THE T. & R. BULLETIN

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RATIONAL REPORTING

THE other side of the QSL problem has seldom been more clearly and precisely stated than in the letter which we publish in this issue from Mr. P. Moores, ZE1JA, of Salisbury, Southern Rhodesia. Frequently in the past we have given publicity to those who complain about not receiving replies to their reports, but it must be many years since the transmitting amateur's point of view has been emphasised in such detail. Readers will, however, remember that we have frequently stressed the point in this Journal, and in our talks at Provincial meetings, that non-transmitters should use intelligence in sending reports to overseas stations.

The average British Isles amateur can have little or no conception of the QSL difficulties encountered by the operators of amateur stations in countries where activity is small. Mr. Moores has attempted, fairly successfully, we believe, to bring out in his letter these difficulties.

It would be unfair for us to say that we agree entirely with all of his comments, but one main aspect of the case certainly does coincide with our view and probably with the views of most experienced transmitting amateurs, namely, that no purpose whatever is served by a listener reporting on an overseas transmission when the operator is already in regular contact with the part of the world in which the listener is located. Listeners would be well advised to consider this point seriously, because it appears to us to be the crux of the problem.

Mr. Moores places particular stress on the need for useful reports. This again is a view which will be supported strongly by every transmitting amateur, for how seldom do we British Isles amateurs receive really useful information from B.R.S. and Short Wave listeners? We believe that every Empire amateur would appreciate and acknowledge a report if it contained data of experimental value, and in this connection we would urge Mr. Moores, and any other overseas reader who is interested, to send us for publication an outline of the technical data which they require to assist them in their work.

The chief feature of the letter with which we disagree is the statement that the writer retains reply coupons if the report is of no interest. Morally he may be within his rights, but we think he should at least acknowledge receipt, pointing out that the report is valueless.

Reducing the matter to a few words, our B.R.S. and other non-transmitting members will in future have to *earn* any QSL card they receive from ZE1JA. That, to our way of thinking, seems a fair bargain.

J. C.

A Speech Amplifier for Suppressor-Grid Modulation

By S. Buckingham (G5QF) and J. Clarricoats (G6CL).

IT was stated in the article dealing with "The DX Three" transmitter, published in the January, 1937, issue of this Journal, that the circuit could be adapted for suppressor-grid modulated telephony by the use of suitable speech equipment. The information which follows provides details of such an equipment which has been designed for use with "The DX Three," or with any type of transmitter employing R.F. Pentodes in the final stage.

The theory of suppressor-grid modulation is dealt with in Chapter 5 of the current edition of a *Guide to Amateur Radio*, but it can be briefly stated here that one of its main advantages lies in the fact that a very small audio input is required in order to fully modulate the last stage of a transmitter. The speech amplifier under discussion has been designed to work into a pair of RFP30 valves produced by the 362 *Radio Valve Co.*, London. An examination of the manufacturer's data sheet shows that for telephony work an audio input of about 2 watts is desirable, but experience has shown that inputs as low as 0.5 watt can be used successfully.

The Circuit

Before dealing with the construction and operation of the amplifier, it is desirable to examine the circuit (Fig. 1) in some detail so that an appreciation can be obtained of its operation.

There appears to be little difference in overall performance between a transformer-coupled arrangement and one employing resistance-capacity coupling, but from an economy point of view the latter method is to be preferred. Furthermore, a well-designed amplifier using R.C. coupling is capable of giving a really excellent performance. If transformer coupling had been used an expensive transformer specially designed would have been required, in order to obtain a comparable performance to the R.C. method, which employs comparatively simple material.

As the heart of any piece of radio apparatus centres around the valves, these will be mentioned first. The input and middle stages employ *Tungsram* HL4+ valves, whilst the output valve is a 015/400 made by the same company. The characteristics of these valves are as follow:—

	HL4+	015/400
Ia	.6 amp.	1.1 amp.
Vh	250 volts	400 volts
—bias	4.5 ,,	37 ,,
Normal current ...	5 mA.	40 mA.
mA./v.	3.5	5
μ	33	8
Impedance ...	11,000 ohms	1,600 ohms
Load resistance ...	—	6,000 ,,
Bias resistance ...	1,000 ohms	900 ,,
Watts	—	3.5
Base	5-pin	4-pin

These valves are reasonably priced, have a very satisfactory performance, and are exceptionally well produced.

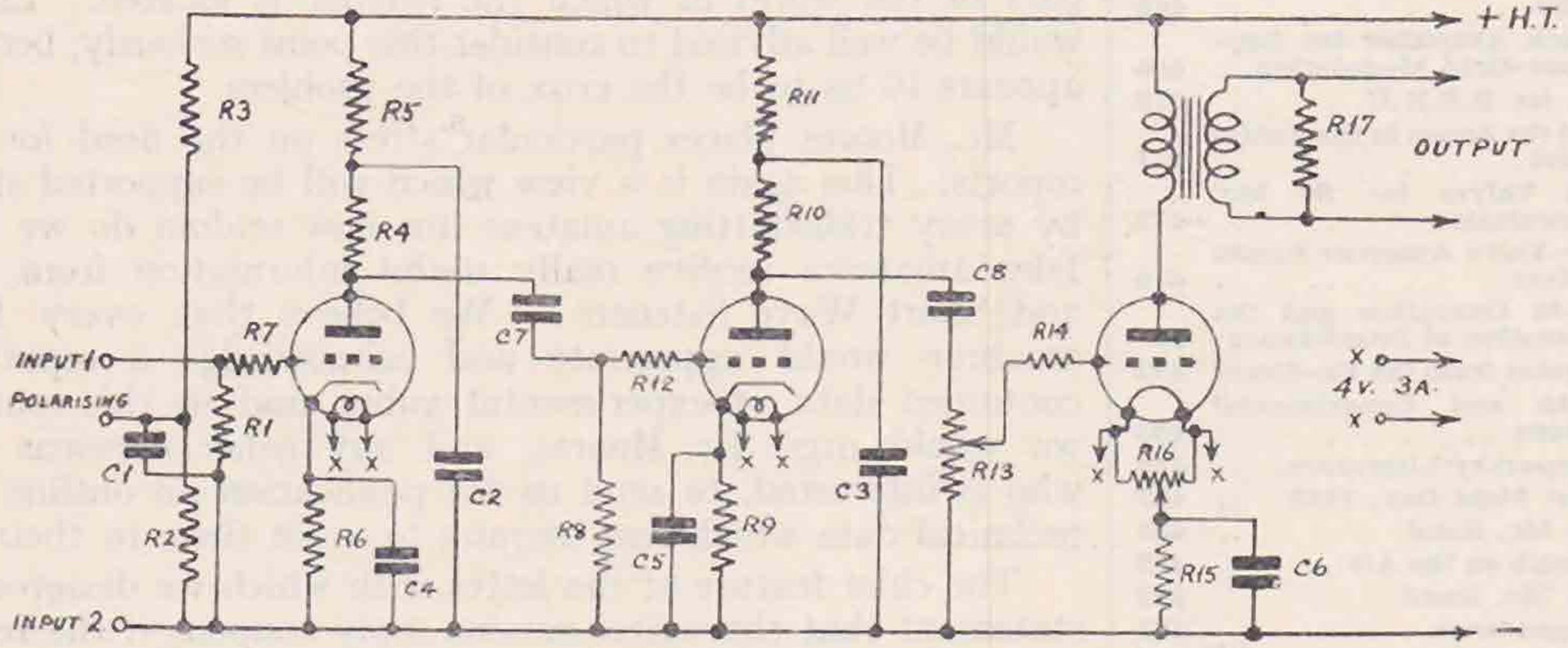


Fig. 1.—Circuit Diagram of 3-stage Resistance Capacity Coupled Speech Amplifier, giving 3 watts audio output.

C1, 6	*50 μF, 50 volts, 3004 Dubilier.*
C2	*8 μF, 500 volts, 0281 Dubilier.*
C3	*4 μF, 500 volts, 0283 Dubilier.*
C4, 5	*50 μF, 12 volts, 402 Dubilier.*
C7, 8	*.1 μF, fixed, 4603/5, Dubilier.*
R1	*.25 meg, F1, Dubilier.*
R2	*2,000 ohms, 1 watt, F1 Dubilier.*
R3, 17... ...	*30,000 ohms, 3 watts, F3 Dubilier.*
R4, 5	*50,000 ohms, 1 watt, F1 Dubilier.*
R6	*1,000 ohms, 1 watt, F1 Dubilier.*
R7, 12, 14 ...	*5,000 ohms, 1 watt, F1 Dubilier.*
R8	*.5 meg, F1 Dubilier.*
R9	*500 ohms, 1 watt, F1 Dubilier.*
R10	*30,000 ohms, 1 watt, F1 Dulibier.*
R11	*10,000 ohms, 1 watt, F1 Dubilier.*
R13	*.25 meg, Potentiometer, Centralab or Bulgin.*
R15	*900 ohms, 1 watt, F1 Dubilier.*
R16	*50 ohms, centre tap, Premier.*
Valves ...	*2 HL4+, 1 015/400, Tungsram.*
Terminals ...	*6, Clix "All-in" type.*
Valveholders...	*1 4-pin, 2 5-pin, Clix Chassis.*
Transformer...	*Partridge TR1.*

Microphone and Transformer: "Junior," Shaftesbury.

The amplifier has been designed to work with the "Junior" microphone manufactured by *Shaftesbury Microphones, Ltd.*, 24, Aldersgate Street, London, E.C.1. This is of the transverse current type having high sensitivity and good overall response. The microphone is coupled to the amplifier by means of a specially designed matching transformer, which is included in the cost of the microphone.

Referring back to the circuit, it will be noticed that a load resistance R1 is connected across the input. The object of this resistance is to avoid an open grid circuit to the first valve in the event of the microphone being inadvertently disconnected: a value of .25 megohm is recommended, but it is not critical.

In the grid line to the first and subsequent valves, a grid stopping resistance is inserted as a precaution against R.F. feed-back. These resistances should have a value not exceeding 5,000 ohms and may be in the ½-watt class.

Automatic biasing is employed for all stages, the resistance values specified having been fixed by reference to the valve data sheets. As a matter of interest, bias voltage applied to the grid of each valve was measured and the figures obtained are tabulated below:—

First stage ...	...	1½ volts
Second ,, ...	...	2 ,,
Third ,, ...	...	25 ,,

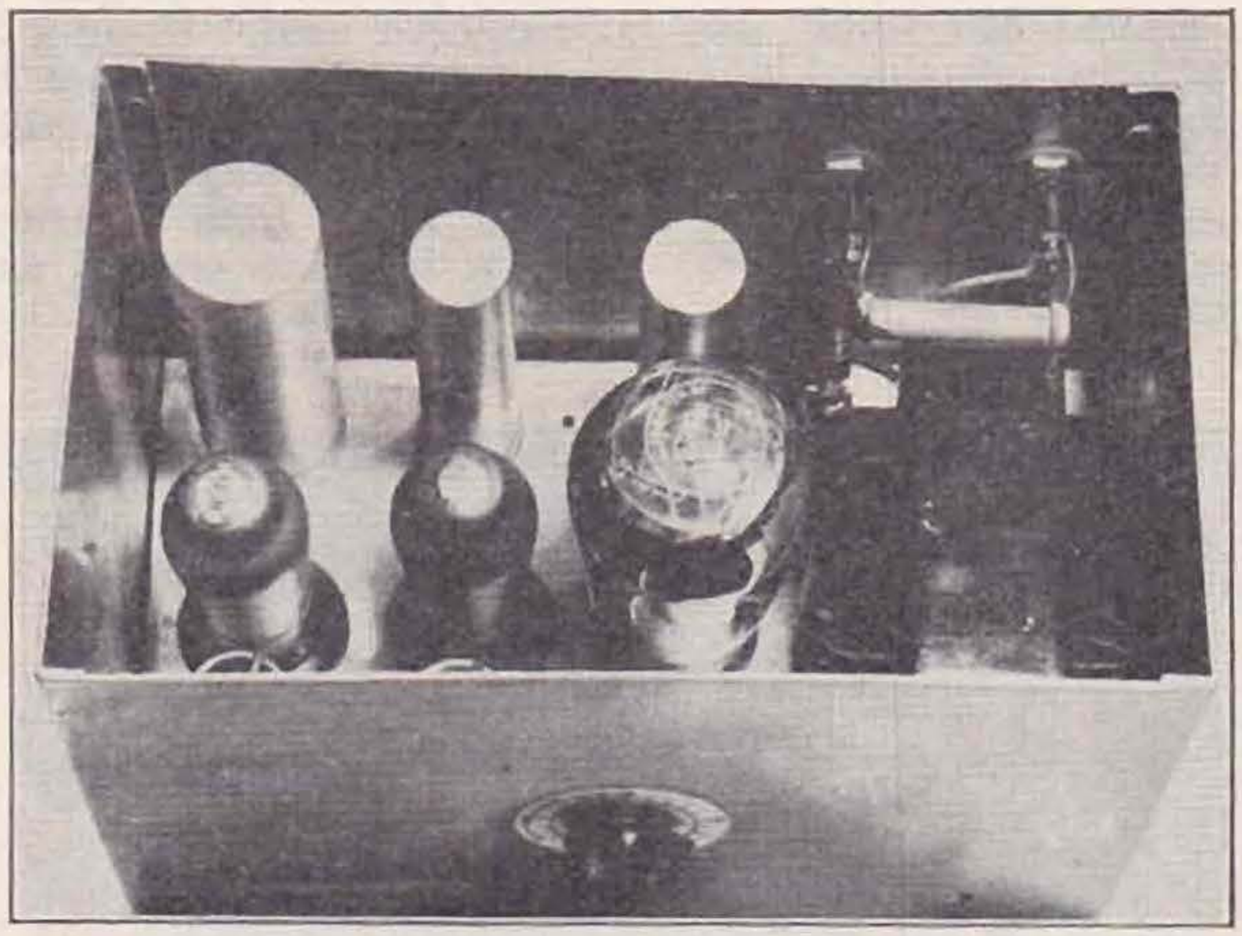
To prevent bass cut, each bias resistor is by-passed to earth through a 50 μF *Dubilier* electrolytic condenser. A high value of by-pass is desirable so that its reactance is very low compared with the bias resistance, to avoid negative feed-back to the grid at the lower frequencies. For the first two stages a 12-volt type is satisfactory, but for V3 a 50-volt type is recommended.

De-coupling in the first stage is obtained by the use of a 50,000-ohm resistance and an 8 μF condenser; in the case of the second stage a 4 μF condenser is used in conjunction with a 10,000-ohm resistance.

The values of capacity and resistance specified for inter-stage coupling have been chosen to suit the circuit arrangement. The by-pass condensers C2 and C3 are incorporated to prevent feed-back and hum, the former having double the capacity of C3, as these dangers are more likely to occur in the first stage.

If feed-back does occur in this stage, it is permissible to use two 25,000-ohm resistances in place of R5, in which case a by-pass condenser of 4 μF capacity should be connected between the join of R4 and the lower 25,000-ohm resistance. C2 should then be connected between the centre point of the two 25,000-ohm resistances and earth.

It will be noticed that the gain control R13 is fitted to the input of the last stage; this position is recommended as it enables the operator to control not only audio gain but also the inherent noise associated with all high stage-gain amplifiers. If the gain control is inserted in the first stage, control of input level only will be affected. The control takes the form of a ½-megohm *Centralab* potentiometer of the logarithmic type.



Plan View of Speech Amplifier. Volume Control Centre Front.

The automatic bias for V3 is obtained by the use of a *Premier* 50-ohm centre-tapped resistance R16, the middle point of which is taken to the bias resistance R15, and this in turn is by-passed to earth *via* C6.

Probably the most important component in any speech amplifier is the output transformer, which must be carefully designed to provide correct input and output matching. Fortunately the firm of *Norman Partridge* are in a position to supply transformers of every type suitable for speech equipment work, and as will be seen later, the particular type incorporated in the amplifier contributed in a very marked manner to the excellent response curve which has been obtained. It cannot be too strongly emphasised that the whole performance of a speech amplifier can be marred by the choice of an inefficient transformer. The transformer specified is specially suited to this particular amplifier, and is stocked as the type TR1 (price 21s. 6d.). The impedance of each winding is 5,000 ohms and the ratio 1 : 1.

A 30,000-ohm 3-watt resistance is connected across the secondary of the output transformer the purpose of which is to take care of the varying input load to the suppressor grids.

Microphone Polarisation

In practically every speech-amplifier circuit described in technical journals, the source of supply for polarising the microphone is shown as a primary

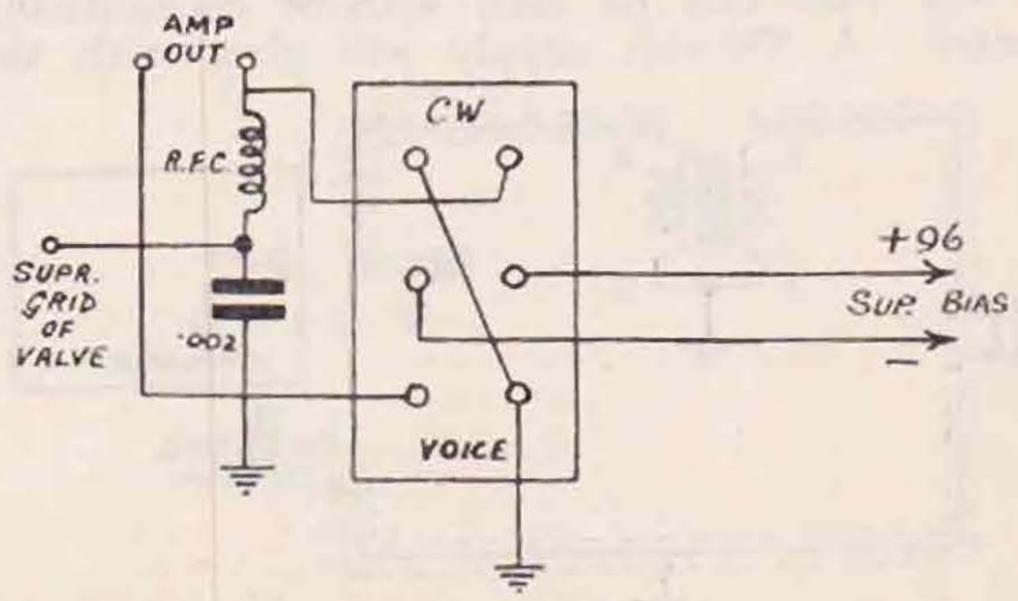


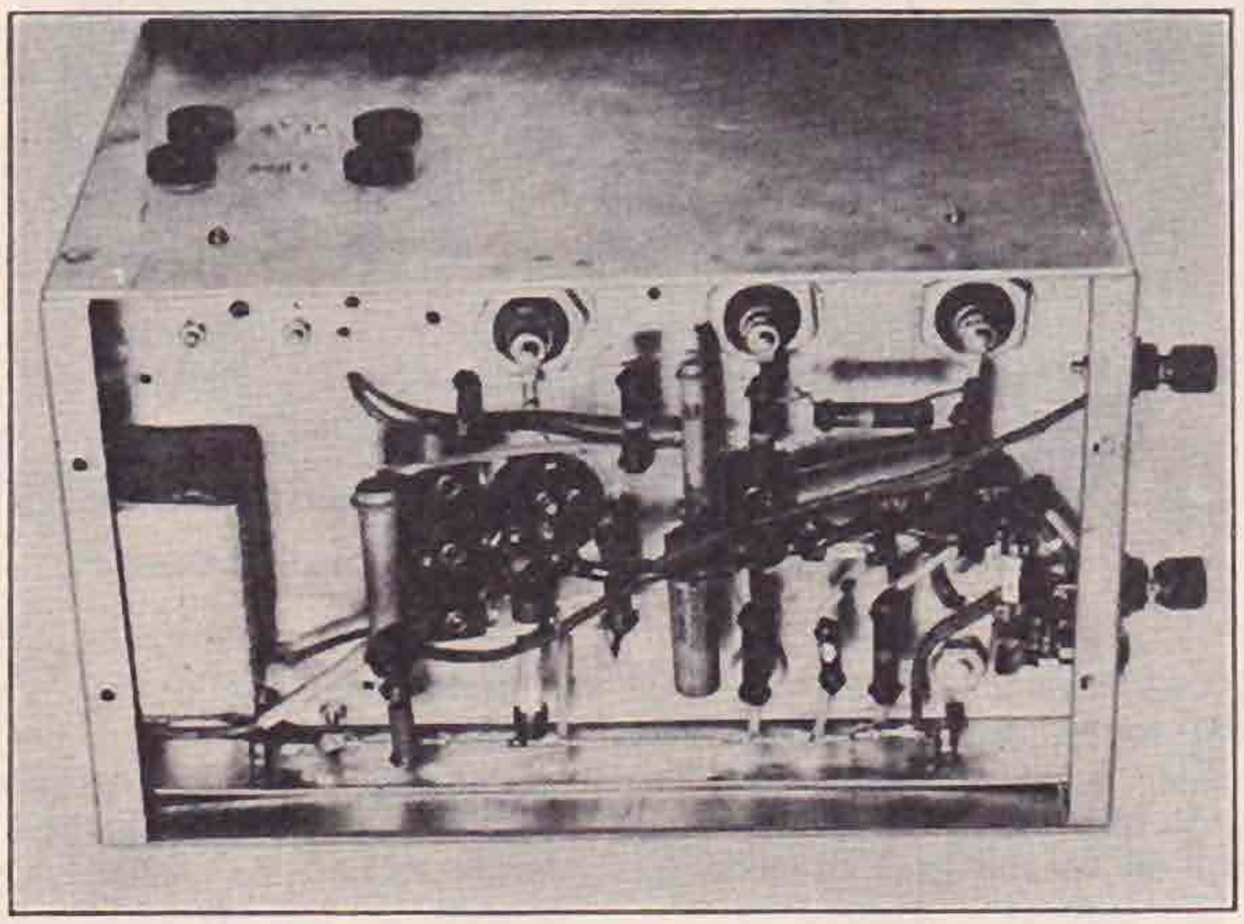
Fig. 2.—Arrangement of Change-over Switch to supply Positive or Negative Bias to Suppressor Grids of R.F. Pentodes.

battery (dry cells or accumulators). In the circuit being described it will be noticed that for the first time in the BULLETIN this "bugbear" has been overcome by using a potentiometer consisting of a 3-watt 30,000-ohm resistance R3, in series with a 1-watt 2,000-ohm resistance R2. These resistances are connected across the main H.T. supply, and the polarising voltage for the microphone appears across R2. In the particular amplifier we are discussing this voltage is in the order of 6 volts when the H.T. supply is around 350 volts. To avoid any possibility of hum being introduced into the grid of the first stage, a 50 μF 50-volt electrolytic condenser (C1) is connected across R2.

Construction

The amplifier, less the microphone transformer, is housed in an aluminium cabinet 10 ins. by 7½ ins. by 6 ins. made by *APA*. The chassis is raised 1 in. from the base to allow the small components to be mounted on the under side. On top of the chassis are mounted the electrolytic condensers C2, 3, 4 and 5, the three valves and the output transformer. All other components are mounted or wired in on the under side.

The output and supply terminals are mounted at the back of the cabinet, whilst the *Bulgin* two-pin Jack is fitted at the left-hand side, together with the polarising and earth terminals.



Under Panel View of Speech Amplifier. The polarising supply by-pass condenser is shown against left-hand edge.

The gain-control potentiometer is mounted centrally in the front of the cabinet, and ventilation holes are drilled in the lid.

The grid stoppers, R7, 12 and 14, should be fitted as close as possible to the grid pin of their associated valve holder. It has not been found necessary to employ screening for individual components, but the leads to the filament terminals should be twisted and kept clear of the grid wiring.

Power Supply

The amplifier has been designed to work from a 350-volt 60 mA. power supply, but voltages up to 450 volts can be used without encountering danger. A 350-volt supply will give, with the valves specified, an audio output ot about 3 watts, which will be increased to about 4 watts if the H.T. is raised by another 100 volts. By changing to a suitable type of output transformer it would be possible to use the amplifier for plate modulating a 10-watt power amplifier.

The filament supply should give 4 volts at 3 amps.

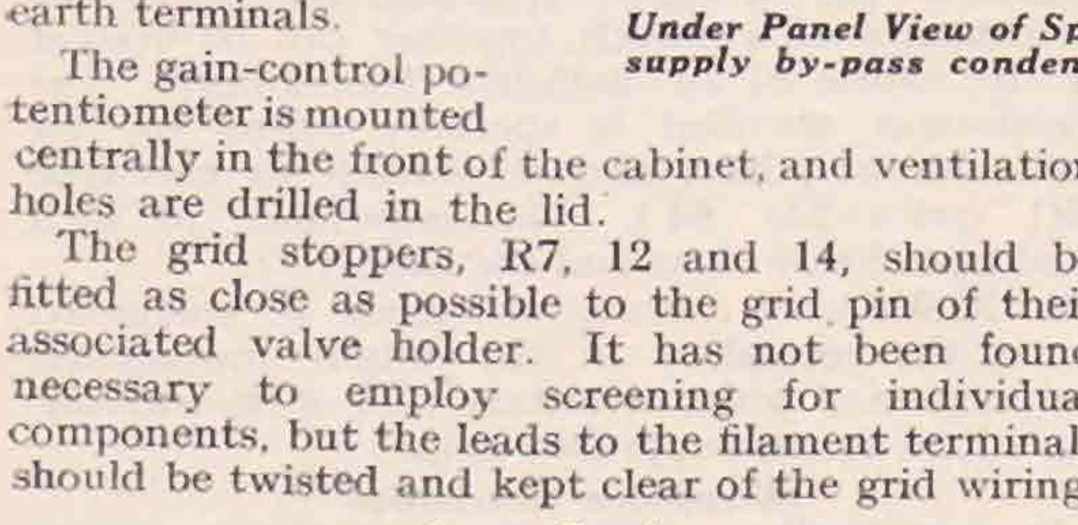


Fig. 3.—Method of connecting up Transverse Current Microphone to input of Amplifier.

The R.F. Amplifier

It is desirable to give some brief details of the R.F. portion of the gear with which the amplifier has been used. Using a 3.5 Mc. crystal and two doubler stages, a drive current of 20 mA. was obtained in the 14 Mc. grid circuit of the RFP 30's, employing a single turn of link coupling. It has been found from experience that a value of 96 volts negative on the suppressor grids is satisfactory when the H.T. supplied to the anodes is 1,000 volts (70 watts). For 500-volt working the suppressor bias can be reduced to about 36 volts giving an input of 40 watts. R.F. is measured at the end of 16-ft. feeders attached to a 66-ft. top. When working on 14 Mc., it has been found to be 1.8 amps. at full power (100 watts) with C.W. and 1 amp. (70 watts) with the carrier ready for modulation. On peaks of modulation this value of modulation rises to about 1.2 amps. with an audio input of 1.5 watts applied to the suppressor grids.

The arrangement of connections between suppressor battery and the suppressor grid lines are clearly indicated in Fig. 2. For telephony and telegraphy operation, it is essential for quick changeover to employ a double pole, double throw, switch, as indicated, in order to reverse polarity on the suppressor grids of the R.F. pentodes.

Operation and Performance

The amplifier should be connected up in the manner shown in Fig. 3, the leads to the microphone and the changeover switch being screened and bonded to a common earth. The secondary of the microphone transformer is taken *via* screened leads to a *Bulgin* plug, care being taken to see that the earth side of the plug is connected as shown in the diagram. It may be found unnecessary to physically connect the earth side of the plug to the low potential end of the transformer, as the earth connection has already been obtained from the screened cable, but this point can best be decided by practical experiment.

The connections to the polarising supply and to the transformer may require reversing due to phase differences at various locations.

As a final precaution it is desirable to connect a loud-speaker to the output terminals in order to check the general performance of the amplifier from an audio point of view. The output from the

amplifier should be sufficient to give full volume from the speaker if the microphone is spoken into at a distance of a few inches.

With the suppressor bias change-over switch thrown into the " voice " position, and the transmitter brought into operation preferably through a dummy load, the gain control should be increased clockwise from its " off " position to roughly 3 o'clock ($\frac{3}{4}$ round) ; at this point the audio output should be approximately 1 watt, and this figure will generally be found sufficient to modulate a 70-watt carrier. The degree of modulation can be roughly checked by watching a lamp and coil suspended in the field of the tank circuit. If the amplifier is modulating reasonably well, the lamp should dim and glow alternatively as the microphone is excited. If the modulation does not appear to be too full the gain control should be advanced to 4 o'clock, corresponding to an audio power of about 1½ watts. Full output will be obtained when the volume control is turned through 360°, and at this point the audio output should be about 3 watts.

During actual tests it has never been found necessary to use more than 1½-2 watts for a 70-watt carrier, and judging by the reports received, the modulation percentage has been about 85-90 per cent.

Response Characteristics

Thanks to the wholehearted co-operation of Mr. Orr-Ewing, of *Shaftesbury Microphones*, and Messrs. Angel and Catt, of the same company, we are in a position to reproduce a response characteristic of the amplifier as measured in their laboratory with precision equipment.

The characteristic curve of the amplifier, as will be seen from Fig. 4, is linear between 50 and 10,000 cycles, showing a 1 dB drop at 25 cycles. Actually the linearity continues to 15,000 cycles before a fall of 1 dB again occurs.

The amplifier was tested nnder the following conditions :—

H.T. voltage	300	
H.T. voltage, anode to cathode of last valve	275	
Input volts required to fully load the output	.035	R.M.S.
Output volts developed across 5,000-ohm secondary	100	

The latter figure corresponds to an overall gain (input to output) of 69 dB, whilst the output power under the above conditions represents 2 watts of audio.

The gain of each individual stage was found to be as follows :—1st, 25 dB ; 2nd, 20 dB ; 3rd, 5.7 dB.

The product of these figures gives an overall voltage magnification of 2,850. The overall gain is expressed as 20 ×, the common log of the product of the gain of each stage.

2850 Log = 3.4548 × 20 = 69.096 db.

Conclusion

The amplifier has been used very successfully on 7, 14 and 28 Mc., and excellent reports have been received from many local and DX stations.

The authors desire to record their thanks to Mr. H. A. M. Clark (G6OT) and *Messrs. Shaftesbury Microphones, Ltd.*, for their help in developing the amplifier. As a result of their co-operation many difficulties have been overcome. In particular they wish to thank Mr. Angel for devoting many hours to the study of peculiar problems attendant to the installation of the equipment at G6CL. In this connection it is worthy of record that a standard R.F. choke inserted in the earth line to the amplifier did much to overcome R.F. feed-back troubles which were present when the amplifier was first installed. We are also indebted to Mr. Orr-Ewing for permission to specify the polarising method of energising their microphone.

Thanks are also tendered to Mr. Norman Partridge for providing the special output transformer, and to the *Tungsram* company for supplying valves.

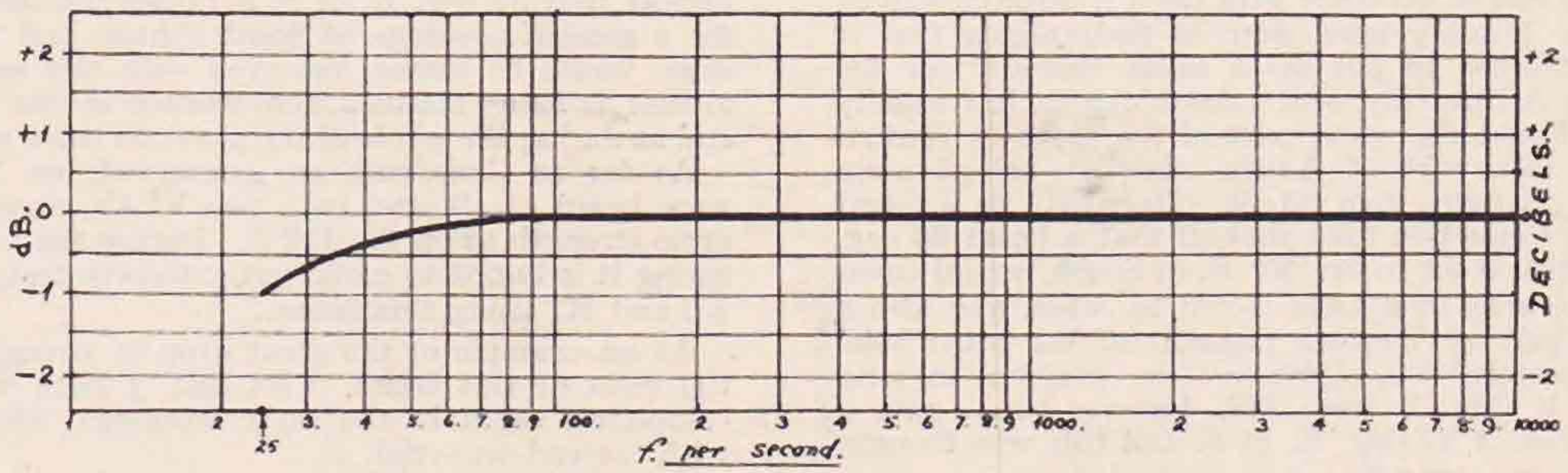


Fig. 4.—Response characteristic of Amplifier taken under conditions described in text. The linearity continues to 15,000 cycles.

The very excellent response characteristic is a tribute to the quality of the output transformer, coupled with the use of efficient valves.

It is estimated that the cost of components required for the complete amplifier is £6 10s., whilst the Shaftesbury microphone and associated transformer is priced at £2 2s.

Reports Wanted

G3DZ (New Malden) on his 7 and 14 Mc. C.W. transmissions.

GM3BA (Edinburgh) on his 7,032 and 14,064 kc. C.W. transmissions. All reports will be acknowledged and should be sent to 10, Marchmont Street, Edinburgh.

G3DW (Bury St. Edmunds) on his 7 and 14 Mc. transmissions. He is also willing to co-operate in 56 Mc. experiments as a listening station.

Beams for B.E.R.U.

By F. W. Garnett (G6XL).

NOTHING in these few lines is new. They are simply written as a further attempt to show that "the aerial's the thing." Conditions come second, and power a bad third.

Naturally, when conditions are completely "off," even beams are useless, but under average to poor conditions, a simple beam will enable signals to be heard an hour, or even two hours, after other stations have faded out, and this property is especially valuable in contests.

The results obtained with the VK beam described in the January issue were so encouraging that it was decided to put up a beam specially for the South African districts. South Africa has usually been found the worst part of the globe to contact from this part of Leeds, stations being rarely heard at more than S3/S4. Reference to a Great Circle Projection map showed that a beam 60 deg. in width, if set to fire 30° E. of South, would cover all the area from Cape Town to Aden, and also a good part of Western Canada off the other side. Fortunately, the chimney C in conjunction with mast B (Fig. 2, page 356, January issue) gave a direction of 32 deg. E. of S. and this was thought quite near enough.

An article appeared in January *QST* by W8JK on flat-top beams, and it was decided to give this type a trial, principally because the gain in both directions was supposed to be slightly greater than with the two element phased type used previously, and the idea of having all four half waves a reasonable distance from the ground was thought much sounder than attaching a second pair of half waves to the original type which would be only six feet above ground level.

For the benefit of those who do not see *QST*, this beam consists of two pairs of 30 feet radiators spaced one-eighth wave (about 8 ft. 8 ins.) and phased by being cross-connected at the inner ends. They are fed through a quarter wave stub and 600 ohm line as usual, the stub being attached to the centre of the cross-over. The length of the stub suggested in the article is 14 ft., and although this seems satisfactory on the L.F. end of the band, it has proved out of adjustment at the H.F. end, so further tests are necessary when time permits.

The spreaders are three 9 ft. bamboo poles begged from a carpet shop, and when erected the centre spreader hangs about 30 ft. above ground, and the outer ones 33 ft. Strings are attached to the ends of the outer ones to keep them horizontal.

Results with the Flat-top Beam

One peculiarity was noticed with this beam, not observed with the other type, and that was that the difference in signal strength as compared with the 132 ft. end-fed aerial varied considerably for stations even in the same town. It has not been investigated fully yet, so it may have nothing to do with the beam, but be due to the totally different light conditions on this path and higher angle reflected rays which vary from minute to minute.

For instance, a ZS6 was given S9 on the beam, S6 on the end on, but the next 6th district station contacted half an hour later was only S½ better on the beam. There was no time, of course, during the contest to make transmission tests on the two aerials, but the difference in the received signal strength has been found a reliable guide.

ZE1's are S2/3, occasionally S4 stronger on the beam. ZS5 and 6 averages S2, VQ2 S2, ZB1 S2/3. VQ4's not heard during the Senior Contest, ZS1 and 2 no difference, or even a little weaker, showing that they are on the edge of the beam. It would appear that 32 deg. E. of S. is rather too far East for a general coverage of South Africa, and 20/25 degs. would be better, yet even with this setting, almost as many stations were worked in one week-end as during the whole of the previous three years!

As far as Canadians are concerned, no VE5's were heard at all, and only two VE4's, about the same strength as on the 132 ft. During the coming spring it is hoped to carry out extensive tests with K6 and K7 using this beam.

As an example of the great drop in strength off the ends of this beam, VK4 and J both vanish completely on it in the early mornings, when S5 with the end-on aerial.

The VK Beam

During the first week-end of the Senior Contest, the reflectors were taken off so that West Indian islands could be contacted on it, and the only one heard was very noticeably better, even though a major lobe of the 132 ft. was almost right over him. VK's were S1/2 better as usual, and ZL's variable; VU's are usually S1/2 better on this beam, though not always. During the second week-end the reflectors were changed round twice, on the Sunday, at 0630 and 1200, and this policy paid as handsomely as in the VK/ZL contest 1937. Four VK's were landed in 28 minutes, and a further two half an hour later, all S2 stronger in the receiver than on the 132 ft. aerial. No ZL's were worked, however, either morning or afternoon, and the direction from which these signals arrive is a mystery. Following on G5KG's excellent article in the March, 1936, Bulletin, the VK beam was moved round with considerable trouble to fire due N.E., but the next morning the signals on it were S3 down using the end on! Actually the space was limited, so the outer 9 ft. of each wire was allowed to hang down, but this is surely quite legitimate. At 1604 G.M.T. on February 13 one well-known ZL4 was S2 stronger on the *ZS* beam than either the end-on or the VK beam with reflectors, firing 9 degs. N. of East. What about *that*, Propagation experts?

The principal value in contests of beams such as these is to lift an unreadable signal to S3/4. These are usually the stations that are not being called continuously by all and sundry, and are therefore worked with much less effort. They count just the same, often more! Besides, quite apart from contests, there's much more thrill in a 100 per cent. QSO at S3 than one at S8, especially when one never knows which S9 'phone station will start up on him!

Around the Zones in the Senior Contest

By an Old Hand.

THIS year's Senior event can be likened to the celebrated Parson's egg—good in parts. At zero hour on the first day practically everyone made a bee line for 14 Mc., but found the going rather stiff due to the fact that the band was in a difficult mood, threatening to die on us at any moment yet never quite doing so.

However, though the fare was not too plentiful there was much wholehearted competition for it. For the most part, at the outset South Africans were the order of the day, quite a number of weakish signals being audible with an occasional "big shot" amongst them, such as ZS1AH, sticking out like a beacon in the wilderness.

The starting hour was just a bit too late to enable us to get a good crack at them, and it was obvious that a better opportunity would present itself—conditions permitting—late the following afternoon.

So, with the ZS signals gracefully sliding into the mush, a formidable waiting list began to pile up for VE1HK, VO4Y and ZB1H, all of whom did some snappy scoring whilst the going was good. Later, VE3WA inevitably turned up and set the pace for his zone by bagging VP2AT. The latter was on velvet, scarcely needing to call "Test" with the band full of calls for him.

At 2030, a quick QSY to the "War zone," 7 Mc., revealed only one DX signal, ZB1P, struggling manfully in the silent point of a Barcelona phone and getting distinctly the worst of it. In the small hours of February 6, however, there was more activity to report down there, numerous G's were still going strong, and there were some ZB's and VU2FV to shoot at, the latter being a surprisingly good 569 signal at 0230 G.M.T. VP6RB also, 569, came in for plenty of frantic calling, but unfortunately appeared unable to hear anyone, and was apparently not "Beru-minded." Soon after 0630, ZC6AQ was the early worm on 14 Mc. and two equally early birds, G2MI and G6NF, made a quick meal of a signal that suffered badly from the effects of daybreak skip.

All were now agog for VK and ZL, especially the ZB gang (who began to hear them at least 30 minutes before we could), and the fun began in earnest around 0730, when the big guns began to make the fur fly. Actually the ZL's soon peaked, but ZL1GX, 2CI, 2FA, 3AZ and 4DQ did some smart scoring during the good spell. VK's had the worst of the conditions and, on previous form, were a "flop" here, being scarce and boasting not a single beefy signal all morning.

VE1 and VE3 provided surprisingly strong signals just after the ZL's peaked and, in a bout of inter-zone QSO's with the former, VE4IZ showed to advantage. VE5QP raised a weak voice, during a momentary lull at the H.F. end, but stood no chance with the QRM and was soon snuffed out by it.

Around 1030, several of the big noises became conspicuous by their absence and a look round on 28 Mc. discovered them in full blast down there, not that there was much to work though, beyond ZE1JJ and ZS1AH.

However, "ten" provided a haven of rest from the mess up on 14 Mc. That chain of spitch stations across the band was a nasty piece of work, responsible for many incomplete contacts and lost points. As usual, this QRM was always worst on the juicy bits of DX.

After lunch, things livened up considerably and some VK's began to come through decently, notably those old campaigners VK3EG and VK4BB who were rubbing shoulders within a kc. of each other and "knocking 'em off" at an amazing rate.

Conditions steadily improved during the afternoon and with the arrival on the scene of the "Eastern gang" the fun waxed fast and furious. Such stations as VU2EO, 2LK, 2LJ, XZ2DY and VS7GJ distinguished themselves during a hectic period in which everybody wanted them badly. The XZ was in particularly great demand, though like VS7GJ, he laboured under the handicap of being periodically murdered by phone QRM.

The day finished on a top note, a final *en masse* attack by the ZS and ZE boys resulting in some hectic last hour scoring in which, seemingly, all and sundry improved their totals. The Africans put over some really wonderful signals during the closing stages and their standard of operating ability was very high.

VQ4CRI, apparently Kenya's only representative, put in an appearance at the 11th hour with a solid signal without however having much luck.

The second half of the Senior found poor conditions prevailing for rather longer periods than competitors having leeway to make up could have cared about.

There was little to write home about from 1900-2400 on the 12th, on either 14 or 7 Mc., and on the 13th (ominous date) following the usual burst of ZL's between 0700 and 0930 things petered out more or less until the afternoon, when conditions showed signs of relenting somewhat.

From around 1400 onwards, it was practically a duplicate of the previous week-end except that signal strength was down all round and QSO's were less numerous and harder to obtain. An additional fly in the ointment lay in the fact that when DX *did* begin to improve there was extra competition for it from myriads of Continentals engaged in the R.E.F. contest, and as a result there was an orgy of call pinching, and some sticky QRM.

However, enthusiasm was maintained to the end, every QSO being keenly contested, and some close scoring would appear likely among the Home gang, of whom G6CJ, 6NF and 6XL were outstanding, whilst across the border, GM6RV did consistently fine work.

One thing is certain; the Senior attracted an even greater number of competitors than before, all of whom have combined to make this annual gathering of the Clans a real Empire QSO party.

What's the betting on ZS providing the winner this year?

British Valves for 56 Mc. Transmission

By J. N. Walker (G5JU).

A REQUEST was recently made to members of the R.E.S. 56 Mc. group and others for information on what valves of British manufacture they had used and found suitable on frequencies of the order of 56 Mc. It must be admitted that the response was not as good as expected but the information acquired has been tabulated and is set out below.

The list commences with valves of the 2-volt filament type useful for low power and portable work. Then come valves of higher power ratings. Details of suitable circuits and the best values of grid leak are given.

In selecting valves for use on 56 Mc. an important point to remember is to choose those with low filament resistance, as the filament is part of the oscillatory circuit; the lower its resistance the lower the damping it introduces. In this connection indirectly heated valves are usually better than the filamentary types, but it would appear that few are in actual use.

When a valve is used under modulated conditions the peak anode current flowing may rise to double the static current, as read on a meter. This should be borne in mind when results do not come up to expectations. In many cases the valve is being run at somewhere near its maximum emission and it will be realised that it is then impossible for the carrier to be fully modulated. Therefore, always choose a valve with ample emission and take care that the static current is reasonably low, or its life will be short.

Hivac PX230 SW. Valve

When plain C.W. is being used, with either a "long-lines" or "driven" oscillator, the input may be increased somewhat, as high peak current is not called for, whilst the valve runs cooler, owing to the current flowing intermittently.

Most of the valves mentioned may be used singly. It is emphasised, however, that a greater output and efficiency almost invariably results when a push-pull circuit is used. This applies especially to pentodes, the reason being that the inter-electrode capacities of the valves are in series when push-pull is used. A higher value of inductance may then be used with a consequent rise in the dynamic impedance of the tuned circuit, resulting in greater voltage swings developing across it.

Battery Valves.

Two valves are outstandingly good, these being the *Marconi* or *Osram* LP2 and the *Hivac* PX230 SW.

The LP2 works well in almost any circuit, either singly or in push-pull. The grid-leak should be 10,000 ohms and anode voltages up to 150 maximum with inputs not exceeding 6 watts are permissible. This wattage exceeds the manufacturers' rating, as also do some of the following, but it must be remembered that the dissipation is usually only half of the total input.

The PX230SW has the grid brought out on top and this feature enables a circuit lay-out with very short leads. The low inter-electrode capacity is a further advantage, and this valve (or, preferably, a pair of them) is very successful in a "long-lines" oscillator. It may also, of course, be used in normal circuits, with a grid leak of between 50,000 and 75,000 ohms and an anode voltage of 200. This valve may be easily driven and it is suitable for inclusion in low-power driven transmitters.

G.E.C. H.A.1. Acorn Valve

The *Mazda* P220 is a valve which gives a good output when used in a Split Colpitts circuit, the grid leak found best being 10,000 ohms.

The *Marconi* or *Osram* HL2K is a very efficient valve but the input must be kept very small—1 watt or so, using a 50,000 ohm grid leak.

The twin triode Class B valves make very good 56 Mc. oscillators and have the advantage of possessing ample filament emission and also enable a compact push-pull circuit to be built. In more modern transmitters one can be used as a master oscillator and another as a push-pull power amplifier, using unity coupling. The frequency stability of such a transmitter can be made quite good, especially if long lines are used in the grid circuit of the first valve; low values of grid leak are generally best.

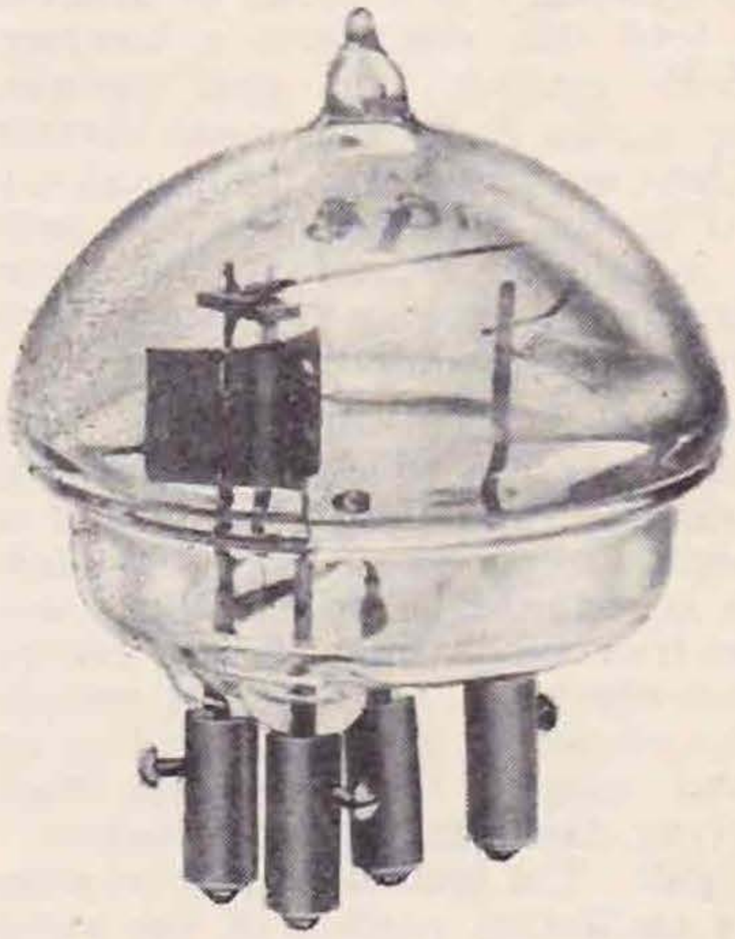
Any of the leading makes of Class B valves can be relied on to give satisfactory results.

All the above-mentioned valves are of the triode type and will be found, in general, more satisfactory than pentodes. At the same time many interesting experiments can be carried out in testing various pentodes on 56 Mc. Some that can be recommended are *Hivac* Z220 and the *Mazda* PEN220. An anode voltage of 150/200 is suitable, the screen

voltage and grid leak values being matters for experiment with individual valves—100 volts and 50,000 ohms are good values to commence with. As previously mentioned, push-pull circuits are preferable when using pentodes, since their input and output capacities are generally considerably greater than in the case of triodes.

Indirectly Heated Mains Valves.

The information available is, unfortunately, rather meagre. The *Marconi* or *Osram* MH4 is



Standard Telephones 4316A Valve

known to be efficient. An anode voltage up to 300 may be used but the input should not exceed 6 watts. A combination of battery bias (75/100 volts) and grid leak (10,000 ohms) appears to be most satisfactory. The *Mullard* 104V may also be used under similar conditions, the input allowable being somewhat greater.

The *Osram* Acorn valve, type HA1, is mentioned by the manufacturers as being suitable for very low power transmission. The input allowable is only 1 watt, at 180 volts, but it must be remembered that, owing to its special construction, the efficiency is much higher than with normal valves and the output will consequently be higher in proportion.

A valve which deserves special mention is the *Standard Telephones* type, 4074A. This is a twin triode of Class B type, but it is distinctive because the anodes are brought out to " horns " on the top of the valve, so reducing the input and output capacities considerably. An anode voltage of 300 can be applied whilst the emission is ample enough to allow of a total input of 20 watts being used. The 4074A will work very efficiently in any normal circuit, but it is particularly adapted for use in circuits of the " long-line " type, preferably using parallel rods in both grid and anode circuits. The grid leak should be approximately 5,000 ohms.

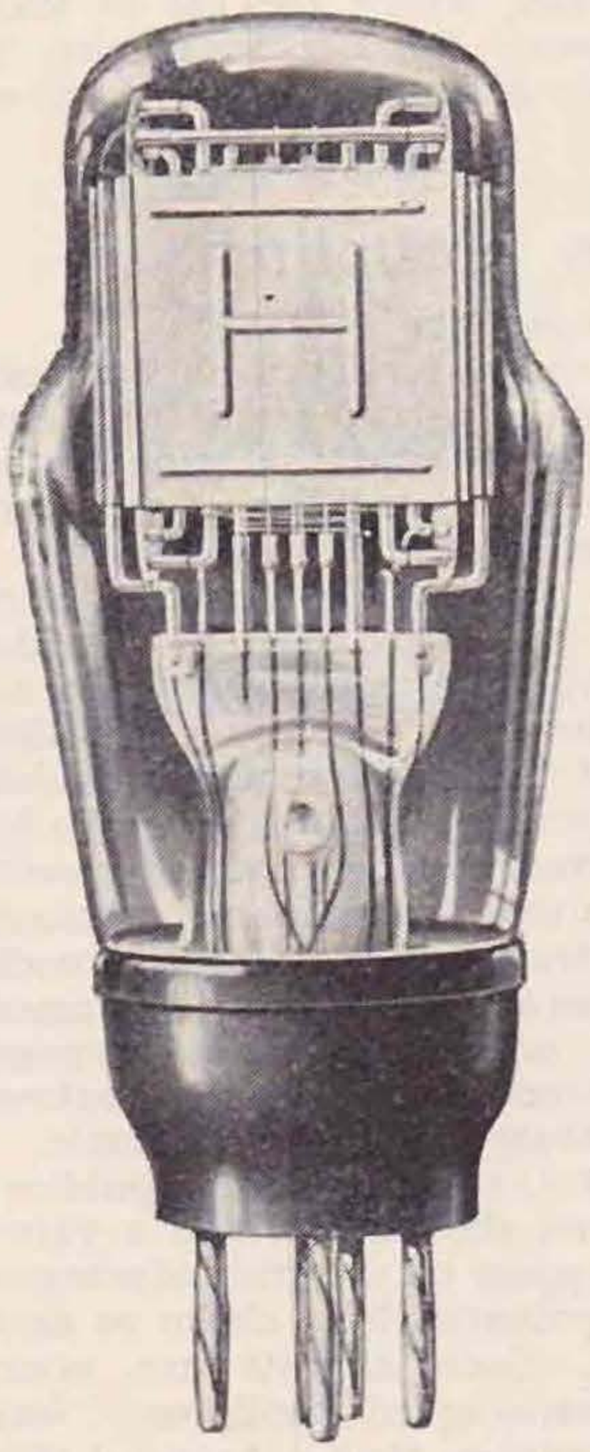
Directly Heated Mains Valves.

Passing mention may be made of several old types of valves, unfortunately not now easily obtainable. Many readers will remember the extraordinary efficiency of the *Cleartron* CT25X valve, and it is a matter of regret that a greater quantity was not manufactured! It was, in its time, as far ahead of normal valves as is the beam power tube to-day. If only a transmitting version had been available! The CT25X possesses low inter-electrode capacities, a feature shared by the *Ediswan* PV625X, and both valves perform well on 56 Mc. The tendency is to over-run them, however, under which conditions their life is short.

Then there are the *Marconi Osram* LS5 and L55B types. These are still available and it is surprising how well they perform an 56 Mc. even in driven amplifiers. The mutual conductance is low but the small input and output capacities make up for this disadvantage.

The *Marconi* and *Osram* PX4 and the similar types made by other manufacturers, such as the *Hivac* PX41, *Mullard* AC/044, etc., appear to vary somewhat in the performance given by individual valves. Some work extremely well, whilst others may not come up to expectations. The emission of this type of valve is very high and so good results may be expected in modulated service. Of those mentioned the *Hivac* PX41 has the lowest inter-electrode capacities and has been used successfully in a driven circuit with 350 volts on the anode. Bias must be adjusted to the maximum possible without a serious falling off in output, in order to reduce internal dissipation, and is a matter for individual adjustment.

Opinion varies on the efficiency of the PX25 and PX25A type of valve and, in all probability, the hardness of the vacuum has a good deal to do with the performance of individual valves. With all valves used in ultra-high frequencies the filament voltage is an important factor and it is well to see that the voltage, as measured at the valve holder is, if anything, slightly in excess of the rated value. The valves under discussion are apparently very sensitive to this factor, a point which should be noted.



Hivac Z220 Valve

Many reports indicate that a pair of PX25 valves give a good output in a push-pull long-lines circuit with a grid leak of 20,000 ohms, and an input of up to 25 watts. If PX25A's are used the grid leak should be increased to 30,000 ohms. If a single valve is used, the Ultraaudion circuit will be found the most efficient circuit, as is usually the case with low-impedance valves.

The *Tungsram* 15/400 is a valve which gives excellent results, either in self-excited or driven transmitters. It may be run without harm

at rather more than the 15 watts indicated by its type number. In this case the grid leak should be on the high side, and one of 100,000 ohms will be found suitable.

The *Mullard* T25D and its more recent version, the TZ05/20, give moderately good results when used in self-excited circuits, but, due to the high input capacity, require a large amount of drive when used as driven power amplifiers, or doublers, and, unless this is available, they are not to be recommended for this class of service.

Finally, it remains to mention the special U.H.F. transmitting triodes. One of these is the *Ediswan* ES501, which has a carbon anode. The grid and anode connections are made to rods brought out on top of the valve. Anode voltages up to 1,500 volts may be used and the input may be allowed to reach 100 watts per valve. The ES501 is easily neutralised, having a very low grid/anode capacity, and is therefore very suitable for incorporating in medium power-driven transmitters. It also performs well in " long-lines " transmitters.

Another special valve is the *Standard Telephones* 4316A, which is of Acorn construction and specially designed for efficient operation on frequencies of 56 Mc. and higher. The filament, which consumes 4 amps. at 2 volts, is short and extremely robust. A maximum input of 30 watts is permissible, at an anode voltage of 400, provided the valve is used under efficient operating conditions. It is easy to drive and neutralise.

It is well worth while to consider using these special valves where the main activity and interest occur on the ultra high frequencies. The results are altogether more satisfactory and, as a rule, come up to expectations, whilst the life of such valves, designed expressly for U.H.F. service, is likely to be considerably greater than that of valves not so designed.

Electron Coupling

By E. L. Gardiner (G6GR).

THERE seems to be a tendency in amateur radio circles to make wrong use of the term " electron coupled," and it would be unfortunate if the technical reputation of members should suffer from a misnomer of this kind.

The term " electron coupled " is meant to refer to a circuit in which two impedances or the like are coupled entirely by electronic means. As an example, the anode circuit of a screen grid valve is electron coupled to the grid circuit, provided that screening by the screen grid is assumed to be perfect so that no residual capacity exists between them. Provided also that there is no common outside impedance or stray coupling between anode and grid circuits (such as an insufficiently by-passed cathode resister), the only inter-action between these two electrodes should be due to the electron stream. Coupling is therefore truly electronic.

Frequently in the Bulletin and other publications, circuits have been shown in which a valve cathode is taken to a tapping on the grid inductance or raised above earth potential by a choke so that oscillation can occur. Such circuits are often referred to as " electron-coupled oscillators," but the writer is of the opinion that circuits of this type are *not* electron coupled, since the reaction effect by which they oscillate is not an electronic one.

The anode circuit of a valve comprises all components which form the signal path from the anode through to the cathode (to which the anode current must return). It therefore makes no basic difference if a reaction coil be inserted next to the anode or if it be moved to the other side of the H.T. source and placed next to the cathode. Inductive reaction coupling is still being used and this is the case in the popular cathode-tapped arrangement, in which a portion of the grid inductance between cathode and earth forms an auto-coupled reaction winding. If a choke be inserted in the cathode lead this also forms a common reactance in both cathode and grid circuits. Potentials set up across it by the anode current will also appear between grid and cathode, and can cause reaction if in the correct phase. In both cases coupling is inductive and in no sense electronic, the excellent frequency stability in such circuits being due to quite different causes.

If a cathode-coupled oscillator of this type employs a pentode valve, in which the suppressor grid is earthed directly, and the screening grid is treated as an oscillator anode so that the whole oscillator section is confined between cathode and screen, then the true anode may receive energy only through the effects of the electron stream which reaches it. If now a load be placed in its anode circuit and coupled to an outside stage which is to be driven, the term " electron coupled " can be rightly used. The load now only receives energy from the oscillating portion of the valve through the electron stream, no inductive or other coupling being relied upon to obtain the effect.

Of course the electron stream plays a vital part in *every* valve circuit, but this effect is not quite what is meant when the term " electron coupled " is frequently used. A master oscillator, followed by a screened buffer stage, is virtually electron coupled to the stages which follow, since within the buffer energy should only be transferred electronically. The true electron-coupled oscillator would appear to be simply a version of this arrangement in which the buffer is included within the same pentode valve as the oscillator elements. It is suggested, therefore, that the term " electron coupled " should be strictly confined to those circuits in which an oscillator is coupled to the outside load only through the agency of the electron stream. Perhaps only in the Dynatron or the Barkhausen type of oscillator is reaction obtained electronically.

Stray

Mr. Davidson, ZE1JR, asks us, *via* G6DT, to mention that British Isles stations are workable in Southern Rhodesia between 1400 and 1630 G.M.T. on 28 Mc. He himself operates at week-ends on 28170 kc.

Reports Wanted

GW8WU (Whitchurch) on his 14040 and 14272 kc. phone and cw transmissions. All reports will be acknowledged and should be sent *via* R.S.G.B., or direct to 58, Kyle Crescent, Whitchurch, Cardiff.

A Four-Valve Amateur Bands Receiver

By R. A. Loveland (BRS2594)

Introduction

THE unexpected interest shown in the author's 1-V-2 amateur band receiver displayed on the R.S.G.B. stand at Radiolympia last year has prompted him to forward the following description.

This receiver was designed to obtain maximum efficiency from a straight circuit comprising H.F. Pentodes in the H.F. and detector positions, followed by two L.F. stages. The receiver has been in use for several months and the writer is convinced that this type of circuit is capable of giving a much greater degree of selectivity than is generally supposed.

The H.F. and Detector Circuits

As will be seen from the circuit diagram, Fig. 1, a straightforward TRF stage is employed. A *Cossor* 210 SPT was found to give the most consistent performance in this position the four-pin type being selected because of the slightly lower capacity between the pins. As it was undesirable to use any form of H.F. volume control, a variable-mu valve was not indicated.

Eddystone six-pin coils are used in both tuned circuits, but the four-pin type would be perfectly satisfactory in the H.F. stage as only two windings are needed. The six-pin type was used by the writer as he had a spare set on hand. The grid coil in the H.F. stage is tuned by a .00015 μF. *Jackson* "Special." The tuning on this, although far from flat, is not sharp enough to require a band-spread condenser.

The screen voltage is obtained from a direct tapping to the 60-volt socket of the H.T. battery. A 1 μF. by-pass condenser is connected from screen to earth.

The anode receives its voltage through a *Bulgin* SW 68 R.F. Choke connected direct to anode from the full H.T. voltage. The anode is coupled to the primary winding of the detector coil by a .0002 μF. *Eddystone* type 957 variable. Owing to the degree of selectivity required on 7 Mc. and above, it can seldom be set at more than one-third of its full capacity, but on 1.7 and 3.5 Mc., more capacity can be used to good advantage as there is no great need for really sharp tuning on these bands, and therefore much greater sensitivity results.

A *Cossor* 210 SPT is also used in the detector stage, as it provides really smooth reaction on all bands. This valve and its associated circuit provide several points of interest. The grid wind-

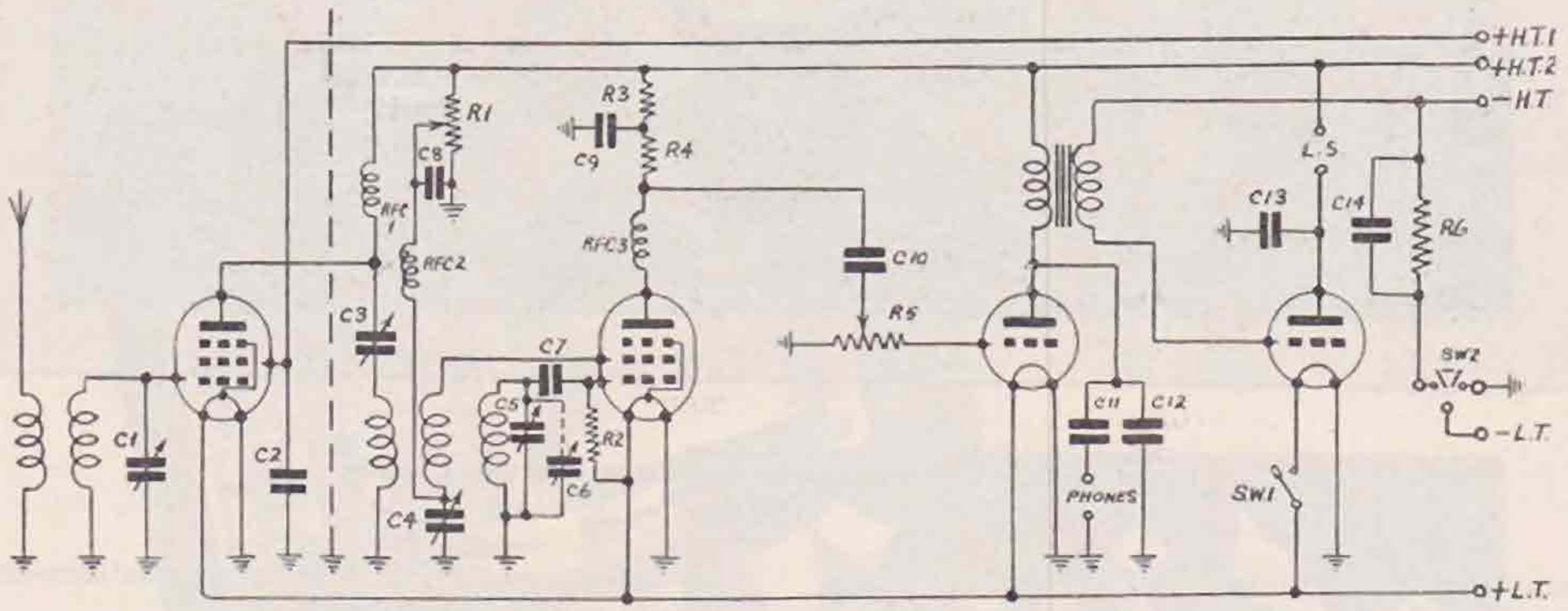


Fig. 1.
Circuit Diagram of Four-Valve Receiver.

C1, C6.—.00015 μF. variable J.B. "Special."
C3, C4.—.0002 μF. variable type 957, Eddystone.
C2, C8, C11.—1 μF. fixed T.C.C. type 50.
C5.—22 μμF. variable type 900-20, Eddystone.
C7.—.0001 μF. fixed mica T.C.C. type M.
C9.—.5 μF. fixed T.C.C. type 50.
C10.—.006 μF. fixed T.C.C. type 34.
C12.—.0001 μF. fixed Bulgin P.C. 301.
C13.—.006 μF. fixed T.C.C. type 300.
C14.—1 μF. fixed T.C.C. type 250.
R1.—250,000 ohms. wire-wound potentiometer.
R2.—3 megohm ½ watt, Bulgin.
R3.—20,000 ohm 1 watt, Bulgin.
R4.—30,000 ohm 1 watt, Bulgin.
R5.—1 megohm potentiometer, Bulgin.
R6.—450 ohm wire-wound, home-made.
RFC1, RFC 3.—Short-wave chokes, Bulgin SW 68.
RFC2.—Short-wave chokes, Eddystone, 1010.
V1, V2.—Cossor 210.SPT. 4 pin metallised.
V3.—Osram HL2, metallised.
V4.—Mullard, PM2A.

Other Components.

1 set of Eddystone 4 pin coils, Cat. No. 326.
1 set of Eddystone 6 pin coils, Cat. No. 959.
1 six-pin coil base, Eddystone 969.
3 four-pin valveholders, Eddystone 949.
1 Belling-Lee valve hood and connection, No. 1224.
1 Eddystone extension control outfit, No. 1008.
3 Eddystone insulating pillars, No. 1029.
1 Eddystone terminal saddle, No.1046.
2 Raymart stand-off insulators, typeST.
1 J.B. 100 to 1 Arcuate drive.
1 J.B. 8 to 1 Arcuate drive.
1 Eddystone dual speed dial, No. 1070.
2 four-pin chassis valveholders,Eddystone 953.
1 Bulgin S.109 toggle switch.
1 Bulgin S.125 toggle switch.
1 Bulgin single-circuit jack, J.2.
1 Bulgin L.F. transformer, LF37.
2 Belling-Lee type B terminals. LS plus and LS minus.
1 Eddystone adjustable insulated bracket, No. 1007.

ing is tuned by a 22 μμF. *Eddystone* band-spread, type 900/20. This, in conjunction with the appropriate coils, covers the 14, 7 and 3.5 Mc. bands without any additional capacity. Good sensitivity is obtained, due to the high L/C ratio. For 28 Mc. operation, a *Bulgin* SW 95 Trimmer condenser is mounted inside the Type BB coil. The trimmer capacity is then adjusted until the 28 Mc. band is tunable on the band-spread condenser. The "white spot" coil is used for 1.7 Mc., together with a .00015 μF. *J.B.* "Special," mounted at the right-hand end of the chassis, as can be seen in Fig. 3. This condenser is brought into use by connecting its fixed vanes to the fixed vanes of the band-spread condenser with a flexible lead fitted with crocodile clips. The same procedure is adopted when it is desired to tune the receiver to frequencies other than the amateur bands. The grid condenser is a .0001 μF. mica tag type, and the leak has a resistance of 3 megohms.

firmer contact without damaging the winding, thus effecting a really sound electrical connection. A 1 μF. by-pass condenser is connected from the moving contact to earth. It is interesting to note that when the receiver is oscillating, the slider of the potentiometer can be moved without the slightest sound being heard in the telephones.

Resistance capacity coupling is used between the detector and first L.F. valve. The coupling and decoupling resistances used in the detector anode circuit are 20,000 and 30,000 ohms respectively. The by-pass condenser used has a capacity of .5 μF. A *Bulgin* SW 68 RFC is connected between the anode and coupling resistances, as this was found to greatly improve reaction. The grid-anode coupling condenser is taken to the point where the RFC joins the anode resistance. The condenser is a .006 μF. *T.C.C.* 34. The other side is taken to the grid circuit of the first audio frequency amplifier. The valve used in this position

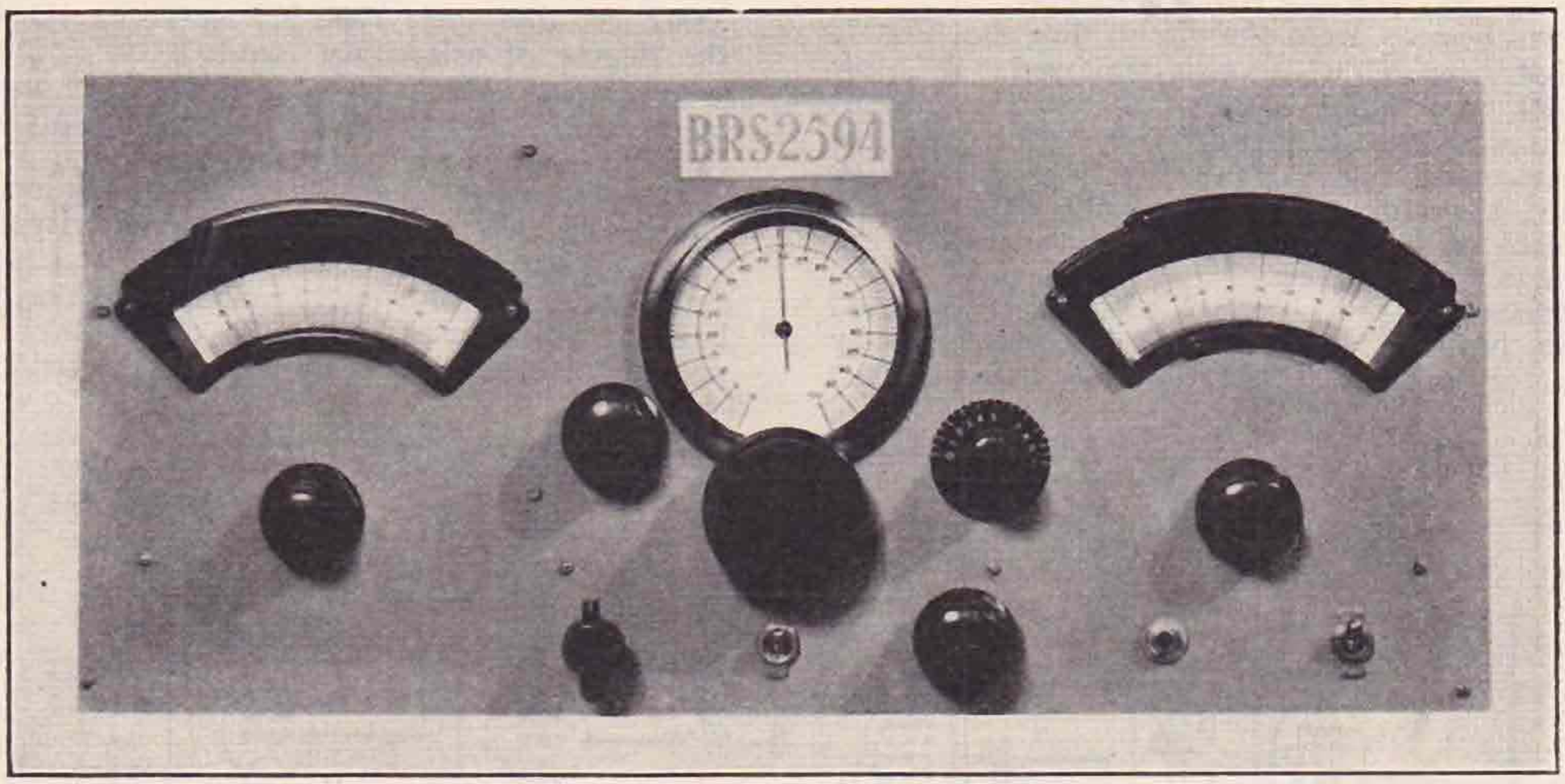


Fig. 2.
Front view. The various controls are described in the text.

A somewhat unorthodox method of obtaining reaction is used, the screen of the detector valve being treated as an anode in respect of the reaction connections. The screen is joined to one end of the reaction winding, and the other end connected to the fixed vanes of the reaction condenser, an *Eddystone* .0002 μF. type 957, the moving vanes of which are taken to earth. Also joined to the fixed vanes is an *Eddystone* type 1010 RFC. The other end of this choke is connected to the slider of a 250,000 ohm potentiometer, which is placed across the full H.T. voltage, thus enabling the most suitable voltage to be applied to the screen. It was found necessary to use a wire-wound component in this position. A number of composition types were tried, but none were absolutely silent, even when the slider was stationary.

The potentiometer at present in use is a *Watmel*, which is wound with a thicker gauge of wire than that generally used in components of this type. This feature enables the slider to make a much

is an *Osram* HL2, but any medium-impedance triode can be substituted.

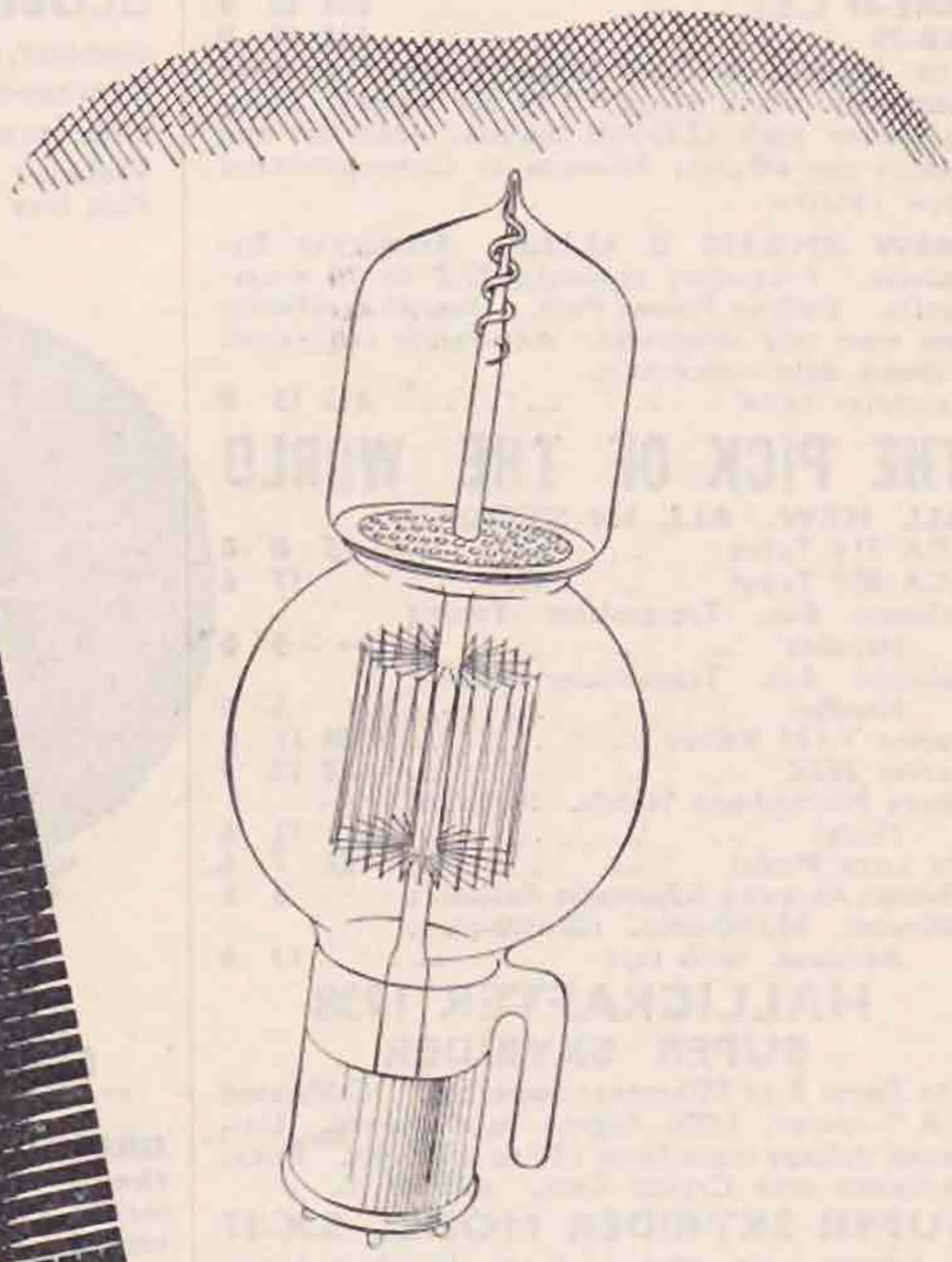
The Audio Section

The A.F. section of the receiver is a perfectly normal arrangement, but there are several points worthy of mention. Firstly, the system evolved for connecting headphones in the anode circuit of the first L.F. valve. It will be seen from the circuit diagram that, when the 'phones are joined to the 'phone terminals, they are fed from the anode of this valve, *via* a filter output circuit consisting of the L.F. transformer primary and a 1 μF. condenser When the 'phones are in use, the output valve filament may be switched off by the switch marked SW 1 in the circuit diagram.

Grid bias for the output valve, a *Mullard* PM2A, is obtained by inserting a 450 ohm resistance in the H.T. negative lead. The bias voltage required is 4.5, and as the total current taken by the receiver is 10 mA. the required voltage is present across the resistance. No bias is applied to the preceding

LIEBEN-REISZ RELAY

One of the first amplifiers. First described in 1913, it soon made way for the De Forest thermionic valve. The Exide Battery, widely used for wireless even at that time, remains as the most widely used battery at the present day.



Exide

R.26

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valves, as the voltage would vary, according to whether the output valve was switched on or not.

Construction

The chassis is constructed of five-ply wood and measures 21″ × 10″ × 2½″ deep, and the top surface is covered with a piece of thin sheet zinc. This metal appears to be just as effective as aluminium, and is, of course, much cheaper. The vertical screen is also made of zinc. A panel bracket is used to support the screen at the back edge owing to the flexibility of the metal. The panel is a piece of No. 18 s.w.g. aluminium and measures 21″ × 9½″. The complete chassis assembly is painted with light grey Chinese lacquer.

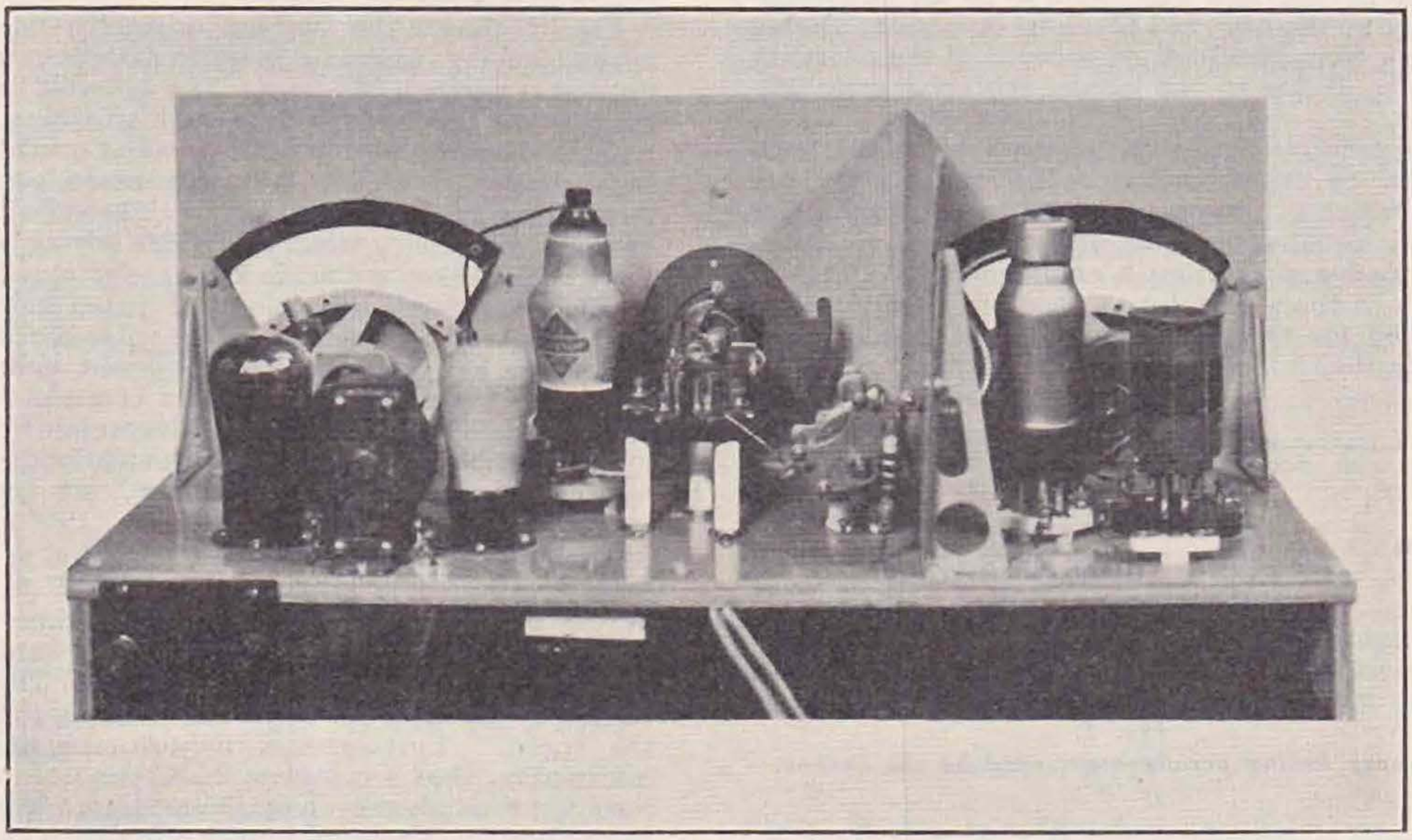


Fig. 3.
A view of the completed receiver with the detector coil removed.

The screen is mounted 7″ from the left-hand end of the chassis, and the tuning condenser and drive are fixed in the centre of the H.F. section. The valve-holder is placed behind the condenser, slightly to the right, whilst the coil-holder is in line with the valve-holder, but more to the left. The *Belling-Lee* anode connector is taken through a hole in the screen to the coupling condenser, and the anode connector is soldered to the screen where it passes through.

The coupling condenser is controlled by an extension rod, and is mounted close to the screen, near the back of the chassis, on a small metal bracket supported on two *Raymart* stand-off insulators. The condenser must be completely isolated from earth, as neither set of plates is connected to earth. The detector coil-holder is raised from the chassis by three *Eddystone* 1½″ insulating pillars. This helps to ensure very short connections in the tuned circuit. The band-spread condenser is supported on an *Eddystone* adjustable bracket.

There is no need to mention the positions of all the components, as this may be clearly seen from the photographs. The under-chassis components, which consist almost entirely of decoupling resistances and condensers, may be arranged to suit the individual tastes. The writer advises intending constructors to arrange the R.F. components in a similar manner to those in this receiver, as the lay-out enables short connections to be made between the components, and at the same time is very efficient.

Reference to Fig. 2 will show the position of the various controls. The left-hand "Arc" is the H.F. tuner, the centre "Airplane" dial is the detector band spread, and the right-hand "Arc" drive is the detector band set condenser control. The row of controls situated near the bottom of the panel, reading from left to right, are: Screen voltage potentiometer, On-off switch, L.F. volume control, phone jack, and On-off switch controlling the output valve filament. The knob which is situated to the left of the centre dial is the H.F. coupling condenser, and the knob to the right of the dial is the reaction condenser.

Conclusion

The writer realises that there may be many points which have not been fully described in this article and he is prepared to discuss the design or construction of this type of receiver with any reader who cares to communicate with him, c/o The Editor.

Stray

In a radio message to G2BK, Mr. W. M. Richards, VK5WR asks that publicity be given to the fact that a great many G stations which he has worked in the past have failed to QSO. The list includes stations which, to our knowledge, have not been operated for several years, but others are still very active and if this should meet their eye perhaps they will send a card.

Break-in Operation and the Elimination of Interference

By T. B. WIMBUSH (SU2TW).

THE following details of keying, break-in working, and interference elimination will, it is hoped, be of interest to readers who have tried other methods with varying degrees of success.

All the usual schemes have been investigated, and that to be described was found to be the only satisfactory method of true break-in operation. Relay systems were dismissed on account of the necessity of extra batteries and consequent charging difficulties.

The transmitter in use consists of an electron-coupled or tritet oscillator and an intermediate stage which is link-coupled to the final stage. The input is usually 30 watts, and at present all stages take their supply from a common 500-volt power pack. In the near future a separate supply will be installed for the final amplifier, and this addition will further simplify break-in working.

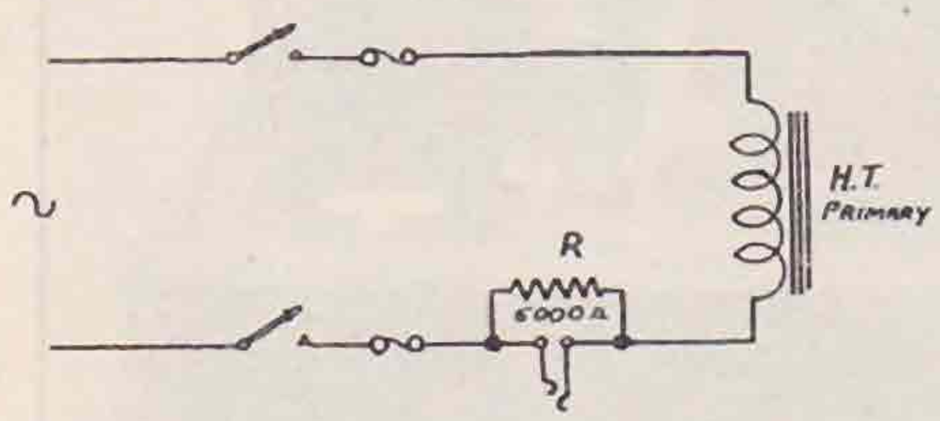


Fig. 1.
Primary keying arrangement used by the author.

Keying is effected in the H.T. primary (Fig. 1), and no trace of chirp can be detected when using either crystal or electron-coupled control. The resistance across the key jack is of too high a value to reduce shock excitation to any extent, its purpose being to enable a weak note from the oscillator to be heard in the receiver with the key not made. Accordingly, when the electron-coupled oscillator is in use, the frequency can be adjusted to any desired position in the band in a matter of seconds. This, therefore, is an ideal method of break-in working, since the oscillator does not block the receiver when keying is not taking place.

If separate supplies are used for each stage, the oscillator supply primary should be keyed, and usually no delay in starting, no chirps or backwave will result, providing the oscillator is of the crystal or electron-coupled type. Furthermore, a fraction of a second delay in keying is sufficient to enable the station being worked to be heard in a simple detector-pentode receiver.

Primary keying is certainly not an invention, but a few words regarding interference to nearby BCL's when using this method may be helpful. A major factor in this connection is the necessity for the complete isolation of the transmitter from any earth whatsoever, and, unfortunately, one side of the mains at SU2TW is directly earthed, the wiring being a single fuse system. Furthermore, the station is situated in the top storey of a large block of flats with a maze of listeners' aerials underneath the transmitter aerial, one in particular being parallel with and not more than 20 feet away from the radiating aerial.

Fig. 2 shows the system originally used for normal keying, and this is quite satisfactory in a not too congested BCL area. The 110-volt 25-watt lamp across the key eliminates all "splashing," and reduces shock excitation. For break-in operation, a highly selective receiver is an advantage, and it is possible to tune to within a few kilocycles of the oscillator frequency when using this keying circuit. Even with the key not made, the unselective straight receiver at present used blocks if tuned anywhere near the oscillator frequency. The value of the lamp across the key must be varied to suit individua requirements and inputs. Using a common supply for all stages of the transmitter, a larger lamp results in a noticeable backwave, whilst a smaller one does not entirely eliminate "splashing" at the key contacts.

A sudden uprising of nearby BCL's due to interference, resulted in an order for SU2TW to QRT during programme hours. About this time G2MI reported the signal to be jumping backwards and forwards about 1 kc. during a QSO. This was caused by touching the key whilst sending to adjust the speed. Furthermore, inquiries elicited the information that a complete blanketing of nearby receivers took place even on the medium waveband. Both these facts pointed to mains feedback as being the likely cause. At first the interference was analysed as a proximity effect, and steps were taken at least to reduce the trouble. Every method of interference suppression known to the writer was tried and exhaustive tests were effected. It was found as a result that, while no one thing can be stated to have been a remedy, the combination as shown in Fig. 3 has completely cured the trouble. The owner of the aerial parallel with that used for transmitting can now tune in on the 14 Mc. band without a trace of any interference whatsoever. A wave trap was found to be unnecessary.

One of the factors in arriving at this happy state of affairs was the link-coupling of the aerial to the

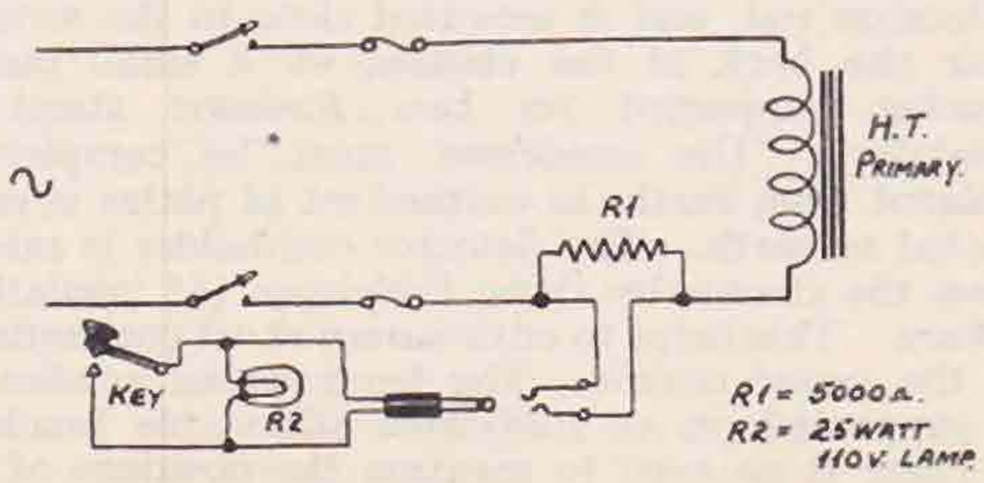


Fig. 2.
An earlier circuit employed by SU2TW.

final stage in place of the previous end-on voltage-fed arrangement. Incidentally, the aerial in use is the W3EDP system described in the February, 1936, issue of the BULLETIN. A single turn link half way in the aerial coil is sufficient to couple it for a maximum input and loading of the final stage.

The mains supply to the transmitter is carried by a separate cable about 30 feet long, connected directly to the fuse board at the meter. Mounted at this point are three chokes and two by-pass condensers. A water-pipe earth to the junction of these condensers resulted in a big increase in interference, even though the junction is at earth potential. Reference to Fig. 3 will make details and connections quite clear. The chokes are wound on 7-in. test tubes, the actual winding being 6 in. of 24 s.w.g. d.c.c. wire. The value of each individual component was arrived at, not by theory, but by actual tests and co-operation with the B.C.L.'s.

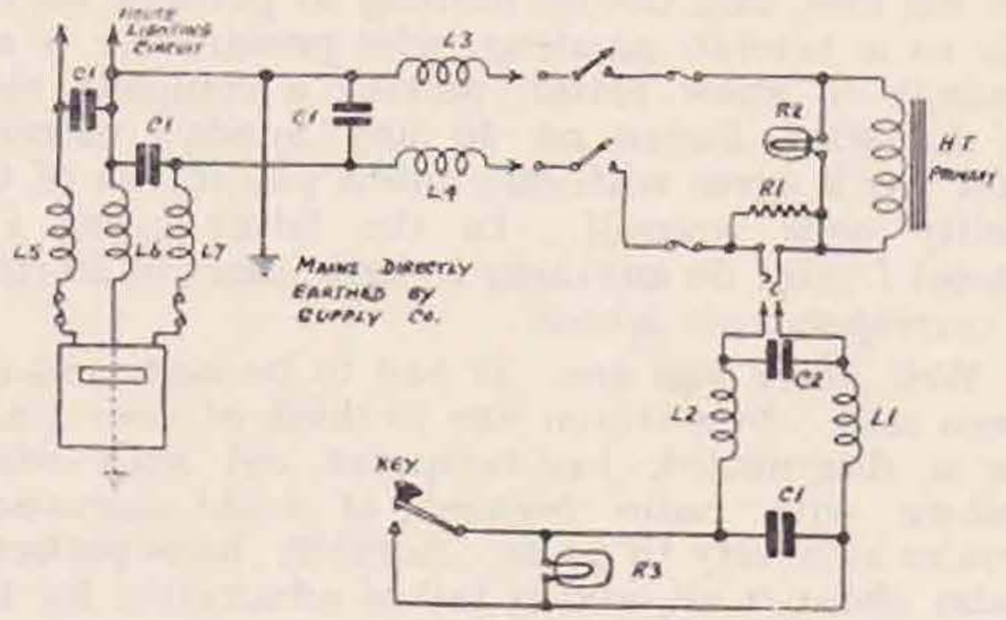


Fig. 3.
A recommended circuit to avoid interference.

C1	*.002 μF.*	*R1*	*5,000 ohms.*
C2	*.01 μF.*	*R2*	*10 watt, 110 v. lamp.*
L1-7	*Chokes (see text).*	*R3*	*25 ,, ,,*

Break-in operation is effected by removing the lamp across the key from its socket, and although this results in "splashing," not sparking, at the key contacts which every condenser-resistance combination tried has failed to eliminate, no clicks are audible in nearby receivers. Possibly with the highly selective receiver which is under construction, the lamp may be left in circuit with no detrimental effect to break-in working. Various capacities were tried in place of the 10-watt lamp, but in each case a delayed surge in nearby receivers resulted when the circuit was broken.

It may be argued from a theoretical point of view that the circuit shown in Fig. 3 is incorrect both with regard to the position and value of components, yet the complete removal of all interference to nearby short- and medium-wave receivers has been effected. Key clicks have not been dealt with, since, with primary keying, no clicks were caused.

It must be admitted that ZT6AQ's claims in a recent issue of having cured BCL interference trouble in a very congested location were read with a feeling rather of scepticism. The foregoing remarks, however, confirm his claims. Finally, it is a cause of considerable satisfaction to be able to sit down during programme hours and have a pleasant Break-in QSO, listening to the gentle "bump bump" of the transmitter, confident that the once highly probable extermination by angry BCL's is now no longer to be feared.

A Multi-Band Aerial

By F. RODEN WHITE (G8TX.)

From time to time we hear of a new multi-band aerial, but there is usually a snag. It is generally a compromise, and does not work out really efficiently on more than one band.

The writer has put into operation at his station a four band aerial which he claims is really efficient on 7, 14, 28 and 56 Mc. It consists of an off-centre fed Hertz, the top being 66 ft. 7½ ins. long and fed at a point 22 ft. 3 ins. from the end by a 66 ft. 7½ in. feeder. It is admitted that tapping "⅓ way along" is a compromise, but by making the feeder a full wave the match becomes self-adjusting and the compromise in fact functions efficiently on all bands. The top is resonant on approximately 7,010, 14,360, 29,160 and 58,820 kc. and those are approximately the frequencies used. It is necessary to have four crystals, one for use on each band.

The aerial will function very efficiently up to 100 kc. each side of the theoretical frequency, and this should be borne in mind when selecting actual crystal frequencies. For example, for 7 Mc. choose up to 7,100, for 14 Mc. anything above 14,250. On 28 and 56 Mc. a wider margin is permissible.

The DX (H.F. end) part of the 14 Mc. band is available with this aerial and there is no need to work in the American 'phone band.

The writer has no connection with any firm manufacturing crystals!

Plate Modulation

By K. MORTON EVANS (GW5KJ).

Many users of plate modulated RF amplifiers seem unfamiliar with the following formula, which, incidentally, I have never seen in print.

$$M = 100\sqrt{\frac{2A}{W}}$$

Where M—the percentage of modulation.
A=the output audio watts of the modulator.
W=the D.C. input watts to the modulated stage.

It is interesting to note that 1 audio watt will modulate a 10-watt PA nearly 45 per cent. : 4 watts will modulate the same PA about 90 per cent.

Since most modulators are rated for undistorted output and may give 15/25 per cent. greater power when run into distortion, it might be found more economical and satisfactory to aim at 90 per cent. modulation, allowing 100 per cent. to be reached only on the distorted peaks, than to run the risk of both overmodulation and modulator distortion at the same time. Anyone who has observed modulation peaks on an oscilloscope will know how effective modulation levels of 70-90 per cent. can be. The advantages of overmodulation are often overrated.

Corrections

In Fig. 1, page 296, December, 1937, BULLETIN, R10 was shown across the two condensers C17, instead of in series with the right hand C17 and the H.T.+ line.

The valves V6 and V7 mentioned in the caption below the circuit on page 407 of the February issue are of the 6L6 type, and not 6C6's.

Soliloquies from the Ex-Shack

By Uncle Tom.

(The wise old Unc., saying good-bye to Ham Radio for a while, lets fly with a few parting shots.)

WHAT was once "The Shack" is now a rather pathetic heap of junk. A radiogram cabinet with nothing inside it; a rack-and panel transmitter with nothing but the racks (not even the panels); an aerial change-over switch with no aerial on it—all these things speak of the days gone by. From which, if you've any sort of detective acumen, you will gather that your Uncle is going to that mysterious place known as "off the air."

Well, you're quite right. Many of your Uncle's intimates have known all about it for a long time. Some of them haven't helped any by the rumours they have spread in various directions, but we needn't speak of that. The fact remains that a small commercial receiver will be your Uncle's only contact with the world of amateur radio for quite a long time to come—but he'll still be after you with that.

No explanations, no pack-drill; but the reasons are 'bout fifty-fifty. A new line of business which will mean long absences from home is one side; absolute exasperation with the incredible amount of tommy-rot that clutters up the ether is the other. When one reaches such a stage that one can't come on the air without hearing someone wasting a chunk of the ether with almost criminal drivel, it is time one had a rest.

Things will improve; they may get worse before they're better. When the time comes for your Uncle to come back on the air, he will expect to find all the following pests off the air and safely confined within Wormwood Scrubs, Sing Sing or the corresponding board-residences in their various countries:—

(1) The man who uses the 20-meter and 10-metre bands for nothing but local 'phone, and even then hasn't anything of the slightest value to talk about.

(2) The spitch-merchant who, apparently, has never heard of modern systems of modulation, or, if he has, insists on getting four times as much audio out of them as his carrier-wave will justify.

(3) The owner of an unstable transmission in any form whatever—chirps, wobbles, raspberries or what have you.

(4) The man who still calls test twenty-five times (or more) and signs once, and then wonders why no one comes back to him.

(5) The transmitter who uses enough power to get to the Antipodes for the purpose of contacting someone 100 miles away.

(6) The "sending-double" crowd, either on C.W. or 'phone, who increase their time on the air, and therefore the QRM they cause, 100 per cent., just because they've got into a habit and can't get out of it.

(7) The crowd who use the ether for family conferences, mutual admiration societies, swank-parades and bottle-parties.

I could go on like that for ever, but if those seven categories of pest could be eliminated, the ether would be a reasonable place for a display, by the genuine ham, of the genuine ham spirit as it once existed.

And don't think I'm being snobbish about the newcomers, many of whom are setting an example to some of the old-timers. The guilty ones, both in this country and abroad, include almost as many old-timers as novices. There's no fool like an old fool, and there's nothing so pathetic on the air as a veteran amateur, who presumably is old enough to know better, making a complete idiot of himself. Listen on 40 any Sunday morning and you'll agree with me, unless you're one of the guilty ones yourself. In the latter event I'm afraid I can't do anything to help, short of starting a correspondence school.

Well, there you are. It had to be said, and it's been said. Now if you like to think of your Uncle as a disgruntled, bad-tempered old man who's fed-up with radio because of night-starvation, you're at liberty to do so. Actually, he is perfectly calm about it all, and is full of admiration for the select handful of hams who keep the good old flag of amateur radio flying above the heap of garbage that has gradually accumulated round the foot of the mast.

Get down to it, you real hams, and clear some of that stuff away. Have a junk-sale and turn out everything except the real ham spirit, and amateur radio will continue to be the finest hobby that has ever been invented.

As for the genuine experimenters who are seldom heard on the air at all—they have nothing but admiration from me. Once upon a time every QSO was a solid piece of experimental work, and every third QSO proved that something could be done which the "experts" had said was impossible. Now, such things can only be done on the ultra-short waves. The badly-bitten DX merchants are only doing something that other amateurs—not to mention the commercials—did years ago. If they do it decently, there isn't a word to be said against it—but some of them don't.

Read "Twelve Years Back" occasionally, if this hasn't made your blood pressure rise too far, and reflect on the experimental work and the DX that was being done then, and ask yourselves whether some of us have progressed so very far in twelve years.

There's lots of real work still to be done, and it doesn't need a £250, 250-watt quasi-commercial rig to do it. The 10-watt man may easily spring a few surprises yet, if he isn't too busy posting QSL cards or nailing them up on the wall.

So, for the time being, this is good-bye to old friends and old enemies. But your Uncle will spring up again some time, and then some of you had better watch out again!

Research and Experimental Sections

By H. C. Page (G6PA).

THERE comes a time in most organisations when certain changes become necessary for the continued efficient functioning of the system. R.E.S. has known several such changes, and will probably know many more in the years to come. Continued growth, changing membership, and varying tastes are usually the chief factors in such a change. Unfortunately, such changes are not brought about by the pressing of a button, or by a hasty revision of rules and procedure ; they require careful thought and preparation if they are to be successful. The recent changes to our R.E.S. organisation are no exception.

For various reasons which it is not necessary to set out here, it became apparent that R.E.S. would have to undergo some changes if it was to remain of use to our members, or achieve any useful work. A committee was appointed by Council to consider what steps should be taken, and the plan now to be set out is the outcome partly of their recommendations, and partly those of the R.E.S. Manager and his assistants.

All members of our old R.E.S. organisations have already been asked by circular whether they are prepared to continue to work on much the same lines as at present, with the exception that in future they will be known as members of the Experimental Section, which will be under the management of Capt. A. M. Houston Fergus, well known to many as G2ZC.

The response to this circular has been very satisfactory, although it seems apparent that there are still some members of the old R.E.S. who are under the impression that the circular does not apply to them. In this connection we should like to make it quite clear that all previous R.E.S. membership has ceased, and that all members of R.S.G.B. who wish to take part in the new organisation must apply afresh for membership. Those who do not do so will be deemed to have resigned.

The present system of Group and Individual membership will continue as heretofore, but with a few alterations. In future there will be only four main groups, namely Aerials, Propagation, Receivers and Transmitters. Should the need arise, additional main groups will be brought into operation.

Each main group will be under the direction of a Group Manager, who will be chosen by the R.E.S. Manager in conjunction with the Experimental Section Manager.

Group members are those who have already expressed their willingness to partake in experimental work conducted on organised lines.

A small committee has been appointed by Council to select a number of suitable subjects for investigation by the R.E.S. Groups. This committee consists of the R.E.S. Manager, Assistant Managers, and two or more members, with power to co-opt. They will select their problems from several sources, including those proposed by R.E.S. members themselves.

The Experimental Section Manager will prepare or publication a monthly report on the activities of the Experimental Section. In addition, it will be one of his duties to advise Group Members, who submit articles for publication, as to their suitability. He will forward suitable articles to the R.E.S. Manager, who will lay them before the R.E.S. Committee with a view to their being judged as of a standard high enough to gain their author a special certificate, which will bear the words " Research Award." Those who qualify will be known as Research Award Holders.

It must not be assumed that all articles published will qualify the authors for a Research Award. These awards will only be issued to those whose contributions are considered by the Committee to have reached a sufficiently high standard of merit.

We publish below a full list of those whose applications for membership in the new R.E.S. have been accepted, together with a list of officers. Those members of the Society who desire to join R.E.S., are requested to write to Headquarters for an application form.

R.E.S. Manager : H. C. Page (G6PA).
Assistant R.E.S. Manager : J. C. Elmer (G2GD).
Experimental Section Manager : A. M. H. Fergus (G2ZC).
Committee : F. Charman (G6CJ) and D. N. Corfield (G5CD).

Group Managers :

Aerials : G. W. Slack (G5KG)
Receivers : I. B. Clark (2BIB).
Transmitters : J. N. Walker (G5JU).
Propagation : To be Appointed.

List of Group Members :

A—Aerials. T—Transmitters.
R—Receivers. P—Propagation.

F. J. Barrett, G8CO (P), W. N. Bennett, 2BDA (T, A, R, P), C. N. Blatherwick, 2BLA (T, A, R, P), J. H. Brazzill, BRS2063 (P), R. B. Brett, 2CSD (T, R), A. Brightmore, G6TY (P), A. L. Browning, G8TK (A, T), E. W. Brownjohn, 2BAU (P), S. Buckingham, G5QF (T), M. B. Buckwell, G5UK (P), P. M. Carment, G5WN (T), C. R. Chick, 2CSX (A, P), I. B. Clark, 2BIB (T, R), J. H. Clarke, 2AAN (P), W. M. Colles, BRS2683 (T, A, R, P), N. Corry, G2YL (P), W. N. Craig, GM6JJ (P), W. Crossland, G5CI (P), W. R. Dainty, 2ASC (T, A, R, P), O. M. Derrick, 2AJP (T, A), J. W. B. Evans, 2APX (T, A, P), E. G. Ewing, G8MO (T, A, R), H. Flintham, BRS193 (A, R), A. J. E. Forsyth, G6FO (A, T), L. S. Gumbrill, BRS3149 (P), H. F. Hamilton, BRS3179 (P), V. O. Hawkins, 2BVX (T, R), D. W. Heightman, G6DH (P), J. S. Hobson, G5QZ (P), C. H. Hopwood, 2AAV (R, P), J. Hunter, G3AZ (T), T. A. Iserbyt, BRS25 (P), R. J. Lee, BRS1173 (P), F. Lees, 2ALO (P), L. H. Lomas, G2HB (A, P), J. B. Longridge, 2BNM (P), J. Mahieu, ON4AU (T, A, R, P), J. J. Maling, G5JL (P), P. Malvern, G8DA (P), S. A. Morley, BRS2780 (P), A. Q. Morton, 2CJH (T, R), M. H. Munroe, G6MF (T, R), W. McCann, 2CSM (A, P), E. J. Napier, G8FA (A, P), H. G. Newland, G5ND (T, P), A. G. Parker, G6QZ (P), D. H. Pennington, G8SF (T), G. W. Petch,

BRS1491 (P), M. Pittam, BRS2977 (P), J. J. Platt, G2VO (R), W. C. Pyke, G6PK (T, A, R, P), A. E. Rice, 2BRI (T, R), J. H. Roe, G2VV (A), G. R. Scott-Farnie, GW5FI (A), P. Seymour, 2AZX (P), D. Sherley-Price, BRS1550 (T, R), P. G. Spencer, G8MH (P), E. J. Squire, G6ZQ (T, A), H. B. Sumner, G5AX (P), C. F. L. Turner, ST2CM (A, T), E. J. G. Vance, G8SA (T, A, P), R. R. Waite, 2CAX (T, A, R), E. Wake, 2CZQ (T.R.), J. N. Walker, G5JU (T, R), J. Y. Warner, G2WR (A), E. J. Williams, G2XC (P), H. L. Wise, G6XF (A).

List of Individual Members:

R. V. A. Allbright, G2JL (P), T. P. Allen, GI6YW (A), W. H. Allen, G2UJ (R), T. A. Appleby, 2APF (T, P), E. R. Ayre, G8OS (P), R. J. Bradley, G2FO (A, P), H. F. Burtoft, G8LO (T, A, P), N. S. Byers, G8AF (T, R), W. Carter, G2NJ (P), A. E. J. Cooper, G5VT (A), D. N. Corfield, G5CD (T, R), G. Cuncliffe, G8UF (T, A), U. D. M. Dias, CT2BM (P), F. L. C. Firmin, G5QO (A, P), R. F. Galea, ZB1E (T), E. L. Gardiner, G6GR (T, R), J. S. Gingell, 2AAM (R, P), H. E. Gill, G8KO, L. E. G. Grosvenor, ZE1JK (P), J. A. Hay, BRS1948 (P), G. W. Hayward, G8BD (T, A, P), H. R. Heap, G5HF (A, R), J. A. Hobson, G5BX (A, T), W. C. Holley, G5TN (T, A, R, P), G. A. Hook, 2CIL (T), J. Hunter, GM6ZV (T, P), H. Jones, G5ZT (T, A), J. M. Knott, 2BZX (R, A), A. W. Lister, G5LG (T), D. W. R. McKinley, VE3AU (T, A), A. O. Milne, G2MI (R), W. G. Money, G2UP (P), G. C. Oxley, G8MW, N. F. O'Brien, 2AQO (T), D. W. H. Paterson, VU2GN (A, P), T. L. Peterson, G6VG (P), C. B. Raithby, G8GI (A, P), D. Robertson, G6GQ (P), J. A. Sang, GI6TB (T), Mrs. G. N. Salter, 2COY (A, P), M. Santangeli (Dr. Ing.), I1ER (P), E. J. Scudder, BRS981 (A, R, T), G. J. Shorten, G2SQ (A, T), G. W. Slack, G5KG (A, P), C. R. Thompson, G8WI (P), J. R. Treadwell, G8SJ (T), H. C. Turner, G5OJ (P), A. J. Walker, 2CYY (?), E. R. Westlake, G6KR (A, P), J. A. Willridge, 2AZQ (A, T), J. Williams, 2BBB (R, P).

Aurora Borealis

Members who made observations during the recent display of the Aurora are asked to send their notes to Mr. A. M. Houston Fergus (Experimental Section Manager), "Sunnyside," Wood Road, Hindhead, Surrey, who has promised to produce a short article for our next issue. Four reports have already been received.

Propagation Group

Members who have signified their wish to join the Propagation Groups of the Experimental Section are requested to send a p.c. to Mr. Houston Fergus, stating the branch of the subject in which they are especially interested, i.e., Fading, Sun Spots, Earthquakes, Skip, etc.

Stray

Mr. T. C. Platt (G2GA) informs us that PA0CC, of Rotterdam, wishes to arrange schedules on 3.5 Mc. 'phone between 01.00 and 02.00 G.M.T. on Sundays during April. Schedules should be fixed *via* G8NF.

Contemporary Literature

COMPILED BY L. FRYER (GM2FR).

A LOW-COST 100-WATT TRANSMITTER. (*Q.S.T.*, February, 1938.)

A description of a three-band transmitter using a 3.5 Mc. crystal for all three bands—will deliver at least 100 watts output, and costs only about 25 dollars to build. The circuit consists of a 6L6 crystal oscillator and 6L6 doubler, both fed from the same anode supply, and a final amplifier using a pair of the new R.C.A. 809s in push-pull. The cathodes of both oscillator and doubler are keyed simultaneously. The transmitter is built on a wooden chassis, the top being shielded by an aluminium plate, and the construction makes a very neat and efficient outfit for the C.W. man.

* * *

A REGENERATIVE RECEIVER WITH HIGH AUDIO SELECTIVITY. (*Q.S.T.*, February, 1938.)

A tuned R.F. unit incorporating some unconventional features, notably, link-coupling between aerial and radio-frequency amplifier and the use of a 6F5 valve as audio amplifier with variable regenerative gain. Some helpful hints on the elimination of vibration in receivers are given.

* * *

INEXPENSIVE COAXIAL R.F. TRANSMISSION LINE. (*Q.S.T.*, February, 1938.)

The author describes the construction of a home-made coaxial Radio-frequency Transmission Line which has a characteristic impedance between 72 and 75 ohms. The cost works out at ten cents per foot.

* * *

28 MEGACYCLE PRESELECTION. (*Q.S.T.*, February, 1938.)

A very informative article on the design of pre-selectors for use on the 28 Mc. band. Two practical units are described, the first being a single stage using a 6K7 valve, and the second a two-stage unit using 956 Acorn valves.

* * *

SWEEP CIRCUIT CONSIDERATIONS IN THE TELEVISION RECEIVER. (*Q.S.T.*, February, 1938.)

A discussion of the design and operation of saw-tooth oscillation generators. Various types of saw-tooth oscillators are discussed at some length, several practical sweep circuits being given.

* * *

A SIMPLE 56 MC. TRANSMITTER WITH CATHODE-BIAS MODULATION. (*Q.S.T.*, February, 1938.)

The authors describe a conventional TNT oscillator using a twin triode 53 valve, with two 56's as speech amplifier and modulator. Improved frequency stability, fair output, small modulator and good audio quality are claimed.

* * *

THE HARMONIC TANK CIRCUIT. (*Q.S.T.*, February, 1938.)

An interesting account of experiments with a circuit arrangement the basic theory of which is the same as that of a Tesla or Oudin coil. Briefly, the idea is a method of transferring the energy output of a valve to a tank circuit whose constants are independent of the valve constants. Results of tests with various valves on frequencies up to 120 Mc. are given.

(*Continued on page* 521)

National Field Day, 1938

THE Awards Committee have pleasure in presenting the Rules for the seventh National Field Day and wish to thank those who have assisted in their compilation with suggestions for their improvement. Basically, the rules are the same as last year and where changes have been made they are in response to a widespread expression of opinion from the membership.

Rule 10 has been amended to cover not only the height of the aerial but also the maximum height of its suspension. It should be emphasised that the Committee consider that all districts should try to make their stations truly portable, including the aerial masts.

An important change is made in Rule 11, which now insists that all Field Day stations must be operated from a tent. It has been felt that in the past some of the stations have hardly merited the word "portable" at all and therefore it is better to put everyone on a level footing.

D.R.s are requested to make quite certain that each call to be used during Field Day is actually licensed for the particular band for which it is proposed to be used. A considerable amount of inconvenience has been caused to headquarters and to the G.P.O. in previous years on this point. D.R.s are also requested to note that all applications for permission to operate stations during N.F.D. must reach headquarters not later than April 1. As the G.P.O. require a minimum of ten weeks' notice, no application may be considered after this date.

To meet a very justifiable complaint from the Scottish and Northern Ireland Districts that the scoring during past events has placed them under a severe handicap, this year's scoring table has been modified and also a smaller premium has been placed on purely DX contacts.

Special care should be taken to see that points have been claimed correctly in accordance with this table.

Overseas amateurs are invited to co-operate with the R.S.G.B. in this event, and providing details are given us prior to April 25, a list of the portable calls to be used by such stations will be published in this journal.

Attention is drawn to the following points :—

(*a*) Every endeavour must be made to ascertain that stations worked (particularly continentals) are licensed.

(*b*) Particular care must be taken to see that public or private power supplies are not used.

(*c*) Crystal control or some other method of frequency stabilising is essential in order to conform to licence conditions.

(*d*) After contact has been effected, both stations are required to acknowledge receipt of the report given. There has in the past been a tendency amongst certain operators to commence another call before the sending station has completely finished his transmission.

A.O.M.

RULES.

1. The event will commence at 18.00 G.M.T. (19.00 B.S.T.), June 11, and conclude at 18.00 G.M.T. (19.00 B.S.T.), June 12, 1938.

2. The event is confined to the English, Welsh, and Scottish Districts, and to Northern Ireland and Eire (Northern Ireland and Eire count one district each).

3. Each District taking part will be permitted to place into operation four stations, A1, A2, B1 and B2, which must be located at points within the District. An exception to this rule will be permitted in the case of the four London Districts and Scottish Districts A and E, who may erect their stations in counties adjacent to their District. Station A1 will operate on 1.7 Mc., Station A2 on 3.5 Mc., Station B1 on 7 Mc. and Station B2 on 14 Mc.

Optionally, a District may put into operation *three* stations in which case Station A will operate on 1.7 and 3.5 Mc., and Stations B1 and B2 on 7 and 14 Mc. respectively.

Optionally, a District may put into operation *two* stations, in which case Station A will operate on 1.7 and 3.5 Mc. and Station B on 7 and 14 Mc.

4. In the case of a District operating four stations on four different sites only one transmitter may be installed at each station.

In the case of a District operating three stations, Station A may employ one transmitter for each of the two bands (1.7 and 3.5 Mc.). In the case of a District operating two stations, both stations may employ a pair of transmitters (1.7 and 3.5 Mc. at A ; 7 and 14 Mc. at B).

5. All transmissions must be signed off with the band in use. The following numerals must be used to identify the four bands :—

1.7 Mc. ...	1	7 Mc. ...	7
3.5 Mc. ...	3	14 Mc. ...	14

As an example, Station G2MI when calling test on 14 Mc. will sign at the end of the transmission "Test de G2MIP 14."

6. No station may be operated on more than one band at any one time.

7. Each station must be licensed to use a different call sign ; the D.R. is responsible for forwarding to Headquarters an application for such permission, together with the exact location of each station, not later than April 1, 1938.

8. The input to the valve or valves delivering power to the aerial must not exceed 10 watts on 1.7 Mc. and 25 watts on the other three bands.

9. The power supply must not be derived from either public or private supply mains.

10. The height of the aerial at any point must not exceed 45 feet above ground level, nor may the point of suspension exceed 45 feet from ground level.

11. Stations must be operated from a tent.

12. No apparatus may be erected on site prior to 10.00 G.M.T. (11.00 B.S.T.), June 11, 1938. This rule includes aerial and aerial fittings.

13. Points will be scored for established contacts on the following basis :—

Between all Districts and fixed stations :—

(*a*) Outside the District but within the British Isles	1
(*b*) In Europe	2
(*c*) Outside Europe	3
(*d*) In the British Empire	6

Between G and GW portable stations, on the one hand, and:—

(*a*)	Portable stations outside the District but within the prefix Zones G, GW	3
(*b*)	Portable stations in EI, GI and GM ...	4
(*c*)	Portable stations in Europe	4
(*d*)	Portable stations outside Europe ...	10
(*e*)	Portable stations in the British Empire...	10

Between EI, GI and GM portable stations, on the one hand, and:—

(*a*)	Portable stations in their own individual prefix Zone but outside their own District	3
(*b*)	Portable stations outside their own individual prefix Zone but within the British Isles	4
(*c*)	Portable stations in Europe	5
(*d*)	Portable stations outside Europe ...	10
(*e*)	Portable stations in the British Empire...	10

14. In addition to the National Field Day Trophy, which will be awarded to the District obtaining the highest combined score, a miniature replica will be awarded to the stations scoring the highest number of points on 1.7, 3.5, 7 and 14 Mc.

15. An exchange of reports (readability, strength and tone) shall be made before points can be claimed ; proof of contact may be required.

16. Contacts with ships or unlicensed stations located in countries where licences are obtainable will not be permitted to count for points. The decision as to whether a station is to be classed as unlicensed will rest with the Awards Committee.

17. The British Isles for the purpose of this event shall include England, Scotland, Wales, Northern Ireland, Eire and the Channel Isles.

18. All entries must be submitted and signed by the D.R., who will be solely responsible for the conduct of the event in his District.

19. The official entry form must be signed in full by the station operator *at the time of each contact.*

20. Entries must be made on the approved form issued by Headquarters, and must reach that address not later than June 26, 1938.

21. The N.F.D. Trophy will be held by the winning District for one year and will be handed to the D.R. concerned at Convention. The D.R. will be solely responsible for its custody during the year.

22. Persons operating a portable station, which is competing, shall be members of the R.S.G.B.

23. Council reserve the right to amend or alter these rules at any time prior to the commencement of the event, and their decision will be final in all cases of dispute.

Unique

G8MA engaged in an interesting experiment at 21.50 G.M.T., February 26, when in QSO on 14 Mc. with W2IXY his signals were relayed to W2DKJ on 56 Mc. The latter was in an aeroplane flying at 7,400 ft. above New York. W2DKJ spoke back on 56 Mc. *via* W2IXY, who in turn relayed the transmission on 14 Mc. The contact was 100 per cent. It is believed that this is the first time a QSO has taken place between England and an aeroplane flying over America using amateur frequencies.

THE 28 Mc. BAND

By D. W. Heightman (G6DH).

TAKEN generally, conditions during February were not as good as those of February last year, and it would appear that 1937 was the peak year for the ultra-high frequencies. As was expected, however, there was a considerable improvement compared with January, particularly centred on the third week of the month and signals were much more consistent from day to day, presumably due to the quietening down of the sun's intense activity of the previous month. The first two weeks were rather flat, but W's could be worked every day of the month. From the 15th commenced a noticeable improvement for several days and on occasions the band was open until after 2200. The signals which were more noticeably scarce than in 1936-7 were those from extra long distances such as J, ZL, VK and West N. America. A few such signals came through, however, and some contacts were made.

Two first contacts were made by G6DH on the 1st with FR8VX, and on the 18th with TG9AA. The latter is a very difficult station to raise because he is chiefly interested in working W. After having called him about twenty times with no result, 6DH asked W8JIN to get TG9AA to listen for him and contact was then easily made !

Oceania provided signals from VK2GU, 2UD, 3FZ, 5KO, 6LJ and 6SA. Of these 5KO was easily the most active and could be heard working one European after another at week-ends. There was apparently a lack of activity in this part of the world. Only two J's were heard (2CE and 2CF), the former being worked on three occasions by G6DH. There was more activity from our VU friends mostly at week-ends, and many good contacts resulted. A fair number of African stations were coming through, although we could do with some more of these signals on the band ! FB8AA was frequently a good signal. Most countries in South America were heard and worked during the month. HC1JW was a new one called many times with no result—like many others he only seems to work Ws ! All districts W and VE were heard and worked. Europeans outside 800 miles radius were fairly consistent and the band was very well populated with Gs. At week-ends a surprising number of " extended ground wave " signals could be heard.

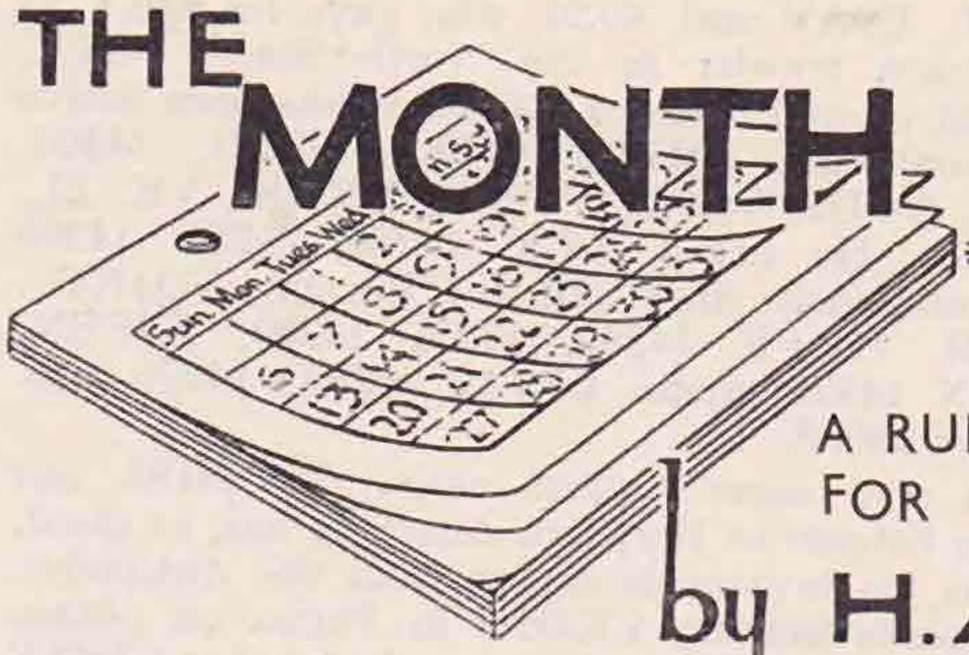
Thanks are extended to the following for their reports :—G6YL, who continues to do excellently with her QRP, working among others FR, K5, VK6, VU, all W, VE4, etc. ; 2XC, 5BD (worked VU, ZS, FB8, FR, all W, VE4, etc.), 8CV, BRS25 and BRS3179, who has heard some rare ones, including VE5BQ 'phone, OA4R, PK1VX, etc.

Correction

Due to a typing error in copy of advertisement sent to the printers, the 40 Metre Low Drift Crystals advertised in our last issue by 2BGG, 293, Rothbury Terrace, Newcastle-on-Tyne, 6, were described as BY cut instead of BT cut. We regret any inconvenience caused through this error.

Advt. Mgr.

THE MONTH ON THE AIR



A RUNNING COMMENTARY OF RADIO CONDITIONS
FOR THE MONTH OF . . . . . FEBRUARY, 1938

by H.A.M. WHYTE (G6WY.)

DID you enter for the B.E.R.U. Contests this year, or did you feel that the tremendous nerve strain would remove any pleasure from serious participation? The poor conditions of the Senior event coupled with the straight receivers of many overseas stations made it impossible to contact many stations, even though they were audible in Great Britain. To our mind, a contest which allows for the possibility of long stretches between contacts at certain periods of the day, loses a great deal of appeal, and it is just these factors which keep so many home and Empire stations from taking a keenly interested active part. The Junior, unless blessed with marvellous conditions, suffers from the same disadvantages, only to a greater degree, that is, if you do not exceed 25 watts.

Still talking of contests, we are of the opinion that more "CQ R.E.F." calls could be heard than "Test BERU"; perhaps this was due to the superabundance of phone permitted in the French affair, or again the many peculiar noises and splashes heard were probably blamed on to the R.E.F. phone portion of their contest, thereby giving the impression that the 14 Mc. band was completely filled with the latter rather than the former contest. Whichever way we may look at it, we must agree it was a pity that the two events clashed, and there's work for the I.A.R.U. to clear this up. What a great pity, too, that certain British 100 per cent. phone stations could not keep off 14 Mc. during the B.E.R.U Contest hours; one was heard to remark to an American station that he did not know if "any of the local boys" were participating, but he would close down in case "to give them a chance." There were three "very local boys," who had to suffer during a large proportion of the rest of the contest, because this offending station did not close down as he had suggested. Remember the ethics of contests. Think of your neighbour who may be entering, and do all you can to assist him, that is, if you are not entering yourself.

B.E.R.U. produced some of our old friends, EP1A and TA1AA, both out of the band of course, and still as far from their supposed land of birth as ever, but what of VK8SS and VP9BF? BERS195 tells us there are no active VK8 stations in N. Australia, and all Bermuda stations have only one letter following the prefix, but G6KP heard VP9L (T6 HF 14) in St. George's, Bermuda, and there is VP9R still putting a wonderful phone signal through on 14150. Another new one is TG9AA; BRS2494, of Birmingham, heard a W 28 Mc. phone state that he was the only active amateu in Guatemala, and he operates on 28 Mc. And how about OY7A? ZB1P worked him and BRS 2494 heard him, but no details were obtained as he refused to answer ZB1P on the subject of QRA. FP8PX is at last proved genuine, as BRS2494 received a card from him, stating that he was "clandestine" and did not want his QRA published. 2494 wants the QRA of VO6J and has better luck at getting confirmations towards his H.B.E. than others.

G5BD has been very active, and reports working FI8AC, 14080, FR8VX 14290 and 28580, VK6AF 14360, VU2FV 7070, ZB1P 3520, VU2EO 7270, FB8AA 28080, and I7AA 14350. Other DX heard includes, VS7RF 14084, XE1AM 14280, VS7JW (14 HF), VQ4KTC (14 H.F), CR7AC 14260, CR7AL 14100, VP2AT 14390 (and 14440—Ed), ZC6AQ 14320, HP1A 14300, VP2LA 7040, HS1BJ 14085, XZ2DY 14088, VQ4CRI 14320, VP6MY 14120, YV1AP 14050, YV5AG 14260, YV5AD 14085, OA4R 14274, VS1AI 14086, VP7AA 14130, XU8RB 14090, J2KS 14130 and HH5PA on phone 14085. That's a very useful list, with very accurate frequencies and should be of great assistance to those who are looking for more countries. Thank you G5BD.

G5HH reports again and sends through the details of ZD4AA. His QRA is Emmanuel K. Kessel, c/o Broadcasting Station, P.O. Box 250, Accra, Gold Coast. He works from 17.45-19.45 G.M.T. daily and wants to contact G's. In a letter from ZS1AH he learnt that 1AH is active on 28 Mc. and bemoans the lack of G's between 10.00-11.00 G.M.T. G5HH worked I7AA, VO3X, VS7RP, ST6KR, VU2ED, VQ4CRI, U9BC, ZS3F, VQ8AB and many ZS's, all on HF end of 14 Mc. He wants to know if the following QSL: ZS3F, CE7AA and TF5C? And here's another "country hunter," G6KP, he worked I7AA, XZ2DY, for new countries and has received his card from SV6SP (Crete). He heard EP2RK and worked RX1B 100 miles off Freetown, Sierra Leone.

BRS1066 of Burton-on-Trent, reports some rare DX. On 7 Mc. he heard HI2T, YV4AX, PY2HH, PY4AQ, XE1CB, K4FAW, CM6DV, VP2TG, and VO4Y. On 14 Mc.: OA4R, VS1AI, CR7AL, YV5AG, and asks for the QRA of VQ2JC. Here it is, supplied by G2YL who worked him for his second G.: J. Christie, Box 95, N'Kana, N. Rhodesia. He is the brother of VQ2HC (H. Christie). Other VQ2's worked by G2YL are: VQ2CJ, C. F. Jones, P.O. Luanshya, N. Rhodesia, and VQ2PL (HF 14) also worked by G2MI. G2YL

[*9 The Mead, Beckenham, Kent.]

also heard MX5A on 14130 and G2IM managed to raise him for his first G QSO. G5VU also raised VQ2JC and obtained his QRA which checks with the above and he raises an interesting point. CX2AJ is given to reply to several stations at the same time, and after giving them reports, carries on with CQ. Query : Does this count as a contact with Uruguay ? We feel that it can hardly be called a QSO in the true sense.

BRS3101 of N.W. London heard XZ2DY, VP3TES ?, CR7AC, and the ship ZSMB, s.s. " Awatea," believed to be in the Pacific. G2ZR has been ill with tonsilitis, but had his receiver rigged up by his bedside and heard JA2A on 7260 who gave his QRA as Idumo, and asked D3CUR to QSL direct. Anyone know any details of this station ? XZ2DY 14100, LX1TW (HF 14 phone), HS1BJ 14070, PK1MF 14320, and PY2DN 7180. G8RL also worked SV6SP and ZD3Z, the latter stating that he was actually operating a portable on territory in Gambia while the ship was being repaired, and queries whether ZD3Z can therefore count as a separate country. Why not ? He asks if VU2AN in Baluchistan can count separately. We do not consider that this territory is separate from the Indian Empire, even though our friends the A.R.R.L. are of that opinion. G8RL heard on 7 Mc. : VK4CW, CT3AB, VK6LJ, VU2FV, VO1M, YV1AP, U9ML, ZL2CY and TA1AA. Another G8, namely G8NV, reports W.A.C. with a genuine 10-15 watts, stations for this feat were : PY5BO, W7AMX, U9ML, SU1GT, ZL4GM and Europeans. Recently he has raised on 7 Mc. : VO6JQ 7125, EA3SI 7300 (phone), K4CVV, PY1FX, K4DSE and ZB1R 7150, and heard HI5N, PY1GP, LU3DH and LU8DR. He believes that VO6J is the new call of VO6JQ, and we feel inclined to agree.

G6GN worked I7AA on Feb. 9 and wonders if this was first G-I7 QSO, we think not, but who will claim it ? ZS1AH worked GM6JJ for his first European on 7 Mc. since 1935 and requests more British activity. We were not under the impression that activity had dropped off unduly in G on 7 Mc. ! JJ also worked VE5QP on 14 Mc. for his first N. American. Other DX heard : VP2LA (St. Lucia), VP6RB and VU2FV. G2NJ reports a contact with VP2TG on 7 Mc. Another Scot, GM2SL worked VP3THE for the latter's first Scottish contact on February 11, the last day of operation. The Expedition packed up on February 12 to return to New York. QSLs should be sent to the Terry Holden Expedition. C o Rockefeller Building, N.Y.C. Our second G3 to report to this page is G3AH who worked ZB1R for the latter's first G contact. You will remember that ZB1R is ex G6UR. G8GI worked XNA5C whose QRA (as given) was in the Solent, and U9ML in Sverdlovsk who is quite genuine.

More news of VQ2. G6HB worked VQ2PL who gave his QRA : Peter L. Lowth, Rhodesian Railways Telegraph Office, Livingstone. YV1AP 7020, and EI6F on 1.7 Mc. during the BERU were worked as well. G6HB will be on his way to S. Africa and Australia when these notes appear and will be listening on all bands. G8IS worked U9BK on 7 Mc. for his second Asian and is praying for a card for his W.A.C. Certificate ; on 14 Mc. he worked ZS and heard UK8IA (who QSL's by the way), YI2BA, VU2LJ, VU2JP, ZE1JD, VQ8AA, KA1SL, U9AV and XZ2P who gave his QRA as a " Steam trawler in the North Sea." G6YR, who did so well in the 1.7 Contest has been active and contacted CM7AB 14400, VQ2PL 14400, VO4Y, VO1H, VO3X, VU2LK, VE5QP, VK, ZL, and ZS. He heard XZ2C 14380, XZ3P 14300 (both obviously ships and not Burma), VQ4KTC, ST6KR, HKFK 14380, I7AA 14380, K7FBN, FR8VX 14330 phone, CR7AC, K6SO 14390, and HC1JW 28030.

And now some Empire news. BERS195, our regular listener in Northern Australia has, as usual, sent us his invaluable report from the Antipodes. He reports hearing VK4HN in Papua on phone, and CR6AF on 7 Mc. It is wonderful that CR6AF was heard in view of the fact that his input is only 5 watts to a C.O., and his signal (already reported last month) has been S5 at G6WY when QSO. Apparently G2ZQ and G6WY were his first British QSO's, as his card states so. Has anyone else ever worked Angola ? ZN1B was received on 14 Mc. and still appears to be the only station in Bechuanaland, also I7AA which brings Trebilcock's grand total of countries heard to 151. Can anyone beat this ? Incidentally he has had 119 of them confirmed, some of the latest being K6TE (Wake I.), FI8AC, PK6HR (Dutch New Guinea). He heard CO2JJ calling CQ on CW and queries this, as CO is the phone prefix for Cuba ! From ST2CM we learn firsthand that ST1AB does not exist in Sudan, in fact, the only amateurs there now are ST2CM, ST2LR and ST6KR, however, G2FT worked ST1AB on 7 Mc. who told him that his QRA was not Sudan but Italy, and said he would QSL direct. The Channel Islands are represented by G8MF who sent two reports. He uses a genuine 10 watts and claims that his success is due to efficient aerial systems. Here is what he has worked with low power : CR7AY, ZU1V, VK5HM, ZT5P, ZL4BR, VP3THE (phone), ZL4GN, VK3KR, ZT2U, VE5HR, PK3WI, ZS5AH, VK3CX, ZS6J, U9AV, VS7RP, ZS1AH, ZT6K, VK3IW, VK2BR, ZL4BR, VK3XP, W7AMX, ZT1P, ZL2JU, VK5FL, KA1ZL (phone), ZL3FZ, W6MHH, W6DOB, ZS4M, K6JPD, VK6AF, VS7RP and KA1BH (phone). This list has been put in in full to show the QRP man that careful experimenting with beams and other aerials will give W.A.C. and then some.

G8MX asks us not to say that his input is only 25 watts, as nobody will believe him ! Well, we do, and you can put it down to jealousy MX. Phone contacts were had with YV4AB, ZE1JA, ZE1JR, VS2AK, LU1DA, KA1ME, KA1ZL, FR8VX, VQ4KTB, LU1DJ, VK2TR, VK2VV, VK2VA, VK2OQ, VK3ZZ, VK3XJ, VK2XU, 13 schedule contacts with VK3KX, 5 VE's, 4 CO's, 30 W's and add also PY7GA, FB8AF, ZT2G, ZS1K, ZT1R, and CE1AO for good measure, and you have the efficient phone station.

G8HA with 10 watts raised VQ8AJ, a new one in Mauritius. QRA given was : Pierre Mamet, Malartic Street, Rose Hill, and he uses 15 watts in a TPTG. HA also worked FI8AC, VP2AT, VK6CA, HS1BJ, 7 VU's, I7AA, and the usual run of 14 Mc. DX, and heard HH1P (who doesn't QSL), HC1JW, and VP2CD. G8CV is a crafty 10 watt station, and runs 390 v. at 20 mills by using " tons of bias," as he says, and finds he gets more R.F. than by using 350 at 25 mills. We expect you do ! He

has worked CR7AY, VU2LK, W6, W7, VK and ZS.

7 Mc. has claimed full-time attention by G5FA, who has just worked his 100th W on that band and VU2FV. Stations heard fairly regularly have been : U9BK, U9AV, PY2LD, PY2CQ, PY2DN, PY1FX, PY4GV, YV4AX, YV1AP, VU2EO, VO4Y, VO1W, VP7R, FM8AD, FM8AA and ZB's. VP4AA, alias ZD1Z, and ZD3Z, is now back in England. BRS3003 of Coulsdon, Surrey, gives us the QRA of EA3SI : 556 Diagonal, Barcelona. On 14 Mc. phone he reports hearing FB8AF, FR8VX, ZS1AX, ZE1JA, VQ4KTB, ZS6AJ, ZT1M, ZS3F, PY7LC, KA1ZL, KA1BH, ZE1JF, and on CW, HS1BJ, ZE1JN, VU2FX, ZE1JV and ZE1JJ. BRS1535, now in Worthing, has settled down in his new QRA and been very active. VK8SS was heard on 14385 working plenty of Empire stations in BERU. We think he was somebody outside the Empire who did not wish to miss the fun ! Other DX heard includes I7AA, TA1FF 7100, VP2LA 7020, HP1A 14320, TI2LR 14025, VQ8AB, VS1AI, VS7JW, VS2AK (phone), FB8AA, FB8AB, FI8AC and KA1AF. He heard VK5WR working CR1OZS in Timor, but could not hear a sign of the latter ; this was on 14 Mc. BRS2849, of Taunton, informs us that FR8VX is looking for G's between 19-21.00 G.M.T. most evenings, and on CW on 28 Mc. at 16.00 G.M.T.

BRS3003 has found the address to which cards should be sent for G4FR (The Yacht " Valdora "), c/o Rees, Hotel Grande Bretagne, Athens. BRS-3003 has sent good reports to ZS6AJ, ZU6N, ZT6J and others with I.R.C. enclosed, but does not appear to be lucky with the necessary card for his H.B.E. (See editorial.—Ed.)

G6GV with 75 watts input found the Southern Hemisphere DX was good just before the Aurora. He worked 6 ZS's in a row, and they faded away at 21.00 G.M.T., he found that S. Americans were working U.S.A., which was inaudible. Most people noticed that signals did not appear to travel E-W in the Northern Hemisphere during " Nature's fireworks."

Here's news from Wales. GW5FI managed to get across the " pond " and worked W1TS on 3.5 Mc. using only 9 watts. G2SO worked ZB1X who sounds suspicious, and TF3C, ZS3F, W5KC, U6ST on 14 Mc. and on 7 Mc., TF3C again. He heard XZ2C who is not in Burma, but believed to be in the Mediterranean, and our suspicious friend ZB2A. We still seek information on ZB2A.

Some interesting news arrives from VE5AAD to say that Nevada is indeed active on 14 Mc. CW in the shape of W6HJZ in Boulder City, operating on 14380. Exact frequency was asked for and given. VE5AAD is keen to work G's and Empire stations and operates on 14044, 14330, 28014 and 28096 regularly. Recently he has heard VP6YB (28 Mc. phone), OX2QY 14365 phone, G2LB, G5DF, ZS1S and states that G8KS is the loudest G ever heard. Up the G8's ! The McGregor Expedition in Greenland (OX2QY) operates on phone between 0100-0300 G.M.T. Cards for VE5ACS in Resolution I. should be sent to H. L. Baxter, P.O. Box 937, Yarmouth, N.S. VE5ACN worked by G6HB, G6WY and others is ex-VE5GO and UX8GO. Thanks for the information, VE5AAN.

Now we must admit one error in the R.S.G.B. Countries List. 2CSC rightly points out to us that the prefix for New Zealand is ZL and not " XL." Another peculiar misprint (or is it ?) was sent to us by G8RT. Page 120 in February *QST*, tells us that " Since 1933 sunspots can be purchased quite inexpensively, hence only electrical specifications are given and no particular brands specified." I suppose we learn from that, that conditions have been peculiar, or are we ? Here is the real gem of the month, though ; I1IR worked POPI who claimed to be on board the S/S " Spinach," and I1IR wants to know if Popeye QSL's ? His QRA at the time of QSO was 11° E. 37° N. (near Tunis).

G6CL not wishing to be left out in the cold, raised Gibraltar and British Honduras for new countries within 10 minutes of one another, carrying his total to 105. We mention this later point just in case someone imagines our Sec. is not active !

G6WY worked XU6MK 14120 who gave his QRA as : Box 132, Canton, and asked for cards direct, and G2ZQ heard a new one in Br. Guiana, VP3LN on 14390.

Don't neglect 3.5 Mc. for early morning DX. On March 3, at 0630-0715 G.M.T., ZL4BR was in QSO with G6WY, using a frequency of 3,599 kc. G6WY was 2 kc. lower. Reports were 559 both ways.

VS2AK has recently been heard at good strength at 0015 G.M.T. on about 14,050 kc. K6OQE gave several G's a badly needed first phone contact with Hawaii during the latter part of February.

On March 9, VR6A (Pitcairn Is.) was heard on phone by G2AI (14310). The same day he contacted K7FBE on phone.

Empire Calls Heard

By Eric W. Trebilcock (BERS195), Darwin, North Australia. January, 1938 :—

7 *Mc. C.W.:* g2cv (55), 2it (54), 2pl/8ff (55), 5an (56), 5uy (34), 5xc (56), 6kp (54), 6rq (55), 8ix (54), 8qc (55), 8rl (44), su1wm (45), vp2tg (55), zs1be (54), 1bg (56), 1cx (54), 1y (43), 4z (55), 5am (55), 5aq (55), 6bc (55), 6ej (43), 6eo (55), 6eq (54), zt1a (54), 2u (54), 6av (54), 6f (56), 6u (55), zu1z (33), 2h (54), 5u (54).

14 *Mc. phone :* vk4hn (56), ze1ja (56).

14 *Mc. C.W. :* st6kr (55), ve3fb (44), vq4crt (54), vs1aa (56), 7jw (56), 7rp (55), vu2fv (55), ze1jg (57), zl1ar (56), 1mr (55), 2sf (56), 4dq (58), zs1ah (55), 1av (56), 5q (55), 5t (55), 6eq (56), zt2u (55), 2q (56), zu2g (44), 6an (55), 6c (44).

TECHNICAL ENQUIRY BUREAU

The service is free to members except that a nominal charge of 6d. per query is made to cover clerical and postage expenses.

The Rules governing the service are :—

1. Questions must be written legibly and concisely on one side of the paper.
2. A sixpenny postal order must accompany each question.
   The postal order must be made payable to the R.S.G.B., and the letter addressed to Technical Enquiry Bureau, R.S.G.B., 53, Victoria Street, London, S.W.1.
3. The service is only available to fully paid-up members of the Society.

THE 56 Mc. BAND

By L. G. Blundell (G5LB).

UP to the time of writing only *seven* reports have been received at H.Q. as Contest entries, and one of them came from the U.S.A. Agreed that it is only the first month of the contest concerned, but just think—of the twenty or thirty known CW stations active in this country alone only six have any interest in the solving of one of the greatest radio communication problems of the present time ! It is sincerely hoped that the next month will show a vastly improved state of interest and activity.

All the above reports are negative in respect of DX heard or worked, but there are several bright patches with indications of better things to come.

It should be noted here, that while the writer has been given the opportunity to examine the incoming Contest reports month by month, the material provided by such reports for inclusion in these notes is and will be roughly a month old. This fact should not be taken as an indication that contestants are desired to send in their reports before the end of the month in the hope of catching the very next issue. On the contrary. Contestants are urged to arrange their reports so that the period covered is from and including the first to the last day of the month concerned, and to post direct to H.Q. during the first week of the following month. This procedure will help considerably in reducing the amount of extra work caused by the arrival of larger mails at H.Q. . . . thanks !

And now for the bright spots. Some were included in January reports, but others are of more recent date and particularly concern conditions during mid-February in South and South-Eastern England, being during normal hours of activity at the writer's and other stations in the Home Counties.

Firstly, on January 14 at G6YL a commercial harmonic was heard at 1715 to 1720 sending rapid automatic. Frequency was 59.98 Mc. and signals were 579. On the 16th at 1800 to 1825 another signal was heard at 566 also sending code and thought to be commercial. On the 29th at 1815 to 1830 another commercial was heard at 339 sending traffic in English. The text of the transmission was copied almost solid during the whole of the listening period. Frequency was about 58.76 Mc. This is the only instance of commercial harmonic signals breaking through, but many stations report observation of " extended " ground wave signals and signals of very local origin having distinct fades. Additionally, some of the longer range signals have been observed to have measurable echos indicating a secondary and much longer path between transmitter and receiver.

G2HG reports that fading was apparent on signals from 2LC, 2MC and 2KU—the latter being only seven miles distant. This report is relative to January activity, but other reports of a later period—the first three weeks in February—indicate that conditions were showing definite signs of " breaking." For instance, on the 14th 2HG heard at 1945 a 339 signal calling " CQ REF de F8EV (?)."

On February 19 between 1500 and 1600 2HG and 5LB noticed that local signals were subject to fading of the rapid type and flutter. At about 1530 HG was in QSO with 6FL of Cambridge and was receiving his signals at 59 fading to 56. Conditions on 28 Mc. at this time were understood to be almost phenomenal as regards DX signals—so what ?

And now the echoes. These have been observed by 2OD in November, 1937, and more recently on signals from 6FL and 2MV. 6OT in North London has also noticed echoes on transmissions from more distant stations. It is hoped to publish at a later date an article dealing with observations made on this particular phenomena during recent months.

On February 7 6FL and 2OD (Cambridge and Ascot respectively) made their first 'phone contact after much work with CW. Signals were 569 to 579 each way and the contact was held solid from 2210 to 2255 G.M.T. when slow fading became apparent on 2OD's signals and lowered the readability thereof. A glance at the map will show that the distance between these two stations is considerable and a telephony contact over such distance is really good work.

The period February 19 to 21 is particularly interesting as apart from the manner in which 6FL was received at 2HG on the 19th, the mush level on 5LB's receiver rose from a normal S2/3 to S5/7 during the afternoon of the 20th, but no unusual signals were noted.

At 5LB on the 21st at 2250 signals from 2XC (Portsmouth) were logged at 549, slowly fading until at 2310 they were no longer audible. On the 22nd, between 2215 and 2230 2HG logged CW from 6QZ of Norwich at 329. At 2255 5LB again logged 2XC but with much weaker signals at 329. 2XC was also heard by 2HG on the 24th at 2212 when the signals were 339. Neither of the South London stations were able to raise Portsmouth however !

In acknowledging reports on his CW, 2XC states that on the 21st he logged 2OD at 569 whereas his normal level is 339, and confirms that conditions on 28 Mc. were remarkably good on that day. He adds that his 56 Mc. signals have been logged by other Home Counties stations, and as a guide to listeners states his usual frequencies. These are 56.06 and 56.425 Mc. Usually active at 2215 and onwards, schedules willingly arranged.

G8CV of Farnham, Surrey, is now regularly active with plain CW and will be putting out a special test call at 2200 to 2205 every day and listening round the band for some time after. Frequency will be 56.12 Mc.

This station reports that tests have been held with OH7ND and 7NC, both these stations being active on this band, but so far without success.

U.S.A. Activity

Through G2YL and W9FM it is learnt that there is concentrated activity in Pittsburgh. The band has been " open " for 100 mile contacts between this town and Akron and Youngstown, Ohio. W8GBK in Sherman, N.Y., has also been heard.

(*Continued on pae* 21.)

To The Editor

LISTENER REPORTS.
AN OVERSEAS VIEW-POINT.

The Editor, T. & R. Bulletin.

Dear Sir,—I should like to comment on the opinion expressed by G6WY in "The Month on the Air" for December, 1937, published in the January issue of the Bulletin, in which he states: "In these days, when there are so many certificates to be obtained which rely solely on written proof by QSL, our opinion of the man who does not have the decency to reply when postage is prepaid does not bear to be seen in print here."

I am afraid that at last I am compelled to degenerate into one of the indecent men referred to.

Since December 20, 1937, I have been using a beam aerial of my own design directed on Great Britain, the idea being to concentrate as much of my signal as possible in that direction with a view to obtaining sufficient reliable 'phone contact with British transmitters to carry out tests over a long period.

The beam has not proved a failure, I have had very many contacts indeed, and have kept schedules which, up to date, have proved a complete success.

There is one thing, however, which I had not counted upon, and I venture to suggest that possibly G6WY has not himself experienced, and that is the receipt of literally hundreds of letters and cards from listeners, addressed not only to me, but also to ZE1JA at QRAs taken from ancient call books, all begging for my QSL card.

Apologies are made, excuses are made, appeals on account of broken hearts, health, age, the Ham spirit, fathers writing on behalf of their sons, sisters who have not the slightest idea what it's all about writing for their brothers, frequently postage stamps are asked for, and in the majority of cases a reply coupon for return postage is enclosed.

All these communications are from listeners, many of whom seek to impress us with gaudy printed heading notepaper stating that the writer is an "Official" Station of some sort or another, member of leagues, societies, alliances, in which I am not in the least interested, and which give me the impression that they are formed for collecting data already well known, plus as many QSL cards as possible from poor devils of *bona fide* licensed amateurs who, in many cases, simply cannot afford to stock sufficient cards and envelopes to cope with the prepaid demands of what in my humble opinion are somewhat selfish people.

How many times have we "DX" Stations sent our cards to these reporters, giving details of our rigs, etc., etc., and received a reply of thanks or interest?

If societies, leagues, or whatever they call themselves, issue certificates so generously for collectors of QSL cards, I suggest that they think a little more of the man at the transmitter, from whom they are indirectly stealing his expensive and precious little pile of cards, normally destined for stations he has worked as confirmation of QSO, and, mark you, without so much as a by your leave, adding insult to injury by the inclusion of prepaid postage.

It is not difficult for these organisations to adopt different tactics if they insist on this childish game; suppose, for example, they collected from their members' lists of stations heard, classified them, and themselves sent a list to each transmitting station of the times he was heard transmitting, which he can compare with his log, sign, and return.

But perhaps this would involve work by the organisations themselves, and would never do.

Technically, the vast majority of the reports received are of no interest whatever, if I contact G9ZZ and QSO at QSA5 for half an hour, what interest have I in reports from 45 listeners (as has actually happened to me) in Great Britain, badly misquoting the whole of my conversation, and reporting QSA 3-4 on account of auto QRM, asking for stamps and, unfortunately for me, showing complete disregard for the fact that postage is 1½d. for half an ounce?

Somehow, Mr. Editor, this silly game has got to stop. We are all aware why we are allowed to transmit, and in those cases where the transmitting amateur is as conceited as the reporting listener, it leads to congestion of the bands on account of ridiculous broadcasts asking for reports which have no value to the transmitter other than to increase his pride in his rig.

In my own case, and I may say that the other Amateur transmitting stations in Salisbury agree with me entirely, I have no hesitation in consigning the useless reports to the waste-paper basket, and as for the coupons, they may or may not be made use of.

It is a speculation; the listener considers it worth his while to spend his time and money to get my QSL card; I in my turn consider whether the information he has given me is worth while, if not, he loses. I gain some inconvenience, often the payment of surcharge, lost time, and a coupon.

I have before me a letter, card and coupon from a listener who reports receiving my 'phone on the 10-metre band in London when I was transmitting on 14310 kc. in QSO with a G station, giving me QSA5 R7 apparently on my second harmonic through a push-pull final, Collins low pass filter, and 38.64 watts input, misquoting terribly the whole of my conversation with the G station, and finishing up by asking me to show the Ham spirit and send him a QSL card direct.

His is one of sixteen received to-day, all of which were addressed to the wrong QRA, involving the use of a messenger whose time is of more importance elsewhere.

I look forward, Mr. Editor, to the publication of this letter in the Bulletin, and to the comments, if any, of others on the subject.

My very best 73 to you and to G6WY, whose monthly report is most interesting and useful, constituting, in my opinion, one of the most important articles in the Bulletin.

Yours very sincerely,

P. W. Moores (ZE1JA).
Ex VQ8A, ZD8A.

P.O. Box 1089,
Salisbury, S. Rhodesia.

WINDOM AERIALS

To the Editor, T. & R. Bulletin.

Dear Sir,—I have read with interest the various letters referring to Windom aerials which have appeared in the Bulletin from time to time.

Being a newcomer to the transmitting side of amateur radio, and without very much technical knowledge to fall back upon, I was anxious to erect an aerial which would give me good all-round results from which to gain general experience.

I started with a simple two-wave end-on Hertz, and although this gave me one or two isolated DX QSO's, I found great difficulty in getting out of Europe with it.

On the advice of one or two other amateurs, and from various glowing reports in short wave periodicals, I became interested in the Windom, and, ignoring the more technically minded critics, I erected a half-wave version, about 40 feet off ground, running N.W.—S.E., with the S.E. end dipped slightly towards the ground.

The improvement was amazing, for within a week or so I was WBE and WAC, with S5 reports from all continents except South America, where I received S4 from PY. I have had S6 reports from W9 and VE, and S7 from U9.

My transmitter is a simple Tritet C.O. battery fed from three 120-v. dry batteries, with the feeder tapped direct to the plate coil. The maximum input is 8 watts, and the valve used is an RK25.

I think this speaks very highly of the efficiency of the aerial system in use; true, as Mr. Sheargold suggests in a previous letter, it may not be a Windom, but if it is not, I am still well satisfied with it, and feel that I could not do much better with any other system.—Yours faithfully,

Louis H. Gray (G8LG).

PROBATIONARY PERIOD IN VK

To the Editor, T. & R. Bulletin.

Dear Sir,—In the September issue Mr. Robert Webster raises the question of a probationary period of twelve months on C.W. before granting permission to use 'phone, and his remarks refer mainly to conditions existing on the 7 Mc. band in Europe.

It may be of interest to readers to know that a scheme of this nature has been in force for a period of over six months in Australia, following regulation amendments. The probationary period applies to all bands, and runs for a period of six months. During that time the licensee is confined to telegraphic activity only. On the elapse of the time he applies for 'phone permission, which is granted only if the conduct of the station has been satisfactory, and if a certain number of two-way telegraphic contacts is in evidence according to the log. The applicant may be examined for telegraphic proficiency during a two-way test with a Vigilance Officer. It will be seen from this that Australia aims at a high standard of telegraphy operation, and there is undoubtedly method in what may seem to some to be red-tape regulation. It is well realised that in time of national emergency proficient telegraphists are likely to be of the utmost value to the Commonwealth, and if the amateur operator has neglected his key-work and can only use a microphone he is of little or no value at all.

Yours truly,

Don B. Knock (VK2NO).

TELEPHONY ON 56 Mc.

To the Editor, T. & R. Bulletin.

Dear Sir,—I have noticed that, during the last 18 months, there has been an increasing amount of propaganda in the T. & R. Bulletin concerning C.W. operation on 56 Mc.

It would appear that all concerned are firm in their belief that C.W. operation is the only satisfactory one. I have been active on the band for several years and I know from experience that 'phone operation is the only satisfactory method of doing experimental work.

I admit that amateurs who insist on using straight sets find C.W. easier to read than 'phone when signals are weak but this, to my mind, is a very one-sided way of viewing 56 Mc. It is true that for studying propagation, C.W. can be tolerated and may even prove to be superior to 'phone, but there are many other branches of 56 Mc. work which can only be properly studied using 'phone. The reason is that 'phone is essentially many times quicker than C.W. (for experiments, I don't mean the "UR R9 TNX QSO QRT" kind of stuff!) and where graphs requiring many points are needed, time is an important factor. Using C.W. it takes about a week (going hard every night) to fill up a single test sheet, whereas two or three sheets can be completed in an evening's 'phone work.

I would like to hear the views of these C.W. fiends because it is worrying to me to find everyone going "Morse mad."

I am not trying to say anything against stability and I thoroughly endorse the "Stability Drive" which has taken place in the T. & R. Bulletin during the past two years, but let's not confine our studies to propagation problems when there are so many other fields for experiments, such as couplers, standardisation of construction, interference by absorption, etc.

Yours sincerely,

Harry R. Heap (G5HF).

TELEPHONY ON 28 Mc.

To the Editor, T. & R. Bulletin.

Dear Sir,—In the November issue G2SA stated a very fair case for the C.W. man on the 14 Mc. band, but he omitted to mention that very similar conditions also obtain on 28 Mc. Recently the F.C.C. in America changed the Phone-C.W. allocations in this band to 28,000-28,500 kc. for C.W. and 28,500-30,000 kc. for 'phone, with the result that the comparatively small portion for C.W. is swamped by G's and other stations who do not seem to know that 28 Mc. 'phones are now at the H.F. end of the band.

During recent week-ends on 28 Mc. C.W. I have had numerous QSO's utterly ruined by high-power 'phones flopping right on top of weak C.W. DX stations. Surely the remedy is obvious. The U.S. amateurs are confined to specific frequencies for 'phone and get slated if they stray from these frequencies—why cannot the amateur bands be internationally allocated for C.W. and 'phone?

The Cairo Conference is here and I personally should welcome such a move, which could be made applicable to all amateur bands.

Crystals are not expensive these days and one extra crystal is useful anyhow, besides which the pure C.W. operators would then have some chance of a QSO uninterrupted by 'phone.

Yours faithfully,

G. McLean Wilford (G2WD).

(*Editorial Note.*—It is not the function of International Telecommunication Conferences to discuss details such as the division of amateur bands, but we would direct attention to the Editorial comments made, on page 95, August, 1937 issue, on the subject.)

CONTINUOUSLY VARIABLE C.C. OSCILLATOR

To the Editor, The T. & R. Bulletin.

Dear Sir,—It is a well-known fact that a low-powered crystal oscillator is capable of controlling and stabilising a very much higher-powered self-excited oscillator, an example of which fact may be found in the Goyder Lock system. A variation of this system occurs in any super-het. receiver. In the latter case the desired transmission, or input frequency, is mixed with a local oscillator to produce a fixed inter-frequency, which in turn beats with another local oscillator for the reception of C.W. when required.

From these two examples, it seems to be but a step further to produce a continuously variable crystal controlled oscillator, for, drawing a parallel with the super-het receiver, the input frequency becomes a low-powered crystal oscillator, the signal oscillator becomes a variable self-excited oscillator, and the inter-frequency becomes the output frequency, which latter, unlike the super-het. inter-frequency, is variable. It seems, therefore, that the problem of designing a continuously variable crystal controlled transmitter can be reduced to the problem of designing a super-het. type mixer with a variable inter-frequency output, which is not a very difficult matter.

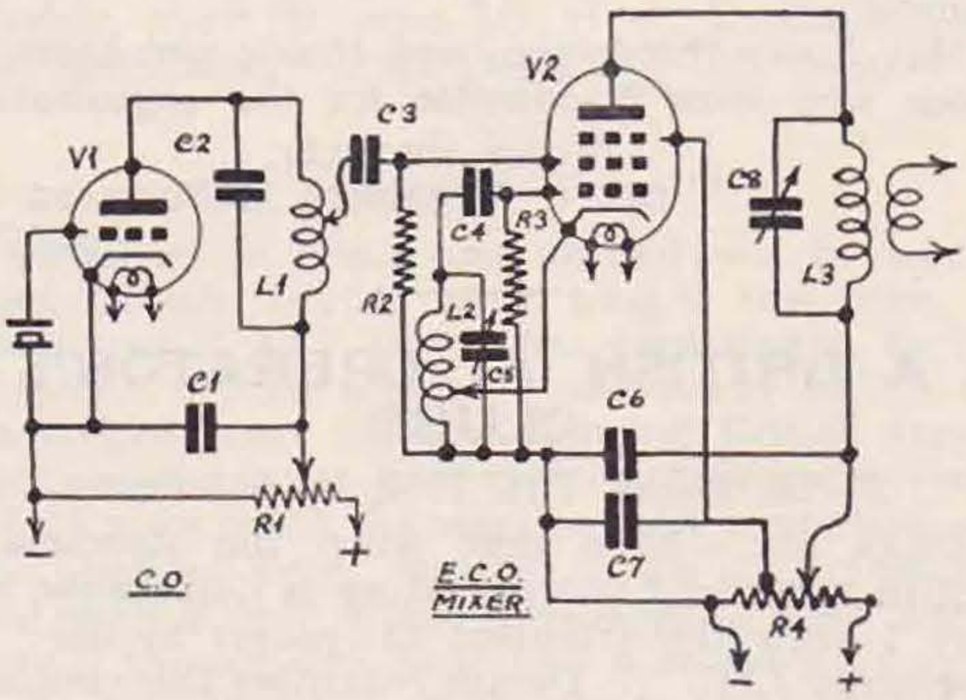
To continue, the parallel, the considerations, such as oscillator voltages, coupling systems, pulling of oscillators, etc., which apply to the super-het. mixer apply equally well to a continuously variable crystal controlled exciter unit for a transmitter. Further, if the ECO is isolated from the mixer valve by means of a simple triode, it would seem that this "isolating valve" could be modulated, because in a super-het. mixer, the input is modulated and the local oscillator unmodulated and the above modulation system would be but an inversion of this system.

The circuit suggests the form of such an exciter unit. I can see no reason for the system failing to work if the two oscillators are well screened and there is no locking.

I should be very interested to hear from other members as, so far as I am aware, there is no information or data available on such a subject.

Yours faithfully,

I. B. Clark (2BIB).



Continuously Variable Frequency Oscillator.

C1—.01 μF.
C2—As required.
C3—300 μμF.
C4—.0002 μF.
C5—As required.
C6—.01 μF.
C7—.01 μF.
C8—As required.
V1, 6C5.

R1—50,000.
R2—250,000
R3—500,000
R4—100,000.
L1—As required.
L2— ,,
L3— ,,

V2, 6K7.

OUR NEW CALL SIGNS

To the Editor, The T. & R. Bulletin.

Dear Sir,—I gather from G6WY's remarks in "The Month on the Air" (January, 1938) that the sins of the G8s are to be passed on to the newly licensed G3s.

This "G8 business" appears to have become an article of faith among the old guard whose call signs tally with their initials, but—would it be heresy to suggest that it has very little foundation in fact?

Comments passed on the subject at local district meetings indicate that G8s have been found, if anything, rather superior to the other denominations, and the "remarks" column of my own log tends to support this viewpoint.

In the last month or two I find special mention made of:—

G8AX: Copperplate fist at 30-35 w.p.m., and appeared to have a bit in hand at those speeds. Using bug and straight key.

G8FF: Bug
G8CJ: Straight key } Close seconds.

GM8PM: Not particularly fast, but good example of "T9X QSA5" station, and so on.

As no other "G" calls are mentioned, it may be that these stations attracted attention because they *were* fellow G8s, but they obviously had that little something all the same.

Incidentally, I quite agree that it is probably easier, and certainly cheaper, to produce a T9X note on 10 watts than on a hundred; but that doesn't materially affect the argument.

A little self-examination wouldn't do the hundred watters any harm.

So, to get back to the G3s—why not let 'em live until the proof of the pudding is forthcoming?

Yours faithfully,

J. G. Halley (GM8CF).

THE POWER QUESTION AND THE 1.7 Mc. BAND

To the Editor of The T. & R. Bulletin.

Dear Sir,—I was glad to read G2YT's letter in the January issue criticising my remarks on "The Power Question," and am pleased to see that my

letter has led to the discussion "Correspondence" is intended to encourage.

I agree entirely with 2YT's remarks upon the psychology of amateurs! Probably those with a 1,000 volt supply would not keep to 10 watts, but it is hoped they would at least hold a 25 watt licence! Probably it would be an excellent thing if 350 volts rather than 10 watts were the limiting factor for a "ten watt" licence—I for one would advocate that suggestion. But neither of these points have any bearing whatever upon the subject of my original letter, which pointed out that it is unscientific to state that there is any rigid relationship, upon fundamental grounds, between anode voltage and power. There may be a "rule of thumb" practical agreement, but I maintain that I can, if I wish, equally well employ ten watts at an anode voltage of 250 or 450 volts, and that of these two more practical figures I prefer the latter. I mentioned originally that 1,000 volts was merely an exaggerated figure by way of illustration, and I would like G2YT to criticise the main issue rather than the imaginary example.

May I make just a few remarks on "The 1.7 Mc. Band"? I also like to use this band for local working, in common with GW2WO and G5HS, and can do so on 'phone or C.W. without local complaints; but I am discouraged from its extensive use by three factors. One of these is a very high background noise level which seems characteristic of the London suburbs to-day, and makes contacts over the longer distances unpleasant. The second is QRM from broadcast station harmonics, trawlers, etc., which occupy much of the band during the earlier part of the evenings; and the third is the almost entire absence of signals from other ham stations! I cannot see much enjoyment in laboriously chatting to another G station through bad background noise on weak C.W., keen as I am on C.W. for DX, when I can enjoy four QSO's in the same time on 'phone. Most of the local 1.7 Mc. stations now come in almost as well on 56 Mc., and in my opinion this and the higher frequencies should be regarded as the future bands for inter-G contacts, free from and without causing undue QRM. I feel we could well exchange increased and assured facilities in the U.H.F. region for the use of the low frequency bands, which have lost their one time attraction. At the same time we should be advancing experimental knowledge of a less explored region.

Yours faithfully,
E. L. Gardiner (G6GR).

DOWN TO EARTH

To the Editor, T. & R. Bulletin.

Dear Sir,—In these days, when we are continually being reminded of the necessity to keep our aerials well above earth and above earthed objects, it is rather "refreshing" to know that I am using an aerial of 100 ft. in length which is *laid along the ground* in an approximate direction west and east from the house.

We have so often heard that "Necessity is the Mother of Invention," and it certainly was the Mother (or Father) of my earth aerial! My aerial mast having blown down, it occurred to me to try my luck along the ground, and I am now getting nearly as good results on the broadcast wavelengths as I previously did with my shorter aerial "up the pole."

It is much too early to give more detailed particulars except to say that during the first experiments the aerial *would not function in other directions* in which it was tried. I am apparently picking up wireless waves along the surface of the earth in an approximate west-to-east, or east-to-west direction. As stated, it is much too early to give any definite detailed particulars.

I have not yet tried it on the short wave-lengths.

I must say that there is no question of re-radiation from an out-door aerial or from the electric light mains, because there are none. Some distance away runs a railway line, but this hardly seems likely to have any bearing on the subject. In any case, I cannot remove it to find out!

I must also say that the stations can be tuned in the usual manner, and when the ordinary earth tube was disconnected the reception ceased.

Yours faithfully,
D'Arcy Ford (BRS1879).

To the Editor The T. & R. Bulletin.

THE "OLD-TIMERS" DINNER

Dear Sir,—May I congratulate you on the Editorial and the two articles by "O.T. Vintage 1926" and "Uncle Tom," which covered the "Old Timers'" Dinner in such an excellent way.

I should like to make one small correction in my reference to the periodicals used by pre-War amateurs, *English Electrician* should, of course, have read *English Mechanic*.

This latter paper was indeed our guide, philosopher and friend, and contained each week dozens of letters, many diagrams and replies to queries from those seeking and imparting knowledge in the art of wireless.

Those of us who were privileged to be present at the "Old Timers'" Dinner will look back upon it as one of the happiest evenings we ever spent—a great re-union of old friends with a common interest.

May I say thank you, and thank you again, to those who were responsible for the organisation.

Yours sincerely,
Leslie McMichael
(G2FG).

A BRITISH A1 OPERATOR'S CLUB?

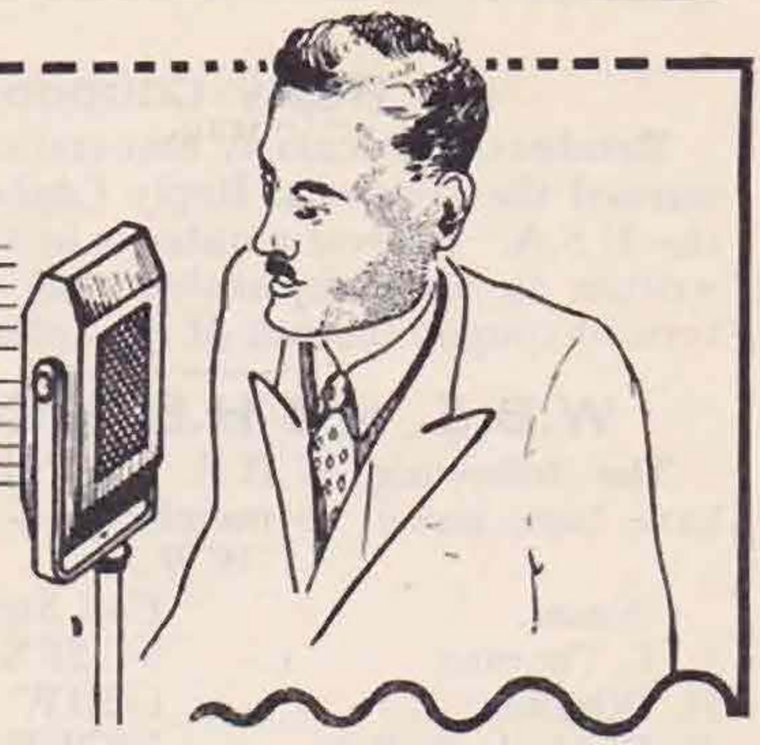
To the Editor The T. & R. Bulletin.

Dear Sir,—At a time when the standard of British amateur-band operating is deplorably low, may I draw the attention of readers to the "A1 Operators' Club"? Details regarding this club may be found in the A.R.R.L. Handbook, and while membership is international, I believe the number of British members is comparatively small.

Briefly, the object of the club is to encourage a high standard of operating in the amateur bands, and no doubt there is room for a similar organisation over here. There must be a considerable

(*Continued on page* 523)

HEADQUARTERS CALLING



Mr. E. D. Ostermeyer Honoured

The Council announce with the greatest pleasure that Mr. E. Dawson Ostermeyer, G5AR, Past-President, has been made an Honorary Member of the Society.

In conferring this high honour the Council recorded that it was made in recognition of the eminent services which Mr. Ostermeyer has rendered to the Society over a period of many years.

Headquarters on behalf of all members offer him heartiest congratulations.

I.E.E. Lecture

We are pleased to announce that Mr. Orr-Ewing, Managing Director of *Shaftesbury Microphones, Ltd.*, has accepted an invitation to deliver a lecture at the Institution of Electrical Engineers on Friday, March 25.

Mr. Orr-Ewing has chosen as the title for his lecture " Microphones, Microphone Amplifiers, and their application to Amateur Transmitting." A demonstration will follow the lecture, which will commence at 6.45 p.m.

Tea will be served free of charge from 6 p.m., whilst the I.E.E. will be open from 5 p.m. for informal discussions. It is hoped that a good attendance will be recorded.

The last meeting of the season will take place on Friday, April 29, when Mr. H. A. M. Clark, G6OT, will lecture on " High Definition Television."

" Uncle Tom "

Members at home and abroad will be sorry to read " Uncle Tom's " swan song in this issue. For years our " old " friend has contributed to these columns, articles which we confidently believe have proved of great value in keeping British amateur radio on the rails. Last year his *Soliloquies from the Shack* were voted the most popular contributions of the previous year. Written in his inimitable style, and with a very sound knowledge of the " average ham," the articles have had a world-wide appeal.

In recording sincere thanks to our " venerable " and anonymous contributor for his past services, we express the hope that he will, when his new business commitments permit, send us further articles which will gladden our hearts, tickle our palates and, maybe, cause our ears to burn !

Good luck, " Uncle Tom," and remember your nephews and nieces still think an awful lot of you.

The Helping Hand

Owing to pressure on space " The Helping Hand " contribution from Mr. Austin Forsyth, has unavoidably been held over. This will appear in our next issue.

H.B.E. Claims

Council have decided that for the purposes of the H.B.E. certificate contacts with Scotland (GM) and Wales (GW) shall not count as separate countries.

New D.R. for South Wales and Monmouth

Council are pleased to announce that Mr. Austin Forsyth, G6FO, of Newport, has accepted their invitation to succeed Capt. G. C. Price, GW2OP, as Representative for District 10. Capt. Price resigned in order that a D.R. living closer to the main centres of activity (Newport, Cardiff and Swansea) could be appointed.

Mr. Forsyth was the original No. 10 D.R. and relinquished his position on leaving the district some years ago. He has now returned to Newport after having done much to arouse amateur radio interest in North Devon.

Council are confident that under Mr. Forsyth's enthusiastic guidance District 10 will continue to make good progress.

DX Centenary Club

We would remind members that this is an A.R.R.L. Club and therefore all claims for the new DX Centenary Club certificate must be made direct to the A.R.R.L., 38, Lasalle Road, West Hartford, Conn., U.S.A.

Members submitting claims must send sufficient money to cover the return of the cards.

The certificate is awarded to those who can produce evidence of having worked at least 100 countries as shown in the A.R.R.L. List of Countries published in the January, 1938, issue of QST.

Letters to D.R.'s

Several D.R.s have again complained that they do not receive a stamp for replies to letters. We consider it is the duty of every member who writes to his D.R for information to enclose a stamp if a reply is required.

Reply Coupons

Members, particularly non-transmitters, are again warned that Imperial Reply Coupons are invalid in the U.S.A. Several amateurs in that country have written to us, complaining that they receive this type of coupon instead of the International coupon.

W.B.E. and H.B.E. Certificates

The following W.B.E. and H.B.E. certificates have been issued to members :—

W.B.E.

Name.	*Call Sign.*	*Date.*
L. J. Thomas ...	VU2FX	Jan. 5, 1938
H. Whalley	G2HW	,, 5 ,,
R. E. M. de la Pole	VS7RP	,, 6 ,,
G. H. Scarfe ...	ZU5D	,, 7 ,,
T. E. Wilson ...	G6VQ	,, 14 ,,
E. Zavadil	OK2HX	,, 14 ,,
F. C. Crocker ...	G2NN	,, 17 ,,
J. Etherington ...	G5UG	,, 19 ,,
Dr. Ing. Hans C. Deckel	D3BMP	,, 21 ,,
W. T. Pickard ...	G8KP	,, 22 ,,
T. O. I. Pick ...	G8GL	,, 24 ,,
J. E. A. Huschman	GM6HZ	,, 28 ,,
N. I. Bower ...	G5HZ	,, 28 ,,
P. R. Solder ...	G5FA	,, 28 ,,
V. H. S. Curling ...	G6VC	Feb. 10, ,,
G. Bussler	YM4AA	,, 12 ,,
W. E. Rice ...	W1IKT	,, 19 ,,
J. Lay	HB9BG	,, 12 ,,
L. A. Gray	G8LG	,, 22 ,,

28 *Mc. W.B.E.*

S. Riesen	G5SR	Jan. 7,	,,
F. W. Garnett ...	G6XL	,, 7	,,
J. Davies	G2OA	,, 14	,,
N. I. Bower ...	G5HZ	,, 28	,,
G. Bussler	YM4AA	Feb. 12	,,

Telephony. W.B.E.

A. D. Gay	G6NF	Feb. 14	,,

H.B.E.

Ing. O. Roberto ...	I1IR, I0016	Jan. 5	,,
M. G. Bourke ...	2AOU, BRS1784	,, 21	,,
G. Hutson	G6GH	Feb. 4	,,
R. J. Lee	BRS1173	,, 4	,,
O. A. F. Spindler ...	VU7FY	,, 8	,,
G. Bussler	YM4AA	,, 12	,,
V. de Robillard ...	VQ8AF	,, 16	,,

NEW MEMBERS.

HOME CORPORATES.

D. F. OWEN (G2BC), 18, Western Road, Flixton, Manchester, Lancs.
A. J. HALLETT (G3CQ), "High Beacon," Havering Road North, Havering-atte-Bower, Essex.
R. H. BAILEY (G3DJ), 5, The Cove, Rossall Beach, Cleveleys, Lancs.
J. C. PAYNE (G6DI), Porch Cottage, Salcombe, Devon.
E. S. PORTER (G8LQ), 191, Aragon Road, Morden, Surrey.
H. DOVE (G8MR), 10, Welbeck Street, Sutton-in-Ashfield, Notts.
R. J. PROCTER (G8PS), 7, Arncliffe Terrace, Romanby Road, Northallerton Yorks.
R. B. LEVER (G8QS), 7, Ernest Street, Prestwich, Manchester, Lancs.
J. M. ARBOTT (G8UL), 48, Sunny Bank, Hymers Avenue, Hull, E. Yorks.
A. ROEBUCK (G8VK), 6, Quarry Road, Crosland Hill, Huddersfield, Yorks.
B. WICKHAM (G8WM), 24, Broad Court Flats, Covent Garden, W.C.
R. P. ELLIS (2AFQ), 7, Manston Road, Heavitree, Exeter.
G. BIRD (2AIA), 25, Adair Avenue, Pendower, Newcastle-on-Tyne, 5.
F. V. HALL (2AWW), The Gas House, Wollaston, near Wellingborough, Northants.
A. J. HILL (2BLY), "Robin Hood," Catsfield, Battle, Sussex.
C. BROWN (2CBJ), Frondeg, Lon Gwynfryn, Sketty, Swansea, S. Wales.
B. ROBERTS (2CLZ), 212, Nether Street, Finchley, London, N.3.
W. A. MACKENZIE (2CTB), 99, Earlbank Avenue, Scotstoun, Glasgow, W.4.
R. BEAN (2CTQ), 10, Grafton Square, Wetherby, Yorks.
G. M. KING (2CVU), 51, Springfield Road, Millhouses, Sheffield, 7.
T. R. THEAKSTON (2DBK), "Westwood," Heslington Lane, Fulford, York.
T. J. EVANS (2DFX), 5, North Parade Terrace, Monmouth.
A. B. SULLIVAN (2DGF), 6, Worthing Road, Southsea, Hants.
D. E. MURRAY (2DGX), 40, Barkhill Road, Liverpool, 17, Lancs.
K. A. SAUNDERS (2DHX), Swan Street, Sileby, near Leicester.
C. E. COCKLE (BRS3196), Chalbury, Church Street, Highbridge, Somerset.
C. O. MORDAUNT (BRS3197), The Malting House, Foston, near Grantham, Lincs.
P. F. MCARTHUR (BRS3198), 66, Eglinton Crescent, Troon, Ayrshire, N.B.
A. J. DOLAN (BRS3199), 60, Walton Road, Chesterfield, Derbyshire.
H. R. WRIGHT (BRS3200), Sherwood, Cromford Avenue, Mansfield, Notts.
H. A. ORTON (BRS3201), 71, Market Street, Ashby-de-la-Zouch, Leics.
SIR MARK DALRYMPLE, Bt. (BRS3202), Newhailes, Musselburgh, Midlothian.
A. OWEN (BRS3203), Cartres, 3, Cawdor Road, Inverness, Scotland.
L. GROGAN (BRS3204), 77, Dublin Road, Belfast, N. Ireland.
H. W. POPE (BRS3205), 4, Gainsborough Gardens, Edgware, Middlesex.
A. L. CUSDEN (BRS3206) (now G3FB), "Clevelands," Eynsham Avenue, Bitterne, Southampton, Hants.
H. ROYLE (BRS3207), 113, Shaw Lane, Barnsley, Yorks.
A. M. PEGRUM (BRS3208), 41, Church Crescent, Finchley, London, N.3.
A. J. H. WATSON (BRS3209), 46, Friars Avenue, Friern Barnet, London, N.11.
R. ROBERTSON (BRS3210), 5, Horselethill Road, Kelvinside, Scotland.
M. KEATING (BRS3211), 32, St. Clement's Avenue, Leigh-on-Sea, Essex.
J. G. ROOKE (BRS3212), East Horsley Garage, Guildford Road, Horsley, Surrey.
F. A. NETHERCOTT (BRS3213), 17, Fox Hill, Upper Norwood, London, S.E.
G. A. CLAYTON (BRS3214), The Ferns, Winscombe, Somerset.
W. J. PORTER (BRS3215), 24, College Street, Worcester.
G. MUSK (BRS3216), 449, Central Drive, Blackpool, Lancs.
A. L. FARR (BRS3217), 26, Tamar Avenue, Keyham, Plymouth, Devon.
A. M. GELLATLY (BRS3218), 82, Princes Street, Dundee, Scotland.
F. G. GIBSON (BRS3219), 130, Caldwell Street, Liverpool, 7, Lancs.
S. FARLEY (BRS3220), 20, Constable Road, Felixstowe, Suffolk.
A. G. ASHFIELD (BRS3221), 164, High Street South, Dunstable, Beds.
S. WYBORN (BRS3222), Hillside, Woolthorpe Drive, Nottingham.
P. HOWARTH (BRS3223), 84, Larkhill Lane, Liverpool, 13, Lancs.
R. HARVEY (BRS3224), 138, Alexandra Parade, Dennistoun, Glasgow, N.B.

CALIBRATION SECTION

Crystals and frequency meters of the heterodyne type can be accepted for calibration and these should be sent *direct* to the Calibration Manager :

Mr. A. D. Day (G6NF),
156, Devonshire Way,
Shirley,
Croydon, Surrey.

Crystals should be enclosed in a small tin and securely packed to avoid loss in transit, whilst frequency meters should be packed in a wooden box or substantial cardboard container.

Return postage for crystals and frequency meters must be enclosed as stamps and not attached to the postal order. The Society cannot accept responsibility for any loss that might occur in sending apparatus for calibration through the post.

Calibration Fees

Crystals, 1.7, 3.5 and 7 Mc. types... 1s. 6d. each
Crystals, 100 kc. type ... ... 2s. 6d. ,,
Heterodyne frequency meters 5 points within the amateur bands ... 5s.
For each extra point at any desired interval 6d.

E. H. Page (BRS3225), "Enzeli," Hollyshaw Lane, Whitkirk, Leeds, Yorks.
R. W. Stuart (BRS3226), "Bordeaux," Ferniehill Road, Gilmerton, Edinburgh.
S. W. Allcorn (BRS3227), Leighton House, Holland Park Road, London, W.14.
W. Williams (BRS3228), 22, Trafford Road, Eccles, Manchester, Lancs.
P. H. Smith (BRS3229), "Harefield," Westerham Hill, Kent.
S. Angelo (BRS3230), 7, Orton Avenue, Rackhouse, Wythenshawe, Manchester, Lancs.
L. H. Pollard (BRS3231), 134, Green Lane, Edgware, Middlesex.
L. Joel (BRS3232), 31, Hillcourt Avenue, N. Finchley, London, N.12.
R. G. Bain (BRS3233), Eldenside, Peterculter, Aberdeenshire.
A. D. Anderson (BRS3234), 25, Hillside Road, Peterculter, Aberdeenshire.

Dominion and Foreign.

A. Banerjee VU2LL), P511, Aswini Dutt Road, Ballygunj, Calcutta, India.
R. C. Greene (W8PWU), 24, High Street, Avon, New York, U.S.A.
G. Bussler (YM4AA), Rimtottstr, 12, Danzig.
S. V. Kothari (BERS425), near G.P.O., Rajkot Civil Station (Kathiawar), India.
P. H. F. George (BERS426), H.Q., Posts and Telegraphs, Kuala Pumpur, Malaya.
R. E. C. Collings (BERS427), Wireless Experimental Section, Quetta, India, Baluchistan.
Rev. B. L. Handy (BERS428), St. Michael's Vicarage, Sallins, Co. Kildare, Eire.
W. A. V. Wilson (BERS429), *via* Nomentana 129, Rome, Italy.
J. H. Barrance (BERS430), British Legation, Athens, Greece.

R.S.G.B. Slow Morse Practices

Details will be found below of the slow Morse practices organised by the Society for those members wishing to learn or improve their code. As usual, test matter will be taken from recent issues of the T. & R. Bulletin. The page number and month of issue will be given at the end of each test—by telephony. A telephony announcement will also be given at the commencement of each test to assist those interested in tuning to the sending station. It is emphasised that reports will be appreciated and are desired, in order to ascertain useful range and numbers utilising the service. If, however, a reply is desired, a stamp should be sent. Additional stations commencing as shown in the schedule below are :—

G8RL, Mr. L. F. Woodhams, 90, Railway Terrace, Rugby.
G8JA, Mr. C. Hindle, 308, Wensley Street, Blackburn.
G8FA, Mr. E. J. Napier, 44, Crenmer Road, Hayes End, Middlesex.

As transmissions from GW6AA and G8RL will be confined to telegraphy, the following will be sent slowly at commencement of tests: "M.P.T., M.P.T., M.P.T., etc. . . . . (M.P.T.=Morse Practice Transmission)."

Will stations in areas not at present served offer their services to Mr. T. A. St. Johnston (G6UT), "Normandale," New Barn Lane, Little Hallingbury, Essex. (Telephone: Bishops Stortford 785.)

G8FA is continuing the schedule of G5JL as the latter is unable to carry on.

Schedule of Slow Morse Transmissions

1938.			G.M.T.	kc.	Stations
Mar.	22	Tuesday ...	1900	7169	G8RL
,,	22	Tuesday ...	1930	7137	GM8KR
,,	22	Tuesday ...	2000	7200	G8JA
,,	22	Tuesday ...	2030	1800	GW6AA
,,	22	Tuesday ...	2200	7184	G6UA
,,	23	Wednesday...	2215	7200	G8JA
,,	23	Wednesday...	2315	1741	Gi6XS
,,	24	Thursday ...	1900	7169	G8RL
,,	24	Thursday ...	1930	7096	GM8MQ
,,	24	Thursday ...	2000	1780	G8LL
,,	24	Thursday ...	2115	1930	GW5OD
,,	24	Thursday ...	2230	7184	G6UA
,,	25	Friday ...	2030	1800	GW6AA
,,	26	Saturday ...	2300	7145	Gi5QX
,,	27	Sunday ...	0930	1792	G8AB
,,	27	Sunday ...	0945	7155	Gi5UR
,,	27	Sunday ...	1000	7190	G8FA
,,	27	Sunday ...	1015	1920	G6VC
,,	27	Sunday ...	1830	7169	G8RL
,,	27	Sunday ...	2115	1930	GW5OD
,,	28	Monday ...	2315	1741	Gi6XS
,,	29	Tuesday ...	1900	7169	G8RL
,,	29	Tuesday ...	1930	7137	GM8KR
,,	29	Tuesday ...	2000	7200	G8JA
,,	29	Tuesday ...	2030	1800	GW6AA
,,	29	Tuesday ...	2200	7184	G6UA
,,	30	Wednesday...	2215	7200	G8JA
,,	30	Wednesday...	2315	1741	Gi6XS
,,	31	Thursday ...	1900	7169	G8RL
,,	31	Thursday ...	1930	7096	GM8MQ
,,	31	Thursday ...	2000	1780	G8LL
,,	31	Thursday ...	2115	1930	GW5OD
,,	31	Thursday ...	2230	7184	G6UA
Apr.	1	Friday ...	2030	1800	GW6AA
,,	2	Saturday ...	2300	7145	Gi5QX
,,	3	Sunday ...	0930	1792	G8AB
,,	3	Sunday ...	0945	7155	Gi5UR
,,	3	Sunday ...	1000	7190	G8FA
,,	3	Sunday ...	1015	1920	G6VC
,,	3	Sunday ...	1830	7169	G8RL
,,	3	Sunday ...	2115	1930	GW5OD
,,	4	Monday ...	2315	1741	Gi6XS
,,	5	Tuesday ...	1900	7169	G8RL
,,	5	Tuesday ...	1930	7137	GM8KR
,,	5	Tuesday ...	2000	7200	G8JA
,,	5	Tuesday ...	2030	1800	GW6AA
,,	5	Tuesday ...	2200	7184	G6UA
,,	6	Wednesday...	2215	7200	G8JA
,,	6	Wednesday...	2315	1741	Gi6XS
,,	7	Thursday ...	1900	7169	G8RL
,,	7	Thursday ...	1930	7096	GM8MQ
,,	7	Thursday ...	2000	1780	G8LL
,,	7	Thursday ...	2115	1930	GW5OD
,,	7	Thursday ...	2230	7184	G6UA
,,	8	Friday ...	2030	1800	GW6AA
,,	9	Saturday ...	2300	7145	Gi5QX
,,	10	Sunday ...	0930	1792	G8AB
,,	10	Sunday ...	0945	7155	Gi5UR
,,	10	Sunday ...	1000	7190	G8FA
,,	10	Sunday ...	1015	1920	G6VC
,,	10	Sunday ...	1830	7169	G8RL
,,	10	Sunday ...	2115	1930	GW5OD
,,	11	Monday ...	2315	1741	Gi6XS
,,	12	Tuesday ...	1900	7169	G8RL
,,	12	Tuesday ...	1930	7137	GM8KR
,,	12	Tuesday ...	2000	7200	G8JA
,,	12	Tuesday ...	2030	1800	GW6AA
,,	12	Tuesday ...	2200	7184	G6UA
,,	13	Wednesday...	2215	7200	G8JA
,,	13	Wednesday...	2315	1741	Gi6XS
,,	14	Thursday ...	1900	7169	G8RL
,,	14	Thursday ...	1930	7096	GM8MQ
,,	14	Thursday ...	2000	1780	G8LL
,,	14	Thursday ...	2115	1930	GW5OD
,,	14	Thursday ...	2230	7184	G6UA
,,	15	Friday ...	2030	1800	GW6AA
,,	16	Saturday ...	2300	7145	Gi5QX
,,	17	Sunday ...	0930	1792	G8AB

			G.M.T.	kc.	Stations
Apr.	17	Sunday ...	0945	7155	Gi5UR
,,	17	Sunday ...	1000	7190	G8FA
,,	17	Sunday ...	1015	1920	G6VC
,,	17	Sunday ...	1830	7169	G8RL
,,	17	Sunday ...	2115	1930	GW5OD
,,	18	Monday ...	2315	1741	Gi6XS
,,	19	Tuesday ...	1900	7169	G8RL
,,	19	Tuesday ...	1930	7137	GM8KR
,,	19	Tuesday ...	2000	7200	G8JA
,,	19	Tuesday ...	2030	1800	GW6AA
,,	19	Tuesday ...	2200	7184	G6UA
,,	20	Wednesday...	2215	7200	G8JA
,,	20	Wednesday...	2315	1741	Gi6XS

Rugby and "Queen Mary" Visits

Up to the time of going to press 21 members and friends had booked for the Rugby Station visit. This will take place on May 28 and will commence at 3.30 p.m. The party is limited to 30, therefore those who wish to be included are asked to apply *at once*. It is expected to arrange for tea to be provided in Rugby or a neighbouring place at a reasonable price.

* * *

Twelve members have made a reservation for the visit to the *Queen Mary*, which will take place on Easter Saturday, April 16. *The Cunard Co.* charge a fee of 5s. per head for inspecting the giant liner. Members who wish to be included in the party must advise the Secretary at once.

A special circular will be issued by Headquarters to all who book for these two visits.

* * *

25-Watt Permits

The attention of members is drawn to the notice published in page 444 of our last issue, wherein it was stated that those wishing to apply for 25-watt permits must obtain a special form from Headquarters. No member may apply for this facility until he has been licensed for a period of six months.

* * *

Pirate Operation

Council do not consider that any useful purpose is served by publishing (as separate notices) details concerning the illegal use of licensed call signs. All such information should be passed direct to the G.P.O. Radio Section, Armour House, London, E.C.1.

* * *

Technical Contributions

The Editor will be pleased to consider for publication technical articles from members. Those willing to assist are requested to communicate their suggestions to Headquarters before commencing the article. A circular of interest to intending contributors will be sent on request.

* * *

Replies to Advertisers

When writing to our Advertising Manager or to BULLETIN advertisers, members are requested to use their full name and address. Instances have occurred recently where only the call sign has been given, with the result that considerable inconvenience has been caused.

"World Radio"

The B.B.C. ask us to mention that in future two pages of technical articles will appear weekly in their publication *World Radio*. These articles will describe the methods employed by the B.B.C. in overcoming particular problems.

TRADE NOTICES

We have recently had the opportunity of putting on test one of the extensive range of Mains Transformers manufactured by *All-Power Transformers, Ltd.*, 8, Gladstone Road, Wimbledon. These transformers deserve the attention of all amateurs looking for a sound electrical and mechanical job. Robust and well designed to the requirements of the customer, they can be relied upon to give every satisfaction.

The particular model tested is designed to deliver 7.5 amps at 3 to 5 amps, an ideal transformer for use with American valves of the 7½ volt filament class. The transformer is built up around two castings slotted at the base for mounting. The windings are terminated in spun over terminals mounted on phenol fibre strips. Substantial cores and generous windings combine to produce a first-class transformer.

W. & G. Foyle, Ltd., 119, Charing Cross Road, London, W.C.1, have recently produced an exceptionally useful Radio Station Indicator based on London as the centre. The indicator which is on stiff paper, consists of a 16 in. diameter circle around the periphery of which is set out compass bearing numbered at every 10° of arc. Concentric circles are drawn out from the hub at Great Circle distances from 100 to 1,000 miles in 100 mile steps and from 1,000 to 7,000 miles in 250 and 500 mile steps. The position of each broadcast station is clearly shown, thereby enabling the user to measure its distance and true bearing from London instantly. The types of broadcast station, i.e., medium and short, medium and long, etc., are indicated by means of diagrammatic symbols. Nearly 250 stations are shown.

From an amateur point of view the indicator has many practical uses. The price is 1s. 6d. or 1s. 8d. post free. J. C.

The Editor has asked me to comment on the scheme announced in this issue by the *Phœnix Book Co., Ltd.*, whereby five textbooks are offered as a "library" which can be purchased, if desired, by instalments extending over 18 months.

It can be said immediately that the volumes offered are first-rate engineering textbooks in the radio field, and are not special books written for this type of library; each has established a reputation for itself. They represent really solid worth, and together should cover an enormous field of radio knowledge.

As Reviewer it is my duty to describe books and give my opinion on them: it is no part of my duty, nor is it the Editorial policy, to issue "blurbs" about books in this column. While this note is not a review, and perhaps is rather unusual, it is thought that members may wish guidance regarding the books offered. My quite unbiased opinion is that if the price suits their pocket they could go a lot further and fare worse than equip themselves with five books by well-known authorities.

T. P. A.

NOTES and NEWS from the BRITISH ISLES

DISTRICT REPRESENTATIVES.

DISTRICT 1 (North-Western).
(Cumberland, Westmorland, Cheshire, Lancashire.)
Mr. J. NODEN (G6TW), Fern Villa, Coppice Road, Willaston, near Nantwich, Cheshire.

DISTRICT 2 (North-Eastern).
Yorkshire (West Riding, and part of North Riding).
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. G. W. SLACK (G5KG), "Inglenook," Racecourse Road, Mansfield, Notts.

DISTRICT 5 (Western).
(Hereford, Wiltshire, Gloucester.)
Mr. J. N. WALKER (G5JU), 4, Frenchay Road, Downend, Bristol.

DISTRICT 6 (South-Western).
(Cornwall, Devon, Dorset, Somerset.)
Mr. W. B. SYDENHAM (G5SY), "Sherrington," Cleveland Road, Torquay.

DISTRICT 7 (Southern).
(Oxfordshire, Berkshire, Hampshire, Surrey.)
Mr. E. A. DEDMAN (G2NH), 75, Woodlands Avenue, Coombe, New Malden, Surrey.

DISTRICT 8 (Home Counties).
(Beds., Cambs., Hunts and the towns of Peterborough and Newmarket.)
Mr. G. JEAPES (G2XV), 89, Perne Road, Cambridge.

DISTRICT 9 (East Anglia).
(Norfolk and Suffolk.)
MR. H. W. SADLER (G2XS), "The Warren Farm," South Wootton, King's Lynn, Norfolk.

DISTRICT 10 (South Wales and Monmouth).
MR. A. J. FORSYTH (G6FO), 29, Stow Park Avenue, Newport, Mon.

DISTRICT 11 (North Wales).
(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire.)
MR. D. S. MITCHELL (GM6AA), "The Flagstaff," Colwyn Bay, Denbighshire.

DISTRICT 12 (London North and Hertford).
(North London Postal Districts and Hertford, together with the area known as North Middlesex.)
Mr. S. BUCKINGHAM (G5QF), 41, Brunswick Park Road, New Southgate, N.11.

DISTRICT 13 (London South).
MR. J. B. KERSHAW (G2WV), 13, Montpelier Row, Blackheath, S.E.3.

DISTRICT 14 (Eastern)
(East London and Essex.)
MR. T. A. ST. JOHNSTON (G6UT), "Normandale," New Barn Lane, Little Hallingbury, Bishops Stortford.

DISTRICT 15 (London West).
(West London Postal Districts, Bucks, and that part of Middlesex not included in District 12.)
MR. H. V. WILKINS (G6WN), 81, Studland Road, Hanwell, W.7.

DISTRICT 16 (South-Eastern).
(Kent and Sussex).
Mr. W. H. ALLEN (G2UJ), 32, Earls Road, Tunbridge Wells.

DISTRICT 17 (Mid-East).
(Lincolnshire and Rutland.)
Mr. W. GRIEVE (G5GS), "Summerford," New Waltham, Lincs.

DISTRICT 18 (East Yorkshire).
(East Riding and part of North Riding.)
Mr. W. A. CLARK (G5FV), "Lynton," Hull Road, Keyingham, E. Yorks.

DISTRICT 19 (Northern).
(Northumberland, Durham, and North Yorks.)
Mr. H. C. D. HORNSBY (G5QY), "Newlands," 105, Kenton Lane, Newcastle-on-Tyne, 3.

SCOTLAND.
MR. JAMES HUNTER (GM6ZV), Records Office, 51, Camphill Avenue, Langside, Glasgow.

NORTHERN IRELAND.
Mr. T. P. ALLEN (GI6YW), 62, Balmoral Avenue, Belfast.

NEW MEMBERS ARE CORDIALLY INVITED TO WRITE TO THEIR LOCAL DISTRICT REPRESENTATIVE.

DISTRICT 1 (North-Western).

THE D.R. thanks those who wrote in for N.F.D. stations, and he can state that the allocations are: Liverpool, Manchester, Blackburn and Blackpool. Particulars later.

Blackburn.—There was the usual good attendance at BRS3136 on Sunday, February 13, and thanks are due to Mrs. Illingworth. Discussions were informal, and a welcome was extended to several prospective members.

Activity, which is on the up-grade, is as follows: 2HW is building a rig of revolutionary design. 2PB is busy with new transmitter, receiver and aerial. 8JA now licensed for 1.7 and 56 Mc. 2AFA has new transmitter using 6L6 CO and 6L6 PA. 2CGKs new rig takes the shape of 47-46-10. 2DAD and 2DHJ are welcomed. Mr. Porter's new call is 2DJD. Congrats! BRS3134 applied for AA ticket. 2QN, 6BH, 8LZ, 2AQI, 2AQY, 2CRM, 2CSC, 3133, 3136 and 3172 are also active. The TR regrets the omission of the January notes which were posted to the District Scribe in good time. Probably a technical hitch occurred. In view of the intending departure of the present TR, G2QN, for warmer climes, 2CRM was duly elected to the vacant position. His address is 6, Ash Street, Blackburn, and he invites enquiries from prospective members.

(G6CX tenders his apologies for the omission of the January notes for which he accepts full responsibility.)

Bury.—Six members attended the first monthly meeting of the Bury Group held at the QRA of the TR, G2GA, and the meeting was voted a great success. These monthly meetings are to be continued, and visitors will be very welcome. The TR proposes to organise several local contests in the near future, and details will be given to members later.

A newcomer to the group is welcomed, Mr. G. Openshaw (BRS3008). G2GA has now erected a better aerial, but is still surprised at the results obtained with a short indoor wire. 3CJ is using very low power with a simple CO on 1.7 Mc. 8NF is busy with constructional work, and will be active

shortly on 1.7 and 56 Mc. 8NL, who is to be congratulated on the arrival of a junior op. is now working on 1.7 Mc., and experimenting with long feeder links between transmitter and aerial coil. 8QS has just finished a home-made "bug," so the TR thinks there will be some "queer sounds" on the air shortly! 2BGF now has the GI8TS receiver working with good results on both CW and telephony, and regards it as the best receiver he has yet tried of this type. BRS3008 is active.

Burnley.—G5ZN keeps a nightly schedule at 2115 with the local members, and many helpful experiments are carried out. 8UA is rebuilding, and off the air for the time being. 8TD is busy with a head-amplifier. The aerial at 2RB suffered during the gales. 5ZN is active on 3.5, 7 and 14 Mc. 8FI has been heard on 7 Mc. BRS3159 is now 2DKR. 2BFB is ready to apply for his full ticket. 2CVI and BRS2951 are active. Members are hoping that some of the local AA stations will join the Society very shortly.

Warrington.—It is some time since a report was received from this area, and the following notes are very welcome. G2DF is building a 28 Mc. transmitter, using 6L6, 6L6 and 2-210s in parallel for the P.A. He has just contacted CR7AY for 60th country, and suggests that the 'phone stations might have kept off during the B.E.R.U. contest, through whose efforts he lost ZL1CV. He wants to know why the band cannot be split! 8AF is working solely on 56 Mc., and is receiving the Preston Police transmissions consistently. (Anybody want a schedule, please?) 2CDC, who is building a transmitter, using 47, 46 and 46, can do 12 WPM, and is now awaiting G.P.O. test. He hopes to be an operator at this year's N.F.D. The TR would like a report from 8TR, and asks that all reports please be sent to him at 26, Pinewood Avenue.

Manchester.—Twenty-one members attended the last Manchester meeting. 2BDA gave a talk dealing with electrical symbols, and this was followed by a complete description of a crystal controlled 56 Mc. transmitter given by G6OM.

Next month G8NF will describe a push-push transmitter for 56 Mc., and at the May meeting a talk has been arranged by kind permission of *Belling & Lee* on Electrical Interference, which will be given by their representative, Mr. Perkins. Will members please keep this date open? Application has been made for this section to operate a station in the N.F.D. contest on 3.5 Mc.

The following stations report active: 2ARC, 3DC, 2BC, 2BDA, 8NF, 2PBJ, 5OZ, 5WR, 3AH, 8VU, 8PW, 8QS, 6OM, 2DH, 5YD, 5CH, 5HF (a new-comer to the district whom we welcome), 2OI, 2RA, 2AXH, BRS3174 and 3228, another new member to whom we also extend the hand of welcome.

Liverpool.—A record attendance of 30 members is reported for the February meeting, at which the N.F.D. films were exhibited with great success. Members are indebted to G8DI, who acted as projectionist, and the films aroused considerable interest.

No individual reports have been received, but most of the members are active. A few took part in the B.E.R.U. Contest, but all report little success owing mainly to QRM.

DISTRICT 2 (Yorkshire).

Sheffield.—Members are asked to note that the Provincial Meeting will be at York, on April 24, and a record attendance is anticipated. Progress is being made with the N.F.D. arrangements, and the station will be operated under the call G5HKP from a new site kindly loaned by this member. The following are active: G2AS, 2JI, 2JY, 2LT, 5HK, 5TO, 6LF, 8JP, 8KT, 8NN, 8RX, 8QX, 8KD and 2BXA. BRS2293 is now G3FN, and best wishes are sent to a new member, Mr. Appleby BRS2282.

Barnsley.—The Huddersfield members were welcome guests at Barnsley last month, when G2BH, 5KM, 5IV, 6XG, 5DW and 6PY were visited. A very enjoyable evening ended at 02.00 G.M.T., with a proposal by 5VD that the inter-town visit be an annual event. Congratulations to Mr. Royle, who is now BRS3207.

Leeds.—Will members please let the T.R. know if they intend being present at the Provincial Meeting at York, as it is hoped to arrange a party if sufficient support is forthcoming. Application is being made for the 3.5 Mc. station in N.F.D. for Leeds, and it is hoped all members will help to make the day a success. No reports are to hand for these notes, and have been missing for about the past six months. What about it, members?

Halifax.—An effort is being made by G5QS to link up other towns on 56 Mc., and stations in Leeds and Bradford have promised support. Two new members to the local society are G5DF and 2DGK. Active stations include: 5DF, 5QS, 8CB, 8GM, 8SJ, 2ABC, 2AKO, 2BHI, 2CKH, 2CMP and 2DGK.

Huddersfield.—G8OF, 8TM, 8VK and 8GU are welcomed to the membership. 5VD has built a 56 Mc. crystal controlled transmitter. 8VF and 2ALU report active.

Bradford.—Most stations are active, particularly on 1.7 Mc., on Sunday mornings. Congratulations to 2AZU, who is now G3FX, our first G3, and also our youngest member. He is operating on 1.7 and 7 Mc., both 'phone and cw., and would welcome contacts and reports.

NORTH-EASTERN PROVINCIAL DISTRICT MEETING

SUNDAY, APRIL 24, 1938

at

WINDMILL HOTEL, BLOSSOM STREET, YORK

Assemble	1 p.m.
Lunch	1.30 p.m.
Business Meeting	2.30 p.m.
Tea	5 p.m.

Inclusive Charge 5/-

Reservations to Mr. L. W. Parry, G6PY, 13, Huddersfield Road, Barnsley, not later than Wednesday, April 20.

DISTRICT 3 (West Midlands)

Birmingham.—No reports received this month, but all the usual stations are active. We are holding our Conventionette on Sunday, March 27, at the Hope and Anchor Hotel, Edmund Street, Birming-

ham. Assemble at 12.30, inclusive cost lunch and tea 5s. Please advise the D.R. if you wish to attend.

On February 8 a very interesting lecture was delivered by Mr. Quarrington, of Messrs. Cossor, Ltd., on the Cathode Ray Tube. The seating capacity of M.A.R.S. was so taxed that many had to stand for the duration of the lecture. A party of C.A.R.S. Slade Radio and many visitors thoroughly enjoyed the evening and all present expressed their appreciation to the lecturer.

Coventry.—Once again members in Coventry are asked to note a change in the meeting night of C.A.R.S., reverting again to Tuesday. It is hoped

FORTHCOMING EVENTS

Mar. 16.—District 6 (Exeter Section), 8 p.m., at Y.W.C.A., Exeter.
,, 16.—Scotland "H" District, 7.30 p.m., in District Club-room, Bank Street, Kirkcaldy.
,, 17.—District 6 (Torquay Section), 7.30 p.m., at G5SY, Sherrington, Cleveland Road, Torquay.
,, 17.—District 15 (West London Section), 8 p.m., at 2CMG, 70, Wormholt Road, Shepherds Bush, W.12.
,, 17.—Scotland "A" and "E" Districts, at 7 p.m., in Room 119, Natural Philosophy Section, Royal Technical College, George Street, Glasgow.
,, 18.—District 6 (Plymouth Section), 7.30 p.m., at G2HX, 1, Dean Park Villas, Plymstock.
,, 18.—District 12, 7.30 p.m., at The Orpheum Cinema, Temple Fortune, N.W.11. Talk by H. A. M. Whyte, G6WY, on "The Sins of Amateur Radio."
,, 18*—District 14 (Brentwood Section), 8 p.m., at 2CRJ, The Laurels, Worrin Road, Shenfield.
,, 21.—District 12 (Watford), 7.30 p.m., at G5RD, 71, Abbots Road, Abbots Langley. Talk by H. Gibson on "The Design of R.F. Chokes."
,, 22.*—District 14 (East London Section), 8 p.m., at 2DJI, 23, Mornington Road, Chingford, E.4.
,, 23.—District 14 (East Essex Section), 8 p.m., at G2SO, 14, Lindisfarne Avenue, Leigh-on-Sea.
,, 24.—District 15 (West London Section), 8 p.m., at 2DFJ, 259, Ladbroke Grove, N. Kensington, W.10.
,, 24.—District 10, Cardiff Hamfest, 7.30 p.m., Globe Hotel, Duke Street, Cardiff. Display of N.F.D. Films. Tickets 2s., from H. Phillips, 132, Clare Street, Cardiff, by March 20.
,, 24.*—District 13, 8 p.m., at Brotherhood Hall, West Norwood.
,, 25.—London Meeting at I.E.E. Commence 6.45 p.m. Tea from 6 p.m. "Microphones, Microphone Amplifiers and their application to Amateur Radio," by Mr. J. Orr-Ewing, Shaftesbury Microphones, Ltd.
Mar. 25*—District 15, 7.30 p.m., at G8MA, 43, Eversley Crescent, Ruislip, Middlesex.
,, 26.—District 16, 8.15 p.m., at A.C.S. Radio, Bromley.
,, 26†.—Irish Radio Transmitters Society, Convention in Dublin.
,, 28†.—Northern Ireland, Informal Meeting in Belfast.
,, 30.—Scotland "A" and "E" Districts, 7.30 p.m., in Room "A," Institution of Engineers and Shipbuilders, 39, Elmbank Crescent, Glasgow.
,, 30.—Scotland "H" District, 7.30 p.m., details as above.
,, 31.—District 15 (West London Section), 8 p.m., at BRS3052, 23, Auriol Road, West Kensington, W.14.
April 3.—District 7, 2.30 p.m., at The Tumble Down Dick Hotel, Farnborough, Hants.
,, 6.—S.L.D.R.T.S., 8 p.m., at Brotherhood Hall, West Norwood.
,, 6.—District 6 (Exeter Section), 8 p.m., at Y.W.C.A., Exeter.
,, 6*.—District 1 (Manchester Section), 7.30 p.m., at Brookes Café, 1, Hilton Street, off Oldham Street, Manchester. Talk by G8NF on "A Push-Push 56 Mc. Transmitter."
,, 7.—District 14 (Colchester Section), 8 p.m., at G8PZ, 19-21, Artillery Street, Colchester.
,, 7.—District 15 (West London Section), 8 p.m., at G6CO, 22, Chipstead Gardens, N.W.2.
,, 8.—District 8, District Meeting in Cambridge.
,, 10.—District 6 (Taunton Section), at Bristol Arms, Bridgwater.
,, 10.—District 19, 6.30 p.m., at G2LD, 4, Priors Terrace, Tynemouth, Northumberland.
,, 14.—District 15 (West London Section), 8 p.m., at 2CSD, 48, Fordwych Road, Shoot-up Hill, N.W.6.
,, 14.—District 10, 8 p.m., at Globe Hotel, Duke Street, opposite Castle, Cardiff.
,, 16.—Visit to s.s. "Queen Mary" at Southampton Docks. See separate announcement.

† The Secretary will be in attendance at these meetings.

* Sale of disused apparatus at these meetings.

that those members who found the Friday meeting inconvenient will welcome the change.

The following activity is recorded. G2LU and 2ZT rebuilt in preparation for the Junior B.E.R.U. Contest. 6YU has been heard on 3.5 Mc. 'phone. 8NJ is on 14 Mc. 'phone after moving his station from a shed in the garden into the house. 5PP is interested in a Jones "Gainer" which he has just built and from all accounts is "the goods." 5QN has had his aerial experiments hampered by the gales, one of his masts being laid low. 2JR and 6TZ make a welcome return to 7 and 14 Mc. 'phone, whilst 6TD, 2DK, and 5PP are to be heard on CW. The following are on 7 Mc.: 5HX, 8UX, 8FK and 5GR.

Shrewsbury.—Preparations well in hand for N.F.D. The transmitter is ready for testing. District activities include 2DAQ, busy with amplifiers. 2CJO working hard at the code; whilst G5YP has completed preparations for taking the air at new QRA.

DISTRICT 4 (East Midlands).

The D.R. thanks all members who so kindly expressed their concern in regard to his slight illness.

BERU seems to have been the chief interest this month and a large number of members have given their support to this contest. The stage is all set for the P.D.M., which will have taken place by the time these words get into print. The D.R. wishes to express his thanks to all members who have given their help to this endeavour and particularly to Mr. J. Lees (G2IO).

Northants.—2CTZ had the misfortune to break his leg, but he is now having plenty of time to swot morse and is taking advantage of it! He has managed to get his home-brewed super working on 28 Mc. with very good results. 2AFO is experimenting with 56 Mc. receivers, but suffers from lack of signals. He would be pleased to receive schedules from 56 Mc. transmitters. (Try getting in touch with G2WS of Ilkeston, G6CW of Nottingham and G6JQ of Leicester, O.M. They are very active on that band and will furnish you with their operating times.—D.R.) G5LP is active and has rebuilt the final, using a *Taylor* T20. He experienced trouble during BERU owing to bad phone QRM. Will G2DZ, 2ATO, 2CSH and 2CAX please report their activities as nothing has been heard from them for some time.

Mapperley.—Activity in this section is increasing and we are pleased to hear G6DS on the air again. G8UI is active on 14 Mc. and is conducting aerial experiments. At a meeting held at the T.R.'s (2ARN) only five out of a possible 24 members attended and as there is not sufficient support the project of having separate leaders for local AA and BRS members is being discontinued. A class for morse practice is, however, being held on alternate Sunday nights. (The D.R. wishes to make a special appeal to the AA and BRS membership to support these meetings.)

Worksop.—G8SD is building for 25-watt phone and hopes to be on 7 and 14 Mc. soon. G8ON is busy with aerials. Has applied for radiating permit for 28 Mc. and hopes to be active on that frequency shortly. He is also on 56 and 112 Mc. G8PO is busy with an aerial array. 2CAJ reports active and is taking out a full call shortly. All other stations are believed to be active, but more reports are requested, please.

Mansfield.—The next local meeting will be held at the Swan Hotel, Mansfield, at 3 p.m. on April 3. At the last meeting members from Huthwaite, Mansfield, Sutton and Warsop were present. The D.R. was unable to be present owing to the BERU contest. G8NS is erecting a beam aerial for 14 Mc. operation. He has worked I1NH on 7 Mc., using an input of 3 watts. G8OT has built an all-D.C. transmitter using D.E.5 valves with the filaments wired in series and supplied from the D.C. mains. BRS2777 reports reception of 56 Mc. signals from G6CW of Nottingham. (Good work, O.M., keep at it.—D.R.)

Ilkeston.—Local meetings have been organised by the T.R. (G2WS) and all members are asked to give their support. Activity on 56 Mc. is still being maintained and work on 112 and 224 Mc. is under consideration by G2WS.

Nottingham, Leicester and Derby.—It must be taken for granted that none of the members situated in those towns deem it necessary to report as no notes have been sent in this month. This fact is to be deplored, because it is only through these columns that members gain collective information of the entire activity of the District. Please try and do your best to send in reports of general interest.

District Meeting.—The next District Meeting will take place some time in April and according to the District calendar this should be held at Mansfield. Full details will appear in the April issue.

DISTRICT 5 (Western).

Reports to hand this month are very few and no apology is made for the scantiness of these notes. The District Meeting idea does not seem to have aroused any interest, and nothing is being done about it for the present.

At the February meeting in Bristol the D.R. announced that Cheltenham would take charge of the 14 Mc. N.F.D. station, G6LM (Chippenham) the 1.7 Mc. station, and Bristol would run two separate stations on 7 and 3.5 Mc. A general discussion about these two stations followed, and considerable progress was made with plans.

All members of District 5 are asked to make a particular note of May 15, on which date the West of England P.D.M. is being held at Exeter. Please make every effort to attend, so that No. 5 may be well represented. It is suggested that those attending join the party which is being made up from Bristol. The D.R. would like to be advised immediately of those proposing to make the trip, in order that suitable arrangements can be put in hand early.

DISTRICT 6 (South Western).

Torquay.—There was an attendance of twelve at the monthly meeting held at G5SY on Thursday, February 17. Those present were: G2CF, 5IF, 5SY, 6RF, 2BXU, 2CMF, 2CRL, 2CWR, 2338, 2339, 2649 and 2927. The chief item of interest was the demonstration of cathode ray gear by Mr. Cattell, a prospective member. The display was of very great interest, particularly as the apparatus was used to expose the shortcomings of the D.R.'s speech amplifier! We should like to take this

opportunity of recording our thanks to Mr. Cattell for a very interesting evening.

Local members all report active, and many are spending long hours trying to raise their morse speed. 5SY and 5GD continue their 56 Mc. skeds, but the D.R.'s 56 Mc. C.C. rig has not found any DX yet.

Exeter.—At the meeting on February 16, held at the Y.W.C.A., there was an excellent attendance of fourteen. Mr. D'Arcy Ford (BRS1879) gave a talk on his new detection theory, and this was naturally followed by a very animated discussion.

G2SH and 8QL are doing good DX on 14 Mc., the former with a new 132-ft. aerial. G2FP is mostly on 7 Mc. phone and getting excellent reports. G5QI will shortly be on the air on 28 Mc. with a T55, while G2MH is rebuilding. G5QA keeps up his sked with ZL2OU, having contacted that station 347 days out of a possible 365. (A wonderful performance, O.M.—Ed.) He is now WAC on phone. Morse classes in this area are still going strong.

North Devon.—The monthly meeting was held at G3BO on January 26, members present being G8US, 3BO and BRS3162, the latter being welcomed as a new member.

Congratulations to 2CHY, who has passed the morse test and now awaits her full call. G8US has had RF feed back trouble, which has wrecked his power pack. G3BO has just completed a new 1.7 Mc. transmitter, and a rack for all TX gear. G2ID and 3AM are rebuilding, while G6GM is busy with 14 Mc. BRS3162 is now awaiting for his three letter-call. His recently constructed all bands receiver is working successfully on 56 Mc. BRS2970 and 3081 report active, the latter having applied for his A.A. permit.

Plymouth.—At the meeting on February 18 a new member in BRS3181 was welcomed to the area. He is home on leave from India, and gave the members an excellent idea of conditions out there. There was also a discussion on how to learn the code, and morse lessons were proposed. 8HF is willing to give up time to help. Various other matters were also discussed. G2HX has now completed WAC on 28 Mc., and has also WAC several times since coming to the district. 2DDH has now come to the area and is very heartily welcomed.

Taunton.—There was an attendance of five at the meeting on February 13. The reason for the small number was probably the very cold weather. All members report active, and as soon as the weather permits there will be renewed activity on 56 Mc. BRS2782 is now 2DIQ. The T.R. would like to see more members from the Minehead area present at the meetings.

DISTRICT 7 (Southern).

The D.R. wishes to apologise for crediting the 56 Mc. demonstration mentioned in these notes last month to G6GR. The demonstration was given by G5RD. Sorry, OM.

The April meeting will be held at the Tumble Down Dick Hotel on Sunday, April 3, at 2.30 p.m.

Will Bournemouth and district members please note that owing to the late T. R. being at least temporarily out of the district, town representation has been taken over by Mr. R. P. Heatley (G5OH).

Guildford.—G6GS has done it again; his other mast came down in the second January gale. 6LK, working his unusual amount of DX, looked in on B.E.R.U. and worked a few. 8IX, now crystal controlling a T20 on 56 Mc., urgently requires reports. 8UG leaves 7 Mc. for the wide open spaces on 14 Mc. 5WP, scoring 853 points in Senior B.E.R.U., wishes to acknowledge the valuable and timely assistance of the Coupe de R.E.F. Contest! 2GK building new quick band changing TX; raised nice DX in OQ5 and K7. 8CV using 801 on 56 Mc. works 2OD, 2HG, and 6VA, but wants more skeds. Finds 3EDP best all band aerial.

Portsmouth.—At the February meeting of the South Hants R.T.S., G6NZ spoke on the "Measurement of Transmitter Efficiency." After pointing out the difficulties and errors to be allowed for, several methods were explained and practical results given. Incidentally, the overall ratio of mains input to aerial output will surprise many. Congratulations to 2DJF and 2DJY, formerly BRS. G3CN and 5XY are very active on 14 and 28 Mc. 8JB is trying new aerials. 8BD is on 3.5 Mc. chiefly. 2XC has worked 2OD, 5NF, and 8CV on 56 Mc. 8WC visited Chichester; he has blown his modulator. 8LO is set on 7 Mc. 'phone. 2CBL, 2AHA in receiving B.E.R.U. 2AWC reports new portable RX. 2ZR now deciding on flea power. BRS3182, now Cadet, R.N., reports a new RX. 6NZ still keeps to 28 Mc.

Reading.—At the February meeting of the R.T. & R.S. 19 members were present, including our two members from the local police force—2BFD and 2BGB. Many topics were discussed and suggestions for future meetings were forthcoming. It is with regret that we record the death at an early age, on February 8, after a very short illness, of Mr. M. V. Lovegrove, 2BVU, of East Hagbourne, Berks. A very likeable and cheerful amateur, always willing and eager to assist in matters regarding amateur radio. The R.T. & R.S. wish to record a note of appreciation to H.Q. for the new scheme of sending monthly general circulars to T.R.s. We feel that we are now more in active touch with H.Q. and can understand more fully the work and the difficulties with which our General Council have to contend. G8MG has a National 1-10 and is busy trying out his five-metre rig. G6GT is working on 28 and 56 Mc., using AA gear. G2IT, 2YB and 5HH active on 28 Mc. G2YB requires VK and S. America for WAC on same band. G2IT, 2YB, 5AO, 5HH, 5RT, 5TP, 6GT, 6KB, 6WO and 8MG all active on both 'phone and CW on 14 and 7 Mc. Most other members report active. G5HH has erected new aerial, and AA men still swotting code. We welcome to the district 2DIO, of Reading. A pirate station is believed to be active in Reading, and information would be welcome. The next meeting of R.T. & R.S. will be on Wednesday, March 16, at Y.M.C.A., Reading.

Reigate.—Reigate District held a discussion meeting, the chief topic being the starting of a local club to be known as the "East Surrey Short Wave Club." The T.R. would welcome QRA's of amateurs interested in this venture. G6JF between the times of working DX on 14 Mc., is rebuilding and "hotting up" his portable rig. Congratulations to G8HH, who is now WAC and WBE, and is experimenting with systems of keying

and filters in order to minimise clicks. G8MP has put aside Collins couplers, and since changing frequency on 14 Mc. has received many good reports from ZS and W, using a doublet fed by a parallel tuned 600 ohm. line. G8KI has erected a W8JK flat top beam, and is hoping for good results when fully lined up. G5LK, with the co-operation of G2MV, has erected an end fed W8JK flat top beam, and has already worked VK on 'phone and received 66dB reports from W. 2BGN is at the present moment engaged in a trip to South America for health reasons, and we wish him best results.

Bournemouth.—Bournemouth district really getting busy; three new men applied for AA tickets. G3BM already making a name for himself on 7 Mc. Has been trying various aerials slung between his 60 ft. masts, and the QRA looks like another Empire station.

G8KX rebuilding rig with 6L6, 809 and 860 as final. Has been getting good DX but now intends going all out for same. 5PB and 2NS active as usual and working DX at night. 2IH just got going on 7 and 14 Mc. and looking for reports on CW only. G5OH just completed new rig using 6L6G as oscillator, T20 as buffer or doubler, and 860 as final. Grid modulation using special high quality amplifier, and crystal ribbon microphone. Reports wanted on quality only. Will those active in the area get into communication with G5OH at his business address, 26, The Triangle, Bournemouth.

Croydon. — Several members joined in the B.E.R.U. Contest, and G6NF did some good work on 14 and 28 Mc. 2MV is still testing on 56 Mc. and has found the flat top beam a very fine aerial for this band, and speaks highly of the new Belling Lee 80 ohm feeder. He is about to rebuild the P.A. We welcome 2VZ to the district; he has joined the Tatsfield staff and will be on the air shortly and will be pleased to meet any hams (especially if they are gardeners!). 2KU and 5AN are preparing for the U.S.A. contest, and both have had good reports from FI8AC. 2KU would like to hear from local members interested in club field days. 2DN is getting out very well on 28 Mc., obtaining good reports from VU. 8TB has just built an excellent communication receiver ready for the DX season. 5XH and 5XW are active, and would welcome all amateurs at the Surrey Radio Contact Club meetings on the first Tuesday in each month at the Alhambra, Wellesley Road, Croydon.

DISTRICT 8 (Home Counties)

Almost a record for a monthly District meeting was achieved on February 4, when twenty members made up the attendance. Mr. Histed (BRS2882), speaking on behalf of the District Awards Committee, made known the result of the District Contest for the Granfield Trophy, the winner being Mr. C. Smith (G2UQ), of Peterborough, with a total of 21 points, which represents an excellent score when taking into consideration the poor conditions which prevailed. The trophy will be presented at our P.D.M., which takes place on July 10. (Note the date!) It was agreed to fix a different date for this contest next year, also to slightly modify the rules and method of scoring. It was decided to arrange for certain stations in the District to give weekly slow morse practice transmissions, details of which will be circulated to members later. [Please advise G6UT of details.—Ed.]

G5BQ has contacted his first W. (Congratulations, O.M.!) 5JO still trying to find why he does not get out so well as usual; suspects faulty aerial system. 5DR now putting out fine phone on 14 Mc. 2XV finds that the VK phones are again "in season" on 14 Mc. and make "nice grub" seasoned with a sprinkling of W6's. 2PL still active on most bands, but no report, this also applies to 5PU, 5DQ, 8SY, 6FL, 6WA, 8FF, 5OV, etc.

Bedford.—2MD is again on the air after a spell of trouble with exciter stages. 5PA, who is a new member, is getting good reports on his phone on 7 and 1.7 Mc. 6HB is now a qualified commercial operator and makes his first trip to VK shortly. 2AWH is plugging the key in readiness for test, having applied for full licence. 2CAP is rebuilding. 2BFN reports improving conditions on 14 and 28 Mc. and is practising the code.

Peterborough.—A meeting of local members was held at the QRA of G3DY for the purpose of discussing possible ideas for one of the N.F.D. stations in this area. 3BY and 3BK have already contacted VK and a new trellis mast is being erected at 3DY's. 2UQ continues to put out a fine signal on 7 Mc. phone. Congratulations to BRS2075, who has passed his morse test; he is one of the pioneers of radio in the town and was one of the very early holders of an AA permit. G2NJ is rebuilding but remains active on 7 Mc. 3175 has almost got his morse up to test standard and the collection of parts for the transmitter are nearly complete.

The Granfield Trophy won by G2UQ.

Will new members please note that the T.R. in your area is in office to give advice or help; he is there to help you to get as much as possible out of being a member. Keep in touch with him. The next District meeting will be held in Cambridge on April 8, unless members are notified otherwise. The business at this meeting will mainly concern N.F.D. arrangements. Will those members who wish to participate in this event, either as operators or helpers, make a definite point of attending this very important meeting, bringing with them details of what apparatus and camping equipment they are prepared to loan for this event? We were second last year, we have won it before, we will try to win it again—with *your* help.

[All N.F.D. details must be sent to H.Q.'s by April 1st.—Ed.]

DISTRICT 9 (East Anglia).

The District meeting held in Norwich on January 30 was well attended and very successful. Many subjects connected with the District were discussed and some very useful work done. It was decided to hold regular meetings in future at the rate of one every three months, at Norwich, Ipswich, Lowestoft and any fourth place that could be found—these meetings to take place at the above places in rotation. N.F.D. plans were

discussed, and it is proposed that the District enter this year. Full details will be published later.

Unfortunately, the D.R. was unable to be present owing to the after-effects of a severe dose of 'flu. G6QZ took his place in the chair. The meeting concluded at 7 p.m., after thanks had been offered to G8VW for the use of his QRA for the meeting.

Ipswich.—Five members attended the Norwich meeting, and undertook to operate a station on the 7 Mc. band for N.F.D. G2JD, 6TI and 8IS report good DX on 14 Mc.; 8MU reports schedules on Tuesdays, Thursdays and Saturdays with 6DH on 56 Mc.; 5UC is trying new transmitter on 7 and 14 Mc.; 8KB has received a report from BERS195 on his 7 Mc. in VK; 8AG is rebuilding his receiver and 2AN is still active on 7 Mc.; 2CWZ is practising morse and building a CO.FD.PA transmitter, and 2AGO is awaiting his morse test.

Norwich.—Mr. C. Thayne (G2UT) has kindly offered the use of a room over his shop for local meetings. These have been arranged to take place every Monday evening at 8 p.m., and so far have been very successful. Morse practice sets are being installed in order that newcomers may have a good chance of learning the code.

Local activity is now very high indeed, all seven transmitter members being on the air. G2UT is having remarkable success with 14 Mc. phone in the mornings; 8IY is doing similar good work on 28 Mc. with a new aerial; he is also experimenting with transceivers on 56 Mc.; 2MN is building various types of 56 Mc. oscillators and receivers; G5IX, unfortunately, had his mast, tree and aerials blown down in the great gale; he is now completely rebuilding ready for the new QRA; G6UA and 8VW are active on 7 Mc., whilst 5LW is busy with QRO on 7 and 14 Mc.; 6QZ has now erected a horizontal beam for 56 Mc., and is putting on S7 C.W. signal over to Lowestoft; phone is S 4/5. His signals are also S 2/3 at 8MU of Ipswich, and he has been heard in London.

Lowestoft.—G5QO is active on 14 Mc. C.W., and is trying a carefully erected W3EDP aerial on that band. He is also building a long-lines oscillator for 56 Mc. work. 8DD is still active on 14 Mc. C.W., and is also building a long-lines oscillator. 56 Mc. beam aerials are in the course of construction at both these stations.

Beccles-Bungay.—Congratulations to 2CRN and his wife on the arrival of the first junior op. 2CRY is busy learning morse and listening on 28 Mc. 2AFC is still collecting gear! 2CRT is grid modulating a T20, and has built the TRF receiver described in the January BULLETIN, with very good results.

From Haverhill BRS2299 sends the news that he is now 2DGP. He is making a start on transmitter construction. Good luck, O.M.! R. M. Bangay, of the R.A.F., Honington, is now licensed under the call G3DW, and would be glad to get into touch with other amateurs in the district. He is fully equipped for listening on 56 Mc., and will co-operate with any station on that band. His transmitter consists of a 6L6 tritet CO driving a 46 PA on 7 and 14 Mc. G8WI, of Orford, is now active on 7 Mc. C.W., with increased power. He has previously been very QRP, and would welcome contacts and reports.

District Meeting.—The next District Meeting has been arranged to take place at the Royal George Hotel, Colchester Road, Ipswich, at 3 p.m. on Sunday, March 27. All-in charge is 1s. 6d.—2s., and excellent car parking facilities are available. Kindly inform the D.R. of your intention to be present not later than March 21. The arrangements for this meeting have been made by the T.R. for Ipswich, Mr. S. G. Keeble (G2AN), and involve considerable work for all officers of the District. Will every member do his utmost to ensure a successful meeting by being present.

G5QO thanks the T.R.'s and others who have reported this month. Keep on with the good work, and the job of compiling these notes will become quite a pleasure.

DISTRICT 10 (South Wales and Monmouthshire)

My first duty in taking over as D.R. from GW2OP is to thank him on behalf of all members in No. 10 for the successful work he was able to do under extremely difficult conditions. The disadvantages of a remote QRA are not easily overcome, as members fully appreciated. Thanks are also due to GW5BI for his assistance with the notes.

Next, I want to thank members for their very kind welcome to me on coming back to the District, and their collective promises of support as the new D.R. It was a great pleasure to be at the three recent meetings and to see the activity and enthusiasm prevailing at these centres. In each case there was much useful discussion on R.S.G.B. affairs, and the following points have been settled: The four N.F.D. stations will be located at Blackwood (7 Mc.), Newport (1.7 Mc.), Cardiff (14 Mc.) and Swansea (3.5 Mc.). Calls and a list of operators will be given in the April notes; useful assistants are wanted for each station, apart from the key teams. While members will try and support the Western P.D.M. at Exeter on May 15, it is obviously a very difficult journey from South Wales, so that arrangements are in hand for a joint meeting with Bristol later in the year, at Weston. It has also been decided to try and improve co-operation in the District by using the L.F. bands more and arranging Conventionettes at convenient centres. The first opportunity in regard to the latter is the Cardiff Hamfest on March 24, when the N.F.D. film will be shown. We hope to see the Swansea people up for this, as it is always well supported by the eastern end. Full particulars from H. Phillips (2BQB), 132, Clare Road, Cardiff; the price will not exceed 2s., and advance booking is *essential* to comply with the law relating to private film shows. March 20 is closing date for this G6FO.

The D.R. attended the following meetings:—

Blackwood.—The very successful annual Hamfest on February 10, though not strictly on R.S.G.B. affair, was well supported by local members. GW8CT, 6BK, 2NG, 3AJ and 2BAQ are active in this area. All use 1.7 Mc., either wholly or partially.

Cardiff.—At the monthly meeting on February 17 those present were: 2BQB, 2CDM, 2CPA, GW2NG, 2XZ, 3AJ, 5AB, 5BI, 5WU, 8AM, 8UH, 8WU, G2JL, 6BK, 6FO, 8PU. 2BQB is launching the "News-Reel" as a local ham-sheet; expected circulation about 50, and articles are wanted. All members are active, chiefly with 7 and 14 Mc. phone, and some good DX ix recorded. We all look forward to having 5WU back on the air soon.

Swansea.—A very good meeting was held on February 24, attended by 2BQB, GW2SN, 2WO, 2UL, 3AX, 5BI, 5FI, 5KJ, 5LV, 5TJ, 5TW, 5ZL, 6GJ, 6JW, 6YJ, 8HI, 2JL, 6FO, and Messrs. Thomas, Brown and Duggan. The Swansea group are collectively active on all bands; inter-District QSOs are possible on 1.7 Mc., while on 56 Mc. 2SN and 2WO pursue their researches; 2UL and 5KJ also threaten action on this band shortly. Prior to this meeting, 2BQB, 2JL and 6FO had the pleasure of visiting stations 2UL and 5KJ.

Will the T.R.s kindly let G6FO have reports by the 20th of each month, without fail. The D.R. will endeavour to attend as many official R.S.G.B. meetings in the District as he possibly can.

DISTRICT 12 (London North and Hertford).

London North.—Attendance records were again broken at the February meeting, when 50 members were present. Discussion centred around National Field Day, when sites and volunteers for operators were accepted. In view of the encouraging attendances at the District meetings, it is felt that some form of social activity is desirable. To meet this need a District dinner has been arranged for April 22, details of which appear below. Tickets may be obtained through your local area representative, T.R. or the D.R., and it is hoped that everyone will co-operate to ensure an enjoyable evening.

2CXQ is now G3DT. G8TY is experimenting with a Windom and has worked his first W on phone with low power. G3AZ, using 6 watts, has now worked most of Europe.

DISTRICT 12 DINNER
at
THE SALISBURY HOTEL, HIGH STREET, BARNET
On FRIDAY, 22nd APRIL, 1938
7.30 for 8 p.m.
Followed by a Lucky Number Draw.
TICKETS 3/- from any of the A.R.'s, T.R.'s or the D.R. Members from other London districts cordially invited.

Watford.—The February meeting was held at Northwood, when the attendance showed an improvement. The usual topic of discussion was ultra H.F. work, but it was proposed that a series of technical lectures should in future be included in the season's programme. The first of these will be given by 2BUP on "The Design of R.F. Chokes" at the March meeting. The T.R. welcomes a new member, G8CK.

The D.R. would like to draw the attention of members to the existence of T.R.'s and A.R.'s, who have been appointed in order to ensure better co-operation between the various units of the District and to assist by keeping them posted with their current activities. A complete list of representatives appeared in the January issue of the T. & R. Bulletin.

DISTRICT 13 (London South).

Up to the time of going to press the D.R. has not received many offers of assistance for N.F.D. We would point out that the full list of station sites and official operators must be at Headquarters by the end of this month, and it is therefore essential that any person wishing to operate during the contest communicate with the D.R. at once. Certain offers have been received, but many more are required, and we would stress the point that transport is perhaps the most difficult matter to arrange. Anyone who can provide a car is urged to write in without delay.

It has been arranged to hold a full District meeting at the Brotherhood Hall on March 24. The agenda consists of a junk sale and N.F.D. arrangements. It is hoped that the usual generous support for the former will be forthcoming, as upon the result of this so much depends. Please make a special effort to bring along some spare gear for disposal and a fat pocket book!

Wandsworth Area.—G2RC is active with a new transmitter, whilst 2BNL has a new receiver working. No other reports have been received from this area.

Balham and Tooting Area.—G3DF is now active using a 6L6 tritet on the 7 Mc. band, whilst 3CU is also on this band and has been trying out some 'phone. 5PY is active and has had several W contacts on 7 Mc.; he hopes to operate occasionally from Herne Bay. 2JK built a 25-watt transmitter for B.E.R.U., but unfortunately ruined a tube. He is active on the 1.7, 7 and 14 Mc. 2UX is using 28 Mc. and finds conditions fairly good. He is using a 6L6 tritet 3.5 Mc. crystal, followed by a 6L6 28 Mc. doubler and RK23 final and has worked several Americans, although he reports that he cannot hear much of some of the DX he has heard being called! SU1SW, who used to be in this District, sends 73 to everyone *via* G5PY.

Blackheath Area.—G2ZQ has been spending most of his time recently at Daventry and several interesting amateur meetings have taken place. The operating staff at the Empire Station of the B.B.C. are starting an Experimental Society, to whom a radiating licence is about to be granted. Amateurs on the staff include G2DZ, 2YD and GM6LD, whilst G5YZ and GM6JX are seen occasionally. No QRM has been found on a simple receiver from the 50 kW. transmitters on all the short wave broadcast bands at a distance of about 100 yards. We wonder what will be the effect of the 19 metre transmissions on a superhet, as the frequency difference brings the image right in the 14 Mc. band!

G2YG is rebuilding and BRS3095 is anxiously awaiting permission to radiate. We congratulate 2AKK on passing his Morse test and hope to hear him on the air very soon. G8WO has had many QSOs and hopes to proceed with his experiments shortly. 2WV is active on 14 Mc.

A most enjoyable area meeting took place at G8WO on February 21. It was most encouraging to find the party numbered over 20 and, thanks to the very generous hospitality of Mr. and Mrs. Pond, a thoroughly good evening came to an end only too soon. We should like to record a very hearty vote of thanks on behalf of the area to our host and hostess.

Kennington Area.—G6AN reports active with 'phone on 14 Mc., whilst 3CI is on 7 Mc. 6HM has not reported for some months and nothing is known of his activities. BRS Roberts, who is now on H.M.S. Kempenfelt at Gibraltar, is listening

on the amateur bands when time permits. G2JB is active and has taken part in the Junior B.E.R.U. contest.

New Cross Area.—G5WG and 8GP are active and 5OA, who has apparently recovered from his illness, is back on 1.7 Mc. 2GZ is experimenting with push-pull circuits and would appreciate reports on his 7 Mc. CW signals. 2GZ suggests that in view of the difficulty of obtaining reports from stations would it not be a good idea if certain B.R.S. men took note of the various District stations heard during each month. What offers ?

Anerley Area.—A very interesting area meeting took place at the Brotherhood Hall on February 24. There was some discussion on both B.E.R.U. and N.F.D. No stations other than the T.R., G2LW, report this month.

In view of the District meeting which has been arranged there will be no area meetings during March. It is earnestly hoped that everyone will make an effort to attend and make the gathering a success. In conclusion, may we once more remind members that if they desire to take part in N.F.D. they must please inform the D.R. immediately, as after the end of this month it will be too late.

DISTRICT 14 (Eastern).

East London.—There was a good attendance at the February meeting held at G8AB, Loughton. The chief topic was N.F.D., and it is proposed to run a station, probably at Rookwood Hall again. A collection was taken to defray expenses, and will those members unable to be present, but willing to assist, send in their contributions and offers of help ? A junk sale will be held at the next meeting to be held at 2DJI, Chingford. Congratulations to BRS3082, now 2DJI. For the weekly slow morse classes arranged by 2CID—see February notes. G2ZZ reports that a pirate is using his call sign on the 7 Mc. band. G3AI, of Forest Gate, has reported, and wishes to help on N.F.D. He has contacted W1 on 7 Mc. All present at the meeting stood in silence for a minute to the memory of G8VQ.

Chelmsford.—G6LB hopes to run a 1.7 Mc. station on N.F.D., and offers of assistance should be made to him.

East Essex.—At the February meeting, held at 2CYC, there was an attendance of 17. As is usual for this time of the year, N.F.D. took prominence in the discussions. G5UK has kindly offered his portable transmitter, which worked so well last year on 7 Mc. The eagerly awaited Southend Radio Society D-F Field Days are approaching, and several members are building or " hotting up " their receivers in readiness. This year it is hoped to arrange a 56 Mc. D-F Field Day, and if this is successful, no doubt others will follow. It, therefore, remains for members to do all they can to make this a success by building D-F receivers for 56 Mc. More local stations have been active during the last month. G6CD has reappeared and is putting out good phone on 1.7, 7 and 14 Mc. 2KH and 2SO are doing well on 14 Mc., and 5XI is still doing the best he can without mains on 7 Mc. 2DDL and 2CYC have recently completed A.A. transmitters, and BRS2622 is building a 56 Mc. receiver. There are a number of members who have not been seen lately at local meetings, and of whom news is lacking. Please let us know what you are doing. A welcome is extended to BRS3211, of Leigh-on-Sea.

Brentwood.—Considerable enthusiasm is now shown in this area, the following reporting active : G2WG, 8RC, 2BJV, 2AUK, 2BNK, 2CRJ, 2DJB, 2ALX, 2CYW, 2BKT, 2ATU.

2DJB is a new AA call. BRS3131 is expecting his AA call. 2BJV awaiting Morse test for full call. 2CRJ completing CO PA rig using 6L6G and DET5.

It is hoped that as many as possible will make an effort to attend the meeting arranged for March 18. With increasing local activity it is expected to run regular monthly meetings in future.

DISTRICT 15 (London West, Middlesex and Buckinghamshire).

At the February meeting, when N.F.D. was discussed, it was decided to run on similar lines to last year, and providing the members are willing, the stations will be under the same call signs. The attendance at the meeting was about twenty and all present listened attentively to a fine lecture by Dr. Lemon (G2GL) on his experiments on 56, 112 and 224 Mc.

Don't forget to send along your subscription for the magazine if it has expired. In future all meetings within the District will be mentioned, together with details on " how to get there," so there should not be any excuse for members not knowing the way. T.R.'s and Secretaries of local Societies should notify G5JL of 15, Windsor Gardens, Hayes, of any events.

The City and Guilds College Radio Society have offered to send reports each month for inclusion in these notes and also invite members to their meetings, which are normally held in the College on Tuesdays at 5.15 p.m. On March 22 they are having a lecture on electrical recording by the *Decca Record Co.*

Reports are not so numerous this month and some T.R.'s have sent no news, probably due to getting nothing from the membership. This state of affairs is to be deplored and can only be remedied by members themselves.

Congratulations to ex-VP4TA, who is now G3DU, and to BRS3055, who graduated to 2DIY. Welcome to ex-VU2AG, who has joined the District.

West London.—G3BQ getting out on 28 Mc. and entered B.E.R.U. 3DU busy building. 6WN added a few new countries on 28 Mc. 8WR changed back to 7 Mc. and working telephony. 2CZV only had about three hours' sleep during the first week-end of B.E.R.U. 6CO using new super and 6L6. 2CMG doing well with morse. 2CSD using T20 in PA. 2DFJ testing 6L6 in final. BRS3074 sends another interesting log. BRS3147 applied for AA. BRS3052 awaits full call.

North-West Middlesex.—G6LJ lost mast during gale, but reports new super doing its stuff. 8MA had 'flu but worked a few. 2DIY has started on transmitter. *South Middlesex.*—G2NN says " No reports " but understands that 6GB has scrapped super and built TRF instead. 2CZG acquired convertor and getting going on A.C. *West Middlesex.*—G6WK off the air. 5JL active. 8FA on 14 Mc. CW. No others report.

DISTRICT 16 (South-Eastern)

We should again like to draw the attention of members to the fact that our full quota of T.R.s has not yet been appointed. Time is getting on,

and by the time these notes appear it will be middle of March, so do please get together and elect your T.R. as soon as possible if you have not already done so.

The following letter has been received from G2OJ, of Hove, and speaks for itself: "If the owner of the station which has been using the call sign G2OJP will apply to me, I shall be happy to send him his QSL cards!!" There is no reason to suppose, of course, that the pirate is in the District—we hope that he is not—but there have been dark tales recently of unlicensed transmissions signing calls already allotted, emanating from within Kent and Sussex, and we would appeal to everyone to do his utmost to stamp out this unfair practice. Persuasion and a friendly visit will often do more than high-handed action, but however the miscreant is approached, do your best to make him see the light and prevent the amateur bands being rendered more chaotic than they are already.

Ashford.—Will all local members please note that Mr. R. W. Wratten (G2JV), of 28, Tufton Road, Ashford, is continuing as T.R. for 1938, and reports should be sent or handed to him by the first meeting in each month. Hearty congratulations to Eric Lawrence (G2KJ), who is now an A.M.I.E.E. 8RK and 2JV are active on 1.7 Mc., the latter also on 7 and 14 Mc., while 6SY is off the air temporarily owing to power supply failure.

Medway Towns.—We are pleased to welcome Mr. J. E. Bryden (2BOL) to the position of T.R. He is at present busy building a special signal generator of a very flexible and accurate character. G6NU is right in the 56 Mc. DX news following his contacts with CN8MQ and OH7NC. Congratulations, OM, and may the good work continue! 5FN and 2AFT are also busy on this band, the former hoping to have 50 watts available in the near future.

Chichester.—The W.S.S.W. & T.C., which now has a membership of 30, has acquired permanent headquarters at Tangmere, and it is hoped to have the club-room open early in March. The Hon. Secretary, Mr. J. Williams, will be pleased to forward details to anyone interested in the activities of the Club; his address is HQ Flight, 43 (F) Squadron, R.A.F., Tangmere. All local stations are active. 2BBB has a T20 working as a PA on 56 Mc., while 5PF and 2BGH now have a 3-in. cathode-ray oscilloscope in operation.

Eastbourne.—A talk and demonstration on high-quality amplifiers was given by Mr. Penfold at the last meeting of the E. & D.R.S., and was much enjoyed by all. The following stations report active: G2AO (1.7, 14 and 28 Mc.), 3AT and 5BW (7 Mc.). The latter has just worked PY for his QRP WAC on this band. 3CX (14 Mc.), 8CP, 5IH, 2AVQ, 2BPB and 2CNO.

Gravesend.—On January 24, G5IL gave a talk specially for beginners, on his transmitter, taking each stage in detail. This is the first time the Chairman of the club has gone to the blackboard, and his discourse received an enthusiastic reception. On January 31, G8HK, deputising for 6BQ, discussed the Tritet and Jones Exciter On February 14. 5IL again had to fill the bill owing to the inability of the 362 *Valve Co.* to give their promised lecture on "R.F. Pentodes." He spoke on the subject of crystal gate receivers and their advantages, and otherwise for the reception of CW. G6PG is offering a trophy to be awarded to the member whose attainments on 56 Mc. are considered best, whether in the transmitting or receiving fields. He has also obtained a 28 and 56 Mc. portable permit for the Club. 2BDL's magazine is to hand, and the second number is of the same high standard as the first.

Tunbridge Wells.—Very little of interest to report, although all stations are active. G6OB hopes to join 2UJ on the little used 56 Mc. band soon. 2UJ gave a talk recently on his regenerative-RF receiver to the Tonbridge School Radio Society, and it is understood that the receiver at G8NO, the School station, is shortly to be remodelled to this design.

Whitstable.—The WRA meetings are still well supported. The next will be on April 2, when 5CI will speak on "American Valves for Amateur Transmission and Reception." Local activity is fairly high.

DISTRICT 17 (Mid-East).

Mablethorpe and Sutton.—G5BD brought his total countries worked to 100 with four new ones in a week. FI, FR, I7 and VP7. 5CY is active on 28 and 3.5 Mc. 'phone. 2AT (2FT ?—Ed.) continues his experiments with aerials and is working DX on 14 Mc. 5LL has returned to the District and is testing on 56 Mc. with a Lincoln station; he has worked W on 28 Mc. 'phone.

Lincoln.—H. P. Townhill, G5XL, has kindly offered to accept the position of T.R. for Lincoln. The latest call in this area is G2LX, who hopes to be active on most bands very soon. The D.R. and Scribe spent a very enjoyable day in Lincoln and discovered much unreported activity, but now a T.R. has been found it is hoped that this town will appear regularly in the notes.

Brigg.—G8AP is using grid modulation and has had some pleasing results; he continues to work plenty of W's on 28 Mc. and ZL and W7 on 14 Mc.

Holbeach.—A very welcome report comes from BRS2476, now 2DLC, who informs us that he is busy with code and hopes soon to be building his first transmitter. Has started well by installing a super-receiver and is now trying very hard for the H.B.E. certificate. Overseas members who have not sent him their QSL's please note.

Cranwell.—G8FC is not on 'phone at the present owing to a modulator rebuild and B.E.R.U. activity. 8PQ entered for the Junior contest. 8PI is active on 28 Mc. and is now W.A.C. 6TV is superintending the building of a new super 56 Mc. transmitter which should make itself heard when completed.

Horncastle.—We are extremely sorry to hear from G6GH, of Boston, of the illness of our old friend 2AAS and extend our best wishes for a speedy recovery.

Grimsby Area.—2AZH has again turned his attention to 56 Mc. 5GS is testing Beam aerials. 8VI is successfully operating on 14 Mc. The following also report active: G2QA, 2VY, 5GS, 5SX, 6AK, 6YN, 8CI, 8HD, 8JN, 8PV, 8VI, 2AZH, 2BXG, and 2BYS.

DISTRICT 18 (East Yorkshire).

Arrangements are now complete for the lecture by the Hull Corporation Electrical Engineer, J. N. Waite, M.I.E.E., F.I.F., on the "National Grid System," to be given on April 27, at 8 p.m., in the

Lecture Room of the Electricity Showrooms, Ferensway, kindly lent for the evening by Mr. Waite. It is hoped that all members will make a special point of attending this lecture, which we feel sure will be of interest to everyone for the lecturer's ability is so well known nationally to warrant him being chosen as a delegate to attend the World Power Conference early this year. We extend a cordial invitation to R.S.G.B. members outside the Hull district who may be able to attend and assure them of a pleasant and interesting evening.

G5MN is still searching for his lost DX for, after changing various gear and trying various aerials, he just cannot work any, but even now is optimistic. 5HA is rebuilding in readiness for his 28 Mc. permit. 2QO is experimenting with TPTG. 2AGK ran up a nice score in the Reception Contest. 2DJZ (ex BRS2847) busy testing CO, PA. Others active include G8IM, 2KM, 6OY, 6FQ, 5JD, 2XA and BRS1948.

DISTRICT 19 (Northern).

South Shields.—G6XO has been getting S9 on 'phone from South Africa. 8JO is rebuilding TX, and now using a re-vamped *Tobe* RX. 8AO has now a 6L6 oscillator, and finds it a great improvement. 8KK has been working VK/ZL on 14 Mc. 'phone, and now using 6L6s. 8IF is rebuilding, but finds the aerial problem a teaser. He says he is going "all-CW"!? 5SB is busy occasionally on 14 Mc. 8VV is in a new QRA, and thinks DX will be easier now. We are sorry to hear G5YO is indisposed, but wish him a speedy recovery. 5TG has built a S.S. Super, and is very active on 7 Mc. 5WZ has also built a S.S. Super, and is now active on 14 Mc. CW and 'phone. He is rebuilding 56 Mc. gear, and hopes to be active there again soon. 6VG is also active, and has joined the Aux. Air Force.

Newcastle.—Reports from this quarter are very scarce, as usual. G8SG worked U9 on 7 Mc. on QRP. He is busy erecting a new aerial. 2YY and 6UC are active, but no reports. 2BFA is swotting Morse, and has left the district for Leeds. 6YL has been active on 56 and 28 Mc., but on the former band only worked 5QY. Other stations known to be active, but not reported are: 5RI, 6IR, 2PN, 6YG and 2XT. The monthly meetings at Tynemouth continue to be well supported, and we hope this state of affairs will continue. We were pleased to have a surprise visit from W1IKT, who visited G5QY and 6YL.

Stockton.—G8CL is busy rebuilding the rig. 5XT is on 14 and 7 Mc. 'phone, and has a new *Tobe* receiver. 2FO has been active in both Senior and Junior B.E.R.U. contest. 6DR is on 7 Mc. 8OH is rebuilding rig, and is contemplating a new receiver. 8SP is tryin g out 6L6 crystal oscillator. 2CZO is very busy with a new CO-PA rig. Our congratulations to 2DGQ on acquiring his AA ticket. 2FO and 6ZT paid a visit to 5QY to discuss N.F.D. proposals and a proposed contest.

Northern Ireland

It is hoped that many GI's will be travelling to Dublin for the Ei Convention on March 26 and 27, at which our Secretary, G6CL, will be present. The Ei gang have our best wishes for the success of their venture.

The writer expects to bring "Clarry" over the "border" after the Convention and it is hoped to make arrangements so that Gi members will have an opportunity of meeting him. The scheme, as far as it can be stated at the moment, is that we have a spot of tea and a bit of "crack" in some central meeting-place in Belfast. So, will all who wish to attend send a P.C. to the D.R. or T.R. before March 23; they will then be informed by post of the final arrangements, but it seems certain that the date will be Monday, March 28, and the cost about 2s. per head. You might find space on the same P.C. to say whether you intend to participate in N.F.D. this year.

An outstanding feature in the current issue of *GIST*, the R.T.U. magazine, is a list of prefixes of the world arranged in alphabetical order of *prefixes*: which must have given the compiler, 6TB, a headache. Very useful for the shack!

Now about N.F.D.; the list of operators must be submitted earlier this year and it will be necessary for the D.R. to have the lists completed before March 25, so this must be the last intimation. By the time this appears the sites will probably be decided and the names of those in charge of stations. All Gi's who want to be present should inform the D.R. *immediately*, as no names can be added to the lists at a later date. An attempt is being made to arrange for four stations and it seems that the handicap suffered by Gi and GM will be considerably reduced by new regulations this year.

The following crystal frequencies should be added to your charts: Gi5ZY, 7190; Gi8WD, 7265; Gi5SJ, 7130 and 7128; Gi5UW, 7140; Gi8GK, 7050; Gi8UW, 7157 and 7294; Gi8PA, 7123, 7180, 7286 and 7140 kc. Gi8PA asks us to mention that he is now usually at the H.F. end of the 7 Mc. band.

Gi6XS was minus ZS for WBE during Junior B.E.R.U.; his new matched impedance aerial inspires confidence. Gi5ZY hoisted a W8JK flat beam, but his opinion was a shrug of the shoulders. Gi5NJ lets loose his old 14 Mc. DX signal from a new rig. Gi5MZ works all U.S. East Coast with 14 Mc. phone. Gi8PA tries CW on 14 Mc. but W is stubborn. Gi8UW has two half-waves in phase for new outfit under construction. Gi8WD heard with nice speech quality on 7 Mc. Gi5QX, using a Super-Pro and doing usual phone and CW DX. Gi2CC is a household word in U.S.A., for which a very efficient RK20A rig and two phased-half-waves may be blamed. Somebody told Gi5SJ to stick to CW; now he's got to—modulation transformer says so. But it pays, for he has now got that elusive PY and clicked K7 on 14 Mc. in the late morning when the band was full of G signals due to short skip. Gi5JN grid modulates parallel 6L6's into a 14 Mc. Johnson "Q." Gi6YW got into a hole this month; got out with difficulty, as it was 5 ft. deep and now holds about a mega-ton of concrete for the base of the new mast. Gi6TB and 2BFJ helped and turned a pretty spade.

Please do not forget those postcards before 23rd inst.

Scotland

As no doubt many members are aware, a big Convention is planned to be held in Glasgow this year in honour of the Empire Exhibition. The definite date is not yet fixed, but it will be the week-end of September 17-18. GM6ZV will be glad to

have any suggestions from members regarding the running of this event.

News is even more scarce this month than usual, but despite this apparent lack of activity, it is known that this is not the case. BERU is over for another year, and quite a number of Scottish stations are understood to have taken part, although no news of definite scores has been received at time of writing. The most popular event on the R.S.G.B. Contest calendar, N.F.D., is now coming nearer, and all districts are making preparations to take part.

" A " District.—The usual two monthly meetings were held in February, and at the second meeting a " Hat Night " was held, and was much enjoyed by the members present. Preparations for N.F.D. are now well in hand. Several stations in the district took part in BERU. Members are asked to note that the meeting on March 17 will be the last Thursday meeting this season. Of course, the Wednesday meetings will continue as usual for some time yet.

" B " District.—The district were well represented in BERU, GM5YN, 6BM, 6IZ, 8AT and 8SV being amongst those who took part.

" C " District.—N.F.D. arrangements are well advanced, and it has been arranged that the Crieff members will operate the 7 Mc. station. Meetings are being well supported. The district gave a " Radio Globe " to GM6RI, as a small memento on the occasion of his approaching marriage. A meeting has been held at Montrose, and 14 were present.

" D " District.—GM6UU has resigned as " D " District D.O., and Mr. S. W. Rowden (GM6SR) has been elected to the vacant office. The District is active, and meetings are being held fortnightly with satisfactory support. GM2BD, 5GK and 6XI are getting their share of DX, while 2ZN, 3BK and 5HL are active on 7 Mc. 'phone. 6SR is active on all bands, and would like some more co-operation on 56 Mc.

" E " District.—Mr. T. Paterson (BRS2319) is now GM3DP.

" G " District.—Fortnightly meetings are now held on Sundays at 7 p.m., in the " King's Temperance Hotel," Galashiels. 5FT and 8RV gave talks at a recent meeting which were much appreciated. 8NW is rebuilding transmitter, and 6RG is erecting new beam aerial, and is concentrating on 56 Mc., N.F.D. is being discussed and advance plans are settled.

" H " District.—Here, as in other districts, N.F.D. plans are well to the fore, and a trip has been made to the proposed site, and a reception test was carried out with favourable results. Mr. K. Fraser (BRS2666) is now 2DIT.

Egyptian Notes

The beginning of the past month saw the opening of the International Telecommunication Conference in Cairo. SU1RK most kindly made arrangements for one of his friends in Port Said to meet Mr. and Mrs. A. E. Watts on their arrival in Egypt. The writer, already being in Cairo, awaited the train which took them there, and extended a hearty welcome. Since then many R.S.G.B. members in SU have had the very great pleasure of their company. SU1SG, 1JM and 1WM were both delighted and honoured when the President of the R.S.G.B. presented them with a Society's badge. Unfortunately, from our point of view, by the time these notes are read, Mr. and Mrs. Watts will be home again in G. We hope that they had as pleasant a journey back as they had on their way out here.

True to forecast, conditions have made a welcome return to something more like normal. The 14 Mc. band has become very lively at times, and as a result, heavy QRM has been in evidence. Extreme eastern and western DX can now be worked at the appropriate times, although the W6 and W7 stations are not so good as they were last year.

It was some consolation to read in last month's BULLETIN that India is experiencing the same bad conditions on 28 Mc. as we have had here all through the winter. To us it is a very strange and annoying fact that countries so near to us as are ZC6 and SV should have had a very fair time on that band, whilst we have been literally starved looking for any signal outside of Europe.

QRN on 7 Mc. has not been quite so troublesome, but little DX has been worked. This may be due to the improvement noticed on 14 Mc., in consequence of which fewer stations have been active on 7 Mc.

Very little news of individual stations is available. SU1AM, 1RO, 1RD and 1WM continue the weekly schedules on Sundays on 7 Mc. 1AM has been active on and off, and has now turned his attention to the 14 Mc. band. His signals have been heard in fine style in Alexandria when a short skip has been on. 1RO is busy with constructional work. A rebuild of his 7 Mc. P.A. has already been made with noticeable improvement when operating on 'phone.

SU2TW has got his 'phone working on 14 Mc., and keeping schedules twice a week with G6CL in order to enable G6UN to have a few words with " Clarry." 2TW is still battling with the aerial problem. He prefers a transposed line, using Eddystone blocks to special Belling-Lee L.I. feeder. He is contemplating the use of either a director or a reflector with the half-wave doublet, and also intends to try a W8JK 2 section-4-element beam. A RK39 used as a B.A. is now in use, and is giving more drive to the final stage. His crystal has shown marked " rubber " qualities. On one occasion, when in QSO with the writer, he was at least 20 kc. off-frequency. As some means of controlling the frequency is now in use, it is suggested that efforts be concentrated in " compressing " the frequency rather than " stretching " it !

SU1SG has started to pull down his present rig. This is with a view to a re-build rather than to placing it in the Museum, as has been mentioned by a certain member ! His new line up is to be 59 ECO-807-805. SU1WM has worked three new countries in SV6SP, ZA1A (QRA given as Durazzo, Albania), and I7AA in Addis Ababa, from whom information was obtained that ST1AB, who had been active in the same part of the world, had returned to Italy. It is hoped that this will be of assistance to G6WY for his notes.

MX2B was heard in QSO with ON4AU on 7 Mc. but no contact made from this end. A separate transmitter for 7 Mc. and an exciter for the P.P. 807 ten metre rig is under course of construction.

SU1WM.

BRITISH EMPIRE NEWS AND NOTES

Australia (Queensland)

By VK4GK

The writer has been persuaded by the local members of R.S.G.B. to again act as B.E.R.U. Sub-Representative for Queensland, in succession to VK4AP, who wished to be relieved.

Conditions during the Senior Contest were distinctly poor. Several VK4s tried to run up a good score, but all dropped out before the end. Three hours before the finish, the 14 Mc. band went completely dead, and not a signal of any kind could be heard. The 7 Mc. band seemed to be full of European phone carriers. VK4YL made a total of 450 points filling up mostly on ZL, VK5-6, and G. contacts.

VK4ER has moved from Brisbane to Laidley. He will be missed at our local meetings. (Best of luck, OM, in your new business venture.) VK4UR attended the Sesqui-Centenary Celebrations in Sydney, thereby missing the Contest. VK4JL, 4HR, and 4JX are busy in their respective spheres. The former is a qualified pilot.

VK4KH will shortly possess an RME 69, which is being taken back by a friend from G. It is believed that this will be the first RME 69 to come into VK4.

British West Indies (Eastern Group)

By VP2AT *via* ON4FQ and GW5TW.

Conditions during February showed some improvement, but were not nearly so good as they were during the same period last year. H.M.S. *York* (GXRF) ran regular skeds with local amateurs during her recent visit to these waters. There is a new station in Trinidad.

Eire

By EI9D.

Even if, during the month, we had been QSO ZL on 112 Mc. 'phone, which, quite definitely, we have not, it would be news only second in importance to the following. Final arrangements have now been made for the Irish Amateur Radio Convention to be held in Dublin, of which preliminary notice was given in the November BULLETIN. The function, which will be the first of its kind ever launched in this country, will open under the auspices of I.R.T.S. at the Moira Hotel, Trinity Street, Dublin, at 6.30 p.m. on Saturday, March 26. Mr. Clarricoats has kindly accepted our invitation to be present, whilst we shall also have the pleasure of entertaining visitors from R.T.U. (the affiliated Society in GI) and from R.S.N.I.

It is confidently hoped that this occasion (a very special one in the annals of EI) will be enthusiastically supported by all interested in amateur radio, whether or not they are members of B.E.R.U. or I.R.T.S. and no matter where normally resident. Even if it is *not* convenient, be there, anyhow! Bring the YL, XYL or "not too junior" operator if you wish. All are welcome. Dinner, for which a charge of 5s. will be made, will be served at 7 p.m. and during the evening the I.R.T.S.'s B.E.R.U. trophy will be presented. Arrangements for Sunday, the 27th, embrace provision for informal discussion with visits to amateur stations and other places of interest. Further particulars and tickets may be obtained on application to Secretary, I.R.T.S., 23, South William Street, Dublin. It is specially desired that those intending to be present should apply as soon as possible so that full provision may be made to accommodate what we hope will be a record attendance.

Kenya, Uganda, Tanganyika and Nyasaland

By VQ4CRC.

There has been a slight improvement on C.W. since the last report was submitted, but European stations have not been coming through very well. VK and VU signals are improving, whilst North Americans can be relied on for good QSOs.

Before these notes appear VQ4CRE anticipates testing on 14 Mc. 'phone with a fairly high-powered rig. CRE would appreciate reports on his signals from G stations. VQ4CRI reports that during the first week-end of the B.E.R.U. Senior Contest G's were not plentiful and signals were mainly weak.

Malaya and Borneo

By VS1AA.

VS1AA hopes to be able to proceed on leave to G. in the near future. If the leave eventuates, 2AG has kindly consented to act as BERU representative.

In the BERU Senior Contest only VS1AI was heard working in Malaya. Entries from XZ, VS6 and VS7 appeared to be poor.

VS1AA's E.C. oscillator has passed the stringent test of BERU with flying colours. Some interesting tests have been held with VU2EO. The 28 Mc. band is very spasmodic, DX being poor. A few contacts were made with VU2 and VK during BERU. Cards are on hand for several members. Those who are not in credit, please collect.

It is understood that VS1AB has returned from leave, and that VS4CS has gone to Sydney.

Malta

By ZB1E.

The only report to hand this month comes from ZB1J, who has replaced his type 10 with a pair of T 20s in the final amplifier, which he states are giving excellent results and have brought good luck to the station, having raised XU8AG on his first call. All February activities, however, may be summed up in the words "BERU," to which every member had been looking forward.

In the Senior contest first week-end, poor conditions prevailed on all bands with a consistent short skip giving an R9 signal to all Europeans, with consequent bad QRM and no DX. In the second week-end, however, conditions were ab-

normally good on both the 7 and 14 Mc. bands, but very bad QRM was experienced from 'phones participating in the R.E.F. contest. The 28 Mc. band continued to be poor and G's only were audible.

The Junior first week-end provided the poorest conditions for months on all bands along with the worst weather experienced in Malta for many years. Zero hour was preceded by eight hours of rain with a rising wind which culminated into an 80-mile an hour gale half an hour after the contest started and, lasting for some hours, wrought havoc whilst torrential rains continued throughout the whole of Sunday. Among the blown-down poles and aerial mains were the ones which supply current to ZB1E's district! In the second week-end conditions improved but slightly on the 7 and 14 Mc. bands, while the 28 Mc. band remained practically dead.

Scoring in the Senior is believed to have exceeded the 500 point, but in the Junior it is not expected to reach the 400 mark.

ZB1E.

Northern India

By VU2LJ, *via* VU2EO, VU2LK and G2NN

VU2EO reports during last month conditions very good, even 7 Mc. gave DX signals. Tests have been made using two Zepp aerials, both in phase and also separately, *i.e.* by proper selection increased signals can be obtained in any direction. VU2FV now has a collection of aerials in Rugby fashion. He reports conditions poor during the first part of the Senior BERU test, due to local storm. 28 Mc. has been very lively, yielding an average of 20 contacts each Sunday. VU2LJ has also been bitten with the Aerial Bug. First a huge Bruce array was erected, but due to lack of time for matching, was scrapped, and a RCA Vee array, with legs 3 wave-lengths lon ; was put up. Stations have been worked in all directions, with average of one R strength loss in off directions when compared to a standard full wave Zepp, but a marked increase in the proper direction.

Note.—This report was also received *via* VU2EO and G5OV.

South Africa

Division Six.—South African amateurs took a great interest in the B.E.R.U. Senior Contest; more so, in fact, than previous years. These notes are being written prior to the running of the Junior Contest, and one gathers the opinion that this event will undoubtedly be as popular as the Senior.

Outstanding in this latest event was the vein of hearty good sportsmanship displayed on all sides. But who was the amateur who transmitted musical items during the peak hour of Australian incoming signals? We wish to pay tribute to the fellows with their low power, who obtained mighty few but precious points; stations which deserve commendation. Keen competition was evident, though many seemed disappointed with their showing; but we all agree that working in the Senior Contest afforded much pleasure—not disheartening work. We wonder how many in our Zone are optimists enough to predict correct results of the latest contest. The amateur has always been a visionary individual!

Members of the African Radio Research Union wish to thank the retiring Secretary and Treasurer, ZT6AQ and ZS6T, respectively, for their splendid work during the previous year. These honorary positions are now held by ZT6X (Treasurer) and ZU6V (Secretary). We also appreciate the work of our energetic Chairman (ZU6C), who has accepted the Chair for the ensuing year.

A new member and amateur is ZS6ER. His transmitter is a combination of the 2A5 oscillator and 210 power amplifier circuit. He will commence operations soon and we wish him luck in his "ham" career. ZT6AC and ZS6EN have both acquired RME-69 receivers. The former has been heard on 14 Mc. but EN has been silent. We believe one of his power packs has given up the ghost! ZS6EM and ZS6T keep regular nightly contacts on 14 Mc. ZT6AQ is active on 14 Mc. with a new aerial. Previous "ZT6AQ Aerials" have had feeders nearly as long as the tail of Haley's Comet!

ZS6C, 6AM, ZT6X and 6AD have been inactive. ZU6C has installed a pair of Taylor T20's in the final stage and the input is usually about 50 watts. ZS6Q is operating his telephony outfit on 14 Mc. and was heard calling a VU2 station. ZS6M, ZT6M and ZU6AD have not been heard. ZU6V has been on 14 Mc. and that's about all!

All correspondence should be sent to Box 4020, Johannesburg, not later than the 20th of each month.

ZU6V (now ZS6DZ)

Southern India

By VU2JP *via* VU2EO and G5OV

VU2FH is putting out a good phone signal. All except the 7th U.S.A. district have been worked since the New Year. He reports AC4YN active again and mentions that VS7GJ visited Bombay. A new call is that of VU2JL, the first VU lady amateur to be licensed. BERS 311 who has so ably supported the Budget, is now working under the call VU2EO and was heard on January 29 calling ZS5U on ten. His signals were 569 (modulated) on 14 Mc. at VU2JP. VU2JP has split his Eddystone rack into three parts to facilitate ease of adjustment. The 7 Mc. band has been producing W stations, but owing to a prolonged dry period and the possibility of rain in the near future, we expected this band would produce more QRN than signals in the tests.

Strays

Mr. G. G. Livesey (operator of FO3SRB at Gwelo, S. Rhodesia, during the period from 1927-1931), who is now licensed under the call G2LX, will be glad to contact his old associates in ZE and ZS. Transmissions will take place on 14,012 or 14,352 kc. between 1800-2100 S.A.S.T. Mr. Livesey is using a Collins type centre-fed aerial oriented due East-West.

Mr. T. H. Beaumont (G6HB) left England for a trip to Australia early in March. He will be operating a ship station aboard s.s. *Ulysses* and hopes to meet many VK amateurs during his travels.

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CONTEMPORARY LITERATURE—(*Continued from page* 484.)

FIXED-CAPACITY FINAL. (*Radio*, Amer., February, 1938.)

A description of a revolutionary amplifier employing link neutralising, no tuning condensers and no by-passes. The article is a record of a fortnight's tests of the link system of neutralisation. Many advantages over the old type of amplifier are claimed.

* * *

IMPROVED CONVERSION EXCITER. (*Radio*, February, 1938.)

Description of a unit which may be used as a frequency meter of high accuracy, as a straight crystal oscillator, or as a variable frequency exciter.

* * *

DYNAPUSH EXCITER. (*Radio*, February, 1938.)

A modernised version of the well-known straight pentode oscillator with triode doublers. Output at crystal frequency about 25 watts and about 20 watts from the doublers except on 10 metres, where the output is about 12-14 watts. Uses metal 6L6 as crystal oscillator, and 6L6Gs as doublers. By using 809's in place of 6L6Gs, approximately 25 watts on all banks, including 10 metres, can be obtained.

* * *

A HAM BAND SUPERHET. (*Radio*, February, 1938).

The article describes the design and construction of an eight-valve superhet with 1,500 kc. intermediates. No radio-frequency stage is used, the set being designed for alternative aerial or external preselector input to the first detector.

The design allows for operation on either battery, vibrator type, or A.C. mains unit power supplies, the set taking not more than 35 mA at 135 volts H.T. and 1.35 amp. at 6.3 volts L.T.

A 1,500 kc. crystal impedance link is used, and 6N5 eye indicator valve is incorporated, full details of design being given.

* * *

THE SWITCH BAND 2 RECEIVER. (*Short Wave and Television* (*Amer.*), February, 1938.)

The author describes a low cost two-valve receiver with band switching using home wound coils. A novel feature of the design is that the correct value of aerial coupling condenser for each band is included in the switching arrangement.

* * *

FORTY-WATT BAND SWITCHING EXCITER OR TRANSMITTER. (*Short Wave and Television* (*Amer.*), February, 1938.)

The article describes a three-valve combination using a 6V6G as crystal oscillator, followed by a 6L6 and one of the new 807s, and covering the 80, 40, 20 and 10-metre bands.

THE 56 Mc BAND (*Continued from page* 492.)

Twelve stations are active between the limits of 56.06 and 59.43 Mc. and are supporting a "Tri-State Network."

The single American log received at H.Q. was from W9NY and as mentioned at the commencement of these notes DX has been nil. However, as a point of general interest it is noticed that the log shows regular activity at such unusual hours as 0100, 0200 and 0300 daily. If that isn't trying hard for DX, well, what is ?

Accurate Reporting

In view of the increased activity and changing conditions, plus likely DX reports, it has been seriously suggested by H.Q. that all transmitters should include in their test transmissions a code word or group of three or four letters. The writer endorses this suggestion, and points out that if the selected code group is known only to the operator of the station concerned and changed each day, the chance of "flimsy" reports will be considerably reduced.

It is hoped that all stations will adopt this procedure.

New Radio Stamps

Members of the Society will find particular interest in the designs of two series of postage stamps which have appeared recently.

The late Marchese Marconi, for many years an Honorary Member of the R.S.G.B., was signally honoured by Italy's issuing a series of three stamps bearing his portrait. The great scientist's name is inscribed in the oval surrounding the portrait, while at the foot are shown the Arms of Savoy and Fascist emblems.

Even before these stamps appeared philatelists had a memento of Marconi's achievements; a stamp issued by Newfoundland ten years ago bore a picture of the Cabot Tower, where, in 1901, Marconi's receiver was installed for the first "Trans-Atlantic Tests."

Egypt was responsible for the other Radio stamps. They were issued to commemorate the Conference at Cairo, and the design is symbolic of the old order of things and the new. In the background can be seen the Pyramids of Gizeh and a Colossus, while

towards the front appear some telegraph wires and an aerial, possibly that of SUC.

The blocks illustrating these stamps have been kindly loaned by Mr. D. B. Armstrong, editor of *Stamp Collecting*.

M. W.

Call Books

The Spring edition of the Radio Amateur Call Book is due to arrive at the end of the current month. Members wishing to reserve a copy should do so promptly, as supplies are quickly exhausted.

QRA Section

Manager: H. A. M. Whyte (G6WY).

New QRA's

G2GA.—T. C. Platt, "Penrith," 64, Holcombe Avenue, Bury, Lancs.
G2JN.—J. G. Stonestreet, 1, Cambridge Flats, Cambridge Street, Rugby, Warks.
G2LX (ex FO3SRB).—G. G. Livesey, B.A., 2, Burton Road, Lincoln.
G2RU.—A. G. Hill, 42, Boundary Road, Hove, Sussex.
G2SQ.—G. J. Shorten, "Lynwood," South Road, Portishead, Som.
GM2TW.—H. Leishman, "Ashbank," Old Polmont, Stirlingshire.
G2XX.—F. Wilson, c/o S. A. Williamson, 47, Andover Road, Winchester, Hants.
G3AL.—J. O. Jones, 331, Mortlake Road, Ilford, Essex.
G3AM.—P. T. Beer, 4, Alexandra Road, Barnstaple, Devon.
GM3AR.—Jas. K. McDowall, 15, Ruthven Avenue, Giffnock, Renfrewshire, Scotland.
GM3BA.—T. P. Douglas, c/o Henderson, 10, Marchmont Street, Edinburgh, 10.
G3BF.—H. Palmer, "Kingsbury," Cumberland Drive, Hinchley Wood, Esher, Surrey.
G3BR.—S. T. Hall, 54, Ridgeway Drive, Bromley, Kent.
G3CC.—T. H. Eyre, "Kelso," Keyingham, near Hull, E. Yorks.
G3CN.—L. Hill, 9, Bapaume Road, Hilsea, Portsmouth, Hants.
G3CQ.—A. J. Hallett, "High Beacon," Havering Road North, Havering-atte-Bower, Essex.
G3CS.—R. A. Beaumont, 3, Elm Way, Ewell, Surrey.
G3CT.—Eric Cox, R.A. Mess, Woolwich, London, S.E.18.
G3DB.—E. A. Luckhurst (Sgt.), No. 3 M.Q. R.A.F. Station, Hawkinge, near Folkestone, Kent.
G3DF.—R. J. Bates, 5, Childebert Road, Upper Tooting, London, S.W.17.
G3DG.—H. E. Bettney, 131, Carlton Hill, Nottingham
G3DH.—Robert Sunter, "Lyndhurst," 26, Springbridge Road, Alexandra Park, Manchester, 16.
G3DI.—R. C. Fishlock, 96, Lower Hillmorton Road, Rugby, Warks.
G3DJ.—R. H. Bailey, 5, The Cove, Rossall Beach, Cleveleys, Lancs.
G3DL.—M. Brown, 40, Elizabeth Street, Ashton-under-Lyne, Lancs.
G3DN.—John B. Longridge, Rathlin, Mobberley, Ches.
GM3DP.—T. Paterson, 25, High Street, Carluke, Lanarkshire, Scotland.
GM3DR.—"H" District of R.S.G.B. in Scotland. (Operator GM8MQ).
G3DT.—L. R. Crawley, 22, Myddelton Gardens, Winchmore Hill, London, N.21.
G3DU (ex G6TR, VP4TA).—P. H. B. Trasler, 31, Vallis Way, Ealing, London, W.13.
G3DW.—R. M. Bangay, R.A.F. Officers' Mess, Honington, Bury St. Edmunds, Suffolk.
G3DZ.—M. A. Newman, 3, Cambridge Avenue, New Malden, Surrey.
G3FB.—A. L. Cusden, Clevelands, Eynham Avenue, Bitterne, Southampton.
G3FC.—K. H. R. Maynard, Largo, Camden Road, Bexley, Kent.
G3FD.—H. T. Brock, "Isis," 205, Walsall Road, Aldridge, Staffs.
G3FF.—Frank Bottom, Branksome, Lakes Road, Dukinfield, Ches.
G3FL.—R. W. Hunter, 87, Marlborough Road, Swindon, Wilts.
G3FN.—A. H. B. Cross, 51, Masefield Road, Sheffield, 2.
G3FQ.—C. H. Ashmore, 33, Winfield Street, Rugby, Warks.
G3GX.—B. H. Lagden, 9, Pollard Road, Whetstone, London, N.20.
G5PU.—A. T. Dobson, 45, Langham Road, Cambridge.
G6DI.—T. Dickinson, Porch Cottage, Salcombe, Devon.
G6GI.—H. W. G. Gillam, "Elettra," Oakdale Road, Knowle, Bristol, 4.
G6KB.—W. O. S. Greener, Newnham Hill, Henley, Oxon.
G6KQ.—W. A. Clemenson, 86, Fordwych Road, W. Hampstead, London, N.W.6.
G6MI.—R. Maynard, 131, Bloomfield Road, Blackpool, Lancs.
G6WL.—John W. Kyle, 77, Northumberland Park, London, N.17.
G6YD.—F. J. R. Taylor, 6, Sutcliffe Avenue, Radipole, Weymouth, Dorset.
G8IP.—Geo. F. Burrett, 23, Warfield Road, Hampton, Middx.
G8OM.—H. W. Bannister, 44, Elkesley Road, Welbeck Colliery, Mansfield, Notts.
G8PS.—R. J. Procter, 7, Arncliffe Terrace, Romanby Road, Northallerton, Yorks.
G8PW.—W. D. Manson, 6, Wigsby Avenue, Moston, Manchester, 10.
G8QT.—G. B. Boothroyd, "The Worsley Arms" Hotel, Hovingham Spa, near Malton, Yorks.
G8SN.—J. F. Barlow, 139a, Bates Avenue, Darlington, Durham.
G8TV.—E. H. Stares, 19, Dunton Road, Romford, Essex.
G8UL.—J. M. Abbott, 48, Sunny Bank, Hymers Avenue, Hull, Yorks.
G8WM.—Brian Wickham, 24, Broad Court Flats, Covent Garden, London, W.C.2.
2ABQ.—P. E. R. Coleman, "Norbury," 152, Lutterworth Road, Nuneaton, Warks.
2AIM.—C. E. Clarke, 106, Finchley Lane, Hendon, London, N.W.2.
2AJX.—J. D. McGirr, c/o Macintosh, 2, Cobblecrock Gardens, Alva, Scotland.
2BDA.—W. B. Bennett, 367, Chorley Old Road, Bolton, Lancs.
2BIB.—I. B. Clark, 222, Sydney Road, Muswell Hill, London, N.10.
2BRC.—R. A. M. Crust, 49, Racton Road, Fulham, London, S.W.6.
2CLP.—H. R. Boutle, 29, Old Church Road, Chingford, London, E.4.
2CMW.—J. F. West, 28, Broadway, Grays, Essex.
2CZV.—J. A. Speares, 57, Green Street, Park Lane, London, W.1.
2DBB.—F. Leamon, 5, Wellington New Road, Taunton, Som.
2DDC.—E. F. Lawden, 256, Stockfield Road, South Yardley, Birmingham.
2DFA.—A. L. Forge, 61, Pettycur Road, Kinghorn, Fife, Scotland.
2DFP.—John M. Lowe, 2, Fernbank Road, Undercliffe, Bradford, Yorks.
2DGB.—G. S. Woollatt, 252, South Lane, New Malden, Surrey.
2DGP.—Wm. L. Danes, 35, Withersfield Road, Haverhill, Suffolk.
2DGQ.—A. R. Donald, 77, Ashgrove Avenue, West Hartlepool, Durham.
2DHA.—E. L. Wright, Mill End House, Thaxted, Essex.
2DHD.—R. A. Watson, Birch Lodge, 45, The Avenue, Highams Park, London, E.4.
2DHF.—C. R. Stevens, 134, Berkshire Gardens, Palmers Green, London, N.13.
2DHH.—C. G. Ellis, 19, Melrose Avenue, Wood Green, London, N.22.
2DHL.—N. Coleman, 6, Asmara Road, West Hampstead, London, N.W.2.
2DHU.—R. Grimshaw, 285, Donegall Road, Belfast, N.1.
2DHW.—K. D. King, 97, Church Lane, Marple, Ches.
2DIB.—Geo. Oxton, 9, Rosedale Road, Tranmere, Birkenhead, Ches.
2DIQ.—A. R. J. Young, Othery Vicarage, near Bridgwater, Som.
2DIT.—K. M. Fraser, 6, McDuff Cres., Kinghorn, Fife, Scotland.
2DIY.—L. E. Tucker, 68, Borrowdale Avenue, Belmont Park, Harrow, Middx.
2DJA.—J. H. Palmer, 137, Randall Avenue, Cricklewood, London, N.W.2.
2DJB.—H. M. Tweddell, "Beltana," Chelmsford Road, Shenfield, Essex.
2DJH.—G. W. Fish, Lancaster Cotts., Northwold Thetford, Norfolk.
2DJT.—A. N. Smith, 26, Waterloo Road, Nottingham.
2DJY.—G. H. Lawne, 54, Kimbolton Road, Copnor, Portsmouth, Hants.
2DJZ.—R. Hailstone, 33, Etherington Road, Beverley High Road, Hull, Yorks.
2DKR.—J. R. Brierley, 39, Glen View Road, Burnley, Lancs.
2DKY.—A. S. Burt, "Hillcrest," Headswell Avenue, Redhill Heights, Bournemouth, Hants.
2DKZ.—Geo. R. Chiffey, 72, Charlton Lane, Charlton, London, S.E.7.

Cancelled: G6BU, G6PV, G6RR, GM6VU, 2ACG, 2ACN, 2AMZ, 2AXO, 2AZY, 2BBN, 2BGU, 2BIP, 2BKN, 2BNM, 2BOU, 2CDT, 2CDU, 2CFM, 2CFX, 2CIB, 2CKA, 2CLO, 2CNI, 2CRF, 2CUO, 2CVN, 2CXQ, 2CXR.

Ham Personalia

Mr. D. Price-Jones (G5SA), of Hatfield, left England early in March for a nine months' business trip to Hollywood, California. On his return "P. J." will explain the formulæ used for measuring input power in W6.

* * *

Mr. George Merriman (VS6AH) is returning from Hong Kong to England. We anticipate a lecture from him at early date on the part played by VS6 amateurs during the XU-J argument.

* * *

Welcome visitors to Headquarters have been Mr. H. C. Ashdown (VE2IO), Hon. Secretary of the very live Montreal Amateur Radio Club, and Mr. F. C. Clark (ZE1JS), of Bulawayo. Mr. Ashdown, who was in England on business, took the opportunity of exchanging ideas with our Secretary on many matters of mutual interest.

Mr. Clark's visit was made at the end of his recent leave period. He is now back in Southern Rhodesia.

* * *

Mr. J. G. McIntosh (VU2LJ), Northern India, B.E.R.U. Group Representative, returns to England on leave next month.

CORRESPONDENCE—(*Continued from page* 496.)

number of first-class G operators who are not members of the A.R.R.L. club, and the formation of a British club would be very beneficial.

British amateurs who are already members of the "A1 Operators' Club" could be foundation members and form an election committee. The rules as laid down in the Handbook can be applied when considering the eligibility of candidates, and membership would be a worthwhile distinction. It would be interesting to see what support, if any, is forthcoming for this proposal.

Yours faithfully,

R. B. WEBSTER (G5BW).

Extension of Empire Air Mails at Flat Rate

We wish to advise members that as from February 20 last, all letters for points between England and Malaya (including the following countries: Aden, Bahrein, Brunei, Burma, Ceylon, Egypt, British and French India, F.M.S. and U.F.M.S., Muscat, N. Borneo, Palestine, Sarawak, Seychelles, Straits Settlements, Tibet and Trans-jordan) were carried by air mail at the flat rate of 1½d. per ½ oz. Members who have occasion to send letters to these countries should take care to ascertain that the above weight is not exceeded, otherwise postage due fees will be charged on delivery.

Letters weighing more than ½ oz. should be suitably stamped.

* * *

In connection with the above we hope to make an announcement shortly regarding Imperial Reply coupons which at present enable the recipient to exchange the coupon for a stamp which will carry a reply letter by sea mail. BRS and non-transmitting members who may wish to send coupons to overseas amateurs in Africa and Asia would be advised to obtain information from their local Post Office.

TRADE NOTICES

Two neat additions to the extensive range of useful "gadgets" made by Clix have been received recently.

The first is a small combination switch-plug for use on a loud-speaker extension. Provision is made for switching in the extension speaker, and also for leaving the permanent speaker in circuit, or cutting it out at will. Full instructions are given with the component, and obviously the amateur will find many uses for it besides the job for which it is intended. The most surprising thing about this item is the price, which is 1s. only.

The second accessory is a small Octal valve cap connector with insulator, priced at 1½d. The method of connecting the lead is particularly neat, and obviates the nuisance of a grub screw, which has a knack of losing itself so easily. The clip screws into a small ebonite shank, the lead being passed through a hole in the side, and the action of screwing the two together grips the wire in a positive manner.

A. O. M.

We learn from the American journal *Radio* that Mr. John Hunter (G2ZQ) is to marry on April 2.

Good luck, John and Jane.

EXCHANGE AND MART

(Continued from Back Cover)

R.I. ADJUSTABLE HEAVY DUTY 40/15H to 27/23H, 200 M/A, 15/-. Harley Microphone, suspended in Bakelite case, with Transformer, Switch and Pilot Lamp, 40/-. G.P.O. Double-action Siemens Relay with Brass Cover and Glass Top, 20/-. Mullard D.O.24 (unused), 15/-. Ferranti D.C. Voltmeter 0-25v., 200 ohms., per volt 15/-. Three Ferranti A-F3 Shrouded Transformers, 3/6 each. Wearite Class "B" input and output Matching Transformers, together with Mazda PD 220 Valve, almost new, 17/6. Ferranti Push-pull output Transformers, Type O.P.M.1 (c) and A.F.5 (c), 17/6 the pair.—GM5YG, 31, Lubnaig Road, Newlands, Glasgow. S.3.

TOBE COMMUNICATION RECEIVER, £13. Factory-built 25-watt Modulator, gain 110 decibels plate and screen modulation or ordinary receivers, power supply 350 volts 120 mils.—G5NY, 3, Myrtle Terrace, Bilston Road, Ockerhill, Tipton, Staffs.

TOBE Ham Band Super, glass tube model with Speaker. Carefully aligned and peaked. £8.—G5WP, "Milestones," Mayford, Surrey.

TWO BARGAINS AT £5 EACH. G.E.C. Overseas 7 Superhet, 12-550 metres (no gaps), complete in Bakelite Cabinet, with Valves and M/C Speaker. Eddystone "All-Wave Four" (as new) in cast Aluminum Cabinet, complete with Valves and Coils for 10 to 160 metres and medium wave broadcast.—J. HANSON, 77, Siddeley Avenue, Coventry.

WANTED, National S.W.3, preferably 230 volt A.C. input. Good offer.—G8HA, Green Gates, Burwood Park, Walton-on-Thames.

WEBB'S RADIO offer a very limited quantity of Second-hand and Shop-soiled Communication type Receivers, including one RME-69, Hallicrafter Sky Chiefs, Buddy and Challenger.—Write or call for full details, WEBB'S RADIO, 14, Soho Street, London, W.1.

URGENTLY REQUIRED.—Morse Code intruction. Southall, Middlesex, district.—Full particulars to Box 9, "Parrs," 121, Kingsway, W.C.2.

Patents and Trade Marks.

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