$ F; C13, 0.5  $\mu$ F; C14, 25  $\mu$ F, 10 volts; C15, 16, 0.25  $\mu$ F; L1, 2 long wave b.c. coils in series; L2, medium wave b.c. coil with one quarter of turns removed; L3, 23 turns, 40 s.w.g., d.c. close wound on 1/2 in. former; L4, 17 turns, 24 s.w.g., enamel, close wound on 1/2 in. former; L5, 8 turns, 20 s.w.g., enamel, close wound on 1/2 in. former; L6, 7 turns, 20 s.w.g., enamel, close wound, 1/2 in. i.d. (no former); L7, 7 turns, 20 s.w.g., enamel, close wound, 5/16 in. i.d. (no former); M, 0.5 mA m.c. meter; R1, 7000 ohms, 1/2 watt; R2, 2000 ohms, 1 watt; R3, 50,000 ohms pot.; R4, 100,000 ohms, 1/2 watt; R5, 2500 ohms carbon pot.; R6, 16,000 ohms, 5 watt; R7, 1000 ohms, 1 watt; R8, 50,000 ohms, 1/2 watt; R9, 100,000 ohms, 1 watt; T, midge speaker transformer; S1, 4, Yaxley type; S2, 3, toggle switches; V1, EF50; V2, 6J5.

audio oscillator for modulation purposes. V1 is operated at zero bias, the control grid being connected direct to the cathode. The screen grid is connected to the suppressor via C4. Bias is applied to the suppressor grid by means of R2, R3 and R4. It is a good idea to make R3 accessible from the outside of the unit so that the valve can be easily adjusted to the best point on the characteristic curve. At r.f., C3 connects the common point of S1 to the cathode.

V1 should take about 3 to 4 mA anode current and about 6 to 8 mA screen current. The sum of  $I_a + I_{g2}$  is practically constant for any setting of R3. The meter (M) is a 5 mA instrument which was used during initial experiments and has been left *in situ*. It is, however, quite optional. The value of R6 depends on the h.t. supply voltage available and should be arranged to drop it to approximately 50 volts. Construction is simplified if the positive 50 volt rail is earthed instead of the negative, as indicated in Fig. 3.

The seven range coil assembly consists of a number of inductances in series which are tapped by means of a Yaxley-type switch S1. One end of the highest frequency coil—L7—is mounted directly on the screen grid pin of the valveholder the switch being arranged close to it. Winding of the coils should commence from the L7 end to make sure that there are no gaps. Some experiment may be necessary with the number of turns.

A 500  $\mu$ F twin gang condenser with ceramic insulation is used for C1, C2. The C1 section is reduced to approximately 100  $\mu$ F by removing vanes; it is used on ranges 4 to 7. For ranges 1 to 3, C2 is switched in parallel with C1 by means of S2. C2 is shunted by a resistor R1 which limits the value of the dynamic resistance and stabilises the output.

The frequency ranges covered by the condensers suggested, and the coils specified, are as follows: Range 1, 80 kc/s to 220 kc/s; Range 2, 210 kc/s to 760 kc/s; Range 3, 660 to 2700 kc/s; Range 4, 2.6 to 6.5 Mc/s; Range 5, 5.6 to 15.8 Mc/s; Range 6, 14 to 29 Mc/s; Range 7, 24 to 56 Mc/s.

Attenuation of the r.f. output is by means of R5, a non-inductive carbon type potentiometer. The arrangement cannot be described as orthodox but it provides an easy means of attenuating the output.

Modulation is by cathode injection, the audio oscillator V2 providing four fixed notes selected by S4.

Screening of the entire apparatus, including the power pack, is desirable in order to avoid signal leakage. The tuning dial should be fitted with a vernier so that it may be read to one-tenth of a degree.

#### Calibration

Calibration can be achieved with the aid of a frequency meter or by listening on a receiver for beats with known broadcast and short-wave stations. Range 7 may be somewhat difficult. The easiest method is to use a simple one-valve regenerative receiver to pick up harmonics of Range 6 and then to tune the fundamental of Range 7 to the same frequency. The lower television channels may also be used (but only during the morning test transmissions) with the attenuator adjusted for minimum output.

Recent experiments indicate that higher frequency ranges could be added by careful selection of suitable tank circuits.

#### References

<sup>1</sup> Transistron Oscillators, A. G. Chambers (G5NO), *Wireless World*, March, 1943.

<sup>2</sup> Simple Test Oscillator, A. G. Chambers (G5NO), *Wireless World*, April, 1943.

#### Change of Address

THE address of Council Member C. H. L. Edwards, A.M.I.E.E., G8TL, is now 28 Morgan Crescent, Theydon Bois, Essex. Telephone: Theydon Bois 2316.

#### Philips' Electronic Ships

A SPECIAL attraction at the 1954 German Industries' Fair in Berlin consisted of two Philips radio-controlled model ships in a 100 sq. yd. tank. All manoeuvres of the 4ft 6in. and 6ft long ships were remotely controlled by two transmitters working in the 3 metre band. Rudder and screws of the smaller boat were controlled by a two-channel equipment. For working the larger vessel an eight-channel transmitter and receiver were used. Two channels controlled the motors for the port and starboard propellers, others operated the rudder, controlled a motor for swinging the four lifeboats out and back again, deck crane and the windlass. The seventh channel operated a catapult arrangement for the deck aircraft, which could land in the water about 3ft. away from the ship. Both the aircraft and the crane rope were fitted with "Ferroxdure" magnets, so that the crane could haul the aircraft aboard. Channel eight was an audio frequency channel by which microphone announcements and music could be relayed over a public address equipment on the ship. (from *Das DL-QTC*, November, 1954)

#### Power Transistors

ACCORDING to the November, 1954, issue of *Das DL-QTC*, journal of the D.A.R.C., power transistors developed by the Philips Electronic Application Laboratory in Zurich were exhibited for the first time at the Swiss Radio and Television Exhibition. An a.f. amplifier using four transistors, powered by three flashlamp batteries (12 volts) delivering 500 mA, was capable of 5 watts output. It employed two liquid-cooled power transistors in push-pull. The frequency characteristic, without correction, was flat within 1 db from 100 c/s to 10 kc/s. Philips of Zurich hope soon to make transistors suitable for powers up to 15 watts.

The advent of power transistors opens up some interesting possibilities. For instance, car radios which do not require vibrator power supplies become feasible.

We are indebted to Mr. W. Farrar (G3ESP) for the translation upon which the above paragraphs are based.

#### Superspeed Scope Soldering Iron

ENTHOVEN SOLDERS, LTD. (Industrial Equipment Division) have recently introduced a new quick-operating, lightweight soldering iron which it is claimed has been designed on an entirely new principle.

The iron heats up from cold in 6 seconds. Operation is regulated by a light thumb pressure on the switch ring. When not in use the current is automatically switched off.

The iron can be operated from 2.5, 4 or 6.3 volt supplies (a.c. or d.c.) or from a car battery. It is normally supplied with a 4 volt transformer.

The Enthoven Superspeed Scope Soldering Iron attracted much interest when it was demonstrated at the Amateur Radio Exhibition last November.

#### Bib Tape Splicer

MULTICORE SOLDERS, LTD., have recently placed on the market a Recording Tape Splicer which it is claimed embodies the advantages of five different makes of U.S. tape splicers.

The Bib splicer is made from nickel plated brass and is mounted on a flock sprayed base-board. A razor cutter is included and this fits conveniently underneath the splicer. If required, the splicer can be removed from the base-board and mounted directly on the deck of a tape recorder.

The splicer can be used for joining tapes which have been purposely cut for editing purposes or for tapes which have been inadvertently broken in use. The splicer is extremely simple to use.

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IS YOUR SUBSCRIPTION OVERDUE?

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# R.S.G.B. Amateur Radio Exhibition

## A Review of the Highlights

IN reviewing the Seventh Annual R.S.G.B. Amateur Radio Exhibition last year we remarked upon the increasing interest being taken in the Amateur Radio market by certain sections of the Radio Industry. That that interest is still growing was confirmed by the 1954 Exhibition at which many new products expressly designed for amateur use both in the U.K. and overseas were shown for the first time. From conversations with the manufacturers concerned, there is little doubt that they are alive to the possibilities of a further expansion of the amateur market. The fact that export business is being actively cultivated is an encouraging sign, for amateurs all over the world appreciate British standards of craftsmanship while British prices compare very favourably with those charged by manufacturers in other countries.

On the amateur stands, the high standards which we have come to expect were well maintained. Every stand provided evidence of the continuing ingenuity and progressive spirit of the Amateur Radio movement. For the first time, mobile and transistor equipment was much in evidence.

### Commercial Stands

V.H.F. equipment for business radio mobile services was the main feature of the stand occupied by **Pye Telecommunications, Ltd.**, who showed several complete installations. For fixed station use, there is the Series PTC 703/704 self-contained unit which comprises a double conversion crystal controlled superhet receiver and a 12-15 watt transmitter. The receiver has a relay operated noise compensated muting circuit which effectively quietsens the set in the absence of an incoming signal. The Series PTC 112/113 (the transmitter section of which gives 5 watts output) and the Reporter Series PTC 116/117 (which operates from a vibrator h.t. supply) are available for mobile use.

Frequency control crystals of all types were displayed by **Cathodeon Crystals, Ltd.**, a particularly interesting item being a display cabinet showing the production of a typical crystal unit from the raw quartz to the finished product.

**Magnetic Devices, Ltd.**, showed a number of relays likely to prove useful to the amateur, including the recently an-

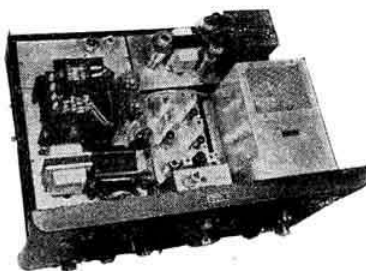
nounced type 2400 (a smaller replacement for the P.O. type 3000). Of outstanding interest was a new co-axial relay. The company's sealed co-axial plugs and sockets also received much attention.

**Labgear, Ltd.**, had two new items calculated to catch the eye of the amateur—a new desk-top 150 watt transmitter and a 2 m converter. The transmitter has been designed for those who already possess a suitable power pack and modulator but require a full power TVI-proof band-switching unit of small size. The p.a. (an 813) is driven by 5763s in the bandswitched multiplier stages and employs pi-network output stages for all bands from 3.5 to 28 Mc/s. Cooling of the p.a. is by convection, the air intake being arranged so that it flows past the v.f.o. tuned circuits which are also remote from the oscillator valve to which they are connected by co-axial feeder.

The Labgear 2 m converter is crystal controlled, the i.f. output being on 4-6 Mc/s. A 6BQ7A is used in the r.f. and mixer stages. As there is sufficient output from the impedance matching output circuit (which permits the converter to be accurately matched to the receiver) an i.f. head amplifier is not included. An item of interest to those troubled with TVI is the hand-made Labgear Low Pass Filter Type E.5034 which is adjusted to provide more than 100 db attenuation at the key television frequencies. Even outside Band I the filter provides more than 80 db attenuation and is therefore effective in Band II (f.m. broadcasting) and Band III (alternative television). The insertion loss at 29.7 Mc/s and below is 0.25 db. When correctly terminated, the filter will handle 1 kW.

A view of the interior of the Minimitter Table Top Transmitter. From left to right foreground, the power supply, v.f.o. and exciter stages and the fully screened p.a. employing two 807s in a pi-network circuit. The speech amplifier and modulator are at the rear.

(Photo by courtesy of the Minimitter Co.)



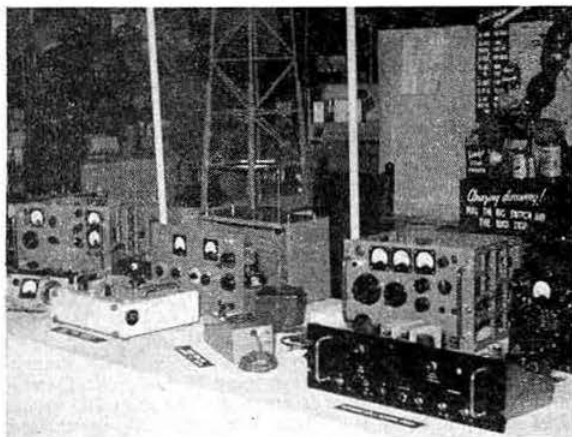
The new Labgear desk top 150 watt band-switched transmitter which occupies a base area of only 1 sq. ft. It weighs less than 50 lb. The calibrated v.f.o. dial is at the bottom of the front panel with the p.a. controls above. The cabinet is raised slightly to allow air to be drawn in for convection cooling purposes. The top is perforated to allow the warm air to escape (Photo by courtesy of Labgear (Cambridge) Ltd.)

A transistor curve tracer for plotting  $I_c/V_c$  curves for selected values of  $I_e$  was a particularly interesting exhibit on the G.E.C. stand. The Osram "912" high fidelity amplifier incorporating the latest Osram valves types B309, N709, Z729 and U709 was also featured. This amplifier is designed for use with the G.E.C. metal cone loudspeaker shown on the stand in its new octagonal loaded-port cabinet. Other items for the home-constructor included an f.m. unit and a prototype of the "Lodestar" tape recorder which uses a "Reflectograph" tape deck. The common amplifier for recording and playback employs a B309 double triode feeding an N709 operating under "ultra linear" conditions. The tape speed is continuously variable from  $3\frac{1}{2}$  to  $8\frac{1}{2}$  in. per second.

The Minimitter Company's 150 watt "table topper," which made its first appearance at the 1953 Exhibition, is now obtainable as a complete transmitter, although the various units—the Miniciter, Minipa, Minimod and Minipower—may still be obtained separately, as may also an

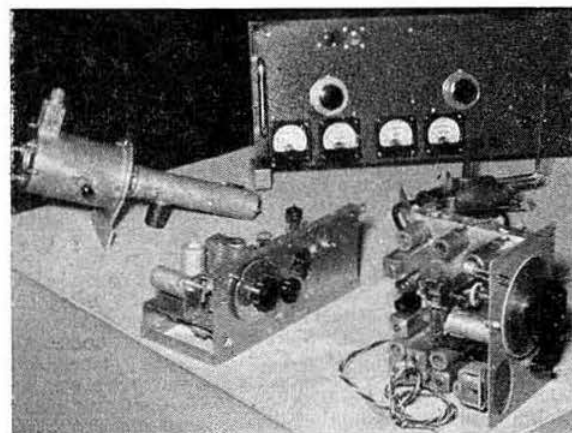
aerial tuning unit and a low pass filter. The company also displayed a scale model of a new steel aerial tower soon to be supplied in kit form for home assembly. A particular feature of the design is that the beam can be readily lowered for adjustment.

Coils of all types for use in radio and television equipment were exhibited by Amos (Electronics), Ltd. This firm will wind coils to any specification in any quantity from one upwards. On the same stand, examples of "Plasmet" printed circuit technique could be examined. The system uses a 0.0015 in. thick copper foil permanently bonded to a synthetic insulating base. A broadcast receiver employing a printed circuit was in operation.



A view of the stand devoted to high frequency, mobile and transistor equipment. (Photo by G3IIR)

Acos microphones, pick-ups and pick-up cartridges were exhibited by Cosmocord, Ltd. Among those of particular interest to the transmitting amateur are the general purpose hand microphone type Mic 35-1, an inexpensive and robust crystal type which should prove most useful in mobile work, the Mic 33-1 which has a specially designed acoustic filter giving a substantially flat response from 30 to 7000 c/s and the elegant Mic 22-2 table microphone.



Some of the outstanding equipment shown on the V.H.F./U.H.F. stand. From left to right, a 70 cm p.a. employing a 4X150A valve, a 2m transmitter-receiver and a 2m receiver. In the background is a 70 cm transmitter designed by G2DD. Just in front of this transmitter is an experimental 1250 Mc/s oscillator built by PA0KC. (Photo by G3IIR)

The new Superspeed Soldering Iron could be tried on the stand occupied by Enthoven Solders, Ltd., who also exhibited their range of Superspeed solders. Unlike most conventional soldering irons, the Superspeed operates on voltages of from 2.5 to 6.3 volts. When not in use, the current is switched off but the iron reaches operating temperature only 6 seconds after the control is pressed. It is particularly useful for soldering work on chassis and for general experimental work.

Brimar valves—shown by Standard Telephones and Cables, Ltd.—included the 4X150A, 33B/152M, 813 and miniature 807, all of great interest to amateurs. The use of miniature valves was illustrated in a 144 Mc/s transmitter in which the line-up was 6AM6/8D3 co./f.d., two 6AM5 frequency doublers and a 12BH7 as a neutralised push-pull p.a. The measured output was 15 watts for an input of 25 watts. A 7 Mc/s transistor transmitter using a Brimar type TP2 point contact transistor was also exhibited together with a range of Brimar television picture tubes.

Another fine selection of valves was seen on the English Electric Valve Company's stand. Types displayed included the 813, 829B and 832A as well as image orthicon and vidicon camera tubes and klystrons such as the K.324, designed for operation in the 9000-10,000 Mc/s band. Voltage stabilisers and large transmitting valves were also on show.

GB3RS, the Exhibition station, made more than 300 contacts with amateurs throughout the United Kingdom and Europe on Top Band and 3.5 Mc/s during the four days of the Exhibition. In this picture some of the many QSL cards received can be seen.

(Photo by G3IIR).



Among the many fine instruments exhibited on the AVO stand were the new Valve Characteristic Meter (VCM) Mk. III, a prototype f.m./a.m. Signal Generator and the special Avometer Model 7 which is now available for use by the sightless. Other AVO instruments shown included an Electronic Test Meter, a Wide Range Signal Generator and the Model 8 Avometer—a multirange test meter with a sensitivity of 20,000 ohms per volt.

Making its first appearance was the Grundig "Stenorette" Tape Recorder, claimed to be the cheapest dictating machine on the market. The sound track runs for 25 minutes, equal to 1½ hours of normal "stop and start" dictation. Provision is made for foot or finger operated control, including back spacing. Also on the Grundig stand were the "Reporter" (TK9) and TK819 tape recorders designed for high fidelity recording of speech and music.

Panda Radio Company featured the Panda Cub, a neat table model transmitter which comprises the standard Panda v.f.o., a gang tuned exciter and pi-network p.a. stage using an 807, capable of 25 watts input on phone and 40 watts on c.w. The speech amplifier and modulator

uses a 6SL7, 6SN7 and two 6F6s in push-pull. A single bandswitch selects operation on any band from 1.8 to 28 Mc/s. The latest model of the full power PR120V table top was also on show together with its associated aerial tuning unit and other accessories.

New test equipment displayed by **Taylor Instruments, Ltd.**, included the Model 31A 4 in. oscilloscope embracing a hard valve linear time-base covering a range from 10 c/s to 500 kc/s. The wide band high gain push-pull vertical amplifier permits more than full screen deflection at all frequencies from 10 c/s to 6 Mc/s. The new Electronic Test Meter Model 171A measures a.c. volts in 6 ranges from 1 to 250 V full scale from 20 c/s to 200 Mc/s. Other new products shown were the Signal Generator Model 67A and the Sweep Generator Model 92A for use in the alignment of television receivers.

Cabinets, racks and chassis and panels of all shapes, sizes, colours and finishes were exhibited by **E. J. Philpotts' Metal Works, Ltd.** Although this company specialises in making items to customers' own specifications, it was interesting to see that a range of standard size boxes and cabinets is gradually evolving. Many of these should prove particularly useful in building converters, test gear and similar ancillary apparatus.

**Iliffe and Sons, Ltd.**, publishers of the *Wireless World* and *Wireless Engineer*, in addition to the latest issues of these journals, showed a number of technical books including the *Radio Designer's Handbook*—the monumental work of 10 authors and 23 collaborating engineers—and a selection of popular reprints from the *Wireless World*.

**Short Wave Magazine, Ltd.**, exhibited a wide range of American publications in addition to the latest issue of the *Short Wave Magazine*. Particular prominence was given to transistor equipment including the actual battery of 16 photocells used in the recent sun-power transistor transmitter tests arranged for the National Physical Laboratory at the request of Sir Edward Bullard. The transmitter was built by G3HMO and employs a home-made transistor with an alpha of 5. The usual range is 5 to 10 miles on Top Band. A simple audio oscillator, using an OC71 junction type transistor, was shown working. The source of supply was a "cell" consisting of a metal milk bottle top, a drop of tonic water and a penny!

### The Services

Once again, the Armed Services were represented by the Royal Signals and the Royal Air Force. Among the many exhibits on the Army stand were the MCR1 receiver, A3 transmitter-receiver and the new type HF15 packet used by the Special Air Service. The Army's submersible loudspeaker, which has special frequency characteristics for communication purposes, and examples of Army preferred types of valves, including a number of solder-in types, were also on show. Members of the Army Wireless Reserve Squadron—the unit made up almost entirely of radio amateurs—exhibited a complete 3 cm amateur station (built by G3FDU, G3AMO and B.R.S.14033) together with various items of home-made 3 cm gear. The very low power Top Band transmitter-receiver built by G3EJF and used in various "rare" Welsh counties during the unit's annual camp and some of the QSL cards received were also exhibited together with a collection of photographs showing the work of the A.W.R.S. The stand was manned by personnel from 5 Corps Signal Regiment, the Special Air Service and the A.W.R.S.

Amateur Radio in the Royal Air Force was the theme of the Air Ministry's stand. A map showed the location of the various R.A.F. Amateur Radio stations in different parts of the world. The exhibits included examples of the equipment loaned to reservists, and the combined transmitters and receivers which are made available through the R.A.F. Amateur Radio Society to Amateur Radio Clubs

at R.A.F. stations. An R.A.F. apprentice from the Radio School, Locking, was engaged in building an exciter unit on the stand.

### Headquarters

As always, Headquarters' Stand was the focal point for members visiting the exhibition and a "roaring trade" was done in publications—particularly the latest issue of the *R.S.G.B. Amateur Radio Callbook* which was published on the opening day. Equipment exhibited by members of the Technical Committee included the R.S.G.B. Band III Converter (G3ECA), the R.S.G.B. Frequency Meter and the R.S.G.B. Two Metre Converter (G2UJ), the Modern Q5'er (G5RV), the Reflectometer (G6LL), a 70 cm p.a. employing a 4X150A (G5CD) and a microphone pre-amplifier, using sub-miniature valves (G8TL).

### The Exhibition Station

The Exhibition station GB3RS, assembled from equipment loaned by G5DJ and G3IIR, and manned by volunteer operators, made well over 300 contacts. The station was a great attraction to those who visited the exhibition as well as to those who were prevented from attending but were able to make contact. The aerials on the roof of the Royal Hotel which withstood some of the worst gales for many years were erected by members of the Norwood Group.

### The Amateur Stands

The very high standard set by the amateur-built exhibits in previous years was well maintained. On the High Frequency and Miscellaneous Equipment stand an amusing working model showed how humorist G. Toose-Eedy deals with the problem of "bugs in the antenna." A more serious working exhibit was G6HU's completely home-built tape recorder. A section of the stand was devoted to Transistor



The Single Sideband and Television Equipment stand attracted much attention throughout the Exhibition. This picture shows some of the equipment displayed.

(Photo by G3IIR)

and Mobile Equipment—new facets of the hobby. Transistor transmitters were exhibited by G3IEE, G3JRH, G3JNB, G3HGY and GC2CNC. Other items amongst a highly interesting collection included a Top Band mobile unit (G8TL), 28 Mc/s walkie-talkies (G3JAM, G3CU and G3FKJ), an oscilloscope (G3JSF), a crystal microphone with built-in pre-amplifier (B.R.S.19773), a modified *Elizabethan* transmitter (G3GNL), and a personal receiver built by a blind amateur (G3IIN).



On the Single Sideband stand emphasis was laid on the freedom from TVI obtained by using linear amplifiers and the single sideband system of modulation. The practical demonstration of carrier suppression was most convincing. The equipment shown included a complete two-band transmitter (G3HRO), an "S.S.B. Jr." modified for 14 Mc/s (GM3GHF), a phasing type transmitter built for 30s. plus the contents of the junk-box (G3GKA), a phasing exciter built from standard components (G3ILI), crystal filter exciters (G3FDG and G3IMW), an advanced s.s.b. transmitter (G3CU) and the essential parts of phase shift networks.

The practical demonstration on the V.H.F./U.H.F. stand showed the importance of good matching in obtaining satisfactory noise factors. Amongst the very interesting equipment was a 2 m receiver (G3IKW), a 2 m portable with G2UJ-type converter and G3FKO-type transmitter (G3JQN), a u.h.f. absorption wavemeter (B.R.S.3835), a 4X150A p.a. (G5DT), "The Rocket" 1250 Mc/s oscillator and absorption wavemeter with transistor amplifier (PA0KC), 70 cm transmitter (G2DD), 2 m converter (DL3FM), the "Poor Man's Signal Generator" (G3FP) and a noise-free b.f.o. (B.R.S.19317).

### Amateur Television

Amateur Television was undoubtedly the biggest single attraction of the Exhibition and each demonstration was watched by large crowds. The equipment used comprised the complete station of G2WJ/T working into a dummy load and an additional camera and camera chain supplied by B.R.S.17906. Other equipment was loaned by a number of television enthusiasts. Pictures, shown on Pye television receivers, were of very high quality, those televised from the street outside the Royal Hotel during daylight being particularly impressive and well up to the best B.B.C. standards.

Television equipment displayed on the home constructor stands included a television transmitter (G2FKZ), a four-channel vision mixer unit and modulator (G3CVO) and a converter for Amateur Television frequencies (G2DD).

### Amateur Constructors' Section

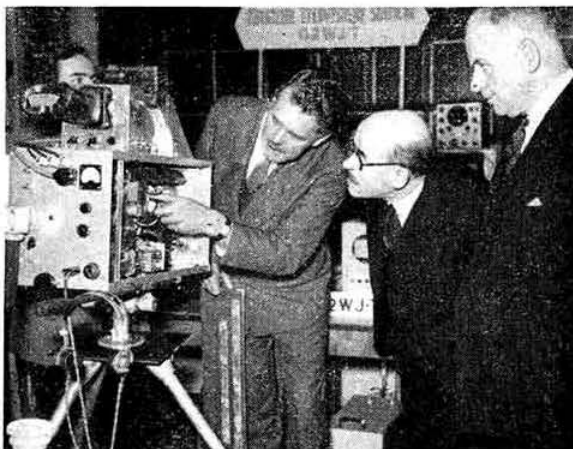
The members of the Committee responsible for organising this section of the Exhibition were:

Messrs. C. H. L. Edwards (G8TL), *Chairman*, D. C. Jardine (G5DJ), H. F. Knott (G3CU), C. E. Newton (G2FKZ), G. W. Norris (G3ICI), F. F. Ruth (G2BRH), R. L. Royle (G2WJ), M. M. Wallace (B.R.S.18241), E. W. Yeomanson (G3IIR) and J. A. Rouse (G2AHL). Mrs. C. H. L. Edwards acted as Committee Secretary.

### Acknowledgments

Thanks are recorded to all who helped to make the Exhibition such a success. In particular, the following are thanked for their wholehearted co-operation in loaning equipment, manning stands or undertaking duty on GB3RS:—

W. H. Allen (G2UJ), B. R. Arnold (G3FP), G. Bagley (G3FHL), R. G. Baker (G6QN), J. Ballard (G2HJY), E. Banks (G3CNC), M. Barlow (G3CVO), H. Beaumont (G5YV), P. C. Bond (G3BEG), G. A. Breed (Associate), V. E. Brand (G3JNB), H. T. Brock (G3FD), A. Cockle (G3IEE), D. N. Corfield (G5CD), R. Cuts (G3HRC), J. M. Davie (G2XG), E. A. Dedman (G2NH), T. L. Delvin (G2FLK), E. A. Dignum (B.R.S.20399), C. H. L. Edwards (G8TL), C. L. Fenton (G3ABB), C. F. Ford (G3FDS), G. A. Frampton (B.R.S.20415), J. E. Francis (G3HGY), D. S. Froome (Associate), M. Frost (G3GNL), D. Furby (G3EOH), W. A. Gorman (GM3GHF), W. J. Green (G3FBA), M. J. Griffin (G3IIN), R. N. Grubb (G3FNL), F. Hicks-Arnold (G6MB), J. Hobbs (G3IQN), J. J. Hollington (G4GA), P. R. Horne (G3JRH), S. Horne (G3IXL), B. Howlett (G3JAM), J. E. Hunter (G6HU), J. H. Hurd (G3CNF), S. Iles (G3BWQ), K. W. Ireland (G3IKW), D. C. Jardine (G5DJ), W. F. Jeffery (G3FKJ), J. D. Kay (G3AAE), J. Kelly (B.R.S.20289), J. A. Kliffen (G3FKJ), H. F. Knott (G3CU), A. H. Koster (G3ECA), F. G. Lambeth (G2A1W), F. H. Lawrence (G2LW), J. H. Lepper (G3JHL), K. Lickfield (DL3FM), G. Mather (G3GKA), J. W. Mathews (G6LL), A. B. McClelland (Associate), H. T. McFarlane (G8SK), R. G. Morris (G3FDG), A. L. Mynett (G3HBW), F. Ness (G3ESV), C. E. Newton (G2FKZ), H. W. Parker (G2ADZ), G. Perring (B.R.S.19427), R. W. Peters (B.R.S.20267), S. Poole (G3IMP), B. J.



Mr. Ralph Royle, G2WJ, explains the intricacies of his Amateur Television camera to Sir Noel Ashbridge and Dr. R. L. Smith-Rose.

Rogers (G3ILI), Ralph and Jeremy Royle (G2WJ/T), F. F. Ruth (G2BRH), J. Salvage (G3HRO), F. G. Smallwood (B.R.S.18713), D. K. Smith (B.R.S.12638), H. F. Smith (G2DD), A. Roy Smith (G3ISA), J. W. South (G3JQZ), F. R. Steckel (G3AVZ), J. Steele (B.R.S.20181), G. M. C. Stone (G3FZL), R. G. Styles (G3JSE), N. Ta'Beis (G3HWG), R. F. Thacker (B.R.S.16247), W. Thompson (B.R.S.19773), G. I. Turner (G3DGN), G. L. Turner (G3LA), C. Tucker (G5DT), R. L. Varney (G5RV), C. T. Wakeman (G4FN), S. Walder (B.R.S.20272), I. Waters (B.R.S.17906), S. F. Weber (B.R.S.19317), G. F. Wheeler (G3IUN), F. R. Wilson (G3EIX), A. J. Worrall (G3IWA), E. Yeomanson (G3IIR).

Co-axial cable was provided by courtesy of British Insulated Callender's Cables, Ltd., television studio lighting by The General Electric Co., Ltd., and television receivers by Pye, Ltd.



Mr. Faulkner, one-time Deputy Engineer-in-Chief of the G.P.O. who opened the Exhibition (left), with the recently appointed Engineer-in-Chief, Brigadier Harris

Thanks are also recorded to Phil Thorogood (G4KD) to whom much of the credit for the success of the show is due as Exhibition Manager and to the management and staff of the Royal Hotel for their willing co-operation.

### Exhibition Photographs

ON page 278 of the December issue of the BULLETIN, the photograph of the Exhibition Hall was by the Tella Co. Ltd., Boswell Court, London, W.C.1.

**"A GUIDE TO AMATEUR RADIO"**  
WILL HELP THE NEWCOMER  
TO GET ON THE AIR



# Annual General Meeting

*Minutes of the 28th Annual General Meeting of the Radio Society of Great Britain, held at the Institution of Electrical Engineers, on Friday, December 17, 1954, at 6.30 p.m.*

## Present

The President (Mr. A. O. Milne in the Chair), Messrs. H. A. Bartlett, C. H. L. Edwards, A. C. Gee, R. H. Hammans, F. Hicks-Arnold, J. H. Hum, L. E. Newnham, R. L. Varney (Members of the Council); Messrs. F. Charman, V. M. Desmond, S. K. Lewer, W. A. Scarr (Past Presidents); Messrs. M. Child, D. N. Corfield, and J. W. Mathews (Vice-Presidents); Mr. John Clarricoats (General Secretary), Miss A. M. Gadsden (Assistant Secretary), Mr. J. A. Rouse (Assistant Editor) and about 100 Members.

## Apologies

Apologies for absence were submitted on behalf of Messrs. Leslie Cooper (Immediate Past President), D. A. Findlay (Hon. Treasurer) and I. D. Auchterlonie (Member of Council).

\* \* \*

## Notice Convening the Meeting

The Honorary Secretary (Mr. C. H. L. Edwards) read the notice convening the Meeting.

## Minutes

It was moved by Mr. Varney, seconded by Mr. Thorogood and resolved that the Minutes of the Twenty-Seventh Annual General Meeting and of the Extraordinary General Meeting held on December 18, 1953, as published in the January, 1954, issue of the R.S.G.B. BULLETIN, be approved and confirmed.

## Annual Report of the Council

It was moved by the President that the Annual Report of the Council, as circulated to the Members and published in the November, 1954, issue of the R.S.G.B. BULLETIN, be approved and adopted.

Mr. Dales, having given notice in writing, asked how many Corporate Members residing outside London ceased to subscribe to the Society during the past 12 months.

The President stated that as at June 30, 1954, there were 5988 Country Corporate Members compared with 6974 a year earlier. Mr. Milne explained that, as from December 1, 1954, there will be no distinction in the Society's records between London and Country Corporate Members as all now pay the same subscription.

Mr. Newton expressed concern that the Technical Committee had failed to produce any transistor equipment for display at the recent Amateur Radio Exhibition. He recalled that earlier in the year the Council had agreed to purchase six transistors for experimental purposes at a cost of £9.

The President explained that no transistors had been purchased by the Society. Two transistors had been donated and these were handed to a member of the Technical Committee some months ago. Unfortunately, he had not found time to develop a piece of equipment embodying the transistors.

Mr. Newton stated that he would like to know the percentage of licensed to non-licensed members. He was of the opinion that a very large number of licensed amateurs had dropped out of membership in recent years. He also enquired whether, in view of the fact that the post of Hon. Editor would cease to exist as from the New Year, it was proposed to set up an Editorial Committee. Mr. Newton expressed concern that the Annual Report contained no reference to the Headquarters' station, GBIRS. He asked

if there were serious difficulties in the way of restarting the service.

The President expressed the opinion that the most serious loss had occurred among non-transmitting members who had joined during or just after the war. He agreed that a fairly large number of post-war licensees had given up Amateur Radio for one reason or another. Headquarters would endeavour to provide a break-down figure showing the percentage of transmitting to non-transmitting members. Mr. Milne explained that the Society employs an Editor and an Assistant Editor to produce the BULLETIN but questions of policy are matters for the Council.

The President explained that it had not been found possible to re-establish GBIRS at Headquarters. The Council, after very careful consideration of all the circumstances, had given instructions for various parts of the station to be disposed of or offered on loan to members. The Society had made repeated applications to the G.P.O. for permission to set up a News Bulletin Service but to date no final decision had been reached. Mr. Milne confirmed that the licence for GBIRS permits the station to be operated with an input power of 500 watts for frequency marker purposes only. The licence for GB3RS permits the station to be operated as a normal amateur station with an input power of 150 watts.

The motion to approve the Report was put to the meeting and carried by an overwhelming majority. Four members voted against the motion. It was thereupon resolved to adopt the Annual Report of the Council for the year ended June 30, 1954.

## Report of the Honorary Treasurer and the Audited Accounts

In the absence of the Honorary Treasurer, the President moved and Mr. Dales seconded that the Report of the Honorary Treasurer and the Audited Accounts for the year ended June 30, 1954, be approved and adopted. In supporting the motion Mr. Dales expressed the view that administrative expenses should not be allowed to go any higher. He was glad to note that the Society pays its staff reasonably well. After referring again to the loss of membership, Mr. Dales suggested that the Council should look carefully at the case for reintroducing a differential between London and Country members. He emphasised that Country members receive no benefit other than the BULLETIN once a month.

The President explained to Mr. Dale that although 2000 Members live within easy reach of London less than 5 per cent of that number regularly support London Lecture meetings. Even an Annual General Meeting can only produce an attendance of about 120. He felt that it would be most unwise to reintroduce a differential between London and Country members at this stage. The new rates had been in force for only 12 months and already a marked improvement in the Society's financial position had been recorded. Mr. Milne stated that the Council had budgeted for a fairly substantial fall in membership during the first year after the new rates were introduced. The fall in the Country Corporate Membership grade had been expected because such members were being called upon to pay a higher percentage increase than London Corporate Members.

Mr. Wallace recalled that at the last Annual General Meeting it had been stated that the item "Travelling, Entertainment and Meetings" would be broken down into different sections when the next Accounts were presented.

The President gave the following details:—

|                                       | £           | s.        | d.       |
|---------------------------------------|-------------|-----------|----------|
| General ... ..                        | 65          | 6         | 2        |
| Regional ... ..                       | 67          | 3         | 6        |
| Council and Committee Meetings ... .. | 114         | 10        | 8        |
| Council Members ... ..                | 293         | 14        | 0        |
| Overseas Meetings ... ..              | 36          | 1         | 2        |
| R.A.E.N. ... ..                       | 15          | 14        | 7        |
|                                       | <u>£592</u> | <u>10</u> | <u>1</u> |

In view of the large sums spent on Council and Committee Meetings and on Council Members' Travelling and Entertainment, Mr. Wallace suggested that these items should in future be shown separately in the accounts.

The President stated that the point made by Mr. Wallace would be passed on to the Hon. Treasurer.

In reply to a point raised by a member, the General Secretary explained that although Expenditure had exceeded Income by £552 the "Subscriptions Paid in Advance" figure had increased from £4764 to £5749 in 12 months. Provided expenditure could be kept down to about the same level as last year there was a reasonable chance that by the end of the current financial year there might be a small surplus for the first time for some years. For the first 5 months of the current financial year the amount of cash received from subscriptions was £1306 higher than for the corresponding 5 months last year.

Mr. Craig enquired whether there had been a satisfactory response to the notice published in a recent issue of the BULLETIN regarding Members who renew their subscription by Banker's Order and who had failed to amend the Order to provide for the payment of the new rate.

The General Secretary stated that there had been a fairly good response but a number of members were still in debt to the Society.

The motion to approve the Report and Accounts was put to the meeting and carried unanimously. It was thereupon resolved to adopt the Report of the Honorary Treasurer and the Audited Annual Accounts for the year ended June 30, 1954.

#### Election of the Council

The President announced the result of the election of the Council for the year 1955, as follows:—

##### Officers

President.—Mr. H. A. Bartlett, G5QA, unopposed.  
Executive Vice-President.—  
Mr. R. H. Hamman, G2IG, 849 votes. Elected.  
Mr. P. W. Winsford, G4DC, 498 votes.  
Hon. Treasurer.—Mr. D. A. Findlay, G3BZG, unopposed.

##### Ordinary Elected Members

|                      |       |            |         |
|----------------------|-------|------------|---------|
| Mr. R. L. Varney     | G5RV  | 1202 votes | Elected |
| Mr. C. H. L. Edwards | G8TL  | 1097 votes | Elected |
| Mr. J. H. Hum        | G5UM  | 939 votes  | Elected |
| Dr. A. C. Gee        | G2UK  | 912 votes  | Elected |
| Mr. W. A. Scarr      | G2WS  | 869 votes  | Elected |
| Mr. W. H. Allen      | G2UJ  | 801 votes  | Elected |
| Mr. F. Hicks-Arnold  | G6MB  | 674 votes  | Elected |
| Mr. L. E. Newnham    | G6NZ  | 654 votes  |         |
| Mr. T. L. Herdman    | G6HD  | 579 votes  |         |
| Mr. N. F. O'Brien    | G3LP  | 575 votes  |         |
| Mr. F. G. Lambeth    | G2AIW | 433 votes  |         |
| Mr. J. E. Hunter     | G6HU  | 343 votes  |         |

##### Zonal Representatives

|                             |                        |
|-----------------------------|------------------------|
| Zone A.—Mr. W. R. Metcalfe, | G3DQ, unopposed.       |
| Zone B.—Mr. W. H. Mitchell, | G2AMG, unopposed.      |
| Zone C.—Mr. W. H. Matthews  | G2CD 248 votes Elected |
| Mr. C. L. Fenton            | G3ABB 189 votes        |

|   |       |           |         |
|---|-------|-----------|---------|
| Zone D.—Mr. R. G. Lane                      | G2BYA | 126 votes | Elected |
| Mr. F. A. Russell                           | G3BHS | 65 votes  |         |
| Total Number of Ballot Papers Accepted 1409 |       |           |         |

The President thanked the scrutineers, Messrs. L. Cooper, K. Ellis, F. W. Fletcher and F. Ruth and congratulated Messrs. Allen, Scarr, Metcalfe, Mitchell, Mathews and Lane on their election to the Council. He also thanked the unsuccessful candidates for agreeing to accept nomination.

The President duly declared the new Council elected.

Mr. Thorogood remarked that the percentage of members who had voted was low because the Ballot had not been of a secret nature.

The President explained that the Articles of Association do not require the Ballot to be secret. Of the 1409 persons who had voted only 8 had cut off the bottom section of the paper dealing with the election of Zonal Representatives and sent it in separately. Mr. Milne stated that the percentage of Members voting this year was about normal, representing 15-20 per cent of the Corporate Membership. The President stated that the Council did not feel that the Society would be justified in printing and distributing special voting papers for the election of Zonal Representatives.

#### Auditors

It was moved by the President and resolved to confirm the appointment of Edward Moore & Sons as Auditors for the year ended June 30, 1955, at a fee of Seventy-Five Guineas.

#### Institution of Electrical Engineers

It was moved by the President and resolved that a cordial vote of thanks be recorded to the President and Council of the Institution of Electrical Engineers for permitting the Society to continue to use the building of the Institution for the holding of meetings.

#### Other Business

Mr. Yeomanson enquired whether the President was in a position to say whether there had been a profit or loss on the Bristol Convention.

The President stated that a small profit had accrued.

Mr. Yeomanson then asked whether the cost of transporting the Council to Convention had been debited to the Convention Account.

The President stated that the expenses incurred by Council members in attending the Bristol Convention would not be made a charge against the Convention Account.

Mr. Smith expressed concern that the Council proposed to dismantle and, presumably, sell the Headquarters station transmitter which had been donated to the Society. Mr. Smith felt that such an action might conceivably do harm to the Society.

Mr. Yeomanson supported this view and expressed the opinion that whilst the firm that donated the transmitter might not now be concerned as to its fate other firms who may be willing to make a gift to the Society would hesitate to do so.

The President explained that the Council had hoped to find a home for the station but so far their efforts had not been successful.

*The meeting terminated at 7.30 p.m.*

#### Correction

IN the "Silent Key" tribute to the late Mr. Ralph Bloxam (GM6LS) published in our December issue, it was stated that Mr. Bloxam's son's name is Roy and that he is in the U.S.A. under the exchange of school teacher's plan. In point of fact, Mr. Bloxam's son's name is Wallace and he is at present lecturing at Universities in the U.S.A. Mr. Wallace Bloxam is a Ph.D. in Geology. We regret the error.

### Presentation by Mr. Maurice Child

JUST prior to the presentation of trophies and prizes on December 17, 1954, Mr. Maurice Child (Vice-President) presented to the Society his original licence mounted in a walnut frame.

In making the presentation Mr. Child said:—

"It is with great pleasure that I wish to make a small presentation to the Radio Society of Great Britain of a document which has now become of some historical interest. It is, in fact, a Licence issued by the Postmaster-General in the reign of King Edward VII and is dated 8th July 1907.

The Licence, issued to me personally, is for the use of experimental apparatus for the purpose of Wireless Telegraphy and, according to the Schedule on the last page it was for Receiving Apparatus only which was installed at Canford Cliffs, Bournemouth.



Mr. Maurice Child, a Vice-President of the Society, presenting his first licence to the President, Mr. A. O. Milne (G2MI).

Members will no doubt be interested to see that it bears the official Seal of the General Post Office and is signed on behalf of the then Postmaster-General, Sydney Buxton, by H. Babington Smith.

Clause 6 is of particular interest and reads as follows:—

*The licensee shall so far as possible receive from ships and light stations all requests for assistance and all signals of distress and re-transmit them with the least possible delay to the proper authorities by means of the licensed apparatus or any other means in the power of the licensee.*

I would mention that no fee or other charge was made for such Licence and even up to about 1920 all experimental Licences for both transmission and receiving were issued free of charge and, further, no restriction was placed on the amount of power to be used for transmission.

The only provision of importance which, in my view, had any practical significance was that the Licensee should not cause interference with Government or Service Stations.

I ask you, Mr. President, to accept this document together with its case which I have had specially made for it having in mind the possibility and hope that at no far distant date the Society will be able to start forming a collection of apparatus and other objects of interest pertaining to the work of the Society and to be able to acquire suitable accommodation for their display to Members."

The President thanked Mr. Child for his generous gift and assured him that it would become one of the most treasured possessions of the Society.

**Have you amended your Bankers' Order to cover the new subscription rate?**

### Presentations of Trophies and Prizes

AT the conclusion of the Annual General Meeting held on December 17, 1954, the President (Mr. Arthur O. Milne) made the following presentations:—

**Wortley-Talbot Trophy:** Messrs. Ralph and Jeremy Royle, G2WJ/T.



Ralph and Jeremy Royle, G2WJ/T, received the Wortley Talbot Trophy for their outstanding work in connection with Amateur Television.

**Founder's Trophy:** Messrs. D. F. Davies, G3RQ, and R. T. Poeton, G3CTN.

**Calcutta Key:** Mr. John Clarricoats, G6CL.

**B.E.R.U. Receiving Rose Bowl:** S/Ldr. A. R. Gilding, ex-G3GP.

**N.F.D. Shield:** Bristol Group.

**N.F.D. Shield Replicas:** East Molesey and Croydon Groups.

**1930 Committee Cup:** Mr. J. Hunter, G3AZ.

**Mitchell-Milling Cup:** Mr. N. H. R. Munday, G5MA.

**Arthur Watts Trophy:** Mr. A. L. Mynett, G3HBW.

**1950 Council Trophy:** Mr. G. T. Peck, B.R.S. 15402.

The Norman Keith Adams Prize Premium was presented jointly to Messrs. F. Charman, B.E.M., G6CJ, and J. W. Mathews, G6LL, and the Bevan Swift Memorial Premium to Mr. W. H. Allen, M.B.E., G2UJ.

Certificates of Merit were presented to a number of Contest competitors.

Trophy Winners who were unable to attend the meeting included: Messrs. C. R. Perks, G4CP (ROTAB); R. G. Henwick, ZS2A (Senior B.E.R.U.); J. C. van Wyk, ZS6R (Junior B.E.R.U.); F. J. U. Ritson, G5R1 (Col. Thomas and Braaten), J. Banner, GW3ZV (Somerset), T. J. Brooke, G3GHC (Houston Fergus), C. F. Sheritt, GM3EOJ (Milne), P. J. Pollard, G3DIV (Miniature).



D. F. Davies (G3RQ) and Roy Poeton (G3CTN) receiving the Founder's Trophy from the President in recognition of their valuable services in connection with the Bristol National Convention.



## The R.S.G.B. in Retrospect 1944-46

By C. H. L. EDWARDS (G8TL)\*

WHEN 1944 opened, Mr. E. L. Gardiner, B.Sc. (G6GR) took office as President. Membership—still increasing—had by then reached a total of 5835, more than double the pre-war peak figure.

During this historic year more than 1000 parcels were despatched to prisoners of war and the present writer, as Administrator wrote more than 1200 letters in connection with the Fund. The T. & R. badge, so long the Society's emblem, gave way to the present R.S.G.B. badge.

As United States Forces were now at full strength in England, Anglo-American Hamfests were held periodically in the Mostyn Club, Edgware Road, London, W.1.

The Council had, during the previous two years, devoted a great deal of time and thought to the question of post-war licences and had constantly been in touch with the G.P.O. on the subject. Some thought had also been given to surplus radio equipment which might become available after the war and contact was made with the Government departments concerned.

### 1945—and Peace

The last year of the war saw the largest membership increase to date in the history of the R.S.G.B.—a nett gain of 1909 being recorded for the year. The *Handbook and Supplement* were still in great demand: more than 129,500 copies of the former and 75,000 copies of the latter had already been sold. Approximately 4500 members had served with the Armed Forces of the Crown—a figure probably without parallel in any other scientific Society.

The Prisoner of War Fund had topped £1400—a wonderful gesture by the membership. The total expenditure was £867 12s. with £163 12s. set aside for the European P.O.W.s and £370 for Far East P.O.W.s. No parcels or letters had been sent to prisoners in Japan, because safe permits were not given by the Japanese Authorities. It had therefore been decided by the Council to put aside a reasonable proportion of the monies received so that in the event of the Japanese position changing, large parcels could be quickly got under way to members in Far Eastern camps. Because of the changing position in Europe no parcels had been sent to the German camps for several months.

### Post-War Licences

As the war was now drawing to a close the Society's Liaison Committee approached the G.P.O. in order to ascertain the position regarding post-war transmitting licences. The G.P.O. stated that it was their intention to restore facilities to all pre-war fully licensed amateurs who made formal application. The A.A. licence would not be re-issued as the G.P.O. considered that it was an incentive to illicit transmission. Pre-war holders of that type of licence would therefore be issued with a full licence subject to the production of proof of Morse proficiency. The G.P.O. also agreed to proposals put forward by the R.S.G.B. regarding licences for applicants who had served in a Radio Trade in H.M. Forces. For example, an R.A.F. Radio Mechanic would be exempted from both Morse and technical tests. A technical test, incidentally, was a new qualification required for a transmitting licence.

New call-signs would be issued, comprising the International Prefix G, GI, GM or GW, etc., a numeral and three letters, i.e., G3ABC. It had been tentatively agreed that new licences should fall into two classes, namely,

Class A, 25 watts (telegraphy only) to all new applicants and Class B, 150 watts (telegraphy and telephony) after 12 months on application to the G.P.O. All guard bands would be abolished and all pre-war frequencies would be made available. There would be no restrictions on operating time during any one day as was the case on certain bands before the war. Impounded apparatus would be returned as soon as possible after the cessation of hostilities; there would be no restriction on aerial systems except, perhaps, height. All this information was published in the March, 1945, issue of the BULLETIN, some months before hostilities ended—truly a monument to the work the Society did during the war years. One might well now ask: Where should we have been had the Society shut down when war was declared in 1939?

In May, the Society published a list of Service Radio Trades which had been agreed between the R.S.G.B. and the G.P.O. showing the exemptions for members who wished to obtain licences. That month the war in Europe ended, the lights came on again and the amateurs began preparing to get back on the air. It speaks well for the Society that it was possible to publish in the June issue of the BULLETIN an important announcement to the effect that preparations were being made for the re-issue of amateur licences and that applications could be submitted to the Post Office forthwith. And all this three months before the war in the Far East ended! Members who had changed their addresses were advised to notify the G.P.O. in order that impounded equipment could be returned.

### The P.O.W.s Return

The first two prisoners of war to return to the U.K., Capt. Ernest Shackleton (G6SN) and "Snowy" Campbell (VK3WL) the Australian (both of whom received many parcels over the years they were captive), were very grateful to their fellow amateurs, who by their generosity had made an irksome existence at least more tolerable. Very many letters of thanks, sincere thanks, were received from ex-prisoners of war. To quote one of them:

*"I wish to express my gratitude to you and through you to the members of the R.S.G.B. for the incredible generosity of the Society in sending me parcels during my four years as a prisoner of war. I have received from the Society thousands of cigarettes, many books, games, a most welcome kitbag and case. Such generosity is quite overwhelming and it is impossible for me, in words suitable, to express my gratitude. The cigarettes were not only sufficient for my own needs but in times of acute shortage I was able to help my friends who were as amazed as I was myself at the open-handedness of this Fairy Godmother of a Society. The books I read and passed on to others to enjoy, and the kitbag was very timely in its arrival. These gifts from the R.S.G.B. have materially lightened the burden of a prisoner-of-war existence, not only for myself, but for those about me. I have always made it clear that these parcels I constantly received were gifts from the Radio Society of Great Britain. It is wonderful to be home again and I am glad to say I am 100 per cent fit. Thank you very much Mr. Edwards for your organisation and thank you very much members, for your incredible generosity."*

During the five years of the war, R.S.G.B. members subscribed £1642 11s. 7d. towards the Fund. The 1329 parcels which were despatched included 357,430 cigarettes, 8480 ounces of tobacco, 2007 new books, 99 games, 23 sets of music and, in addition, very many parcels of second-hand books given by the membership to prisoners of war in Germany. In view of the fact that nothing could be sent to prisoners in Japanese hands, each was presented on return home with an Avometer Model D, suitably engraved. All 50 prisoners were given an engraved fountain pen. The balance of the money was then divided equally and a cheque

\* 28 Morgan Crescent, Theydon Bois, Epping, Essex.



sent to each. The Administrator of the Fund, G8TL, reported that the job was the most satisfying he had ever done on behalf of fellow amateurs.

### Surplus Disposals

During the year, the Council had been in contact with the Ministry of Supply regarding surplus components which might be made available in the future. A list of components which the amateur would be likely to require had been submitted to the manufacturers who, it was thought, might buy the bulk of the surplus material which the Services would wish to dispose of. This did not, however, develop, the Government deciding to sell in the open market. The Authorities were not prepared to sell in small lots to individuals, but suggested that the Society bought in bulk for its members. (This was not possible as the Society is precluded from trading.—EDITOR.)

In further contacts with the G.P.O. it was decided that holders of pre-war A.A. licences would be permitted to retain their pre-war call-signs, with the addition of the national prefix, when applying for their full licences after satisfying the G.P.O. Morse requirements. Discussions also took place between the G.P.O., the Society and the City and Guilds of London Institute regarding the introduction of a Radio Amateurs' Examination which was to be taken by new applicants for licences.

A Committee to re-establish the QSL Bureau was set up under Arthur Milne (G2MI). About six months later the Committee, after much discussion, decided that due to staff and accommodation difficulties, it was not yet possible to institute a full QSL service of the type visualised. It was decided, however, to introduce a stop-gap service operated on pre-war lines by voluntary helpers.

In December, 1945, the G.P.O. granted permission for operation in the bands 28 to 29 Mc/s and 58 to 60 Mc/s and licences were again issued to pre-war amateurs for work on these frequencies. Col. (later Sir Stanley) Angwin of the Post Office stated that some delay must occur before international frequencies could be allocated and that many military services were still occupying the pre-war amateur bands. The new licence was as agreed during the war years by the Society and the G.P.O. and was "for the establishment of an amateur station," not experimental as in pre-war days. The use of CQ was permitted for the first time. Thus, four months after the end of the war U.K. amateurs were on the air again solely due to the Society's continuous liaison with the G.P.O. And that incidentally is why members pay their subscriptions—not so much for the BULLETIN or the QSL service as for the retention of frequencies without which they would not have a hobby. They should think well on this fact.

"The Month on the Air," by Arthur Milne (G2MI), re-appeared in the December, 1945, issue of the BULLETIN. Orders were placed for a further 30,000 copies of the *Handbook* (at a cost of £3065) and 20,000 copies of the *Supplement* (at £1255).

### 1946: On the Air Again

During the first year of peace, Mr. E. L. Gardiner was again President, and membership rose to beyond 10,000, an increase of 7000 since 1940. As a result of further contacts with the G.P.O. and the City and Guilds of London Institute regarding examination papers, much progress was made and Mr. William A. Scarr, M.A. (G2WS) and the General Secretary were appointed to serve on the Advisory Committee as the Society's representatives. (Both have served on that committee ever since.—Editor.)

At the same time pressure was being exerted on the Ministry of Aircraft Production for the bulk sale of surplus material to Society members but with little success, as no one seemed to know exactly how its sale or distribution was to be carried out. The M.A.P. finally referred the

Society to the Radio Industry Council and for weeks the Society continued its efforts while members were writing critical letters to Headquarters accusing them of taking no steps to obtain surplus equipment at reasonable prices. The *Daily Express* eventually took up our cause and in February of that year in the House of Commons Mr. Hoy asked the Minister of Supply and Aircraft Production "why he had granted a monopoly to a London trader to purchase R.A.F. equipment and why he had refused the offer of Mr. John Clarricoats of the R.S.G.B. to purchase transmitters at £5 each." Mr. Hoy received only vague replies.

### Service Exemptions

A list of Service Radio Trades carrying exemption from the Morse and/or Technical Examination, which had been agreed to by the G.P.O. and Wireless Telegraph Board, appeared in the March BULLETIN—a list of which the Society could feel justly proud, as it represented the outcome of the work of the previous four years. In the same month, it was learnt that some 1600 licences had already been issued to pre-war amateurs. A further meeting with the G.P.O. and W/T Board took place during which the freeing of other pre-war amateur bands was urged. In consequence, 7150–7300 kc/s, and 14,100–14,300 kc/s were made available. Slow Morse transmissions were started again by Mr. A. D. Rock (G8PR) in the 1.7 Mc/s band with the approval of the Post Office. Band planning suggestions were put forward by members in the BULLETIN.

### The Admiralty Scrap Scheme

The Admiralty, appreciative of work done by members who had served in the Navy, communicated with the Society saying that they were prepared to offer to members certain types of surplus radio equipment at 50s. per cwt. (loaded into the purchaser's own conveyance). A list of depots and stores around the country, from which this electronic scrap could be purchased, was submitted. And then the fun really started! The District Representatives were each provided with an official letter by the Admiralty which, when presented at any depot, was the "open sesame." The letter was sent by the D.R.s to the first name on a list of members compiled from applicants and it had to be returned immediately after use for passing on to the next member. An unlimited amount could be purchased at one time but no sales were made without the letter of authority. Quite a selection of radio equipment was available: transmitters, receivers and frequency measuring equipment in good shape. Complete transmitters could be obtained at 50s. per cwt.!

### The "Bulletin" Comes of Age

In July, 1946, the BULLETIN celebrated 21 years of continuous production, without having missed a single month, even in the difficult years of the war. Truly a magnificent record. A new contributor to the BULLETIN was Mr. W. A. Scarr (G2WS) with the "Month on Five." Now that 5 m was again open to the amateur, many were taking the opportunity to learn more of the higher frequencies.

### D.R.s' Conference

The first post-war D.R.s' Conference was held in Birmingham to discuss a new scheme of representation. The object was to divide the country into 15 Regions, each under a Regional Representative; County Representatives were to confer with their R.R.s on County/Regional matters and Town Representatives were to be answerable to their C.R.s. The R.R.s were to be nominated by the Council, and the C.R.s and T.R.s by the members. The idea behind the scheme was that the R.R.s would eventually become the governing body of the Society, provided that 51 per cent of the members voted in the yearly elections. That per-

centage has never been even remotely reached.

Provincial District Meetings by this time were in full swing, members of the Council and the General Secretary travelling all over the British Isles to "sell the Society," to answer members' questions and to meet both old-timers and new members alike.

Licences for portable work were made available again by the G.P.O. subject to a fee of 10s. per annum. Input was limited to a maximum of 25 watts, the licensee being permitted to work within a radius of 10 miles of his home station. At the request of the Society, operation from an alternative address was also permitted without extra charge. The normal call-sign followed by /A was to be used when operating from the other address. Permission was also granted for Class B licence holders to use 150 watts on 28 Mc/s. Complaints were made to the G.P.O. regarding broadcasting stations within the 7000 kc/s band. The Post Office stated they would look into the matter and endeavour to get the intruders to shift frequency. Further discussions with the G.P.O. in August completed the release of the Top Band from 1715 to 2000 kc/s as allocated prior to the war, and permission to use 3500-3635 and 3685-3800 kc/s—the old 80 m band with the middle 50 kc/s missing. Many pre-war amateurs had never used 80 m because prior to the war the band was allocated by the G.P.O. only to persons recommended by the Society.

In October, 1946, as the result of further representations to the G.P.O., permission was granted for amateurs to use 2300-2450 Mc/s. Frequency but not pulse modulation was allowed. During these discussions the Society asked the G.P.O. to allow amateurs to operate on board ship outside the territorial waters of countries other than Great Britain but this request was refused.

To help many blind amateurs, the Society donated a sum of money (up to 50 gns.) to the National Institute for the Blind for the making of a Braille manuscript copy of *The Amateur Radio Handbook*.

#### Contests Again

During 1946 the Contests Committee was re-formed. Its first task was to resurrect the Top Band Contest while preparing for B.E.R.U. and N.F.D. the following year. The Council, on advice from the Technical Committee, went forward with a Band Planning scheme which later met with world-wide acceptance. A model control group was set up and in a very short time had over 50 members attached to it.

#### New Publications

Attempts had already been made to bring *The Amateur Radio Handbook* up to date but the members responsible for its original production were too busy in their own occupations to be able to give up sufficient time. As a stop-gap, the Council decided to produce a series of booklets dealing with various Amateur Radio subjects and an approach was made to several well-known members for assistance in their production. Of the first, *Service Valve Equivalents*, 25,000 copies were ordered and very soon sold.

Owing to the large increase in membership the Council decided that an effort should be made to set up a Society laboratory which would design and produce new equipment in a similar way to the American Radio Relay League. In consequence, an advertisement for a Technical Manager to take over such a laboratory appeared in the BULLETIN. Much time was spent by Council members in trying to find a room or small workshop within reasonable distance of Headquarters suitable for conversion into a laboratory but with no success. As the response to the advertisement had been extremely poor, the project was temporarily shelved.

(To be continued)

#### IF

*If you can work a clear spot while the others  
Are losing theirs and blaming it on you.  
If you can read the QTH and input  
Through QRM and QSB to 2.  
If you can work the States Q5 on Top Band  
Though coastal shipping stations do their worst.  
If you can keep receiving solid copy  
While other folk call CQ fit to burst.*

*If you can work a bug key up to thirty  
Yet undertake a slow Morse class each week.  
If you can slip aside a few kc/s  
To call that rare DX chap whom you seek.  
If you can QRT when you've had trouble  
reported, though the band's just at its peak,  
and reappear much later when it's flat, Sir,  
Happy that you found that duff grid leak.*

*If you can hear your own call through the 'speaker  
And find the bird and help him through his test.  
If you can enter into DX contests  
Yet take time off to have a little rest.  
If you can publish dope on your equipment  
To help the other fellow build his own  
And see your ideas torn to little pieces  
In next month's Bulletin, without a moan.*

*If you can call CQ DX on twenty  
With 99 confirmed, one more to get  
And have another local ham back to you,  
Enjoy a chinwag though you've never met.  
If you can have a QSO pinched off you  
And QSY to have another crack.  
If you can QSL your every contact  
Although you only get a quarter back.*

*If you can be content to watch just one spot  
Instead of rushing up and down the band  
And wait your turn to use a certain channel  
Although the fingers itch upon your hand.  
If you can QRP to have a chinwag  
When your report is fifty over nine.  
If you can read the "Martian Morse" of new boys  
And send the chap "FB you're doing fine!"*

*If you can see your rig struck down by lightning.  
Watch storm and tempest tear your rig apart  
And get to work to build all new equipment  
Though disappointment's heavy in your heart.  
If you can help the other chap build his rig  
Although your own is scarcely yet begun  
You'll be the best loved fellow in the district  
But what is more, you'll be a Ham, my son.*

A. U. Thor,

(with thanks to Rudyard Kipling).

#### We Quote

Dear Answer Man,  
I have bugs in my final. What should I do?  
Use D.D.T.

Dear Answer Man,  
I am a GW/CW Ham and my QTH is Llanfairpwch-  
wingithgogorietlan — Droblchllantisiogogogoch. What  
should I do?

Go on phone and work up a thirst.

Dear Answer Man,  
Funny noises come out of my speaker. What can they  
be?

You must be listening to Frankie Laine with a signal of  
S9 plus 20 Jezebels.

—I.R.T.S. News.

## Amateur Television

By M. BARLOW (G3CVO)\*

CONSIDERABLE interest in Amateur Television was aroused by the excellent display put on by Ralph and Jeremy Royle, G2WJ/T and Ian Waters, B.R.S. 17906, at the R.S.G.B. Amateur Radio Exhibition last November. Originally, only one camera was to have been used, but in view of the mishaps that have spoilt shows in previous years, a second was brought in with a complete standby set of equipment. A vision mixer unit enabled the two camera outputs to be mixed, enabling proper "studio" productions in addition to various trick effects such as superimposing various "actors" upon the street scene outside the Royal Hotel. The vision signal was fed to the 70 cm transmitter working into a dummy load and the r.f. signal picked up by a 70 cm converter which in turn fed several television receivers on 45 Mc/s. The pictures thus went through the entire system and were most creditable, although the superiority of G2WJ/T's new camera tube was quite apparent.

A very fine Monoscope showing pattern F (cubes and wedges), built by J. Attew, was also on show, but due to mains limitations had to be used as an alternative to one of the cameras. An interesting point was that the whole system could be run at either 405 lines interlaced or 202 lines sequential; the change in picture appearance was surprisingly small to many viewers.

### News and Views

Those known to be licensed for television transmission at the present time are G2WJ (Dunmow), G2DUS (Baldock), G3BLV (Sunderland), G5ZT (Plymouth), G13FWF (Belfast), G3BAY (Leicester), G3JVO (St. Albans) and G3KBA (Birmingham). The latter deserves special mention as he is bedfast and has to do all his constructing and operating from his bed. He hopes to be on shortly with 3 watts on 436.8 Mc/s with flying spot and 9.5 mm telecine cameras.

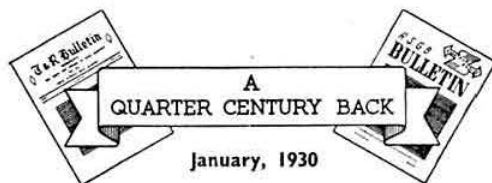
In Jersey, George Goldsmith has his Test Card C Monoscope in action and is rebuilding the pulse units before going on to a camera. At the other end of the U.K., Ian Ross at Tain, in Ross-shire, 140 miles from Kirk O'Shotts, is anxious to contact any v.h.f.-minded reader in the area with a view to building v.h.f. and television gear. C. G. Dixon (Ross-on-Wye) is going ahead with the construction of a colour slide scanner, since he is not permitted to demonstrate his colour camera in public. A red-sensitive photomultiplier is not available so a standard film soundhead cell is being used with a narrow band high-gain amplifier; it will be recalled that wide bandwidth is not required in the red channel because the eye is not sensitive to detail in this colour.

Don Reid (Chelmsford) is winding camera coils with a view to passing pictures back to G2WJ/T via G3CVO. With the possibility of four amateur TV stations being in operation within 10 miles of Chelmsford in the near future and as a result of an excellent lecture on 70 cm TV converters, work is going ahead with the mass production of such converters for tests early this year. The lecturer suggested a novel form of construction consisting of a pi-coupler from the co-axial cable into the crystal mixer and another pi-section from the mixer to the i.f. head amplifier. The idea has the advantage of avoiding all plumbing and being simple to adjust.

### Meetings

There are now 370 members of the British Amateur Television Club. With a view to widening knowledge of and interest in, Amateur Television, meetings are held on the second Tuesday in each month at Chelmsford (details from G3CVO), in Bradford (details from G5KS) and in Manchester, while others are planned for South London and Romford. Further information may be obtained from the writer.

\* 10 Baddow Place Avenue, Great Baddow, Essex



THE Honorary Secretary in his Report for the year reported upon the formation of a Publicity Section under the management of Mr. Arthur Watts. "We have now within our ranks many of our British Empire friends who, prior to their association with the B.E.R.U. were to us little more than overseas amateurs. We look forward to their continual support, encouragement and guidance in the future." The Report referred to the introduction of a new British Empire Certificate. "This certificate will be awarded to every member of the R.S.G.B. and B.E.R.U. who has made contact with at least one spot in each of the five continents upon which the Union Jack flies." It was suggested that holders of this new certificate should become members of "The British Empire Fellowship."

The death was reported of Admiral Sir Henry Jackson, K.C.B., F.R.S., President of the Society from 1922 to 1923. "He was one of the early pioneers in radio and was associated with Marconi in the early experiments in Trans-Atlantic messages. He was largely responsible for the introduction of radio into the Navy."

Station Description No. 3 described the station of J. M. Sturrock, G6KO, situated in Kirkbuddo, five miles from Glamis Castle "the former home of our Duchess of York." An M.L. convertor provided a source of supply for the transmitter and a DET.1 was used in the final. "At one period in 1927 the station established contact (on 23 metres) with the American continent on 25 consecutive nights. On the 26th night came a 'stork' with a passenger to the home of G6KO."

"Tone Compensation for Electric Gramophones" was the subject of the lecture given by Dr. N. W. McLachlan, at the A.G.M. on December 13, 1929.

"A Crystal Control Adapter" was described by E. A. Dedman, G2NH. "The circuit consists of a valve controlled by a 3.5 Mc/s crystal, the output of this valve being fed to the grid of the second or amplifier valve. This valve also has its own tuned grid circuit and the first valve supplies only enough of the excitation to keep the second valve on twice the frequency of the crystal."

A series of 28 Mc/s tests was scheduled to take place during weekends in March.

### Wenvoe V.H.F. Station

THE B.B.C. has received permission to build a v.h.f. station at Wenvoe to serve South Wales and a considerable part of Devon and Somerset with the Welsh Home Service, Light and Third Programmes. It is expected that the new station will be ready for service early in 1956.

### Broadcast Receiving Licences

AT the end of November there were 13,794,195 broadcast receiving licences, including 3,999,624 for television and 250,256 for car radio, in force in Great Britain and Northern Ireland. During the month, the number of television licences increased by 157,956.



## Council Proceedings

*Resume of the Minutes of the proceedings at a Meeting of the Council of the Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Tuesday, November 9, 1954, at 6 p.m.*

*Present.*—The President (Mr. A. O. Milne in the Chair), Messrs. I. D. Auchterlonie, H. A. Bartlett, L. Cooper, C. H. L. Edwards, D. A. Findlay, A. C. Gee, R. H. Hammons, F. Hicks-Arnold, J. H. Hum, L. E. Newnham, N. F. O'Brien and John Clarricoats (General Secretary).

*Apology for Absence.*—An apology for absence was received from Mr. R. L. Varney.

### Membership

*Resolved* (a) to elect 36 Corporate Members and 6 Associates; (b) to grant Corporate Membership to 15 Associates who had applied for transfer.

The Secretary reported that of the 725 members whose subscription became due on August 1, 1954, 154 became overdue on October 31, 1954.

The Secretary submitted details of the reasons given by the 49 members who had written to resign during the three weeks ended November 6, 1954. Only 6 had resigned on financial grounds. Of the remainder 21 had lost interest, 13 gave no reasons and 9 gave miscellaneous reasons.

### Application for Affiliation

*Resolved* to grant affiliation to the Redditch Amateur Radio Society.

### Newbury and District Radio Society

*Resolved* to authorise the General Secretary to accept an invitation to attend a meeting of the Newbury and District Radio Society on the understanding that his out-of-pocket expenses will be paid by that Society.

### R.S.G.B. Bulletin

It was reported that Patina Press, Ltd., had given three months' notice to terminate the Contract which they have with the Society for printing the BULLETIN. They had stated that due to a number of factors, they had seriously under-estimated the cost of printing the BULLETIN and were facing a loss of about £150 per month.

The Secretary reported that 20 firms had been invited to tender for printing the BULLETIN and that up to the time of the meeting 7 had submitted estimates.

*Resolved* to authorise the Finance and Staff Committee to meet representatives of selected printing firms who have tendered for printing the R.S.G.B. BULLETIN with a view to negotiating and settling a new Contract.

### Headquarters Accommodation

Consideration was given to a Report from the Secretary, based on proposals put forward by two members of the Council, for making better use of the Headquarters accommodation. Subject to minor amendments the proposals were accepted.

### R.A.E.N. Message Pads

It was agreed to place an order with Patina Press, Ltd., for printing R.A.E.N. Message Pads, for resale to members of R.A.E.N. at 2s. 6d. per pad.

### Cash Account

*Resolved* to accept and adopt the Cash Account for October, 1954, as prepared and submitted by the General Secretary.

### Reports of Committees

*Resolved* to accept and adopt as Reports Minutes of Meetings of the Exhibition (Home Constructors' Section) Committee, Technical Committee and Finance and Staff Committee. The first two Reports contained no recommendations.

The Finance and Staff Committee reported that after giving very careful consideration to the question of BULLETIN Advertising Commission Rates they had decided to recommend that no change be made to the present arrangements. The recommendation was adopted. Other recommendations of the Committee related to Headquarters' Accommodation, BULLETIN Printing arrangements and Staff Salaries. Salary increases totalling £50 for the current financial year were approved.

As a matter of urgency it was agreed to accept and adopt a recommendation of the Contests Committee relating to the Programme of Contests for 1955.

*The meeting terminated at 8.25 p.m.*

## THE OLD TIMER

*(or the story of a stormy QSO)*

"You are old, Father William," the young man said,  
"And I'd hate to put you in your place,  
But on twenty these evenings I think you should know  
That your whiskers aren't all on your face!"

"I'm sorry for that, son, but surely you're wrong,  
No one else has reported it so.

Down in Timbuctu these days they say I'm fit  
So you know now just where you can go!"

"You are old, Father William," the young man cried,

"A proper old-timer for sure,  
Yet you will keep on moaning about TVI

You're getting a terrible bore!"

"You think you're so clever," the old man replied,

"Miles from nowhere you're right in the clear.

Just you try your rig out in my fourth storey flat!"

If you live, why, I'll fill you with beer!"

"You are old, Father William," the young man smiled,

"And your beard is a beautiful white.

Yet you natter on eighty for most of the day

And twenty best part of the night!"

"Well, I've worked all the DX," the old man replied,

"WAC on all bands, don't you know.

If I can't have a chinwag without all this fuss,

I call it a pretty bad show!"

"You are old, Father William," the young man rejoined,

"I can see that by your wrinkled brow,

But your Morse is quite shocking, your phone I deplore,

In fact it's a heck of a row!"

"In my youth," said the sage, "Before you were born,

Self-excited my note was T2!

But I still worked the DX, so why should I fret?

QRO? QSV? QRU!"

(after which parting dig we can only hope they lived happily ever afterwards!)

A. U. Thor.

Do you use the RSM Code?



## "Exercise Ilford"

By W. J. RIDLEY (G2AJF) \*

AT the request of the writer, acting in his capacity as Chairman R.A.E.N. Committee, an experimental exercise was recently carried out by the Ilford R.A.E.N. group to determine the ability of an R.A.E.N. group to handle messages rapidly and accurately and also to test the time required to put fully equipped mobile transmitters into the emergency area.

In order to create realism the Ilford group were not told the nature of the exercise, but merely that an exercise would take place on a certain Sunday. The group promised to supply two mobile transmitters operating on 1.8 Mc/s, each carrying two 28 Mc/s walkie-talkie equipments.

For the purpose of the exercise it was assumed that a portion of Dagenham in the area around the Ford and Briggs Body Works had been inundated. Communication was required, firstly from the industrial area mentioned, and secondly from Dagenham Town Hall to an outside point with G.P.O. line facilities. It was therefore decided to send Mobile No. 1 to the edge of the supposedly flooded area—one of the walkie-talkie operators being taken to a point inside the industrial area. The second mobile station was requested to go to Dagenham Town Hall, its walkie-talkie operator being taken to a point some quarter mile away to simulate the effect of being inside the Town Hall, in contact with local officials requiring communication with the inundated area. To test out the facilities of the E.C.O., who was situated in the northern part of Ilford, all messages were routed through him.

In order to heighten the realism of the exercise it was decided that the messages would be in the nature of request for addresses and telephone numbers of public services such as the Police, Fire Brigades, W.V.S., Red Cross, etc., all located close to the "flooded area."

Each mobile and walkie-talkie operator was accompanied by observers drawn from licensed amateurs in the Chelmsford and Brentwood areas, who acted as officials requiring communication assistance, and who, at the same time noted the time of origin of their messages and the time of receipt of the replies.

An exercise of this nature can be used to test:—

- (1) the time required to assemble crews, mobiles, etc., and to rendezvous at a given spot without previous warning;
- (2) control of mobiles and operators together with procedure, etc.
- (3) the ability of an E.C.O. to handle a number of messages in a comparatively short time.

"Exercise Ilford" was started by a radio call on 3600 kc/s asking the E.C.O. to alert his net and to despatch the two mobiles to Dagenham Town Hall.

This message was timed at 1409 hours. The first mobile arrived in 46 minutes, the second mobile arrived much later, due to an error, which will be mentioned later. On arrival at the assembly point Mobile No. 1 was despatched to the industrial area and commenced transmitting 45 minutes later, a much longer time than had been anticipated, due to a failure, details of which are given below.

It transpired that both mobiles commenced message handling at approximately the same time. The E.C.O. was receiving messages which required a search of the London Telephone Directory, and a reply at the rate of one message every 2½ minutes. This presented him with no difficulty. As Mobile No. 1 was a much louder signal, his messages were cleared quickly, but at the expense of Mobile No. 2 who was difficult to copy.

In summing up the result of the exercise, the following points were reported by the observers:—

- (1) Mobile No. 2 failed to carry out instructions to report to Dagenham Town Hall and inadvertently followed Mobile No. 1 into the flooded area, under the impression that Mobile No. 1 was going to Dagenham Town Hall. This caused considerable delay.
- (2) The walkie-talkie equipment used by Mobile No. 1 was not netted, the roving walkie-talkie having to return to the mobile to net the equipment and return again to the industrial area before he could handle messages.
- (3) Mobile stations which have become static must do everything in their power to erect efficient aerials of a temporary nature.
- (4) The E.C.O. must endeavour to handle messages in rotation and not leave one station out in the cold.
- (5) The actual handling of message was too verbose, and contractions and abbreviations, together with the use of "Q" signals, would have cut down the time which averaged about 15 minutes from origin to reply.

On the credit side, the observers reported upon:—

- (1) the excellent way in which the 28 Mc/s walkie-talkie transmitter-receivers operated.
- (2) the general design of the equipment, particularly 1.8 Mc/s transmitters and receivers.
- (3) the great keenness and enthusiasm shown by the Ilford R.A.E.N. group.

In conclusion the writer would like to express his appreciation to the group collectively and in particular to G3IRL, G8TL, G3HWG and the walkie-talkie operators, while registering his sincere thanks for the services of the observers, G3ABB, G3HMK and G3IDX. It is hoped that this description of "Exercise Ilford" will stimulate ideas for similar R.A.E.N. exercises in other areas.

### R.S.G.B. Entertainers

AT the Marconi Apprentices' Christmas Show at Chelmsford, twelve R.S.G.B. members were in the cast, including G3EMI (guitar), G3HPY (home-made electronic organ) and G3HKM as "Sir Jasper" in a suitable sketch.

### HELP FOR YUGOSLAV AMATEURS

AFTER reading Mr. Milne's account of his recent visit to Yugoslavia and of the hospitality extended to him on that occasion, several members—and in particular Mr. Arthur Woolvern, G3HLS—wrote to Mr. Milne offering to send surplus radio gear to the Yugoslav Amateur Radio Society for distribution.

It is probable that a great many other members who have surplus gear available, would like to be associated with this idea. The greatest need is for valves, meters and components in good working order rather than for complete equipment.

Members interested in this project are invited to contact Mr. Milne or Mr. Woolvern. Parcels may be sent direct to Mr. Woolvern, c/o N.L.C., Armstrong Gardens, Woolwich Road, London, S.E.7, but in every case a list of contents should be included. Arrangements are being made with the Yugoslav Customs for the packages to be imported duty-free.

Mr. Woolvern, who has kindly offered to arrange for crating, hopes to despatch the first consignment of goods soon after this issue of the "Bulletin" is published.

\* "Littlefield," Ringtail Green, Ford End, Chelmsford, Essex.

# TWO METRES AND DOWN.

By F. G. LAMBETH (G2AIW)\*

THE almost ubiquitous v.f.o. has, in the last months, made its appearance on 144 Mc/s, and verbal comment on this development has been widespread. There are, undoubtedly, many advantages and disadvantages in its use, but the consensus of opinion, as at present ascertainable, seems to be adverse. However, in the interests of all users of the 2 m band, it would be well to treat the problem as objectively as possible and, accordingly, opinions and considered criticisms would be welcomed from v.f.o. operators and (dare we say it?) v.f.o. sufferers.

It is variously stated that the ability to shift frequency into any part of the band destroys the value of the fixed position in which DX stations are known to come up, thus making established receiver readings valueless; or that the v.f.o. station is as likely as not to "sit on" the rare DX when the latter remains crystal controlled. The added possibility of local interference cannot be ignored, but against this there would be the advantage of QSY in the case of mutually interfering stations. The whole question is a very complex one, but in view of the strong possibility of the continued extension of v.f.o. operation on 144 Mc/s something must obviously be done to reconcile the various points of view before the position is quite out of hand. Remember also that what can be done on 2 m is surely not impossible on 70 cm. This is, of course, progress and merits the praise that research should always bring; but is it advisable at the present juncture?

The writer's opinion inclines towards "use with safeguards" i.e., operation solely within the operator's Band Plan Zone, plus the usual rule of careful examination of activity on or near the frequency before switching on. If this has got you talking (or preferably, writing) some solution can be hammered out.

## 1250 Mc/s

We were interested to see an ingeniously contrived 24 cm oscillator with associated monitor on the v.h.f./u.h.f. stand at the R.S.G.B. Amateur Radio Exhibition. The monitor was mounted on the lid of a coffee tin, with a 0-1 milliammeter fitted in the base. Many visitors to the Exhibition no doubt observed its constructor, PAOKC, making tests round the hall with this equipment.

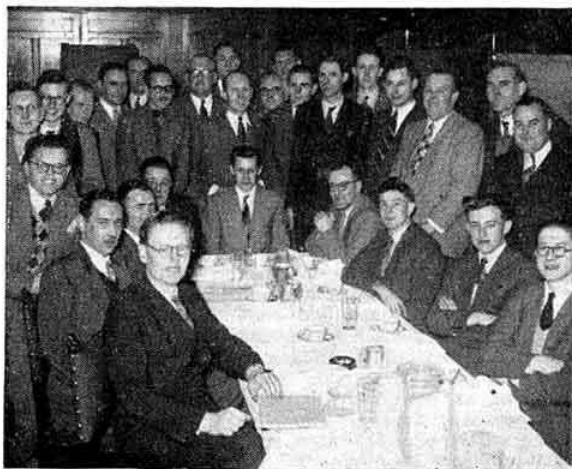
G5YH (Chiswick) has built an aerial for use in 1250 Mc/s tests with G5DT (Wallington). This is a fat unipole (it looks like a humming-top) over a ground plane and is arranged for broad-band working over the range 1200-5000 Mc/s. It is hoped the tests will be successful, and further news of them is awaited with much interest. '5YH says the "plumbing" necessary to construct gear for these frequencies is by no means as difficult as at first appears. Once this is widely known there should be many people getting down to work. All very necessary, as one cannot make progress without collaborators! G5YH is also active on 144 Mc/s.

With regard to the reported 1250 Mc/s record of 200 km between OK1KRC and OK1KAX we have approached the Czech Society, C.A.V., for full details but no further news has yet been received.

## Two Metre Openings

We have been able to glean some further news on the Continental 2 m opening which occurred on December 3. This has been called the "best for 18 months" and certainly stood out in a generally poor year. G6NB (Brill, Bucks.) worked 23 continentals, including 3 DLs, 2 ON4s, 2 PAOs and 16 Fs, all signals being S9 or better! The good conditions appeared to extend from Southern England to the East; no signals were heard from OZ or SM. Compared with a similar opening a year ago '6NB says this one was not quite so good, as Scandinavia and Scotland produced good signals then. G3FAN (Ryde, I.O.W.) did not work many stations, but those he did contact were very strong. ON4BZ was exceptional all the evening. B.R.S.6327 (Earlsfield) also heard most of the continentals already mentioned. G3FYY (Cricklewood) worked DL3NQ (Weinheim) and ON4BZ (Brussels) for first QSOs.

ON4BZ appeared suddenly on 2 m during the late evening of December 16 and immediately proceeded to work Gs. His signal was not so strong as on the 3rd, but his phone was easily readable at G2AIW. He stated that conditions were better towards the East than to the West. He could hear DL3VJ at S9++ while G signals were S7 to 9 according to location. His own strength also varied within those readings. Stations worked included G3BII (Beaconsfield), G5KW/P, G3IJB (Burnham-on-Crouch) G3D1V (Eastbourne) and G2AIW. Guy stated he was using 60W phone and 125W c.w. and that the weather in Brussels was freezing and very foggy. In London, the weather was damp and mild, with the barometer just below the previous night's high level. G8KW (Wilmington) worked PA0HAK and G6XX



During the R.S.G.B. Amateur Radio Exhibition in November, the London U.H.F. Group held a dinner in the Royal Hotel. This picture shows some of the well-known v.h.f. and u.h.f. enthusiasts who attended.

(Photo by G3IIR)

\*21 Bridge Way, Whitton, Twickenham, Middlesex.

(Goole), but in spite of the conditions there did not appear to be many other stations on.

During the evening of December 18 the band was wide open to the South Coast and South. G3AGA (Penryn, Cornwall) gave welcome QSOs to many stations, among them G4AJ, '3FYY, '5MA and '6TA. '3AGA is also reported to have worked DL3NQ. Several French stations were worked by Gs and F8GH was heard working DL3NQ. G3BII (Beaconsfield) heard G3AGA at 589 off the back of his beam.

#### Station Reports—2 m

G2AHP (Perivale) has now had 500 QSOs on 2. G8VN (Rugby) has been worked after many unsuccessful attempts as has G3BJQ, also in Rugby. '2AHP asks what has happened to G8IL (Salisbury)? It is a pleasure to hear and work such regulars as G5YV, G3IOO, G2YB, G3FAN and G3GHO. These stations really help to keep the band alive.

G5CP (Chesterfield) has had two QSOs with PEIPL (The Hague) conditions each time being extremely poor; no other continentals were audible on either occasion. The regular schedule with G5MA (Ashted) has been maintained with surprisingly good results. On the rare occasions when QSOs have not resulted '5MA has been heard. The crystal cascade converter at '5CP is the best yet used there. Seven contacts with G3IWI (Liverpool) over the hills (first contact with Liverpool) and several others with G3IUD (Wilmslow), also over a difficult path, are signs that mountains cannot always stop the zealous searcher. A new transmitter, using a pair of 4-65As, should be in operation by now and more reliable QSOs should result. '5CP is willing to arrange skeys at the following times: 0800-0845, 1230-1330, 1715-2300 G.M.T. and would like to hear from those interested.

GM3BDA (North Berwick) in a very informative letter mentions the 2 m station at the Edinburgh Hobbies and Handicrafts Exhibition. Particular interest was shown in a 2 m "handie-talkie" constructed by the late GM6LS, whose sudden death has shocked and saddened all of us. Crossband QSOs with GM3BBW (80-2) and GM3IGY (Inverkeithing, 20-2) were a popular feature of the proceedings. The 2 m station, although poorly located for any except local QSOs was, nevertheless, heard in Glasgow at S4. '3BDA says that operating conditions (speaking from bitter experience) could not have been worse! However, the sum of £2000 was raised for charity and we are sure the local amateurs were glad to have helped in this praiseworthy effort.

B.R.S.19162 (Dewsbury) is rather depressed by what has been for him an almost empty month, although he has put in an hour or so every evening since November 28. B.R.S. 6327 (Earlsfield) who mentions continental stations (F8LO, F9CQ and ON4ZK) logged during the "opening" of December 3 also heard signals ranging from the Midlands and North West (e.g., G3DO, '8VN, '3ENY, '3FMI) to the Isle of Wight (G5TZ). Nearly all the well-known stations in between these extremes were also heard.

G3HHY (Solihull) worked F8OB and G3GNJ (Bristol) on December 18 and heard G3FIH (Bath); F8GH was heard working DL3NQ. All signals were at good strength on the new 5 over 5 stack 60ft above ground. '3HHY has built a new high power p.a. Over a hundred 2 m QSOs have now been made from Solihull.

G5KW (East Acton and /M almost anywhere else in the South), was busy again in the latest openings, both from fixed and mobile positions. On December 18, G6XM (York) was heard whilst mobile and later F8GH (Beauvais) was worked. Several Gs, including G3HHY, GW8UH and '8SU were heard very strongly. F3JN was worked by G5KW and GW8SU, being S9 for a long period. F8GH was heard working DL3NQ. In the early evening the band was open from East to West, but not so well as earlier in the month. G3GNJ (Bristol) and G3FIH (Bath) were both

excellent signals, and G5KW/M was reported heard by G3AGA. '5KW has had a further share in the continental activities. On December 19 at about 2110 G.M.T. he worked F3LP and F3JN (Paris) with strong signals both ways, and later F8GH (Beauvais) at 579. On the night of December 20-21 G2AIW had an interesting QSO with G5KW/M between Abingdon and East Acton, with contact maintained all the way with the exception of a short period when G5KW/M worked G5MA. This QRP equipment is excellent and as has been shown, works the DX too! Some credit must go to the 4-element Yagi mounted just above the Jaguar XK120.

G2XV (Cambridge) worked G3IOO (Oswestry) at good strength and ON4BZ at S9 phone both ways on December 3. A number of PAOs were also heard.

G6NB (Brill, Bucks) had many QSOs on December 18. His best were with F9LL (near La Rochelle), F8XT (near Bordeaux), G3AGA (Penryn) and G3ENY (Bridgnorth). DL3NQ was heard, but otherwise nothing from the East. F8OB was so strong that he was blocking G6NB's receiver and was covering 5 degrees of the HRO dial! He was much louder than any local. On December 19 there was another opening to France, F3LP and '3JN (Paris) being worked at S8.

G2CZS (Chelmsford) says that conditions on December 3 were the best observed for some time. Activity on that evening started with a QSO with G2YB (Reading) and a little later a call to the South-West brought a reply from F3LP (Le Havre). Turning the beam south improved the signals by about an S point to S9. Later F8LO and '8OL (both near Paris) were worked on c.w. and ON4BZ (a "terrific" signal) on phone. DL3NQ (Weinheim) was heard but not worked. The remarkable feature of this opening was the apparent loss of directivity of '2CZS's beam. At one time G6CW (Nottingham) was a very powerful signal off the back, with other Gs in all directions coming in at good strength. December 16 was another good evening and G5KW and '2YB were both worked, but activity was low. ON4BZ was heard at S7.

G6XX (Howden, Goole) recently worked G3GNJ (Bristol) and G8KW (Wilmington) at above average phone strength. G3GNJ told '6XX that ON4BZ was S8 in Bristol at 2230 on December 3. G3DA (Liverpool) was worked at S8 both ways on December 15.

G3WW (Wimblington, Cambs.) has had somewhat better luck since fitting G8RY's version of the QST high level speech clipper (with some modifications) and worked many stations on December 17. Among them were G3IEH, '2CZS, '5DT (first QSO), '3BTC (first on 2 m), '8KW, '2AIW, '8RW (first QSO), '2NM (first QSO) and '3CGQ (who was using an indoor Yagi). G3FAN (Ryde) was a good signal on November 20 using his latest version of the '2HCG slots aerial which is similar to the stack of 3 which carried G3GWB/P to victory in the R.S.G.B. Second Two Metre Field Day, 1954. November 21 was another good day, among the stations worked being G2AHL, '5TP, '5ML, '5JU, '2HCG (using another new slot aerial) and '2XV. On December 3, '3WW heard '2ATK calling F8HL and F8LP (RS57) calling G3HXS. Contacts were made with ON4NZ (S9+), DL3NQ and PAOFB. Conditions were poor again on December 4 and from the east only G2DJM and '3DOV (Norfolk) could be raised. G3CVO has been worked from his new QTH in Chelmsford and also G6TA who has a new 4-over-4 aerial.

G5MR (Hythe, Kent) added two new countries to his Ladder score by working DL3NQ and ON4BZ in the now famous opening. '5MR doesn't consider this at all remarkable as he says the DL was working Gs all over the place as well as GW. Another station worked for the first time that evening was F8HL (Baray, Nord) near the Belgian border. Many Paris stations were very powerful signals, some at



S8 on the side of '5MR's slots! ON4BZ was again worked at S9 on December 16, but apart from this, hardly any activity was noticed.

**GW8UH** (Cardiff) reports that the stations active there are **GW3EJM**, '5BI and '8UH. The general condition of the band has been poor, no signals being heard from over 100 miles. A very sad tale arises from the opening of December 3. The three above-mentioned operators went out for the evening together, and having discussed radio all that time, decided that they would not go on the air. Accordingly, '5BI and '8UH went to bed without checking the band, but '3EJM weakened, and as a result had the pleasure of working **PA0FB**, **ON4PA** and **DL3NQ** for his first continentals. **GW8UH** doesn't mention his or '5BI's reaction to this unfortunate occurrence! On December 18 '3EJM heard **ON4BZ** calling **E12W**, but '8UH could hear nothing. However, on December 18 '8UH was the only Cardiff station on, and redressed the balance somewhat by working **F3JN** and **F8OB**, both near Paris. At the time London signals were very scarce and weak. **G3FYY** (Cricklewood) was heard at S3/4 and **G5MA** (Ashted) worked. No others were heard. The two French stations, however, were audible all this time.

**G2AHL** (Guildford) heard **GW8UH**, **G3FIH** and '3AGA on the back of his beam on December 18. '2AHL has now raised **G3GHO** a couple of times, and on December 20 heard **G6XX** (Goole), but not very strongly. **G8PX** (Oxford) was unlucky in the opening, missing both **ON4BZ** and **DL3FN**. '8PX is building an 829B p.a. and is also contemplating a new rig for portable work next summer. **G8VN** (Rugby), with his indoor beam, worked **ON4BZ** for the first time, on December 3. '8VN was **RS58** and the Belgian **S9+**. '8VN was also receiving many G stations. Apart from this, Midlands activity appears to have been very low, although **G6PO** (Coventry) has appeared on 2 and **G3DFS** (Sutton Coldfield) will be on soon.

The absence of **G5YV** (Leeds) from the band has been widely noticed. The sad reason is that his very efficient beam was badly damaged in the recent gales. The 70 cm beam collapsed on to the 2 m array and so far Harold has been unable to repair them. A new transmitter for 70 cm is being built, a new converter is almost finished and a QRO final for 2 m is taking shape. '5YV is now back on the band, putting out a good signal from a temporary Yagi.

**G3FIH** (Bath) had a poor month until December 18 when he worked **G6TA**, '2ADZ, '3ISA, '2IT, '3JFR, '5MA, '4AJ, '3JHM and best of all, **F3JN** (near Paris). **F8OB** was heard at S8 on 'phone. Although the opening was east and south-east from Bath, no **DL**, **PA**, or **ON** signals were heard. **G3JGJ** (Plympton) also suffered in the gales, but has succeeded in getting a folded dipole about 8ft above his roof on which he heard **G6NB** and '3FIH on December 18. **G2ADZ** was heard on December 19 and called without success. '3JGJ reports that '2BAT lost his 12-element stack in the same gale. These and similar happenings throw some light on the apparent inactivity during recent openings.

**B.R.S.19162** (Dewsbury) reports that conditions in his area were very poor on the evening of December 3. This seems to confirm that there was only a rather narrow east-west duct along a line across Southern England.

**G2ADZ** (Woolacombe) reports no signals lately from the North (his best direction) and only 3 QSOs—**G4SA**, '6NB and '3FIH—apart from the local GWs. **F8NU** (Cholet) is the best DX so far heard—he was working **G5MR** at the time. '2ADZ's aerial is 610ft high, and to the North the path is completely clear, so he doesn't understand the scarcity of signals from that direction and thinks possibly it is because stations are not on during TV. '2ADZ asks that beams should be turned towards Woolacombe and South Wales, between 1900–2000 as **GW8SU** and '2ACW are also looking for QSOs. **E14E** calls **G2ADZ** on sked every

Saturday and Sunday 1850–1855 and the call is returned 1855–1900. The Irish station is usually heard at 250 miles. Listener reports, especially from London area, would be welcomed by **G2ADZ**, who is on 144.3 Mc/s.

**G6XM** (York) who is normally a very consistent signal on 2 m has heard very little lately and puts this down to lack of activity. He thought he had receiver trouble, but then heard **G3FAN** (Ryde, I.O.W.) out of the blue at S8! '6XM has worked **PE1PL** after **G5YV** at 1300 and after '6LI at 0815. He is away a lot and cannot operate frequently, but is on every Sunday morning at 0800 with '5CP and looks for other QSOs afterwards.

Conditions on December 29 were again good for **G-DX**, but only a few continentals were reported heard or worked. Since then, conditions have been fair to poor for **G-DX**.

**G5KW/P** has been at it again. **F3JN** was worked at 449 rising to 599 on December 26; on December 27 there was an opening to the continent lasting from 1850 in and out to 2230, during which time **ON4TW** (Ghent) **F3JN**, **F8NW**, **F8AA** (Boulogne) and **F8OL** (Paris) were worked at strengths rising to 59+. All the above were worked from Wrotham Hill.

## 70 Centimetres

Monday night is 70 cm activity night for the North London area. **G5UM** (near Knebworth, Herts) informs us that those who are equipped for 70 cm usually "dive down" from 2 m so that it is generally possible to hear some activity from the Northern suburban area from about 2015 onwards. '5UM makes the point that 70 cm is generally more affected by local screening than is 2 m. For instance, **G2XV** (Cambridge) and **G3JQN/A** (Sanderstead) are roughly equidistant from Knebworth, north and south respectively, but are usually S9 phone signals over good clear paths. Against this, stations in N.W. London, sometimes using much more power, are less potent signals owing to the radio shadow of the hills in between. More information on this subject would be of much value.

**G2XV** (Cambridge) says that activity on 70 cm seems to have reached a new low. However, stations in London are still heard talking to each other, but they never seem to look for anybody else! It would be a great help if they signed on c.w. '2XV is able to go on 70 cm at any time without delay, and would welcome an opportunity to contact anybody in Kent, Suffolk, Norfolk, Lincs., Herts., Wilts., Bucks. or Hunts.; all of which, although "local" counties, usually appear devoid of 70 cm activity. **G2DDD** (Littlehampton) has maintained his sked with **G3HBW** (Wembley), often on phone. '2DDD, with '3JHM (Worthing) and '2DSP (Bognor Regis), is still looking for skeds from stations between Eastbourne and Bournemouth. All three would appreciate more activity on the South Coast.

## News from Scotland—70 cm

**GM6WL** (Glasgow) reports on Scottish activity and tells us that **GM3INK** (Glasgow) and **GM3NG** (Carlisle) have been making good progress over a 20 mile path. **GM3FOW** (Glasgow), '6KH (Hamilton) and '3GAB (Rutherglen), all old-timers on 70 cm, have made a welcome return to the band. **GM2CHN** has heard three of the local stations on a P58 receiver, and hopes to do better later with more up-to-date equipment. **GM6VZ**, at present busy with a 2 m receiver, will be back on 70 cm soon, complete with **QV03-20** transmitter.

**GM3EGW** (Dunfermline) who is by way of being a 2 m "ace" has somewhat deserted that band to play with a 70 cm **G3BKQ**-type converter which promises well, as he can hear **GM3DDE**'s (Edinburgh) harmonic; it should not be long before there are QSOs across the Forth on 70 cm. It is very helpful for any station starting up on 70 cm to have



an established station reasonably near to assist in lining up the gear to the high state of perfection needed to get across the more difficult paths.

GM4HX (Paisley) has been on listening watch once or twice, but is awaiting an 832 to get his tripler back into service. GM6WL says this is a bit different from the London area, but with eight stations already going strong, Glasgow and District is catching up!

#### London Area Activity Report

The usual helpful list of 70 cm stations from G2RD (Wallington) for the period November 17 to December 19 is as follows: G2AIH (434.25), 2DD (434.79), 2DDD (435.66), 2FKZ (435.95), 2HDJ (434.52), 2HDY (435.5), 2RD (435.53), 2WJ (436.0), 2WS (434.37), 2XV (435.1 approx.), G3FD (434.6), 3FSD (435.42), 3FP (434.98), 3HBW (434.61), 3IRW (434.4), 3JQN (435 approx.), 3MI (434.13), G4KD (435.95), G5DT (434.9), 5KH (435.2 approx.), 5UM (434.37).

There does not appear to have been any special activity on 70 cm at the time of the 2 m openings. If anyone has particulars of exceptional QSOs at any time, please let us know.

#### London U.H.F. Group Dinner

Council Member W. H. Allen, M.B.E. (G2UJ), was the Guest of Honour at the London U.H.F. Group's Annual Dinner, attended by 32 u.h.f. enthusiasts, at the Bedford Corner Hotel, London, W.C.1, on January 6, 1955.

The Chairman, Phil Thorogood (G4KD), congratulated G2UJ on being re-elected to Council and Ralph Royle G2WJ on winning, with his son Jeremy, the Wortley-Talbot Trophy for outstanding work in Amateur Television. The after dinner discussion was principally devoted to a discussion of plans for the First International V.H.F./U.H.F. Convention to be held in London on May 7, 1955. Short talks were given by G3FP (420 Mc/s signal generator), G5CD (u.h.f. grid dip oscillator) and G8SK and G3EOH (all 6J6 420 Mc/s transmitter). G2DD showed his miniature 420 Mc/s and partly-built 1250 Mc/s transmitters.

★ ★ ★ ★ ★

About 30 members and friends attended the dinner arranged at the Royal Hotel by Phil Thorogood (G4KD) for v.h.f./u.h.f. operators, on the last day of the Exhibition. Some enjoyable personal QSOs resulted.

Much damage was done by the terrific gales during November and December and our sympathy goes out to all those who lost their aërials. It is hoped they are fully restored by now.

Many thanks to all those who sent Seasonal Greetings, which were greatly appreciated.

Please send reports for the February issue to arrive not later than January 21. The post will no doubt be back to normal by then!

#### International V.H.F. Society

PHIL THOROGOOD (G4KD) has been elected President of the International V.H.F. Society for 1955 and the General Secretary of R.S.G.B. (John Clarricoats, G6CL) an Honorary Life Member.

The Irish Perpetual V.H.F. Trophy has been awarded to J. W. Kyle (GM6WL) in recognition of his outstanding services to v.h.f. work in Scotland. The Trophy will be presented to Mr. Kyle at a dinner to be held in Scotland this spring.

During 1955 the Society is to hold V.H.F. Meetings in Belfast, Dublin and London.

#### Presentation of Scottish N.F.D. Trophy

AT a function held in the Westbourne Hotel, Aberdeen, on December 11, 1954, the Scottish N.F.D. Trophy was presented by Mr. David Macadie (GM6MD), R.R. for Region 14, to the T.R. of the Aberdeen Group, top scorers in Scotland in the 1954 N.F.D. Mr. Macadie congratulated the Aberdeen Group on this, their first N.F.D. success and paid tribute to the Falkirk Group for donating the Trophy. The T.R. (Mr. George Jamieson, GM3HTL) in accepting the Trophy, spoke of the fine team spirit which prevailed in the group and of the friendly co-operation shown by all who participated in the event.

Mr. E. G. (Ted) Ingram (GM6IZ) in a toast to the visitors thanked the six Glasgow members for their presence and remarked that it was gratifying to see the interest taken in the success of the Aberdeen Group by the Group which they had defeated. Replying, Mr. J. Sey (GM8MJ) commented that as Glasgow could not win the Trophy there was no-one he was better pleased to see as winners than the Aberdeen Group.

The visitors from Glasgow were GM6MD, 8MJ, 3JJN, 3CSM, and two B.R.S. members. Chairman for the evening was Mr. B. McK. Davidson (GM3ALZ), C.R. for Aberdeen, Banff and Kincardine, who, in a brief speech, paid tribute to Mr. John Douglas (GM2CAS) for the part played in this, his last N.F.D. in this country. Mr. Douglas is now resident in Turkey where, it is hoped, he will eventually read this and know that he has not been forgotten by his old friends in Aberdeen and the North.

B.McK.D.

#### Blind Amateurs—Generous Offer by AVO

THE Automatic Coil Winder and Electrical Equipment Co., Ltd., Avocet House, 92-96 Vauxhall Bridge Road, London, S.W.1, are considering the possibility of issuing free QSL cards to blind licensed radio amateurs resident in the United Kingdom.

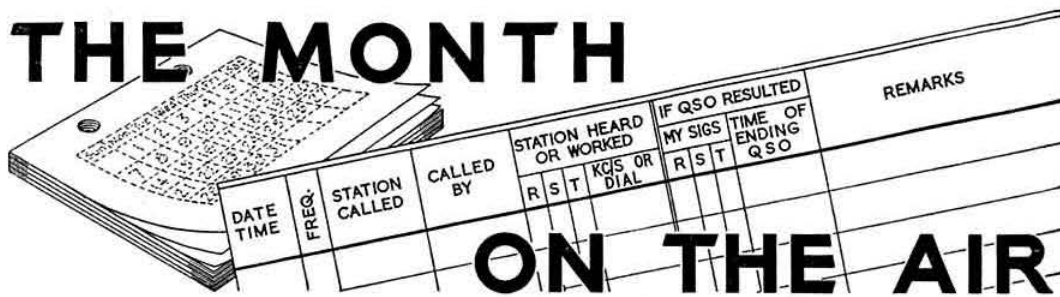
Applications for such cards should reach Mr. R. E. Hill at the above address by not later than February 1, 1955.

The Automatic Coil Winder and Electrical Equipment Co., Ltd., are now completely tooled up to produce the specially adapted Model 7 Avometer which has been designed for the use of the blind. Production is expected to commence shortly.



The specially adapted Avometer which has been designed for the use of blind amateurs and service men.

# THE MONTH



By S. A. HERBERT (G3ATU)\*

THIS month, Top Band topics outnumber reports of DX on the h.f. bands, at least from a domestic viewpoint (if U.K. reports can be called domestic!), but there is also some interesting Overseas correspondence . . . so to business.

## Overseas News

A new station has taken the air from Gibraltar, to wit **ZB2O** (G3IGO) who is active on 14,080 kc/s, running 12 watts only until more volts become available. He is located 400 ft a.s.l. with a clear "take-off" in all directions except for low-angle radiation towards the North. Cards are on order and '2O will QSL 100 per cent. **VP5LE**, recently licensed in Jamaica, worked as **MD1A** and **MO1A** in Cyrenaica from 1948 to 50. Since then, he has been constantly on the move, but he expects to remain in **VP5** for some years. He is active on 7 and 14 Mc/s. **G3IUU** writes from Khartoum, where he has formed an R.A.F. Amateur Radio Club. The Club station, **ST2AM**, is active once more and if the signals emanating therefrom are anything like as good as they were on 28 Mc/s a year or two ago, they'll be plenty strong. **VS1GN** (1925864 S. A. C. Stone, Singapore Signals Centre, R.A.F. Changi, Singapore, 17) is on 7, 14, 21 and 28 Mc/s, running 25 watts c.w. and d.s.b. phone. He was **G3JFC** in England. **ZB1CH** continues to radiate a good signal, despite restricted roof-space. He suspects that his dipole is really part of a multi-element array, thanks to numerous neighbouring wire clothes-lines of convenient length!

**G3JKV** (R. A. F. Dishforth) is the call of Wally Blanchard, ex-**VS1EV**. Wally recently re-visited the Far East where he met some of his old friends, including **VS1FK**, who still operates regularly on 14 and 21 Mc/s phone, beaming towards the U.K. Other active stations in that part of the world include **VS1FS** (phone), 'IFE (c.w. and phone), 'IYN and 'IBQ (both on c.w.). **XW8AA** is once again on 14 Mc/s phone whilst **VS4HK** (Sarawak), **ZC5VR** and **ZC5SF** (Br. North Borneo) keep going on 14 c.w. and phone. Wally himself is trying Top Band; see later remarks. **ZC4FB** is ready to leave Cyprus for the U.K., where, he says, "I shall be just another G-SWL for a while." Ted opines that **DXCC** is not as easy out there as some people think. He did well to work 64 countries. He has QSL'd 100 per cent but should anyone be missing a card, a note—with relevant details—to E. Ross, c/o **G3ATU** will bring a replacement.

**Ullmar Kviak** (Kristinehamn, Sweden) passes along details of several active Siberian stations. In Zone 18 are **UA0KSB**, 'SC, 'SJ, 'SK (all in Irkutsk), 'UA and 'KUA (Chita), 'OA and 'KOA (Ulan-Ude), 'AG, 'KAD (Krasnojarsk). In Zone 19, 'KKB (Vladivostok), 'FL, 'FJ and 'FR (Kamchatka) are around and there are stations working from Sakhalin. Ullmar mentions **UB5KAD** QSOing and QSLing all and sundry via Box 52, Odessa. There are fur-

ther comments on the U.S.S.R. situation later in these notes.

From the fruitful pages of the West Gulf DX Club's *DX Bulletin*, we abstract the following DX morsels. **4S7KH** says that he and **CR8AB** are on 14 Mc/s between 1200 and 1530, looking for U.S. contacts. **ZC5AC** is on 14,156-14,163 phone, midday. **FG7XB** is a new one on 7 Mc/s c.w. **QTH** is Antoine Noel, 44 Chemin des Petites, Pointe Pitre, Guadeloupe, F.W.I. **VQ8AR** sends word that he is on phone daily, 1700-1800, usually 14,107 kc/s. **W6RW** says **VR3A** will be on Fanning Is for one more year. **F9RS** reports **FB8BK** active from Tromelin on c.w. and phone-November 15 to 25. He is now back in Madagascar, but will be replaced by another amateur. DX men will rejoice to know that **FB8AX** will be on the air again, as a French Expedition is to visit Adeline Land from 1955 to 1959. **VK6MK** hears **ZC3AC** frequently on 14,163 A3. He is a commercial operator and will be on Xmas Is for several years (so it looks as if the expected replacement has arrived). **VK1HM**, back in Perth, left his rig on Cocos, where it will be used by a meteorological officer when his license is forthcoming. **VK6MK** can help with missing **VK1HM** QSLs on receipt of exact QSO details. He finds **VS4HK** on crystal frequencies 14,030, '100 and '200 kc/s and expects Des to be in Brunei (**VS5HK**) in January. **ZS1SW** advises that **ZS2MI** (Marion Is) resumed operation w.e.f. November 27 and is mostly on 14,150 phone.

**W8LMO** has received the call-sign **VP5AE** for operation on Grand Turks Is. He will be active for several months. QSL to **W8LMO**. There follows a list of **VP8** locations

## Contests Diary

1955

|                 |                               |
|-----------------|-------------------------------|
| January 15-16   | - Top Band (No. 1)            |
| January 29-30   | - B.E.R.U. †                  |
| February 11-13  | - A.R.R.L. DX Contest (Phone) |
| February 12-13  | - Affiliated Societies        |
| February 25-27  | - A.R.R.L. DX Contest (c.w.)  |
| March 11-13     | - A.R.R.L. DX Contest (Phone) |
| March 25-27     | - A.R.R.L. DX Contest (c.w.)  |
| May 1           | - Two Metre Field Day (No. 1) |
| May 21-22       | - 420 Mc/s Contest (No. 1)    |
| June 4-5        | - N.F.D.                      |
| July 2-3        | - Two Metre Open              |
| August 7        | - Two Metre Field Day (No. 2) |
| September 4     | - Low Power Field Day         |
| September 10-11 | - 420 Mc/s Contest (No. 2)    |
| September 24-25 | - 420 Mc/s Contest (No. 2)    |
| October 1-2     | - Low Power                   |
| November 12-13  | - Top Band (No. 2)            |

† For Rules, see page 140, R.S.G.B. Bulletin, September, 1954.

\* Roker House, St. George's Terrace, Roker, Sunderland.

sent to W9HUZ by VP8AA: '8AA, '8AZ, and 8BE are in Graham Land; the others are VP8AO (South Shetlands); VP8BA (Hope Bay, Base "D"); VP8AX (Admiralty Bay, Base "G"); VP8AD (Argentine Is, Base "F"); VP8BC (Falkland Is).

There is still no activity on South Georgia or on South Sandwich Is.

The equally DX-worthy pages of the Northern California DX Club's *DX'er* provide apt information. The many sceptics of VQ6LQ can now throw their fears out of the window. W6DZZ recently received two cards—one for a VQ6LQ QSO and one from ZD1LQ. An accompanying letter reveals previous activity from Y12BT, VU2NH, VU2DX, G3LQ and EL2LQ. '6LQ is now in the U.K., but will be back in British Somaliland next March. As to all those missing ZD1LQ cards—they were entrusted to a friend for onward transmission and were apparently ditched somewhere. VE3ABP has it that VQ4NZK was putting VQ0 (where in the world?) on the air during December and that ITAP has operated from the Aegean island of Grado (I4TAP?). Tom Gabbert (T12TG) is in California for two years and has received the call K6INI for use during his stay. JAICR hears that about 10 licenses have been granted to Formosan nationals, apparently for 7 Mc/s A1 and A3 only. Two JAs are with LUOMA in Nepal!

**Indonesia.** The *DX'er* publishes extracts from a letter from Arie Bles, well remembered as PK4DA. The position in Indonesia is that no amateur operation is permitted. The authorities may consider allowing operation by nationals at such time as their own internal troubles are over, but that may very well be a long time ahead and may never come about. They will certainly never allow foreigners to operate. Arie's gear is partly confiscated and his listening nowadays is confined to the broadcast bands.

### Top Band DX and Doings

Conditions for real DX have been well up to expectations and activity on the band seems even higher than last year. Numbers of Ws are there to be worked any morning when conditions are right, while week-ends produce a positive spate of activity on both sides of the Atlantic, with DX



VQ4FB is operated by Fred Ward (ex-G3CAT and VU2AT) from a site 5000 ft. a.s.l. at Meru, Kenya. The transmitter is a B2 and the receiver an HRO. A 67 ft. "V51AA" aerial is used on all bands from 3.5 to 28 Mc/s. Listener reports (which are welcomed) and QSL cards may be sent to Box 1313, Nairobi (the QSL Bureau) or direct to the Signals Officer, Kenya Police Div. H.Q., Meru, Kenya.

workable from the early hours until broad daylight. Indeed, trans-Atlantic signals are often audible until 0830 and later. Numerous Ws by no means complete the picture, however; rarer countries are using the band, as is related below.

ZC4GF remains active and has probably worked the U.K. by now, although at the time of writing he was hearing Gs but had not made contact. However, he worked SU1XZ, who will most assuredly cause a first-rate pile-up should his signals penetrate into Europe. '4GF thinks the SU may not be active for more than another week or so. ZC4RX, '4JA and '4XA are on already, with '4PB due to appear and '4MW showing interest; a healthy state of affairs, in fact!

G2BB (Yateley) worked VO3X on 3.5 Mc/s and was asked to spread the news that the VO is regularly to be found on 1816 kc/s, looking for U.K. QSOs. He suggests 0730 as a good time. G3ERN (Harwell) reports that he and G3JVI enjoyed a one hour QSO with a W4/V06. In addition, '3ERN heard LU3EL calling W3EIS. The experiences of G3JOJ (Camelford) should hearten those whose aerial space is limited. '3JOJ runs eight watts to only 50 ft of wire, with an aerial coupling coil wound on the only available former—a "Vim" container! W2EQS and W3RGQ were successfully contacted, with OH and HB9 for good measure.

**B.R.S.20106** (Petts Wood) spent several profitable mornings on the band and accumulated a useful list, comprising numerous Ws and some rarer calls. On December 10, W1, 2, 3, 4, W8ANO, W8KIA, W8GDQ, W9MKO, W9PNE and W9NH were logged, as were KP4KD, KP4CC and KV4AA, plus a Y...5..., later positively identified as YV5DE (0630-0648). On subsequent occasions, he logged W8NSF/9, W9EGN, W0NWX, many other Ws and heard W4ZQ calling LU3EP. A QSL from W8GDQ reveals that a report from Asia would confirm that his signals had been heard in all continents. Norman passes the news that John Hall (Beckenham), collected OD5LX, who was working ZC4s around 0500. G3JKV finds his interest in h.f. bands DX has waned since his VSI days, but he has room at his present QTH for large aeriels and has hopes of a Top Band ZL yet. He is hearing medium waveband S. Americans quite well, which shows the efficiency of the aerial system. G6PV (Coventry), who was G5LT of Sheffield in 1928, is active once more, using spot frequencies of 1895.5 and 1836.7 kc/s. He is also v.f.o. and operates additionally on 3.5 and 7 Mc/s.

In Sweden, Ullmar Kvick heard G6VC, GM3JDR, GM3EFS, G3JWZ and G3ATU and now has 9 countries, 31 counties confirmed on the band. G3ATU is experimenting with a bent half-wave and an even more bent 440 ft. wire, on which a few Ws have been worked. KP4KD was still audible one morning at 0815, working W4ZQ and calling YV5DE, but the month's big surprise came on Christmas Day at 1830, when UA2AC was RST579 on 1760 kc/s, calling "WSEM." Shortly afterwards, UB5KAM appeared (RST43-59) and worked an OK3. It would appear that the Russians are not permitted to operate above 1800 kc/s, hence the scarcity of signals heard from that area.

### Twenty Metres

**B.R.S.18017** (Warwick) had a successful month, thanks to VQ6LQ, VK1AC and VK1EG (three new ones), VQ8AN (1405), FQ8AX, CR7MB, EL5B, ZS7D and ZS8D, all c.w. Phone produced VKs, F9QV/FC and MP4BBL. A1291 (Ashted) pulled in some good ones on phone—15MI, YN5BB, FM7WN, VQ6LQ, ZM6AP and VS5KU being particularly worthy of mention, plus FI8AP and VP8AA on the key. Roy Patrick (Oldham), U.K. representative for the "Radioklubben Universal," hears via the Club that DL1QP is testing a 4-element rotary and would welcome detailed reports. Interesting news also is of the new 350 watt transmitter used by the Aden Forces B.C.

station, which was built with the help of VS9AS for £35! On c.w., B.R.S.20106 heard FK8AC (0740) and a possible FK8AZ, KR6OO, VK1AC (1600), FB8BR (1615), ET3S, CO8AQ, ZS7C, ZS8D, ZA1BB and masses of VK, ZL, JA, etc. On phone, VK3AEE was heard using s.s.b. G3ATU heard a rotation of Ws trying to attract the attention of ZA1BB—and privately thought it rather a waste of kilowatts. He listened to UB5KBE energetically calling Ws and requesting QSLs direct to Box 74, Odessa. (Later, on 7 Mc/s, UA3FU was working PAOs, so apparently the list is being extended).

#### Fifteen Metres

Activity remains spasmodic, with occasional bursts, although quite often WWV is a strong signal on 20 Mc/s without a trace of activity on 21 Mc/s. A1291 logged KP4, KV4, HK4AM, HC1FS and VK3ATN, '5JW and '6BS on phone, with FY7YC on c.w. B.R.S.20106 suggests that XE2RE (mentioned by A1291) may be HC2RE, who is regularly on the band. Norman hears VK, ZS and W phones in quantity.

#### Forty and Eighty Metres

Quality, rather than quantity is the thing this month. Still with '20106, we have news of 3.5 Mc/s c.w. DX such as YV5BJ (0745), FG7XB (0440, week-ends), KN4AZP, WN0WU/4, VE3IG and assorted Us. 7 Mc/s c.w. produced ZLs, ZS1PD (0355), Y13ECU, ZS3X and HK1TH, while B.R.S.18017 heard 9S4CH and SM8CWC/MM on phone.

And that terminates the month's proceedings, except to thank all those who helped to write this column. May, 1955 be a bigger and better DX year for everyone. Good hunting and 73.

#### R.A.E.N.

The Radio Amateur Emergency Network feature will appear again in the February, 1955 issue.

### THE RSM CODE

#### READABILITY

- R1 Unreadable.
- R2 Barely readable, occasional words distinguishable.
- R3 Readable with considerable difficulty.
- R4 Readable with practically no difficulty.
- R5 Perfectly readable.

#### SIGNAL STRENGTH

- S1 Faint, signals barely perceptible.
- S2 Very weak signals.
- S3 Weak signals.
- S4 Fair signals.
- S5 Fairly good signals.
- S6 Good signals.
- S7 Moderately strong signals.
- S8 Strong signals.
- S9 Extremely strong signals.

#### MODULATION QUALITY

- M1 Unintelligible modulation.
- M2 Defective modulation due to spurious or parasitic oscillations, or to causes unknown.
- M3 Defective modulation due to frequency modulation of the carrier.
- M4 Defective modulation due to over modulation.
- M5 Good modulation, not exceeding 100 per cent.

## Slow Morse Practice Transmissions

Organiser: C. H. L. Edwards (G8TL)\*

| G.M.T.            | Call           | kc.s       | Town                     |
|-------------------|----------------|------------|--------------------------|
| <b>Sundays</b>    |                |            |                          |
| 09.00 ...         | G3GYV ...      | 1900 ...   | Whitley, near Warrington |
| 09.30 ...         | G3BKE ...      | 1900 ...   | Newcastle on Tyne        |
| 10.00 ...         | G6MH ...       | 1900 ...   | Southend-on-Sea          |
| 11.00 ...         | G2FXA ...      | 1900 ...   | Stockton-on-Tees         |
| 11.00 ...         | G3GZA ...      | 1837.5 ... | Bristol                  |
| 12.00 ...         | G3LP ...       | 1850 ...   | Cheltenham               |
| 12.00 ...         | G3JBU ...      | 1850 ...   | Northampton              |
| 12.00 ...         | G15UR ...      | 1860 ...   | Belfast                  |
| 14.00 ...         | G5AM ...       | 1900 ...   | Witnesham, Ipswich       |
| 21.00 ...         | G2FIX ...      | 1812 ...   | Nr. Salisbury            |
| 23.30 ...         | G13CFI ...     | 1900 ...   | Coleraine, N.I.          |
| <b>Mondays</b>    |                |            |                          |
| 19.00 ...         | G3NC ...       | 1825 ...   | Swindon                  |
| 19.00 ...         | G3JBU ...      | 1850 ...   | Northampton              |
| 19.15 ...         | G2FRX ...      | 1850 ...   | Plymouth                 |
| 21.00 ...         | G3BLN ...      | 1900 ...   | Bournemouth              |
| 21.00 ...         | G3FSM ...      | 1900 ...   | Brentwood                |
| 22.15 ...         | G2BRH ...      | 1900 ...   | Ilford                   |
| <b>Tuesdays</b>   |                |            |                          |
| 18.30 ...         | G2FXA ...      | 1900 ...   | Stockton-on-Tees         |
| 18.30 ...         | G3JMP ...      | 1875 ...   | Bristol                  |
| 20.30 ...         | G3GDZ ...      | 1905 ...   | Kingsbury, N.W.9         |
| 21.00 ...         | G3EFA ...      | 1855 ...   | Southport                |
| 21.30 ...         | G3DBP ...      | 1915 ...   | Nottingham               |
| 23.30 ...         | G13CFI ...     | 1900 ...   | Coleraine, N.I.          |
| <b>Wednesdays</b> |                |            |                          |
| 19.00 ...         | G3GZA ...      | 1837.5 ... | Bristol                  |
| 19.00 ...         | G3HUB/A ...    | 1902 ...   | Chelmsford               |
| 22.30 ...         | G3FBA ...      | 1910 ...   | Bath                     |
| 23.30 ...         | G13CFI ...     | 1900 ...   | Coleraine, N.I.          |
| <b>Thursdays</b>  |                |            |                          |
| 19.00 ...         | G3NC ...       | 1825 ...   | Swindon                  |
| 19.15 ...         | G2FRX ...      | 1850 ...   | Plymouth                 |
| 20.00† ...        | G2CPS ...      | 1910 ...   | Hull, Yorks.             |
| 20.00† ...        | G2CNX ...      |            |                          |
| 20.00† ...        | G3GWT ...      |            |                          |
| 20.30 ...         | G3JQM ...      | 1878 ...   | Barwick, Yeovil          |
| 22.30 ...         | G3ADZ ...      | 1940 ...   | Southsea                 |
| 23.00 ...         | G3LA ...       | 1915 ...   | Brentwood                |
| 23.30 ...         | G13CFI ...     | 1900 ...   | Coleraine, N.I.          |
| <b>Fridays</b>    |                |            |                          |
| 18.00 ...         | G3GEN ...      | 1900 ...   | Gloucester               |
| 19.00 ...         | G3BLN ...      | 1900 ...   | Bournemouth              |
| 20.00 ...         | G3IHH ...      | 1900 ...   | Wirral                   |
| 20.30 ...         | G3IMP ...      | 1920 ...   | Romford                  |
| <b>Saturdays</b>  |                |            |                          |
| 13.00 ...         | G2FXA ...      | 1900 ...   | Stockton-on-Tees         |
|                   | † Alternately. |            |                          |

Members using this service are requested to send listener reports to the stations concerned.

\* 28 Morgan Crescent, Theydon Bois, Epping, Essex.

#### Mr. Arthur Milne Bereaved.

MEMBERS will be sorry to learn that Mr. Arthur Milne, G2MI, has been bereaved by the loss of his brother (Stephen David) his sister-in-law and their two children, all of whom were killed in a motoring accident near Sydney, Australia on January 4, 1955. Mr. Stephen Milne was Chief Engineer of a well-known firm of constructional engineers. He had been in Australia for the past 27 years. Sympathies are extended to Mr. Milne and his family in their great loss.



## Bands Available

THE following is a summary of the bands in which amateur operation is permitted. The table also shows the maximum power input and types of emission allowed to holders of Amateur (Sound) Licences. It should be noted, however, that operation on frequencies below 420 Mc/s is restricted to A1 (c.w. telegraphy) during the first year. Holders of Amateur (Sound Mobile) Licences are permitted to operate under the same conditions.

| Frequency in Mc/s | Maximum d.c. input (Watts) | Types of Emission†              |
|-------------------|----------------------------|---------------------------------|
| 1.8-2.0           | 10                         | A1, A2, A3, A3a, F1, F2 and F3  |
| 3.5-3.635         | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 3.635-3.685       | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 3.685-3.8         | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 7.0-7.3           | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 14.0-14.35        | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 21.0-21.45        | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 28.0-30.0         | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 144.0-144.5       | 150                        | A1, A2, A3 and A3a              |
| 144.5-145.5       | 150                        | A1, A2, A3, A3a, F1, F2, and F3 |
| 145.5-146.0       | 150                        | A1, A2, A3 and A3a              |
| 420-460           | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 1215-1300         | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 2300-2450         | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 2350-2400         | 25 (mean) and 2.5 kW peak  | P1, P2d, P2e, P3d and P3e       |
| 5650-5850         | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 5700-5800         | 25 (mean) and 2.5 kW peak  | P1, P2d, P2e, P3d, and P3e      |
| 10000-10500       | 150                        | A1, A2, A3, A3a, F1, F2 and F3  |
| 10050-10450       | 25 (mean) and 2.5 kW peak  | P1, P2d, P2e, P2d and P3e       |

† As defined in International Radio Regulations (Atlantic City, 1947), Chapter II, Article 2. Types of emission were also set out in simplified form on page 252 of the December, 1952, issue of the R.S.G.B. BULLETIN.

## W.E.A. Certificate

THE Radio Society of East Africa has announced that the issue of the Worked East Africa (W.E.A.) Certificate has been suspended indefinitely and no further applications can be considered. Outstanding claims will be dealt with in due course. The Society hopes to issue a new certificate shortly.

## W.A.B.P. Diploma

THE Belgian Society, Union Belge des Amateurs, offers the Worked All Belgian Provinces Diploma to members of I.A.R.U. National Societies who provide proof of contact (by means of QSL cards) with amateur stations on two bands in each of the nine Belgian provinces since January 1, 1949. Claims should be sent to the Traffic Manager, U.B.A., Post Box 634, Brussels.

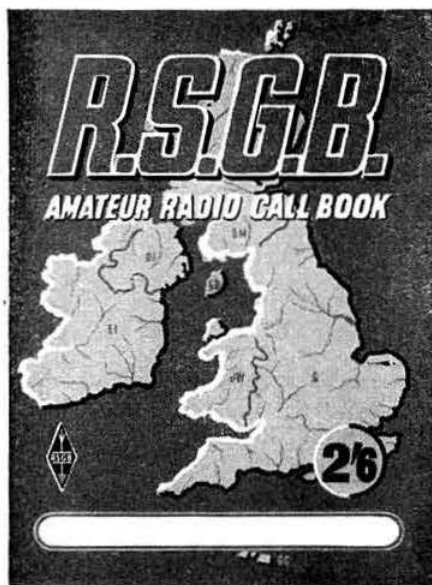
## W.O.S.A.

DETAILS of an unusual award—a print of the Port of Antwerp in 1520 produced on the presses of the Plantin Moretus Museum—which is available to transmitting amateurs and short-wave listeners, may be obtained from Dr. L. Th. Berge (ON4QX), 33 Everdystreet, Antwerp, Belgium.

## LONDON U.H.F. GROUP

will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road,  
at 7.30 p.m., on February 3, 1955.  
All u.h.f. enthusiasts welcome.

## NEW EDITION NOW READY



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## Late Delivery

The Editorial staff much regret that due to circumstances outside their control, this issue of the Bulletin has been unavoidably delayed in production.

## Preliminary Notice

## FIRST INTERNATIONAL V.H.F./U.H.F. CONVENTION

To be held in London on May 7, 1955

Further details will be available later from Phil Thorogood (G4KD), 35 Gibbs Green, Edgware, Middlesex.

# Forthcoming Events

## REGION 1

**Blackpool.**—January 25, 7.30 p.m., 25 Abbey Road, Blackpool.  
**Bury.**—February 10, 7.30 p.m., 52 The Drive, Seedfield, Bury.  
**Chester (C. & D.A.R.S.).**—Tuesdays, 7.30 p.m., Tarran Hut, Y.M.C.A., Chester.  
**Crosby.**—Tuesdays, 8 p.m., over Gordons' Sweetshop, St. John's Road, Waterloo.  
**Isle of Man.**—January 19, February 2, 16, Manor Guest House, Victoria Road, Douglas.  
**Lancaster (L. & D.A.R.S.).**—February 2, 7.30 p.m., George Hotel, Torrisholme.  
**Liverpool (L. & D.A.R.S.).**—Tuesdays, 7.30 p.m., St. Barnabas Hall, Penny Lane, Liverpool 15. (M.R.S.).—January 26, February 9, 8 p.m., Larkhill Mansion House (Room 8), Queen's Drive, Liverpool 13.  
**Manchester (M. & D.R.S.).**—February 7, 7.30 p.m., Brunswick Hotel, Piccadilly, Manchester.  
**Rochdale (R.R.T.S.).**—Fridays, 7.45 p.m., 1 Law Street, Sudden.  
**South Manchester (S.M.R.C.).**—Fridays, 7.45 p.m., Ladybarn House, Mauldeth Road, Manchester 14.  
**Southport.**—Thursdays, 8 p.m., Y.M.C.A., off Eastbank Street, Southport.  
**Stockport (S.R.S.).**—January 19, February 2, 16, 8 p.m., Blossoms Hotel, Buxton Road, Stockport.  
**Warrington.**—January 20, February 3, 17, 7.30 p.m., King's Head Hotel, Winwick Street, Warrington.  
**West Cumberland.**—February 3, 7 p.m., Kells Community, Whitehaven.  
**Wirral (W.A.R.S.).**—January 19, February 2, 16, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.

## REGION 2

**Barnsley.**—January 28, February 11, 7.30 p.m., King George Hotel, Peel Street.  
**Bradford.**—January 25, February 8, 7.30 p.m., Cambridge House, 66 Little Horton Lane.  
**Catterick.**—Wednesdays, 7 p.m., Loos Lines, Catterick Camp.  
**Darlington.**—Thursdays, 7.30 p.m., 129 Woodlands Road.  
**Doncaster.**—February 9, 7.30 p.m., Y.W.C.A., Cleveland Street.  
**Gateshead.**—Mondays, 7.30 p.m., Mechanics Institute, 7 Whitehall Road.  
**Hull.**—January 25, February 8, 7.30 p.m., "Rampant Horse," Paisley Street.  
**Leeds.**—Wednesdays, 7.30 p.m., Swarthmore Educational Centre, Woodhouse Square. (January 26, "Hi-fi Reproduction", A. Woffenden.)  
**Middlesbrough.**—Thursdays, 7.30 p.m., Joe Walton's Boys' Club, Faversham Street.  
**Pontefract.**—January 20, February 3, 8 p.m., "Fox Inn," Knottingley Road.  
**Rotherham.**—Wednesdays, 7 p.m., "Cutlers' Arms," Westgate.  
**Scarborough.**—Thursdays, 7.30 p.m., B.R. Rifle Club, West Parade Road.  
**Sheffield.**—January 26, 8 p.m., "Dog and Partridge," Trippet Lane.  
**February 9, 8 p.m., Albreda Works, Lydgate Lane.**  
**Slaithwaite.**—Fridays, 7.30 p.m., 3 Dartmouth Street.  
**Spennorth (S.V.R.S.).**—January 25, 7.30 p.m., Cambridge House, 66 Little Horton Lane, Bradford (Visit). February 9, 7.30 p.m., Temperance Hall, Cleckheaton.  
**York.**—Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

## REGION 3

**Birmingham (South).**—February 7, 7.30 p.m., Friends Hall, Watford Road, Cotteridge. (M.A.R.S.).—January 18, 6.45 p.m., Midland Institute.  
**Coventry.**—January 28, 7.30 p.m., Priory High School, Wheatley Street. (C.A.R.S.).—February 25, Barras Hotel, (Annual Dinner).  
**Kenilworth, Leamington & Warwick.**—January 20, 7.30 p.m., Dalehouse Lane.  
**Malvern.**—February 7, 8 p.m., "Foley Arms."  
**Redditch.**—January 25, 8 p.m., "Scale and Compasses," Birchfield Road.  
**February 10, 8 p.m., 10 Woodland Road.**  
**Rugby.**—February 3, 7.30 p.m., B.T.H. Recreation Hall, Hillmorton Street.  
**Slade.**—January 21, February 4, 11, 7.45 p.m., Church House, High Street, Erdington.  
**Solihull.**—January 21, February 4, 7.30 p.m., Royal Oak Hotel, Solihull.  
**Stoke-on-Trent.**—January 26, 8 p.m., "Lion's Head," John Street, Hanley.  
**Stourbridge (St. A.R.S.).**—February 1, 8 p.m., King Edward VI School.  
**Walsall.**—January 26, February 9, 8 p.m., Technical College, Bradford Place.  
**Wolverhampton.**—January 17, 31, 8 p.m., Stockwell End, Tettenhall.  
**Wrekin.**—February 7, 8 p.m. (For details please contact G. Myatt, 10 Swan Street, Broseley).

## REGION 4

**Alvaston.**—Tuesdays, Thursdays, 7.30 p.m., Sundays, 10.30 a.m., Nunsfield House, Boulton Lane, nr. Derby.  
**Chesterfield.**—Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.  
**Derby (D. & D.A.R.S.).**—Wednesdays, 7.30 p.m., Derby College of Arts and Crafts, Sub-basement, Green Lane.  
**Leicester (L.R.S.).**—January 17, February 7, 7.30 p.m., Holly Bush Hotel, Belgrave Gate.

**Lincoln (L.S.W.C.).**—February 2, 7.30 p.m., Technical College, Cathedral Street.  
**Mansfield (M. & D.A.R.S.).**—February 8, 7.30 p.m., Denman's Head Hotel, Market Place, Sutton-in-Ashfield.  
**Newark.**—February 6, 7 p.m., Northern Hotel, Appleton Gate.  
**Northampton.**—Fridays, 7 p.m., February 4, 6 p.m., Club Room, 8 Duke Street.  
**Nottingham.**—January 21, February 18, 7.30 p.m., Sherwood Community Centre, opposite Woodthorpe Drive, Sherwood.  
**Peterborough.**—February 2, 7.30 p.m., 21 Hankey Street.  
**Workshop.**—February 7, 7 p.m., King Edward Hotel.  
**Ilkeston (I. & D.A.R.S.).**—Thursdays, 7 p.m., Ilkeston College (Room 5), Field Road, Ilkeston.

## REGION 5

**Chelmsford.**—February 1, 7.30 p.m., Marconi College, Arbour Lane. (B.A.T.C.).—February 10, 7.30 p.m. G2WJ/T (details from G3CVO).  
**Lowestoft & Beccles (L. & B.A.R.C.).**—January 26, February 9, 7.30 p.m. Y.M.C.A., Lowestoft.

## REGION 6

**Cheltenham.**—February 3, 8 p.m., Great Western Hotel, Clarence Street.  
**Gloucester (G.R.C.).**—Thursdays, 7.30 p.m., "The Cedars," 83 Hucclecote Road, Gloucester.  
**High Wycombe.**—January 25, 7.30 p.m., "Denewood," Totteridge Hill, High Wycombe.  
**Oxford (O. & D.R.S.).**—January 26, February 9, 7.30 p.m., "Magdalen Arms," Ifley Road, Oxford.  
**Portsmouth (P. & D.R.S.).**—Tuesdays, 7.30 p.m., British Legion Club, Queen's Crescent, Southsea (Clubroom open every evening).  
**Southampton.**—February 5, 7 p.m., 1 Prospect Place.  
**Stroud.**—Wednesdays, 7.30 p.m., Subscription Rooms.

## REGION 7

**Acton, Brentford & Chiswick.**—Tuesdays, 7.30 p.m., A.E.U. Rooms, 66 Chiswick High Road, W.4.  
**Barnes, Putney & Richmond.**—February 4, 337 Upper Richmond Road, S.W.14.  
**Bexleyheath.**—January 27, February 10, 7.30 p.m., Congregational Hall, Chapel Road, Bexleyheath.  
**Bromley (N.W.K.A.R.S.).**—February 4, 8 p.m., Shortlands Hotel, Station Road, Shortlands, Kent.  
**Chingford.**—January 28, 8 p.m., Venue from G4GA (SIL 5635) or B.R.S. 19765 (SIL 6055)  
**Chislehurst & Sidcup.**—February 9, "Seven Stars," High Street, Footscray.  
**Croydon.**—February 8, 7.30 p.m., "Blacksmith Arms," 1 South End, Croydon.  
**Dorking.**—Tuesdays, 7.30 p.m., 5 London Road.  
**East Ham.**—Tuesdays, 8 p.m., 12 Leigh Road.  
**Ealing.**—Sundays, 11 a.m., ABC Restaurant, Ealing Broadway, W.5.  
**East London.**—January 16, February 20, 2.30 p.m., Town Hall, Ilford.  
**Enfield.**—January 16, February 20, 3 p.m., George Spicer School, Southbury Road, Enfield.  
**Finsbury Park.**—January 18, 7.30 p.m., 16 Albion Road, Stoke Newington, N.16.  
**Guildford & Woking.**—January 23, 3 p.m., Royal Arms Hotel, North Street, Guildford.  
**Hendon & Edgware.**—Wednesdays, 8 p.m., 22 Goodwins Avenue, Mill Hill.  
**Hoddeston.**—February 3, 8 p.m., "Salisbury Arms."  
**Holloway (G.R.S.).**—Mondays and Fridays 7 p.m., Grafton School, Eburne Road, London, N.7. (January 21, 8 p.m., J. Hum (G5UM): "The Simple Approach to Amateur Radio").  
**Ilford.**—Thursdays, 8 p.m., G2BRH, 579 High Road.  
**Kingston (K. & D.R.S.).**—Alternate Wednesdays, 7.45 p.m., Penrhyn House, Penrhyn Road.  
**Lewisham (R.A.R.C.).**—Wednesdays, 8 p.m., Durham Hill School, Downham.  
**London (R.S.G.B.).**—January 28, 6.30 p.m., I.E.E., Victoria Embankment, W.C.2. (Presidential Address followed by "The Antennamatch" by G6MB).  
**London (L.M.L.C.).**—January 20, February 18, 12.30 p.m., Bedford Corner Hotel, Bayley Street (off Tottenham Court Road), W.C.1.  
**London (U.H.F. Group).**—February 3, Bedford Corner Hotel, Bayley Street, W.C.1.  
**Norwood.**—January 15, February 19, Windermere House, Weston Street, Crystal Palace.  
**Southgate & Finchley.**—February 10, 7.30 p.m., Arnos School, Wilmer Way.  
**Slough.**—February 1, Venue from G2HGX or G3BTP, 13 Quaves Road, Slough.  
**Sutton & Cheam (S. & C.R.S.).**—January 18, "The Harrow," Cheam Village.  
**Welwyn Garden City.**—February 1, 8 p.m., Council Offices, Welwyn Garden City, Herts.

## REGION 8

**Brighton (B.D.R.C.).**—Tuesdays, 7.30 p.m., "Eagle Arms," Gloucester Road.  
**Chatham (M.A.R.T.S.).**—January 17, 31, February 14, 28, 7.30 p.m., Services Rendered Club, 14 High Street, Brompton, Chatham.  
**Hastings (H. & D.R.C.).**—January 18, February 1, 15, 7.30 p.m., Saxons' Cafe, Denmark Place.  
**Isle of Thanet (I.o.T.R.S.).**—Fridays, 7.30 p.m., Hilderstone House, Broadstairs.

Continued on page 357

## Regional and Club News

**ABERDEEN.**—A meeting of the group will be held at 91 Inchbrae Drive, Garthdee, on January 27 at 7.30 p.m. All local R.S.G.B. members and potential members are invited to attend.

**BRITISH TWO-CALL CLUB.**—The club has recently adopted new rules, full details of which may be obtained from the Hon. Secretary: G. V. Haylock (G2DHV), 63 Lewisham Hill, London, S.E.13.

**GLASGOW.**—Meetings are now held on the last Friday in each month at a new venue; full details appear under "Forthcoming Events."

**GRAFTON RADIO SOCIETY.**—Recent events have included an "Any Questions?" session. "The Simple Approach to Amateur Radio" will be the subject of a talk by Jack Hum (G5UM) at 8 p.m. on January 21 at Grafton School, Eburne Road, London N.7. Hon. Secretary: A. W. H. Wrenell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

**ISLE OF MAN AMATEUR RADIO SOCIETY.**—The Society is taking part in the Manx Fair and Trades Exhibition at the Palace Ballroom, Douglas, from January 22 to 29. A novel feature is that the promoters of the exhibition will award a voucher for £10 10s. (towards the cost of an hotel bill at any of the island's hotels) to the radio amateur who is in contact with the exhibition station, GD3FLH, at a certain time each day. Operation will be in the 3.5, 14 and 21 Mc/s bands, from 10 a.m. to 9 p.m. daily. Hon. Secretary: R. S. Trickey (GD3DRB), 35 Sunningdale Drive, Onchan, I.O.M.

**MERSEYSIDE RADIO SOCIETY.**—At the recent A.G.M. the following officers were elected: President: D. M. Bolton (G3DVB); Immediate Past President: H. Hipple (G3BNO); Chairman: H. W. Simpson (G8DI); Hon. Treasurer: W. R. Lupton (G3HVR); Hon. Secretary: J. B. Trueman (G3GJG), 141 Ince Avenue, Liverpool 14. Meetings are held at 8 p.m. on the second and fourth Wednesdays in each month in Room 8, Larkhill Mansion House, Liverpool 13.

**NORTH WEST KENT AMATEUR RADIO SOCIETY.**—At the December meeting, G. A. Bird (G4ZU) spoke on "Speech Amplifiers and Modulators." A Junk Sale is arranged for the February meeting. Hon. Secretary: M. J. Frost (G3GNL), 15 Northbourne, Hayes, Kent.

**QUA CLUB.**—The club took part in a local Hobbies Exhibition from which a station using the club call-sign G3DVC was successfully operated despite very heavy noise from a model railway. Considerable help was given by the States of Jersey Telecommunications Dept. (B. E. P. Riton, M.Brit.I.R.E., Chief Engineer), C. A. Young (G2AK), L. J. Philpott (G4BI), M. I. (Pullin), Ltd., Taylor Electrical Instruments, Ltd., Mullard, Ltd., and Labgear (Cambridge), Ltd. Among those who helped to organise the club's exhibit were E. Banks (G2CNC), E. S. Chapman (G2EMV), P. Amy (G3IDP) and R. A. Butcher (G3FSN).

**THAMES VALLEY AMATEUR RADIO TRANSMITTERS' SOCIETY AND EAST MOLESEY.**—A most comprehensive and ambitious programme of lectures and visits has been arranged for the year 1955. Dates and subjects for forthcoming lectures are as follows: February 2, "Transistors for Amateurs" (A. Cockle, G3IEE); March 2, "Recent Developments in Colour Television" (J. P. James, B.Sc. G5IJ); April 6, "More on Aerials" (F. Charman, G6CJ). There is to be an evening visit to the Mullard C.R.T. factory at Mitcham on January 25 and a visit to the B.B.C. for a live broadcast on February 11. Leslie Cooper, G5LC (President, T.V.A.R.T.S.) has been chiefly responsible for arranging the programme.

**READING RADIO SOCIETY.**—Meetings at the Abbey Gateway are arranged for January 29 and February 12 (Lecture by E. W. Berth-Jones, B.Sc., E.M.I. Recording Engineering Dept.). Hon. Secretary: L. A. Hensford (G2BHS), 30 Boston Avenue, Reading.

**SOUTHEND & DISTRICT RADIO SOCIETY.**—The Annual General Meeting is arranged for January 21; there will be a visit to Barking Power station on February 4. Hon. Secretary: J. H. Barrance, M.B.E. (G1BUJ), 49 Swanage Road, Southend-on-Sea.

**TORBAY AMATEUR RADIO SOCIETY.**—Titles of forthcoming lectures are "Radio Installations in the Middle East," by L. Mays (G2CWR) on January 15, and "Audio Amplifiers," by John Hawke (G3FUT) on February 19. A Social and Dinner will be held at Oswalds Hotel, Babbacombe, commencing at 7 p.m. on February 5. Tickets, price 8s. 6d. each, may be obtained from the Hon. Treasurer, Donald Cawley (G2GM), 1 Littlegate Road, Paignton.

### LONDON MEETINGS

January 28, 1955: Presidential Address followed by Lecture by Mr. Frank Hicks-Arnold (G6MB).  
"ANTENNA MATCHING WITH THE ANTENNA MATCH"  
(with practical demonstrations).

February 25, 1955: Mr. R. C. Jennison.  
(Jodrell Bank Experimental Station)  
"RADIO ASTRONOMY AND THE RADIO AMATEUR."

March 25, 1955: Mr. Maurice Child.  
"THE HISTORICAL DEVELOPMENT OF WIRELESS COMMUNICATION."  
(with demonstrations of early apparatus).

All meetings are held at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2. Buffet Tea from 5.30 p.m. Meetings commence at 6.30 p.m.

### Region 12 Representation By-Election Ballot.

Messrs. B. McK. Davidson (GM3ALZ) and Mr. Geo. Jamieson (GM3HTL), both of Aberdeen, having been duly nominated for the office of Region 12 Representative, an election becomes necessary.

Corporate Members resident in the Region are invited to record their vote in favour of one of the above candidates on a postcard, addressed to the General Secretary, Radio Society of Great Britain, New Ruskin House, Little Russell Street, London, W.C.1, by not later than January 31, 1955.

#### Prescribed Form of Voting Card

I, ..... being a fully paid up Corporate Member of the Society wish to record my vote in favour of Mr. .... as Representative for Region 12.

Call-Sign (or B.R.S.) ..... Signed.....

Address .....

Due to a mistake at Headquarters Mr. Davidson's name appeared on the title page of the December, 1954, issue of the BULLETIN as the new Region 12 Representative.

### Forthcoming Events (Contd. from page 356)

#### REGION 8 (continued)

Maidstone (M.K.A.R.S.).—Tuesdays, 7.30 p.m., Elms School, London Road.

Worthing (W. & D.R.C.).—February 14, 7.30 p.m., Adult Education Centre, Union Place.

#### REGION 9

Bristol.—January 21, February 18, 7.15 p.m., Carwardine's Restaurant, Baldwin Street.

Exeter.—February 4, 7 p.m., Y.M.C.A., St. David's Hill, Exeter.

Falmouth (W.C.R.C.).—January 20, February 3, "The Fifteen Balls," Penryn.

North Devon.—February 3, G3BO, "Rosebank," Westcombe, Bideford.

Plymouth.—January 15, February 19, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Jude's.

Torquay.—January 15, February 19, 7.30 p.m., Y.M.C.A., Castle Road.

Weston-super-Mare.—February 1, 7.30 p.m., Y.M.C.A.

Yeovil.—Wednesdays, 7.30 p.m., Grove House, Preston Road.

#### REGION 10

Cardiff.—February 14, 7.30 p.m., "The British Volunteer," The Hayes, Cardiff.

Neath & Port Talbot.—February 9, 7.30 p.m., Royal Dock Hotel, Briton Ferry.

#### REGION 13

Dunfermline.—Thursdays, 7.30 p.m., behind 34 Viewfield Terrace.

#### REGION 14

Falkirk.—January 28, February 11, 7.30 p.m., The Temperance Cafe, High Street.

Glasgow.—January 28, 7 p.m., The Christian Institute, 70 Bothwell Street, Glasgow C.2.

#### REGION 15

Belfast.—January 29, 2.30 p.m., Y.M.C.A., Wellington Place, Belfast.



Sir James and Lady Miller at the Amateur Radio stand at the Hobbies and Handicrafts Exhibition in Edinburgh.  
Photo by courtesy of "The Scotsman"

# Letters to the Editor

## Telephony-only Contest Proposed

DEAR SIR,—I have followed the recent exchange of correspondence about contests, culminating in Mr. Timme's letter in the December issue of the BULLETIN, with great interest.

There is no doubt that we owe a debt of gratitude to all members of the Contests Committee, who voluntarily give of their time and energy to the long, and doubtless tedious, job of checking and cross-checking contest entries.

It is difficult to judge whether the decision to discontinue the Receiving Section of B.E.R.U. is the right one. While there is any demand on the part of the membership for a particular contest I feel that all possible steps should be taken to encourage and continue it. From a study of the contributors to "The Month on the Air" it is obvious that there are a number of enthusiastic and extremely competent short wave listeners in the B.R.S. and Associate grades—judging by the balance of contributors they outnumber the transmitters by about three to one!

The fundamental reason for the failure of the B.E.R.U. Receiving Contest lies, I think, in the fact that it is limited to c.w. reception. While all transmitting amateurs have to learn Morse in order to obtain their licence, there is not the same stimulus to the B.R.S.—who intends to remain a listener—to learn the Code.

If this is accepted as being the basic reason for the lack of support for this contest, the remedy is to have a Telephony Section of B.E.R.U. Agreed this was tried after the war and discontinued due to lack of support, but there is a reason for this, and for the comparative lack of support, relative to membership, of most other R.S.G.B. contests. Any contest that lasts for more than twelve consecutive hours is a marathon of physical endurance and, to most people, unattractive. To stand any chance of gaining a good place in the final results—the aim surely of every contestant—one has to suffer extreme discomfort and that, in a hobby, is most undesirable.

I would like to suggest that, commencing next year—and from the propagation viewpoint preferably in January or February—the R.S.G.B. should hold a telephony only contest on 21 and 28 Mc/s. With the upward trend in m.u.f.'s resulting from the passing last year of the sunspot minimum, communication should be possible with all parts of the Commonwealth during the day on 21 Mc/s, and to most parts on 28 Mc/s. The fact that both these bands are not normally open during the hours of darkness would mean that to be competitive participants would not have to operate throughout the normal 48 hours of a B.E.R.U. contest. This fact coupled with the knowledge that both bands are capable of supporting a great number of simultaneous A3 without a paralysing degree of interference would contribute to a really thrilling contest, both from the receiving and transmitting viewpoint.

Yours faithfully,

Barnet, Herts.

J. DOUGLAS KAY (G3AAE).

## Two Metre Open Contest

DEAR SIR,—After reading G2ADZ's letter in the December, 1954, BULLETIN, I venture to disagree with his reasons for the comparatively poor entry in the 1954 Two Metre Open Contest. As an entrant, I found that conditions were extremely poor and we were all "scratching" for points. This caused many fixed stations who were competing to lose heart and not take the contest as seriously as they would have done had conditions been better. They scored, what was to them, a low number of points and regretably didn't bother to send in their scores.

I have confirmed this since with several of the stations whom I worked that day. Not once have I heard of anyone being discouraged because -P stations were participating. In fact, at the end of a QSO with one fixed station, he thanked me for coming on -P and helping his score along.

The 1952 and 1953 Open Contests were won by fixed stations but that only seems to have spurred the -P stations to greater efforts. As its name suggests, the contest is open to all comers, so why quibble about -P entrants?

I'm afraid I cannot agree with all his observations either. How can all things be equal in a contest of this nature? He infers later in his letter that there are some stations who are situated in good localities, so surely these fixed stations start a contest with an advantage over their less fortunately situated rivals even if -P stations are barred.

Of course, stations enter for contests knowing full well that they will not win. This knowledge in no way detracts from their determination to put up a good show. It's the spirit and the way that the game is played that attracts these people, not "pothunting" alone.

*The Editor does not necessarily endorse the views and opinions expressed by contributors to this feature.*

It should be considered a matter of common courtesy, if one has participated even in a minor way in the contest, to send either an entry or a check log.

As against the site advantages of a -P station, think of the lower power used, usually 5-10 watts, the problems of power supplies that have to last perhaps 26 hours and the less ambitious aerials that have to be erected—usually single handed. From a non-technical viewpoint there are the questions of expense, cooking and sleeping difficulties. (Getting the XYL to sign one's pass can be quite a formidable obstacle too!) Believe me, the -P station earns every point he gets. I always consider I *earn* twice as many as I get.

What would satisfy Mr. Parker is a contest for fixed stations only, in addition to the Open and Field Days. Perhaps the Contest Committee will oblige. I think it a good idea and along with others I would be only too pleased to go -P and give points to the fixed stations who are good enough to help the outdoor stations on Field Days.

Come, 2ADZ, fire up that rig in the next contest. You won one contest—very deservedly, in poor conditions—surely you don't mind being a little lower in the list another time. I look forward to the pleasure of working you and pushing your score up about 250 points.

Yours faithfully,

Barnsley, Yorks.

J. A. WARD (G4JJ/P).

## New Books

### RADIO AND TELEVISION ENGINEER'S REFERENCE BOOK.

Edited by E. Molloy; Advisory Editor, W. E. Pannett, A.M.I.E.E. Published by George Newnes, Ltd. About 1600 pages. Price 70/-.

This mighty tome brings together, within one convenient volume, comprehensive technical data and information on the latest developments in the transmission and reception of radio and television signals.

The book is divided into 45 main sections each dealing with a specific branch of the subject and written by specialists in the particular field concerned. All sections have been written, bearing in mind the practical requirements of engineers, technicians and amateurs. The student will also find much information that is invaluable in preparing for a career in the Radio Industry.

The section on Amateur Radio Equipment, contributed by J. P. Hawker (G3VA), provides the reader with a ready reference to Licence Arrangements, Amateur Frequencies, Transmitter and Receiver Design.

The first section in the book—Formulae and Calculations—extends to nearly 150 pages and is probably the most comprehensive reference section of its type in existence.

The illustrations throughout are first class whilst the standard of printing reaches a very high level. Although the price is such that its sale to individual amateurs may be somewhat limited there is little doubt that Radio Clubs will make every effort to purchase a copy for communal use. It will also, of course, be available at most libraries.

The publishers and all associated with the production of this book deserve the thanks of radio and television engineers for offering within the covers of one volume such a wealth of useful information.

**RADIO MADE EASY.** By D. C. Shahani, B.Sc., M.I.E.T., A.C.G.I. (VU2EM). 352 pages, 213 diagrams. Published by the Western Book Depot, Nagpur 1, India. Price 17/6.

*Radio Made Easy* is offered as a streamlined all-in-one home study course. Part I deals with Radio Physics, Part II with Radio Servicing, Part III with Radio Experiments and Part IV with General Radio Ideas. The author is Principal of Indiana Radio Institute.

*Radio Made Easy* should prove of great help to those up and coming young radio enthusiasts for whom it is intended to serve.

**TRANSISTORS AND CRYSTAL DIODES.** By B. R. Bettridge, A.M.Brit.I.R.E. (Osram Valve and Electronics Dept.). Published by Norman Price (Publishers), Ltd. Page size 8½ in. x 5½ in. 72 pages, 50 illustrations. Price 5/-.

Here at last is a simple and lucid non-mathematical guide to the use and operation of crystal diodes and transistors, written by a well-known authority. The information presented is essentially practical and is illustrated with many typical applications of semi-conductor devices in radio and television circuits. The use of transistors in low power transmitters is, however, only briefly mentioned. Nevertheless, the author's hope that "this book will encourage the experimenter to try things for himself and experience the pleasure of sharing, instead of passively watching, the early stages of an fascinating branch of electronics" is likely to be fulfilled. It takes the mystery out of transistority and should do much to popularise the use of semi-conductor devices in amateur circles.

## Can you help?

● C. F. Ainsworth (B.R.S.12259), 9 Wasdale Road, Aintree, Liverpool 9, who wishes to obtain a manual for the R1155?

● G. W. Colbourne (G3DDU), 141 Southgate Road, London, N.1, who requires the manual for the R107A receiver?

● R. H. Greenwood (B.R.S.5386), 271 Seaside, Eastbourne, who wishes to borrow the circuit diagram of the ex-U.S.A. receiver type CKP-46159-A?

● H. H. Thompson (G2FXK), 82 Walsall Road, Aldridge, Staffs., who wishes to buy or borrow the instruction booklet and/or circuit diagram for the Webster Electronic Memory Wire Recorder?

● W. G. Thomson (GM3JPW), 26 Craigie Road, Ayr, who requires information on the Bendix TA12C transmitter and details of the modification procedure for 7 and 14 Mc/s operation?



## New Members

### Corporate Members, Overseas (Licensed)

|       |  |
|-------|--|
| 5A4TT | H. I. MARTIN, Sgts. Mess, R.A.F. Station, Idris, nr. Tripoli, Libya, M.E.A.F. 1. |
| DJ1YL | Mrs. R. AURAND, Isenlohn, Westerstrasse 24, Germany.                             |
| ON4QX | L. E. BERGE, Antwerp-Everydyst-33, Belgium.                                      |
| VO6U  | D. B. RITCEY, c/o Dept. of Transport, Goose Bay, Labrador, Canada.               |
| VP4TE | J. LA MOTTE KERR, 10 Kelly Kenry Street, Port of Spain, Trinidad, B.W.I.         |
| VP6KM | K. A. MURPHY, Kent House, Christchurch, Barbados, B.W.I.                         |
| VP6UN | J. M. L. RICHARDSON, "Piquesburg," Kent, Christchurch, Barbados, B.W.I.          |
| WLWLW | C. M. WATSON, junr., 8 Central Street, Topsfield, Massachusetts.                 |
| W2QCF | F. SHERWOOD, 20 Miles Avenue, Fairport, N.Y., U.S.A.                             |
| W3AXT | S. E. FRAM, R.F.D. No. 1, Box 127, Lancaster, Pa., U.S.A.                        |
| W6LVN | J. R. WOMACK, 1578 Hamilton Av., El Centro, California, U.S.A.                   |
| DL2KK | †2580326 L.A.C. BAYS, J., Decimeter Site, HQ (Unit) 2nd T.A.F., B.A.O.R. 38.     |
| PA0DD | W. J. L. DALMYN, 205 Bakenbergse weg Arnhem, Holland.                            |
| ST2DB | H. J. BIST, P.O. Box 516, Khartoum, Sudan.                                       |
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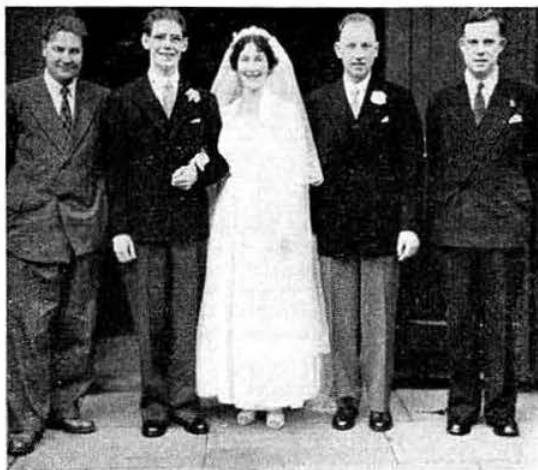
These frequencies are published as calling frequencies for use in emergency only. Stations will call CQ QRRR DE G..... and QSY to a mutually agreed frequency immediately after establishing contact. Contacts should not be continued on emergency calling frequencies. All frequencies should be monitored as much as possible.

### Silent Key

H. J. EAVES (G6UQ)

With deep regret we record the death on November 29, 1954, of Mr. H. J. Eaves (G6UQ) of Cheshire. Mr. Eaves, first licensed in 1927, was for many years Technical Officer, Radio Branch of the G.P.O. in the Manchester area, Chairman of the Stockport Radio Society at the time of his death, he will be greatly missed by very many members.

The funeral was attended by a number of radio amateurs including representatives of the Stockport and South Manchester Radio Societies.



Radio Nuptial. At the wedding in Leicester of Raymond Mapplebeck (G3GXN) to Miss Margot Cook, the best man was Peter Simpson (G3GGK) who is a colleague of Ray's on the technical staff of a well-known radio retailer in the city. Especially for the wedding G3CML (left) and G3JMG (right) came down from Leeds.

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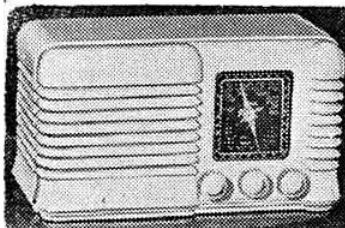
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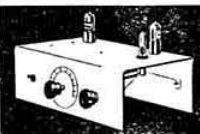
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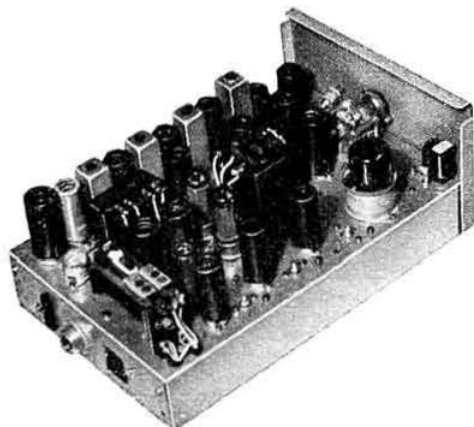
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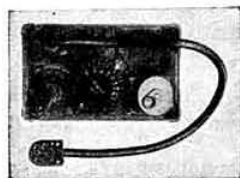
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(Continued on page 367)



## EXCHANGE AND MART SECTION

(Continued from page 366)

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**SALE:** QST, January, 1946, to present issue, 108 copies, CQ, May, 1946, to present issue, 104 copies, BULLETIN, May, 1946, to present issue 104 copies. Short Wave Magazine, March, 1947, to present issue, 94 copies. All above in lay flat wire binders. Antenna Manual, Editors and Engineers, California, 1948. R.S.G.B. Handbook, 1939. ARRL Handbooks, 1936, 1946. Short Wave Wireless Communication, Ladner and Stoner, 1934. Cash offers only for any complete item. Hammarlund Comet Crystal Pro Receiver with peak two-stage preselector preamplifier and manuals, spare tubes. Range 8 to 250 metres. R. Jardine, 73 Ardleigh Green Road, Hornchurch, Essex. (463)

**TRANSMITTER** for sale in perfect working condition. Owner closing down. £7/10 complete. 14 Emmanuel Road, Sutton Coldfield, Warwickshire. (461)

**V.R.L.** 4-gang Variable Tuning Condenser (Radio Condenser 417) required by VQ4BY, P.O. Box 50, Mombasa, Kenya. (479)

**WANTED** urgently Manuals for BC348R Receiver and ARN7 Radio Compass. Also (3) 6AJ5, (2) 6K6, and (1) CV405 Valves, good price paid. G2ZV, 7 Willow Road, Colnbrook, Bucks. (464)

**WANTED:** HRO coils, receivers, power packs, AR88Ds, AR88LFs, SX28s, BC348s, AR77s, and many other types, also laboratory test equipment and R54/APR4, TN17, TN18 and TN19 units. Details please to R. T. & I. Service, 254 Grove Green Road, Leytonstone, London, E.11. (LEY 4986). (101)

**WANTED:** v.f.o. 1.8 to 7.2 Mc/s output suitable existing 807 crystal osc., small pre-amp for crystal microphone and f.d./p.a. unit with output 14, 21, 28 Mc/s 100 watts c.w. approx., ATU if possible. Box 459, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (459)

**WANTED:** Handbook, connecting plugs, 'phone, microphone, etc., for Army No. 19 set. Lyons, 1 Eglinton Place, Saltcoats, Ayrshire. (461)

**WANTED:** Transmitting valves type STC 4069A or RK28. For Sale: Receiver R1155 with speaker and power pack, £6. Also home-built tape recorder, £6. All in working order. G3BX1 Farlow, 55 Mountpleasant Road, Chigwell, Essex. (467)

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**WANTED:** B.C.610 Hallicrafters, ET4336 transmitters, AR88Ds and LF5 receivers and spare parts for above also BC221 frequency meters. Best prices. P.C.A. Radio, Beaver Lane, Hammersmith, W.6. (480)

**WANTED:** Aerial tuning units BC939a. P.C.A. Radio, Beaver Lane, Hammersmith, W.6. (481)

**WIREK** type A recorder £20. Perfect. Wanted: S640 or similar, any condition for modification. Cronk, 93 Thurlow Street, Walworth, S.E.17. (454)

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(SIXTH EDITION)

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**TECHNICIAN** required, age between 22 and 30 for maintenance of Electrical equipment in operating theatres. Would suit radio amateur with sound basic knowledge. Salary according to experience. Write House Governor, The London Hospital, Whitechapel, E.1. (486)

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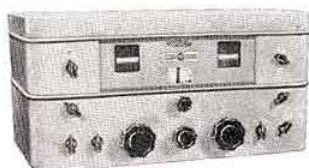
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