THE T. & R.

BULLETIN

THE INC. RADIO SOCIETY OF GT. BRITAIN

AND THE BRITISH EMPIRE RADIO UNION

Vol. 9 No. 2 AUGUST, 1933 (Copyright) Price 1/6

PAPER CONDENSERS. TERMINAL TYPES

Mfd.	Type 50/61	Type 80/81	Type 101	Type 121
	s. d.	s. d.	s. d.	s. d.
0.1	—	2 0	—	—
0.25	—	2 4	—	—
0.5	2 4	2 6	5 0	7 0
1	2 6	3 0	6 0	8 6
2	3 6	4 0	9 0	13 0
3	5 0	6 0	—	—
4	5 6	7 0	17 6	25 0
5	7 3	9 0	22 0	31 0
6	8 6	10 6	25 0	37 6
8	11 0	14 0	—	—
10	14 0	17 6	—	—

PAPER CONDENSERS. SOLDERING TAG TYPES

Mfd.	Type 65	Type 84	Type 87
	s. d.	s. d.	s. d.
0.1	1 8	2 0	2 2
0.25	1 10	2 2	2 4
0.5	1 11	2 4	2 6
1	2 0	2 9	3 0
2	2 8	3 9	4 0
3	—	—	—
4	5 0	6 9	7 3
5	—	—	—
6	7 0	10 0	—
8	9 0	13 0	—
10	11 6	16 0	—

MICA CONDENSERS

Mfd.	Type M	S.P. Type	Type 34
	s. d.	s. d.	s. d.
.00005	0 8	—	1 3
.0001/3	0 8	2 0	1 3
.0004/5	0 9	2 0	1 3
.001/4	1 0	2 6	1 6
.005/6	1 6	3 0	2 0
.01	2 0	—	3 0

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	s. d.	s. d.	s. d.
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7	—	6 0	—

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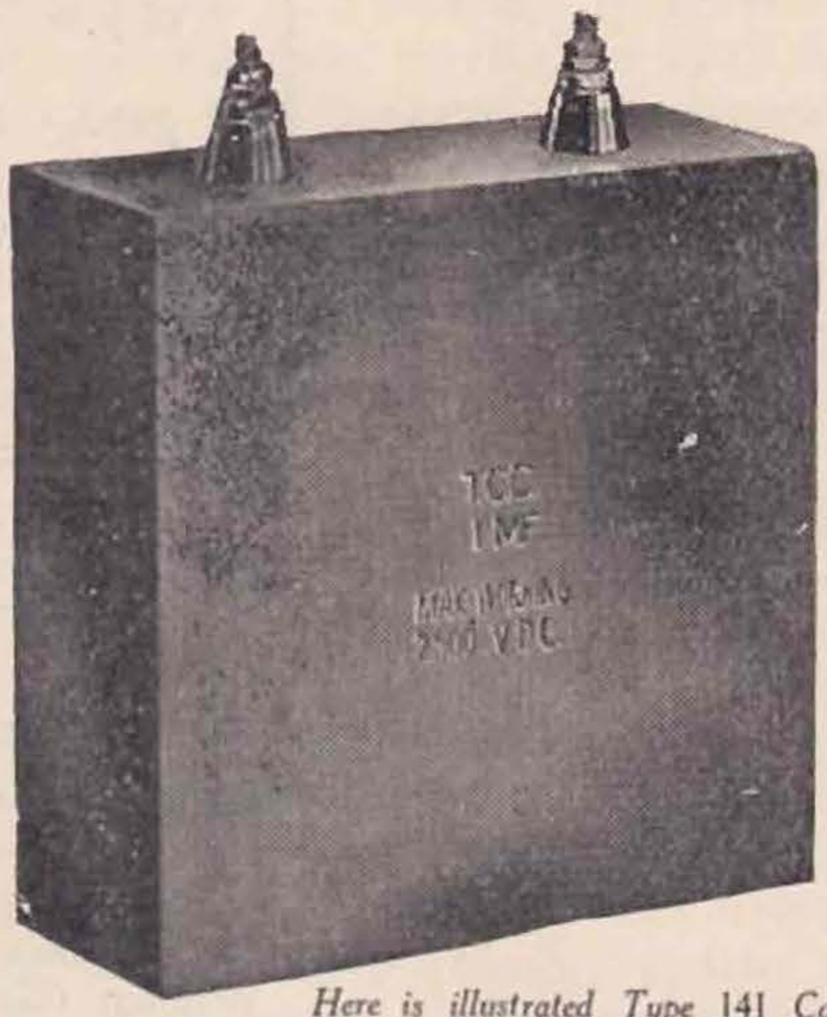

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THE INCORPORATED

RADIO SOCIETY OF GREAT BRITAIN

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BRITISH EMPIRE RADIO UNION

53, VICTORIA STREET, LONDON, S.W.1. (*'PHONE: VICTORIA* 4412)

PATRON: H.R.H. THE PRINCE OF WALES, K.G.

CONVENTION 1933.

FRIDAY, AUGUST 18th.

5.30 *p.m.* *Conversazione at Maison Lyons, Shaftesbury Avenue, W.C.*1. *Running Buffet available throughout the evening*—1/- *head.*
Exhibition of Members' 56 *MC. apparatus.*

6.30 *p.m.* *Short Talks on Amateur Radio Subjects. Informal discussions.*

SATURDAY, AUGUST 19th.

10 *a.m.* *Delegates' meeting at I.E.E., Savoy Place, S.W.*1.

10.30 *a.m.* *Visit to Messrs. High-Vacuum Valve Co. Party meets outside I.E.E. at* 10.15 *a.m.*

12.45 *p.m.* *Delegates' Lunch at Tricity Restaurant, Strand.*

1.45 *p.m.* *Convention Photograph outside I.E.E.*

2 *p.m.* *Presidential Greetings. Presentation of Trophies. Business Meeting.*

4 *p.m.* *Informal Tea.*

6.30 *p.m.* *Convention Dinner, Florence Restaurant, Rupert Street, W.C.*1. *Tickets* 5/-.

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All correspondence should be addressed to The Secretary (or other officer concerned), The Radio Society of Great Britain, 53, Victoria Street, London, S.W.1. Insufficiently addressed letters may be considerably delayed.

THE T. & R. BULLETIN

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Honorary Editor :—
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Vol. 9

No. 2

THE TRANSMITTING MEMBER AND HIS NEIGHBOURS.

SOME of our members have recently written us expressing alarm at the proposed extension of broadcast hours which has been announced in the press. In particular they appear to be most concerned with the filling up of the evening interval between six and eight p.m. on Sundays, thus curtailing their hours of working. We would point out that this same outcry has been made with every extension of broadcast hours in the past, yet somehow we appear to have survived it. We have been asked what we propose doing to preserve these periods for amateur use. Our answer is that we have made many representations in the past, and will do everything we possibly can in the future, to preserve the facilities enjoyed by amateurs. We must, however, point out one or two salient features which all members should consider. Take the whole of the transmitters in Great Britain and compare them with the five or six million broadcast listeners. Under such an unfair handicap, it would hardly be a wise policy to embark upon a controversial war to keep the hours from extending. Therefore, our best policy always is to keep on good terms with our broadcast listening neighbours. To attempt to ignore their complaints and continue to interfere with their reception, will only lead to trouble, both for the transmitter concerned, and the whole of the amateur fraternity. It is the broadcast listeners who are the real judges in the matter of interference, not the authorities, for the latter only carry out the public's wishes, although they do their best to observe fair play and justice in every case.

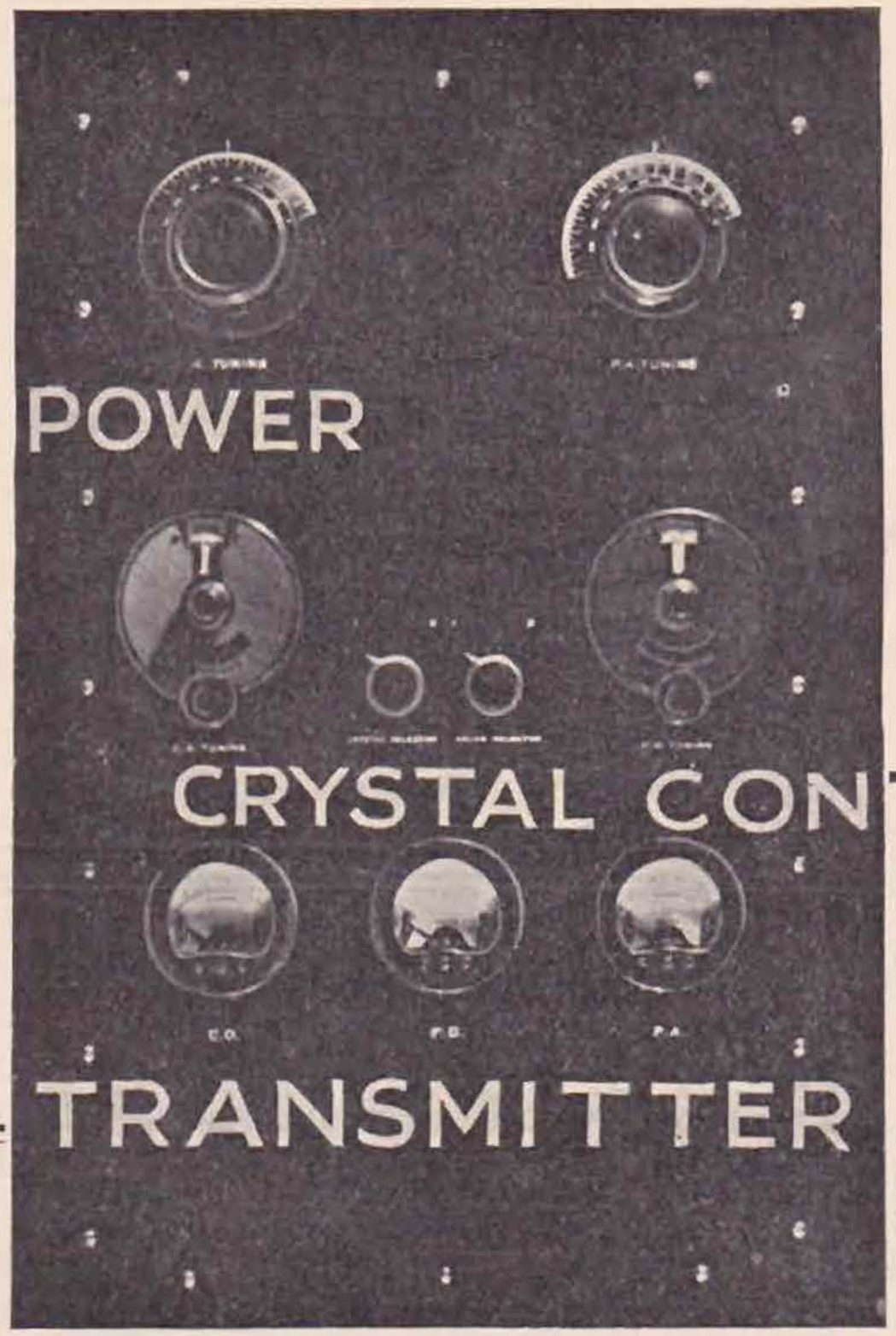
The Society has always urged the necessity of attempting by every possible means to avoid falling foul of one's neighbours in the matter of interference, feeling this to be the only safe course in the interests of all. At the same time they intend to press forward every argument for the just treatment of the amateur.

What the transmitting amateur can do is to adopt means whereby he can work without interfering with his neighbours. Much can be done by the provision of efficient key thump filters to cut out the distressing clicks which are the main source of irritation. Many of our members have made great strides in this direction, and we know of cases where special tests have been made, and no trace of adjacent transmissions have been heard in a broadcast receiver. We are enlisting the help of these members in the preparation of articles for future issues of the BULLETIN, where their special methods will be fully considered.

We hoped some two or three years ago that with the advent of the high power alternative broadcast programmes, the old-time unselective receiving sets owned by many listeners would be scrapped. No doubt many have disappeared, but there are many still in use where both programmes, together with a background of foreign stations, can be heard, the required station being tuned as loud as possible ! It is with such sets that complaints generally arise, and in many cases we know our members have carried out conversions to such sets at their own expense

(*Continued on page* 39.)

A MEDIUM POWER CRYSTAL CONTROLLED TRANSMITTER



In our June issue we described an up-to-date Crystal-controlled Transmitter, we now deal with the power supply for same.

PART 2.

THE June issue of the T. & R. BULLETIN contained an article on the construction and operation of a crystal-controlled transmitter. It is now intended to discuss suitable keying and modulating systems and give details of a suitable power supply for operation from A.C. mains.

The Power Supply.

A study of Part 1 of this article will show that three H.T. supplies are required, and for operation on full power these are: (1) 200 m.as. at a voltage exceeding 1,000; (2) 30 m.as. at 450 volts; and (3) 40 m.as. at 250 volts. To this should be added 60 m.as. at 450 volts for a modulator valve, which will make supply (2) 90 m.as. at 450 volts, though it must be remembered that the extra 60 m.as. will not always be required.

The high voltage supply is obtained from a transformer, rectified by two Osram G.U.1 rectifiers and suitably smoothed. The lower voltage supplies are obtained from a transformer and suitable Westinghouse metal rectifier, the supply being smoothed in the usual way and part passed through a suitable resistance to obtain the lower voltage.

Fig. 6 shows the connections and components of the complete power supply. The mains switches, Sw.3 to Sw.6 will be discussed later.

Transformer Tr.2 is a Rich & Bundy filament transformer supplied with two secondary windings, 6 volts 6 amps. and 4 volts 2 amps., both centre-tapped. The centre-taps are taken to any negative H.T. point on the rest of the power supply. The 6-volt winding is for heating the filaments of Nos. 1 and 2 stages and the power amplifier. It was considered easier to drop the voltage to No. 1 stage in the set (see Part 1) than to use the 4 volt winding for this stage. This transformer is placed immediately below the power amplifier valve and the leads are taken straight from transformer to valve by means of heavy copper wire. It may here be mentioned that all other wiring on the set side of the mains transformers is carried out with No. 14 S.W.G. copper wire enclosed in systoflex casing, except the leads to the two H.T. transformers, which are of heavy rubber-covered flexible wire.

It is here necessary to refer to the T.61D, power amplifier valve. Although rated at 6 volts 4.25 amps. filament, it has been our experience that some specimens of this valve require slightly over 6 volts, and as much as 6.4 volts has been necessary in certain cases. These are not considered to be cases of poor emission, as given the higher filament voltage the valves have behaved perfectly for long periods. Members are, therefore, warned that they may require a voltage exceeding the

nominal 6 volts mentioned, if they use the T.61D valve; if this is the case further dropping resistances will be required between valves V.2 and V.3 (Fig. 1) which will have to pass the total current to valves V.1 and V.2. The voltage on the filament of an L.S.5b valve should never exceed 6, and may often be run at 5.5 with perfectly satisfactory results at high anode currents and a definitely longer life.

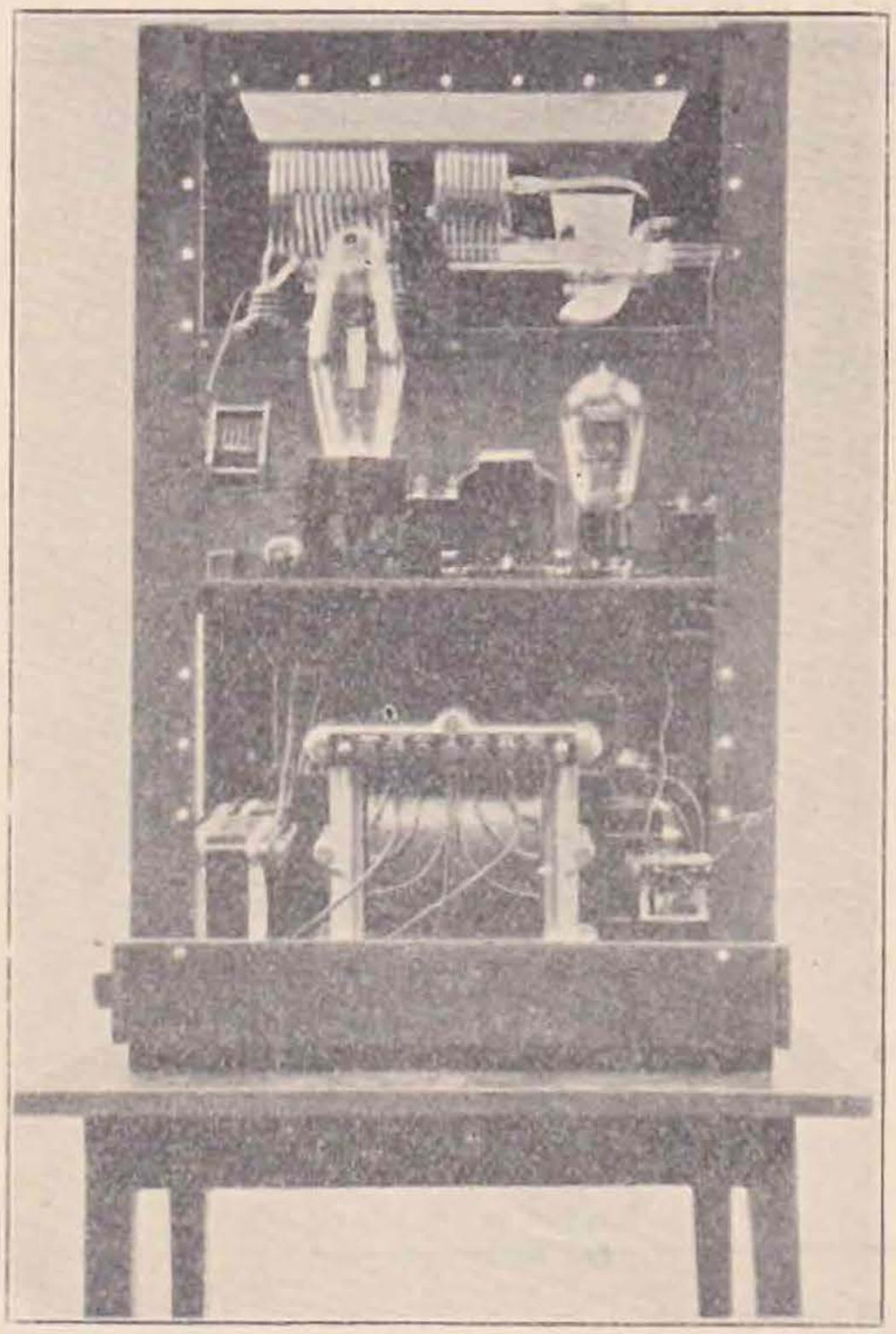


Fig. 5.

Shows a back view of the completed transmitter. The top, holding the aerial terminals, has been removed for photographing. The strip carrying the grid-bias plugs can be seen along the bottom of the framework.

Transformer Tr.3 is a Parmeco product supplying 300 volts (with a tapping at 250 volts) for the H.T.11 metal rectifier. This is a voltage doubling type and the usual form of filter is used. The smoothing choke must be of substantial design if modulation is to be used, and must be capable of carrying 130 m.as. When, however, modulation is not intended to be fitted to the set, a smaller choke may be used, say 60 m.as. maximum current: the inductance should not be lower than 20 henrys. A small Varley choke has been used here, and is shown in the photographs, but a larger one was used when the modulation was added.

The voltage for tapping +H.T.1 is taken through a Bulgin wire-wound resistance supplied with tapping clips. *Approximately* 6,000 ohms will be required, and a 10,000 model was therefore used. The resistance should be adjusted so that the *total* current to V.1 does not exceed 40 m.as. in oscillating condition, but may frequently be as low as 25 m.as. The +H.T. for the modulator is taken through a Microfu, to blow at 150 m.as. The Ferranti meters in +H.T.1 and +H.T.2 leads are fitted with self-contained fuses.

The keying filter in +H.T.2 lead will be dealt with later.

Transformer Tr.4 is manufactured by Rich and Bundy and will deliver adequate milliamps. at various voltages. The tappings are 1,000-750-500-0-500-750-1,000. The rectifiers here are two G.U.1's, transformer Tr.1 (Rich & Bundy) being used to supply the filaments. The smoothing choke is also a Rich & Bundy, Type E.102. A Microfu is also fitted in the +H.T.3 lead, intended to blow at 400 m.as.

As no actual —H.T. connection is required, the negative point of the whole power supply is labelled +G.B. and would be so connected.

Switches Sw.3 to Sw.6 call for some explanation. It will be seen that Sw.3 works Tr.1, Sw.4 works Tr.2, etc. In addition it will be seen that Tr.2 cannot be switched on until Tr.1 is working, and similarly for the other transformers. Now the G.U.1 filaments must be switched on and allowed to warm up before the H.T. is applied. No H.T. transformer is required "on" until the filaments are lit from Tr.2. Tr.3 will be required without Tr.4 for adjusting and neutralising purposes. Tr.4 will never be required unless all others are in use. It will therefore be seen that, when in actual operation, the whole transmitter is switched on and off from Sw.4 or Sw.5, depending upon whether it is desired to leave the filaments of the transmitting and modulating valves running or not. Further when the set is no longer required, Sw.3 switches off everything. These four switches, together with a two-plug socket for mains connection, are fitted to the 2-in. 5-ply strip bolted to the bottom of the right side.

The entire power supply and keying equipment is mounted on a 5-ply baseboard, 1 in. up from the extreme bottom of the frame. The baseboard rests on the lower angle-irons. The wiring to the

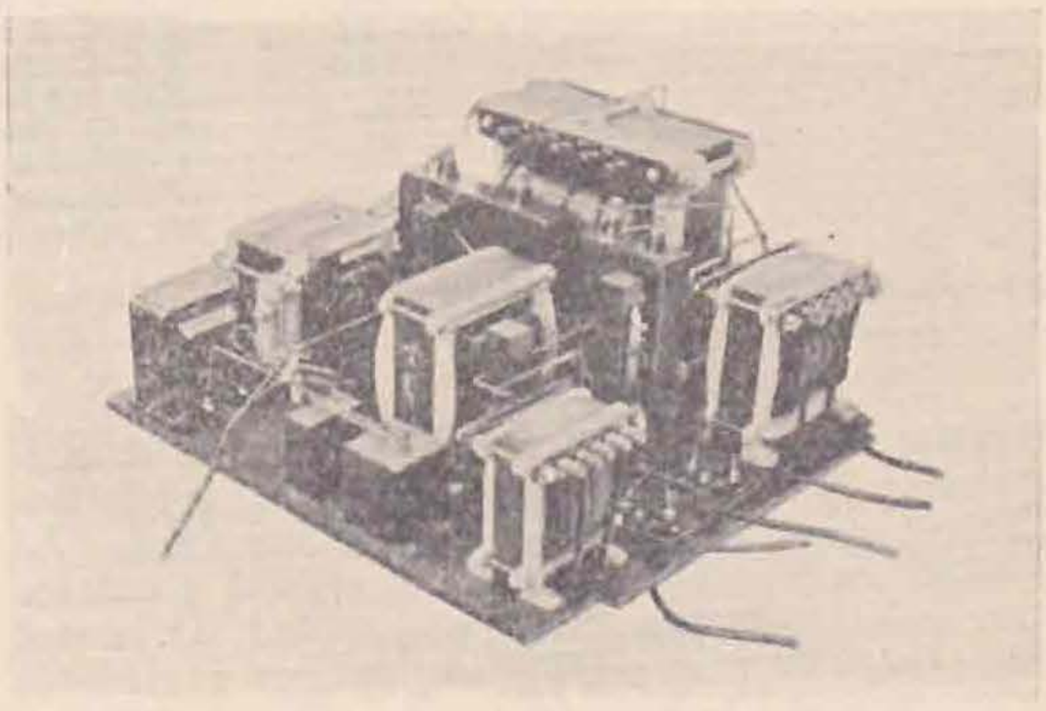


Fig. 7.

Shows the partly constructed power supply. The G.U.1 valve holders can be seen on the right. To the left of these is Tr.1, and to the right Tr.2. The large smoothing choke in the centre is Ch.3, while the big transformer, Tr.4, is at the back, the smoothing condensers, C21 and C22, being just in front of it.

primaries of the transformers is taken below this baseboard.

It will have been obvious from this article that the power supply was constructed after the transmitter. By removing the back of the framework, the completely constructed power supply was, with little difficulty, slipped into place. The necessary L.T. and H.T. connections were then made.

The grid bias connections (one positive and five negative) are brought out by means of Clix All-in terminals to a 2-in. strip of 5-ply bolted to the bottom of the back. The grid bias battery can only be placed in the transmitter (Fig. 3)

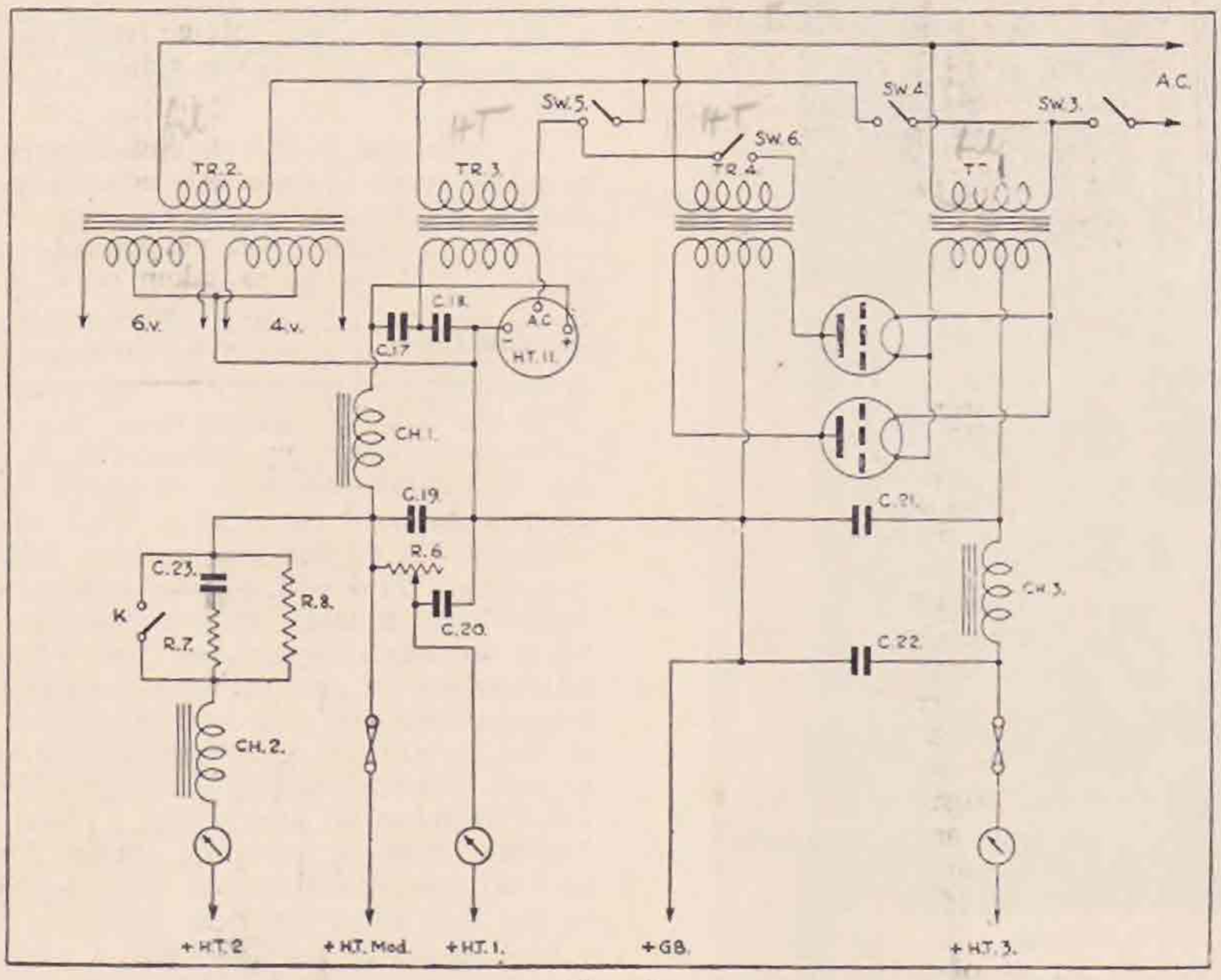


Fig. 6.

Circuit diagram of power supply and keying equipment.

C17, C18—T.C.C. 4 mfd. 300 v. A.C. working.
C19 —T.C.C. 2 mfd. 500 v. working.
C20 —T.C.C. 1 mfd. 500 v. working.
C21 —T.C.C. 1 mfd. 1,500 v. working.
C22 —T.C.C. 2 mfd. 1,500 v. working.
C23 —T.C.C. .25 mfd. 500 v. working.
K —Key (or keying relay).
R7 —20-40 ohms Varley.
R8 —150,000 bi-duplex, Varley.
Ch2 —Parmeco 20 H., 60 m.as.
All other values, see Text.

when no modulation apparatus is installed. Otherwise it must be external.

Keying.

Keying is carried out in the +H.T.2 lead, and the thump filter proper consists of the condenser C_{23}, the resistance R.7 and the choke Ch.2. As the valve in No. 2 stage acts as crystal oscillator on occasions, resistance R.8 was added, as it was found otherwise that oscillations did not commence immediately the key was pressed. This resistance, therefore, permits the crystal to maintain slight oscillation during the period the key is up. It was found that keying the crystal oscillator gave no trouble whatsoever and no spacer was being transmitted. These remarks also apply when the valve being keyed is a frequency doubler.

With such a key thump filter it has been possible to key 150 to 200 watts with a broadcast receiver operating off the same aerial as the transmitter and with a small H.F. choke to prevent excessive leak of transmitted energy down the aerial lead to the B.C. set.

It is an excellent point at times to insert large H.F. chokes (slab coils for instance) in the actual leads to the key, and as close to the key as possible. Such choking is easier to carry out when a keying relay is used, and is recommended where trouble is experienced owing to the slight disturbance created by the spark.

An Igranic Jack of the two-pole short-circuiting type is employed for making the connections from the key itself. This is mounted on the 2-in. strip of 5-ply bolted to the lower left side of the framework.

The Modulator.

In the design of this set it was intended to produce a transmitter primarily for morse work, but to provide a method of modulation for occasional use.

In the circumstances, therefore, it was not considered advisable to provide for choke modulation, and grid modulation of the power amplifier stage was decided upon. This system can be relied upon to produce reasonably good quality speech, and to give fairly fully modulated output, provided

the unmodulated efficiency of the power amplifier is reduced by at least 25 per cent. This may be accomplished by decreasing the drive, or raising the bias on the power amplifier.

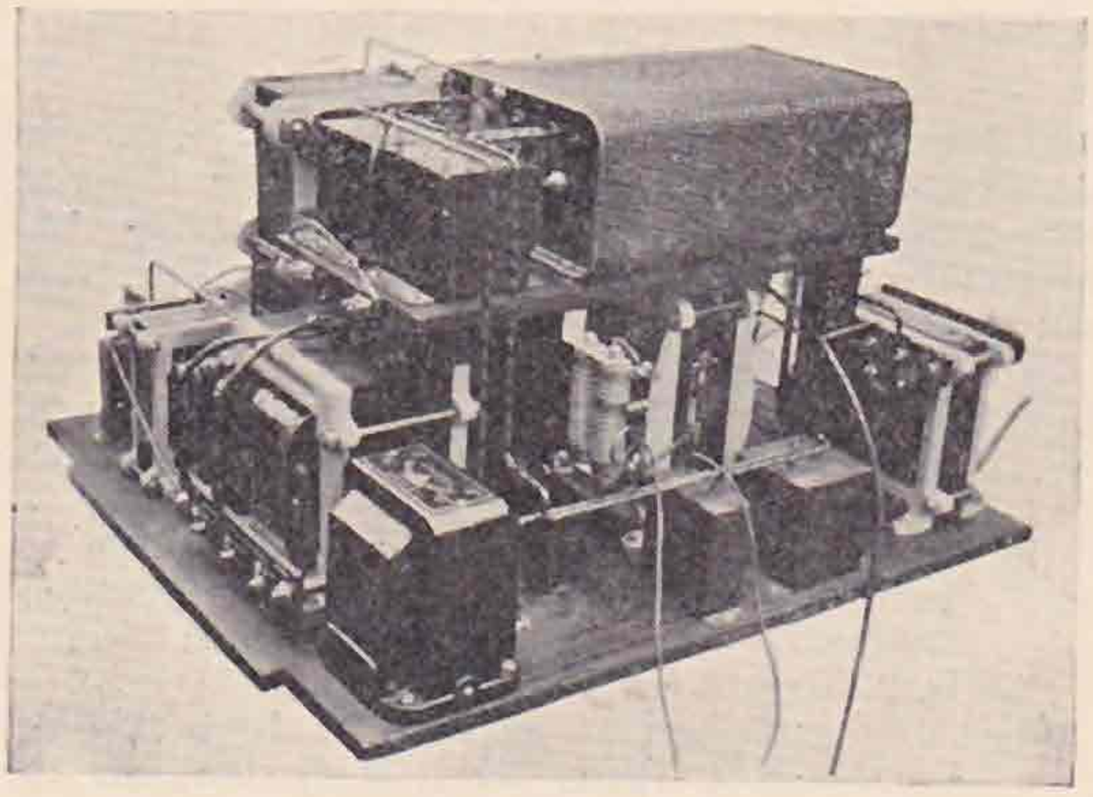


Fig. 8.
Here the complete supply is shown. The H.T.11 metal rectifier can be seen on an upper shelf, supported on 4 wooden pillars, together with condensers C17 and C18. The smaller condensers on the right are C19 and C20, and slightly above and to the left is R6. On the extreme left is the key thump filter apparatus, next transformer Tr.3, and in the foreground Ch.1.

Figure 5 shows the modulator valve and its associated components mounted on the base-board beside the power amplifier stage. The Varley impedance matching transformer, which is used to couple the modulator to the power amplifier, may be seen between the two valves. The fixed condenser on the right of the modulator valve is a T.C.C. .01 mfd., and is used in conjunction with a 100,000 ohm resistance (R.9 in Fig. 10), to couple the grid of the modulator to the microphone circuit.

This may be the output of a speech amplifier, or only the secondary winding of the microphone transformer, if a suitable microphone is used.

The input to the modulator is taken to a standard jack, so that connection between the microphone amplifier and modulator must be made with screened cable, to avoid H.F. pick-up.

It may be pointed out that this method of modulation is really an efficiency control, and it is for this reason that the efficiency of the power amplifier must be reduced before modulating, as otherwise it will be seen that when the modulator swings the efficiency of the power amplifier, very little modulation will result.

If only ocasional modulation is required a switch may be included in the H.T. lead to the modulator valve.

The use of the two tappings on transformer Tr.3 (250 and 300 volts) will be useful in maintaining a more even voltage from this supply when the modulator valve is switched on.

Conclusion.

This brings to an end the description of this transmitter and associated apparatus.

It is impossible to design or describe a set suitable for each individual purpose, but if the design of this transmitter is taken as a guide, and similar good quality components used, the constructor can modify to suit his own requirements.

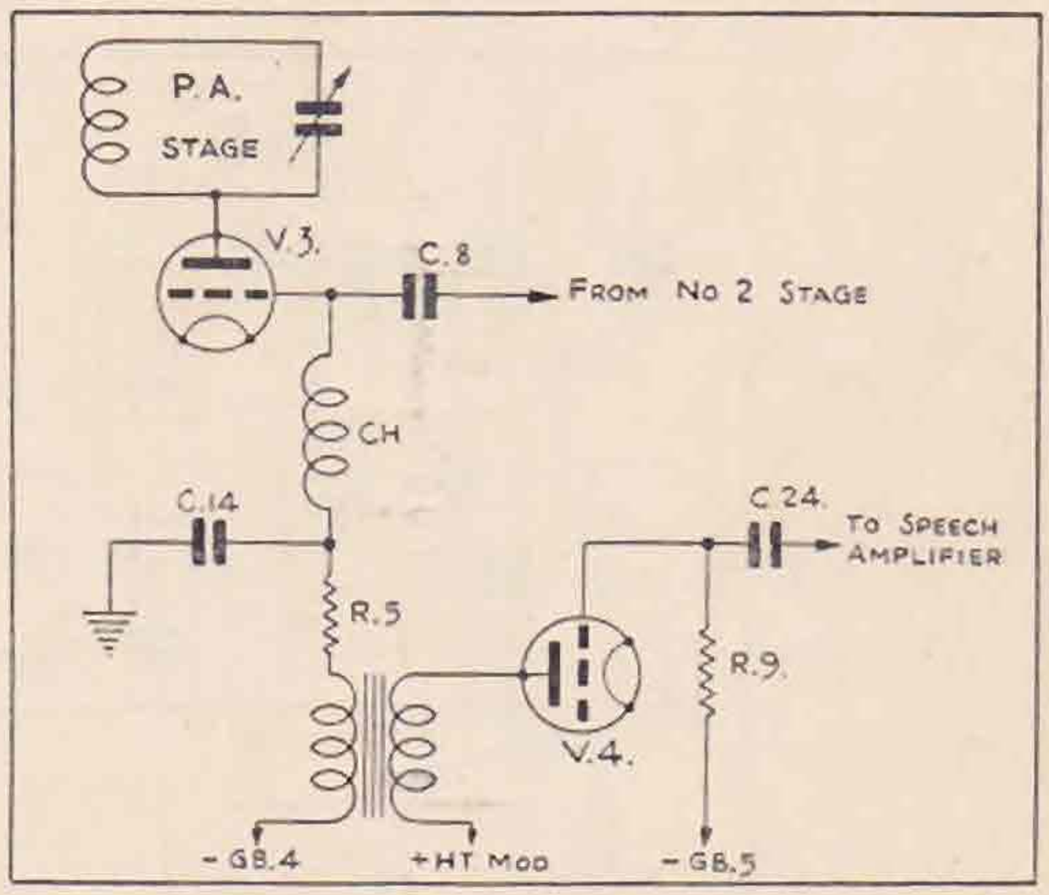


Fig. 10.
This is a circuit diagram of the modulator.
V4 —Mullard D.O.24.
C24—T.C.C. .01 mfd.
R9 —100,000 ohm, 1 watt type.

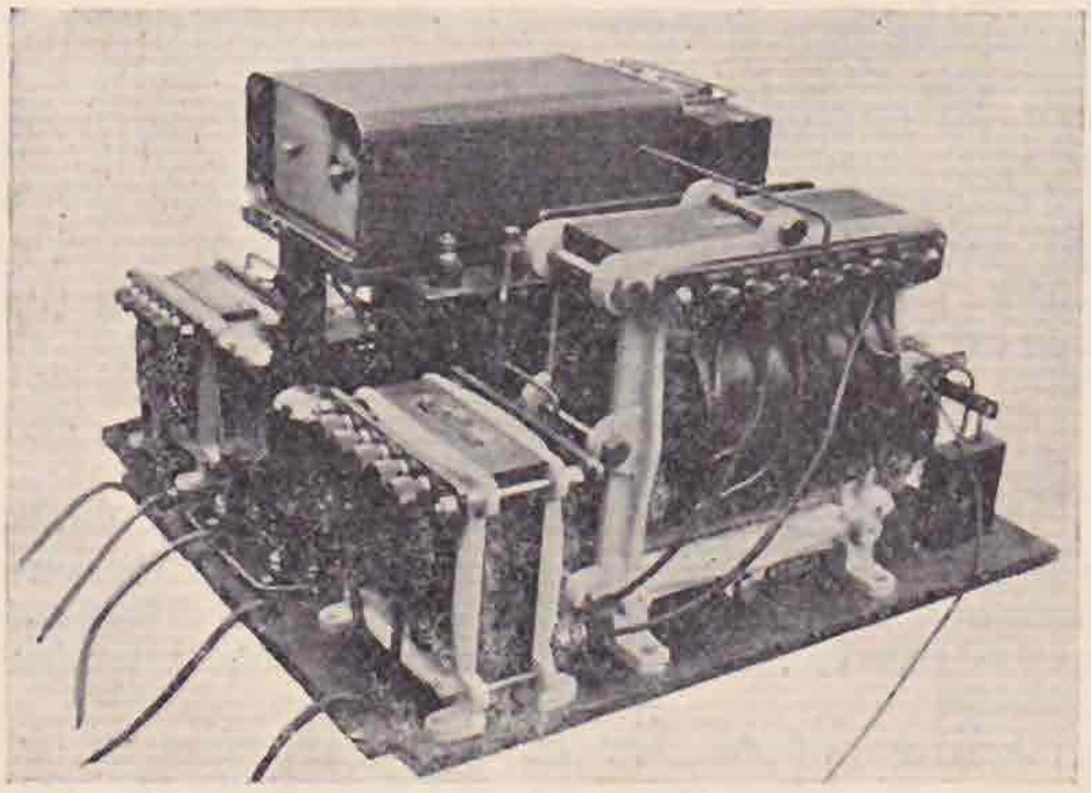


Fig. 9.
Another view of the power supply. The components can be readily identified.

Strays.

Mr. G. Kitchen (G5VP), of 10, Beech Road, Epsom, is now back in England and will be obliged if the pirate using his call will think of another.

* * *

Mr. J. Hunter (G2ZQ) would like to know who holds the British W.A.C. record. He puts forward a claim for this achievement, having worked ZC6CN, G6FU, LU6DG, W1FET, ZL4AO and FM8OGO in 2¼ hours on July 16, between 20.05 and 22.20 G.M.T. The 14 mc. band was used for all contacts except Africa.

* * *

Extract from report received by G5MR from enthusiastic receiving station (non-R.S.G.B.) :—

"... modulation about 90 per cent. and speech quality good. There was some QRM, but this did not interfere with you at all. ..."

CONSISTENCY IN LONG-DISTANCE COMMUNICATION.

By E. N. Adcock (G2DV).

The Receiver.

The effectiveness of any station largely depends on the capabilities of its receiver. It is useless to transmit a good D.X. signal if one cannot hear replies—and with many amateurs that is the main difficulty. Most of us live in towns with motor traffic right at our doors, consequently weak signals are often below the noise level. The writer has attempted to remedy this state of affairs and can claim to have achieved some fair degree of success.

About a year ago the receiver used was a S.G., detector 1 L.F., which so far had proved the best, but believing that matters could still be improved, a considerable amount of experimental work was carried out, which may be summarised as follows :—

and transformers was given a good test. (Various methods are shown in Fig. 2.) Background noise was practically non-existent and selectivity was excellent, but the following disadvantages were noted :—

(1) Tuning the receiver was difficult, the signals failing to hold in tune for even a few seconds, due to creep in either the receiver or transmitter frequency.

(2) A loud signal caused the peaked stage to burst into a state of continuous self-oscillation or resulted in a " taily " signal, making it difficult to read.

(3) All signals had an unpleasant sharp ringing tone, which made them very difficult to copy.

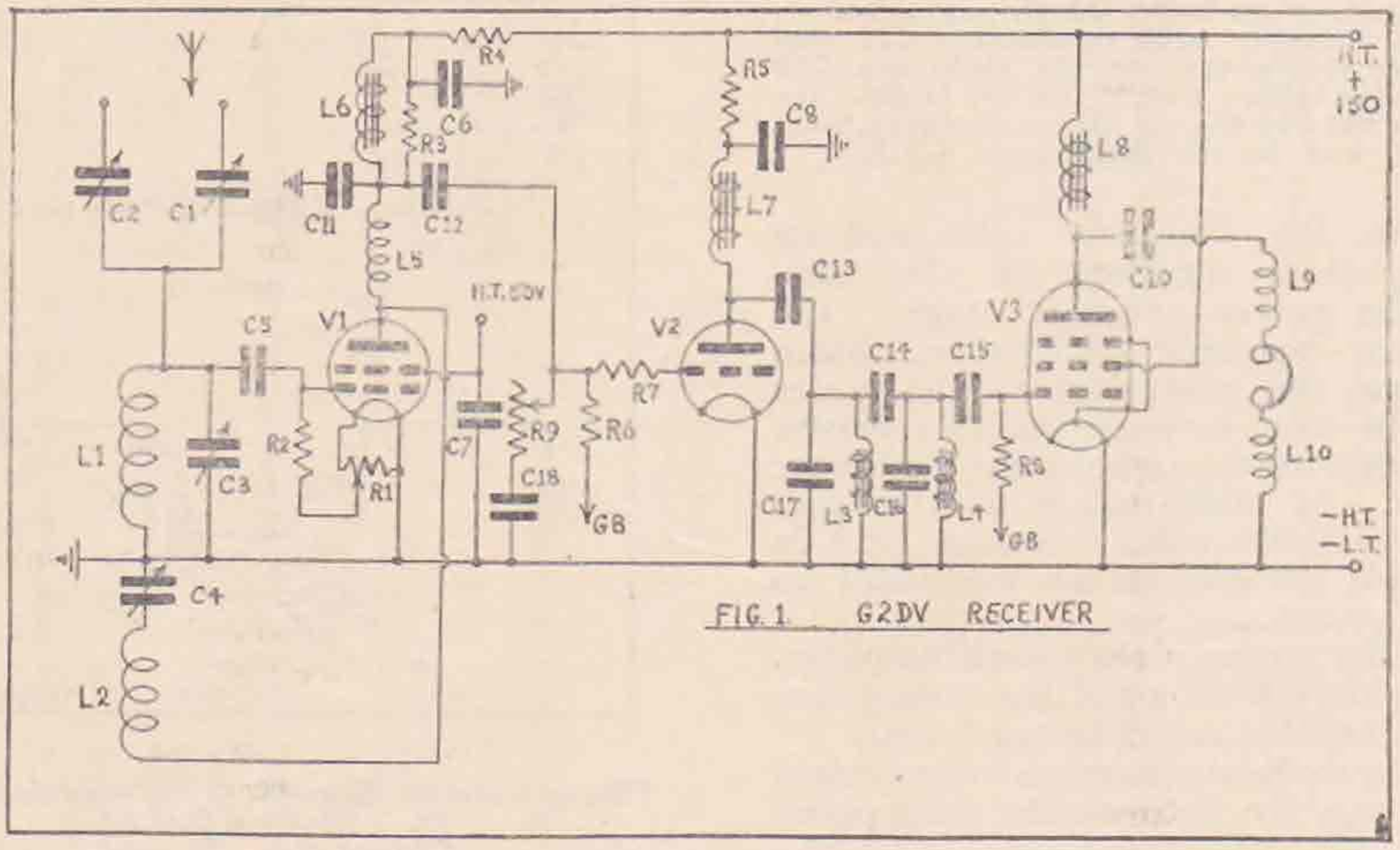


FIG. 1. G2DV RECEIVER

L1, L2 = 4-pin coil (Eddystone).
L5, L9, L10 = H.F. Chokes (Eddystone).
L6 = 300 H Choke (Varley).
L7, 8 = 110 H Choke (Pye).
V1 = S.215A (Mazda).
V2 = H210 (Mazda).
V3 = Pen 220 (Mazda).
C1, 2 = .0001 Max (Formodenser).
C3 = .00002 Series Gap (Cyldon).
C4 = .0003 (Ormond).
C5 = .0001 (T.C.C.).
C6, 7, 8 = 1 mf (T.C.C.)
C9, 10 = 2 mf (T.C.C.).
C11 = .0001 (T.C.C.).
C12 = .002 (T.C.C.).
C18 = .01 (T.C.C.).
R1 = 400 ohms (Sinus).
R2 = 3 meg (Dubilier).
R3 = ½ meg (Dubilier).
R4, 5 = 50,000 ohms (Dubilier).
R6, 8 = 1 meg (Dubilier).
R7 = 100,000 ohms (Dubilier).
R9 = ½ meg with off position (Centrelab).

(1) *Tuned and Untuned H.F. Stages.*—Selectivity no better and noise-level more prominent.

(2) *The Super-Het.*—With the normal 4-valve type selectivity was slightly better, but background noise was far too prominent. The only super-het found satisfactory was a specialized type of stenode—too complicated and costly to be of interest to the average amateur.

(3) *Low-Frequency Selectivity.*—This seemed to offer some solution. Peaked L.F. amplification at about 800 cycles by means of tuned chokes

The L.F. Band-Pass Filter.

There remained one further method—the band-pass filter, as advocated by Ross Hull. This consists of a filter as shown in Fig. 4, designed to pass any desired band of frequencies. First let us consider Fig. 3. Curve A shows the effect of a peaked amplifier. The sharpness of the peak, of course, is determined by the selectivity of the stage. and the curve flattens out on each side of the peak frequency. Curve B shows the effect when the band-pass filter is used as in the final

receiver. Note how the sides of the curve tail off steeply when the cut-off frequency is reached, also the much greater flatness of the top. This filter, which is shown (see Fig. 4) can be built to pass any desired band of frequencies using the formulæ :—

$$L_1 = \frac{(f_U - f_L)Z}{4\pi f_L f_U}$$

$$C_3 = \frac{f_L \cdot 10^6}{\pi \cdot Z \cdot f_U(f_U - f_L)}$$

$$C_2 = \frac{(f_L + f_U) \cdot 10^6}{4\pi \cdot f_L \cdot f_U \cdot Z \cdot} = \tfrac{1}{2}C_1 \cdot$$

Where f_L, f_U are lower and upper cut-off frequencies.

Z =impedance of filter.
C =capacity in microfarads.
L =impedance in henries.

For a cut-off at 400-900 cycles and an impedance of 50,000 ohms (to match up to V_2) the values are :—

L_1 =5 henries. C_2 =.0057 *uf.*
C_3 =.0056 *uf.* C_1 =.0114 *uf.*

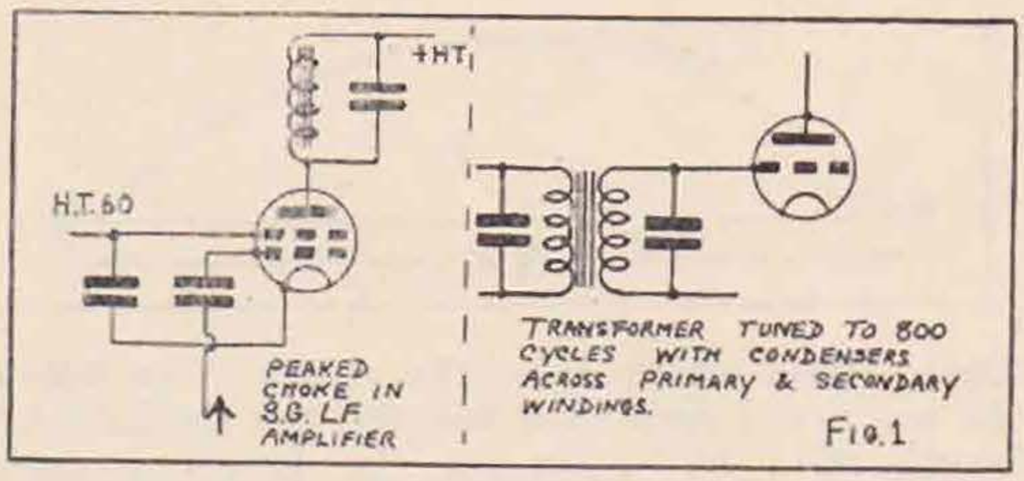


Fig.1

Designing the Receiver.

The S.G. Detector was retained on account of its sensitivity. In the receiver circuit diagram (Fig. 1) C_1 and C_2 are used to bring the 14 mc. and 7 mc. bands to the bottom of the tuning dial, in order to get greater band-spread. The matching of the filter impedance to that of an oscillating S.G. Detector was a practical impossibility. It was thus necessary to include an intermediate L.F. amplifier, its impedance matching that of the filter. It soon became obvious that the use of a band-pass filter passing a very narrow band of frequencies had similar disadvantages to the peaked amplifier. The ultimate filter, gives ½ kc. selectivity, and has comparative ease of tuning.

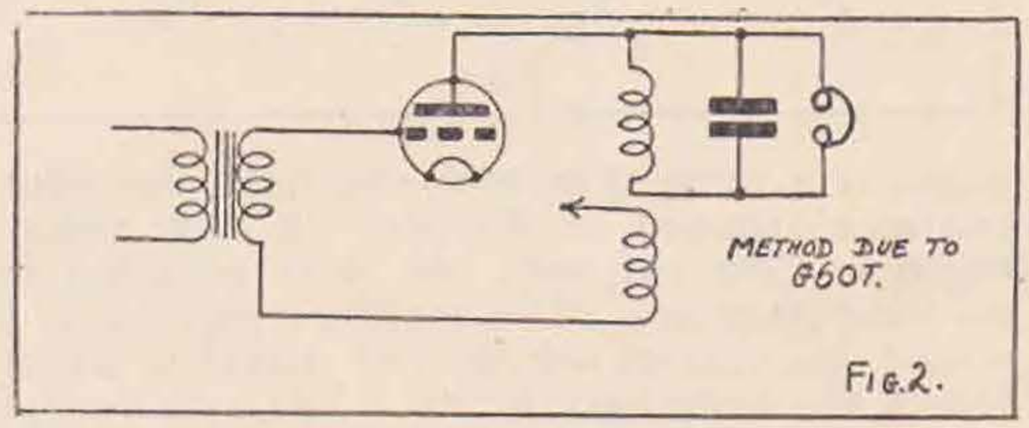


Fig.2.

Construction of the Filter.

This presents little difficulty, the chokes used in the original set were L.F. smoothing chokes (nominally 5 henries), which are readily obtainable. It is essential that the chokes be wound with wire not less than 28 S.W.G. The condensers were built up from small capacities, coupled together in parallel.

NOTE.—Fig. 1 *above should read Fig.* 2).

Now set up a dynatron circuit, as in Fig. 5. A D.P.D.T. switch between the anode and the high tension battery is used to give quick comparisons. Place a condenser, about .005 mfd., across the switch arms and one choke across each end. Attach one tag of a pair of phones to the anode. If the note given by the chokes is not the

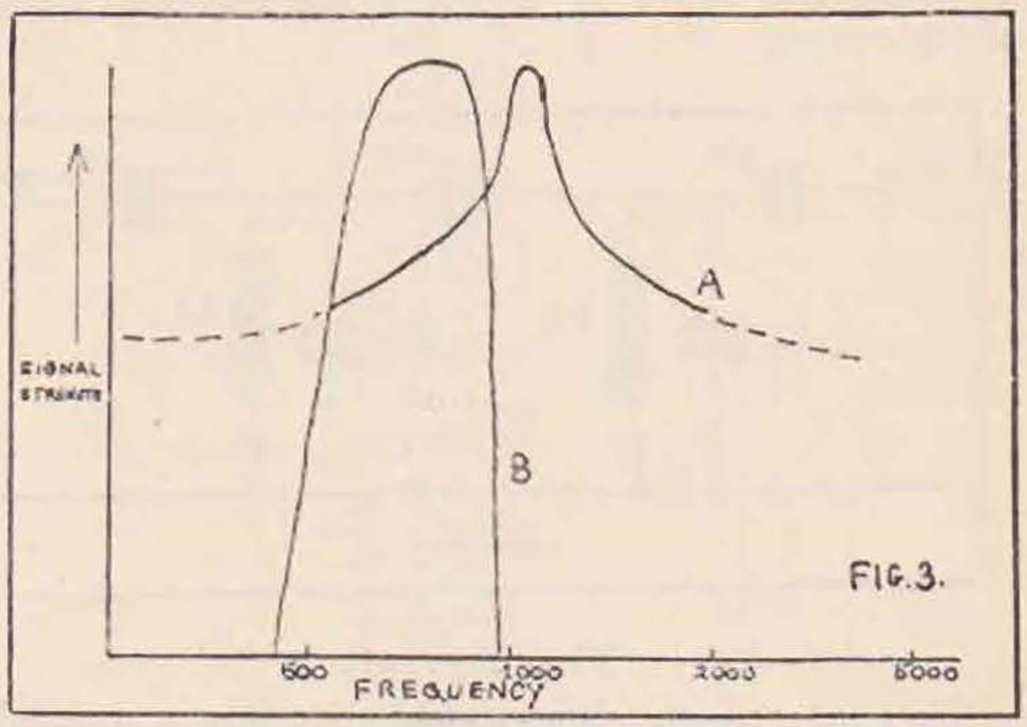


FIG.3.

same remove a few turns from the one giving the higher note until they are equal. Then remove condenser across switch arms and place capacity C_3 across one choke and .004 mfd. + .002 mfd. max. Formodenser across the other, and adjust the Formodenser until the note given by each is the same. C_1 and C_2 adjustments are made in a similar manner.

Building the Receiver.

The circuit of the complete receiver is given in Fig. 1. It is not intended to give constructional details, as the serious experimenter is quite capable of carrying out the work himself, and will suit his own wishes. It is, of course, essential that the detector circuit be completely shielded. The inclusion of $C_{18}R_9$ is an added refinement, used when very bad interference is met with. All frequencies are attenuated to some extent by the filter, so the pentode was included to give a really loud signal. A triode in the output stage does, however, give quite good results. It will be noticed that only one dial is used for tuning.

In conclusion, it may be said that the trouble expended on the receiver will be amply repaid, and the ratio of signal strength to noise level is so good that on an occasion, when with a good two-valver the 14 mc. band sounded completely dead, upwards of a score of stations were audible with the band-pass arrangement. This receiver was used in the recent B.E.R.U. tests—where its capabilities were well proved.

The Transmitting System.

The Transmitter.—The transmitter should, of course, be crystal-controlled to ensure stability of frequencies, and the following points should be observed for maximum efficiency. The power amplifier valve or valves should possess as low an impedance as possible, combined with medium amplification factor and high mutual conductance and have *low inter-electrode capacity.* A push-pull amplifier is preferable, provided valves are obtainable which match well—otherwise one valve does the work while the other dissipates its current chiefly in heat. High drive with high bias should be employed, and the L/C ratio of the tank should

be as great as possible. (For 14 mc. and 7 mc. operation the writer uses 13 turns and 23 turns 4 in. diameter respectively, practically no capacity being used at all—a .00005 mfd. condenser tunes on a few degrees only). The H.T. voltage should be kept as high as possible, in order that the desired output can be obtained with a low current—allowing the valve to work on the straight portion of its curve.

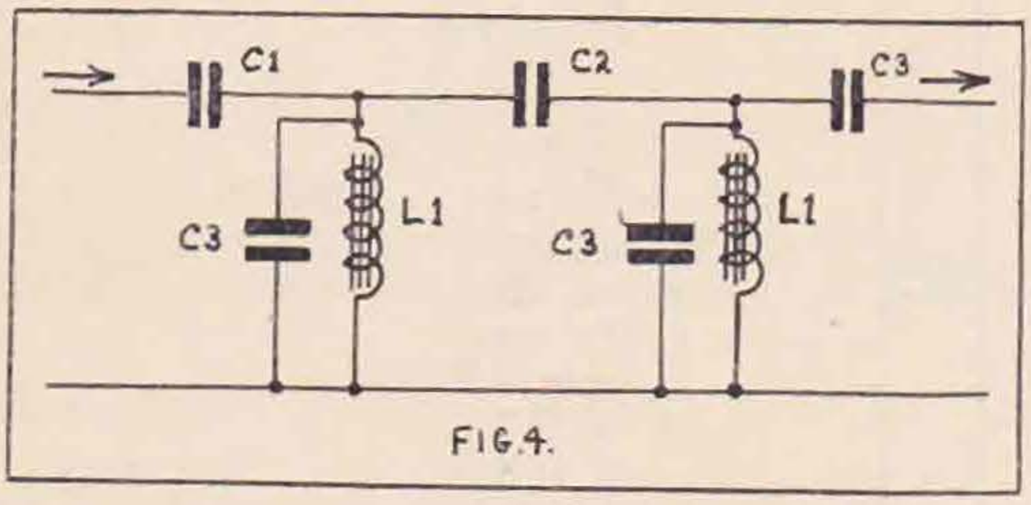


FIG.4.

The Aerial.

This, of course, depends on the space available. Few of us can erect two aerials at an angle of 45°, and even if this were possible, the advantage of such a method is rather dubious, owing to the effect the idle system must have on radiation.

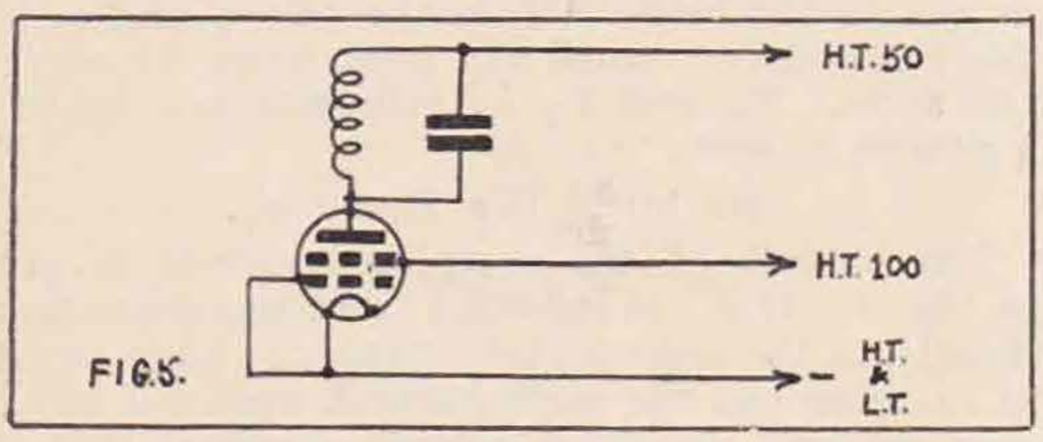


FIG.5.

The following scheme has much to recommend itself.

Referring to Fig. 6, two poles, A and B, are erected at the far opposite corners of the garden, and a rope halyard slung between them over pulleys. One end of the aerial is fixed at C, and the other end attached to the halyard so that the direction of the system may be varied from CA to CB. Rope should preferably be used for the

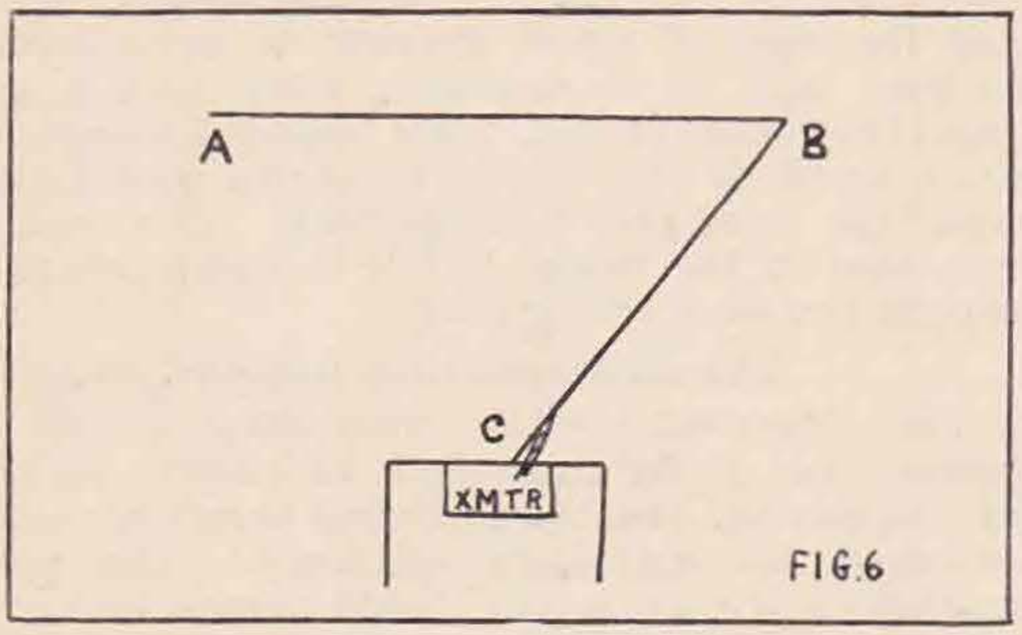


FIG.6

actual aerial halyards, but as even the best quality is susceptible to damp and rain, some system to allow for shrinkage must be provided for. The author's method is to tie the halyard at the bottom of pole A and leave it free at B, a weight sufficient to keep the system taut, being tied on at B a few feet from the ground. Any shrinkage at either end will then lift the weight, and the system remains taut without strain and consequent looseness when the rope dries. Strong wire for the pole guys is an unfortunate necessity. The guys should be broken at intervals and insulators inserted so that no length of guy wire can resonate with the radiated wave.

Adjusting the Length of the Radiator.

The actual type of aerial is unimportant so long as the radiating portion is well away from any buildings or other screening, but the length of the radiating portion cannot be ascertained definitely by calculation, as this will be affected by local conditions. Various methods of finding the length, such as fixing the aerial about six feet above the ground and adjusting with a neon lamp, have been suggested, but give incorrect results when the aerial is hoisted to its proper position, its capacity to earth being considerably altered.

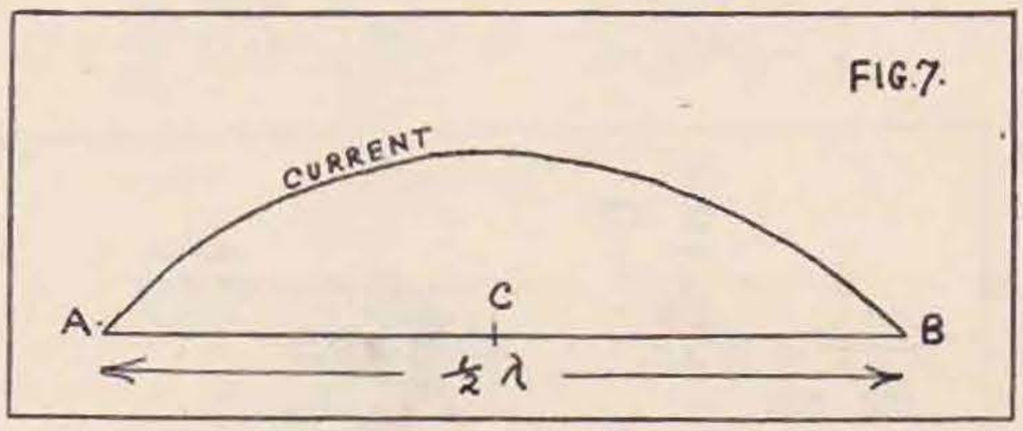


FIG.7.

The method adopted by the writer is as follows: the top is cut somewhat longer than the calculated length of a half-wave for the lowest frequency for which it will be used. The current distribution on the radiator is then as in Fig. 7. Maximum current occurs at the centre, and a suitable aerial ammeter is inserted at this point and hoisted with the aerial. When the transmitter is switched on, the current in the meter is read with a pair of binoculars. Equal lengths are then cut (a few

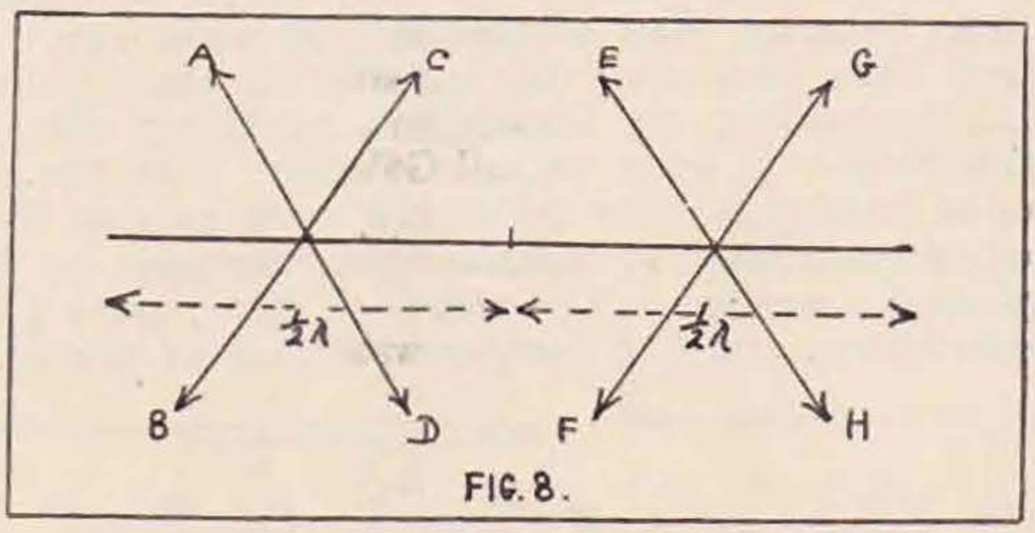


FIG.8.

inches at a time) from each end until the point of maximum current is reached. A new radiating length is then cut from the data obtained from the temporary one. If a matched impedance feed is used, the position of the feed should be adjusted first in the temporary length. The aerial coupling to power amplifier tank is also best adjusted by this method, if possible.

From the formula I^2R comparison between power in the aerial for adjusted length and calculated length will give surprising results: nearly 100 per cent. increase in some cases.

Measuring Directional Radiation.

In the case of a horizontal $\frac{1}{2}\lambda$hertz aerial, $\frac{1}{2}\lambda$ high and free from screening, maximum radiation

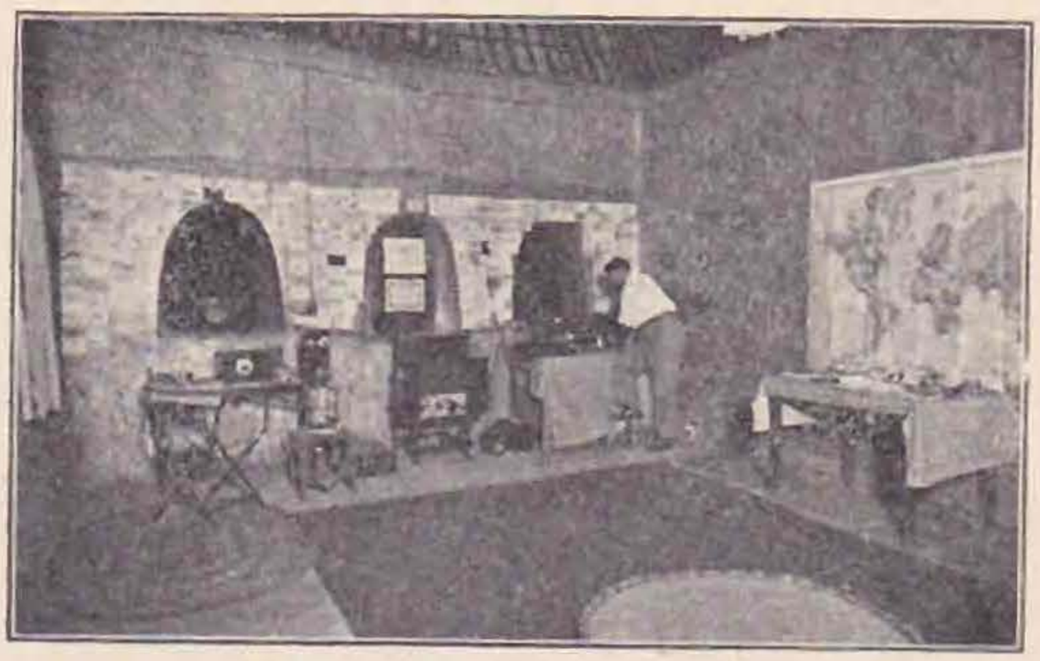
(*Concluded on page* 51.)

STATION DESCRIPTION No. 35.

ZD2A

AMATEUR Radio Station ZD2A is situated at Zaria, Nigeria, West Africa, about 600 miles inland by rail from Lagos in a northerly direction.

The operator first started short-wave work in 1925, and in 1926 managed to obtain the first amateur wireless transmitting licence issued in Nigeria, and was allotted the call sign KM1. Experiments were carried out on 45 metres with an input of 15 watts, and were chiefly confined to tests with one or two other enthusiasts, who had short-wave receivers, over distances varying between 50 and 400 miles. Reports of reception of signals were, however, received from England and Italy, which was considered very encouraging, as the operator had only the vaguest notion about transmitting aerials in those days. The circuit in use at this period was Ultraudion, with an L.S.5 valve.



1 In 927 the call sign was altered to FN2C. Shortly after this the operator went to England for four months, when he obtained a temporary transmitting licence with the call G6WT.

Duties prevented much being done in 1928, though Australia was worked on 33 metres, with a power of 12½ watts.

In 1929-1930 the operator was in N. Ireland for 18 months, and carried on under the call Gi2OO. During this period an opportunity was taken to rebuild the transmitter and receiver on the latest lines.

The station was re-opened in Nigeria in December, 1930, and was very soon granted the call ZD2A in place of FN2C.

The present transmitter consists of a T.P.T.G. circuit with a Det. 1 S.W. valve, and can be seen on the right in the photograph.

The case, in which the transmitter is constructed, has a lid and falling front panel (removed for the photograph), so that it can be completely enclosed, and becomes perfectly portable. Experiments were carried out with crystal control and master oscillator circuits, but as the maximum H.T. power available for all the stages of the transmitter was only 50 watts supplied by a rotary driven by a car battery, and also as reports of signals were always T8 or T9 with the T.P.T.G. outfit, these experiments were dropped, and the old transmitter reinstated. Keying is effected in the grid circuit.

The receiver, which may be seen on the left-hand table, is a two-valver ; S.G. detector choke coupled to a Mazda L2 valve.

The transmitting key is on the left of the receiver (the operator being left-handed), and on the right is a switchboard controlling the transmitter. Up to the present 58 countries have been worked.

ZD2A hopes to carry out low power telephony tests shortly, and, as a preliminary, the rotary has been moved from its old position under the transmitter table to another room. It is remotely controlled, as also are the filament batteries for the transmitter and microphone amplifier. The switchboard has been removed, and a series of bell-pushes control the Wates distance switches which do the work.

The aerial in use is a Windom, as described by G2BI, and has been very satisfactory. Experiments with a vertical ¼-wave aerial on 14 mc., for use when out in bush, have been quite successful, and several countries have been worked with it.

One is chiefly confined to work on 14 mc. in Nigeria, as, except for approximately the months November-February, static is usually too bad for anything useful to be done on 7 mc. in the evenings. It is hoped to carry out experiments on 28 mc. during August, and ZD2A would be very grateful for the co-operation of G stations in these tests.

Finally, all power for charging the various batteries, including the receiver's Milnes H.T. battery, and for lighting the house with car headlight bulbs, is obtained from a Pygmylyte set, which consists of a 1-h.p. two-stroke engine and car dynamo. This also is portable !

EDITORIAL.—*Continued from page* 31.

to settle a complaint. Fortunately there is now a demand among listeners for all-mains sets where selective tuning circuits are employed, such as the well-known band pass system, and these should ultimately lead to the complete suppression of trouble. It is therefore up to the amateur to endeavour to persuade his friends to substitute modern receivers in place of the old ones. Much also can be done by suggesting to neighbours that their aerials can be shortened without loss of signal strength, or to insert a small series condenser in the aerial lead, with the same object. Present-day sets do not require the enormous aerials which are in common use, in fact they give better results without them. We have often seen most elaborate systems of wave traps adopted, when a few yards off the aerial would have achieved the object at a far lower cost.

We have only one answer to the transmitting member who appeals to us for help when threatened by neighbours ; this is, if you are unable to adapt your set so that the interference cannot be suppressed, do not attempt to transmit during the times when special programmes, such as concerts or variety are being sent out. In fact, it is best to keep silent until eleven p.m., after which only dance music prevails, and a few key clicks would not seriously interfere with its effects.

NATIONAL FIELD DAY.

THERE are some who level criticism at the modern amateur because he indulges too frequently in various kinds of "tip and run" contests, but we feel that, however justified their condemnation might be as applied to individuals, it cannot hold good for events such as National Field Day.

True, a scoring system was evolved to encourage intensive operation during the 27 hours of the Contest, but the primary object was to prove that a group of portable stations located in all parts of the British Isles were capable of maintaining reliable communication with other amateur stations (preferably portable), using low-power apparatus. The event also clearly demonstrated that if the necessity arose, we could place into operation an emergency network of stations at short notice. Such a necessity is hardly likely to arise in this country, but it is reassuring to know our capabilities in this direction.

Criticism has been levelled against one district because they suspended the aerial of their "B" station to the masts of an old commercial station. Viewed purely from a competitive angle, their methods were undoubtedly subject to criticism, but if we regard the event as a test of portable *apparatus*, they were probably justified in using the most advantageous aerial system they could discover. In so doing they unthinkingly placed themselves at an advantage over other districts, who endeavoured to make the whole of their station portable. The rules unfortunately were not definite on the question of aerial systems, consequently Council were not justified in disqualifying this station, although they take this opportunity of stating that the rules for future events of this kind will be more carefully worded.

With but four exceptions, all districts in England, Scotland, Wales and Northern Ireland were represented. The total number of stations taking part was 34, 25 of which were in England, five in Scotland, two in Wales, and two in Northern Ireland.

That considerable time was being spent in choosing the various station sites was obvious to us at Headquarters many weeks before the event started, for most of the D.R.'s had realised the necessity of choosing locations on elevated ground, in order to obtain whatever local advantage was possible.

When the actual day came we would have given much to see the arrival of the many parties at their selected sites. Motor-cars of all types, caravans, bicycles, donkey-carts and, in fact, every conceivable mode of transport seems to have been pressed into service. Quiet villages, isolated hill-tops, open fields and old barns quickly became the centres of radio life; camp fires were lit, and then, of course, it rained! Some harrowing tales could be told about this "feature" of the week-end, but as most of them are bed-time stories, we leave them to the victims to relate at Convention. G6CW has, we understand, arranged to take out a "pluvius" policy next year, apparently to safeguard himself against the loss of yet another pair of . . . shoes!

It was our intention to publish an account of each district's activities, but after having read the first two, we came to the conclusion that this issue of the BULLETIN would contain little else but Field Day news, if we adhered to our original ideas, consequently we propose giving a brief résumé of the work carried out at each station, leaving our readers to fill in the gaps. This should not be a difficult task for those who spent the whole or part of the N.F.D. week-end at their local station.

National Field Day Scores

Position.		*District.*	*A.*	*B.*	*Total.*
1	...	15	81	283	364
2	...	Scotland A	121	236	357
3	...	5	123	200	323
4	...	17	123	136	259
5	...	7	69	188	257
6	...	Scotland B	209	(one station)	209
7	...	2	87	115	202
8	...	3	115	68	183
9	...	14	77	106	183
10	...	4	118	62	180
11	...	12	104	74	178
12	...	10	96	70	166
13	...	Scotland D	74	86	160
14	...	1	81	58	139
15	...	8	110	3	113
16	...	N. Ireland	83	18	101
17	...	16	—	70	70
18	...	11	—	54	54

DISTRICT ACTIVITIES.

No. 1.—*North Western.*

G6HG and G2OI were operated, the former scoring 81 points, and the latter 58 points. LY1A was the best DX out of 32 stations worked from A, and U2QW the best outof 24 contacts from B.

No. 2.—*North Eastern.*

G5SZ and G5HB were operated, the former scoring 87 points, and the latter 115 points. UO3MC was the best DX out of 35 stations worked from A, and ZD2A the best out of 34 contacts from B.

No. 3.—*West Midlands.*

G2AK and G5BJ were operated, the former scoring 115 points, and the latter 68 points. UO7OA was the best DX out of 27 contacts made from A, and ZD2A the best out of 20 contacts from B.

No. 4.—*East Midlands.*

G6MN and G6GF were operated, the former scoring 118 points, and the latter 62 points. Russia was the best DX out of 55 contacts from A, and YI6HT, K4AOP, W2GW and W2BHZ the best DX out of 13 contacts from B.

No. 5.—*Western.*

G6RB and G2OP were operated, the former scoring 123 points, and the latter 200 points. G6RB shared withG6IC the honour of obtaining the highest A station total in the contest. EU9SDKA was their best DX out of 53 contacts; the B station had 32 contacts with SU6HL, ZD2A, YI6HT and ZC6CN as best DX.

No. 6.—*South Western.*

No entry.

No. 7.—*Southern.*

G5LA and G2NH were operated, the former scoring 68 points, and the latter 188 points. SP1LN was the best DX out of 25 contacts made from A, and YI6HT, SU6HL, ZC6CN and ZD2A were the

best contacts out of the 26 made from B. The A station was flooded out at mid-day on June 12.

No. 8.—*Eastern.*

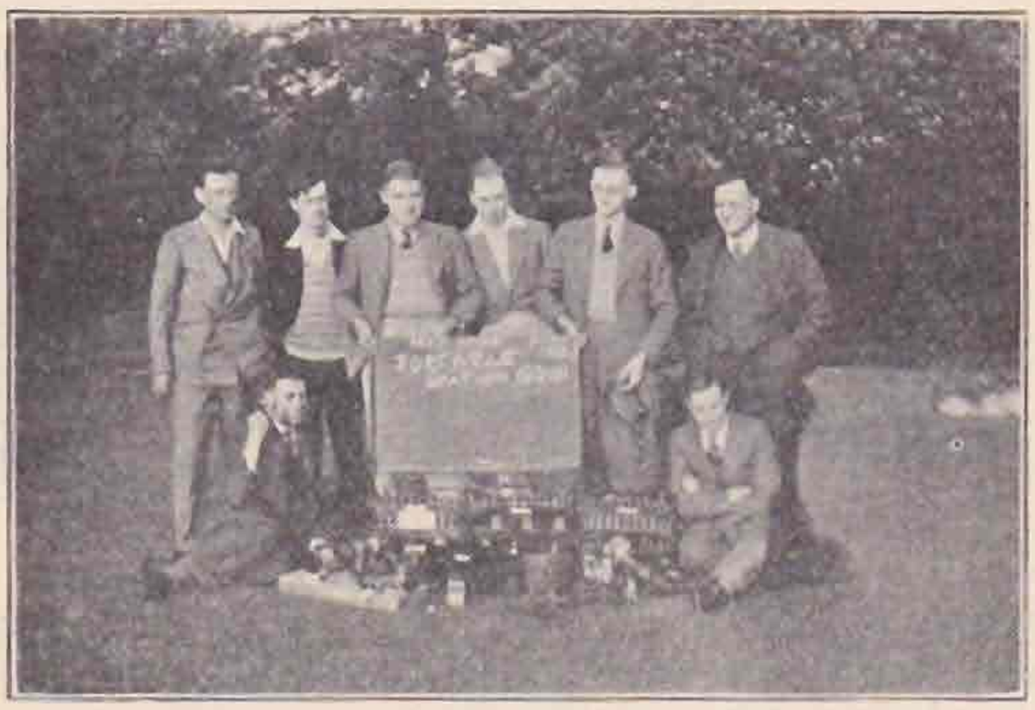
G6BS and G5JO were operated, the former scoring 110 points, and the latter 3 points. OH1NI was the best DX out of 48 contacts from A, and OZ5JN the best from B.

No. 9.—*Home Counties.*

No entry.

No. 10.—*South Wales and Monmouth.*

G5WU and G6FO were operated, the former scoring 96 points, and the latter 70 points. The A station had 37 Q.S.O.'s with UO7OA as DX, whilst the B station had 36 contacts with YL2BC as DX.



District 1.—The operators and gear at G2O1.

No. 11.—*North Wales.*

G5FU was the only station operating, scoring 54 points from 27 contacts with SP1EV as DX.

No. 12.—*North London.*

G5CD and G6CL were operated, the former scoring 104 points, and the latter 74 points. U3GM was the best DX out of 37 contacts made from A, and SP the best of 33 contacts from B.

No. 13.—*South London.*

No entry.

No. 14.—*East London.*

G6UT and G6LL were operated, the former scoring 77 points, and the latter 106 points. UO7OA was the best of 32 contacts made from A, and KN2 the best of 35 contacts from B. CT2AN was also worked from this station.

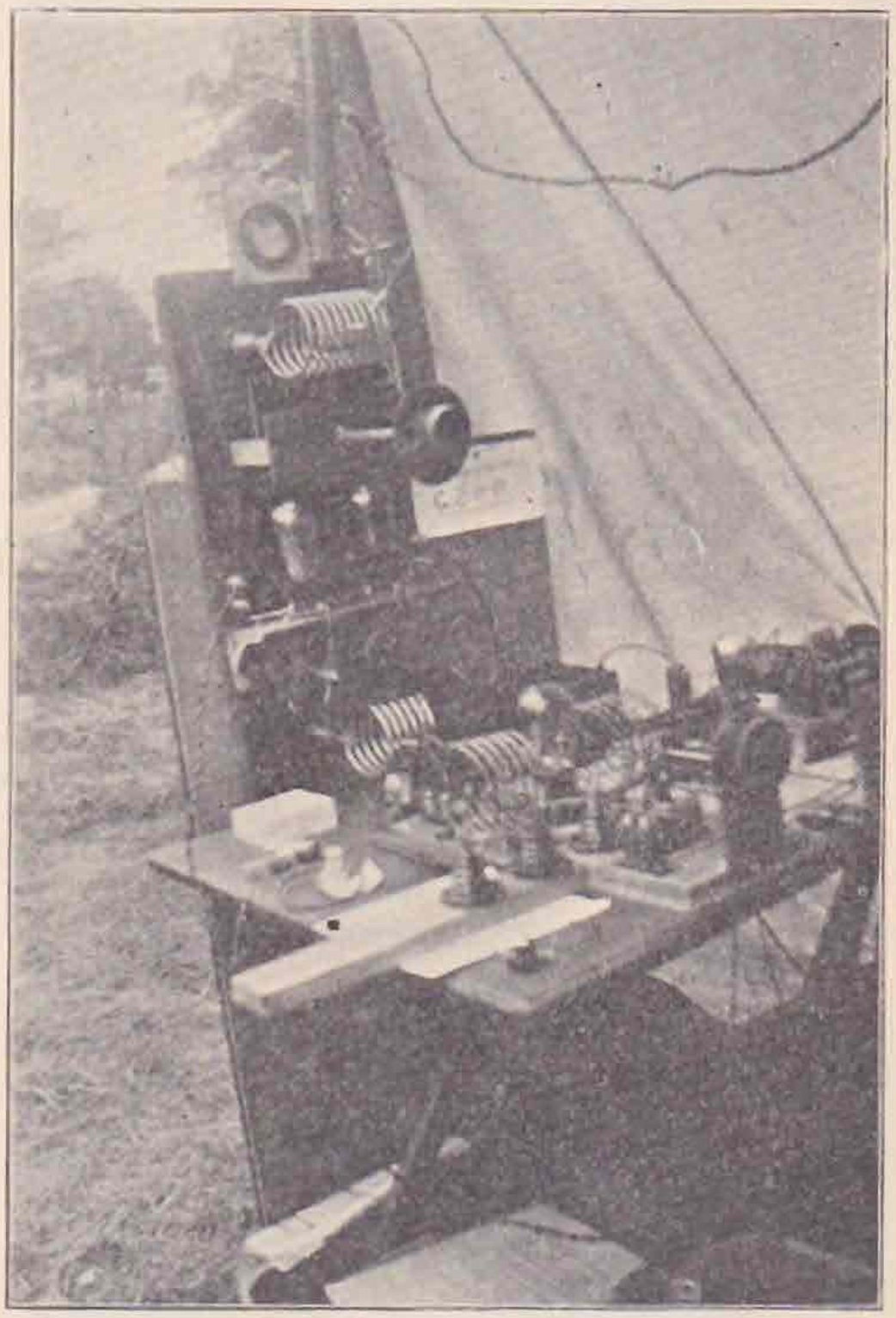
District 2.—G5SZ in operation.

No. 15.—*West London and Middlesex.*

G6WN and G6YK were operated, the former scoring 81, and the latter 283 points. The B station total was the highest in the contest. UO7OA was the best of 30 contacts made from A, whilst the B station, out of its 34 contacts, had the following DX: W1BLI, W1DUK, W1HQ, W1BFS, W1CPT, W2GW, W2MB, W2FFQ, W2DTB, W2DRJ, W2EJT, W3AGV, W8GFT, W8DJW, SU1CH, SU1MM, SU6HL, ZD2A, ZL3AR, ZL4AO and FM4AD.

No. 16.—*South Eastern.*

Great credit is due to G2IC for putting a station into operation at the last minute on behalf of his district. This station was located at Folkestone, and operated on the 7 and 14 mc. bands, scoring 70 points from 25 Q.S.O.'s, with CT3AB as DX.



District 5.—The gear used at G2OP.

No. 17.—*Mid-East.*

Owing to the geographical arrangement of this district, it was agreed to operate two B stations, one North and one South of the Humber. The total points scored by the two stations (G5FV and G5GS) were divided by two, giving a B station total of 136 points. The A station was operated under the call G6IC, and scored 123 points from 45 Q.S.O.'s, with XOZ7Z as DX.

G5FV scored 154 points from 28 Q.S.O.'s with ZC6CN, YI6HT, W1CDP, W8ZY and W9GVR as DX. G5GS scored 118 points from 21 contacts with YI6HT, W2BEM, W2AMD, W1CDP, W1CBJ, W1ZI, W8BEC, W8DYK, W3AVJ, FM8BG and FM4AD as DX.

Scotland, "A" District.

G5XQ and G6WL were operated, the former scoring 121 points, and the latter 236 points. The A station had 45 Q.S.O.'s with U2RE as DX, whilst the B station had 42 Q.S.O.'s with YI6HT, SU6HL, SU1MM, W8DJW, W2DPD, W1CDP, W2DTB, W2DRJ, W9GVR and ZD2A as DX.

Scotland, " B " District.

Messrs. Ingram and Keir, the operators at G6IZ, are to be heartily congratulated upon their achievement in scoring 209 points from the one station which was operating in their district. They had no less than 71 Q.S.O.'s during the week-end, working almost every other portable station on one or other of the bands. Their DX was W2CFM,

District 7.—G2YL lends a hand at G5LA.

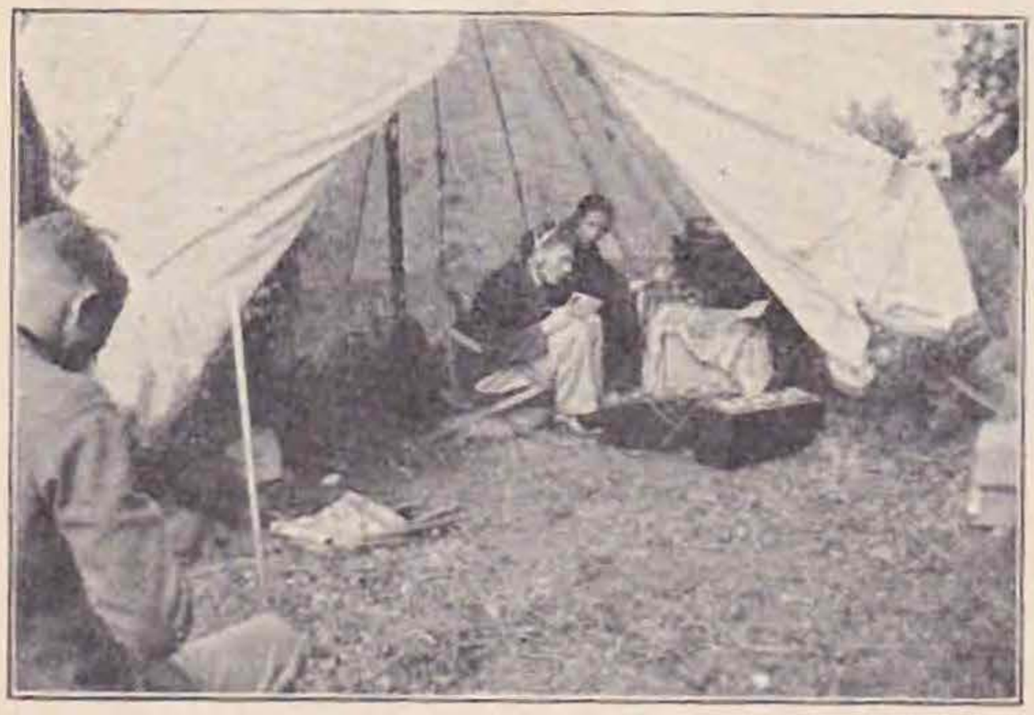
W8BTI, W3AGD and W1DN. Thirteen contacts were made on 3.5, 53 on 7, and five on 14 mc.

Scotland, " C " District.

No entry.

Scotland, " D " District.

G6MF and G5JB were operated, the former scoring 74 points, and the latter 86 points. The A station had 27 Q.S.O.'s, all with British stations; whilst the B had 36 Q.S.O.'s with ZZ1SS (British ship off the Bay of Biscay) as DX.



District 12.—G5CD on Welwyn Heath.

Northern Ireland.

GI5MO and GI6YW were operated, the former scoring 83 points, and the latter 18 points. The A station had 32 Q.S.O.'s with D4LQH as DX, whilst the B had nine Q.S.O.'s with PA0GO as DX.

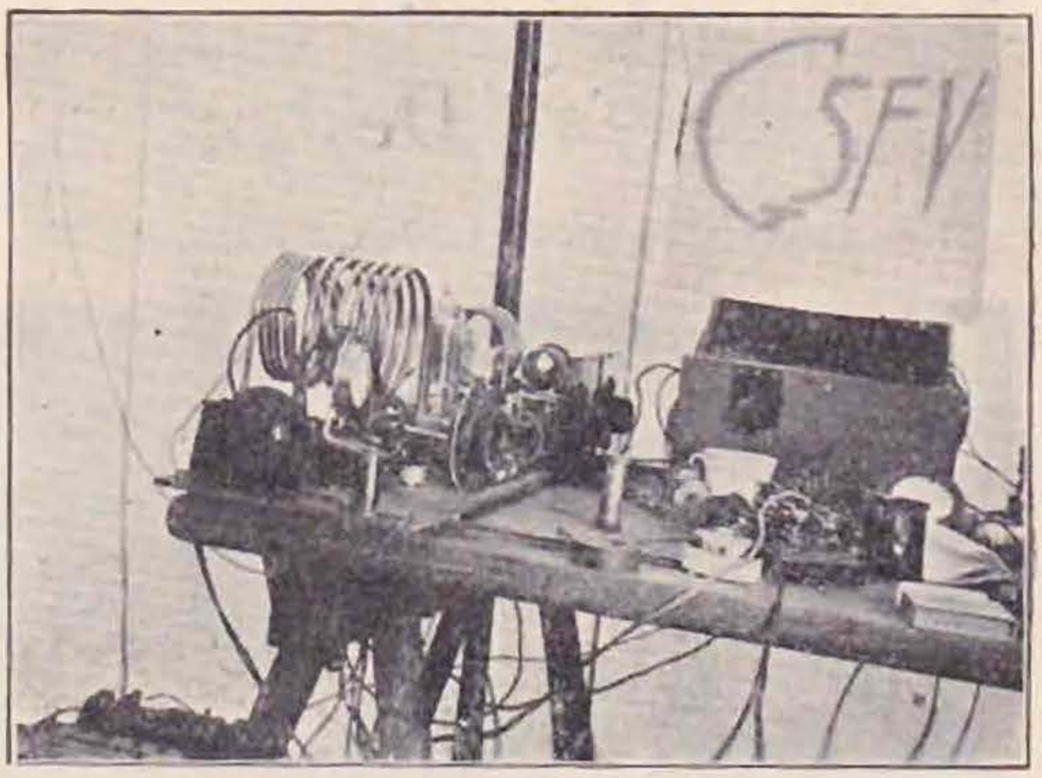
RESULTS.

The final positions of all competing districts are set out in the table reproduced herewith.

Congratulations are extended to the winners, District 15, who succeeded in bringing the first award to London this year. Much of their success was due to the work carried out at their B station under the call G6YK, and as mentioned above, the number of DX stations worked was a striking example of what can still be done by a well-designed low-power portable station.

Scotland " A " nearly succeeded in adding yet another trophy to their collection, and all who know how much time and energy was devoted to the preparation of their stations (which were in every way portable) will join us in congratulating the operators on their fine performance in running second.

District 5, who finished third, has always been regarded as one of the leading British Field Day



District 17.—The gear used at G5FV.

districts, and we were therefore not surprised to find them well in the van of this contest. Their gear was also 100 per cent. portable, as will be seen from the photographs reproduced.

CHECK LOGS.

The following are thanked for forwarding check logs of stations worked by them during the Field Day: G2MI, G5PQ, G5QU, G6CV and SM6WL.

District 17.—Cook-house at G5GS.

VU2FP also sent a list of stations heard at Kailana, U.P., India, during the week-end. These included G2OP, G6GF, G6WL, G2NH, G5FV; the latter was easily the best signal heard by him during the contest. Lieut. Beaumont called all of the above stations, but was unsuccessful in making contact, being beaten in most cases by YI6HT.

CONCLUSIONS.

In concluding this somewhat abridged account we wish to place on record our thanks to all D.R.'s C.R.'s, and members who gave of their best, in order to make their District activities a success. We regret that fuller use was not made of the 1.7 and 14 mc. bands, but as one of our provincial D.R.'s said recently, " We have learnt a lot this year, wait for 1934."

RECENT WORK ON 28 MCS.

By F. Rodman (G2FN).

[*The recent revival of activity on* 28 *mcs. has prompted Lieut. Rodman, one of the earlier workers on this band, to prepare an article based on results obtained during the past few weeks. The conclusions he has reached should prove of interest to members at home and abroad.*—Ed.]

A FEW notes on the vagaries of 28 mc. during the months of May and June, 1933, may be of interest in view of the fact that fairly consistent observation was possible and that communication with other 28 mc. stations was by no means a rarity. Unfortunately, regular observation ceased just at the time when an interesting stage was reached.

Prior to early May, 28 mc. was very dead, except for occasional periods of fair conditions, the periods usually varied in length from a few minutes to about an hour or so. During these periods commercial station harmonics were logged. The first half of May saw a marked improvement in conditions, but no fundamentals were heard.

The 28 mc. Test week was disappointing, good conditions prevailed on three of the days, but although numerous amateur harmonics were heard, only three definite 28 mc. amateur signals were logged. From the end of the Test week until June 12 conditions were poor, with occasional fair spells. Excellent conditions were encountered on June 13, and from that date until the end of June even the most exacting 28 mc. enthusiast should have been appeased by the activity on the band. Even QRM from 28 mc. stations was encountered.

It is impossible to include a log in these notes, there is too much of it for one thing, and it is felt that much of the log would only interest a few amateurs and the space it would occupy could be put to much better use.

During the period May 19 to July 2 observations were made on 29 days, the following general remarks apply to this period :—

(*a*) *Barometer.*

The same station was worked, or heard, on a rising barometer, a falling barometer, a high barometer and a low barometer. Several stations were heard or worked under two or three of the foregoing barometric states. The apparent conclusion is that local barometric pressure has no great influence on 28 mc. signals.

(*b*) *Local Weather.*

(1) Several stations have been worked twice or more under vastly different local weather conditions, the apparent conclusion being as for (*a*) above.

(2) (*a*) Fair to fine local weather coincided with poor conditions on MORE days than good conditions obtained. Ratio $2\frac{1}{2} : 1$.

(*b*) Varied or bad local weather coincided with poor conditions on LESS days than good conditions obtained. Ratio $1 : 2\frac{1}{2}$, the reverse of (2) (*a*). The inference is that varied or bad weather is more likely to produce reasonable conditions than fair or fine weather. The QSO ratio for the period is $2\frac{1}{2} : 1$, *i.e.*, two and a half QSO's under unsettled or bad weather to one under fair or fine weather.

To combine (*a*) with (*b*) is almost impossible, owing to lack of sufficient detail of pressure systems obtaining during the period. It would appear, however, under (*a*) that barometric pressure exerts but little influence, while under (*b*) local weather does. We are told that weather and barometric conditions are, to some extent, interdependent, yet in this case they do not appear to be. One point does seem to hold good, when the barometer is high and the weather is good, if 28 mc. is good it is very good, if it is not then it's awful ! There are no half-measures about it. This applied last year and also whilst the writer was in China during 1930.

(*c*) *Time and Season.*

Some connection seems to exist between these points. Unfortunately, it has not been possible to make anything like regular or frequent observations during the early part of the day. When it was possible no 28 mc. fundamental signals were logged except on one day. As a general rule few stations were heard before 16.00 G.M.T. Good or fairly good conditions obtained on the following dates since June 7 : June 7, 13, 14, 16, 17, 18, 21, 24, 25, 27 and July 1. The remaining days (9) on which observations were made, were poor or bad.

In past years a regular time programme has held for the general appearance of 28 mc. signals. In the latter part of 1928 American amateurs appeared during the afternoon. In India in the spring and early summer of 1929, VK, ZL, W, KA and Asiatic stations were heard in the early mornings, European and African stations appeared in the early afternoons. European stations tended to appear at a later hour as the summer advanced.

In China during the spring and early summer of 1930, VK, ZL and W stations were logged in the mornings and VK only during the afternoons.

In England during 1932 a few stations were heard in the morning, chiefly FM and HAF, while in the afternoon and evening HAF and other European countries were logged. This year, at the same period of the year, FM appears somewhat irregularly in the afternoon at the same time as many other European countries.

(*d*) *Fading.*

No opinion could be formed regarding the speed depth or periodicity of fading.

(*e*) *Strength.*

The average strength of stations logged varied but little and was, on the whole, astonishingly high

(*f*) *Harmonics.*

The strength of harmonics is not always a guide as to the conditions existing at the time for fundamental frequencies. It was noted that strong harmonics often heralded a period of bad conditions for fundamentals. The absence of harmonics did not necessarily mean that conditions for fundamentals were bad.

(*g*) *Distance.*

No connection appeared to exist between the distance over which communication was possible and other observable factors.

(*Continued on page* 62.)

THE UX247 AS A CRYSTAL OSCILLATOR.

By J. Davies, G2OA.

FOR some months the writer has been investigating the properties of the UX247 pentode for use as a crystal oscillator. Good valves of this type can now be obtained in this country and elsewhere at very reasonable prices, and it is thought that a résumé of the results obtained might be of general interest.

Throughout these tests the anode voltage was kept at 350 volts, this being ample for supplying output for most needs without unduly overrunning the valve.

The first point noticed is the readiness with which the C.O. oscillates. It would seem that very little excitation is required from the crystal, the efficiency of the oscillator dropping off but slightly when a thick piece of paper is inserted between the crystal and top plate, though with a four stage transmitter the final output remains unchanged. Raising the top plate results in an increase in frequency; two thicknesses of writing paper increased the frequency of a 3.5 mc. oscillator by 2.5 kc., so that the 14 mc. stage can be varied 10 kc., this feature being extremely useful when dodging interference in the present crowded bands.

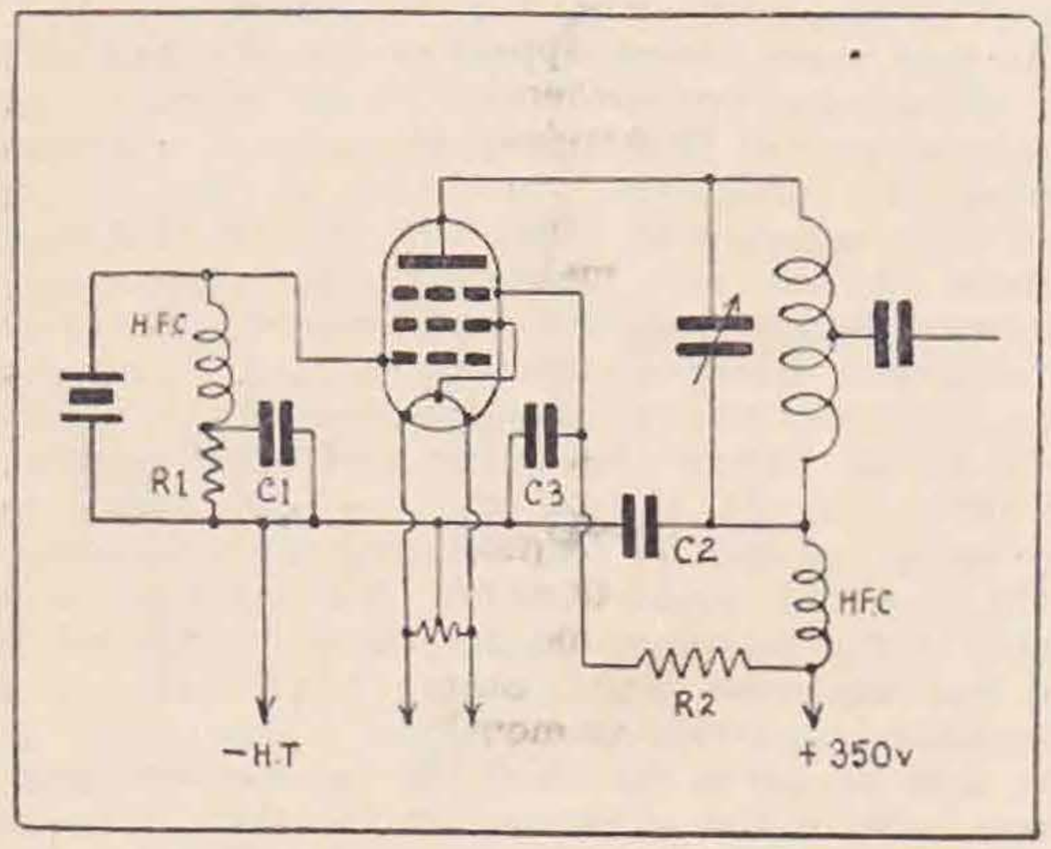


Fig. 1.
Showing the circuit for the UX247 Crystal Oscillator.
R_1 — 10,000 ohms.
R_2 — 50,000 ohms.
C_1, C_2 — .001mfd.
C_3 — .01mfd.

When using a triode in the C.O. it is generally found difficult, or impossible, to key it owing to the lag in starting up; this does not occur to any audible extent with the 247, and a simple transmitter for 3.5 and 1.75 mc. can thus be constructed, using but one stage, keying being effected in the centre-tap. Furthermore, it is not necessary to use a resistance across the key, as the resultant note is clear cut and spacerless. An output of about eight watts can easily be obtained with an input of eleven watts, when the antenna is coupled to the plate coil of the 3.5 mc. stage of the 14 mc. transmitter; the rest of the set being switched off.

When used as a C.O. a grid leak of 10,000 ohms is suitable, no external bias being used. When out of resonance the anode current will be about 50 m.as., dipping to about 8 mas. in resonance. This can then be loaded by either antenna or following stage, to about 35 m.as. When followed by a doubler it will be found an advantage to tap on near the centre of the anode coil, in order to obtain the drive for that stage.

The auxiliary grid potential may be obtained by a dropping resistance from the same supply as the anode, a fixed resistance of 50,000 ohms capable of carrying 7.5 mas. being suitable; if a variable one is used it should be adjusted to allow an auxiliary grid current of about 6 mas.; no advantage is gained by using more than about 120 volts on the auxiliary grid.

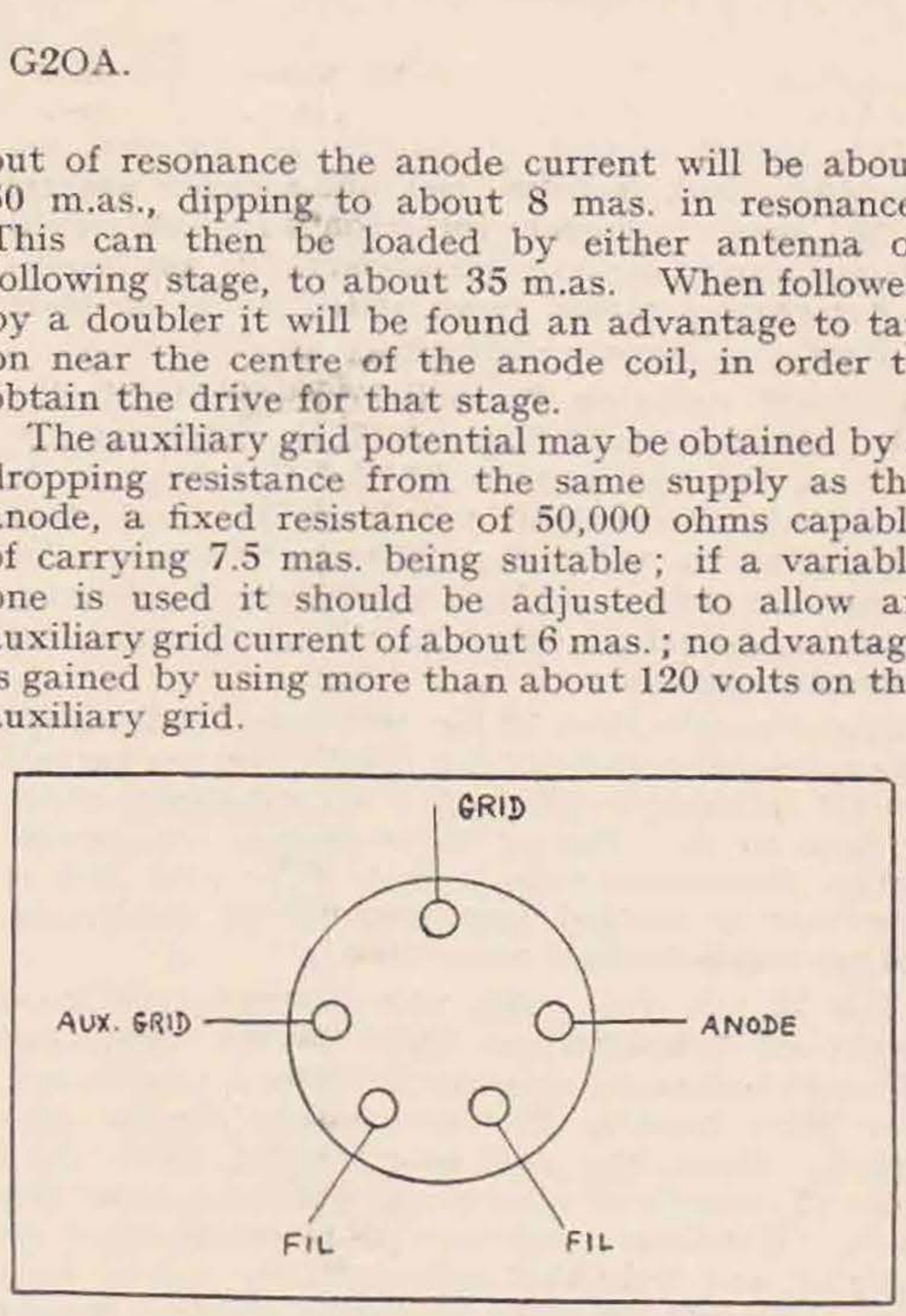


Fig. 2.
Connections to HOLDER of UX247.

Although this type of valve is extremely robust, reasonable care must be taken in its use. Never take out the anode coil whilst leaving the screen potential on. Blocked-grid keying by an increase of bias is permissible, but open-grid keying should not be attempted. Nearly all American pentodes blue-glow in use, but this is generally not a defect, as it does not indicate the softening that we usually associate with blue-glow.

The Technical Data for the valve is as follows:—

V_F	= 2.5v.	Z_P	=40,000 ohms.
I_F	= 1.5A	Mutual	=2,500 mmhos.
V_P	= 250v.	Max. U.P.O.	=2.5 watts.
V_{SG}	= 250v.	Normal Load	Z=7,500 ohms.
I_P	= 32 mas.	Plate to Control Grid.	
I_{SG}	= 7 mas.	Conductance	=1.2 mmfd.
		$M\mu$	=100.

The Month on the Air (*continued from opposite page*).

the title than the matter, since sundry kind people have informed me that they prefer "the page of fatuous futility" to a dry description of the happenings of the past month.

Query No. 1: Can anyone suggest a better title? And Query No. 2: Will all those countless thousands who regard this page as a sheer waste of good space *please* write to me and tell me so? "Uncle Tom, c/o the Editor," will find me. *Good* night, children.

THE MONTH ON THE AIR.

By Uncle Tom.

(Our learned but misguided penny-a-liner looks on life with a benevolent smile and flouts the Dismal Jimmies.)

HAIL, friends! Well met, and so forth, and *how* is the location this month? Has it improved? Good—I thought it would after last month's Bulletin arrived.

Optimism is the cry, brother hams, this month. All is well with ham-radio, provided, of course, that you don't look into it *too* closely. The Camels are coming, the Russians are going, and our bands will shortly be our own once more, with the exception of a few week-ends in February, when B.E.R.U. will take possession of them again.

An unprecedented journalistic scoop has fallen to my lot during the past week, and I have been granted an exclusive interview, by 56 mc. radio, with His Intelligence the Chief Engineer of the Martian Communication Co., who has been listening to us all for the past fifteen years. At great trouble and expense I have had a translation made of the more difficult technical terms, and am able to quote the document in plain language.

"It strikes me as significant," he says, "that you, alone among all the amateur radio transmitters on the Earth, should have sufficient intelligence to transmit 56 mc. radiations from the bottom of a duck-pond, thereby gaining the first direct communication with this vastly superior planet. Since you ask me for my observations on the activities of Earth-hams, I will give them to you in the greatest spirit of candour.

"First, making allowance for your necessarily scanty three-dimensional brains, I must say that you are doing quite well. In 15 years of research work you have succeeded in doing what we, on Mars, knew to be possible as a result of three minutes' drawing on the back of a postcard in the Martian Corner-House. But you have not yet arrived at the frequencies that are really suitable for radio communication—those above 200 megacycles. Only when you have mastered those will you be able to carry out consistent interstellar working.

"It seems to us almost as if you are content to talk to your neighbours on your own planet. 'Test DX' apparently does not mean anything more than a mere 25,000 miles to you.

"During the past month I have observed a decrease in your Earthly activities, doubtless owing to the summer in one hemisphere and the winter in the other. American stations continue to transmit meaningless messages from one town to the next; British stations continue to call Test DX," and then ignore *all* replies. But this has been so ever since radio commenced on your planet.

"If any of your amateurs are worthy of congratulation, I would single out your own 'G' stations, for their fortitude in continuing to work in the face of the strange sounds emanating from neighbouring countries, presumably believed to be telephony at the transmitting end. Of course, here on Mars, anyone guilty of the transmission of such sounds was painlessly put to death many centuries ago. Probably it will only be a matter of months before the death penalty is insisted on in your planet also.

"Crystal control, crude though it is, has undoubtedly helped to improve the standard of your transmissions. Your strange 'Goyder-lock' is worthy of the highest praise (to those who operate it successfully) and eternal damnation (to those who do not).

"Your earthly activities on 56 mc. are doomed to premature failure so long as you adhere to the present system of compensating for a bad transmitter by using a bad receiver. Surely crystal-control is more necessary on that frequency than on any other? Strange logic to use it for 3.5 and 7 mc. and to allow 56 mc. to look after its own stabilisation problems.

"If I am allowed to prophesy, I will say that the first amateur to combine a crystal-controlled 56 mc. transmitter with a 56 mc. superhet receiver will produce *real* results.

"A strange aspect of your radio to us is the desire to make of it one huge competition. An experimenter who succeeds in doing, with very poor apparatus, what another man does not do with better apparatus, is made a hero. The only reason is that the man with the better apparatus is not stirred by the desire to waste several hours of precious time in exchanging meaningless messages with others. Some of your most brilliant experimenters are seldom heard transmitting at all. It really seems as if the man who makes the most noise at the greatest number of different times is acclaimed to be the greatest amateur.

"I am now going to give you particulars to enable you to maintain regular communication with stations on this planet. The frequency to be used is @£&%½£@"/&'(!!! ....."

Unfortunately, at this point, G5——commenced to transmit on the same frequency as the Martian station, so that further observations will have to be held over till next month.

National Field Day is past and gone, and very successful it appears to have been, with the exception of the South London District, where it fizzled out owing to *lack of support*. The four or five people who seem to control the destiny of South London all volunteered as usual, but in view of the complete absence of offers of help and H.T., they quite rightly decided that it wasn't good enough. Pull your socks up, South London.

My Northern correspondent wants to know the QRAs of the two N.F.D. stations signing "Bass" and "Worthington," heard QSO on 3.5 mc.?

Bro. Somerset, out in Kenya, wants to know why all this "Test, test, test" fever? He says the natives already regard "Dah, dit, dit-dit-dit, dah" as an evil spirit! But he says G stations come in well and notes are splendid.

Now, readers-o'-mine, for a confession. I have been mildly "ticked off" once or twice for not making this page a real description of "The Month on the Air." I replied that I would sooner change

(*Continued on page* 46.)

HIC ET UBIQUE.

Convention—56 MC. Receiver Articles—G.M.T.—W.B.E. Awards—New Q Code—Dedman Cup—M.A.R.S.—28 MC. Contest—QRA and QSL Sections

Convention.

Further to the information published in our last issue we give below the items which will be discussed during the Business Meeting to be held on Saturday, August 19.

It is hoped that members contributing to the various discussions will keep their remarks as brief as possible.

1. Report of Delegates' Meeting.
2. Announce dates and suggested Rules for future R.S.G.B. Tests.
3. Announce dates and general outline of the rules for the next B.E.R.U. Contest.
4. To consider what steps can be taken to assist non-transmitting members.

Arrangements will be made by the London D.R.'s to entertain provincial members on Sunday, August 20. Members wishing to visit London stations on that day are requested to notify Mr. H. V. Wilkins (G6WN), on their arrival at Convention. Car parties will be formed wherever possible.

If you have not reserved your ticket for the dinner, do so TO-DAY. The price is 5s. per head.

56 MC. Receiver Articles.

In an endeavour to provoke further interest in 56 mc. work, one of our members who wishes to remain anonymous, offers the sum of two guineas or goods to the value of three guineas to the R.S.G.B.-B.E.R.U. member who forwards the most original constructional article of a 56 mc. receiver.

Contributions should be typed (double spacing) or written on one side of the page only, whilst photographs and diagrams should be clear and suitable for reproduction.

All articles will be examined by a Technical Committee appointed by Council and must reach Headquarters not later than October 31, 1933.

Council reserve the right to withhold the award, if the technical level of the articles submitted falls below a standard set by the Technical Committee, and furthermore, they reserve the right to publish any or all of the articles in the Society's journal.

This competition is not open to members who are directly connected with commercial radio businesses, unless a guarantee is given that the constructional work has been carried out in their own time with their own apparatus.

In submitting articles members are asked to state clearly the manufacturers' name and code number of the material used.

Greenwich Mean Time.

For some years we have endeavoured to obtain agreement with the A.R.R.L. regarding the use of the expression "G.M.T." instead of "G.C.T." The argument in favour of the former method seems to have been firmly established at the Madrid Conference. Article 4 of the Additional Radio Communication Regulations states that: "For the purpose of indicating the time of handing-in of radio telegrams accepted in mobile stations' the accepting officer takes Greenwich Mean Time and uses the notation of the 24-hour system. The time is always expressed and transmitted by means of four figures (0001 to 2400)."

Our Publicity Pamphlet.

We have pleasure in announcing that the revised edition of our publicity pamphlet is now available. This book will, in future, be known as "A Guide to Amateur Radio," and will, we hope, develop in the course of a few years, into an R.S.G.B. Handbook. This edition runs to 48 quarto pages and contains a wealth of information on all phases of our work.

The opening chapter, "An Amateur Explains," has been especially written by Mr. T. P. Allen, GI6YW. This gives a simple explanation of alternating current principles, and defines practically every known technical term or expression used in amateur radio work.

Chapters follow on "Aerial Systems," by Mr. A. J. E. Forsyth (G6FO), and "Power Supplies," by Mr. H. A. M. Clark (G6OT), whilst constructional articles on Short-Wave Receivers, Frequency Meters, Low and Medium Power Transmitters, have been contributed by Messrs. Powditch, Page, Alliston, Thomas and Mathews.

The various services rendered by the Society are dealt with in detail, and a chapter, "From B.R.S. to Full Licence," has been written especially for non-transmitting members.

Many well-known radio firms have taken advertising space in this book, and we, therefore, urge all members to give them their support when purchasing components.

Cover Design for Publicity Pamphlet.

Several members submitted original designs for the front cover of our new publicity pamphlet, and after careful consideration the design forwarded by Mr. E. R. Martin (G6MN) was finally adopted with modifications. He, therefore, wins the free subscription announced in our May issue.

Others who forwarded designs were: Mr. F. Wadman (G2GK), Mr. R. Parsons (G6RP), Mr. W. H. Matthews (G2CD), Mr. L. Robins (G2FF), Mr. W. P. Spooner (2AJA), Mr. J. Piggott (BRS 1063), Mr. R. A. Cail (BRS1016). To these members we offer our thanks.

W.A.C. Certificates.

We are advised by the A.R.R.L. that Porto Rica, Costa Rica, Cuba and Jamaica all count for North America.

"The North American continent goes right down to the Panama-Colombia border, and with the exception, perhaps, of Trinidad, all the islands of

the Carribean group are regarded as being a part of the North American continental area."

We trust this official statement will be noted by members claiming W.A.C. certificates.

G5ML Wins First Telephony W.B.E.

We have pleasure in announcing that Mr. F. W. Miles (G5ML) has been awarded the first Telephony W.B.E. Certificate.

The stations worked and the reports given are as follows :—

G2KB Rugby, England, May 16, 1933, QSA 5 R7.
SU6HL Cairo, Egypt, May 22, 1933, QSA 5 R7/8.
VE1DR Glace Bay, Canada, May 22, 1933, QSA 5 R8.
ZL4AO Dunedin, New Zealand, May 26, 1933, QSA 4/5 R5/6.
YI2DS Basra, Iraq, June 3, 1933, QSA 3/4, R4.

Mr. Miles will receive his certificate at Convention.

W.B.E. Certificates

The following W.B.E. Certificates have been awarded :—

Name.	Call Sign.	Date (1933).
J. F. Lategan	ZS4U ...	June 21
J. J. McMath	VK3JJ ...	,, 21
R. G. Norman	G5DP ...	,, 22
E. G. Ingram	G6IZ ...	,, 23
C. F. Scruby	G5YU ...	,, 27
H. C. Turner	G5OJ ...	,, 28
J. Karlson	SM6UA ...	July 13
A. C. Webb	G6WQ ...	,, 20
Marjorie Hutchings ...	VK3HQ ...	,, 31

The New Q Code.

The following alterations to the Q code are likely to interest amateurs, and are reproduced from the General Radio Communication Regulations annexed to the Madrid Convention.

These changes become operative from January 1, 1934.

Abbreviation.	Question.	Answer or Advice.
QRD	Where are you bound and where are you from ?	I am bound for... from...
QRE	Deleted	
QRF	Deleted	
QRG	Will you tell me my exact frequency (wave-length) in kc.'s (or m.) ?	Your exact frequency (wave-length) is...kc.'s (or... m.).
QRH	Does my frequency (wave-length) vary ?	Your frequency (wave-length) varies
QRI	Is my note good ?	Your note varies
QRV	Are you ready ?	I am ready
QRX	Shall I wait ? When will you call me again ?	Wait (or wait until I have finished communicating with...). I will call you at... o'clock (or immediately).
QSC	Deleted	
QSD	Is my keying correct ; are my signals distinct ?	Your keying is incorrect ; your signals are bad
QSE	Deleted	
QSK	Shall I continue with the transmission of all my traffic, I can hear you through my signals ?	Continue with the transmission of all your traffic, I will interrupt you if necessary
QSV	Shall I send a series of VVV... ?	Send a series of VVV...
QSX	Will you listen for ... (call sign) on ... kc.'s (or ...m.) ?	I am listening for ... (call sign) on ...kc.'s (or ...m.).
QUA	Have you news of... (call sign of the mobile station) ?	Here is news of... (call sign of the mobile station)

The full list of Q signals, together with the text of the General Radio Communication Regulations, are published in the Madrid Convention, obtainable from Headquarters at a price of 4s. 6d. (post free).

The Dedman Cup.

We have pleasure in announcing that Mr. E. A. Dedman (G2NH) has presented a trophy to the Society, primarily for the purpose of encouraging interest in 56 megacycle work.

This trophy will be awarded for the first time at the 1934 Convention.

The rules governing its award are as follows :—

1. The cup will be awarded annually at Convention to the member who, in the opinion of the Awards Committee, has carried out the best work during the year in connection with the development of the band of frequencies around 56 megacycles.

2. In examining claims for the award the Committee will chiefly consider published accounts of members' work which have appeared in the Society's Journal, but as important developments may occur at a later date, which for certain reasons cannot be published in the above-mentioned Journal, the foregoing condition shall not be regarded as binding.

3. If, in the opinion of the Committee, no work of sufficient importance has been effected, the award of the cup may be withheld during any year.

4. If at any future date the Council of the Society deem it desirable to organise any form of contest for 56 mc. work, the cup may be used as the premier transmitting award.

5. If at any future date the Council of the Society consider that the cup can be put to some better use than as originally intended in these rules the donor authorises this action to be taken.

Midland Amateur Radio Society.

The second annual report of the above Society has recently been issued, and is further evidence that the future of amateur radio, particularly in the provinces, can be well provided for by the formation of local societies controlled by responsible R.S.G.B. members.

The report, prepared by the Society's Honorary Secretary, Mr. Sydney Parish (G2ZW), is a striking testimony of the progress which has been made in two years to foster interest in experimental radio

work amongst experienced and inexperienced enthusiasts living in the West Midlands.

Numerically, M.A.R.S. can boast a membership bigger than many national amateur societies. At the time the report was prepared 150 persons were in membership, including the President and Secretary of the R.S.G.B., and no less than 44 full licence-holders.

Eighteen meetings were held during 1932-3, at which talks and papers were delivered by many well-known amateurs.

The M.A.R.S. justifiably congratulates itself on the successes obtained by its members in the Third B.E.R.U. Contests.

The Desmond Cup presented by Mr. V. M. Desmond (G5VM), was won for the first time by Mr. G. Brown (G5BJ), whose lecture on the subject of " Clickless Keying " was considered the best paper of the year. It is regretted, however, that this and other contributions made by M.A.R.S. members have not been given fuller publicity. We are convinced that our members would appreciate the opportunity of reading the views of G5BJ and his colleagues.

We note that Mr. Parish has resigned from his position as Secretary, a decision which will be received with regret by all who know his sterling qualities. The present " healthy " state of M.A.R.S. is due in no small measure to his untiring efforts, and we can but express the hope that his successor, Mr. W. Nightingale (G5NI) will be in a position to give the same care and attention to the work as his predecessor. Good luck, M.A.R.S. !

The 28 MC. Contest—May 1933.

It was originally intended that this contest should be held during June, but owing to conventionettes and National Field Day some other time had to be found. The dates chosen proved to be unsuitable, but had it been possible to fix the event during late June all would have been well, for during that period stations in several European countries and North Africa were heard and worked.

The only reported contact outside England was that of G2FN with F8CT on May 27, at 16.00 G.M.T. He, like others, found the band dead one minute and alive the next. His log is one of the best and contains the following calls heard : EAR16, 228, 185, 226, 136, 13, CT1BG, D4UAC, HB9Y, HAF8B, G2BM, G6HP, and G6WN. The latter station was actually on the band at the time. This is the first report of its kind for a number of years.

G5FV heard EAR227, 185, 121, D4UAC, Rome, Sardinia and many commercial harmonics.

G6OY heard EAR185, 227, 16, D4UAG and many commercial harmonics.

G6WN heard EAR227, 18, 185, 13, CT1BG, F8IR(?), D4UAY, Rome and Sardinia.

2ANM heard EAR185, 16, 227, 228 and 136.

2ATK heard EAR227 and local stations.

BRS565, although spending a considerable amount of time on the band, only succeeded in logging EAR234 and locals.

It would appear that the European stations heard were all harmonics of 14 mc. signals, with, the exception of F8CT and HAF8B. The evenings of May 23, 25 and 26, and the Sunday proved to be the worst times during the week. On these dates not even commercial harmonics appear to have been heard.

Those who took an active interest in the tests are thanked for their support. Our one regret is that the period chosen was a little too early for satisfactory results.

QRA Section.

Manager : M. W. Pilpel (G6PP).

NEW QRA's.

G2CV.—T. B. Cocking, 7, Weech Road, London, N.W.6.

G2GQ.—S. Partington, 53, Ashley Hill, St. Andrews, Bristol, 7.

G2IY.—A. C. Wilberforce, 2, Tring Avenue, London, W.5.

G2JL.—R. V. Allbright, 2, Palmyra Place, Newport, Mon.

G2JV.—R. W. Wratten, 28, Tufton Road, Ashford, Kent.

G2JY.—A. Pemberton, 57, Tillotson Road, Heeley, Sheffield.

G2KZ.—F. H. Jackson, 3, Alderville Road, Walton, Liverpool, 4.

G2LA.—S. E. Smith, 303, Staines Road, Twickenham, Mddx.

G2LD.—H. F. M. Baker, 4, Priors Terrace, Tynemouth, North Shields.

G2PS.—A. E. Parsons, 66, Fivefields Road, Highcliffe Park, Winchester.

G2TK.—J. H. Wetherill, c/o 42, Newborough, Scarborough, Yorks.

G2WX.—S. J. Borgars, 47, Arbour Lane, Chelmsford, Essex.

G5AM.—A. T. Mathews, 24, Woodside Park Road, North Finchley, London, N.12.

G5CX.—C. R. Pill, 36, Walmsley Road, Hyde Park, Leeds, 6.

G5IZ.—W. S. Brook, " Fairhaven," Blackbull Lane, Broughton, Preston, Lancs.

G5JH.—J. W. Hamilton, White House, Sandhurst, Gloucester.

G5QA.—H. A. Bartlett, " Lendorie," Birchy Barton Hill, Heavitree, Exeter.

G5YD.—H. C. Daynes, 119, Davyhulme Road, Davyhulme, Manchester.

G6BW.—Capt. B. Wallich, " Chy-an-Veor," St. Ives, Cornwall.

2AUN.—R. B. Mortimer, " Graycroft," Wheatcroft Avenue, Scarborough.

2AWG.—E. H. Leamon, 250, Dalston Lane, London, E.8.

2AYP.—E. J. Williams, Rochdale, London Road, Widley, Portsmouth.

2AYY.—J. Dempsey, Jr., 40, Harrowby Road, Seaforth, Liverpool, 21.

2AYZ.—C. J. H. Harding, 21, West View Road, Keynsham, Bristol.

2AZG.—M. L. Hooker, 43, Leason Lane, The Scotlands, Wolverhampton.

2BAV.—F. C. Blake, 19 Vale Road, Tunbridge Wells, Kent.

The following are cancelled :—2ABL, 2AJO, 2ARY, 2BVB.

QRA Wanted.—VZ1D.

QSL Section.

Apart from the good news printed elsewhere on this page there is little to report this month.

The question of non-members' cards referred to in these notes last month has been considered at great length by the Council, and it has been decided that as the present system of returning to the senders all cards which arrive here for non-members of R.S.G.B. appears to cause some inconvenience to our overseas friends, we shall in future revert to our former practice of forwarding all cards. The only condition is that stamped addressed envelopes must be kept at the Section. Cards will not in future be handed out at the office except to Society members.

We are glad to be able to announce that in a recent letter to the Society Mr. Budlong, of the A.R.R.L., stated that the District QSL Bureau Scheme was now working satisfactorily in the United States, and we shall therefore be pleased to receive cards from BRS. and AA men for distribution in the U.S.A.

We should like to draw attention to one of the rules of the Section which appears to be overlooked a great deal at times, and in order to save members applying in vain we propose to remind them, especially the overseas transmitters, that it is contrary to the practice of the Section to forward cards to an individual member outside of England, Scotland or Wales. Such cards are sent through the QSL Bureau of the national society of the country concerned and only in those cases where such do not exist, can we consider applications for special treatment.

The Society deals with something like 200,000 cards per annum and in order that these shall be dealt with efficiently it is essential that definite rules are observed, and if every member insists on having cards sent in his own particular way the work would never get done, and mistakes would be continually cropping up.

Special cases will always receive consideration, but we should like to ask that application is not made unless absolutely necessary.

J. D. C.

Strays.

Amateurs visiting Folkestone are invited to get in touch with Mr. G. Chapman (G2IC), of 109, Cheriton Road, Folkestone. A local meeting is held in the town on Monday evenings, when a cordial welcome will be extended to visitors. Mr. Chapman can be reached by telephone during the day on Folkestone 2683 and 3556 at other times.

* * *

Mr. Ray Carter (VK2HC), our Australian Representative, has a set of B.E.R.U.-R.S.G.B. stereo blocks, which he is willing to loan to any VK or ZL member requiring them for printing purposes.

* * *

Mr. E. T. Somerset, has now moved to Muthaiga, two miles from Nairobi. Correspondence should be sent c/o. Barclay's Bank, Nairobi.

Mr. J. H. Cant (G6FU), who is using low power on 14 mcs., will appreciate reports on his signals from overseas amateurs. All reports will be acknowledged.

* * *

W4WS, Mr. M. L. Patterson, Box 531, Deland, Florida, is working with an input of 35 watts and will be glad to have reports from British stations. He will be also interested to know whether any B.R.S. has heard any one of the following stations which are local to him :—4DV, 4ACZ, 4ANR, 4AGR, 4BAM.

* * *

G6SO, whilst listening on the 56 mc. band on Sunday, June 18, heard a station at 10.00 G.M.T. calling D4ACD, the tone was D.C. and the carrier R6. No call sign was given. Mr. Soten will be glad to hear from the station originating this call.

Consistency in Long-Distance Communication—

(*continued from page* 38).

will be obtained in directions at 45 degrees to the plane of the radiator. Local conditions however, have a considerable effect on this. In the case of a full-wave system, the following effect seems to take place.

Consider two $\frac{1}{2}\lambda$ systems (Fig. 8) placed end to end. Assume maximum radiation for each in the usual manner as indicated by arrows. In practice, A, B, G, and H appear to remain as fairly strong rays, but C, E and D, F appear to combine and form stronger rays at right angles to the plane of the aerial. The resultant effect is shown in Fig. 9 Rays J and K appear about twice as strong as rays A, B, G, and H.

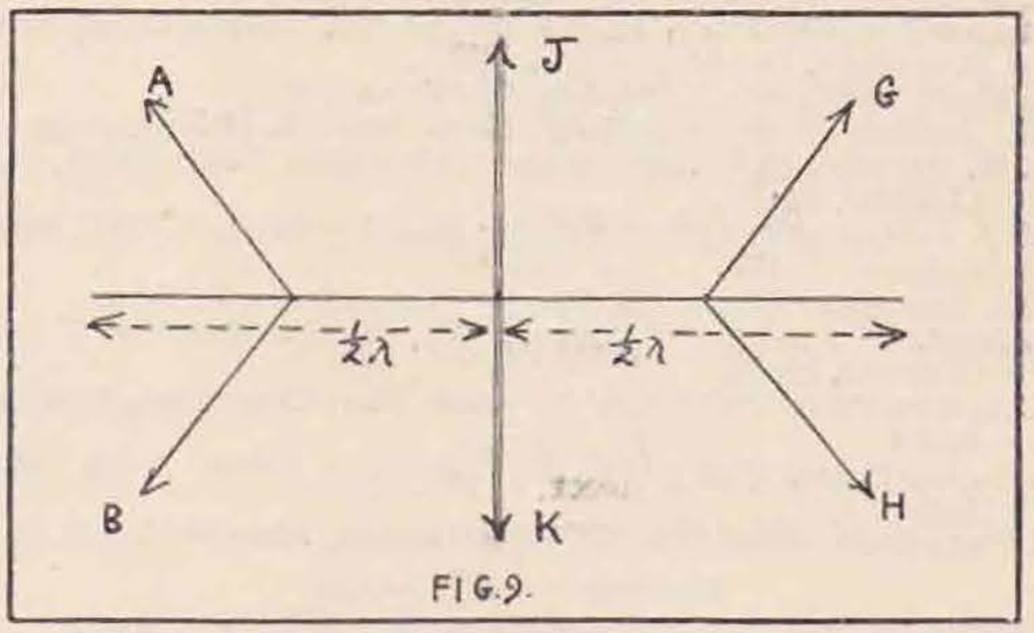


FIG.9.

Now obtain a large scale map of your district and draw a circle round the aerial with a radius of approximately two miles. A small portable receiver with a rod aerial should be used with a galvanometer connected instead of phones and taken around the circle, deflection readings being plotted. Care must, of course be taken to see that no large building or other screening is adjacent, as this would cause large errors. Readings should be taken for positions CA and CB of the aerial, and intermediate positions, if possible.

From the above data it is possible to ensure greatest radiation in given directions. However, care should be taken in finding in which direction long DX signals are coming, *e.g.* for G in the mornings VK. signals travel via South America and in evenings along the other path east to west.

The writer will be pleased to hear from members who have tried the methods suggested above.

NEW MEMBERS.

MAY.

Home Corporates.

W. W. Field (G2GC), 100, Cambridge Avenue, Whitley Bay, Northumberland.
S. Partington (G2GQ), 53, Ashley Hill, St. Andrew's, Bristol. 7.
C. H. L. Andrew (G2HF), 16, Mitchell Street, Wellington, Somerset.
2nd-Lieut. L. S. Stirling-Wilkinson (G2HZ), Burniston Barracks, Scarborough.
W. Graham (GI5GV), 5, Ratcliffe Street, Belfast, N.I.
V. H. Penfold (G5PN), 6, Lorne Villas, Brighton, Sussex.
J. G. E. Tinling (G6II), Gidlands, Wellington, Somerset.
R. G. Baker (G6QN), 1, Boundary Road, Merton, S.W.19.
H. Montague Smith (2AHK), Eden House, Eden Grove, Filton, Bristol.
L. C. Heddon (2AOY), 4, Cawley Road, Victoria Park, E.9.
E. W. S. Jupp (BRS1143), 35, Victoria Street, Aberdeen.
F. J. Caton (BRS1144), 32, East Acton Lane, W.3.
L. Hardaker (BRS1145), 32, Broadgate Walk, Horsforth, Leeds.
F. R. Freeman (BRS1146), 2, Edward Street, Southborough, Tunbridge Wells, Kent.
F. G. Southworth (BRS1147), Britannia Chambers, Holywell, N. Wales.
R. E. Richards (BRS1148), 42, Grosvenor Avenue, Rhyl, N. Wales.
R. Denham (BRS1149), 16, Dunrobin Court, Finchley Road, N.W.3.
J. Fletcher (BRS1150), 90, Hawton Crescent, Wollaton Park, Nottingham.
W. H. Gundill (BRS1151), 69, Moorlands Road, Dewsbury, Yorks.
J. C. King (BRS1152), The Shutters, Bamford, Rochdale, Lancs.
G. W. Slack (BRS1153), Sherwood Chemical Works, Mansfield, Notts.
A. A. White (BRS1154), " White's Garage," Main Road, Holland-on-Sea, Essex.
J. V. Warner (BRS1155), Whitlock House, Station Road, Sutton-in-Ashfield, Notts.
A. E. Wilkinson (BRS1156), " Glenhyrst," High Street, Prestatyn, N. Wales.
T. R. Little (BRS1157), Camelot, Clifton Grove, Rhyl, N. Wales.
R. McV. Weston (BRS1158), Whitelea, Selborne Road, Croydon, Surrey.
H. R. Heap (BRS1159), 76, Wimbledon Hill, S.W.19.
R. Lawton (BRS1160), 10, Dalton Avenue, Thatch Leach Lane, Whitefield, Lancs.
R. Huey (BRS1161), Castlederg, Co. Tyrone, N.I.
I. L. Sumner (BRS1162), 23, Cleveland Road, St. Heliers, Jersey.
D. R. Parsons (BRS1163), Cartref, Shenstone Court Drive, near Lichfield, Staffs.
W. J. S. Mortiboy (BRS1164), 32, Brantley Road, Witton, Birmingham.
C. S. Lewis (BRS1165), 52, Barrow Lane, Hessle, E. Yorks.
F.-Sergt. W. E. Dunn (BRS1166), 22b, Married Quarters, R.A.F., Cranwell, Lincs.
C. A. Butler (BRS1167), 4, Hemdean Rise, Caversham, Reading, Berks.
J. G. Le Cornu (BRS1168), 21, Les Vaux Villas, Town Mills, Jersey, C.I.
C. Swanbrow (BRS1169), 22, Robert Street, Plumstead, S.E.18.

Dominion and Foreign.

Ingernere Ugo Ronconi, Via Cavour Este (Padova), Italy.
J. J. McMath (VK3JJ), 136, Kerferd Road, Albert Park SC6, Victoria, Australia.
K. R. Rankin (VK3KR), Kerang, Victoria, Australia.
I. D. Hunter (VP4AA), Box 178, Belize, B. Honduras.
H. H. Dunkle (W1FBV-W1FDM), 133, Salisbury Road, Brookline, Mass.
E. M. Williams (W1DBP), R.F.D. No. 1, Wallingford, Conn.
H. M. Voss (W6DE), 10550, Butterfield Road, Palms, Los Angeles, California.
C. W. Tidd (BERS173), Barakat, Sudan.
W. A. Phillips (BERS174), c/o The Eastern Telegraph Co., Box 80, Freetown, Sierra Leone, W. Africa.
F. Cole (BERS175), P.O. Box 40, Nairobi, Kenya Colony.

JUNE AND JULY.

Home Corporates.

J. H. Setterfield (G2IF), 34, Cavendish Road, Blundellsands, Liverpool.
Major P. V. Harris (G2LF), Chilvester Lodge, Calne, Wilts.
A. S. Gosling (G2VC), Miramar, North Croft Grove, Ilkley, Yorks.
F. Thompson (G5LH), 235, Wingrove Avenue, Fenham, Newcastle-on-Tyne 4.
C. F. Scruby (G5YU), Kent House Restaurant, Foots Cray Sidcup, Kent.
H. W. Stacey (G6CX), 42a, Hampstead Road, Fairfield, Liverpool.
J. G. Carlson (G6GC), 116, Ashgrove Avenue, Cleadon Park, South Shields, Co. Durham.
R. Holmes (G6RH), 3, Chartley Road, Erdington, Birmingham.
R. Carlisle (GI6WG), 1, Portstewart Road, Portrush, N. Ireland.
J. Hanson (G6YU), 45, Wyken Avenue, Wyken, Coventry.
A. Pollard (2AAI), 31, Donkin Terrace, N. Shields, Co. Durham.
L. J. Rose (2AUI), 2a, Marlborough Road, Oxford.
J. Cooper (BRS1170), 55, Ramsey Street, Scarborough.
A. Niven (BRS1171), 73, Poplar Grove, Gt. Horton, Bradford.
D. St. J. Jones (BRS1172), 3, Company " A," Corps Signals, Royal Corps of Signals, Aldershot, Hants.
R. J. Lee (BRS1173), 9, Theobalds Green, Heathfield, Sussex.
A. C. K. Bawden (BRS1174), The Diamond, Kilrea, Co. Derry, N.I.
C. C. Algar (BRS1175), 63, Margery Park Road, Forest Gate, E.7.
W. C. Keasley (BRS1176), Tiltman, Addington Road, Sanderstead, Surrey.
C. A. H. Goudie (BRS1177), 123, Saltley Road, Birmingham, 7.
G. Duke (BRS1178), 8, Alga Terrace, South Cliff, Scarborough.
W. J. Thompson (BRS1179), 93, Avenue Road, Lurgan, Co. Armagh, N.I.
H. A. Smith (BRS1180), St. Ives, Agate Road, Clacton-on-Sea, Essex.
C. E. Aitken (BRS1181), The Laurels, Ashbourne, Derbyshire.
H. B. Sumner (BRS1182), Balmoral House, Moss Lane, Leyland, Lancs.
H. N. D. Bailey (BRS1183), 163, Newland Park, Hull, Yorks.
E. M. B. Handcocks (BRS1184), The Naides, Woodcote Road, Caversham, near Reading, Berks.
A. Thomas (BRS1185), Radio House, Caernarvon, N. Wales.
L. F. Viney (BRS1186), 12, Baronsmere Road, E. Finchley, N.2.
G. C. Clark (BRS1187), Apsley, Stoughton Road, Guildford, Surrey.
S. Lee (BRS1188), Lynthorpe, Ardpatrick Gardens, Belfast, N.I.
A. Simmons (BRS1189), 13, Gopsall Road, Hinckley, Leicester.
K. J. George (BRS1190), 47, Hazel Street, Leicester.
W. A. Roberts (BRS1191), Walco, Sawday Street, Leicester.
R. H. Streete (BRS1192), Waverley Lodge, Haven Baulk Lane, Littleover, Derby.
G. H. Snell (BRS1193), Ashbourne, Marton Road, Bridlington.
E. H. Lawrence (BRS1194), 38, North Circular Road, N.18.
R. S. Fallowfield (BRS1195), 11, Buckingham Road, Tue Brook, Liverpool, 13.
G. Robinson (BRS1196), 44, Grove Lane, Didsbury, Manchester.
E. R. Johnson (BRS1197), Labuan, Milton Road, Cowes, I.W.
J. S. Dewhurst (BRS1198), 43, Knowsley Avenue, Blackpool.
G. H. Lawne (A), 54, Kimbolton Road, Copnor, Portsmouth.
R. C. Richards (A), Benton School Lodge, Benton Road E., Seven Kings, Essex.

Dominion and Foreign.

Jindrich Rakosnik (OK1AQ), Sedlec u Kutne Hory, Czechoslovakia.
M. B. Gorter (PAOIM), P. de Hoochstr. 30, Amsterdam Z, Holland.
S. H. van Hulst (PAOTT), 25, Floris-Grijpstr., The Hague, Holland.
H. M. E. Linse (PAOUB), Rosier Faassenstraat 16, Rotterdam.
C. Alby (SU8MA), Box 674, Alexandria, Egypt.
W. E. Marsh, B.Sc. (SU1WEM), 84, Rue Aboukir, Alexandria, Egypt.
A. L. Cusden (VE5HJ), 1465, 17th Avenue, New Westminster, B.C., Canada.
R. A. Holt (VK2HW), 7, Clio Street, Lakemba, N.S.W., Australia.
J. B. Scott (VK2NR), 41, Carlingford Road, Epping, N.S.W., Australia.
H. V. Reynolds (VP1HR), B.G.-Brazil Boundary Commission (British Section), British Guiana.
L. G. Quigley (VU2LS), c/o Grindley & Co., 54, Parliament Street, S.W.1.
W. A. Brecht, jun. (W3CDE), 320, Chestnut Road, Glenside, Pennsylvania, U.S.A.
R. C. Hyett (YI7RH), Armoured Cars (R.A.F.), Basra, Iraq.
F. J. Fenner (ZC6FF), R.A.F., Ramleh, Palestine.
A. C. Anderson-Reilly (ZL2NN), P.O. Box 43, Seddon Marlboro', New Zealand.
P. Rossouw (ZS1Q), Bland Street, Mossel Bay, South Africa.
C. McCormick (ZU6G), 8, First Avenue, Westdene, Johannesburg.
G. Wood (BERS176), Caixa No. 39, Sao Paulo (1), Brazil.
P. W. Agar (BERS177), Logie Estate, Talawakelle, Ceylon.
R. P. Walker-Alexander (BERS178), Hyndford Estate, Nawalaputiya, Ceylon.
R. P. Whyte (BERS179), Posts and Telegraphs Department, Kuala, Lumpur, F.M.S.
H. McTrusty (BERS180), Embarkation Staff, Keamori (Sind), India.
A. E. Seymour (BERS181), No. 5 (AC) Squadron), Quetta, India.
Lim Sin Hock (FRS30), Key Cycle & Motor Co., 3, Church Street, Penang, S.S.

TRADE NOTICES.

Polar Condensers and Drives.

Messrs. Wingrove & Rogers have produced several new and altered types of their condensers for the coming season. Friction-drive slow-motion dials are used throughout the broadcast range, the dials are calibrated in B.C. wavelengths and degrees, and can all be illuminated. The scales are horizontal, semicircular, or arcuate, in the full-vision types.

The " Uniknob " two-gang is of very interesting design and consists of two .0005 mfd. condensers ganged and completely shielded, with a detachable cover. This model has two trimmers, one on the condenser itself, and one incorporated in the slow-motion drive. The trimmer on the condenser, actuated by a screw, which can be adjusted through a hole in the top of the casing, is across the rear section. The trimmer across the front section is of the air dielectric type, and is adjusted by means of a small knob mounted in front of the main tuning knob. In this way the trimming is made extremely easy.

The " Arcuate " full-vision drive is a slow-motion drive with a moving pointer which extends across the whole width of the scale. This is, as the name suggests, in the form of an arc, and is calibrated in wavelengths on the top and bottom, and degrees in the centre. The drive is friction and devoid of harshness. It can be obtained with or without an incorporated trimming condenser.

* * *

Varley Products.

We have received from Messrs. Varley details of their products which will be exhibited at Stand 85, Main Hall, Olympia. New types have been introduced and prices considerably reduced, *e.g.*, the gramophone pick-up and tone-arm is now 30s. instead of 42s. Nicore metal-cored tuning coils, Class B and Q.P.P. transformers are all described in leaflets obtainable from the makers. A new transformer has been designed to compensate for the high note losses incidental to selective tuning. This transformer has a rising treble response which has been obtained without sacrifice of the lower notes. Another new product is the electronic resistance, which is tubular in shape, with metal end-caps and short protruding lengths of wire. By means of these tags of wire the resistance can be soldered in position or clipped under terminals, or the wires can be cut off and the resistance mounted in a clip-in holder. These resistances are silent in use and their values remain constant over a wide range of temperatures. Prices and resistance values are: 1-watt type, 100 ohms to 5 megohms, 9d.; 2-watt, 100 ohms to 50,000 ohms, 1s. 6d.; 3-watt, 100 ohms to 50,000 ohms, 2s. 6d.

* * *

Wearite Products.

We have received from Messrs. Wright & Weaire, Ltd., samples of their power transformers and transformers for Class B amplification. These were briefly referred to in our last issue. The power transformer is a well-designed product, compact in size and nicely finished. We have submitted it to the usual transformer tests, when it was found to stand up perfectly upon load and keep good regulation of voltage through its rated load. The overall efficiency, input to output came out high, and there was practically no perceptible heating after a three-hours' run upon full load. The adjustment of the primary turns to the supply voltage is neatly provided by a simple rotary enclosed switch, the determined voltage value showing through a window in the enclosing cover. The terminals are conveniently located and well spread out.

The smaller transformer is intended for use in connection with the double anode valve used in the recently developed Class B amplification and known as the driver. Its windings are specially designed to meet the peculiar conditions imposed, and should be of interest to amateurs who contemplate using this class of amplification for modulation upon the ultra-short waves. The remaining item is a matching choke for loud speaker use. This consists of a continuous winding with a large number of tapped connections. It is, therefore, possible to select output terminals to suit the impedance of a loud speaker. This unit is especially useful for a moving coil loud speaker, where the winding impedance is extremely problematical and allows the choke to be used as an auto-transformer with good effect.

* * *

We understand that a new catalogue of the transformers and chokes made by Messrs. Rich and Bundy, Ltd., will shortly be available. Application for this should be made to them at 13, New Road, Ponders End, Middlesex.

(*Continued on page* 55.)

OLYMPIA.

The Society's Stand Number is **201** in the Gallery. A cordial welcome will be extended to all. Please sign the Visitors' Book.

Will members leaving hats, coats or parcels, etc., upon the Stand note that the Society cannot be responsible for their safe custody.

PLEASE WEAR YOUR BADGES.

CORRESPONDENCE.

The Editor does not hold himself responsible for opinions expressed by correspondents. All correspondence must be accompanied by the writer's name and address, though not necessarily for publication.

Collaboration With Expeditions.

To the Editor of T. & R. Bulletin.

Dear Sir,—I read with great interest on p. 356 of the May "Bull." the account of the transmitter used on the R.A.F. flight to South Africa and also the letter reproduced in the accompanying column.

The fact that the band 9,090 to 8,110 kc. (33 to 37 metres) was used on this occasion was interesting news and important; in fact, in my opinion, so important that such information should be published in the daily Press and also broadcast before any expedition, and certainly before any solo flight, ever sets forth on its adventures.

It is pleasing to see that the Everest flights and the base camp of the climbing expedition are making good use of short waves. That gallant gentleman, Capt. Scott, and his companions met their fate only 100 odd miles from their base frustrated by shortage of food, a three-days' march in weakened condition and blinded by frostbite and a hideous polar blizzard lasting days and nights. Not a word of hope or comfort from the base camp! No range-finding apparatus for the would-be rescuers! The relief of General Gordon at Khartoum, the relief of Lucknow, Sebastopol, and the disappearance of the Franklin expedition in Greenland, André's balloon, Capt. Amundsen and the Norge airship are only a few tragic examples which can be found in history.

But there is less excuse for modern pioneers who persist in venturing out without a radio.

Cannot the R.S.G.B. collaborate with the Royal Aero Club and organisations which control expeditions, whether geographical, scientific research, film-shooting, astronomical, etc., with a view to getting full use made of S.W. radio on such occasions, and, equally as important, to give full publicity to the frequencies to be used?

Amateurs are willing to help, the apparatus needed is well beyond the laboratory stage, and it only remains for the adventurers to protect and insure themselves against starvation and death.

Surely the newspapers could spare a little space devoted to scandalous court cases and use it for such a human cause as this?

C. Blatherwick (BRS1098).

[*It will be remembered that the Society has on several occasions offered its resources to the organisers of flights and expeditions. Recent instances are the Ruttledge-Everest expedition and Kingsford Smith's Atlantic flight. Furthermore, during April, advice on radio matters was given to the organiser of the Oxford University Polar Expedition. As explained in our recent letter to the Press, we, in common with all other amateur organisations, are ready to assist in any project where radio can be of help.*—Ed.]

Tackling BCL Interference.

To the Editor of T. & R. Bulletin.

Dear Sir,—May I be allowed a little space to mention a few points which have occurred to me recently, which, perhaps, may stimulate discussion in your columns, and so in the course of time do some good for amateur radio?

To open this somewhat rambling epistle, I would first like to add my voice to the QRO *versus* QRP spot of bother. I am afraid we have lost our sense of proportion because the G.P.O. limits ordinary licences to 10 watts. Only amateurs consider ¼ k.w. as QRO; most commercials would consider it ultra-QRP. Whilst not trying to minimise the credit due to some of the extraordinary work achieved by QRP, I ask, in all seriousness, is QRP DX really reliable communication? Could a QRP man maintain a daily schedule with ZL such as G2LZ has done for over two years, with not such terrific QRO either? May I remind G6JX that the aim of the amateur transmitter is to advance *all* methods of radio communication.

G6FO hits the nail when he says the QRP man must of necessity know his stuff. But, G6FO, I have a word for you also, OM. You make rather a sweeping generalisation regarding QRP C.C. If a QRP man is operating from batteries or D.C. mains, then crystals are unnecessary certainly; but if the station is on A.C., C.C. is essential, for who is going to light filaments from batteries when there is A.C. in the shack? Further, C.C. is practically essential if any reasonable depth of modulation is to be achieved, batteries or no batteries.

Now, in conclusion, may I put my foot in it properly? I appeal for more activity during broadcasting, especially on 1.7 and 3.5 mc. The general tendency seems to be to QRT directly the B.B.C. starts up. In consequence the B.B.C are rapidly pushing us off the 1.7 mc. band. Now there is no reason why 1.7 mc. transmission should interfere with broadcasting, either telephony or C.W.

Any B/C receiver using bandpass tuning is proof against QRM; in fact, any receiver of modern design should be. The cure of QRM to broadcasting is quite a simple matter in most cases, and it certainly does not say much for the technical ability of the average amateur transmitter that he is content to close down rather than tackle the problem.

If a friend of mine, who actually lives under the physical shadow of GNF, with their 3 k.w. of I.C.W., can clear the interference on a straight receiver, surely the problem of 1.7 mc. QRM is not insuperable.

The official attitude to QRM seems to be that if no interference is caused in a receiver of reasonably modern design in the same house as the transmitter, that is good enough.

I know that I live in the country, and conditions are much more difficult in the towns, but I do think the amateur has taken this problem rather too much lying down.

My motive in bringing this up is ulterior, for if more work was done during the week, it might lessen the appalling QRM at week-ends. Anyway, OMs, why not try ?

With 73,
ARTHUR T. MILNE (G2MI).

The Band Occupancy Checks.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—With reference to the very comprehensive review of the band occupancy checks which were drawn up by our secretary, and published in the May issue, may I be permitted to add my sincere thanks to all those who devoted time to the work ? Without their wholehearted co-operation, no definite results could have been achieved.

Yours truly,
LESLIE HILL (2AGM)
(Organiser of B.O.T.).

Pioneer Work on 56 MC.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I must congratulate Mr. L. H. Thomas (G6QB) and his colleagues on their recent 56 mc. successes, for they have certainly verified my statement made four years ago that it is not necessary for two 56 mc. stations to be in a perfect plane in order to establish contact. On many occasions I have been successful in receiving signals from my own station at points behind hills 15 or 20 miles away.

The statement that 130 miles is a British record for the reception of such signals cannot, however, be allowed to pass, for it will be found on reference to the May, June, and July, 1929, issues of the BULLETIN, that Mr. E. T. Somerset, then BRS125, received my signals several times at distances well over 130 miles. The power used then was about 60 watts.

My tests extended over a period of two years, but were discontinued owing to the lack of interest shown by other members.

I am drawing attention to these matters in fairness to those British amateurs who effected the early pioneer work on 56 mc. These included G2NI and G6TP.

I have, at present, two transmitters and two receivers working on these frequencies.

Yours faithfully,
J. NODEN (G6TW).

Athlone Sunday Programme.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I am very anxious to receive reports from listeners in London and the South of England as to the Sunday afternoon transmissions from the Athlone Station, which works on a wavelength of 413 metres. If anyone can give me such information, I shall be very much obliged.

Yours faithfully,
JAMES KITCHEN,
Editor, *Irish Radio News*.
179, Pearse Street, Dublin.

POINTS FROM LETTERS.

G6FU, in a letter to the Editor, bemoans the fact that in every contact made the words " Sure QSL dr ob " are used to him, though the cards seldom materialise. Being a newcomer to radio and using low power, he states that most contacts take place with Europeans, and out of 28 countries worked, only 15 have confirmed. He confirms that all stations worked should have received cards from him, and all the receiving stations that reported on his signals have had reply cards despatched. Should any delinquent see this, G6FU will be grateful for prompt action.

(Many European QSL Sections do not have the prompt service in the despatch of cards to other countries that is an acknowledged important point in our Society. Within the last few months a large number of Polish cards have been received here referring to reports and contacts, in some cases over a year old. New members should, therefore, not become too agitated if they have to wait at least three months for cards from stations on the Continent.—ED.)

* * *

G5KU, in a letter, calls the attention to experimenters on the higher frequencies to two articles in the *Bell System Technical Journal*, April, 1933, describing experimental results obtained over various ground contours, etc., using frequencies of 17 to 80 mc.

Some excellent diagrams are given, showing ray paths for transmission over hills, etc., and of diffraction, refraction and reflection effects, and explains why, over an 80 km. path, the attenuation is less on 69 mc. than on 17 mc.

* * *

G6QQ challenges ex-2BVB's claim to be the youngest holder of a two-letter call in the country. G6QQ will be 17 on August 20.

TRADE NOTICES.—*Continued from page* 53.

New Clix Valveholders.

Messrs. Lectrolinx have introduced a new anti-microphonic valveholder of the chassis-mounting type. This is constructed of three plates of insulating material, one of which is so perforated as to form spider arms on which the sockets are mounted, and the perforations practically form a ring of air dielectric round the sockets. This plate is fixed between the other two, and spacing washers inserted so as to give a movement of $\frac{1}{32}$in. up or down to the centre plate. The four rivets used for the fixing are hollow and provide the means for attaching the valveholder to the chassis. The price for the five-pin model is 1s. 3d., and for the four-pin 1s. 2d.

Another new product is the seven-pin chassis-mounting valveholder, and three plates of insulated material are again used. The holes in the top plate are circular and register with the sockets, those in the centre plate are square and slightly larger than the square shoulders of the sockets, and those in the bottom plate are circular and slightly larger than the sockets. The whole is riveted together by one rivet in the centre and is made still more solid when fixed to the chassis. By this means the sockets can align themselves to the valve-pins, an important point where seven-pin valves are concerned. The price of this valveholder is 1s.

CONTACT BUREAU NOTES.

By H. C. Page (G6PA).

The most outstanding feature of the past month appears to be the increasing activity on the 28 mc. band. Conditions seem to be improving steadily, and before long we may perhaps experience another spell of DX such as was possible in 1928.

W9VW asks us to say that he is tuning up his transmitter for work on the 28 mc. band, and would be pleased to have reports from anyone picking up his signals. He will be using an input of about two hundred watts on a frequency of 28,040 kc. He will be using an automatic transmission, and the schedule will be as follows :— Every Sunday from July 30 at 09.00 to 11.00, 13.00 to 15.00 and 19.00 to 20.00 (all times are Central Standard time), and I must leave you to work that out for yourselves. There will be a short break during the transmission period to listen for replies. His QRA is Harold L. Brooks, 112, 5th Street, La Plante, Indiana, U.S.A.

OK1AW also sends in a 28 mc. report consisting of a very complete log of the stations worked and heard on that band. Between May 17 and June 27 he has worked no less than 50 stations, and heard nearly as many more. Space does not permit of the publication of all these stations, but anyone interested may have the loan of his list on application to C.B. He is working almost daily on 28 mc. with an input of 35 watts. His aerial system is a single wire 40 metres long, and 12 metres high. The receiver is a simple Schnell o-v-1.

Once again SM6WL sends in a fine log, which is much too long to publish, and as in the case of OK1AW loan of this list may be made on application to C. B. He has now worked the following countries on 28 mc. :—SU, FM8, EAR, F, G, D, OK, ON, and PA. His usual times of working are between 17.00 and 19.00 G.M.T.

SM6WL is using a receiver with a tuned SG stage detector and one LF valve. The transmitter is a 3.5 mc. C.O. F.D. F.D. 28 mc. F.D. and 28 mc. P.P. PA, with inductive coupling between the 28 mc. F.D. and the last stage, thus avoiding any H.F. chokes in that part of the TX.

The aerial is of $\frac{1}{4}$ inch diameter solid copper wire !

Now for a report of a rather different character. VU2AT, at Dingh Road, Sind, India, reports successful communication on 28 mc. between Dingh Road, Sind, and Manora. The distance is a mere ten miles, as VU2AT puts it, but the power used at Manora was only 1.4 watts. It is hoped that at least three stations will soon be working on 28 and 56 mc. in that neighbourhood, and already SU6HL has been heard at Dingh Road on 56 mc. while working on 14 mc. The signal strength being R7. It is hoped to publish more information about this work shortly.

May I take this opportunity of thanking the three BRS men who replied to my call for assistance last month.

28 MC. Group.

G6VP (Manager).

The last month has marked a further improvement in conditions and Continental signals have been very plentiful. G5MP raises the point that the most consistent signals have been those from OK this year, whereas in recent years HAF signals have predominated. As the direction is almost the same, he is studying magnetic maps in the hope of finding some clue. He wants to know also whether there is any special geological feature between England and these countries.

An extraordinary fact, though, is that although the South-East, North and North-West of England seem to have similar good conditions, the extreme West has gone completely blank, not even commercial harmonics being audible.

G5SY suggests that no up-to-date knowledge is available of the transmitters (and aerials VP ?) of the most successful stations. It would be interesting to have very brief particulars ; although to be of use the number of half-waves, shape and height above ground of aerials would be necessary, together with polar indications.

It has been very definitely proved that plain harmonic aerials are of very low efficiency for really long-distance work on account of the percentage of high-angle radiation taking place. Against this, it is quite possible that a really efficient low-angle aerial would produce so long a skip as to be out of the question. Recent results all point to high-angle radiation, and our knowledge that even at a few miles 28 mc. signals definitely fade at times.

I am afraid that we shall not be permitted so much space in the Bulletin regularly for calls heard, so please condense future reports to your utmost. Here follow group reports :—

The stations heard and worked are tabulated ; those marked with an asterisk denote contact.

Group 1A.—G6OY : OK1AW *, F8RQ *, OK1AB *, F8HS *, OK2SI *. His input was 10 watts. *G5FY* : OK1AW *, F8HS *, SM6WL *. Heard too many stations to report.

Group 1B.—G5SY : Conditions, states G5SY, have been such that no stations have been heard or worked.

Group 1C.—G6VP has had a few QSO's and reports from OK, F, FM, etc. *G6BC* : LCJ, OK1AW *, HAF1G, OK1AB, EAM, HBJ, F8BY, F8LK, OK2SI, F8CT *, G6GK? (harmonic, input 10 watts G6VP), SM6WL (harmonic, input 10 watts G6VP), SM6WL, G5VB,D4TEN, PA0APX, G2FN, F8GQ *, F8OL, SM7SG. *G5VB*, has heard or worked HAF1G, FM8BG, F8HS, OK2VA, G2FN, F3OA, F8CT, F8SK *, F8LK, F8VK, F8EF, F8EO, ON4AR, D4RPM, SM6WL, OK2SI *, OK1AW *, HB9Y, F8HS, EARLM, HB9Y, F8PK *, FM8IH *, G6WL, D4TEN *, SM6VR, PA0APX, G6BC, OK1SW, OK2VA *, HAF4D, HAF1G, PA0QQ, HB9J, EAR185, OK2VA *, I1XX, OK2MA, HB9X, F8HS, G2FN, SM6WL. His signals, in addition, have been heard by G2FN F8SK, F3OA and G6BC. *G6WN* has either heard or worked D4TEN *, SM6WL *, FM8IH *, F8NP *, F8CT,* OK1AW *, OK2VA *, HAF4D *, LA3R, OZ9A, CT1AE, OK2VA, EAR253, FM8IH, EARVL, EAR233, EAR227, OZ3J, EAR16, OK2SI, HAF4D,

ON4DJ, F8NF, F8VK, HB9J, SM7SG, I1XX. Heard by DE1645. DEO753, DE935.

Group 1F.—BRS25 has been QRT holidays. *G2OA* : F8HS, OK1AW, HAF1G, OK1AB, D4TEN *, OK1AB *, SM6WL, F8LK, F8FK, F8CT, F3OA, OK2SI *, F8VK, F8SK, F8KV.

Fading, Blindspotting and Skip Group.

G6MB (Manager).

It seems that the summer season is interfering considerably with radio and reports are very scanty this month. An attempt is being made to organise a meeting of those members of the Fading Groups who may be in town during Convention. Individual Group reports are as follows :—

2A.—Activity has been confined to routine observation work and discussion arising out of same.

2B are suffering somewhat from lack of support and the G.C. thinks it will be necessary to suspend operations until September.

2C are working on the moon theory and sun spots, but so far have failed to find that these play any prominent part in fading.

2D.—BRS780 (who may be something else by the time these notes appear) succeeds G6WM as Group Centre. The Group are endeavouring to shape a definite policy for future working.

Atmospheric Group.

G2GD (Manager).

This group has been very active during the last month and interest in the subject seems to be growing. Reports have been received from G5MP, G2IC, 2AGR, 2ASC, BRS943, 1077, 960, and a vast amount of information is being collected. Letters have been received from ZC6CN in Palestine, and BERS 165 in Iraq, and it is hoped that they will be able to furnish us with observations which may be of great importance to the work of the group. G5AM, of the Maths. Group, has most kindly promised to assist.

As regards results obtained, perhaps the most striking fact noticed is the short skip distance prevailing on the shorter bands. G5MP estimates it at about 130 miles on 7 mc. and very short on 14 mc. What does Group 2 say about this ? By the way, G6MB, it is very probable that our work will be very close to and possibly overlap yours, in which case I am sure Group 6 will very gladly co-operate with you.

There is again considerable confirmation of the Isobar theory, but we feel that further research is needed over a wider area before any definite results can be formulated.

Ultra High Frequency Group

G6XN (Manager.)

Most members of the group have been busy building, rebuilding and erecting aerials during the last month. G2JH is taking aim at G2IG, 25 miles away, with a half-wave doublet using a reflector and director. G2KB is trying higher and higher aerials in an effort to make his low-power signals audible to G5ML, whom he receives R8 at 13 miles.

We welcome a new member, GI6TK, who has just completed 56 mc. gear. He reports hearing a harmonic of HAT2, the first DX to be reported since the outstanding work done by BRS310 nearly three years ago. He is co-operating with GI5QX. Signals were received in a car with no aerial on the transmitter, and it was found that every house, tree, or railings coming between receiver and transmitter dropped the signal strength by about 75 per cent.

G5MG is settling down following change of address, and has already worked duplex with G5QF. He reports hearing G6NF at R7. G5VY has worked 6NF and 5JV.

2BHX reports hearing G6QB, G6JP, G6NF, G6UH, G5NR, G5TN and G6YK. The last-named was received R9 on an indoor aerial, but only R7 on an outdoor, but transmissions from 5TN were the same with each aerial. This effect is probably explained by polarisation or directional phenomena. If, for example, transmitting and receiving aerials are vertical and horizontal, respectively, no signals may be heard, especially at medium distances. Horizontal aerials are very directional. For maximum signal strength the aerial should make an angle of 45 deg. with the direction of the wave. The minima may be very sharp, as was found by G6XN during 2½-metre tests about a year ago.

2BHX is prepared to listen any evening from 18.00 to 23.00 and keeps a watch every Sunday from 10.00 to 10.30 on 56 mc.

G6XN is now using 5 watts input to a Mullard A.C.044 in a series-tuned Ultraudion, with a nearly vertical direct-coupled half-wave aerial in the rafters. Tests in a car following a particular route showed far better results than had been obtained with three times the power and a standard 66-ft. outdoor aerial. R7-8 signals were obtained at 7½ miles. At the same time R8 signals were heard beyond Rickmansworth from G2JU (Harrow) and good signals were also heard from G6CJ (Uxbridge). G6CJ and G2OW have been worked.

Some of the group are querying whether a super-regenerative receiver is the ideal for 5-metre work. It would be interesting to hear from anyone with experience of superhets on this wave.

GI6TK wishes to get in touch with those interested in 5-metre work near the west coast, between, say, Liverpool and Portpatrick, with a view to arranging tests.

2 MC. Group.

G6FO (Manager).

There is little to report again this month in connection with 2mc. working, no individual reports having been received. These are scarcely to be expected while the fine weather lasts, but it is to be hoped that the 170-metre people will get down to it during the coming season, when several important tests are to be carried out.

G2CT has been compelled to resign as GC of 10C for business reasons, and is to be succeeded by BRS869. Please note that the latter's QRA is 36, Westholm, Hampstead Garden Suburb, London, N.11.

(*Continued on page* 60.)

NOTES and NEWS from the BRITISH ISLES

DISTRICT REPRESENTATIVES.

DISTRICT 1 (North-Western).
(Cumberland, Westmorland, Cheshire, Lancashire.)
MR. S. HIGSON (G2RV), "Hebblecroft," Egremont Promenade, Wallasey, Cheshire.

DISTRICT 2 (North-Eastern).
West Riding, Durham, Northumberland).
MR. L. W. PARRY (G6PY), 13, Huddersfield Road, Barnsley, Yorks.

DISTRICT 3 (West Midlands).
(Warwick, Worcester, Staffordshire, Shropshire.)
MR. V. M. DESMOND (G5VM), 199, Russell Road, Moseley, Birmingham.

DISTRICT 4 (East Midlands).
(Derby, Leicester, Northants, Notts.)
Mr. W. E. G. Brigden (G6WU), "Aberfoyle," Westleigh Avenue, Leicester.

DISTRICT 5 (Western).
(Hereford, Oxford, Wiltshire, Gloucester.)
CAPT. G. C. PRICE (G2OP), 2, St. Anne's Villas, Hewlett Road, Cheltenham, Glos.

DISTRICT 6 (South-Western).
(Cornwall, Devon, Dorset, Somerset.)
MR. H. A. BARTLETT (G5QA), "Lendoric," Birchy Barton Hill, Heavitree, Exeter.

DISTRICT 7 (Southern).
(Berkshire, Hampshire, Surrey.)
Mr. E. A. DEDMAN (G2NH), 63a, Kingston Rd., New Malden, Surrey.

DISTRICT 8 (Eastern).
(Cambridge, Huntingdon, Norfolk, Suffolk).

DISTRICT 9 (Home Counties).
(Bedfordshire, Hertfordshire, Essex, Buckinghamshire.
MR. F. L. STOLLERY (G5QV), "Kingsmead," Lancaster Gardens East, Clacton-on-Sea, Essex.

DISTRICT 10 (South Wales and Monmouth).
(Monmouth, Glamorgan, Breconshire, Carmarthen, Cardigan, Pembroke.)
MR. A. J. E. FORSYTH (G6FO), "St. Aubyns," Gold Tops, Newport Mon.

DISTRICT 11 (North Wales).
(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire.)
Mr. T. Vaughan Williams (G6IW), "Malincourt," Grosvenor Ave., Rhyl, Flintshire.

DISTRICT 12 (London North).
Mr. S. BUCKINGHAM (G5QF), 19, Oakleigh Road, Whetstone, N.20.

DISTRICT 13 (London South).
MR. A. D. GAY (G6NF), 49, Thornlaw Road, West Norwood, S.E.27.

DISTRICT 14 (London East).
MR. T. A. ST. JOHNSTON (G6UT), 28, Douglas Road, Chingford, E.4.

DISTRICT 15 (London West and Middlesex).
MR. H. V. WILKINS (G6WN), 81, Studland Road, Hanwell, W.7.

DISTRICT 16 (South-Eastern).
(Kent and Sussex).
MR. H. A. M. WHYTE (G6WY), Killiney, Worsley Bridge Road Beckenham, Kent.

DISTRICT 17 (Mid-East).
(Rutland, Lincoln and E. Riding.)
MR. A. E. LIVESEY (G6LI), Stourton Hall, Horncastle, Lincs.

SCOTLAND.
MR. J. WYLLIE (G5YG), 31, Lubnaig Road, Newlands, Glasgow.

NORTHERN IRELAND.
Mr. C. MORTON, (GI5MO), 27, Bristol Avenue, Belfast.

District Notes for publication should be written as concisely as possible and should be in the Editor's hands by the 25th of the month preceding publication. They should be of a general rather than personal nature. Individual reports from County Representatives will not be accepted for publication.

DISTRICT 1 (North-Western).

AS no report is to hand from the Cheshire C.R., I must confine my remarks mainly to the Manchester and Cumberland areas. Great interest is being shown in experimental work on 56 mc., and during the recent *Wireless World* plane tests stations G5MT and G20I were successful in obtaining good results over a distance of approximately 69 miles. G20I reports having a contact with G2DH over a distance of 10 miles for one hour. Manchester members paid a visit to the Rochdale Fire Brigade recently and were greatly interested in the glittering array of switches and relays.

The Merseyside Amateur Transmitters' Society have been allotted the call-sign G5MT, and work is proceeding in installing apparatus to work on all bands. At the moment we have 56 mc. gear in use which has been kindly loaned by G6OM and G2OA. Before the next notes appear we hope to be active on other bands.

G6J2, 2YN, BRS1043 and 1106 report active from the Cumberland area.

(Mr. Corbett (G5WG) sends the above report on behalf of the D.R., Mr. Higson (G2RV). For the next two months correspondence relating to District 1 should be addressed to Mr. Corbett Gorsey Hey Hotel, Bebington, Cheshire.—ED.)

DISTRICT 2 (North Eastern).

The Conventionette held on July 2 at Leeds was attended by 47 members and proved a complete success. An informal discussion and an examination of 56 mc. gear brought along by the Bradford members preceded the business meeting.

The C.R.'s for Yorkshire, G5TQ, and Northumberland, G5QY, together with the Middlesbrough Sub-Representative, G6CV, gave reports on the activities in their territory, following which G6CL delivered a talk on Society matters, congratulating those members who had done such good work on 56 mc.

A discussion on the latter subject followed.

Newcastle.—The July meeting of the N.E.A.T.S. was supported by 13 members. G6BC has carried out effective work on 28 mc. G2CO has been inactive owing to illness.

Middlesbrough.—Some 56 mc. gear was displayed at the last meeting held in the above town. G5XT and 6 CV have worked duplex telephony on this frequency.

Bradford.—G6BX is working on 56 mc. He and G6KU staged a public field day at Goit Stock, using 56 mc. apparatus. G6BX transmits regularly on this band between 21.00 and 21.30 B.S.T. on Mondays and Thursdays. He is carrying out

further tests with electron-coupled oscillators. G6KU is active on 56 mc. and heard G6SM during the 'plane tests. G6NP, 5TQ and BRS844 are also active.

General.—Owing to the great interest in 56 mc. the D.R. proposes confining these notes principally to activities on this band, and with that in view, invites all members to report their activities promptly each month.

Sheffield is without a sub-representative at present; may I appeal for a volunteer? From this area G6LF and 6UF report that they are starting up on 56 mc., whilst the D.R. and G2BH in Barnsley are interested. The latter has heard G6BX.

[In connection with Mr. Parry's latter remarks we must again ask members interested in 56 mc. work to support and report to Contact Bureau. There are many problems to be solved yet and national co-operation seems essential.—ED.]

DISTRICT 4 (East Midlands).

Ours may have been the last of the Conventionettes, but there is no doubt that the welcome and interesting details conveyed to us by G6CL, together with the admirable arrangements made by G2IO, our Notts C.R., makes the event a happy memory.

We would register our thanks to the members from outside the District—Burton, Stockport, Manchester, King's Lynn, Boston, Lincoln and London, who paid us a sincere compliment by their visit.

Station visits brought out a "high light" in the form of comment from our Secretary. "One of the most ambitious 56 mc. rigs he had seen." Good for Notts! 2BMR, 5YP, 6PZ, 2GU, 2JR, 2IO and BRS1009 are keeping this band active in the northern half of the District.

Leicester members supporting the 56 mc. activity are: 5VH, 6GF, 6JQ, 2AFM, and 2BHA. Both 5VH and 6WU are awaiting QSL's for a ten-watt QSO with "LU." In the meantime, they are trying to cope with scepticism.

G6JQ was recently QSO with ZA2D, and queries whether this is the first British 7 mc. contact with Albania. Comment, please!

Summer vacations (and pastimes) create a scarcity of individual reports, and the most brief particulars are welcome by the 20th of the month.

DISTRICT 5 (Western).

Although there is little to report I feel I must, on behalf of the District, convey congratulations to Mr. T. F. Gleed (BRS689), on being placed second in the B.E.R.U. Receiving Contest; to Mr. R. A. Bartlett (G6RB), on obtaining third place in the Transmitting side of the 3.5 mc. contest; to Mr. P. Seymour (BRS475), on being placed fourth in the receiving side of the same contest; and finally to Mr. L. Hill (2AGM) who has been awarded the Wortley Talbot Trophy. This is the second time the latter award has been won by a member of No. 5 District.

The D.R. will be on vacation until August 28. There are still some vacancies in the Bristol unit of the R.N.W.A.R.

DISTRICT 6 (South Western).

The budget has now been extended to two months, and, as a consequence, there is a lack of reports for this one month. Most stations appear to be active, and those who have been definitely heard (either direct or in QSO) are: G2BL, 2FN, 5QA, 5SY, 5VL, 5WY, 5YR. BRS1089 has been on vacation, but is now finishing a re-build. G5QA is re-building, but is on the air with a 66-ft. A.O.G. aerial about 14 ft. above the ground. DX, on the whole, appears very good.

Some field days are planned for August. G5QA and 5WY were on 3.5 mc. 'phone from a portable TX on Wednesday, July 19, at a point near the Exe estuary. No reports other than local ones (ground wave) have been received, but if anyone else did hear these transmissions, reports will be welcomed. The 56 mc. band is receiving attention from several stations, but no inter-town work has yet been accomplished.

I hope a good muster will go up to Convention from No. 6 District. Don't forget the budgets, and return them to G5SY by the fifteenth of the month, otherwise it makes the compiling of this report no easy task.

DISTRICT 7 (Southern).

Collective work in No. 7 District has been rather quiet recently after the heavy programme of the last few months. At least 50 per cent. of the active members seem to be engaged in some phase or other of 56 mc. work, which is now occupying a large space in the District Letter Budget.

The D.R. feels, however, there is still not enough co-operation among the 56 mc. men, not so much as to the work done, but in tackling specific problems, instead of carrying out individual experiments in a haphazard manner. The response to his enquiry *re* a 1.7 mc. QSO party on Sunday mornings has been poor, if that is the correct word to use when nobody at all replies! However, he supposes it can partly be blamed to the call of the sea during the holiday season.

The next monthly meeting will be held on Sunday, September 3, and will consist of an all day outing to Wittering. A similar outing was a great success last year, and we hope to make this even better. The meeting place for those coming by road is Chichester Station 10.30 a.m. sharp. A complete programme for the winter session meetings is being drawn up by the C.R.'s and D.R. and will be sent to all when compiled.

DISTRICT 9 (Home Counties).

Quite a holiday spirit prevails in this district, and reports are few.

G2HJ mentions that BRS490 has obtained a full licence and is now operating as G2RL. BRS1132, our newest member in Bucks, is interested in 56 mc. work and heard G6SM. News has come to hand via G6KV that G2PX will be returning to active radio shortly. He will be remembered as one of the "three musketeers" (G2PX, G2KT, and G2LZ). The latter is working on 56 mc. with many others in South Essex. G6QX reports working excellent DX with a Windom type aerial on 14 mc., including J1FT at 1930 G.M.T. 2AZD (Watford) late BRS818 has forwarded a most interesting report. Hope to see you all at the Convention.

DISTRICT 10 (South Wales and Monmouth).

Judging by the few direct reports to hand, summer inactivity is affecting the District generally, though individual members are busy on 56 mc. in the Newport neighbourhood.

A meeting in Newport on July 6 was attended by G2PA, 2XX, 5BI, 5FI, 5WU, 6FO, and 6YJ, while on June 26, G2PA and the D.R. visited the Blackwood Radio Club. The enthusiasm of this local society has been unabated during the summer, and the construction of a special Amateur-Band receiver has been commenced.

G5NS, who has returned from his African trip, has now been posted as W/T operator on a ship running weekly from Hull to Scandinavian ports. He took the opportunity of visiting some half-dozen South African hams when at Capetown and Durban, and sends in an interesting account of his experiences.

Since the last Notes were written, feverish 56 mc. activity has prevailed among certain of the Newport members. G2PA, 6FO, and 6YJ are operating regularly on five metres, while G2XX, 5FI, and 5WU are joining in as soon as possible. So far, the work has been entirely local, and at present the possibilities of portable QRP outfits are being investigated. It is hoped to have at least two mobile stations in operation by the time this appears, G2XX and 6FO. G6YJ is also producing midget gear for outdoor work, and G2PA is to operate as the fixed station.

The D.R. will be attending Convention next month, and is looking forward to seeing a number of the members of No. 10 at the various meetings.

DISTRICT 12 (London, North).

Arrangements have been made for a 56 mc. Field Day to take place at The Orange Tree, Totteridge, from 10 a.m., September 3. All members and friends are welcome. To assist matters, please advise the D.R whether you propose staying for lunch.

Seven stations are working on 56 mc., and good results are being obtained. BRS members are materially assisting by forwarding reports.

DISTRICT 13 (London South).

In response to last month's request, actually *seven* members of the district have sent me reports and this opportunity is taken of thanking them. This represents about 6 per cent. of the total number in the district, and is not what one might call a brilliant response. G2HG, who is getting out in the Asiatic direction very well with a 14 mc. locked oscillator, says that he is unable to attend our local meeting, but would like to know what is taking place in the district. There may be others with the same wish, but I am afraid I cannot offer them much with the receipt of such meagre information. G2UX, who will be away during Convention, is suffering from QRM from local electric machines, and G6RL's crystal. G5YH is QRT until Convention owing to exams. G6AQ will be pleased to receive reports from anyone who hears his 7 mc. transmissions. G6FU, using 100 volts of dry batteries and a 2V receiving valve on 7 and 14 mc., is getting out well and has received a visit from the local Press reporter. G6QB has taken his new 56 mc. transmitter up into Yorkshire during holidays and hopes for some DX on the moors. G6PM will be starting up again in Wimbledon, when he can acquire a pair of LS5's.

On Sunday, July 2, the SL & DRTS held their annual 56 mc. field day, when G2NH, G5AW, G5IS, G5SA and G6NF established stations in different parts of the Southern Counties. Several interesting contacts were secured, particularly between G5SA at Tatsfield and G6NF on the roof of Dorset House, Blackfriars, S.E.1. G2NH heard the latter station at Blackdown, Hants, but unfortunately G6NF was unable to receive him.

DISTRICT 14 (London, East).

At our last meeting, held at Chingford, members present welcomed SU1EC and PAOTT. Final plans were also arranged for the "Anglo-Dutch" Field Day which was held at Rookwood Hall, Abbess Roothing, on July 29-30, when a party of Dutch amateurs joined us for personal QSO's.

Congratulations to BRS 1090, now 2AWG. The next meeting will be held at 28, Douglas Road, Chingford, E.4, on Tuesday, August 22.

DISTRICT 15 (London, West and Middlesex).

There is very little in the way of news this month. Please watch the September report for date and QRA of next area meeting.

The only report comes from 2ABL, who is now G2LA (Congratulaions, OM.) G6WN has spent most of the month on 28 mc., with good results.

DISTRICT 17 (Mid-East).

In the East Riding of Yorkshire, 28 mc. has claimed considerable attention, and G6OY and G5FV have made a number of useful contacts. 2ATK would appreciate some help in checking his new 56 mc. receiver, which incorporates a S.G. stage of H.F. amplification.

We welcome new members in Lincolnshire and regret the loss of G2FS and G2TK from the East Riding.

Conditions on 14 mc. have been rather good and G5BD, who is once more on the air, worked a pair of W6's during a favourable evening. G5CY and 5GS are both active, but the former is changing over to A.C. and higher power. G6LI has also worked W6. The D.R. considers it is time a general meeting of sorts was held in Lincolnshire. Let him have your ideas about time and place.

CONTACT BUREAU NOTES

(*Continued from page* 57.)

With reference to the Group 10A WX Tests, those who have offered their co-operation are now as follows: 2AGK (Reading), 2AGR (Leeds), 2AGV (London), 2AJW (Sheffield), BRS689 (Bristol), BRS860 (Westcliff-on-Sea), BRS869 (London), BRS958 (Exmouth), BRS967 (Hull), BRS1066 (Burton-on-Trent), BRS110 (Exmouth), BRS1160 (Manchester) and BRS1170 (Scarborough). We still require more observers, particularly in the North, Scotland, Northern Ireland and the I.F.S. All that is needed are RX men who can read call-signs and are able to give two quarter-hour periods a week to 1.75 mc. listening for five or six stations. All such offers of assistance should be sent me direct as soon as possible.

Empire B.E.R.U. News.

B.E.R.U. REPRESENTATIVES.

Australia.—H. R. Carter (VK2HC), Yarraman North, Quirindi, N.S.W.

Bahamas, Bermuda and the Eastern Part of the West Indies.—H. B. Trasler, No. 2 Mess, Pointe à Pierre, Trinidad, B.W.I.

Burma.—W. G. F. Wedderspoon (VU2JB), Government High School, Akyab, Burma.

Canada.—C. J. Dawes (VE2BB), Main Street, St. Anne de Bellevue, Quebec; and A. E. Howard (VE4CJ), 2401, 25th St. West, Calgary, Alberta.

Ceylon and South India.—G. Todd (VS7GT), District Engineers Bungalow, Nuwara Eliya, Ceylon.

Channel Islands.—H. J. Ahier (G5OU), Lansdowne House, 45a, Colomberie, St. Helier, Jersey, C.I.

Egypt and Sudan.—E. S. Cole (SU1EC), Haking House, Abbassia, Cairo, Egypt.

Hong Kong.—P. J. O'Brien (VS6AE), 12, Kent Road, Kowloon Tong, Hong Kong.

Iraq.—S. A. Rance (YI2DS), A Bungalow, 203 Squadron, R.A.F., Basra.

Irish Free State.—Col. M. J. C. Dennis (E12B), Fortgranite, Baltinglass, Co. Wicklow.

Jamaica, British Honduras, Turks Island and Cayman Island.—C. M. Lyons, (VP5MK), P.O. Box 36, 12, Port Royal Street, Kingston.

Kenya, Uganda and Tanganyika.—W. E. Lane (VQ4CRH), Box 570, Nairobi, Kenya Colony.

Malaya.—T. G. Laver (VS3AC), Government Electrical Power Station, Johore Bharu, Johore, Malaya.

Newfoundland.—James Moore (VO8AW), Carbonear.

New Zealand.—D. W. Buchanan (ZL3AR), 74, Willis Street, Ashburton; and C. W. Parton (ZL3CP), 69, Hackthorne Road, Cashmere Hills, Christchurch.

Nigeria.—Capt. G. C. Wilmot (ZD2A), Depot Nigeria Regt., Zaria, Nigeria.

North and South Rhodesia.—J. W. Mavis, ZE1JE, P.O. Box 160, Umtali, South Rhodesia.

North India.—T. C. Pratley (VU2AH), Aircraft Depot, Drigh Road, Sind.

South Africa.—W. H. Heathcote (ZT6X), 3, North Avenue, Bezuidenhout Valley, Johannesburg

Australia.

Mr. H. Carter (VK2HC) reports *via* VK3WL, ZL4AO and G2ZQ that the 14 mc. band is still below par with Pacific stations the most reliable DX. The 7 mc. band shows signs of improvement, G and other Europeans being heard from 05.00 to 06.30 G.M.T. The 3.5 mc. band is still good for local and ZL work. VK5MD is acting as Federal Secretary owing to the resignation of VK5BO.

Canada.

The Maritime Division of Canada is now represented by VE1BV, one of our earliest B.E.R.U. members, and in his first report, sent *via* G2DV, he commented on the fact that conditions on 14 mc. were only fair during June and July. The 7 mc. band was impossible for DX work owing to U.S.A. QRM. Most of the VE1 stations use the 3.5 mc., which accounts for the scarcity of Canadian signals at times when eastern W's are coming across to Europe at good strength.

Ceylon.

Mr. G. Todd (VS7GT) reported consistently poor conditions on 7 mc. during July, whilst 14 mc. showed some slight improvement. VU2FY thanks all G stations who QSL'd his test transmissions sent from April 13 to 15. VS7GT and VU2FY have continued their phone tests with a view to improving the efficiency of the former's portable transmitter. Good and reliable telephony has been received up to 475 miles on 7 mc. with an input of 2 watts. VS7AL was present at one of these tests, and was so impressed that a microphone is now "missing" from 7GT!

The results of the B.E.R.U. Contests were received *via* VK6FO. The membership in VS7 and VU heartily congratulate ZL4AI and all zone winners on their success, whilst VS7GT personally thanks all who have congratulated him on winning the Junior Contest.

Egypt.

SU6HL reports *via* G5YB that SU1CH, SU1MM, SU2GA (QRA near Cairo) and himself are all active on 14 mc. The latter is also on 28 mc. Conditions during July on 7 mc. were fairly good in late evenings for Europe, and in early mornings for America, despite QRN. Very few Asiatic or South African and no Australian stations were heard. The 28 mc. band improved during June and SU6HL QSO'd G and FM. ZC6KR visited SU6HL and the latter visited ZC6CN during the month.

Jamaica.

Mr. C. M. Lyons (VP5MK) reports by letter that VP5CC, 5GM and 5NH are active on 7 and 14 mc., and that VP5PA, 5DD and himself are on 7 mc. Conditions have been gradually deteriorating and there has been little real DX worked. The loyal relay greetings were passed successfully *via* VP5GM to G6VP, whilst VP5NH has been QSO G2DZ, 5BJ, 6LK, and EI5F. The Valentine expedition is still at Cocos Islands. During the recent storm in Jamaica continuous watch was kept between Kingston, Port Antonio and Montego Bay by VP5CC, 5DD and 5MK, and weather reports passed between them at regular intervals.

Kenya, Uganda and Tanganyika.

By VQ4CRH.

First of all I should like to take this opportunity on behalf of the group of congratulating ZL4AI and VS7GT on winning the 1933 Senior and Junior Contests, respectively, and also those obtaining "place" positions.

Early in the month of July I received a visit from VQ5NTB, who was passing through Nairobi *en route* for England on retiring from the Uganda Administration.

Conditions have been very erratic recently, European stations being workable, but weak, with a complete wipe-out so far as South Africans were concerned.

My notes last month *re* VQ4CRN were rather too optimistic, as he is now again on the wing, this time having been transferred to Tanganyika, and will thus very shortly receive a VQ3 call sign. During the short period CRN was on the air he hooked 30 QSO's on nothing more than a clothes-line aerial 8 ft. high from the ground, and all reports were good. His new address will be c/o Wireless Station Dodoma, Tanganyika, E.A., where he hopes to get going once again.

BERS152 is now VQ5JAA, he also has changed his QRA from Uganda to Kakamega in Kenya. He is applying for a VQ4 callsign.

VQ4CRH has not much to report, except that the mains QRM is still causing a lot of trouble. The arrival of the QSL from South America enables his application for the W.A.C. to go forward.

BERS175 is well ahead in building his receiver, and has now arrived at the "cutting and cursing stage" of coil construction.

VQ4CRL also has little to report. He has been trying out the aerial evolved by G2BI and described in the August, 1932, "BULL.," but owing to the adverse DX conditions has had very little opportunity of giving it a good test. Reports from VQ3MSN prove that on 7 mc. the aerial is better than the single-feeder Hertz with 66 ft. top.

CRL has now received his 1,000-volt transformer and hopes to be QRO 50 watts input shortly. He is still chasing the elusive South American for his W.A.C. and has kept a weekly sked with G5BJ.

VQ4MSN reports conditions poor. He has been experimenting with a Zepp aerial and concludes that the same length feeder is unsuitable for the two bands.

The Sunday morning sked between VQ4CRL and VQ3MSN on 7 mc. has been very successful, and results at both ends have been perfect.

New Zealand.

Mr. A. R. Harris, on behalf of the N.Z.A.R.T., reports *via* ZL4AO and G2ZQ, that a vote was taken in the 17 branches of his Society on the desirability of opening up a 100 kc. channel on the 14 mc. band for telephony. Rather more than half the branches were in favour, but as the numerical vote was somewhat indefinite a secret ballot is to be made later. The P. & T. Dept. have granted permission for the band 85 to 105 metres to be used for Radio Emergency Corps work. Twelve districts participated in a field day on June 10 and 11, and three British portables were heard. G6YK was contacted by ZL4AO.

The tenth anniversary of amateur radio in ZL was celebrated on June 7, when many of the original amateurs were present at functions arranged in their honour. Interest in 1.7 mc. work is increasing and some good work over 400 miles with inputs of 20 watts has been achieved.

Northern India.

By VU2LJ *via* VU2FP.

Congratulations to the winners of the Senior and Junior B.E.R.U. Trophies.

VU2FP and VU2LZ have been appointed Empire Link Stations, and it is hoped the new Link service will be running smoothly in a short time.

Conditions on 14 mc. have been very variable, rapid fade-out is still noticed at medium DX. VK and ZL are still conspicuous by their absence. The 7 mc. band has been fairly good, but the terrific QRN limits the use of this band.

BERS150, VU2FP and VU2LJ all agree that the moon plays an important part in the reception of short-wave signals, the best period being when the moon is full.

Recent Work on 28 mcs.—(*continued from p.* 45)

It would appear that the predominating influence on 28 mc. signals lies outside local conditions, and any of the other applicable points mentioned above.

Results prior to June 7 have already been reported, since this date log extracts may be summarised as follows:—

G stations logged on 28 mc., the last-named believed to be a harmonic: 5VB, 5FV, 6WL, 5CU.

G stations called by European or African stations on 28 mc.: 5FV, 2MA, 2VD, 5VB, 5VX, 5VL, 6FO, 6WL, and 6VP.

Commercial harmonics identified: EAM, HBJ, FYQ, LCP, PCT, FRO-FTL, FLJ, WIY and WIK(?). Many others were heard, but not identified.

The following, presumed, amateur harmonics were logged: EAR185 (3), EAR223 (2), EAR126 (1), EAR259 (1), EAR225 (1), EAR234 (1), OK1WF (2), OK1WX (1), D4UAC (1), G5CU (1) and CT1GG (2). The figures in brackets denote the number of days on which the station was logged.

The following 28 mc. stations were logged, the figures denote the number of QSO's made with the station concerned: G5FV (1), G6WL (1), F8CT (6), F8QA (1), F8PK (1), F8HS (3), F8UU (1), F8FK (1), F8YG (1), F8NR (1), OK1AB (1), OK1AW (5), OK2SI (2), OK2VA (7), EAR227 (1), ON4MY (1), HAF1G (1), D4TEN (4), D4ABW (2), FM8CR (3), FM8IH (4) and SU6HL (1), a total of 49 QSO's. Of the above, the following stations were logged on days other than the ones on which QSO's were made, the figures denoting the number of days: G5VB (1), F8QA (1), F8HS (1), ON4MY (2), ON4BZ (1), ON4AR(?) (1), D4TEN (1), HAF1G (2), OK1AW (1), OK2VA (1), EAR227 (1), FM8CR (1), and SU6HL (1).

The following 28 mc. stations were logged, but not worked: F8SI (1), FM8BG (1) and PAOAPX (1), the figure in brackets denoting the different days on which the stations were heard.

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FOR DISPOSAL.—I.E.E. Journals, Jan. to Dec., 1932. "Science Abstracts," Sections A and B, Nos. 409 to 420. "Television," March, 1928 to June, 1929. What offers?—Apply HEADQUARTERS.

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Printed for the Inc. Radio Society of Great Britain, 53, Victoria Street, London, S.W.1, by Loxley Brothers Ltd., 30, Southwark Bridge Road, London, S.E.1.