# R.S.G.B Bulletin

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

Vol. 32 No. 10 APRIL, 1957 Price 2/6 Monthly

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Plate-and-screen modulation, up to 100%.

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10-m-band (28.0 to 29.8 Mc/s); 11-m-band (26.4 to 28.1 Mc/s); 15-m-band (20.6 to 22.0 Mc/s); 20-m-band (13.8 to 14.6 Mc/s); 40-m-band (6.95 to 7.5 Mc/s) and 80-m-band (3.5 to 4 Mc/s).

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2nd = 467 kc/s.

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**Image Rejection:** better than 50 db for all frequency ranges.

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PRICE **£83** complete

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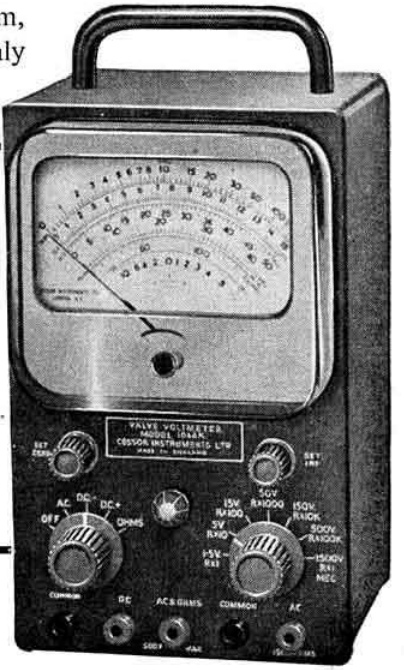

## Model 1044K Valve Voltmeter Kit

*Brief Specification*

**D.C. Voltmeter** 7 ranges: 1.5V-1,500V Full Scale

**A.C. Voltmeter** 7 r.m.s. ranges: 1.5V — 1,500 Full Scale.
7 peak-to-peak ranges: 4V—4,000V Full Scale.

**Ohmmeter** 7 ranges: Allowing resistance measurement from 0.1 ohm-1,000 megohms

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# R.S.G.B. BULLETIN

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**EDITOR : JOHN CLARRICOATS, O.B.E., G6CL**
**ASSISTANT EDITOR : JOHN A. ROUSE, G2AHL**
EDITORIAL OFFICE : RADIO SOCIETY OF GREAT BRITAIN
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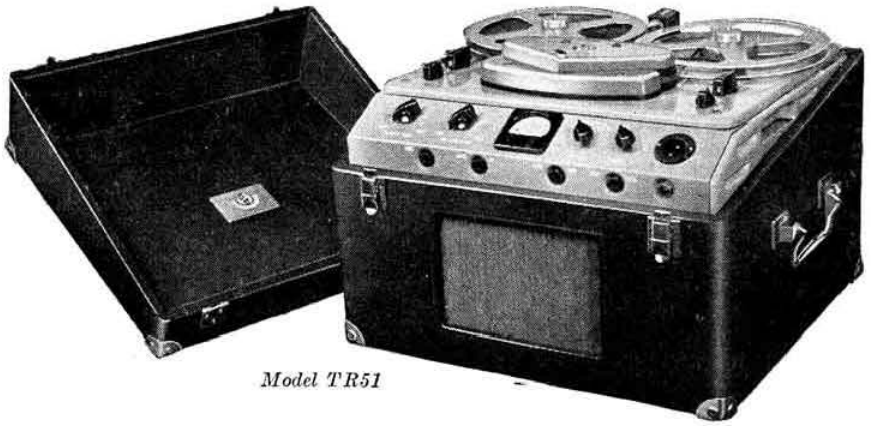
# E·M·I INTRODUCE A *NEW* TRANSPORTABLE RECORDER



*Model TR51*

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  *(Reference level 1 Kc.)*
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# *Current Comment*

## *Thirty Shillings*

ACTING upon a recommendation from the Finance and Staff Committee, the Council decided at its March meeting to make the subscription for Home Corporate members thirty shillings a year as from July 1, 1957.

One deliberately avoids using the phrase " to raise the subscription " in view of the fact that the subscription has been theoretically thirty shillings under Article 19 of the Articles of Association which were approved by the membership more than three years ago.

The Council has delayed the implementing of Article 19 for as long as possible, but rising costs have at length compelled the uplift from the 27/6d. at which the subscription has been held for the last three years.

Now more than ever it is incumbent upon the Governing Body to do all in its power to ensure that members receive full value for their subscription. To this end stringent economy is being exercised in a variety of respects. For example, to mention only two, BULLETIN production costs are being reduced, and more economical methods of holding Council meetings are being examined.

It is important to build up a strong financial position not only to allow improved services to members to be considered in the future but to maintain a sound reserve should heavy expenditure ever be needed for urgent or unexpected technical or legal reasons. The uplift in the subscription to the statutory 30/– will materially assist this objective.—

D.A.F.

## *Experimental Tradition*

RADIO amateurs cannot, in the usual course of events, perform the sort of involved and expensive research work that is done by the great commercial organizations. This is not in any wise to say that they cannot do any experimental work at all, and it is a counsel of despair to suggest, as is sometimes done, that communication represents the limit of their ambition. It is probably true to say that the experimental tradition, encouraged by the fact that there are so many interesting things to do in Amateur Radio today, flourishes quite as strongly as it has ever done.

This tradition has been offered an important challenge in the suggestion that the Amateur Radio movement can make a useful contribution to the International Geophysical Year, which begins officially in July.

Some of the lines of research which can be pursued were outlined by Dr. Smith-Rose in his article here last month. The story will be kept up-to-date by means of the I.G.Y. feature to be contributed to the BULLETIN by two of the Society's younger technicians (someone at last month's Council meeting called them " the Goyders of tomorrow," which was a statement of respect and praise that will be well appreciated by old-timers).

Because Amateur Radio is a hall with many mansions it is not expected that I.G.Y. affairs will appeal to every member. Plenty of us are quite content to confine activities to perhaps a little constructing and a deal of communicating; but there are plenty more who discern that the challenge which I.G.Y. offers could indeed prove to be the vindication of the amateur movement's very existence.—J.H.

## *" Extra Mural "*

THERE was in the February issue of the BULLETIN a list of the eight Committees of the Council for 1957, giving the names of the Members who comprise them. These Committees do an immense amount of quite invaluable work. In particular, by disposing of a mass of detail they enable the Council to reach more quickly decisions based on their recommendations.

Each member of the Council is asked to serve on one, two or even more Committees, in addition to which several prominent amateurs who are not on the Governing Body lend the weight of their experience as members.

Most of the Committee meetings take place (as do Council meetings) at New Ruskin House. As may be imagined, they absorb a good deal of the individual's spare evening time, not just at the meetings themselves but on follow-up or preparatory work as well.

So far as Council Members themselves are concerned, there are extra-mural duties even in addition to the above, and it is the purpose of this note to make them better known to BULLETIN readers.

Some of these duties are implied by their titles, *e.g.*, Hon. Treasurer or Zonal Representative. Others do not have titles, such as the member without whose dogged pugnacity the Society would be hard put ever to go in for an exhibition; or the one who runs the I.A.R.U. liaison machinery so efficiently; or the third who Comments Currently in this space, with the President's blessing.

These are only three, taken at random.

It should not be imagined that it is only Council and Committee members who bear these " extra-mural " burdens. The pattern is repeated at local representative level as well. In fact, it has rightly been said that the T.R. is the backbone of the Society.

These office holders' first interest is to serve the Society and the individual members in it. Recognizing that they do their work for no payment and negligible (oft-times nil) expenses, their value is without price in more senses than one.—J.H.

# Receiver Selectivity

## *Modern Techniques in Receiver Design*

By B. J. ROGERS (G3ILI)*

*IN this article, the author describes modern methods of improving the selectivity of communication type receivers. The design features of crystal filters, lattice filters, Q multipliers and the Selectoject are examined and practical methods of using these devices to best advantage are suggested.*

SELECTIVITY is necessary in a receiver to enable the required signal to be heard to the exclusion as far as possible of all others. Ideally, the receiver would only respond to the signal or the part of it desired and its response over this band, however narrow, would be quite flat with the corners slightly rounded to prevent any tendency to ringing, the sides falling away as nearly vertically as possible.

Minimum bandwidth is employed for c.w. code reception, the usable limit being about 100 c/s. Narrower pass-bands than this makes the keying characteristic soft and may give rise to ringing thus making the signal difficult to read. It is the straight-sided i.f. characteristic giving good skirt selectivity that improves readability under conditions of interference.

### Audio Selectivity

Selectivity of a kind occurs in all parts of a receiver from the loudspeaker back to the aerial and ideally each section can have some measure of response tailoring. In the audio section it is desirable to curtail the audio response above and below the range of speech frequencies (300 to 3,000 c/s). This can be achieved by a careful choice of coupling and bypass components.

A type of post-detection selectivity that has had much attention of late is known as the "sideband slicer" and is a means of separating the upper and lower sidebands of a signal at the detector. The process is very similar to the generation of a single sideband signal for transmission by the phasing method. Owing to certain important disadvantages to be discussed later this method will not be considered.

Before leaving the audio section one further very worthwhile addition must be mentioned. This is the "Selectoject," a sharply selective audio filter obtained by means of an amplifier employing feedback and R.C. frequency determining components. Its main use is in the removal of heterodyne whistles for which purpose it is most effective.

### Cross-modulation

The usual method of achieving selectivity is to restrict the band of frequencies to which the receiver responds. Unfortunately this is of no avail if interfering signals have been superimposed on the wanted signal from outside the desired pass-band at some stage in the receiver before the selectivity is introduced. This is due to cross-modulation in one or more stages and is particularly prevalent in amateur operation, since it is very often necessary to separate a weak wanted signal from much stronger adjacent ones. These are just the circumstances that give rise to the worst cross-modulation troubles. There are some places in the receiver where intermodulation, albeit a particular kind, is required; one is of course the detector. In fact, the normal diode suffers from several defects when used for a.m. double sideband detection.

Signals outside the frequency spectrum of the wanted signal will, if they are of comparatively large amplitude, intermodulate with the wanted signal's carrier and sidebands giving rise to the well-known "noises off." In reception of s.s.b. and c.w. signals this effect is sometimes even more noticeable owing to the large b.f.o. voltage required by this type of detector, which produces further distortion products. The situation can be much improved by using a mixer type detector, commonly known as the product detector, which can be designed to have very good linearity and has the great advantage of only requiring a small b.f.o. voltage.

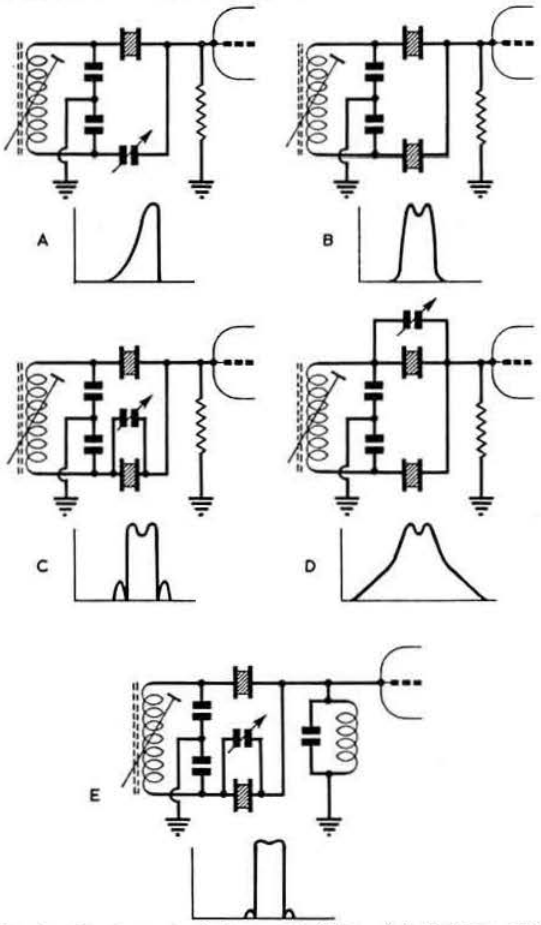



Fig. 1. Development of the crystal filter. (a) Ordinary crystal filter. (b) Half lattice filter. (c) As (b) but with trimming capacitance across the h.f. crystal. (d) As (b) but with trimming capacitance across the l.f. crystal. (e) As (c) but terminated with a tuned circuit.

*108 Woodvale, Forest Hill, London, S.E.23.

### Automatic Gain Control

An associated subject to be considered before leaving the detector is automatic gain control. A.g.c. can be the great villain of the piece when misused. Consider for a moment the receiver operating under conventional A3 phone reception conditions. The r.f. and i.f. gain controls are at maximum, and the a.g.c. is switched on, so the only control over the operating conditions of the r.f. and i.f. sections is the strength of the incoming signal. This leaves the receiver at the mercy of large amplitude off-channel signals. In passing it should be pointed out that this situation is the one that gives rise to the mistaken idea that s.s.b. spreads. However, the situation can be much improved by switching off the a.g.c., running the audio stages at maximum gain and adjusting the r.f. and i.f. controls to produce suitable output. (The ultimate in this direction is a suggestion once made to the writer that the only proper method of gain control in a receiver is by means of an attenuator in the aerial feeder.) This method, combined with a product detector will make the operator realize, perhaps for the first time, that the selectivity of his receiver is much better than he imagined. If some form of a.g.c. is desired, one arrangement that also functions with s.s.b. reception, is to rectify some of the audio voltage and apply this to the r.f. and i.f. stages. A further improvement can be obtained by using special low intermodulation valves in the r.f. stages but unfortunately suitable types such as the 6DC6 are not available in this country.

### Obtaining Good Selectivity

Just as it is desirable to put the gain controls near to the input, so it is equally desirable to place the selectivity similarly or our efforts will be defeated by cross-modulation introducing unwanted noises into the pass-band after which no amount of filtering will help. Obviously there is a limit to how near the front end the selectivity can be placed so every care must be taken to ensure the good linearity of all stages preceding it, Particular care is necessary with mixers to see that they are run under correct conditions without too much signal or local oscillator input. Returning to the sideband slicer, it can be seen why it is rather ineffective since it places the selectivity in the worst possible place—after the detector.

The disappointing results obtained with the "Q5er"-type low frequency i.f. systems are attributable to the same cause. The writer once built a 30 kc/s i.f. strip which, when tested alone, seemed ideal in characteristic but in use it was a failure owing to intermodulation occurring in the large number of stages needed to get to 30 kc/s. The best frequency range for the i.f. system would seem to be between 400 and 500 kc/s. The receiver could then operate as a single superhet below, say, 4 Mc/s and as a double superhet above 7 Mc/s with a crystal controlled front end and a first i.f. tunable over the range 4.5 to 5.5 Mc/s.

Having fixed the frequency of the selective i.f. amplifier the next consideration must be the means of obtaining it. The simplest way, and one of the most effective, is the mechanical filter; this is the ideal answer but it will not be discussed here since such filters are not generally available in Europe. It is impossible to get sufficient selectivity from L.C. components alone so crystal filters must be used.

The development of the half lattice filter and the responses of the various crystal filter arrangements can be seen in Fig. 1. The next question is how many sections should be used, bearing in mind that the more sections there are the better the skirt selectivity and the smaller the side lobes will be. A single section is capable of good results while at the other extreme more than three sections become difficult to manage. In accordance with the principles already outlined the filter must follow directly after the mixer. To ensure that each section of the filter works at the optimum level an amplifier valve is placed between the individual units and a further amplifier stage placed after the entire filter.

In particular the effect of adding trimming capacitors to the higher and lower frequency crystals should be noticed. Putting capacitance across the lower frequency crystal broadens the response and deepens the trough in the centre of the passband, while placing it across the higher frequency one steepens the sides by bringing in the rejection notches. Up to a point, increasing this capacitance steepens the sides of the response but at the expense of more pronounced side lobes. By using more than one section with crystals of slightly differing frequencies it is possible to reduce the side lobes and fill in the trough in the passband. The capacitances are usually about 1.5 to 2 pF and can most easily be made by twisting together two pieces of insulated wire about an inch long. There is some disagreement concerning just how the filter sections should be terminated; some suggest resistively, the usual value being between 50K ohms and 100K ohms while others insist that an r.f. choke is the correct way. The writer's experience is that the most flexible arrangement is to use a tuned circuit as this helps to attenuate the side humps and fill in the dip in the centre of the passband.

### Crystals for Half Lattice Filters

For the filters, most amateurs will wish to use the surplus FT241 type crystals. These are in two groups labelled in frequency and with a channel number. The fundamental frequencies are from 370 to 500 kc/s. The first group are marked in frequencies running from 20.0 to 27.9 Mc/s and channel numbers up to 79. The actual crystal frequencies may be found by dividing the frequencies marked on the holder by 54. As the channels run in units of 0.1 Mc/s the crystal separation is 1.85 kc/s. The second group are marked from 28 to 38 Mc/s in 0.1 Mc/s steps, with channel numbers from 280 to 380. In this case the fundamental frequency may be found by dividing the marked frequency by 72 giving a spacing of approximately 1.49 kc/s.

Should the requisite frequency crystals not be available it is not difficult to move them about, raising the frequency by edge grinding and lowering it by plating. These processes are described in the Appendix.

To check the frequency of the crystals after plating and to adjust the complete i.f. system some simple test gear is required. A high resistance voltmeter of some kind is necessary such as a 20,000 ohms per volt moving coil meter or a valve voltmeter; in the latter case it need only be of the simplest type plus a crystal diode. To check the series resonant frequency of the crystals and to carry out the alignment a signal generator is required but the usual service department oscillator is useless. A BC221 frequency meter or similar is ideal but it is not difficult to construct a device specially for the purpose. A suitable circuit is shown in Fig. 2. Calibration is carried out by listening to the second harmonic of the signal generator on the medium wave broadcast band. The set-up for testing crystals using a signal generator, the final stage of i.f. amplifier and a voltmeter is shown in Fig. 3. The series resonant frequency is indicated by a sharp dip in reading followed by a rise in output; the difference between the readings is a rough indication of the Q of the crystal.

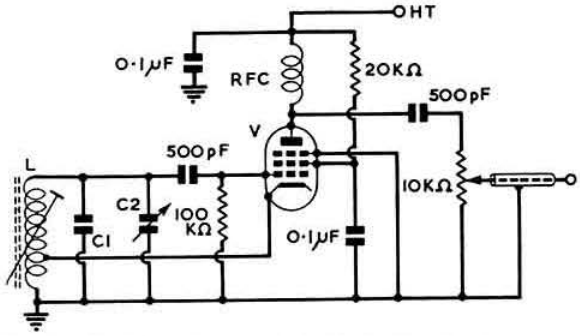



**Fig. 2. I.f. signal generator. C1, tuning capacitor to suit coil; C2, 50pF variable with plates removed to give suitable bandspread; L, 450 kc/s b.f.o. coil.**

## Practical Filters

The bandwidth of the filter depends to some extent on the use to which it is to be put and to some extent on personal taste. As a rough guide the effective bandwidth is rather greater than the spacing of the crystal frequencies; for example, with crystals spaced 2.8 kc/s the filter will have a bandwidth of approximately 3.2 kc/s at 6 db down. The narrowest filter that can be used with telephony is one employing adjacent crystals of the three digit series. In the opinion of the writer a satisfactory compromise will result from using crystals in the other group (two digit series) in which the spacing is 1.85 kc/s. The aim is to design a filter that will just accept the desired part of one sideband of the received signal, that being the carrier frequency ± 200 to ± 3,000 c/s. The carrier is restored by the b.f.o. at the product detector. The crystal spacing for reception of telegraphy can be much smaller, say 300 c/s, in which case grinding or plating is necessary.

Fig. 4 shows the circuit of one complete filter section and the final amplifier stage. If more half lattice sections are to be used they will be identical to the one shown, the crystals being divided into pairs centred about the same frequency. It will be noticed that the cathodes of the valves are earthed directly and bias fed to the grids from a negative rail. This is essential to prevent feedback and in order that the signal should not leak round the filter. With this arrangement it is easy to adjust the gain of any stage but only the first is provided with manual gain control. If it is desired to mute the receiver during periods of transmission the negative rail can have a blocking bias applied. Fixed bias, a.g.c., muting bias and gain control bias can all be applied to the grid rail via diodes so that they do not interact. Gain will then be controlled by the greatest voltage. The i.f. transformer secondary tuned circuits require modification for a capacitative centre tap, each capacitor being twice the value of the original. The circuit should preferably be low C—at 470 kc/s about 100 pF.

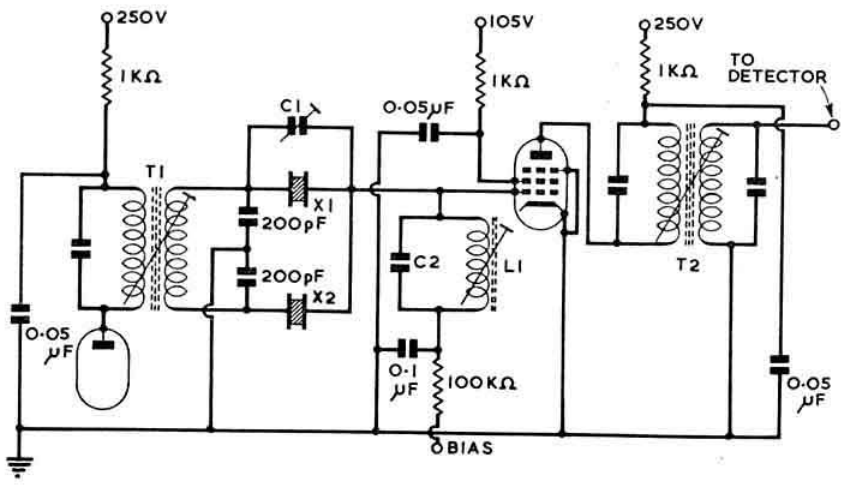



**Fig. 4. Half lattice filter and final i.f. amplifier. C1, capacitor made by twisting together two insulated wires one inch long; C2, L1, one tuned circuit from an i.f. transformer; T1, i.f. transformer modified for capacitive centre-tap; T2, i.f. transformer; X1, h.f. crystal; X2, l.f. crystal.**

### Alignment of a Half Lattice Filter

Alignment is commenced by trimming the final stage (the one without the crystal filter) to the frequency between the crystals. Initially, the tuned circuits driving and terminating the filters can also be adjusted to this frequency. Observing the steepness of the sides of the response, capacitance up to 2.5 pF is added across the higher frequency crystal. When the condition of optimum skirt selectivity is obtained a check must be made to ensure that no objectionably large side lobes have been produced. Finally the adjustments of the tuned circuits are repeated for maximum flatness. Exact instructions for this alignment are impossible to give but it is much easier to do than to describe.

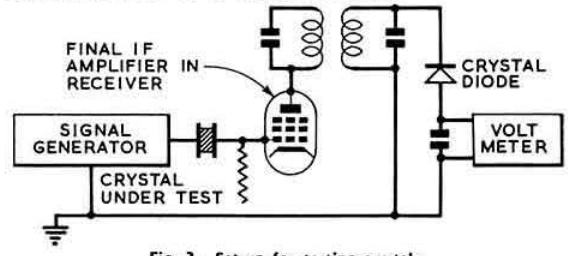



**Fig. 3. Set-up for testing crystals.**

## Q Multiplier

A further device for improving selectivity facilities is the so-called Q multiplier. It is really a type of "selectoject" operating at the intermediate frequency and in this respect is much to be desired since it is a great help in notching out heterodynes. Such a device can well be placed just behind the filter.

Fig. 5 shows the circuit of an i.f. Q multiplier. It consists of a pair of cathode coupled triodes, the first being a cathode follower to isolate the circuit from the preceding stage. The second triode is an earthed grid amplifier with a bridged T filter in series with the output. The output side of the filter is also returned to the grid of the second triode so providing positive feedback, the phase balance being adjusted by R1. This

feedback appears as negative resistance to balance the losses in the filter tuned circuit giving a very sharp notch, the position of which is adjustable by the trimmer. The filter tuned circuit is resonant at the intermediate frequency with a capacitance of 500pF (two 0.001 μF capacitors in series). A dust cored medium wave coil may be used as the inductor. The advantage of the Q multiplier over shifting a crystal rejection notch is that the shape is independent of the frequency and does not distort other parts of the passband.

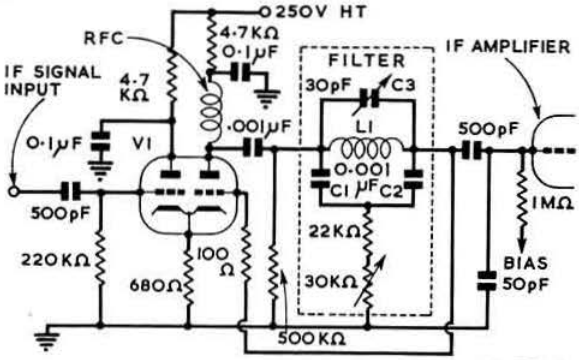



Fig. 5. The Q Multiplier circuit. L1, to resonate with C1, 2, and 3 at the intermediate frequency. (The Q of L1 should be as high as possible. Pot core construction is suggested.) V1, 12AT7, ECC81 or 6SL7.

### Product Detector

A typical circuit of a product detector is shown in Fig. 6. It consists of two cathode coupled triodes, the first acting as a cathode follower. It should be noted that the grid is tapped down the i.f. transformer by a capacitative potential divider to further reduce the loading on the final i.f. tuned circuit. The i.f. filter in the anode circuit of the second triode is essential in order to prevent r.f. voltages reaching the audio amplifier and so causing overloading. It should be remembered that the b.f.o. requirements of this detector are much less than the conventional diode. With this circuit the output will be very low even on A3 phone signals without b.f.o. injection. When combined with good i.f. selectivity this type of detection turns all A3 signals into s.s.b. with the consequent advantages including elimination of phase distortion.

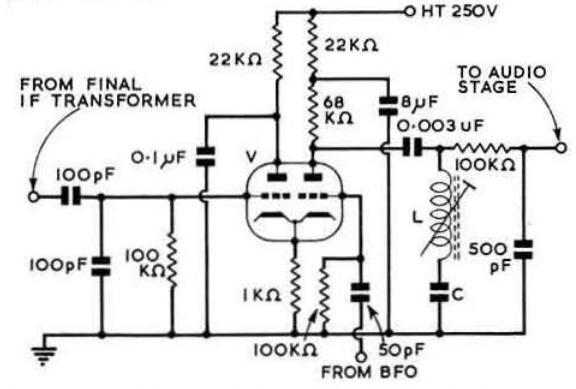



Fig. 6. Circuit diagram of the product detector. LC is a low-C tuned circuit in which C has a reactance of 3500 ohms at the intermediate frequency. L, half i.f. transformer coil. Suitable valves are the 6SN7, 12AU7 or ECC82.

### The Selectoject

The circuit of an audio frequency selectoject is shown in Fig. 7, from which it will be seen that it consists of two parallel signal paths, one containing a frequency selective phase shifter. When the two paths combine, the frequencies that differ in phase by 180 degrees cancel out leaving a notch in the audio band. The ganged potentiometers are the tuning control and the other potentiometer the balance control to be adjusted for best rejection. The resistors R1 and R2 and R3 and R4, should be matched as closely as possible, within 5 per cent. The values of the capacitors C1 and C2 can be changed to move the frequency range up or down.

### Conclusion

To sum up, the place where the frequency spectrum is restricted is not the only place where selectivity is made or marred. Further, that which is shown up by a signal generator is not always an indication of what may be expected when the receiver is connected to an aerial.

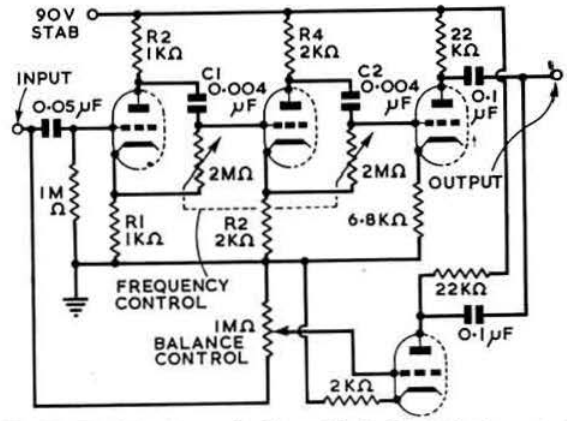



Fig. 7. The Selectoject audio filter. C1, 2, R1, 2, 3, 4, see text. V1, 6SL7, ECC83 or 12AX7.

## APPENDIX

### Grinding and Plating Crystals

Grinding requires the removal of the crystal from the holder, a task that must be undertaken with great care. Having removed the lid from the holder the crystal can be plugged into an octal valveholder clamped in a vice. The short wires attached to the crystal itself are then grasped firmly in a pair of tweezers and the wire from the holder unsoldered; the grip with the tweezers on the crystal wire should be maintained (until quite cold) to act as a thermal shunt. It is very important not to loosen these wires as once this is done the crystal is useless. If only a small increase in frequency is required, say up to 1 kc/s, it is only necessary to grind one edge. Should a greater shift be needed then it is best to grind all edges, keeping the crystal as square as possible. In this way a movement of 20 kc/s is not difficult. Experience has shown that the best grinding medium is a new fine carborundum stone, but fine carborundum paper laid on a sheet of glass can be used. After grinding the crystals must be washed in carbon tetrachloride.

To lower the frequency of the crystal by plating is no more difficult than raising it by grinding, with the added advantage that it is a reversable process. The maximum

reduction in frequency possible without excessive loss of Q is, in the writer's experience, about 3 kc/s. A simple solution of copper sulphate is not suitable for plating and the writer has used the formula suggested by H. L. Morrison (W7ESM) in a *QST* article some years ago. The solution consists of 15 grams of copper sulphate and 5c.c. of sulphuric acid in 100c.c. of distilled water. Quite small changes in frequency can be achieved by merely dipping the crystal in the plating solution. Larger changes are accomplished by electroplating. The most suitable vessel is of glass. The anode can be a piece of copper strip or thick wire connected to the positive pole of a 1.5 volt cell via a resistor of between 300 and 500 ohms to limit the current, the negative pole being connected to both pins of the crystal to be plated.

The following points must be observed for satisfactory plating. First, absolute cleanliness; it is important to clean the anode before use and to wash the crystals well in distilled water before and after plating. Second, insert the crystal in the solution rapidly or parts of the crystal will be in the solution longer than others and will hence receive more copper. Third, try plating some test object first as there is no other way of assessing the speed of plating. Should the plating have gone too far it is only necessary to reverse the polarity of the battery to reverse the process. This must not be taken to too great a length however or the crystal wires will drop off.

### Transistorized Public Address Equipment

PUBLIC address equipment employing transistors in place of valves is now in production by Lustraphone, Ltd.

The equipment consists of a fully transistorized 10 watt amplifier with a frequency response substantially flat from 100 to 10,000 c/s and a harmonic distortion of less than 5 per cent. The average current consumption is only 0.5 amp. Power is normally obtained from a rechargeable 12 volt 7 ampere/hours dry accumulator which enables the amplifier to be operated continuously for 14 hours.

The Lancashire Constabulary has recently installed twenty of these amplifiers in patrol cars. Besides taking up less space than earlier equipment, power can be conveniently obtained from the car battery without placing undue strain on it.

### Wall Charts—Principles of Radio

EDUCATIONAL Productions, Ltd., East Ardsley, Wakefield, Yorkshire, have produced, in collaboration with E.M.I. Institutes, Ltd., a set of three coloured wall charts illustrating in diagrammatic form the basic principles of amplification, simple receivers and superhet receivers.

The charts measure 30 in. x 20 in. and are ideal for teaching first principles. They can be obtained from the publishers, price 9s. per set.



# The Audio Frequency Auto-Response Circuit

GENERALLY speaking, a restricted audio frequency bandwidth leads to better intelligibility on weak 'phone signals as the background noise is thereby reduced as well as interference from adjacent stations. For louder signals, and particularly if occasional broadcast reception is required on the communications receiver, a considerably wider bandwidth is an advantage. To meet both contingencies, however, yet another control, or possibly two, would have to be added to the already overcrowded panel of the receiver.

The audio section of the new Hammarlund HQ-100 receiver[1] incorporates a circuit which automatically looks after these extreme requirements in response without the complication of additional controls.

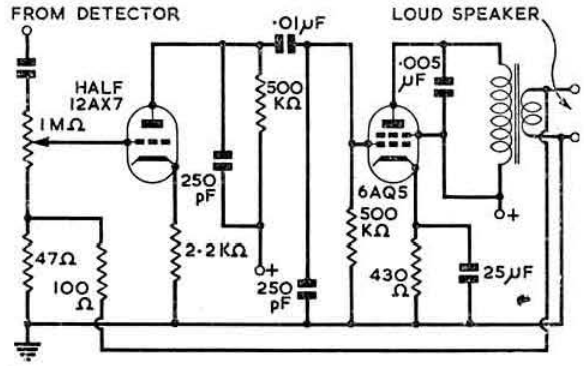



**Fig. 1. The audio frequency auto-response circuit showing the simplicity of the arrangement.**

Reference to Fig. 1 will show that negative feedback is introduced between the secondary winding of the output transformer and the grid of the first a.f. stage where it appears in series with the signal developed across the volume control. At low settings of the latter, such as would be employed for strong signals, the input due to feedback across the 47 ohm resistor represents a significant proportion of the input to the grid of the first audio stage and the response at a gain setting of 25 per cent. is only 6 db down at 40 and 8,500 c/s.

As the gain control is advanced the proportion of feedback relative to signal decreases, and the intentional low and high frequency cuts imposed by the 0.01μF coupling condenser and the high frequency bypass condensers across the first valve's anode load resistance, the output valve's grid resistance and the output transformer primary winding, combine, in the absence of correction by negative feedback, to produce a response which is down by 6 db at 110 and 3,000 c/s and 20 db down at 35 and 8,500 c/s. Intermediate settings of the volume control result in responses varying between "communication" quality and that to be expected from a good-class broadcast receiver, all without the addition of more than a very few low priced resistors and condensers to the existing a.f. amplifier.

[1] "Recent Equipment", *QST*, January, 1957.

### Can You Help ?

● B. Priestley (G3JGØ), Stoke House, Roxwell Road, Writtle, near Chelmsford, Essex, who requires the manual for the Wireless Set No. 19 Mk. II?

# The B2 Plus Transmitter

## *Further Modifications to a Popular Unit*

By D. W. AUTON (G3IHI)*

DURING the past six years a number of modifications have been made to the writer's B2 equipment. The idea in all cases has been to add to its versatility without any sacrifice of the original amateur band facilities.

### V.F.O.

The crystal oscillator valve in the B2 can be converted to variable frequency operation by the use of an external box containing a Clapp oscillator tuned circuit. The only addition to the transmitter is a small insulated socket on the front panel connected to the EL32 cathode. Crystal control remains available as before. Examination of the B2 circuit will show that with the cathode switch in the "Fundamentals, all crystals" position the basic circuit is as shown in Fig. 1. The addition of the tuned circuit shown in Fig. 2, connected at points A and C through the crystal socket and at point B through the new socket, converts the crystal oscillator to an 80 metre Clapp oscillator. The tuned circuit should be connected to the transmitter with coaxial cable or shielded twin lead, earthed at the transmitter end only.

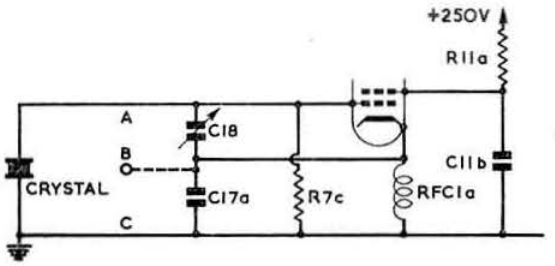



**Fig. 1. Simplified circuit diagram of the crystal oscillator in the "Fundamentals, all crystals" position of the cathode switch.**

One feature of the Clapp oscillator that has not, until recently, received much attention is the fact that the tuned circuit can—with advantage—be mounted remote from its associated valve and the heat of the transmitter. Straight-through operation is not recommended and the anode of the EL32 should therefore be tuned to double the oscillator frequency. If the oscillator is to work on 160 metres all the values given in Fig. 2 should be doubled. For 40 metres slightly less than half the values given should be used. Using this system only one report less than T9 has been received.

If it is desired to use a self-contained external v.f.o. with the B2 it is an advantage to have a separate v.f.o. position on the cathode switch. It is possible to feed a v.f.o. into the crystal socket without modification but it is not good practice, especially as the crystal oscillator can be converted to a buffer amplifier (or frequency doubler) quite simply. One of the positions of the cathode switch not required for amateur work is used. In the writer's case the 5.6 to 6.6 Mc/s position was selected and the wire from SW2a, contact 2, removed at the cathode coil tap and earthed. In this switch position RFC1a and C17a are now shorted out. Fig. 3 shows the suggested circuit for a transmitter which is to be used mainly with v.f.o. control.

*34 Redcliffe Street, Swindon, Wilts.

### Power Pack

While the power pack is a very satisfactory unit considering its size and output an improvement can be made if R20, the 1300 ohm resistor used for smoothing the 250 volt line, is replaced by a smoothing choke. This reduces hum, improves the voltage regulation and slightly increases the voltage.

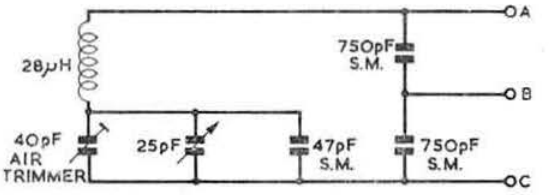



**Fig. 2. The tuned circuit used to convert the crystal oscillator into a v.f.o.**

Examination of the power pack will show that there is no room inside for even a midget choke so it is mounted on the front panel of the power-pack using the ventilating grill holes for mounting bolts and the fly leads fed through to the tag points which previously supported R20. A 10 Henry 60 mA 300 ohm choke is used as it was available but the value is not at all critical.

Carrier hum, which had been quite noticeable on telephony is reduced considerably by this modification while variations in the oscillator h.t. as its anode is tuned through resonance are reduced.

### Anode and Screen Modulation

While good results can be obtained by modulating the anode only of the 6L6, the improvement obtained by modulating the screen also is well worth the little trouble involved. The components required are a 27K ohm five watt wire wound resistor and a single pole double throw toggle switch. In the c.w. position of this switch the circuit is the same as before but in the telephony position the screen is fed from the 500 volt line through the resistor. Fig. 4 shows the modified part of the circuit. For telephony the 500 volt line is of course broken and taken to the modulation transformer secondary.

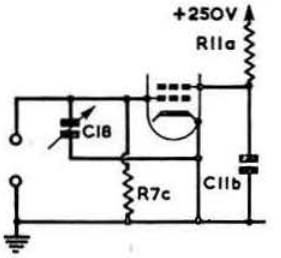



**Fig. 3. Suggested circuit arrangement for use with an external v.f.o.**

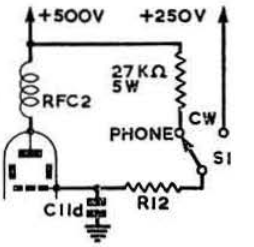



**Fig. 4. Modifications to allow anode and screen modulation of the 6L6 p.a. valve.**

### Extending the Frequency Coverage

Most owners of the B2 are aware that the transmitter can be used on Top Band with simple modification. The required alterations for 21 Mc/s are just as simple, although the efficiency of the 6L6 is not high on this band and adequate drive is not easy to obtain. If a 1614 (an r.f. version of the 6L6 good up to 80 Mc/s) can be obtained the efficiency will be as high as on 20 metres. It is possible to triple from 7 Mc/s but even with high output from an external v.f.o. this is not likely to produce adequate drive. Successful operation requires 10.5 Mc/s input to the EL32. The 9.3 to 12.2 Mc/s range of the EL32 anode circuit can however be altered to tune 21 Mc/s by removing the tap on L8 for this range, and replacing it 5 turns from the front panel end of the coil. 21 Mc/s is then tuned near minimum capacity.

The p.a. coil for 21 Mc/s is wound with five turns of 16 s.w.g. wire, spaced out over the winding length of the coil former. If a spare coil former is not available the coil could be made self supporting.

With the high minimum capacity of the p.a. circuit 28 Mc/s operation with reasonable L/C ratio is not possible without major changes.

### TVI Measures

The amount of work required to "TVI-proof" the B2 depends, as with any other transmitter, largely on the location. At one fringe area location any band could be used, without trouble, while directly feeding a long wire. Fortunately the nearest TV receiver was 250 yards away. At the present location, 12 miles from Crystal Palace, a great deal of interference was caused to the receiver in the next room when 20 metre operation was tried. This was cleared by inserting a 2.5 mH r.f.c. between the aerial and earth terminals on the transmitter.

The aerial terminal has been replaced by a coaxial cable socket, so that the transmitter can, if necessary, be fed into a low pass filter and aerial tuning unit by coaxial cable. To match 75 ohms on 80 metres additional output capacity is required with L1B. A 500pF silver mica condenser is mounted inside L1 and connected to the output end of the coil and one of the spare pins. The corresponding pin on the transmitter socket is also earthed.

### Receiver

After the addition of bandspreading, which has already been described in the BULLETIN[1], the receiver does a very good job considering its size. As with any receiver not having an r.f. stage and an i.f. in the 470 kc/s region it is prone to image trouble when used on 20 metres, but this can be minimized by the use of an aerial tuning unit.

The improvement in the power supply voltage regulation, discussed earlier, also improves the receiver stability. It can be further improved by stabilizing the voltage applied to grids 2 and 4 of the 7Q7 frequency changer. A surplus small bayonet cap neon is used by the writer for this purpose. It is the size of a B7G valve and was found to operate at 90 volts. It is wired directly into circuit between pin 3 of the frequency changer valveholder and earth. To allow for the operating current of the neon a 33K ohm resistor (wire wound, 5 watts) is connected in parallel with R4a, the 6 watt 20K ohm dropping resistor. This value may need adjustment but should be as high as possible without the neon going out at any time. If desired the b.f.o. voltage may be stabilized in the same way but this has not been found necessary.

### Results

During the past six years, between modifications, the writer has operated the B2 under three call-signs from seven locations on aerials ranging from a piece of wire in a hospital ward to a two element 20 metre beam. Over 3,000 contacts have been made.

### Reference

[1] "Bandspreading the B2," A. G. Dunn (G3PL), R.S.G.B. BULLETIN, January 1956.

# A Simple Top Band Aerial Coupler

**By W. FARRAR, B.Sc. (G3ESP)**

A SIMPLE top band transmitter normally has three tuning controls: v.f.o., p.a. tuning and aerial loading. In the writer's station the "old faithful" actually had four controls. To simplify frequency changing (particularly desirable for contest work), a modification was tried which resulted in only two variable controls: one for v.f.o. tuning and the other for p.a. resonance.

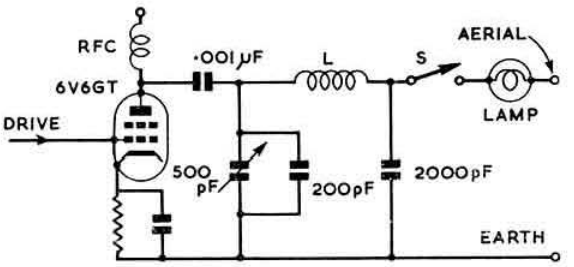



**Fig. 1. The pi-network p.a. circuit for Top Band**
**L is 38 turns 1¼ in. long wound on a 1¼ in. diameter former. The lamp is a 2.5 volt 0.3 amp flashlamp type.**

To tune a 138ft end-fed wire, it was decided to scrap the existing arrangement, which was rather cumbersome, and use a pi-network for the p.a. tuning and aerial loading. When it was finished in an experimental form, it was found that as the frequency was changed from end to end of the band, the output condenser of the pi-network required no adjustment at all. As a result, a fixed condenser was substituted, and the circuit shown in Fig. 1 was incorporated into the transmitter. It has been thoroughly tested and works admirably, the aerial current being noticeably greater than ever before. The large output condenser should effectively minimize high order harmonics.

The circuit values are suitable in the writer's own station. A different p.a. valve and slightly different aerial length might call for some variation in the condensers in the pi-network, but the values shown should be a good guide.

### Model Control by Radio

MAJOR J. Wilkinson, 616 ACMW, ULM, APO35, Germany, wishes to contact members interested in multi-channel control of model aircraft with a view to the exchange of ideas. Major Wilkinson can sometimes be contacted through DL4ULM, his unit's club station.

### Nuptials

● Sant Kharbanda (G2PU) and Miss A. E. Connelly, on February 9, 1957, at St. Colomba's Church, Cambridge. Peter Broom, G5DQ, was best man.

# CQ —•—• —•—• •••••• —••• SSB

By H. F. KNOTT (G3CU)*

SINCE this column last appeared (January, 1957, issue) activity on the higher frequency bands has increased considerably and the maximum number of countries now worked on two-way s.s.b. by any one station has risen to 68. There are about 89 countries on at present with sideband, an increase of 13 in the last three months, the new ones being HR2, ZE5, OE, ET3, HZ, VQ4, YU1, YN1, HP1, BV1, KA7, ZE5, and ZE6. The increased activity has no doubt been partly due to better conditions and partly to the S.S.B. Contest organized by *CQ* Magazine in February.

Activity during the two sections of the contest was very high, with stations as numerous as in most similar events. The greatest number of stations could be heard working on 14 Mc/s, although it was obvious that a number were occasionally changing to 21 Mc/s, and 3.8 Mc/s for the extra points. Most prominent during the period appeared to be HR2WC, VK3AAE, CN8JO, and CN8GD who were heard working stations one after the other, even when the contest had been on for some hours. K2DW, although only operating during part of the time managed to make 162 contacts which included 34 countries. Other calls heard during this period include YU1AD, ZB1CZ, VP9HH, and YE2JK.

### Notes and News

BV1US (Formosa) is now operating regularly on Mondays, Wednesdays and Fridays, from 07.30 C.S.T. He is crystal controlled on 14,163 and 14,308 kc/s. Apparently these are the only two spot frequencies allocated to him. He does, however, look for calls at the h.f. end of the band. He has a Multiphase 20A exciter driving a linear amplifier. HP1EH's appearance has put Panama on the s.s.b. map, which makes another new country worth going after.

The Spanish authorities have recently approved the use of s.s.b., and EA4CX, EA4BF, EA4DY and EA9AR are reported active. EA4CX has a Collins KWS1 transmitter and a 75A4 receiver, while EA9AR is planning to operate on 21 and 28 Mc/s soon. Other new stations who have appeared recently include LA8WE, ET3RL, OE3BB, ZE5JJ, ZE6JB and HZ1AB in Saudi Arabia. Further U.S.S.R. stations using s.s.b. are UA0KBD, UB5KFG, and UF6KA.

KA6BU is looking for European contacts on 15 metres and is on the air daily at 10.00 G.M.T. He is to be found at the h.f. end of the band. G5BJ reports having worked OY1, ZS, most W call areas, Mexico and Peru. G5IX who has recently moved to Chelmsford has spent a good deal of time on 28 Mc/s with quite successful results, having worked four continents on s.s.b. by contacting VK, ZL, J, ZS, W and VE. His exciter starts off at 4 Mc/s followed by a balanced mixer using a pair of 6AC7s and a crystal oscillator at 24 Mc/s.

### Eighty Metres

G3BWH has completed the construction of a filter exciter with two half-lattice crystal sections. He is so pleased with the results and ease of alignment that he recommends anyone just starting up on sideband to use this form of filter. At present he is constructing a mixer unit to cover all bands from 1.8 Mc/s to 28 Mc/s. Meanwhile activity is confined to 3.7 Mc/s. G3CU, who has been somewhat inactive recently, has constructed a new mixer amplifier section for two-band operation (3.8 and 14 Mc/s). The final amplifier uses a pair of 807s in parallel. The new mixer-linear is intended to be a temporary transmitter, pending the construction of an amplifier using a 4X125A tetrode.

### Two Metres

Auroral openings on 144 Mc/s have become more frequent recently and reports show that s.s.b. is coming into its own. Although signals have the usual watery sound about them the received signal is usually quite readable. A particular advantage is that with voice controlled break-in any missed passages can be quickly picked up. It is of course necessary for beams to be directed to the north regardless of the true direction in which the received station is actually located.

### Technical Topics

Since the introduction of amateur single sideband a few years ago, many new terms and circuits have come into regular use, some of which are not fully understood. This is borne out by the number of letters received and queries raised by newcomers to the system. It would appear that some confusion exists with regard to the phase-shift networks used in the phase-rotation method of single sideband generation. The term phase shift is self explanatory but a few words of explanation on these circuits and their use may give a much clearer idea to those meeting them for the first time.

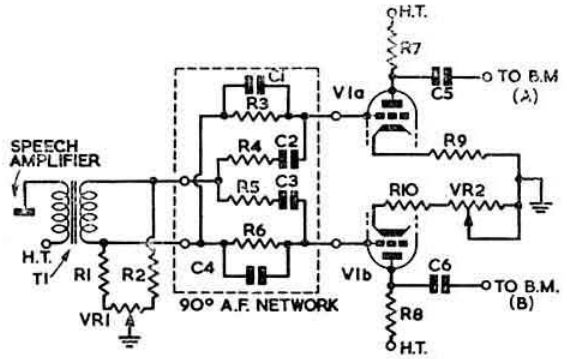



Fig. 1. The W2KUJ 90° Audio Phase-shift Network. C1, 2430 pF (0.002 μF ± 5 per cent with 170–780 pF trimmer); C2, 4860 pF (0.0043 μF ± 5 per cent with 170–780 pF trimmer); C3, 1215 pF (0.001 μF ± 5 per cent with 50–380 pF trimmer); C4, 607.5 pF (500 pF ± 10 per cent with 9–180 pF trimmer); C5, 6, 0.05 μF 350 volt wkg., paper; R1, 430 ohms 5 per cent; R2, 1600 ohms 5 per cent; R3, 6, 133,300 ohms 1 per cent (see text); R4, 5, 100,000 ohms 1 per cent; R7, 8, 22,000 ohms 10 per cent; R9, 510 ohms 5 per cent; R10, 330 ohms 10 per cent; T1, 1.5:1 step down; V1a, V1b, 12AT7; VR1, 100 ohms pre-set; VR2, 500 ohms pre-set.

*15 *Hampden Road, Wantage, Berks.*

In the phase-shift exciter the one thing that should be clearly understood is that the carrier is balanced out and that the unwanted sideband is attenuated by phasing. Basically, two balanced modulators are required with a suitable a.f. as well as r.f. phase-shift network. The operation of the balanced modulator is quite simple and will be dealt with at a later date.

The a.f. network is required to operate over an audio range usually in the 300 c/s to 3 kc/s region, and in its simpliest form consists of a few components in a CR bridge circuit. The arrangement shown in Fig. 1 is a typical example. This circuit is usually associated with the S.S.B. Jr. exciter, and is known as the "passive" type. Those circuit networks that include valves, and are often required to work over a wider a.f. range, are referred to as "active". The purpose of the network is to present to the balanced modulators via a channel amplifier two sources of audio of equal amplitude, but with a phase difference of, or as near to, 90 degrees as possible over the required working range. This can be achieved quite simply with careful selection of components for an error of something less than 1.5 degrees from the nominal 90 degrees (which is the maximum that can be tolerated if good sideband attenuation is desired).

In these circuits the ratio of the component values is the important factor, rather than the actual values. In the circuit referred to above, the 100K ohms high-stability resistors (1 per cent. tolerance) may be bought over the counter from any good radio dealer. The 133.3K ohms resistor is obtained by the use of a 150K ohm (1 per cent. tolerance) resistor in parallel with a 1.2 Megohm (10 per cent.) resistor. The ratio between the 100K and the 133.3K should be 3:4, and is most important. To obtain this, a resistance bridge is best used, but with careful selection of individual components extremely good results are obtained in the finished networks. The same argument goes for the capacitors, and while these may present a somewhat different problem, the point here, too, is that the ratio rather than the actual values should be adhered to. With the S.S.B. Jr. network the values shown are rather unusual, but in practice it has been found that by the use of round values, i.e., 600 pF, 1200 pF, 2400 pF, and 4800 pF, the only effect is nothing more than a slight change in the frequency range over which the network operates. Here again the capacitors should be available from any good stockist. However, reference to the following table will show how GM3GHF overcame the problem by using Radiospares silvered-mica (1 per cent. tolerance) capacitors in parallel.

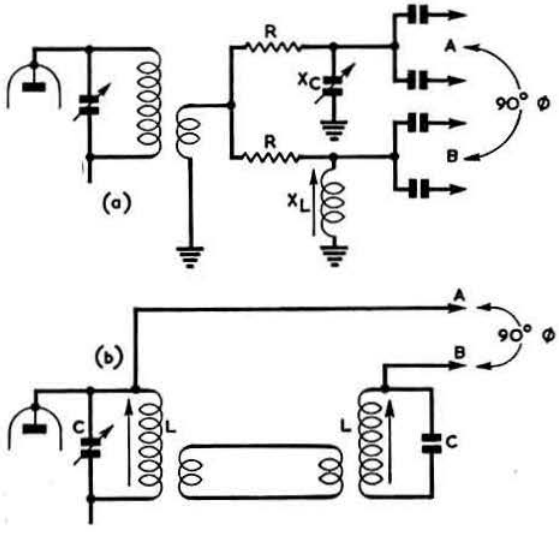



Fig. 2. R.f. phase-shift networks.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 608 pF | = | 540 pF | plus | 68 pF | | | | |
| 1215 pF | = | 1000 pF | plus | 140 pF | plus | 75 pF | | |
| 2430 pF | = 2 × | 1000 pF | plus | 230 pF | plus | 200 pF | | |
| 4860 pF | = 4 × | 1000 pF | plus | 800 pF | plus | 60 pF | | |

In the case of the r.f. phase-shift networks the problem is much simpler, especially if fixed frequency operation is contemplated. Fig. 2 shows two typical networks, although there are other arrangements. The circuits employed do depend somewhat on the type of balanced modulator in use. The first circuit (Fig. 2a) is what is known as the critically-coupled type, in which two tuned circuits are adjusted to resonance at the frequency of operation; and the coupling for equal amplitudes at "A" and "B". The second type (Fig. 2b) is suitable for the balanced modulator with single-ended input and push-pull anode circuit; and is one in which the reactance of the L and C must equal the R for a given frequency. It is important to allow 20pF of stray circuit capacitance when calculating. If it is not possible to use a bridge for the measurement of the inductance, then all that is necessary is to determine the correct value of C, and then wind a suitable coil, preferably on an adjustable iron-cored former, that will be tuned by the calculated capacitance to the operating frequency.

Suppression of the unwanted sideband in the phasing type transmitter is dependent on the accuracy of setting of both the r.f. and a.f. phases. Since the suppression depends on the difference between large quantities, it will always be difficult to maintain completely in practice. It can be shown that when the phase-shift varies by 1 degree the ratio of desired to undesired sideband is roughly 40 db. This ratio drops to 20 db when the phase-shift becomes approximately 10 degrees. The necessity for close control of phase is therefore clear. If the phase setting is perfect, and one of the sidebands to be cancelled is 11 per cent. larger than the other, the ratio of desired to undesired sideband is nearly 25 db. Thus, a given inaccuracy in phase setting is slightly more serious than a given inaccuracy in relative magnitude.

### Mullard Semiconductor Data

A NEW booklet entitled *Mullard Semiconductor Data* has recently been published which contains complete information—including characteristics, curves and application notes—on the entire range of Mullard germanium diodes and transistors. The booklet comprises individual data sheets for each type, bound into an attractive two colour cover designed for the easy addition of new data sheets in their correct order.

Copies of the booklet are available free from the Communications and Industrial Valve Department, Mullard, Ltd., Mullard House, Torrington Place, London, W.C.1.

### "Improving the War-surplus HRO Receiver"

IN Fig. 2 of the above article on page 399 of the March issue of the BULLETIN, RD should be connected to the junction of the anode of the VR105/30 and RE, and not direct to the h.t. line as shown.

# FOUR METRES... ...AND DOWN

By F. G. LAMBETH (G2AIW)*

MANY readers have drawn attention to the "Great Television Shutdown" which usually occurs around 7 p.m., so leading to a very low level of activity most evenings (so far, thank goodness, excluding the Activity Periods). This shutdown of normal pursuits seems to be almost a national disease at the present time. In fact, *The Observer* has described television as "The Idiot's Lantern" and its devotees as "The Ad-mass." Neither of these descriptions could be considered complimentary but there is nevertheless much truth in both of them.

At one time, the usual excuse was that operators wanted to see the weather chart on the B.B.C. but now it is screened just before six o'clock we have to face the fact that v.h.f. enthusiasts are just like so many other people: hypnotized by the "one eyed monster" lurking in the corner of the living room. This inability to tear oneself away from the TV set is surely the real reason for most of the inactivity on the v.h.f./u.h.f. bands. No one now needs to fear TVI. The few cases which do occur can generally be cleared by a little rebuilding.

So bad has the situation now become that if it were not for the Activity Nights there would be no v.h.f./u.h.f. activity in some parts of the country until too late in the night for most people so it is high time something was done about it. We have even toyed with the idea of offering a small prize for the best letter which might be coaxed out of some of those with ideas on the subject! Some people, admittedly, have migrated to the high frequencies due to the improving DX conditions. They at least are active.

Perhaps the fact that the Open Season is nearly here again will put an end to the present hibernation. Let's hope so anyway.

### London V.H.F./U.H.F. Convention

Many gifts from radio manufacturers and the radio press have already been received for distribution at the V.H.F./U.H.F. Convention at the Bonnington Hotel on May 25. The pattern of the Convention will be similar to last year, and an interesting programme is again being arranged. Tickets price 21/-, which is higher than had been hoped, will be available shortly. There will be no formal luncheon this year, due to the greatly increased prices quoted by the catering trade for meals in private rooms. However, lunch will be available in the Hotel as well as at many restaurants and cafes in the vicinity. By the way, we learn that PA0FB who was at the Convention last year, is hoping to be present again —perhaps those of you who are definitely coming would like to advise G2AIW?

### Two Metre News and Views

From the reports received it is clear that the period under review had its bright spots, with March 11 outstanding for G-DX, while the turn of the month saw a long Continental opening. Some of the DX (Northern Ireland and Isle of Man) was unexpected and very acceptable. Activity is also on the increase except for the TV period. Some correspondents complain that when stations come back on the air after the television stations close down it is too late for those "who have to go to work in the morning."

**B.R.S.16075** (Shirley, Southampton) thinks there were some further aurora effects once or twice, as strange results were experienced, e.g. with the beam north east stations were heard from the west and north west working stations in the south. Though stations like G2DDD or 2DVD are usually excellently received, on two nights no intelligible signal was received from them. '16075 thinks he heard G3BW (Whitehaven) on March 14 at 23.15 on c.w. This is probably correct, as G5MA reports the QSO which '16075 mentions. The strange part is that '3BW was the only station heard by '16075 on that night.

**B.R.S.19162** (Dewsbury) has been "ironing out the bugs" in his 6AM4 (g.g.), EC92 (mixer) and 6AM6 (i.f.) in the R.S.G.B. Converter type circuit. He hopes to be home from his travels in time for the summer season. **B.R.S.20133** (Melton Mowbray) was in on the recent good conditions, and now has 14 counties confirmed in three countries. He notices a general uplift in activity, except locally. **B.R.S.20162** (Selsdon) found conditions better than average as also has been activity, with Continentals audible several times. The total heard was 170 stations in 30 counties and 4 countries. His results during the Monday Activity Periods are interesting: February 18: 43 stations in 13 counties heard; February 25: 43 stations in 13 counties (but no real DX apart from G3IRS and '5BD); March 4: 47 stations in 18 counties and 2 countries (conditions above average, especially to the north and east including PA0); March 11: 75 stations in 27 counties. Good all round most distant signals, including Lancashire and Yorkshire steady at about S8 with G2CVD/P (Worcestershire) outstanding in all ways (900 ft. a.s.l. only 9 watts but S9 to 9+). The point to note is that these were all heard during television hours! The total of stations heard by '20162 in 2½ years' listening is now over 700.

**G3BFP/A** has been active from **'20162's** QTH on several occasions recently and a list appears in *Worked and Heard on V.H.F.* **B.R.S.21136** (Ruislip) says March 11 was best, otherwise about average conditions.

**G5MR** (Hythe, Kent) had his first QSO since October with G5YV on March 12 and was pleased to work F8GH on March 4 after his illness. During a first contact with G4DC (Upminster) on March 14 '4DC's signal was remarkably strong and sounded like a local which must surely be unusual in that highly screened corner of England. **G5MA** (Bookham) has had QSOs with G3BW (Whitehaven), GD3UB (Ramsey, I.o.M.) and GI3GXP (Kilkeel), all on c.w. **G3KHA** (Knowle, Bristol) found the period patchy but not without its moments. The evening of March 10 was good with fair east/west conditions and high activity. There does not seem to be much sustained activity from the London area although G4DC (Upminster) is heard *every night*.

*21 Bridge Way, Whitton, Twickenham, Middlesex.

**G2HCJ** (Warrington) is still active using mobile gear in the shack (float charging) and says the *Lea Valley Reflector* should note that 10 p.m. is near bedtime. '2HCJ is busy building a new mobile unit capable of 40 watts input to a QQV03/20A modulated by two 6146s. This will be ready for the summer. '2HCJ will be out for the contests and other weekends working /P and /M. He says he has organized a horse to get the gear up Pendle Hill (1813 ft), 12 miles north-east of Blackburn! He would be pleased to hear of good locations accessible by car in the Grantham-Doncaster area (*not* for Field Day use).

**G2JF** (Wye, Ashford, Kent) says the period was outstanding for the openings during the periods February 27-March 4 and March 10-12. During the latter period GD3UB (I.o.M.) was worked, an excellent QSO over about 320 miles. G8RK and '8BJ (both of Ashford) are on the band when time permits and expect to radiate a better signal shortly when their aerials are in better shape. **GC3EBK** (Guernsey) made a welcome re-appearance on the evening of March 10.

**G3EMU** (Canterbury) notes March 4, 11 and 12 as outstanding. On each of these nights conditions conformed to a pattern in that they started with French stations, then ONs followed by PAs and lastly the northern Gs. No two countries however were audible at the same time, i.e. there was a narrow band of good conditions moving south to north and lasting about one hour. G3EMU comments on the terrific number of stations heard by B.R.S. 20162 and thinks that a description of a station doing so well would be interesting to read.

**G3WW** (Wimblington) in lighter vein asks us not to forget to announce that "Friday night is Amami Night"! '3WW is still on 10m, but we hope he will soon return to 2m.

**G8UQ** (London, W.1) apologizes to his many 2m friends for a long absence from the band, due chiefly to portable activities being badly disorganized by petrol rationing. After a six-year struggle from the world's worst QTH (several feet below sea level near Marble Arch) he announces an imminent change to a new QTH near Great Missenden, Bucks, with an elevation of 500 ft. A new transmitter (input 150 watts) is in course of construction, but until such time as this is completed the portable equipment will be used from the new QTH. Portable activities will be resumed when petrol allows.

**DL4ET**/W6JNM visited R.S.G.B. Headquarters recently and said that the Heidelberg Amateur Radio Society is encouraging its members to come on 2. He said the following stations should soon be active, looking for G contacts: DI4ET (400 watts), '4ZX, '4IF (XYL of '4ZX), '4IC, '4WM, and '4OHM (the club station).

**G8LN** (Plumstead) thinks that bad conditions on 2m are related more to cyclonic phenomena rather than to magnetic disturbance from sunspots, as 2m has not been so good since the last aurora as it was previous to that occurrence. On March 17 conditions were the poorest for months. When conditions on 21 Mc/s are stable and constant, 2m conditions are good (says '8LN) but when the lower frequency bands are erratic conditions will not be very good on 2m. **G3IEX** is at present in Germany and '3ANB and '5OX are still active in spite of TVI troubles.

**PA0FB** (The Hague) recently got his QEL1/150 final working (150 watts in, 100 watts out). In a recent QSO with a G station his signals were reported 1½ S points better than on the old rig (QQE04/20, 42 watts input). The blower on the QEL1/150 makes an awful noise but this will be cured by boxing the blower up and feeding the air through tubing. British stations were worked on February 28, March 1, 2 (G5KW outstanding, like a local), March 3, 4, 5, 11, 12 and 13 which really sounds very good. Among the stations in the list is DJ3NR/P with 2 watts input on top of a television relay tower 1800 ft a.s.l. on 144 Mc/s, who is a good phone signal every other night. Many PAs now observe the "Monday Night at Eight" appointment, so please look out for them.

A fuller story of the remarkable Continental opening, briefly mentioned last time shows that conditions were good on February 23, and that from March 1 to 3 they were above average. **G5KW** reports that on the Friday night the band was wide open and PA0FB was on till 3 a.m. working many DX QSOs. The band opened at 7 p.m. on March 1 and G5KW worked twenty ON4s and three PA0 stations. On March 2 the band was open early and at 8 a.m. PE1PL was worked, giving '5KW a report of 50 microvolts. DJ1XX and several more ON4s and PAs were then worked. On March 3 PA0FB was worked in the afternoon as well as PA0NO and F8GH but conditions then began to tail off. It appeared that the Continental stations were receiving Gs better than vice-versa. Pressure was steady and high over Europe, but falling slowly here. PA0FB's report is complementary to the above and the two together give a clear overall picture of a very interesting period.

A lot of interest is now being shown in the I.G.Y. programmes which are being arranged by many countries. It occurs to us that a very good site for observations, for those who can make use of it, is Cairn O' Mount, in Kincardineshire not far from Aberdeen, where G5KW and GM2FHH had such a field day nearly two years ago.

**G3CCH** (Scunthorpe) believes that the Activity Nights are a success, and says that even when conditions are rock-bottom there is usually someone to talk to. **G3LHA** (Coventry) reports that conditions in the Midlands have shown signs of general improvement with a consequent increase in activity. From February 24 to March 4 except for a day or so, conditions were very good to south-east, north-west, north, south and south-west although not all on the same dates. March 10 was good to the south-east, whilst March 11 saw excellent propagation in all directions, with peak conditions. March 11 was, in fact, *the* night of 1957 for '3LHA. London and South Coast signals were S9+, although full advantage could not be taken owing to TVI troubles. During the month 21 fresh stations were worked and two new counties—G3JGY/M in Herefordshire on 144.97 Mc/s and G3HIQ (Oxfordshire). Many of the above 21 stations were at good distances, ranging from the South and East Coasts to the West Country and Yorkshire. '3LHA heard nothing of G3BW or GD3UB on the occasions recently when London stations have worked them, although GI3GXP has been heard and called without success. '3LHA makes another plea for activity around 1300 B.S.T. on weekdays—'3LHA and '3DKF/A are on every day and seldom hear anyone else.

**G5BD** (Mablethorpe) worked GI3GXP (Kilkeel) on four occasions recently and on a bad night contacted G2DDD over a normally poor path. No GMs however, have been heard for months. **G3JGJ** (Plympton) has only worked or heard two stations in the last three months; G3GAO (Torquay) and GC2FZC, although the latter is party to a sked which is still going strong every evening. It must be lack of activity rather than conditions locally which make for the dearth of signals. '3JGJ is regularly on 2m from 18.15 to 19.00, seven days a week and on Sunday mornings at 10.00 and later if the conditions warrant. Portable activity on 2m and possibly

70 cm is envisaged during the First Two Metre Field Day on May 5.

There is activity on 144 Mc/s in Portugal, but it is practically all confined to Lisbon. Accordingly most of the work is local, exclusively on phone. Powers in use range from 20 to 75 watts. Most aerials are ground planes, although **CT1CO** uses a 136-ft long wire, centre fed.

### Seventy Centimetre News

Talking of 70 cm, just as we were wondering what had happened to this band, **G5BD** (Mablethorpe) reports that his sked with G3HBW (Bushey) is still working well with 15 contacts either fully 70 cm or cross-band to 2m. The 70 cm signal is often better than the relative 2m one. G3IOO, '2CIW, and '2BVW were all worked on 70 cm by '5BD and '3JZG. '2DCL, '2FNW, '3BA and 6YU were all heard and worked cross-band 70 cm/2m.

### Four Metre News

**G2ABD** (Kenton, Middx.) says that "dirty noise at the bottom of the band" (the hum modulated carrier previously mentioned) is still on; a clue to the identity of this station is that when closing down at 23.15 G.M.T. a transatlantic accent is sometimes heard. '2ABD reports the arrival on the band of G2AIH, '3JFS and '5SZ during the last month.

**G3EHY** (Banwell) says that all will agree with the sound sense of G2XV's remarks in last month's BULLETIN and comments that if all stations would give a quarter hour of their time to calling a series of CQs, then the bands, even if previously apparently hopeless, would immediately come to life. The series is, of course, to take care of QSB periods, and to get a call through in spite of fading. '3EHY says that at any rate at his station there has been no dearth of activity and DX stations have been worked every evening during the past few months. On every evening when the transmitter was on (and this means almost any evening during the time) it was possible to work G3CLW (Bromley, Kent) at 130 miles. So far 30 contacts, around 18.30 and just before midnight, have been achieved, although no sked has been arranged—the signals are always there and workable, usually S8/9 both ways. '3CLW is using 10 watts only which should encourage others. Many other London stations have been worked, some several times, as well as G3FAN (I.o.W.). Stations in Glamorgan are regularly active, as is G3HHY (Bristol). G3EHY would like to hear of some activity to the North or in Ireland and will fix up skeds with any station so desirous. He further asks Manchester, Liverpool, Dublin and Belfast to listen for the West Country, but we are afraid that is all the first two can do as they are affected by the ban within 50 miles of Jodrell Bank. In view of the bad interference experienced by London stations at the low end of the band, '3EHY is now using the following frequencies, with better results: 70.250 and 70.321 Mc/s and will go even higher should the necessity arise. **G5MA** (Great Bookham) is now on 4m (with only 3 watts output) and has worked 9 stations so far.

A three-way crossband QSO took place on March 2. G2HCG and 5KW worked PE1PL who was on 2m. A further QSO later brought together G6NB and PE1PL in the same fashion. **G3KHA** (Knowle, Bristol) says that contrary to reports he is not yet on 4m.

**G3CCH** (Scunthorpe) is in process of erecting a tower for his various aerials which should prove an advantage over previous efforts especially having regard to aerial heights. A 4-metre rig has now been completed and as soon as the aerial is ready he will be putting Scunthorpe on the air.

**CT1CO** (Lisbon) reports that the Portuguese authorities have released the 50-52 Mc/s band to CT1, CT2 and CT3 amateurs, until December 31, 1958. CT1CO will be on 50 Mc/s within a month, first on c.w., later on phone. A few other CT1s will also try to work DX on the band. CT1CO is building a converter for 70-73 Mc/s for cross-band work with British and French stations.

### Six Metres

**PA0FB** heard a station on November 30 at 16.11 G.M.T. and is almost certain the call was VU7CY (he is in any case certain it was India). The signal was very weak (33/7) calling on phone "the British Isles and Saudi Arabia." If VU7CY reads this he will doubtless be interested. PA0FB also received a W0 station on c.w. on December 2. He says he sends this report to us because "so many Ws read the R.S.G.B. BULLETIN nowadays." **VS6CJ** on a recent visit to Headquarters reported that VS6 amateurs now have the band 50.5 to 51.5 Mc/s.

* * *

The above reports on the various bands make a promising augury for the season. As Easter comes round about our closing period reports would be appreciated sharp to time next month. Many thanks to all for their support.

### Late News

**F3SK** reports that a strong "French Forces Commando" will be attending the Convention on May 25. Those expected include F3SK himself, '8NH, '8MX, 9CQ, '9TV (alias F8OS) and '8TD (from St. Nazaire), chief of the V.H.F. Atlantic Group.

## Heard or Worked on Two Metres

**B.R.S.16075** (Shirley, Southampton) February 16–March 17, 1957.
*Heard:* G2AHY, 2DDD, 2HCG, 2HDZ, 3BW, 3AUS, 3FEX, 3FJR, 3GDR, 3GHO, 3HXS, 3IRA, 3IRS, 3JZG, 3KHA, 4PS, 6AG, 6FO, 6JF, 6NB, GC3EBK, GW8UH.

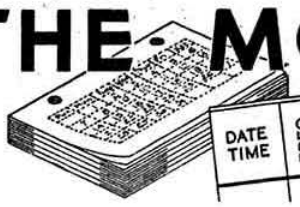
**B.R.S.20133** (Melton Mowbray) February 12–March 16.
*Heard:* G2BVW, 2CIW, 2FNW, 2HOP, 2MV, 3BA, 3BAC, 3DKF, 3FFV, 3BU, 3GFD, 3GSO, 3HA, 3HBW, 3IRA, 3JWQ, 3JZN, 3KUH, 4MK, 5BD, 5CP, 5HB, 5KG, 5MA, 5YV, 6XM, 6XX, 8VZ.

**B.R.S.20162** (Selsdon) February 14–March 13.
*Heard:* F8AA, G2AFB, 2AHP, 2AHY, 2AIH, 2AJS, 2ANT, 2AOK, 3AUD, 2BDP, 2BVW, 2CD, 2CIW, 2CXP, 2CVD/P (Worcs.), 2CZS, 2DDD, 2DSW, 2DVD, 2FJR, 2FM, 2FMJ, 2FNW, 2GG, 2HCG, 2HDJ, 2HDY, 2HOP, 2JF, 2LW, 2MV, 2NM, 2RD, 2TP, 2UJ, 2WJ, 2WS, 2YB, 3ABA, 3AEX, 3AFN, 3ALC, 3ANB, 3AUS, 3BA, 3BII, 3CGQ, 3CNF, 3CO, 3DF, 3DKF, 3DLU, 3DOR, 3DOR, 3DQC, 3EIW, 3EJO, 3EMG, 3EMU, 3ENY, 3EOH, 3EYV, 3FAN, 3FQC, 3FD, 3FEX, 3FFV, 3FMP, 3FNL, 3FP, 3FQS, 3FUH, 3FVG, 3FW, 3GAV, 3GDC, 3GDR, 3GGJ, 3GHI, 3GHO, 3GOZ, 3HBW, 3HIQ, 3HRH, 3HWJ, 3HXS, 3HZJ, 3IAM, 3IDD, 3IIT, 3IJB, 3INU, 3IOO, 3IRA, 3IRS, 3IRW, 3IUL, 3JEO, 3JEP, 3JFR, 3JHM, 3JHM/P, 3JN, 3JQN, 3JR, 3JTQ, 3JWQ, 3JZG, 3JZN, 3JZW, 3KDD, 3KEQ, 3KFX, 3KHA, 3KLI, 3KQC, 3LAY, 3LCK, 3LHA, 3LIA, 3LOA, 3LOK, 3PV, 3XC, 4DC, 4FB, 4IB, 4KD, 4OT, 4PS, 5BD, 5BQ, 5DS, 5HN, 5KG, 5KW, 5LK, 5LK/A (Kenley), 5LL, 5MA, 5NF, 5OX, 5RD, 5UM, 5WW, 5YH, 5YV, 6AG, 6JK, 6JP, 6LL, 6LL/A, 6NB, 6OX, 6RH, 6SN, 6XM, 6XX, 6YP, 8GHY, 8KW, 8LN, 8RW, 8SC, 8VZ, ON4HN, PA0BL, 0FB, 0FC, 0NO, PA0WAR.

**B.R.S.21136** (Ruislip) February 16–March 17.
*Heard:* G2AIH, 2AHL/M, 2AHP, 2ANT, 2AJS, 2BDP, 2BRH, 2DVD, 2FM, 2FMJ, 2GG, 2HDJ, 2HDZ, 2JR, 2RD, 2TP, 2UJ, 2WS, 3AFN, 3BII, 3BFP/A, 3CNF, 3CGQ, 3CO, 3DF, 3DOR, 3EYV, 3EIW, 3FQS, 3FD, 3FCQ, 3FNL, 3FUH, 3GDR, 3GHO, 3IAM, 3IUL, 3JN, 3JR, 3JQN, 3KEQ, 3KEQ/M, 3KLI, 3MV, 4DC, 4KD, 5DS, 5KW, 5LK, 5LK/A, 5MA, 5RD, 5UM, 5YH, 6JP, 6NB, 6NF, 6OX, 6YP, 8HY, 8KW, 8KW/M, 8RW.

**G2JF** (Wye, Ashford, Kent)
*Worked:* F8GH, 8NW, G2YB, 2FMJ, 2FKR, 3BA, 3ALC, 3CNF, 3DKF, 3EJO, 3FCQ, 3FCT, 3FNL, 3GGJ, 3GHO, 3GOZ, 3HRH, 3INU, 3IRA, 3IRS, 3IRW, 3JNJ, 3JWQ, 3KEQ/M, 3KFX, 3KHA, 3LHA, 3LOK, 4DC, 4IB/M, 4PS, 5BD, 5DS, 5LL, 5YV, 6AG, 6LL, 6NB, 6XM, 6XX, 6YP, 8MU, 8SC, GC3EBK, GD3UB, PE1PL.

# THE MONTH ON THE AIR




By S. A. HERBERT (G3ATU)*

A BUSY and interesting month has just passed, with a satisfactory assortment of DX, long skip, short skip, medium skip and Sporadic E giving variety to the various bands. The mail this time is heavy, so on with the business without further ado.

**Overseas News**

**G8ML** (Cheltenham) has been working Jack Elliott, **VR3F,** on twenty phone and passes the news that both VR3F and VR3G closed down at the end of March, as the transmitters they were using were no longer available. '3F was due to visit KH6 and hoped to make other arrangements while there. He expects to be on the air again, using c.w. and says he has heard very few Gs so far and those only between 08.00-08.45 G.M.T. (VR3E, presumably, is still active?)

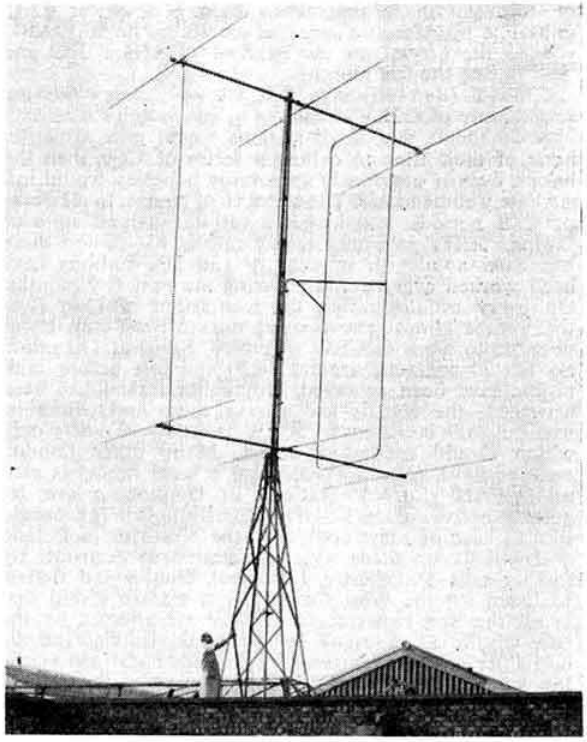
**G6VF** (Kingsbridge) passes news from ZC4JX that **VQ8AD** plans a trip to Carajos, 300 miles north of Mauritius, towards the end of August. He will look for Gs at 17.00 G.M.T. daily on the low edge of the c.w. band. **G3LOQ** (Aylesbury), who was **VS9AH** for a time during 1956 (the call was a re-issued one) says that the Aden G.P.O. follow British practice as regards Amateur Radio matters and, generally speaking, they will issue a call to any British subject living in Aden if he has recently held a call elsewhere. Members of H.M. Forces who have not previously held a call make their initial application through Service channels and if it is approved, the civil authority normally issues a VS9 call. The situation on Masirah Is. is that there is no G.P.O. there and the delay in getting permission to operate (see *M.O.T.A.*, February, 1957) is because nobody can discover a civil authority competent to grant that permission! Masirah, incidentally, is off the coast of Muscat and Oman and will presumably count as that country, which should ensure attention for anyone operating from there. ST2NG is now active as **VS9AG.**

**G2DLX** (Enfield) had a QSO with K4LIB/W2HC/FQ8 (a resounding call-sign, if ever there was one), who is running 1 kW on s.s.b. and is operating from a truck, en route for the Sahara. His power is from a petrol generator and he has permission to operate from the local authorities. He uses 14300-350, 21350-450 kc/s and 27 Mc/s from 18.00 to 24.00 G.M.T. QSL to K4LIB via A.R.R.L.

During the Easter period, G2DHV will operate as **ON4IE/2** from De Panne, Belgium, on 3.5 Mc/s c.w. Tony Ernest is now ex-ZC4AA and holds the call **GW3LQE,** which he hopes to air from some of the "rarer" Welsh counties soon. Meanwhile, 15 watts are pulling their weight from his Penarth home QTH, which makes up for **GW3CMK** (Barry) who is on his way to Jamaica, where he will doubtless quickly acquire a VP5 call.

**ST2DB** has now moved to Accra and by now he may be on the air with a ZD4 call-sign. He remarks that ST2DD has also gone to ZD4 and ST2AR has taken up astronomy, leaving ST2AC as the sole remaining active ST2. **G3III** says things in Cyprus are quiet. Licences are again being issued and his own application is in. Bands available in Cyprus are 80, 40, 20, 15 and 10 metres. ZC4PW is busy building a s.s.b. rig.

The January/February issue of *The Malayan Radio Amateur* contains news that FU8AC and FU8AD are active on 14 Mc/s, using the same rig. They put a good signal into Malaya around 08.45 G.M.T. JZ0PB and 'PC are on 21 Mc/s, while JZ0PA is active on the other



**G2HCG of Northampton is using this fine 4-over-4 slot beam on 28 Mc/s with excellent results, frequently receiving reports from North America of "the strongest signal on the band." The aerial is fed with 75 ohm coaxial cable via a balun, the standing wave ratio being 1.3:1. The gain is approximately 11 db. The slot measures 230 in. by 76 in. and is delta fed. Each arm of the delta matching section is 61 in. long. The reflector and first director are 51 in. on either side of the slot and the second director 102 in., giving spacings of 0.125, 0.125 and 0.25 wavelength respectively. The tubing used is 1¼ in. diameter for the slot and delta section and 1½ in. diameter for the elements. The cross arms are 2 in. diameter tubing. Due to the array's somewhat astonishing size—it measures about 19 ft. by 17 ft. by 17 ft.—a very strong mast is required.**

*(Photo by courtesy of J-Beam Aerials, Ltd.).*

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

bands also. VS4JT will be at Miri, Sarawak, for at least two years and has been very active on 14 Mc/s phone. VS4NW is now in Sibu but did not take his rig with him. Latest news from **W6YY** (La Canada) is of a 150 watt station which, says VQ8AB, is sure to be permanently on Comoro before long. ZL5AA, the New Zealand I.G.Y. station, is on 14 Mc/s phone and c.w. FB8CC is ex-FB8XX. Pierre says there is no prospect of Kerguelen operation in the near future. ZA1KUN says QSL to P.O. Box 55, Tirana. (Ah, well, there's no harm in trying!) HS1MQ and HS1A are active on phone and HI8WL is home at W5DUG, 5308 S. Delaware Pl., Tulsa, Okla.

From **W6ZEN** comes news that VU4AA is on from the Laccadives and that VR6AC uses 14 Mc/s almost daily around 05.00 G.M.T. QSL via W6SYG. W6ZEN understands that prospects seem good for Danny Wiel to resume his seaborne wanderings. G2AHL met **DL4ET**/W6JNM (Heidelberg) who recently visited R.S.G.B. Headquarters. DL4ET is looking for Gs every day on 14 Mc/s from 11.00 to 11.45 G.M.T.

After a year in Trinidad, old-timer **VP4KL** (ex-G2KL) returns to Barbados where he will be on again from VP6KL. **G5RV,** still travelling in the Caribbean, Central and South Americas, holds the calls VP5RV (Jamaica), '6RV, '7RV and he hopes to add VP4RV. In addition, Louis has permission to operate anywhere in the Netherlands Antilles, using the call-sign G5RV/PJ2. Recently, he was a very strong signal on 21 Mc/s phone using VP6RV from the home of hospitable VP6WR.

**VQ8AD** reports that VQ8AP will be operating as VQ8SP from Cargados Carajos, a dependency about 250 miles north-north-east of Mauritius, from the end of July to the end of August. **VQ8SP** will be running about 12 watts input on 14 Mc/s.

### Falkland Islands

In an airmail letter to G6CL written from Stanley on March 11, 1957, Vic Harrison, VP8BL/G3CUO, sends the news that he will shortly be leaving for home, his spell of duty with the F.I.D.S. having been nearly completed. Mail should be addressed to him c/o 29 Laleham Road, Shepperton, Middlesex. Stan Ward (Box 87, Stanley) has agreed to take over Vic's duties as VP8 QSL Manager.

An aircraft of Hunting Aerosurvey, Ltd., has just returned to Stanley from Deception Island bringing with it George Milburn, VP8BQ. Graham Davies, VP8AQ, who is a wireless operator at the new F.I.D.S. W/T station in Stanley is using a Minimitter transmitter with considerable success. Peter Bunch, VP8BY, has moved from Port Lockroy to Admiralty Bay and Gordon Farquhar, VP8BM, has taken over his duties. Edgar Roberts, VP8BC, left Stanley a few months ago to carry out radio maintenance work at the South Georgia whaling station. Later he is going to New Zealand. VP8BL asks that his thanks be conveyed to all who have worked his station or written to him whilst in VP8 land.

### Ten Metres

During the past few weeks, solar storms have had their effect on the band and conditions have varied from very good indeed to completely hopeless. On the good mornings, signals from VK, ZL and parts of the Pacific came through until after mid-day, to be followed by the usual mass of loud Ws, but there were days when all that could be heard was an occasional weak, fluttery echo from VE5, VE6 or the western U.S.A.

**B.R.S.20135** (Newport, I.o.W.) heard someone talking about "QRMurder," which he feels would fit the situation on twenty metre phone very well, but he heard ZL3JM—his first ZL on ten—then picked up KG6AGW, VU2DB, ZD1DR, VP1EE, CT3AI and FY7YE. **B.R.S. 21279** (Birmingham) logged HP1RD, ZD8SC, SV0WE (Rhodes), K5NHY/KG6, CR4AS and UN1AB on A3, while **A.1376** (Winscombe) mentions VQ2YU, '2JC and ZE2KE, the latter remarking that he had heard European TV often since November last. **B.R.S.20911** (Berkhamsted), who was SM7-1334 until 1954, has amassed 154C and 47 States since his arrival here. An S-40 and a long wire are used and Arne reports hearing OX3LD, MP4KAC and W7ASI (P.O. Box 596, Fort Huachuca, Ariz.), though Wyoming still eludes him. **B.R.S.20133** (Melton Mowbray) logged phone signals from CR7DS, FQ8AQ, VP4KR and some Us. It pleases him to hear the U.S.S.R. phone stations, who seem to have a modulation system all of their own.

**B.R.S.20317** (Bromley) was pleasantly surprised to get a direct QSL from 3W8AA after only two months. FL8AB obliged also. He heard ZD6RM on A3 and logged CR7AF, CT3AB, ZP9AY and 9S4CM on the key. **B.R.S.20106** thinks things are getting better and instances ZD3BFC, FF8AP, ZD4CF, CR9AK, VP8AQ, YN1LB, ZS9G, HH2RM, HZ1SA, HC1, HP and VE6DY/Mobile on phone, with VP2LU and JA8AQ on c.w.

**G3SD** (Newcastle) worked MP4BBL for a new one, before going back to twenty metres, while **G3ATU** was lucky enough to stumble on YA1AA (A3) and W5DIJ/KG6 (A1). LU2XB (Patagonia) is around on phone and FQ8AG (15.00), IS1FIC, G3FYR/VS9 (Aden) and HI8BE are there for the c.w. types to aim at. HI8BE is active on several bands and requests QSLs via Burke Edwards, c/o The U.S. Embassy, Ciudad Trujillo, Dominican Republic.

### Fifteen Metres

During lulls in the solar disturbances already mentioned, there have been spells of excellent conditions. Already the band is staying open longer and as Summer approaches, DX should pour through into the small hours. However, "*those things*" still infest our supposedly exclusive frequencies and presumably they will continue to have a depressing effect on activity.

**The first member of the Derby & District Amateur Radio Society to win the President's Trophy presented to the society by Mr. A. G. G. Melville, F.R.C.S., was Mr. F. Clay (G3IBL) for his efforts in a local Top Band Contest last year. Mr. Clay operated his station from dry batteries, the input to his transmitter being 0.1 watt to a long wire aerial. In this photograph, Mr. Clay (holding the Trophy) is seen receiving the award from the society's chairman, Mr. C. M. Swift (G3IUK).**

**A.1328** (London, W.1) heard ZS6DG, ZP5JP (22.30)—new ones for him—VP6ZX, '6RV and VQ5FS. **B.R.S. 20135** tuned the high end and logged VS4JT, SV0WE, VP3HAG, VP7NF, EL2D, VP8CC (South Shetlands), TG9AZ and lots of VKs and VS2s, while **B.R.S. 20133** had a very good month, hearing his first VS4 (VS4JT), VK9AT (New Guinea), VK9DB (Papua), VP1EE, '2KD, '4TE and adding VP8AQ (Falkland Is.) and VP8CH (Halley Bay) to his Antarctic tally. This year, he already has 34Z and 119C, all on phone, on the three h.f. bands. **A.1376** heard phone from ZS4GK and VP8CQ (17.50) and **B.R.S.20911** logged F9YP (Corsica) and OQ5RU (16.50). On c.w., **B.R.S.20317** got EA6AF, KR6AE, VS6 and XF1A, of all things.

**B.R.S.20106** found the band open until well after midnight for VP4, EA8, etc., and lists VP4MM, '8CC, '8CH, CR4, CR7, ZS3 and ZS9 on A3. Another interesting phone catch was VP2VG (British Virgin Is.), who may eventually count as a new country. On c.w., Norman heard DX such as KW6CA (11.00), VK9XK, VK0AB, VU2HF (19.30), VP9CY, JA, VK and ZL.

**G6XL** (Leeds) had some good phone QSOs with ZL and KH6, but says he worked nothing outstanding. He would like to see more times and frequencies of the DX which is being heard or worked. Your commentator had c.w. QSOs with LU2ZS (South Shetlands) and VP2VG, who was knocking them off at a terrific rate. He said he was a new country in the B.W.I. (we hope he's right) and that QSLs should go via KV4BB. YA1AM was RST559 at 16.00 and JZ0PC was heard weakly on phone at 14.00

### Twenty Metres

Despite the seemingly ever-present short skip, business on twenty is as brisk as ever and a wide variety of DX continues to show itself. At least, most of the QRM on the band is amateur made and we have only ourselves to blame if we continue to put up with "drainpipe" phone scattered all over the l.f. end, clicks, chirps and all the other prime examples of how not to behave on the air. True, the hard cases—people who are apparently trying to achieve a real T1 note—will press on regardless, but perhaps some of the T6 brigade will take the hint if enough people point out to them the error of their ways!

**G3GNM** (Harrow) enjoyed himself mightily with nine new States and ten new countries, all on c.w. A 70-minute battle with Ws finally landed him ZD4BQ on Ghana's first day of independence, while ZD9AE was landed after another longish duel. **GM3ITN** (Clydebank) worked VK0AB (Davis, 14020, 18.00), VS6DN, VS9AG, VQ6LQ, ZS9P and VS6, then changed to n.b.f.m. for HH2R, OH2AA/0, VK and VE8.

**G3AAE** (Barnet) had c.w. QSOs with UA0KFC (Sakhalin) and four OHs—all on Aaland. He heard CP3CA at 23.00, just when he was fading out, and listened to ZA1KUN one morning on phone. For half an hour, the ZA called "CQ no Europe" without getting a con-

**DX Television Predictions for May, 1957**
**Prepared by J. Douglas Kay (G3AAE)**

| | |
|---|---|
| Accra | 1230-1830 G.M.T. |
| Capetown | 1200-1700 G.M.T. |
| Dakar | 1700-1830 G.M.T. |
| Johannesburg | 1200-1800 G.M.T. |
| Nairobi | 1230-1700 G.M.T. |
| Salisbury | 1230-1800 G.M.T. |

These predictions are based on the B.B.C. Channel 1 sound transmission on 41.5 Mc/s. The vision signal is on 45 Mc/s.

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A considerable drop in M.U.F.s forecast for May is expected to render reception of the B.B.C.'s transmission impossible except on the North-South path.

# Frequency Predictions for May, 1957

PREPARED BY J. DOUGLAS KAY (G3AAE)

| BAND | NORTH AMERICA | CENTRAL AMERICA | SOUTH AMERICA | SOUTH AFRICA | NEAR EAST | MIDDLE EAST | FAR EAST | AUSTRALIA |
|---|---|---|---|---|---|---|---|---|
| M.U.F. | 28 Mc/s 1800 | 38 Mc/s 1900 | 39 Mc/s 1800 | 43 Mc/s 1430 | 37 Mc/s 1230 | 33 Mc/s 1100 | 30 Mc/s 1300 | 30 Mc/s 2200 |
| 28 Mc/s | 1600—2000 | 1000—2200 | 1030—2230 | 0700—2200 | 0700—2000 | 0800—1700 | 0900—1830 | 0900—1300<br>2100—2200 |
| 21 Mc/s | 1000—0100 | 0700—0500 | 0930—0530 | 0600—0130 | 0400—0200 | 0500—0200 | 0700—0100 | 2200—1600 |
| 14 Mc/s | ALL DAY | 1700—1100 | 1800—1000 | 1400—0600 | ALL DAY | 1300—0600 | 1400—0200 | 0000—1000<br>1400—2300 |
| 7 Mc/s | 0000—1000 | 1900—0800 | 0000—0700 | 1800—0400 | 1530—0700 | 1930—0200 | 1800—2300 | 1800 |
| 3.5 Mc/s | 0400 | 0200 | 0400 | 2300 | 2000—0100 | 2000 | 2000 | 1800 |

*These predictions are based on information provided by the Engineer-in-Chief of the Post Office. All times are G.M.T.*

tact. Then he packed it in, without working the few stations who were hearing him. Never mind, he's probably just another non-Albanian ZA! **G3FPK** (London, E.10), is back again after four years' absence and uses p.p. 807s and a 67½ft centre-fed aerial, 20ft high, with which he had c.w. QSOs with OH1ST/0, LX1DP, CR6CZ, VE8OW, UA0SK (Irkutsk), CE3RE, UA0KFG (15.00), CO7PG and VE0NE, with FL8AB, FG7XE, OY7ML, UD6BG, VP8BW (Signy Is., 23.45), ZC5JM (14072-14.10), other choice ones getting away. Norman remarks that if you speak Spanish you should do well on phone any night of the week.

**G6XL** worked KM6AX (1402$, 18.45), DU1CP ('090, 16.00), LU5ZC ('025, 22.00) and OY9LM and heard ZK1AU (a strong c.w. signal, way up on 14330 kc/s at 07.45), KC4USA ('050, 08.30) who was RST 449 working ZL, VK and finally a string of W6s, so that was that! **G3SD** made the most of a week's holiday, working CR7MB, EL2G, ZD3A, 5A4, 4X4, KG1 and OH0—all new ones. Sad to relate, VK9OQ (Papua), FB8AX, VP8CI, AP2RH, XZ2OM, VK0ZM (Mawson, 19.30) and a KR6 escaped, then '3SD worked three W5s—all in Odessa, Texas—in the space of five minutes!

**B.R.S.20135** logged XE2NF, CR5SP and 5A5TA/AM (10,000ft over Italy) on phone and **B.R.S.20133** heard a rare new one when he came upon FW8AA ('340, 08.30) in the midst of a fair-sized pile-up. The FW8 seems to be on regularly at that time.

**B.R.S.21279** heard MP4KDS and VP1OLY on A3 and has an air-mail QSL from BV1US, which pleased him very much. **B.R.S.20911** logged VQ5FS on A3, then tuned the c.w. band for KR6SS, UPOL4 and USAF (Antarctica). **B.R.S.20317** put his score up to 212C when he heard ZK1BS on A3 ('185, 07.10). Then, with the b.f.o. on, he tuned in DU1OR (19.40), KW6CE (19.10), VR2DA (18.50), W9NTJ/KG6, VK0's 'AS, 'AB, 'DJ (Mawson)—all around 19.00 G.M.T. PX1AA and ZA1AA were on, too!

**B.R.S.20106** found interest in FB8BC (04.00), KH6MG (07.00), ZK1BS (a loud signal at 06.50), VP1OLY, TG7CB, ZA1KUN (06.30), VK7CK and VP3HAG (03.30) on phone, while on c.w. Norman noted VP8s 'CI, 'BW, 'BR, ZD6DT, PJ2BA, YA1AM (16.00), FB8ZZ, 3W8AA (19.30), FB8BX (Nossi-Be. The grapevine has it that this could soon be a new one), VK0DJ, ZK1AU, PZ1AI, BV1US, FM7WR, VK5RR (22.00), FY7YB and KW6CE (18.13). ZC5DA has been active around 20.00, when VKs have been working him.

**B.R.S.21284** (Edinburgh) logged 21 States during the A.R.R.L. Phone Contest, despite noise and QSB. **G3ATU** heard VU5AB (RST346, 16.00) one day, in the middle of a large number of eager W6s. FL8AB is around on c.w. in the evenings, as is OYD on m.c.w. (QSL to Expedition Polaires Francaise, Paris), FK8AH (20.00), OQ0VN and a DJ2 who was telling a YU "R, fb, pse rpt ur call—hvy QRM"! On phone, VP1JH and FY7YE have been strong around 23.00. (The active VS1 group suggest that VU5AB is almost certainly a pirate.—EDITOR.)

### Forty Metres

Some of the things that have been going on on this band may come as something of a shock to those people who use it for its local daylight potentialities. Under the YUs and UBs on the low end and in the cracks between the high end broadcast kilowatts there still reposes DX of quality. **B.R.S.20106,** for instance, found a hole on the higher end and came on a phone net comprising W5ZHR, W5YEN, a W3, a W8 and a K4. They were there between 07.00-08.00 G.M.T. and at 08.09 KH6BWG came up; he was R4 S3-6 for a short time. KH6CAF was on and so was ZK1BS, though neither was audible in England. On the c.w. end, Norman heard YI1DH (07.40) talking to CR8SM, but unhappily, the CR8 could not be heard. Among the DX that *did* come through were VP7NM, YK1AZ, CE3AG, HH3DL, KL7AIZ, VK3XU, VK3XB, ZL1, '2, '3, VE7AG (07.50) and some W6s.

**B.R.S.20317** heard CN8DJ for a new one on forty, plus CO5GL, KL7BXS (07.30), VP6AG, VE7FK/VE8, ZS1CX (20.30) and UA0s 'BC, 'KAD and 'KKB. **B.R.S. 20911** heard UL7GN (19.55). **G3FPK** gave TF2WBG his first 40 metre QSO (00.00), then worked VQ6LQ, EA9AY, AP2RH (01.00), OD5LX (03.30), UI8KBA, UF6KAE, EA8BY(T6C), ZB1HKO and KP4—all new—and W7PQE (Wash.), with VE8OW, ZP9AY and a KZ5 among those missed.

### Eighty Metres

An excellent catch for **G3FPK** was PJ2ME (St. Maartin Is., 3504, 03.15), who gave him RST579! ZB1BF, LZ, VO3X and UA3 were also worked, but CT3AB escaped. In the wee hours, a DL was heard working a DU! **B.R.S.20106** logged KV4AQ, PY7AN, VE2LI, W9, W0 on c.w. and he heard KZ5CS and W8 on phone, while **B.R.S.20317** heard FA9FQ for a new one on A1.

### Transistor for DX on One-Sixty Metres

Interesting news comes from **DL2ZO** who is on detachment with the U.S. Army and who has been given the call DL4FH at his present QTH, 30 km South of Frankfurt. However, the German authorities have asked him to use DL2ZO when operating on one-sixty metres and on February 23 with the DL2 call, Gerry worked **G3KOX,** RST229/339 at a distance of 504 miles, followed at 22.50 G.M.T. by a QSO with **G3CSZ** (RST229) and some 550 miles distant. This contact they believe may be a new world record for a 160 metre transistor QSO. Both Gs ran an input of 150 milliwatts and G3CSZ was using home-made transistors! DL2ZO ran 10 watts to a 132ft wire and conditions were very poor. The same night, though, Gerry worked SP6KBE for a new one on the band. **B.R.S.20106** heard ZB1HKO again, this time at 05.30 G.M.T.

### B.E.R.U. Scores

One or two "claimed" scores have arrived in response to G5MP's suggestion last month. **G5MP** himself claims 63 contacts and 1,170 points in the Junior B.E.R.U., while in the Senior section, **G5MR** had 102 QSOs and 1,550 points. **G6XL** had 151 contacts in 80 areas for a total of 2,350 points, while **G3FPK** used 80, 40 and 20 metres for a limited period and made 33 scoring QSOs for a total of 605, handsomely beating **G3ATU,** who amassed 31 QSOs for a total which must be microscopic. We hope these scores—which are, of course, quite unofficial—will be of interest to other contestants.

* * *

And that puts paid to this month's proceedings, except for the reminder that your reports and comments for next time should arrive, please, by April 21. Meantime, happy hunting and 73.

### Yugoslav Summer Camp

THE annual Summer Camp organized by the Yugoslav society S.R.J. will be held this year at Koper, Istria, during August. A highlight will be the "Fox Hunt", which will be open as usual to amateurs from foreign countries.

Full details may be obtained from Savez Radioamatera Slovenije, Ljubljana, Lepi pot 6, Yugoslavia, or over the air from YU3AB or S.R.J.'s own station YU3DUV.

# I.G.Y. News

By D. W. FURBY (G3EOH)† and G. M. C. STONE (G3FZL)* R.S.G.B. I.G.Y. Co-ordinators

WAYS in which amateurs can participate in the activities associated with the International Geophysical Year were explained broadly by Dr. Smith-Rose in last month's issue of the BULLETIN, and the purpose of this new column called *IGY News* is to carry the story on at regular intervals in these pages.

Although it is true that phenomena associated with I.G.Y. will influence all amateur bands, new ground is most likely to be broken in the v.h.f. region, where techniques have been vastly improved since the last sunspot peak ten years ago. Therefore the Council, on the advice of the Society's V.H.F. Committee, has appointed two of its members, the present writers, to act as I.G.Y. organizers and co-ordinators. They will be able to call upon the services of members who are experts both in v.h.f. and h.f. work for assistance as required.

### The Plan

Dr. Smith-Rose's proposals have been carefully analysed and a specific plan formulated so that resulting activities should be well within the capability of the average amateur. However, it is essential that all observations that are made should be recorded and reported in the same manner so that overall integration is possible. It is proposed to make report forms available so that material received shall be prepared in a uniform manner, and will reduce the amount of writing required by co-operating members. The reporting network to be established is detailed later.

Activities can be broadly broken down into three categories: the "H.F.", the "V.H.F./U.H.F." and the "Visual". These are shown in diagrammatic form in the accompanying table. In this introduction it is not possible to deal with the plan in detail. Articles will follow on the various aspects covered.

**NATIONAL I.G.Y. ACTIVITIES**

| VISUAL | H.F. | V.H.F./U.H.F. |
|---|---|---|
| 1. Correlation of visual phenomena and related radio effects, i.e., aurora. In particular observations to be made along the Moray Firth in Scotland, and also in areas which are extremely dark at night. Photographs of aurora if possible. Observation of sunspots. | 1. Solar noise.<br>2. Fade outs.<br>3. Auroral propagation on 28 Mc/s, preferably Britain and Canada.<br>4. 50 Mc/s cross-band working to 28 Mc/s (Sporadic E, etc.). | 1. Study Auroral propagation on 70 Mc/s, 114 Mc/s, 435 Mc/s (see also visual).<br>2. Study Tropospheric propagation by operation on above bands and recording of pressure, temperature and humidity.<br>3. Solar noise. |

The point to emphasize is that it is not necessary for a member to work in *all* of these fields; but it is necessary so to correlate efforts as to prevent duplication in one branch of observation to the detriment of another. Hence the success of the whole scheme depends upon the efficiency of the reporting organization.

### The Reporting Organization

It is therefore proposed to appoint Area Activity Co-ordinators (A.A.C.s) whose responsibility it will be to organize particular areas along lines indicated from the National Activity Co-ordinators (N.A.C.s). In most cases these A.A.C.s will be active v.h.f. workers in particularly good sites who are also active, if possible, on the lower frequency bands. Various stations have been selected already to give a reasonable geographic coverage and they will hear in due course from the N.A.C.s. The A.A.C.s can then arrange that as many of the different study aspects as possible are covered in the particular area, and each will become a fountainhead in the return of observations and data.

### Conclusions

The whole success of I.G.Y. co-ordination by radio amateurs depends upon the *regular* participation of those concerned, especially at Regular World Intervals and on Special World Days. The peak activity times should be around October and November this year and January-February next year. However, the I.G.Y. extends from July 1, 1957, to December 31, 1958, and observations will be continued for the whole of this time. Area Activity Co-ordinators will arrange that sufficient overlap of the reporting functions can be made to ensure that a constant stream of information can be made available.

†54 Oakhurst Road, Enfield, Middlesex.
*10 Liphook Crescent, Forest Hill, London, S.E.23.

### I.G.Y. News from Abroad

IN connection with the auroral investigations which are to be undertaken by Danish amateurs during the forthcoming International Geophysical Year, E.D.R. announces, through its I.G.Y. Co-ordinator (Borge Otzen, OZ8T), that a station using the call-sign OZ7IGY is now operating on 144.05 Mc/s. The identification signal is the call-sign followed by eight dots repeated three times, then a 15 seconds dash followed by seven dots. The 15 seconds dash is intended to assist in the taking of measurements.

The automatic sender will operate at a speed of approximately 8 words a minute.

The transmitting times will be changed on the 1st and 15th of each month according to the following schedule:

| | | | |
|---|---|---|---|
| April | 15-30 | .. | 17.30-19.30 G.M.T. |
| May | 1-14 | .. | 18.00-20.00 G.M.T. |
| May | 15-31 | .. | 18.25-20.25 G.M.T. |
| June | 1-14 | .. | 18.45-20.45 G.M.T. |
| June | 15-30 | .. | 18.55-20.55 G.M.T. |

The aerial in use is a 12 element beam 7½ metres long.

Members who wish to co-operate with E.D.R. in connection with these tests should write direct to OZ8T at Geelsskovej 17, Virum, Denmark.

# Radio Amateur Emergency Network

By C. L. FENTON (G3ABB)*

THE news of the Post Office approval for R.A.E.N. co-operation with the St. John Ambulance Brigade was the highlight of last month's news. Whilst the Post Office have made this concession, the details have yet to be discussed with S.J.A.B. Headquarters, and joint agreement reached. Meanwhile, there is no reason why local discussions should not proceed, both with B.R.C.S. and S.J.A.B.

### Co-operation with B.R.C.S.

There appears to be some misunderstanding in certain areas as to the permissible extent of co-operation with B.R.C.S. The position is that, although the official publication detailing procedure, etc., has not yet been released by B.R.C.S. to its detachments and branches, there is no reason at all why local discussions and exercises should not take place. Indeed, they are already taking place in many parts of the country.

It is interesting to note that, following the Stresa Conference, the Spanish National Society is considering the formation of an Emergency Network.

### Birmingham Meeting

A meeting was held in Birmingham on Sunday March 3, 1957, to consider R.A.E.N. activity in that area. Among those present were Lt.-Col. Dunn, Chairman R.A.E.N. Committee; Lt.-Col. Dean, County Director, Worcester B.R.C.S.; Mrs. Aston, Deputy County Director, Birmingham B.R.C.S.; and Messrs. W. A. Higgins, Region 3 Rep.; M. A. Brett, President, M.A.R.S.; W. J. Butler and E. Shackleton, M.A.R.S.; W. V. Shepherd, Hon. Secretary, Bournville R.S.; H. H. Fold and H. L. Platten, Bournville R.S. and South Birmingham R.S.G.B. group; together with a number of members from various Birmingham radio organizations. As the result of this meeting a number of additional registrations have been obtained; it is now apparent that the Bournville Radio Society will co-operate to the full.

### "CQ RAEN" Calls Prohibited

The attention of R.A.E.N. members is again drawn to the necessity for avoiding the use of the call "CQ RAEN", which has been specifically banned by the G.P.O. Members must not use "RAEN" as an abbreviation in conjunction with any call, but must speak the words "Radio Amateur Emergency Network".

With the number of joint R.A.E.N./B.R.C.S. exercises increasing, members should always remember to announce regularly that they are participating in an exercise, so as to avoid messages being misread as genuine ones.

### News from the Groups

**Holt, Norfolk,** group exercised with the local branch of the B.R.C.S. on February 14 and March 7. Standard R.A.E.N. message forms were used very satisfactorily, and the Press took the opportunity to give R.A.E.N. more publicity. Participating in the exercise were G3HRK, operating from B.R.C.S. County Headquarters, assisted by J. Sutton; G3JNR at Salthouse, and G3JYG at Cley, assisted by Mr. Grand. Thanks are also due to D. A. Youngman for his very helpful reports from Wells-next-Sea. On the second exercise, G3DRL at Saxthorpe also participated. All operations were on Top Band. Despite poor conditions little difficulty was experienced. Great interest and co-operation were shown by the local B.R.C.S. members, who were well satisfied with the results obtained.

**Norwich** group continues to make progress, and have now been offered the use of a fully transportable 10 watt rig, complete with petrol-generator, for emergency use. A regular net operates every Sunday morning at 10.00 B.S.T.

**Scotland.** Efforts are being made to build up really active nets, but it is proving a little difficult with the rather scattered membership. The E.C.O.s and County Controllers would be pleased to hear from all interested persons.

**Middlesbrough** group held an exercise with B.R.C.S. on February 10. Owing to the petrol shortage, operation was from home stations, with Red Cross visitors as observers, at each station. At Control and most outstations, listeners acted as message clerks. R.A.E.N. standard message forms were used at all stations. The exercise was most successful, and fully satisfied the local B.R.C.S. officials. Thanks are certainly due to the X.Y.L.s who so nobly provided tea and refreshments to the operators and B.R.C.S. visitors.

**Staffordshire.** G3DML, North Staffs., has an R.A.E.N. net on the first Sunday of each month, 10.30 B.S.T, on 3712 kc/s. He would appreciate calls from other groups.

### Appointments

A volunteer is still required to act as County Controller for the City and County of London, whilst more E.C.O.s and County Controllers are required for other parts of the country.

The following changes and appointments have become effective since the last R.A.E.N. column was published:—

### E.C.O. Resignations

E. C. Halliday, Bristol; P. C. Ives, Norwich; W. E. Caughey, Belfast; S. Poole, Romford; A. C. Gee, Lowestoft.

### Appointments

*County Controllers:—*

Norfolk: H. Staff (G4KO), 59 Charles Avenue, Thunder Lane, Thorpe, Norwich.

Essex: S. Poole (G3IMP), 26 Cross Road, Romford.

*E.C.O.s:*

N. T. Hodgson (G2ABK), 3 Council House, Main Road, Hundleby, Spilsby, Lincs.

W. B. LeGrys (G3GOT), 75 Shaftesbury Avenue, Romford, Essex.

G. Parkes (G3NL), 43 Oldbury Road, Worcester.

L. Taylor (G3JMU), 121 London Road North, Lowestoft, Suffolk.

D. Whitehouse (G2YV), 62 Hednesford Street, Cannock, Staffs.

Items for inclusion in the next R.A.E.N. column should reach the writer not later than April 20, 1957.

### Glasgow Scout Show Station

J. D. W. Davidson will be operating his station GM3ATB/A from the Glasgow Scout Show in the Kelvin Hall from April 18 to 27 on 14 Mc/s phone. Contacts, especially with locals, will be appreciated as Mr. Davidson wishes to demonstrate live QSOs as much as possible.

The station will be in operation on the Radio Mechanics' Badge stand.

* *Niarbyl, Gay Bowers Road, Gay Bowers, Danbury, Essex.*

# Society News

## Subscription Rates

**BECAUSE of the all round rise in costs the Council has decided that the annual subscription to be paid by Home Corporate Members shall be increased, as from July 1, 1957, from £1.7.6 to £1.10.0.**

**Members who renew their subscriptions by means of a Banker's Order are asked to amend the Order at the appropriate time. A Banker's Order form to cover the new subscription rate can be obtained on application to Headquarters.**

* * *

**Article 19 of the Society's Articles of Association fixes the Home Corporate membership subscription at £1.10.0 per annum or such lesser sum as the Council may decide. The present Home Corporate membership subscription rate was fixed in November 1953 since when costs have risen very considerably.**

### Intruders in Exclusive Amateur Bands

ON many occasions in the past the Council have complained to the Post Office about the presence of "intruders" in bands exclusively assigned by international agreement to radio amateurs.

At the I.A.R.U. Region I Conference, held in Stresa, Italy, last June, the question of "intruders" was high on the agendas of both the Administrative and Technical Committees. As the result of discussions in Committee the Stresa Conference in Plenary Assembly adopted a special procedure for reporting intruders. It was also agreed that for the first six months, only broadcasting and commercial stations, which can be positively identified by the International Frequency Registration Board, would be reported.

Following the Stresa Conference the R.S.G.B. Post Office Liaison Committee discussed with representatives of the G.P.O. a proposal that a selected group of members should be permitted to notify one of the G.P.O. Monitoring stations by telephone whenever a spasmodic broadcasting or commercial "intruder" is heard in the exclusive amateur bands. The Society's representatives felt that this method would enable the Post Office to take effective action by reporting intruders to the I.F.R.B. in Geneva immediately.

The G.P.O. have now decided that the proposal put forward by the Society would not be of any real benefit to amateurs or to themselves.

The G.P.O. have explained to the Society that "there is the technical difficulty that it by no means follows that interference heard at a particular amateur station will be heard at the same time at the Post Office monitoring station, partly because of geographical factors and partly because many amateur stations, being specially designed for reception in a limited band, are more sensitive than Post Office monitoring stations in that particular band. The second weakness is that it is only interference that occurs persistently of which the Post Office can usefully take notice".

The Post Office point out that most of the interference of which the Society has complained comes from abroad and the only action the Post Office can take is to register a protest about it; even that is not practical in all cases. Where the interference is only sporadic, for instance, owing to a transmitter being temporarily mistuned or owing to exceptional atmospheric conditions, there would be no ground, in the opinion of the Post Office, for such a protest.

The Post Office have therefore suggested that the Society would contribute more effectively to the safeguarding of the amateur bands by concentrating on completeness of information rather than on speed of communicating with the Post Office.

Accordingly the Council have decided to invite a few members to concentrate on preparing a log giving the times of interference that persists over a period of several weeks, with the frequency, strength of signal, type of traffic and call-sign or other means of identification.

Members who are willing to assist in this important work are invited to write to the General Secretary. Those who volunteer should possess accurate frequency measuring equipment.

### I.A.R.U. News

THE latest Calendar of the International Amateur Radio Union records that Society membership remained at 51 throughout 1956 with the admission of the Malayan Amateur Radio Transmitters' Society and the deletion of the old Amateur Radio Club of India.

The only I.T.U. Conference devoted to radio held during 1956 was that of the C.C.I.R. in Warsaw. At its meeting in April 1956 the Administrative Council of I.T.U. decided that the next Plenipotentiary Conference and Administrative Radio Conference should be held in 1959. Details have not been settled and the decision is still subject to review at the 12th session of the Council due to be held this month in Geneva. It seems reasonably certain that the Conference will take place in that city during the autumn of 1959.

In preparation for the next I.T.U. Conference I.A.R.U. Headquarters recommends all Member Societies to seek representation on Government committees concerned with frequency planning.

(The R.S.G.B. has already applied for representation on any such committee set up by the British Post Office or other Government Department.—EDITOR.)

During 1956 I.A.R.U. Headquarters issued 1,599 W.A.C. certificates, the highest number ever issued in one year. Of these, 643 were for phone work. There were 9 endorsements for working all continents on 3.5 Mc/s and 23 for two-way s.s.b. W.A.C.

The U.S. Government has concluded separate agreements with Panama, Costa Rica, and Nicaragua permitting the exchange of unimportant personal and technical communications by amateurs on behalf of third parties. Previously agreements of the same type had been signed with Canada, Chile, Cuba, Ecuador, Liberia and Peru.

The Calendar lists details of broadcasting and other stations which have been heard operating in bands exclusively assigned to amateurs. There are no U.K. stations in the list.

### National Field Day, 1957

THE Official List of Stations taking part in National Field Day on June 1-2 will be sent to all T.R.s and A.R.s early in May. Any member who wishes to obtain a copy may do so by sending a stamped addressed envelope to Headquarters.

### London Lecture Meeting

AT the Ordinary Meeting of the Society held at the Institution of Electrical Engineers, London, W.C.2, on Friday, March 29, 1957, Messrs. F. W. Crabtree, G3BK, and R. G. Shears, B.E.M., G8KW, discussed Mobile Operation. Mr. Crabtree dealt with mobile work on Top Band and 80m, while Mr. Shears discussed mobile operation on 2m. Both speakers brought along items of equipment.

The Chair was taken by the President (Mr. Douglas A. Findlay, D.F.C., G3BZG) who had the support of Past-President Stanley K. Lewer, B.Sc., G6LJ, Council Members, W. H. Allen, M.B.E., G2UJ, K. E. S. Ellis, G5KW, and W. H. Matthews, G2CD, and Vice-President J. W. Mathews, G6LL.

Messrs. Thurlow, G3WW, Matthews, G3BPM, Collins, G8SC, Herdman, G6HD, Nicholson, G2MN, and Furby, G3EOH, were among those who joined in the discussion. A vote of thanks to the speakers was proposed by Mr. Thurlow.

An attendance of 60 was recorded.

### R.S.G.B. Recorded Lecture Library

THE latest addition to the Recorded Lecture Library is a lecture by Dr. R.v.d. Woolley, the Astronomer Royal, on "Astronomy and Cosmology". It is a standard twin track recording at 3¾in. per second. Playing time is 38½ minutes.

The tape has been loaned to the Society by Joe Marctu, and is now available to R.S.G.B. Groups and Affiliated Societies on application to the Honorary Curator, Mr. E. Fish (G2HCZ), 107 Eton Road, Ilford, Essex.

### Mobile Column

WITH the prospect of more liberal petrol supplies, mobile enthusiasts are again invited to send reports of news and views, technical tips and photographs for use in *Mobile Column*. Letters should be addressed to "Mobile Column", R.S.G.B. BULLETIN, New Ruskin House, Little Russell Street, London, W.C.1.

### Region 1 Field Day

THIS annual event will take place on May 5. As before, small individual groups of members in Region 1 may compete. Copies of the rules may be obtained from the Regional Representative, Basil O'Brien (G2AMV), 1 Waterpark Road, Prenton, Birkenhead.

Contestants will be looking out for contacts with other portable stations which will command a points premium. It is hoped therefore that members in other Regions will take this opportunity of a "day out".

### Scheveningen-Radio

EARLY last month Mr. H. G. Collins (G2DQ), of Chelmsford, Essex, noticed that Scheveningen-Radio which normally works on 1890 kc/s, was radiating spurious sidebands. Signals from the station were spreading from 1849 to 1913 kc/s with two definite peaks of interference at about 15 kc/s either side of the carrier.

Mr. Collins accordingly decided to write direct to the Postal and Communications Services of the Netherlands. A few days later he received a letter from the Assistant Chief of the Netherlands Monitoring Service thanking him for drawing attention to the spurious radiation and advising him that the transmitter had been checked and the fault remedied.

### Radio Amateurs' Examination Revision Sheets

REVISION sheets for the use of those taking the City and Guilds of London Institute Radio Amateurs' Exam. in May are available from Headquarters, price 1/- per set post free.

### S.S.A. Has New President

THE new President of the Swedish National Society (S.S.A.) is Arne Schleimann-Jensen, SM5ZO. He succeeds Per-Anders Kinnman, SM5ZD, who had been President for many years. Carl Erik Tottie, SM5AZO, is the new Vice-President. Other office bearers are Gunnar Kenning, SM5ANY (Hon. Secretary), Carl-Goran Lundqvist, SM5CR (Hon. Treasurer), Jan Gunmar, SM5AQW (Technical Manager), Folke Janeback, SM5DX (QSL Manager), and Lennarth Andersson, SM5CRD (*QTC* Editor).

### The W-CR7-Award

THE L.R.E.M. announce an award, the W-CR7-A, available to any foreign amateur who submits proof of having worked 15 CR7 stations on either phone or c.w. (stations in ZE, ZS, VQ2, '3, '4, '5, OQ, CR6 and FB8 need 25 QSOs), contacts to have been made after January 12, 1949. Send QSLs and a check list, but if QSOs have not been confirmed, send details, when the L.R.E.M. Secretary will try to obtain the confirmation. Post claims, together with 5 I.R.Cs to Liga dos Radio Emissores de Mocambique, Caixa Postal 812, Lourenco Marques.

### Slow Morse Practice Transmissions

VOLUNTEERS are urgently required to augment the Society's Slow Morse Practice Transmissions. Members willing to take part are asked to write to the organizer, Mr. C. H. L. Edwards (G8TL), 28 Morgan Crescent, Theydon Bois, Essex, stating times and frequencies to be included in the revised list to be published next month.

### Representation

THE following are additions or alterations to the list of Town Representatives published in the December, 1955, issue.

**Region 3—Staffordshire**
**Cannock & Lichfield**
C. R. Perks (G4CP), 74 Long Lane, Newtown, Nr. Walsall.

**Region 4—Leicestershire**
**Leicester**
F. E. Wyer (G8RY), 21 Treddington Road, Glenfield.

**Region 6—Buckinghamshire** (outside London)
**High Wycombe**
P. M. Carment (G5WW), "Nethercote," Totteridge Lane, High Wycombe.
**Hampshire**
**Southampton**
F. A. Russell (G3BHS), 29 Chestnut Avenue, Eastleigh.

**Region 11—Flintshire**
**Rhyl & Prestatyn**
W. Davies (B.R.S.20284), The Flat, Bradford Chambers, Prestatyn.

**Vacancy**

Mr. D. O'Connor (G3GIO) has resigned as representative for the Guildford-Woking Area. Nominations for his successor should be made in the prescribed form and sent to reach the General Secretary by not later than May 31, 1957.

### Affiliated Societies

THE following are additions to the list of Affiliated Societies published in the October, 1955, issue of the R.S.G.B. BULLETIN:—

**Barrow Radio Society,** c/o R. Kendall, 23 Southport Drive, Barrow-in-Furness, Lancashire.

**Crystal Palace & District Radio Club,** c/o G. M. C. Stone, 10 Liphook Crescent, Forest Hill, London, S.E.23.

**R.A.F. (Dishforth) Amateur Radio Club (G3LKM),** c/o G. G. Brown, 10 Whitley Road, R.A.F. Dishforth, Thirsk, Yorkshire.

# Council Proceedings

*Résumé of the Minutes of the Proceedings at a Meeting of the Council of the Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Monday, February 18, 1957, at 6 p.m.*

*Present:*—The President (Mr. D. A. Findlay in the Chair), Messrs. C. H. L. Edwards, K. E. S. Ellis, J. H. Hum, W. H. Matthews, W. R. Metcalfe, A. O. Milne, L. E. Newnham, W. A. Scarr, John Clarricoats (General Secretary) and John A. Rouse (Deputy General Secretary).

*Apologies for Absence*

Apologies for absence were submitted on behalf of Messrs. W. H. Allen, H. A. Bartlett, F. Hicks-Arnold, R. G. Lane, H. W. Mitchell and J. Taylor.

*Cash Account*

*Resolved* to receive and adopt the Cash Account for January, 1957, as prepared and submitted by the General Secretary.

*Reports of Committees*

*Exhibition Committee*

*Resolved* to accept recommendations of the Committee in respect to (i) the provision of folding stand furniture for use at future Exhibitions; (ii) the Schoolboy's Own Exhibition.

*V.H.F. Committee*

*Resolved* to accept recommendations of the Committee in respect to (i) a venue for the forthcoming London V.H.F./U.H.F. Convention; (ii) the sponsoring by the Society of a V.H.F. Convention in Glasgow during 1957; (iii) a suggestion that the Society should ask the Post Office to issue high power permits to U.K. amateurs for work on 144 and 420 Mc/s in connection with "forward scatter" experiments during the I.G.Y.

In connection with recommendation (iii) it was agreed to ask Dr. R. L. Smith-Rose to support the Society's application for the issue of high power permits.

*Contests Committee*

*Resolved* to accept recommendations of the Committee in respect to (i) rules for a 4 metre Contest, except that the period of contest should be altered to 17.00-23.59 G.M.T. and 07.00-19.00 G.M.T.; (ii) the cancellation of D/F Qualifying Events due to petrol rationing with a National Final only, if conditions permit.

*R.A.E.N. Committee*

*Resolved* to authorize the Chairman (Lt.-Col. Dunn) to attend meetings in connection with R.A.E.N. in Birmingham and York.

*Report of the General Secretary*

*Membership*

(a) *Resolved* (i) to elect 107 Corporate Members and 18 Associates; (ii) to grant Corporate Membership to 2 Associates who had applied for transfer.

(b) The Secretary reported that of the 622 members whose subscription became due on November 1, 1956, 78 became overdue on January 31, 1957. Of this number 10 were London, 41 were Country and 23 were Overseas Corporate Members and 4 were Associates. Of those overdue 6 London, 22 Country and 15 Overseas Members held Amateur Radio licences.

(c) The Secretary reported that of the 78 members referred to in (b) above 10 had written to resign. Of this number 3 had given no reason for resigning, 1 had resigned for financial reasons, 3 had lost interest in Amateur Radio, 1 was going abroad, and 2 had resigned for domestic reasons.

*Applications for Affiliation*

*Resolved* to grant affiliation to the Amateur Radio Club, R.A.F. Dishforth, Yorks, and Barrow Radio Society.

*Scheme of Representation*

*Resolved* to accept recommendations of the Membership and Representation Committee in respect to the granting of T.R. status to elected representatives of Affiliated Societies and Clubs. (A statement dealing with the recommendations of the Membership and Representation Committee appeared in the March, 1957, issue of the R.S.G.B. BULLETIN.—EDITOR.)

*Mr. E. Brown, G3CSP*

In connection with previous correspondence the Secretary reported the receipt of a letter from the G.P.O. in which it was stated that Mr. E. Brown, G3CSP, of Sheffield "had been doing a certain amount of transmitting."

*National Convention*

It was reported that replies had not been received from the four R.R.s who were written to after the previous meeting of the Council. (The R.R.s concerned had been asked for their views on a suggestion that a National Convention be held in their Region during 1957.—EDITOR.)

*International Geophysical Year*

The Secretary submitted a memorandum from Dr. R. L. Smith-Rose (Director of Radio Research, D.S.I.R.) in which he suggested certain projects which he considered U.K. amateurs may be able to undertake during the forthcoming International Geophysical Year.

*Resolved* (i) to thank Dr. Rose-Smith for his suggestions; (ii) that the three v.h.f./u.h.f. projects set out in the memorandum be referred to the V.H.F. Committee for action; (iii) to publish the information set out in the memorandum in the March issue of the BULLETIN.

*London Lecture Meetings*

*Resolved* to accept an increased charge for refreshments provided by the Institution of Electrical Engineers prior to London Lecture meetings.

*R.S.G.B. Amateur Radio Call Book*

It was reported that Mr. W. J. H. Kempton, G8LN, had accepted the invitation of the Council to undertake the duties of *Call Book* Editor.

*N.F.D. Stationery*

*Resolved* to accept an estimate in the sum of £23 16s. 5d. for printing N.F.D. log sheets, etc.

*O.R.M. Programme, 1957*

*Resolved* (i) to authorize the Representatives for Regions 10, 11 and 13 to organize Official Regional Meetings in their respective Regions during 1957; (ii) to defer

until a later meeting a decision as to the number of representatives to be authorized to attend each meeting.

It was reported that the Representatives for Regions 6, 7 and 14 had not yet advised the Secretary whether it is their wish to organize an O.R.M. in their Region during 1957.

The Representative for Region 3 had recommended that the projected meeting in his Region be postponed until 1958.

*" Intruders " in " Exclusive " Amateur Bands*

The Secretary submitted a letter from the G.P.O. in which the view was expressed that little purpose would be served if arrangements were made for a small number of qualified members of the Society to telephone direct to a G.P.O. Monitoring Station details of spasmodic " intruders " in exclusive amateur bands. The G.P.O. considered that regular reports of consistent " intruders " would provide more useful information upon which the United Kingdom Government could act.

*Resolved* to receive the correspondence.

The meeting terminated at 8.30 p.m.

### Members' Exchange and Mart Advertisements

MEMBERS are reminded that the Exchange and Mart section of the BULLETIN provides an excellent means of disposing of equipment surplus to their requirements. The charge for non-trade advertisements is now 3d. per word (minimum charge 5/-). Copy, with the necessary remittance, should be sent to the Society's Advertising Manager, Mr. Horace Freeman, The National Publicity Co. Ltd., 36-37 Upper Thames Street, London, E.C.4, to arrive not later than the 22nd of the month preceding publication.



### WPX Certificate

*CQ Magazine* has introduced a new certificate for DX enthusiasts, the WPX (Worked All Prefixes) Award, which is available to licensed radio amateurs throughout the world who have had radio contacts with 300 or more different radio " prefixes ". A prefix for the purposes of the award is the " two or three letter/numeral combination which forms the first part of any amateur call ". For example, W2, K2, KN2, 5A1, 5A2, DJ1 and DL1 would all be considered different. There is no question of " countries ". As *CQ* says, " thus the controversial question of what should be, and what should not be, a country is by-passed ".

Applicants for the WPX must submit a list giving the call-signs of the stations worked followed by the date of the contact, and must be in possession of the QSL cards or other proof of contact before submitting the list. *CQ* reserves the right to examine all QSL cards. *All contacts must have taken place since January 1, 1957.*

In addition to the basic award for working 300 prefixes, stickers will be available for each additional 50 prefixes worked. Separate stickers will be available for one band working. In all, 8 basic certificates will be available for WPX-phone, WPX-CW, WPX-SSB, WPX-M (mobile), WPX-AM (aero-nautical mobile), WPX-MM (maritime mobile) and WPX-TS (transistor QSOs).

Full details appeared in the January 1957 issue of *CQ*.

### Helvetia 22 Contest, 1957

THE Annual Helvetia 22 Contest organized by the Swiss Union of Shortwave Amateurs (U.S.K.A.) will commence at 15.00 G.M.T. on May 18 and end at 17.000 G.M.T. on May 19. Competitors outside Switzerland will try to work as many stations as possible in each of the 22 Swiss cantons using all bands from 3.5 to 28 Mc/s. Entrants will call " CQ HB " or " CQ H22 " and will exchange five- or six-figure groups consisting of the signal report (RS or RST) and the number of the contact starting with 001. Three points will be scored for each contact with a Swiss station. The total number of points scored will be multiplied by the total number of cantons worked on all bands. The maximum multiplier possible per band is 44 (22 on c.w., 22 on phone). All contacts must be c.w.-to-c.w. or phone-to-phone.

Entries must be posted not later than June 6, 1957, to B. R. Bossert (HB9QO), Communications Manager, U.S.K.A.), Lacriedstrasse 6, Zug, Switzerland.

### OZ-CCA Contest

THE annual " OZ-CCA " Contest organized by the Danish society E.D.R. will commence at 12.00 G.M.T. on May 4 and end at 24.00 G.M.T. on May 5. All bands from 3.5 to 28 Mc/s and 144 Mc/s may be used for either phone or c.w. contacts. Cross-band contacts will not count for points. Only one QSO per station per band before and after 06.00 G.M.T. will be allowed. The serial number, consisting of the RS(T) report, followed by the number of contact starting with 001, must be exchanged.

Full details of the rules can be obtained from the Traffic Department, E.D.R., P.O. Box 335, Aalborg, Denmark. Entries must be postmarked not later than May 25, 1957.

### Transistor Transmitters

MR. R. H. E. Skelton (G3JOQ), c/o M. Whaley, Dunston, near Stafford, Staffs, wishes to contact other members using transistor transmitters.

# The Social Side

### Thanet Radio Society

MEMBERS of the Thanet Radio Society with their ladies and a number of guests, to a total of more than 80, attended the Tenth Annual Dinner-Dance held at the San Clu Hotel, Ramsgate, Kent, on Saturday, March 2, 1957.

The Chair was taken by the President of the Society (Mr. G. A. (Tony) Chapman, G2IC) who with Mrs. Chapman had the pleasure of welcoming among the guests two Past Presidents of the R.S.G.B. (Arthur Milne, G2MI, and Reg Hammans, G2IG) with their wives and families, the General Secretary of the R.S.G.B. and Mrs. Clarricoats, Council Member W. H. Allen, G2UJ, V.H.F. Manager F. G. Lambeth, G2AIW, and Mrs. Lambeth, G. A. (" Minibeam ") Bird, G4ZU, and Mrs. Bird.

A toast to the Thanet Society was proposed by Mr. Milne and replied to by the President. Mr. Jim Barnes (Hon. Secretary and Thanet T.R.) proposed the health of the Guests and Mr. Hammans responded.

A competition for the best home-made evening dress was won by three ladies who drew for the first, second and third prizes. A raffle, with a bicycle as first prize, was organized by Mr. Norman Cramp, B.R.S.16756 (Chairman of the Society) who was chiefly responsible for the arrangements. Dancing followed until 11.45 p.m.

The President of the R.S.G.B. (Douglas Findlay, G3BZG) was prevented by indisposition from attending.

### Sutton and Cheam Radio Society

THE Ninth Annual Dinner-Dance of the Sutton and Cheam Radio Society, held at Wilson's Restaurant, Grove Road, Sutton, Surrey, on Saturday, March 9, 1957, attracted a capacity attendance of 90 members and their friends.

The Chair was taken by the President (Stanley E. Vanstone, G2AYC), who is also Chairman of the London Members' Luncheon Club, supported by Mrs. Vanstone and daughter June, Leslie Seaton (Vice-president) acting as a most efficient Master of Ceremonies.

A toast to the Society was proposed by the General Secretary of the R.S.G.B. and replied to by Jack Harris, G2BOF (Honorary Secretary). Reg Pearson, G4DH, welcomed the Ladies and Mrs. Brenda Haynes, wife of G3CWL, replied.

During the evening the Top Band Toppers (June, Joan and Muriel) and the Crazy Dames (Stan, Les and Reg) fooled delightfully and mimed expertly, while Nigel Harvey (G3IRU) and Chris Ward entertained tunefully and skilfully with songs and guitars. The lyrics for the much appreciated cabaret were written by Reg Dee H. Duke of Ashtead, O.O.T.B. Dancing was provided by Society member Cliff Bridge and his Trio. Cliff also composed the music for the cabaret turns.

Every lady was the recipient of a table prize and a special prize from the raffle. In addition the whole company took their chances in the traditional Essandsee " Swindle " for a well loaded table of prizes.

Among those present, in addition to the General Secretary and Mrs. Clarricoats, were Leslie Cooper, G5LC (President) and Alan Mears, G8SM (Vice-president) of the Thames Valley Amateur Radio Transmitters Society, Fred Lambeth, G2AIW (R.S.G.B. Region 7 Representative and BULLETIN V.H.F. Manager), Don Gilmour, G2VB (R.S.G.B. South London D.R.), John A. Rouse, G2AHL (R.S.G.B. Deputy General Secretary), all with their ladies.

The success of this well organized function was due in great measure to the efforts of the Committee of the Society and in particular to Messrs. Vanstone, Seaton, Harris, Pearson and Scott, ably supported by the ladies.

The Scott Trophy, won for the first time by neighbouring Mitcham Radio Society, was presented to one of the 20 representatives of that Society who attended the Dinner.

The Clarry Marathon Prize—a bottle of champagne—was won by Mrs. G. Parker who guessed exactly the duration of the General Secretary's speech—10 minutes 6 seconds.

### London Members' Luncheon Club

TWO days after returning to England in the *Magga Dan*, Major " Gus " Watson (VP8BP), Scientific Officer with the Royal Society Expedition to the Antarctic, was one of the six visitors from abroad who were welcomed at the meeting of the London Members' Luncheon Club held on March 15, 1957, at the Bedford Corner Hotel, Tottenham Court Road.

In a brief but highly entertaining address after lunch Major Watson described radio and living conditions in the Antarctic. He mentioned that on one occasion whilst the Expedition was down south the temperature dropped to 80 degrees of frost. During June of last year they did not see the sun for a month. Radio conditions were then at their worst, few if any signals being audible. In contrast they enjoyed 76 hours of continuous sunshine around Christmas.

Other speakers at the luncheon were ZS2HX (Port Elizabeth) and W9JDF (Chicago) who is now in England for about two years. VS6CJ (Hong Kong), DJ2XO (Dortmund) and W2TKI (Lynwood, N.Y.) were also guests of the Club.

During a short business session—it was the Club's Annual General Meeting—the retiring officers, Stanley Vanstone, G2AYC (Chairman), Clem Jardine, G5DJ (Hon. Treasurer) and Frank Fletcher, G2FUX (Hon. Secretary), were warmly thanked by G6CL for their past services. His motion that they all be re-elected met with unanimous support.

The attendance of 27 was one of the best for some time including as it did four ladies and the six overseas guests.

Because Good Friday falls this year on the third Friday in April the next meeting of the Club will take place on April 26 at 12.30 p.m.

**Two of the " dames " at the Sutton and Cheam Radio Society Dinner, Les Seaton and Stan Vanstone.**

# Tests and Contests

## Affiliated Societies' Contest, 1957

THE Edgware Trophy has been won this year by Surrey Radio Contact Club who can now claim the title of "Ace of Clubs." They have made steady progress to the top having been second last year and fourth in 1955. Second and third places in the Contest were taken by Dorking & District Radio Society and Bailleul Radio Society, neither of whom entered last year.

Interest in the Contest has been well maintained, there being 36 entries compared with 37 last year. The Contests' Committee were pleased to see 13 new entries but regretted the absence of 14 of last year's competitors. From the comments it seemed that most people enjoyed themselves.

Once again thanks are due to the many other stations who came on to give valuable single points to the competitors. The winners gained top place by their larger number of single point contacts.

The equipment seems to be fairly standardized, 807s being the favourite valves in the transmitters with TT11s a close second. The HRO was the most popular of the 13 types of receivers reported while half-wave aerials were just ahead of long-wires.

| Position | Society | Call-sign | Points |
|---|---|---|---|
| 1 | Surrey Radio Contact Club ... ... | G3BFP | 756 |
| 2 | Dorking & District Radio Society ... | G3JEQ | 749 |
| 3 | Bailleul Radio Society ... ... ... | G3IHH | 744 |
| 4 | Mitcham & District Radio Society ... | G3KKZ | 742 |
| 5 | Sheffield Amateur Radio Club ... | G4JW | 741 |
| 6 | R.A.F. Amateur Radio Society ... | G8FC | 735 |
| 7 | Courtaulds Amateur Radio Group ... | G3CQD | 734 |
| — | Stourbridge & District Amateur Radio Society ... ... ... ... | G3BMY* | 733 |
| 8 | Harlow & District Radio Society ... | G3ERN | 732 |
| 9 | Thames Valley Amateur Radio Transmitters Society ... ... ... | G6MB | 727 |
| 10 | Sutton and Cheam Radio Society ... | G2AYC | 719 |
| 11 | Wirral Amateur Radio Society ... | G2AMV | 711 |
| | Thanet Radio Society ... ... ... | G3DOE | 711 |
| 13 | Grimsby Amateur Radio Society ... | G3IYT | 703 |
| 14 | The Medway Amateur Receiving and Transmitting Society ... ... | G2FJA/A | 700 |
| 15 | The B.T.H. Rugby Club ... ... | G3BXF | 698 |
| 16 | Liverpool & District Amateur Radio Society ... ... ... ... | G3AHD/A | 696 |
| 17 | Coventry Amateur Radio Society ... | G2ASF | 691 |
| | The Radio Society of Harrow... ... | G3EFX/A | 691 |
| 19 | Cheltenham Amateur Radio Society ... | G3GPW | 673 |
| 20 | Torbay Amateur Radio Society ... | G3LHJ | 662 |
| 21 | Edgware & District Radio Society ... | G3ASR | 651 |
| 22 | Barnsley & District Amateur Radio Club ... ... ... ... ... | G3ABS | 635 |
| 23 | Admiralty Electronics Society, Bath ... | G3BPU | 632 |
| | Gravesend Radio Society ... ... | G3GRS | 632 |
| 25 | Acton, Brentford & Chiswick Radio Club ... ... ... ... ... | G3IIU | 630 |
| 26 | York Amateur Radio Society ... ... | G3HWW/A | 628 |
| 27 | South Shields & District Amateur Radio Club ... ... ... ... | G3DDI | 606 |
| 28 | Portsmouth & District Radio Society | G3DIT | 605 |
| 29 | Scarborough Amateur Radio Society... | G4BP | 581 |
| 30 | Bury Radio Society ... ... ... | G3BRS | 566 |
| 31 | Ariel Radio Group ... ... ... | G3GDT/A | 563 |
| 32 | Kingston & District Amateur Radio Society ... ... ... ... | G3KIN | 550 |
| — | The Blackpool & Fylde Amateur Radio Society ... ... ... ... | G5ND* | 429 |
| 33 | Leicester Radio Society ... ... | G3GXZ/A | 355 |
| 34 | Ravensbourne Amateur Radio Society | G3HEV/A | 319 |

### Check Logs

Check logs are gratefully acknowledged from G3FVA/A, G3GIO, G3JBN, G3JLO and G3JSN.

*Invalid—late entry

## 420 Mc/s Contest, 1957

OPERATION from several locations will again be permitted in the 420 Mc/s Contest, the rules for which are the same as for last year.

### Rules

1. The Contest is open to all fully paid-up members of the R.S.G.B. resident in Europe.

2. Any mode of transmission may be used, provided that the entrant adheres to the terms of his licence.

3. The station may be operated from more than one location. The National Grid Full Six-Figure Reference must be recorded in the log for each location in the case of entries from G, GD, GM and GW. In all other cases, entries must show the latitude and longitude to the nearest minute of the station locations. Logs must show clearly when station location has been changed.

4. Only one contact may be made with a specific station, whether fixed, portable or mobile, during the contest. Proof of contact may be required, and contacts with unlicensed stations will not be permitted to count for points.

5. **Entries should be written on lined foolscap or quarto paper, or typed on plain paper (on one side only, please), and must be set out in the form shown below:—**

**420 Mc/s CONTEST, JUNE 16, 1957**

Name..... Claimed Score.....

Home Address..... Call-sign.....

Site(s) of station.....

National Grid Full Six-Figure Reference(s) (or latitude and longitude—see Rule 3).....

Transmitter.....

Receiver..... Aerial system(s).....

| Time G.M.T. | Call-sign of station worked | My report on his signals | His report on my signals | Location received | Estimated distance (miles) |
|---|---|---|---|---|---|
| 0905 | G6AAA | 559B001 | 469B005 | Oxford | 50 |
| 0915 | G8BBB | 569B002 | 589B003 | Bedford | 45 |
| 0935 | G5XYZ/M | 56B003 | 56B010 | Watford | 25 |

(Whenever location is changed the new position must be shown against the log entry for the first contact from the new position —see Rule 3.)

Claimed score : 120

Declaration: I declare that my station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the ruling of the Council of the R.S.G.B. shall be final in all cases of dispute.

Date..... Signed.....

6. The Contest will start at 09.00 G.M.T. and finish at 23.00 G.M.T. on Sunday, June 16, 1957.

7. An exchange of RST or RS reports, followed by the Band identification letter "B" and a three-figure serial number starting between 001 and 100 and increasing by one for each successive contact together with station location, will be required before points may be claimed, e.g., RST559B001 Oxford.

8. For each contact points may be claimed equal to the number of miles between the two stations.

9. Multiple-operator entries will be accepted provided that (a) the call-sign and signature of the operator concerned is recorded for each contact (b) the declaration is signed by only one operator, who will be regarded as the entrant. The combining of entries from more than one station (other than fixed-, portable- or mobile-operation under the same call-sign) is not permitted.

10. Entries must be addressed to the Contests Committee, Radio Society of Great Britain, New Ruskin House, Little Russell Street, London, W.C.1, and must bear a postmark not later than July 1, 1957.

11. At the discretion of the Council, a miniature cup will be awarded to the winner and a Certificate of Merit to the runner-up.

## 144 Mc/s Open Contest 1957

THIS contest on July 6 and 7, will be open to fixed, portable and mobile stations subject to Rule 4. Particular attention is drawn to the form of scoring described in Rule 11, in which 10 points will be scored for each contact, with *bonus points* for the first contact in each new county and new country. The first contact in a new county will be worth 35 points in all and the first contact in a new country 60 points.

The Contests Committee invites all members taking part to submit entries in the form shown below.

### Rules

1. The Contest is open to all fully paid-up members of the R.S.G.B. resident in Europe.

2. Contacts may be made on telephony, m.c.w. or c.w.

3. An entrant must operate in accordance with the terms of his licence.

4. The station must be operated from the same site for the duration of the event.

5. Only one contact with a specific station, whether fixed, portable or mobile, will count for points. Proof of contact may be required.

6. Contacts with unlicensed stations will not be permitted to count for points.

7. Entries should be written on lined foolscap or quarto paper or typed on plain paper (one side only please) and **must be set out in the form shown below:—**

**144 Mc/s OPEN CONTEST JULY 6–7, 1957**

Name..... Claimed Score.....

Address..... County..... Call-sign.....

Site of station if portable or mobile.....County.....

Receiver..... Aerial system.....

Transmitter..... Power Input.....watts

| Time G.M.T. | Call-sign of station worked | My report on his signals | His report on my signals | County or Country | Points Claimed |
|---|---|---|---|---|---|
| 1705 | G3XYZ | 579A001 | 569A011 | Oxon | 35 |
| 1710 | G2ZXY | 559A002 | 569A014 | Beds. | 35 |
| 1718 | G2YZX | 589A003 | 599A007 | Oxon | 10 |
| 1723 | EI2ZZ | 569A004 | 549A002 | Ireland | 60 |
| 1730 | G3ZZY | 59A005 | 59A020 | Beds. | 10 |
| | | | | Claimed Score : | 150 |

Declaration: I declare that my station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the ruling of the Council of the R.S.G.B. shall be final in all cases of dispute.

Date..... Signed.....

9. The contest will start at 17.00 G.M.T. on Saturday, July 6, and end at 19.00 G.M.T. on Sunday, July 7, 1957.

10. An exchange of RST or RS reports, followed by the band identification letter "A" and a three figure serial number starting between 001 and 100 and increasing by one with each successive contact, together with the county in which the station is operating, will be required before points may be claimed, e.g., RST579A001 Hampshire.

11. For each completed contact, 10 points may be claimed. A bonus of 25 points may be claimed for the first contact in each new county shown in the list below and 50 points for the first contact in each new country, e.g., G, GW, GM, EI, F, DL, etc.

12. Entries must be addressed to the Contests Committee, Radio Society of Great Britain, New Ruskin House, 28/30 Little Russell Street, London, W.C.1, and must bear a postmark not later than Monday, July 15, 1957.

13. The Mitchell-Milling Trophy will be awarded to the winning entrant. A Certificate of Merit will be awarded to the entrant placed second.

**Counties in the United Kingdom**

**England (G)**

| | | |
|---|---|---|
| Bedford | Herefordshire | Nottinghamshire |
| Berkshire | Hertfordshire | Oxfordshire |
| Buckinghamshire | Huntingdonshire | Rutland |
| Cambridgeshire | Kent | Shropshire |
| Cheshire | Lancashire | Somerset |
| Cornwall | Leicester | Staffordshire |
| Cumberland | Lincoln | Suffolk |
| Derby | London (Postal Districts) | Surrey |
| Devon | Middlesex | Sussex |
| Dorset | Monmouth | Warwickshire |
| Durham | Norfolk | Westmorland |
| Essex | Northampton | Wiltshire |
| Gloucester | Northumberland | Worcester |
| Hampshire | | Yorkshire |

**Scotland (GM)**

| | | |
|---|---|---|
| Aberdeen | East Lothian | Peebles |
| Angus | Fife | Perth |
| Argyll | Inverness | Renfrew |
| Ayr | Kincardine | Ross & Cromarty |
| Banff | Kinross | Roxburgh |
| Berwick | Kirkcudbright | Selkirk |
| Bute | Lanark | Shetland |
| Caithness | Mid-Lothian | Stirling |
| Clackmannan | Moray | Sutherland |
| Dumfries | Nairn | West Lothian |
| Dunbarton | Orkney | Wigtown |

**Wales (GW)**

| | | |
|---|---|---|
| Anglesey | Carnarvon | Merioneth |
| Brecknock | Denbigh | Montgomery |
| Cardigan | Flint | Pembroke |
| Carmarthen | Glamorgan | Radnor |

**Northern Ireland (GI)**

| | | |
|---|---|---|
| Antrim | Down | Londonderry |
| Armagh | Fermanagh | Tyrone |

**Channel Islands (GC)**

| | | |
|---|---|---|
| Alderney | Jersey | Sark |
| Guernsey | | |

**Isle of Man (GD)**

**R.S.G.B. News Bulletin Service**

**GB2RS** — **3600 kc/s**

**10.00 B.S.T.** — **Sundays** — **12.00 B.S.T.**

## Contests Diary

1957

| | | |
|---|---|---|
| April 27-28 | - | P.A.C.C. Contest (Telegraphy Section)[4] |
| May 4-5 | - | P.A.C.C. Contest (Telephony Section)[4] |
| May 5 | - | First 144 Mc/s Field Day[7] |
| May 18-19 | - | Helvetia 22 Contest |
| June 1-2 | - | National Field Day[2] |
| June 16 | - | 420 Mc/s |
| June 22-23 | - | First 70 Mc/s Contest[8] |
| July 6-7 | - | 144 Mc/s Open Contest[9] |
| August 18 | - | Second 144 Mc/s Field Day |
| August 25 | - | 1250 Mc/s Tests |
| September 1 | - | Low Power Field Day |
| September 7–8 | - | European V.H.F. Contest[3] |
| September 7–8 | - | National V.H.F. Contest[3] |
| September 8 | - | D/F National Final |
| October 5-6 | - | Low Power |
| November 9-10 | - | Second Top Band |
| November 16-17 | - | Second 70 Mc/s Contest |
| November 23-24 | - | 21-28 Mc/s Telephony |

[2] For rules, see page 230, R.S.G.B. Bulletin, November, 1956.
[3] Both under Region 1 I.A.R.U. rules. See page, 422 March, 1957.
[4] See page 374, R.S.G.B. Bulletin, February, 1957.
[7] For rules, see page 420, R.S.G.B. Bulletin, March, 1957.
[8] For rules, see page 421, R.S.G.B. Bulletin, March, 1957.
[9] For rules, see this issue.

# Letters to the Editor . . .

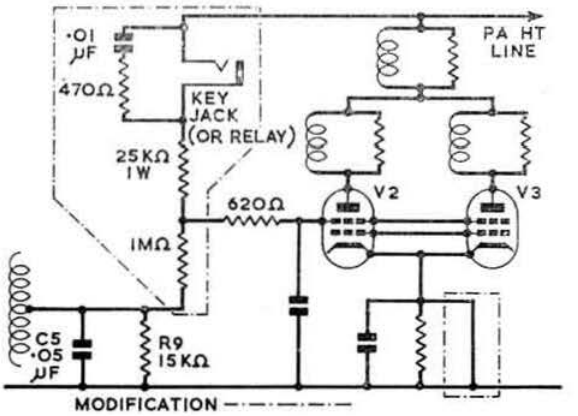
Neither the Editor nor the Council of the Radio Society of Great Britain can accept responsibility for views expressed by correspondents.

### Command Transmitters

DEAR SIR,—I should like to comment on the article entitled *Command Transmitters on the Amateur Bands* in the February BULLETIN.

I have found that the spacer referred to by Mr. Watson when keying the cathode of the p.a. stage can be completely eliminated, even to very local stations, i.e. within one mile.

The method is to key the screen of the p.a. stage and to add a 1 Megohm resistor between the screen of the 1625s and the top of R9, the 15,000 ohm grid resistor. The grid drive to the p.a. results in about 30 volts negative being available at this point and this is applied via the 1 Megohm resistor to the p.a. screen. Under key-up conditions, therefore, the screen grid is also 30 volts negative which ensures that the p.a. is completely cut off.




A circuit diagram of this modification together with a key-click filter is appended. It is important that the value of 0.01 μF for the filter condenser is not exceeded otherwise the key break time-constant will be too large resulting in a " tail " on the signal.

The resultant keying after this modification has been carried out is extremely good with characteristics as good as a crystal-controlled transmitter.

Yours faithfully,

Forest Hill, London. G. M. C. STONE (G3FZL).

### Licensing Arrangements in Ontario

DEAR SIR,—With reference to VE2AKQ's recent letter regarding licensing arrangements in Canada, I should like to point out that in the *Province of Ontario*, the Radio Inspectors are prepared to grant an unrestricted licence, i.e., with full phone privileges to any holder of a G licence, provided the licensee can pass the 15 word-a-minute Morse test together with the standard procedure and regulation questions, the circuit technicalities and an oral examination on modulation.

In my own case a DXCC 'phone certificate was accepted as proof of 'phone experience, and the whole of the examination was conducted by Radio Inspectors who were themselves radio amateurs. Though no special privileges were shown, the examination was carried out in a most friendly manner over a period of three hours, the majority of this time being devoted to nothing more difficult than ragchewing.

It would therefore appear that in my case the Inspectors chose to interpret the clause " after six months of operating an amateur radio station " to mean what it says, and not to define this as being a Canadian Amateur Radio Station.

I should also like to add some comments to Mr. Ryland's remarks regarding the price of gear, and strongly recommend that any G emigrating to Canada bring every piece of gear he has, even down to boxes of surplus assorted resistors. They will be accepted on a duty-free basis as part of his personal effects on condition they are not sold until twelve months have elapsed.

Yours faithfully,

Brantford, Ontario, Canada. W. J. RIDLEY (VE3EHR, ex-G2AJF).

### Last with Gold Coast—First with Ghana

DEAR SIR,—You may like to know that station G5BJ was the last c.w. station in the world to be in QSO with the Gold Coast and the *first* c.w. station in the world to be in QSO with the new state of Ghana.

G5BJ was in communication with me from 23.59 G.M.T. on March 5 to 00.13 G.M.T. on March 6 on the 14 Mc/s band using c.w. ZD4BF was in QSO with G2HQ during the change over period using s.s.b. phone on the 14 Mc/s band.

ZD4BR was in phone QSO with a G station on 21 Mc/s from 00.01 G.M.T. on March 6, but no details are to hand concerning the G station.

W9VIN was the first North American station to have a c.w. QSO with Ghana. We were in QSO from 00.21 to 00.36 G.M.T. on March 6.

Yours faithfully,

Tarkwa, Ghana. JOHN WOODCOCK (ZD4BQ).

### B.E.R.U. Contests

DEAR SIR,—I agree with Leslie Hill, G8KS (March issue) and believe that the time is appropriate for a revision of B.E.R.U. rules, particularly operating times.

The person who is fortunate enough to live in the wide open spaces has two distinct advantages under present rules over other competitors who are not so favourably located. He can erect a decent aerial system, and is very probably TVI-proof by virtue of the fact that he has no immediate neighbours.

The second of these is of inestimable value in B.E.R.U. because he can, if he wishes, operate under present rules throughout the entire 48 hours, and can therefore gain considerably over another operator living in a congested built-up area whose operating must be carried out when TV is off the air and whose maximum operating time is possibly only 24 out of the permissible 48 hours. G9YY living out in the country is therefore halfway to winning before G7XX has even started.

There is only one practical solution to this discrepancy and that is to limit the number of operating hours. Nothing can be done about G9YY having an aerial farm, in fact good luck to him, but if G9YY and G7XX were to operate for say only 48 out of the permissible 96 hours of a contest, things would indeed be very much more evenly balanced.

Like G8KS I would suggest that the contest runs over two week-ends—that is 96 hours. Stations participating could operate for any 48 hours of their own choosing and in this way it would be possible for G7XX to operate outside of TV hours and still have a chance of winning.

One further idea would be to combine the Senior and Junior events. In this way the contest would take up no more time than it does at present. Obviously G9YY using 150 watts has an advantage over G7XX running 25 watts. However, if G7XX were to have a multiplier of 3 to allow for the difference in power, the results would be interesting indeed and give a boost to low power working.

Both these suggestions would, I think, stimulate interest in the Contest and result in greater activity. It would also give the under dog a chance and enable him to compete on favourable terms. The present system, appearing so unfair, has stopped me from taking any active interest in B.E.R.U. contests up to the present time and I do live reasonably close to Rowridge!

Yours faithfully,

Studland Bay, Dorset. P. M. BRANTON (G2CNN).

(The Senior and Junior B.E.R.U. contests have run concurrently for several years—EDITOR.)

DEAR SIR,—These thoughts on B.E.R.U. Contests have been triggered off by Mr. Hill's (G8KS) letter in the March BULLETIN.

This year I participated in B.E.R.U. for the first time and like any other sane individual took time off for sleep and food. Now it seems to me that first and foremost this contest should be looked upon as a get-together for British Commonwealth and Empire amateurs: the fact that contacts score points in a competition is secondary. Amateurs like me with no room for good aerials, let alone rotatable beams, cannot hope to be up with the leaders, even if on continuously for forty-eight hours. B.E.R.U. gave me the opportunity to work a few new call areas sooner than I might otherwise have done. The fact that others with high power and multiband rotary beams made themselves physical wrecks through lack of sleep in an endeavour to win the contest did not upset me or mar my enjoyment.

I do not believe that several separate operating periods would be desirable since, because of the world-wide nature of B.E.R.U., some areas would doubtless feel " hard done by " whatever times were chosen. So let's leave things as they are and please do not split this contest over two weekends. There are quite enough contests already!

Regarding the question of printing biographical details of Council candidates mentioned in March " *Current Comment,*" I think it essential to continue this practice. The great majority of members probably do not know any of the candidates personally. It follows, therefore, that without this " line-shooting " we would know practically nothing of the nominees.

Your faithfully,

London, E.10. NORMAN A. S. FITCH (G3FPK).

## Fewer Contests Please

DEAR SIR,—Mr. Hill, G8KS, asks that the B.E.R.U. Contest should be spread over two weekends.

May I put in a plea for the many amateurs who are not interested in contests, and ask that contests should *not* be spread over any more weekends than at present? Already far too many weekends are spoilt by contests filling the already overcrowded bands.

I know the argument that those who are not interested in contests need not take part in them, but, unfortunately, that often means abandoning one's hobby entirely for the weekend.

Many of us like to have a pleasant QSO (not just the exchange of numbers), many of us like to discuss our rigs, compare aerials, do tests, etc., all of which is virtually impossible during contests. Most of us only operate at weekends.

While any individual contest only occupies one or, as Mr. Hill would have it, two weekends, the sum total of international contests now occupy a very large number of weekends.

Would it not be possible, in future, to arrange for contests to be restricted to a portion of the various bands, and so allow other amateurs some bandspace?

For example, could not a 'phone contest be restricted to, say—

14150 to 14250 kc/s (giving part inside and part outside the American phone band)
21200 to 21350 kc/s ,,
28350 to 29350 kc/s ,,

so allowing non-contestants to use—

14100 to 14150 kc/s and 14250—14350 kc/s
21150 to 21200 kc/s and 21350—21450 kc/s
28200 to 21350 kc/s and 29350—30000 kc/s

with a similar subdivision for the c.w. bands during a c.w. contest?

This would, at least, let the non-contestant enjoy his hobby at weekends even when there is a contest on. By all accounts it seems that non-contestants do represent the largest majority of amateurs even if they are much less vociferous.

Yours faithfully,

London, N.W.3. E. M. WAGNER (G3BID).

## CE–LU Stations in Antarctica

DEAR SIR,—By almost the same post that brought the March issue of the BULLETIN, containing Mr. Heys letter concerning the refusal of the R.S.G.B. QSL Bureau to handle cards to and from certain countries operating in Antarctica, I received cards from two Chilean stations operating in that area.

These cards had initially been despatched from Chile direct to the R.S.G.B. QSL Bureau, where they had been mutilated by a large rubber stamp reading " R.S.G.B. QSL Bureau. UNLICENSED STATION. Return to sender." The cards had then been sent back to Chile, where they were salvaged and passed to me by a relay of well-known amateurs. These QSL cards were not from unlicensed stations ,but from stations who had been issued with licences and call-signs by the Chilean authorities.

The R.S.G.B. QSL Bureau have refused to handle these cards for a number of years now, and the issue appears to be purely a political one. There is no room for politics in Amateur Radio, and if the British Government see fit to take no action against the Argentine and Chilean authorities, why should the QSL Bureau take upon itself the task of censorship? A VP8 station, recently returned from Antarctica, says that the VP8 stations regularly QSO the LU and CE ' Z ' stations on the friendliest of terms.

Finally I submit that QSL cards from licensed stations sent through the Bureau are the property of either the sender or the person to whom they are addressed; that the Bureau has no right to interfere with their passage; and that Council should give instructions to this effect.

Yours faithfully,

Barnet, Herts. J. DOUGLAS KAY (G3AAE).

DEAR SIR,—I was surprised to read the letter from G3BDQ in the March BULLETIN, and I hope the Council has instructed the Bureau to cease such arbitrary practices.

It is the duty, of the QSL Bureau to pass members' cards to their destinations where these are known, and that includes all cards to or from undercover stations which send cards or receive them via known addresses.

A political discrimination, such as the one implied, in refusing cards from the LU stations in Antarctica is an implied criticism of the British Government for not suppressing the station, and evicting the operators. Fortunately the Government is not so petty, and appears to tolerate, and possibly welcome, the activities of these stations. Furthermore it must be remembered that these are *not* undercover stations but operate quite openly, nor do they occupy the territory by force of arms! It is also not very consistent for G3ATU to report in the Society's BULLETIN for March at least five QSOs with these stations, if such contacts are regarded by the Council as being with illicit stations.

If it has not already done so I hope the Council will now instruct the Bureau to give clear passage both ways to all cards, with no distinction of any kind. The validity of these cards for certain awards is a matter for the organisation making the award, not for the QSL Bureau. The alternative is to close down the Society's QSL Bureau and let some other body take over. I need hardly mention that the QSL Bureau expenses form quite an item in the Society's accounts, an expenditure which no one grudges if the Bureau fulfils its duties.

Yours faithfully,

Cupar, Fife. A. STUART MCNICOL (GM3UU).

DEAR SIR,—As Manager of the R.S.G.B. QSL Bureau, I must point out that the refusal to handle cards to and from " pirate " stations in Antarctica is not an arbitrary practice of the Bureau but complies with a clear directive from the Council.

The LU and CE stations operating in British Antarctic territory are doing so without licence or permission from the British Government. They do so in support of a specious claim that these territories (including, in the case of Argentina, the Falkland Islands) belong to them.

It is an historical fact that none of these territories has ever been part either of Argentina or Chile. On the contrary, they have long been administered by the British Crown and the Falkland Islands are a Crown Colony with a Governor appointed by Her Majesty The Queen.

The settlements of which these stations form a part exist purely as part of this political claim and with the avowed intention of causing embarrassment to Great Britain. Presumably they have not been thrown out because the British Government does not regard their intrusion as of sufficient importance to justify military action. This should not, how-

ever, be used as a justification for indulgence in that all too popular pastime for both Britisher and foreigner of stabbing Great Britain in the back, even for so vital a reason as obtaining a bit of pasteboard from a pirate!

In the mad scramble for DXCC some amateurs seem completely to lose their sense of proportion; the fact that the A.R.R.L. recognises the LU and CE stations in Antarctica is quite beside the point but I often wonder just how long similar stations operated by, say the U.S.S.R. in Northern Alaska would be tolerated or whether the A.R.R.L. would recognise their cards for DXCC; believe it or not, Alaska was once part of Russia.

Yours truly,

Bromley, Kent. A. O. MILNE (G2MI), R.S.G.B. QSL Manager.

### TVI-Fringe Area Reception

DEAR SIR,—The report by Norman Burton in the March issue of the BULLETIN on reception conditions of Crystal Palace television transmissions in VK2 is extremely interesting. If one substitutes Alexandra Palace for Crystal Palace and Hastings, Sussex, for Revesby, N.S.W., some idea will be gained of what television reception was like down here before Crystal Palace opened with increased power.

This was the sort of thing the local Gs had to cope with when confronted with TVI problems, and it is much to their credit that they got to grips with it and largely succeeded. With this in mind, I rather feel that G2FXB's letter in the correspondence columns of the same issue reveals conditions which are somewhat in the nature of a piece of cake.

Yours faithfully,

St. Leonards-on-Sea, Sussex. W. E. THOMPSON (B.R.S.19773).

### Low Polls

DEAR SIR,—I am writing as one of the members who have been responsible for the recent low polls. However, although I did not vote this was certainly not due to "apathy" but candidly because I considered that it would be pointless to do so under the present arrangements. As a country member I am duly presented with very brief details of the lives of a number of gentlemen who I do not know from the proverbial Adam and am asked to decide which of them would constitute the best Council. Under these conditions I could easily vote for a character who had completely different ideas to myself as to what was the best for the Society and the amateur fraternity as a whole. I could, therefore, be instrumental in the pursuit of a policy which was against my wishes, which is to say the least a ludicrous position.

In the March editorial it was suggested that even these brief details may be discontinued. This would, I feel sure, make matters much worse. I would like to have much fuller information about all Council candidates including the aspects of Amateur Radio in which they are mainly interested, the bands on which they are active and especially whether they intend to press for any changes in the running of the Society, the BULLETIN, licensing matters, etc. I am quite convinced that this would result in a far heavier poll and a much more active interest by the general membership in the Society's affairs to the benefit of all concerned.

Yours faithfully,

Congleton, Cheshire. RONALD D. HORROCKS (G2FLP).

P.S.—I think the suggestion of a v.h.f. novice licence for those who have passed the R.A.E. but not the Morse test is a most excellent idea.

### The Novice Licence

DEAR SIR,—It is most refreshing to see two "Old Timers" (Mr. Ward, G4JJ and Mr. Evans, GW8WJ) suggesting and supporting a "Novice Licence." May I add my support to theirs and add that this licence might also be considered in the form of a "Technician Licence," limited to the v.h.f. bands only as put forward by Mr. Ward but not requiring the full 12 w.p.m. Morse Test for renewal.

The report of the first 1250 Mc/s Tests shows that much remains to be done to make full use of the bands allotted to amateurs in this country and I feel that any measure which will achieve this is worthy of the fullest consideration.

There must be many members who could qualify for such a licence and I suggest that if they are not in touch with a T.R. they should make known their wishes either to their R.R. or direct to the Council.

Yours faithfully,

Pulborough, West Sussex. G. G. CARTER (B.R.S.3015).


**Alan Mears G8SM (left) and Frank Hicks-Arnold operating G6MB, the T.V.A.R.T.S. station during the Affiliated Societies' Contest.**

## Around The Trade

The complete range of **Eddystone** variable tuning capacitors has been given Quality Approval by the Radio Components Standarisation Committee. This means that all Eddystone tuning capacitors are approved for inclusion in equipment produced to meet Service Standards. They are equally suitable for use in commercial transmitters, receivers, test and measuring instruments and other associated units.

**Taylor Electrical Instruments Ltd.,** have recently announced a new type of moving coil meter in which the movement consists of a centre core magnet surrounded by a soft iron ring; the coil revolves round the magnet. A number of advantages are claimed for the arrangement and a descriptive leaflet may be obtained from the company at 419/424 Montrose Avenue, Slough, Bucks.

**Dr. Colin Cherry, President-Elect, The Radio Society, City and Guilds College, proposing a toast to that Society at the Annual Dinner held on February 8, 1957. From left to right Paul Adorian (Past President), Dr. Cherry, D. M. Green (Chairman), Prof. A. Porter (President), David Froome (Hon. Secretary), Sir Graham Sutton, Prof. A. Tustin, Dr. R. L. Smith-Rose (Past-President), F. Steer and John Clarricoats.**

# Regional & Club News

**Blackpool and Fylde Amateur Radio Society.**—Meetings are now held on Wednesdays at Gadsby Street Hall, off Nelson Road. Membership is increasing and a programme of trips, film shows, Morse and theory instruction is being arranged. *Hon. Secretary:* H. G. Newland (G5ND), 161 Penrose Avenue, Blackpool.

**Bristol.**—Nearly 60 members attended the March meeting to hear a talk on " Simple Test Equipment for the Amateur " by E. C. Halliday (G3JMY). On April 26, R. G. Shears (G8KW), will describe and demonstrate Geloso and Hamobile receiving and transmitting equipment. A film show will be held at the Grand Hotel on May 10, in conjunction with Mullard Ltd., when the new films " Special Quality Valves " and " Transistors " will be on the programme. G. A. Bird (G4ZU) will give a talk on " The Minibeam " on May 17. Volunteers are required to give instruction at slow Morse classes. *Hon. Secretary:* D. F. Davies (G3RQ), 51 Theresa Avenue, Bishopston, Bristol 7.

**Bury Radio Society.**—On May 14, M. Barnsley (G3HZM) will lecture on " Direction Finding." The meeting will commence at 8 p.m. at the George Hotel, Kay Gardens. *Hon. Secretary:* L. Robinson, 56 Avondale Avenue, Bury.

**Crystal Palace & District Radio Club.**—The recent lecture and demonstration of mobile radio arranged by the Automobile Association, proved of great interest; it was clear that their problems are similar to those faced by radio amateurs who operate mobile equipment. On April 20 at Windemere House, Westow Street, Crystal Palace, S.E.19, Mr. Crow of Norwood Technical College will discuss " Simple Atomic Physics." *Hon. Secretary:* G. M. C. Stone (G3FZL), 10 Liphook Crescent, London, S.E.23.

**East London.**—At the March meeting of the East London Group, Council Member W. H. Matthews (G2CD) paid tribute to the great services which had been rendered to the Society by Past President E. Dawson Ostermeyer (G5AR) whose death had just been reported. Mr. Matthews spoke of Mr. Ostemeyer's special interest in the East London Group and referred to the " 5 Ack R " Trophies which he had presented to the Group for annual competition. At the conclusion of Mr. Matthew's address the members present stood in silence in memory of the passing of one of the great pioneers of the Amateur Radio movement.

**Enfield & District.**—Members of the group, with guests from Southgate Group, recently attended a lecture and demonstration of " Colour Television " given by Mr. J. Schaffer, B.Sc., of the Edison Swan Electric Co. at the company's works at Brimsdown. The lecture dealt with the N.T.S.C. system of colour television. Following a demonstration of a 21 in. colour receiver connected to a colour bar generator, a series of colour lantern slides were shown of pictures received by the set from the B.B.C.

**Flintshire Radio Society.**—At a special general meeting held at the Railway Hotel, Prestatyn, on March 4, a set of rules drawn up by the Committee was adopted. The society is now affiliated to the R.S.G.B. After the rules had been adopted, Mr. W. Davies gave a talk on " Relays and their uses."

**Grafton Radio Society.**—Recent events have included lectures on the " Design and Manufacture of Modern Valves " by a representative of S. T. & C. and the " Decca Navigational System " by K. Thompson (G3KIK); the presentation of 14 R.A.E. certificates gained by members during 1956; and a radio quiz. The club is now closed for the Easter holidays but will re-open on April 29 when the course for those taking R.A.E. will continue. *Hon. Secretary:* A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

**Kingston & District Amateur Radio Society.**—About 40 members attended the meeting on March 21 when Douglas A. Findlay, G3BZG (President, R.S.G.B.) and John A. Rouse, G2AHL (Deputy General Secretary, R.S.G.B.) visited the society for an open discussion on Amateur Radio and the R.S.G.B. Meetings are held fortnightly at Penryn House, Penryn Road, Kingston. *Hon. Secretary:* S. Babbs, 28 Grove Lane, Kingston-on-Thames.

**Lancaster & District Amateur Radio Society.**—Recent events have included tape lectures, film strip shows, a talk by a G.P.O. Interference section engineer, a junk sale and a visit to Squires Gate Airport, Blackpool. Meetings are held on the first Wednesday in each month at 7.30 p.m. at the George Hotel, Torrisholme. *Hon. Secretary:* B. Parker (G3KOQ), 125 Regent Road, Morecambe, Lancs.

**Malayan Amateur Radio Transmitters' Society.**—At the A.G.M. the following office bearers were elected for 1957: *President:* E. B. Powell (VS2BD); *Hon. Treasurer:* Serin Singh (VS2EF); *Hon. Secretary:* S. A. Faulkner (VS2DB), P.O. Box 777, Kuala Lumpur; *General Council:* C. K. de Souza (VS1CZ), D. Early (VS1FE), W. Tennant (VS1GV), I. J. Robertson (VS2DO), Tan bin Hussein (VS2DW) and Major J. C. Clinch.

**Midland Amateur Radio Society.**—Meetings in the Concert Room of the Midland Institute, Paradise Street, Birmingham, have been arranged for 7.30 p.m. on April 16 (" Automation " by P. Huggins of T. I. Technological Department) and May 21 (" Eddystone 888 Receiver " by J. N. Walker, G5JU). Visitors will be welcome. Members will be taking part in the 144 Mc/s Field Day. *Hon. Secretary:* C. J. Haycock, 360 Portland Road, Birmingham 17.

**Montreal Amateur Radio Club.**—At the A.G.M. the following officers were elected: *President*—Gordon Webster (VE2BB); *Vice-Presidents*—Ben Halickman (VE2AKT) and John Miller (VE2TA); *Hon. Treasurer*—John McDonald (VE2AKY); *Hon. Secretary:* Ethel Pick (VE2HI) 535 Lansdowne Avenue, Westmount, Quebec, Canada.

**Norwich & District Radio Club.**—A varied programme of activities has been arranged, including slow Morse classes, a course for the R.A.E., talks on building a club transmitter. Newcomers and visitors are sure of a warm welcome. Local R.S.G.B. members are enthusiastically preparing for N.F.D. Meetings are held on Fridays at 8 p.m. at the " Golden Lion," St. Johns Maddermarket. *Hon. Secretary:* Henry Staff (G4KO), 59 Charles Avenue, Thorpe, Norwich.

**Nottingham & District Amateur Radio Society.**—The A.G.M. will be held in the Staff Canteen, Basford Hall Miners' Welfare, Nuthall Road, Cinderhill, at 7.30 p.m. on April 19. Regular meetings are held on the third Friday in each month and prospective members will be warmly welcomed. Further information may be obtained from the *Hon. Secretary:* H. H. Pickering (G3DUL), 43 Plains Road, Mapperley, Nottingham. (Telephone 66125).

**Slade Radio Society.**—Meetings will be held at The Church House, Erdington, Birmingham, 23, at 7.45 p.m. on April 26 (Demonstration lecture on portable electric tools by Black & Decker Ltd.); May 10 (" The 64,000 ohm Question ") and May 24 (" Supply of Electric Power to Moving Machinery " by P. N. Willliams). The first D/F contest for the Harcourt Trophy will take place on May 12. The club station, G3JBN, at The Church House, is open every day of the week. Instructional and constructional classes are held on Tuesdays and Wednesdays. The Slade Net will be held on April 19 and May 17. *Hon. Secretary:* C. N. Smart, 110 Woolmore Road, Erdington, Birmingham 23.

**South Manchester Radio Club.**—The next meeting of the club will be held at Ladybarn House, Mauldeth Road, Fallowfield, 20, on May 3 when N. Ashton (G3DQU) will give a talk entitled " Notes on the Design of the Band Switched Transmitter." The club's own D/F event will be held on June 23 when visitors will be welcome. *Hon. Secretary:* M. Barnsley (G3HZM), " Greenways," 11 Cemetery Road, Denton, Lancs.

**Stourbridge & District Amateur Radio Society.**—The A.G.M. was very well attended and valuable discussions took place on the future policy of the society. The following officers were elected: *President*—J. Timbrell (G6OI); *Chairman*—F. A. Bills (G3CLG); *Vice-Chairman*—D. Barlow (G3HGI); *Hon. Treasurer*—J. Hogg (G2OG) and *Hon. Secretary*—A. K. Davies, 28 Kingsley Road, Kingswinford, near Brierley Hill. The J. Timbrell Trophies were awarded to A. K. Davies and R. Ashman (G3HXI).

**Torbay Amateur Radio Society.**—The A.G.M. will be held at the Y.M.C.A., Torquay, at 7.30 p.m. on April 27 (one week later than usual due to the Easter holidays) and will be followed by a Junk Sale. *Hon. Secretary:* L. H. Webber (G3GDW), 43 Lime Tree Walk, Newton Abbot.

# Forthcoming Events

### REGION 1

**REGION 1 FIELD DAY.**—May 5.
**Blackpool (B. & F.A.R.S.).** — Wednesdays, Gadsby Street Hall, off Nelson Road.
**Bury (B.R.S.).**—May 14, 8 p.m., George Hotel, Kay Gardens.
**Chester (C. & D.A.R.S.).**—Tuesdays, 7.45 p.m., Tarran Hut, Y.M.C.A.
**Crosby.** — Tuesdays, 8 p.m., over Gordon's Sweetshop, St. John's Road, Waterloo.
**Isle of Man (I.o.M. A.R.S.).**—April 17, May 1, 15, 7.30 p.m., Manor Guest House, 48 Victoria Road Douglas.
**Lancaster (L. & D.A.R.S.).**—May 1, 7.30 p.m., George Hotel, Torrisholme.
**Liverpool (L. & D.A.R.S.).**—Tuesdays, 8 p.m., Room "G," Wavertree Community Centre, Penny Lane, Liverpool, 18.
**Manchester (M. & D.R.S.).**—May 6, 7.30 p.m., Brunswick Hotel, Piccadilly.
**Manchester (S.M.R.C.).** — Fridays, 7.45 p.m., Ladybarn House, Mauldeth Road, Manchester, 20.
**Preston (P.A.R.S.).**—Wednesdays, 7.45 p.m., 48 High Street, off Lancaster Road.
**Southport.** — Thursdays, 8 p.m., Sea Cadets' Camp, Esplanade.
**Stockport (S.R.S.).** — April 24, May 8, 22, 8 p.m., Blossoms Hotel, Buxton Road.
**Warrington (W. & D.R.S.).**—April 18, May 2, 16, Royal Oak Hotel, Bridge Street, Warrington.
**Wirral (W.A.R.S.).**—April 17, May 1, 15, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.

### REGION 2

**Barnsley (B. & D.A.R.C.).**—April 26, May 10, King George Hotel, Peel Street.
**Bradford.**—March 26, April 9, 7.30 p.m., 66 Little Horton Lane.
**Doncaster.**—May 7, 7.30 p.m., Lord Nelson Hotel, Cleveland Street.
**Gateshead.** — Mondays, 7.30 p.m., Mechanics' Institute, 7 Whitehall Road.
**Hull.**—Second and last Tuesdays in each month, 7.30 p.m., "Royal Oak" (Tony's).
**Leeds.**—Wednesdays, 7.30 p.m., 4 Woodhouse Square.
**Pontefract.**—May 2, 16, 8 p.m., Queen's Hotel, Tanshelf.
**Rotherham.**—Wednesdays, 7 p.m., "Cutler's Arms," Westgate.
**Scarborough.**—Thursdays, 7.30 p.m., Chapman's Yard, North Street, Scarborough.
**Sheffield (S.A.R.C.).**—April 24, "Dog & Partridge," May 8, Albreda, Lydgate Lane.
**Slaithwaite.**—Fridays, 7.30 p.m., 3 Dartmouth Street.
**South Shields (S.S. & D.R.C.).**—April 24, 7 p.m., Trinity House Social Centre.
**Spen Valley.** — April 17, May 1, 7.30 p.m., Temperance Hall, Cleckheaton.
**York.** — Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

### REGION 3

**Birmingham (South & Bournville).**—Tuesdays, 7.30 p.m., No. 4 Committee Room, Cadbury Bros., Bournville. **(Slade).**—April 26, May 10, 7.45 p.m., Church House, High Street, Erdington. **(M.A.R.S.).**—April 16 ("Automation," P. Huggins), May 21 (Eddystone 888 Receiver, J. N. Walker, G5JU), 7.30 p.m., Concert Room, Midland Institute, Paradise Street, Birmingham.
**Coventry (C.A.R.S.).**—May 6, 7.30 p.m., H.Q., 9 Queen's Road, Coventry. **(Courtaulds).**—Wednesdays, Courtaulds, Ltd., Foleshill Road, Coventry.
**Solihull.**—April 29, May 13, 7.30 p.m., Civil Defence H.Q., Sutton Lodge, Blossomfield Road, Solihull.

### REGION 4

**Alvaston.** — Tuesdays, Thursdays, 7.30 p.m., Sundays, 10.30 a.m., Boulton Lane, Alvaston, Derbys.
**Chesterfield.** — Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.
**Derby (D. & D.A.R.S.).** — Wednesdays, 7.30 p.m., Room 4, 119 Green Lane, Derby.
**Ilkeston (I. & D.A.R.S.).**—Thursdays, 7 p.m., Room 5, Ilkeston College of Further Education, Field Road.
**Leicester (L.R.S.).** — April 22 (no meeting), May 6, 20, 7.30 p.m., Leicester.
**Lincoln (L.S.W.C.).**—May 1, 7.30 p.m., Technical College, Cathedral Street.
**Newark (N. & D.A.R.S.).**—May 5, 7 p.m., Northgate House, Northgate, Newark.
**Northampton (N.S.W.C.).** — Fridays, 7 p.m., Clubroom, 8 Duke Street.
**Nottingham.** — April 19, May 17, 7.30 p.m., Basford Hall, Miners' Welfare, Nuthall Road, Cinderhill.
**Peterborough.**—May 1, 7.30 p.m., 21 Hankey Street.
**Scunthorpe (S.A.R.S.).** — April 23, May 9, 7.30 p.m., Talbot Hotel, Earl Street.
**Retford & Worksop.**—May 13, 7.30 p.m., King Edward Hotel, Worksop.

### REGION 5

**Chelmsford.** —May 7, 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.
**Norwich.** — Fridays, 7.30 p.m., The Golden Lion, St. John's, Maddermarket.

### REGION 6

**Cheltenham.**—May 2, 8 p.m., Great Western Hotel, Clarence Street.
**Cheltenham (A.R.S.).** — Wednesdays, 8 p.m., Club Room, St. Mark's Community Centre, Brooklyn Road.
**Gloucester (G.R.C.).** — Thursdays, 7.30 p.m., The Cedars, 83 Hucclecote Road.
**Oxford (O. & D.A.R.S.).**—April 25, May 9, 7.30 p.m., Club Room, "Magdalen Arms," Iffley Road, Oxford.
**Portsmouth.** — Tuesdays, 7.30 p.m., British Legion Club, Queen's Crescent, Southsea.
**Southampton.** — May 4, 7 p.m., 1 Prospect Place, Above Bar, Southampton.
**Stroud.**—Wednesdays, 7.30 p.m., Subscription Rooms.

### REGION 7

**London (L.M.L.C.).**—April 26, May 17, 12.30 p.m., Bedford Corner Hotel, Bayley Street, Tottenham Court Road, W.C.1.
**London (U.H.F. Group).**—May 2, 7.30 p.m., Bedford Corner Hotel.
**Acton, Brentford and Chiswick.** — April 16, May 21, A.E.U. Rooms, 66 High Road, Chiswick, W.4
**Bexleyheath (N.K.R.S.).**—Second and fourth Thursdays, 7.30 p.m., Congregational Hall, Chapel Road, Bexleyheath.
**Chingford.**—For date and venue, phone: Wanstead 2321 or Silverthorne 1740.
**Croydon (S.R.C.C.).** — May 14, 7.30 p.m., "Blacksmith's Arms," 1 South End, Croydon.
**Ealing.**—Sundays, 11 a.m., ABC Restaurant, Ealing Broadway, W.5.
**East London District.**—April 28, 3 p.m., Town Hall, Ilford ("V.h.f. for the low frequency man," G. M. C. Stone, G3FZL).
**East Molesey (T.V.A.R.T.S.).**—May 8, 8 p.m., Carnarvon Castle Hotel, Hampton Court ("Sterosonics," H. A. M. Clarke, B.Sc. (Eng.), M.I.E.E., E.M.I., Ltd.).
**Guildford & Woking.**—April 28, 3 p.m., Royal Arms Hotel, North Street, Guildford.
**Harrow (R.S.H.).**—April 26, May 3, 10, 17, 8 p.m., Science Laboratory, Roxeth Manor Secondary Modern School, Eastcote Lane, South Harrow.
**Holloway (G.R.S.).**—Easter Closure, re-opening Monday, April 29 (R.A.E.) and Fridays (Club), 7 p.m., Grafton School, Eburne Road, Holloway, N.7.
**Ilford.**—Thursdays, 8 p.m., G2BRH, 579 High Road, Ilford.
**Mile End (Q.M.C.E.A.R.S.).** — May 21, 4.45 p.m., Queen Mary College, Mile End Road, E.1 (Demonstration of Hi-fi Equipment).
**Norwood & South London (C.P.D.R.C.).**—April 20, 8 p.m., Windermere House, Westow Street, Crystal Palace ("Simple Atomic Physics," Mr. Crow of Norwood Technical College).
**Slough.** — May 7, QTH from G2HOX, 13 Quaves Road, or G3GYD, 5 Parklands Avenue, Slough.
**Southgate, Finchley & District.**—May 9, 7.30 p.m., Arnos School, Wilmer Way, N.14.
**Welwyn Garden City.**—May 7, Service Training School, Murphy Radio, Ltd., Bessemer Road, Welwyn Garden City (Final arrangements for N.F.D.).

### REGION 9

**Bath.**—April 15, May 27, 7.30 p.m., New QTH, opposite Bath Garages, Ltd., James Street West.
**Bideford.** — May 2, 7.30 p.m., G2FKO, 38 Clovelly Road.
**Bristol.**—April 26, May 17, 7.15 p.m., Carwardine's Restaurant, Baldwin Street, May 10, 7.30 p.m., Grand Hotel, Broad Street.
**Exeter.**—May 9, 7.30 p.m., G2FCI, 5 Glenmore Road. June 13, 7.30 p.m., G3FLK, 43 Prospect Road.
**Falmouth.**—Alternate Tuesdays, 7 p.m. Technical Institute, Falmouth.
**Plymouth.**—Alternate Tuesdays, 7.30 p.m., Virginia House Settlement, Barbican.
**Torquay.**—Third Saturday in each month, 7.30 p.m., Y.M.C.A., Castle Road.
**Weston-super-Mare.** — Second Wednesday in each month, 7.30 p.m., Albert Hotel (sea front).
**Yeovil.**—Wednesdays, 7.30 p.m. Grove House, Preston Road, Yeovil.

### REGION 10

**Cardiff.** — May 13, 7.30 p.m., "The British Volunteer," The Hayes, Cardiff.
**Neath and Port Talbot.**—May 7, 7.30 p.m., Royal Dock Hotel, Briton Ferry.
**Pontypool.** — Tuesdays, 7 p.m., Educational Settlement, Rockhill Road.

### REGION 11

**Prestatyn.**—May 6 (Film Show), 27 (final preparations for N.F.D.), 7.30 p.m., Railway Hotel.

### REGION 13

**Edinburgh.**—April 18, May 2, 16, 7.30 p.m., 25 Charlotte Square, Edinburgh.

### REGION 14

**Falkirk and Stirling.**—May 10, 7.30 p.m., Temperance Café, High Street, Falkirk.
**Glasgow.**—April 26, normal meeting cancelled. Cinema show in lieu. Tickets from area representative.

**FORTHCOMING O.R.M.S.**
**SATURDAY, SEPTEMBER 21:**
**REGION 10—CARDIFF**
**SUNDAY, SEPTEMBER 29:**
**REGION 11—PRESTATYN**

## Can You Help ?

● A. S. Bragg (B.R.S.11262), 118 Wallace Road, Ipswich, who wishes to obtain the technical manual or any other information for the ex-Naval receiver (Marconi) type P.22 which covers 30 to 300 Mc/s ?

● R. Bryden (G3KCX), 1 Minster Lane, Barrow-in-Furness, who requires the circuit diagram and other details of the MCR1 receiver ?

● A. B. Davies (B.R.S.19556), 12 Leamington Place, Hayes, Middlesex, who requires information on the General Electric receiver type CG46116, a unit of the RAX-1 aircraft radio equipment.

● W. G. Hutton (B.R.S.20074), 29 Elmstead Avenue, Marston Green, Birmingham, 33, who requires information (including the frequency coverage and maker's name) on the walkie-talkie type BC1000 ?

# New Members

THE following were elected to Membership at the March, 1957, Meeting of the Council:—

## Corporate Members, Home (Licensed)

G2AVP †F./Lt. J. E. VAN PUYENBROEK, 34 Mill Lane, Albrighton, nr. Wolverhampton, Staffs.
G2BAG †A. G. BOON, Gordon Villa, Ash Lane, Rustington, Littlehampton, Sussex.
G3AM †P. T. BEER, 4 Alexandra Road, Barnstaple, Devon.
G4MN †W. G. LEWIS, 1195 Pershore Road, Stirchley, Birmingham, 30.
G3BGL †REV. P. W. SOLLOM, O.S.B., Douai Abbey, Woolhampton, nr. Reading Berks.
GW3CKD †G. J. ROTHERY, 201 Mackintosh Place, Roath Park, Cardiff, Glam.
GI3DQE †E. DORAN, 734 Springfield Road, Belfast.
GM3KCY G. I. BUCHANAN, 3 Gilmour Avenue, Hardgate, Clydebank.
GW3KHY J. D. ROBINSON, Swn-y-Don, Llanon, Cards.
G3KTF R. D. MAY, 89 West Avenue, Chelmsford Essex.
GM3KXS H. J. H. PEIRY, 198 Kinnell Avenue, Glasgow, S.W.2.
G3LEM/ZL2RY W./CDR. J. D. ROBINS, c/o R.N.Z.A.F. Headquarters, Adelphi Building, John Adam Street, London, W.C.2.
G3LKD A. M. DUNSCOMBE, 14 Upper Station Road, Radlett, Herts.
G3LKK A. R. TAYLOR, 22 Ashton Road, Newton-le-Willows, Lancs.
GM3LLP B. M. M. WATSON, 1 Corse Terrace, West Kilbride, Ayrshire.
G3LLV J. A. MCELVENNEY, 17 Havelock Square, Broomhill, Sheffield, 10.
G3LLW J. H. WATSON, Yacht House, The Quay, Lymington, Hants.
GI3LNJ SGT. A. J. TOPP, Sgts Mess, R.A.F. Station, Ballykelly, Limavady, Co. Derry.
G3LNX G. C. FLETCHER, 16 Hope Park, Bromley, Kent.
G3LOK E. ST. B. SYDENHAM, Ivy House, Sun Hill, Cowes, Isle of Wight.
G3LOV M. J. FRANCIS, 151 High Street, Banstead, Surrey.
G3LPA C. R. COOMBE, 17 Halton Road, R.A.F. Whitton, nr. Thetford, Norfolk.
G3LPO A. B. BURGESS, 57 Newenham Crescent, Liverpool, 14.

* * *

Correction to previous list:—
GW2FYM should read:
GW2FYW, D. DAVIES, "Isfryn," Bettws-y-coed, Caerns, N. Wales.

## Corporate Members, Overseas (Licensed)

DL4ET D. W. NEEDHAM, U.S. Army Hospital, Heidelberg, A.P.O. 403, U.S. Army.
K4LCK/DL4RU J. H. DANIELS, Auxier, Kentucky, U.S.A.
K6CHR P. R. SIGNORELLI, 14221 Riverside Drive, Sherman Oaks, California.
K0HBB A. A. LOHMEYER, 127 South Elmwood, Kansas City, Missouri.
KL7AZI MRS. W. J. WELLING, CAA Sisters Island, via Juneau, Alaska.
KL7PIV E. W. GOODHUE, JR., 2201 Sunrise Drive, Anchorage, Alaska.
W1EOO A. F. SORRENTINO, 267 Rockwell Street, Winsted, Conn., U.S.A.
W1OHA P. I. CLEVELAND, 8 Pleasant Gardens Road, Canton, Mass., U.S.A.
W1TX. R. C. FOSBERG, 279 Princeton Street, Hartford 10, Conn., U.S.A.
W2ATQ W. H. GROSSELFINGER, Westrex Corpn., 111-8 Avenue, N.Y. 11, N.Y., U.S.A.
W2KXL J. H. FISCHER, 375 Wainwright Street, Newark 8, New Jersey, U.S.A.
W3BIW MRS. E. J. HAMMONDS, Bethel Lane, Bryn Mawr, Pa., U.S.A.
W3BNR E. A. NARATIL, 423 Lafayette Avenue, Palmerton, Pa., U.S.A.
W3BUX E. FOSTER HAMMONDS, Bethel Lane, Bryn Mawr, Pa., U.S.A.
W3WJY NOBLE A. WOLFF, 510 Centre Avenue, Jim Thorpe, Pa., U.S.A.
W3ZA L. M. RANDLETT, MSUG, c/o American Embassy, Saigon, Viet Nam.
W7VL S. C. LOUGH, 5042 Harold Pl., N.E. Seattle, Wash., U.S.A.
W8AYS C. J. SCOTT, 1564 Maple Road, Cleveland Hts. 21, Ohio, U.S.A.
W8ECT PAUL E. HAMMAN, 1319 Lockmoor Blvd., Grosse Pointe Woods 36, Michigan, U.S.A.
W8ES H. J. NAFZGER, 121 Haiwatha Avenue, Westerville, Ohio, U.S.A.
W9NTP D. C. MILLER, Waldron, Indiana, U.S.A.
W9KFX VIRGIL R. SIMS, 519 South Virginia Avenue, Belleville, Ill., U.S.A.
W9PEC G. R. BROOKMAN, 777th AC & W Squadron, Klamath, Calif., U.S.A.
W9QGR R. J. BAYER, 1012 Walton Avenue, Racine, Wisconsin, U.S.A.
W0RHJ L. S. KUNKEL, 606 Gerecke Street, Norfolk, Nebraska, U.S.A.
VE3HP A. F. FERGUSON, c/o Ontario Hydro, 289 York Street, London, Canada.
VO2EA G. A. DUFFY, c/o Control Tower, RCAF, Goose Bay, Labrador.
ZB1CX/W0NVF W. J. SOLSER, Brunswick Apts, No. C-1, Brunswick, Maine, U.S.A.
ZD6JL J. S. LYNN, Postmaster, Blantyre, Nyasaland.
ZL3OB W. ST. J. REED, 12 Moa Street, Burnham Camp, Canterbury, New Zealand.
ZS2HX H. POLAKOW, 149 Cape Road, Port Elizabeth, South Africa.

## Corporate Members (British Empire Receiving Stations)

947 D. C. DAWSON, c/o Cable House Annexe, Horsell Rise, Woking, Surrey.

## Corporate Members (Foreign Receiving Stations)

270 HANS-ERLAND LARSSON, Borgeby 17, Fladie, Sweden.
271 JOSEPH KEIFFER, St. Bernard De Menthon, Pouxeux, Vosges, France.

## Corporate Members (British Receiving Stations)

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21358 *J. E. LOADES, 17 Manor Park Road, West Wickham, Kent.
21359 T. G. MARSHALL, 36 Bowne Street, Sutton-in-Ashfield, Notts.
21360 P. BATES, "Silver Birches," Itchingfield, Horsham, Sussex.
21361 R. BROWNING, 55 The Square, E.R.C.S., City Road, Tilehurst, Reading Berks.
21362 F. H. JOLOWICZ, 12 Arkwright Road, London, N.W.3.
21363 R. R. WALL, 1 Maxwell Road, Littlehampton, Sussex.
21364 P. B. TUSTIAN, 3 St. Andrews Road, Taunton, Somerset.
21365 A. METCALF, 18 Franklin Avenue, Tadley, Basingstoke, Hants.
21366 C. L. YOUNG, 11 Wild Green North, Langley, Bucks.
21367 MRS. E. M. CHILDS, 10 Eaton Road, Sutton, Surrey.
21368 A. D. WOOD, Worksop College, Worksop, Notts.
21369 H. BATTELL, 25 Manchester Mansions, Sunnyside Road, London, N.19.
21370 G. HARTLEY, 43 Cleanthus Road, Shooters Hill, London, S.E.18.
21371 L. W. BARNES, 1 Bryn Coed Park, Rhyl, North Wales.
21372 P. W. WEATHERALL, 35 Vauxhall Avenue, Sturry Road, Canterbury, Kent.
21373 W. H. WORTHINGTON, 2 Garden Terrace, Blackpool, Lancs.
21374 V. J. ROCK, 583 Harrow Road, Wembley, Middx.
21375 D. J. F. SPURRELL, Banningham, Aylsham, Norfolk.
21375 R. T. PIERCE, 5 Church Row, Meole Brace, Shrewsbury.
21377 J. GRAHAM, "Fernlea," Northcote Street, Wick, Caithness.
21378 F. E. ROGERS, 15 Middleton Avenue, Greenford, Middx.
21379 J. Moore, 15 Broom Road, Shirley, Croydon, Surrey.
21380 T. A. HUDSON, 247 Chapter Road, Willesden Green, London, N.W.2.
21381 C. J. BRIDGES, 17 Warwick Road, Sutton, Surrey.
21382 F. WILLIAMS, 1 Pen-y-Dre, Ebbw Vale, Mon., South Wales.
21383 E. A. PARROTT, "Fernlea," 48 Eastheath Avenue, Wokingham, Berks.
21384 A. CRAIGIE, 53 Yeaman Street, Carnoustie, Angus, Scotland.
21385 R. GIDLOW, 13 Church Walk, Stowmarket, Suffolk.
21386 D. E. JOHNSON, Melton Road, Hethersett, Norwich, Norfolk.
21387 B. C. POOLE, 10 Roberts Street, Rushden, Northants.
18307 †R. L. JENNINGS, 1 Canberra Square, Tilbury, Essex.
20567 †4003308 SGT. ROWDEN, A., 51 AMQ., R.A.F. Felixstowe, Suffolk.

## Associates

C. J. C. EDWARDS, 47 Redcliffe Gardens, Kensington, London, S.W.10.
C. F. HAYWOOD, 81 Albert Road, Coalville, Leicestershire.
S. I. W. JAMES, Boundary House, Totteridge Lane, London, N.20.
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B. E. STOREY, 44 Havelock Road, Norwich, Norfolk.
P. W. THURLOW, 6 Bosworth Road, Dagenham, Essex.
J. A. VAN SOMEREN, "Mount Saint George," 2nd Avenue, Porthill, Newcastle, Staffs.
DAVID YOUNG, c/o Brown, 8 John Carrick Street, Springburn, Glasgow, N.

* Denotes Transfer to Corporate Grade.
† Denotes Re-elected.

**MEMBERSHIP DRIVE — AN INVITATION.**

**HEADQUARTERS WILL BE GLAD TO SEND DETAILS OF MEMBERSHIP AND AN APPICATION FORM TO ANY PROSPECTIVE MEMBER.**

# New Books

**THE RADIO AMATEUR'S HANDBOOK (Thirty-fourth Edition—1957)** by the Headquarters staff of the A.R.R.L. 621 pages. Obtainable from R.S.G.B. Sales Department, price 34/- post free.

One outstanding characteristic of this famous book is the way it changes every year to keep right up to date with the best practice in Amateur Radio, and yet remains so much the same. This edition is no exception, and though the changes are fewer than usual, they are the result of careful modification, and rearrangement. A new clipper/filter for cw or 'phone is described, and the regenerative preselector is new. There is a new selective i.f. amplifier, and an extended treatment of the $\pi$ section output tank for transmitters. A " wire sizes " table for transmitting coils is a useful addition. The novice transmitter for 7 and 21 Mc/s has been replaced by one which gives 75 watts on four bands. The introductory treatment of keying has been improved, and the high-power transmitter for 50 and 144 Mc/s has been refurbished a little. There is a new 10 watt 50 Mc/s mobile transmitter. Much other rearrangement has taken place. Once again, the Handbook offers the amateur sound theory and reliable practice, and all in the extremely attractive presentation which is now so well known all over the world.

T.P.A.

* * *

**TELEVISION RECEIVING EQUIPMENT** by W. T. Cocking, M.I.E.E. 4th Edition. Published for " Wireless World " by Iliffe and Sons Limited. Size 8¼ in. x 5½ in. 454 pages with 279 diagrams and photographs. Price 30/-.

Development in television continues at so rapid a pace that the preparation of the fourth edition has necessitated the complete re-writing of three-quarters of it, and the addition of 169 pages of entirely new matter. It thus amounts almost to a new book.

Band III reception is thoroughly treated as well as the increasing problems of attaining freedom from interference, combined with high definition. Magnetic deflection has been expanded to five chapters and synchronizing methods are fully discussed, including flywheel sync. Automatic gain control systems are explained in detail.

The book assumes that the reader will have a fair knowledge of ordinary sound radio technique, for this is a necessary preliminary to an understanding of television. The treatment is largely non-mathematical, but formulae, useful to the designer, have been collected in appendices.

Although the treatment is based upon the British system of television, details of other standards are included and indications are given of how they affect receiver design.

The author is Editor of " Electronic & Radio Engineer " (formerly " Wireless Engineer ").

* * *

**FOUNDATIONS OF WIRELESS** by M. G. Scroggie, B.Sc., M.I.E.E. Sixth Edition. Published for " Wireless World " by Iliffe and Sons Ltd. Size 8¼ in. x 5½ in. 349 pages. 249 illustrations. Price 12s. 6d.

First published in 1936, and since then revised or re-written at frequent intervals, *Foundations of Wireless* has now reached its sixth edition. It has long since become a classic in its field, and scores of thousands have gained their first acquaintance with the principles of radio transmission and reception from its pages.

The whole basic theory of radio is covered, starting with the most elementary principles. No previous technical knowledge on the part of the reader is assumed, mathematics are eschewed except where essential, and the book is written in a lucid, and frequently humorous style.

Apart from the fundamental laws of electricity and radio, the theory of valves, transmitters and all types of modern receivers is described, and there is an introduction to the techniques of television and radar, while aerials, power supplies and transmission lines are also dealt with.

A feature of special interest to the beginner is the introductory section which explains fully the use of algebraic symbols, graphs and circuit diagrams.

The present edition includes an entirely new chapter dealing with semi-conductors. The difficulty which most beginners have in understanding the complex theory underlying the behaviour of these substances disappears before the author's clear explanation.

# EXCHANGE AND MART SECTION

**ADVERTISEMENT RATES. Members' Private Advertisements 3d. per word minimum charge 5s. Trade Advertisements 9d. per word, minimum charge 12s. (All capitals 1/- per word, minimum charge 18/-). Write clearly. No responsibility accepted for errors. Use of Box number 1s. 6d. extra. Send copy and remittance to National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4, by 22nd of month preceding date of issue.**

ANTENNA, multi-band wire with traps. 10-80 m. S.a.e. for details K. W. Electronics Ltd., 136 Birchwood Road, Wilmington, Dartford, Kent. (310

A SUPERIOR mobile station based on modified mint ZC1 Mk. 1 with all fixed capacitors renewed. PI tank output. EF86 microphone pre-amplifier, crystal microphone, special whip, loading coil, capacity hat, tuning and control gear. Consistent 300 mile mobile QSOs, £12. G2ADR, 19 Fellbrook Avenue, Acomb, York, Tel: 78283. (290

ALL TYPES of Valves required for cash. State quantity and condition. Radio Facilities Ltd., 38 Chalcot Road, N.W.1 (PRImrose 9090). (236

BANDSWITCHED transmitter wanted. Must be complete and in good condition. Minimitter or similar table topper preferred. Box 298, The National Publicity Co. Ltd., 36/37 Upper Thames Street, London, E.C.4. (298

BRAND new, unused, Universal Avo-Minor a.c./d.c., offers. Mason, 8 Herrick Road, Loughborough, Leics. (286

BRT400 receiver for sale, excellent condition, complete with manual, £75, buyer collect. G. Carter, 5 High Street, Hornsey, London, W.8. (289

COMPLETE station. QRO Transmitter, professionally built, QY3/125 final, low level clipper, class B modulator, TVI proofed throughout, all bands 3.5 to 28 Mc/s, and Radiovision Commander receiver with built-in crystal marker and ceramic wavechange switch and speaker, all have new valves. For sale because now have no fixed abode. The lot, £150 o.n.o. G3EFK, Box 300, The National Publicity Co. Ltd., 36/37 Upper Thames Street, London, E.C.4. (300

D.S.T. 100 Mk. III manual required. Beg, buy, borrow or hire. Transformer about 650-0-650 at 350mA. G3EXU, 2 Bournewood Road, London, S.E.18. (282

EDDYSTONE 740 built-in speaker, £20, or exchange for Minibeam. Spivey, " Bryn Gwyn," Mortimer Terrace, Healey, Batley, Yorks. (305

FINAL clearance of shack. Top band c.w. table top transmitter, other constructed units, components, valves, meters. Send s.a.e. for list. Bromley, 10 Rotherfield Road, Carshalton, Surrey. (295

FOR SALE. Old Barn Cottage, Chiddingfold, Surrey. The Q5 R9 QTH of G3HCU. One of the finest spots in the Country for Ham Radio. Delightful rural district. Write or phone. Chiddingfold 111. Or STR. 4289. (304

FOR SALE: Panda Cub transmitter. Perfect condition, only six months old. Really must go. Offers around £40 to:— G3IBH, 439 Broadwater Crescent, Longmeadow, Stevenage, Herts. (292

G2BW selling 14/21/28 Mc/s 150 watt transmitter. Six 19" rack units: (a) Antennamatch and Tuner, Lowpass filter; (b) exciter and p.a. 4-65 Final, variable vacuum condenser, n.b.f.m.; (c) screen modulator and electronic keyer (d) low voltage bias and relay supplies; (e) high voltage supply with Variac; (f) medium voltage supply. Complete with valves and wiring diagram, £50. Imhof enclosed double 4' 6" rack cabinet with operating shelf, £15. Delivery London. Write Snowden, Flat 1. 79 Knightsbridge, S.W.1. (293

G3CGD QSL's Fixed and Mobile samples on request. Printing enquiries welcomed. 30 St. Luke's Road, Cheltenham. (303

HALLICRAFTERS V.H.F. A.M./F.M. receiver type S36, 28 to 143 Mc/s, 100/250V a.c. Brand new in makers packing with spare valves, £55. H. Harris, " The Huon," Branksome Hill Road, Bournemouth. (287

MANUAL for CR.100 wanted urgently by G2PS. Any reasonable price paid. E. A. Parsons, 39 Newtoun, Westbury, Wilts. (297

*Continued on page 484)*

## EXCHANGE AND MART SECTION (Cont.)

METALWORK.—All types cabinets, chassis, racks, etc., to your own specifications, Philpott's Metalworks, Ltd. (G4BI). Chapman Street, Loughborough. (99

MINIMITTER p.a. unit, complete with valves, new and unused. Minimitter exciter unit ditto. E.M.I. G.D.O. L.F. bands to 30 Mc/s. E.M.I. G.D.O. 50 Mc/s to 150 Mc/s. Pair of R.C.A. 6146s (new and boxed—not surplus). 2—832s, 1—CV.666=(829B), guaranteed perfect. Offers or exchanges; wanted receiver. G3JZN, 100 Radcliffe New Road, Whitefield, Lancs. (283

MORSE Training Records, part one (as quoted in January BULLETIN). Offers:—J. Savage, 14 Salt Hill Avenue, Slough, Bucks. (296

NATIONAL HRO-5 receiver, complete with crystal, speaker, power-pack, fitted with octal valves. 4 G.C. coils, 10-160 metres. For sale, £25. G3HDT, J. D. Graham, Gatherick, Duddo, Berwick-on-Tweed. (285

NEW valves: 6R4GYs, 7/6; 807s, 6C4s, 6J6s, 4/6; 955, 6H6, 2/6; KT8C, 7/6; VR150, 5/6; 500 kc/s crystal, 2-pin, 7/6; 100mA m.c. meter, 6A thermocouple, 5/-. 13 Chandos Street, Keighley. (306

**IMPORTANT NOTICE**

All Exchange & Mart advertisements must be sent with remittance made payable to :

**THE NATIONAL PUBLICITY CO., LTD.**

36-37 Upper Thames Street, London, E.C.4.

The Society and its Advertisement Manager cannot intercede in any matters arising from advertisements appearing in this section.

ONE Panda P.R. 120V for sale, £70 (seventy pounds) or offers. Wanted AR88D with cash adjustment. A. S. Thomas, GW3AX, "Roseland," Kittle, Bishopston, Swansea, Glam. (309

POWER unit for 1154, mains input 1200 volt 200mA, fully smoothed, metal case, £3, buyer collects. G3DII, 10 Greenfield Road, Stafford. (299

QSL cards, G.P.O. approved. Log books, cheapest, best, prompt delivery. Samples—Atkinson Bros., Printers, Looe, Cornwall. (206

SALE—R1155E, unmodified, excellent performance and appearance, new powerpack and output unit with 5" speaker. £10 or near offer. G3JKM, 21 The Leas, Baldock, Herts. (302

WANTED a few crystals for 160, 80 and 50 Metres. State frequency and price. G3EJF, 24 Beryl Avenue, Tottingham, Nr. Bury, Lancs. (294

WANTED, in good condition, receiver wave range approx. 30–150 Mc/s. Price particulars to Maltby, Immingham, Grimsby, Lincs. (301

WANTED: All types of communications receivers, test equipment, tape recorders, amplifiers, etc. Prompt cash payment. Details to R. T. & I. Service, 254 Grove Green Road, Leytonstone, London, E.11 (LEYton 4986). (241

WANTED BC221, without book, case or crystal, or modified (state extent)—also wanted drum, scale, vernier and knob of a 221. G3IGF, 6 Exeter Gardens, Ilford. (307

WANTED BC610 Hallicrafters, E.T.4336 transmitters, BC312 Receivers, BC221 Frequency Meters and spare parts for all above. Best cash prices. P.C.A. Radio, Beavor Lane, Hammersmith, W.6. (266

3 ELEMENT rotary beam with folded dipole radiator for 20 metres, 2 selsyns and motor with gear box, all clamps, brackets, nuts and bolts, etc., £30. G. Newton, Murieston House, Midcalder, Midlothian. (291

3½ in. SWING, 16 in. centres, screw cutting lathe, with electric motor, plus many accessories; for BC.221, Tape deck, 813s or w.h.y. G2FKZ, 105 Underhill Road, London, S.E.22. (284

## APPOINTMENTS SECTION

*Situations Vacant*

JUNIOR WIRELESS TELEGRAPHY OPERATORS required by FALKLAND ISLANDS DEPENDENCIES ADMINISTRATION for service in SOUTH GEORGIA for one tour of three years in the first instance. Salary according to age and experience in scale £420 rising to £520 a year. Free board and lodging. Free passages. Liberal leave on full salary. Candidates preferably SINGLE and must be able to transmit and receive Morse at 25 w.p.m. They should be familiar with HF and MF transmitters. P.M.G. Cert. an advantage. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/41977/RC. (308

LABGEAR (Cambridge) Ltd., Willow Place, Cambridge, urgently require Junior Engineers for their Communications Laboratory for work on a wide variety of interesting projects. Qualifications required are a basic knowledge of radio and/or test gear, sound common sense and the ability to think clearly. Apply personally or in writing to Personnel Department. (281

WIRELESS OPERATOR MECHANICS required by FALKLAND ISLANDS DEPENDENCIES SURVEY for service at isolated British Bases in Antarctic. Must be able transmit and receive Morse at 20 words a minute and be capable of elementary maintenance wireless transmitting and receiving equipment. Salary according age in scale £330 rising to £420 a year with all found, including clothing and canteen stores. Keen young men between 20 and 30 years required, preferably single, of good education and high physical standard, with genuine interest in polar research and travel, and willing to spend 30 months under conditions testing character and resource. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/42227/RC. (288

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