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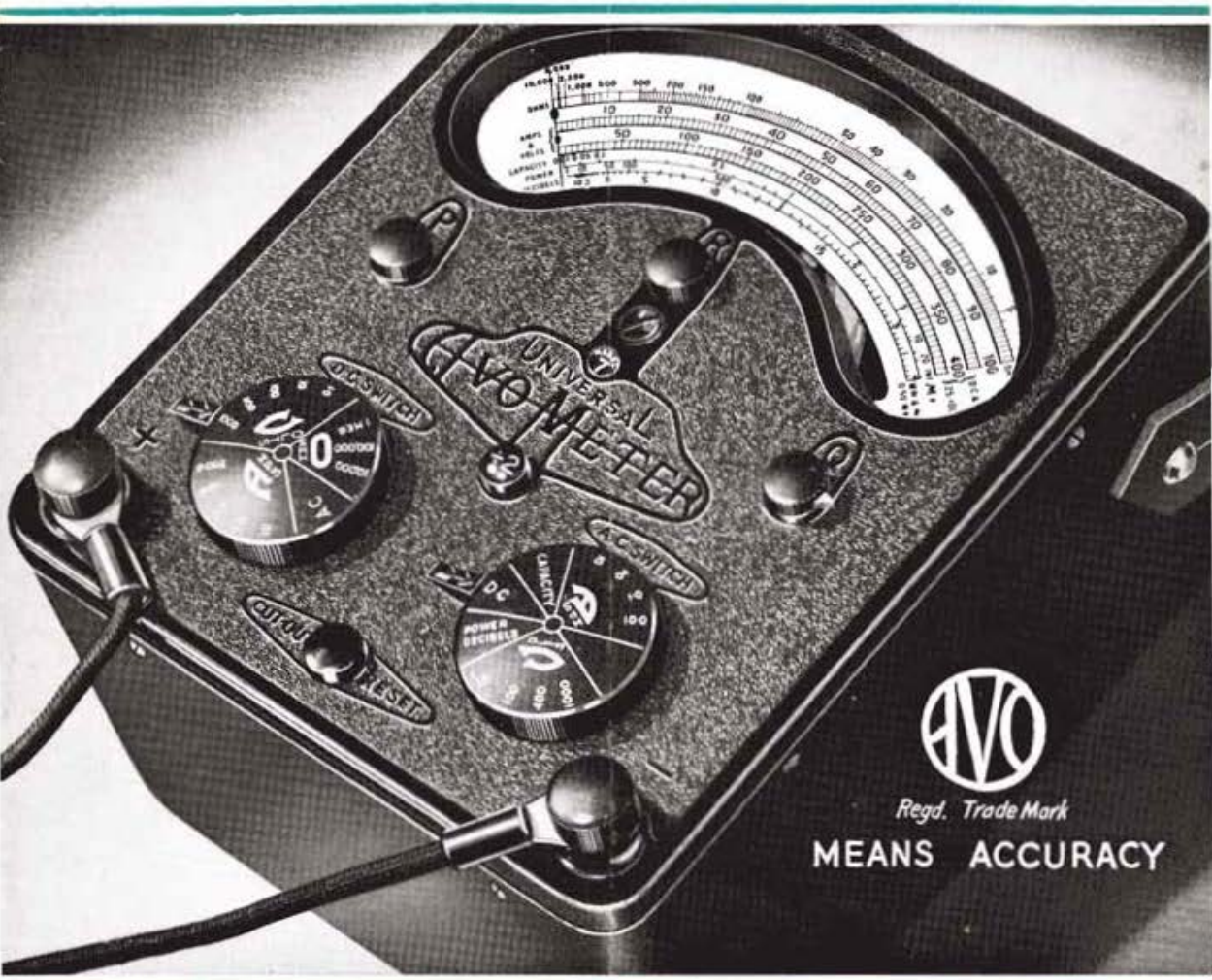
BULLETIN

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN



- AUDIO FREQUENCY OSCILLATORS
- ELECTRONIC REPRODUCER FOR STEEL STRINGED INSTRUMENTS
- COMPONENT ANALYSER
- ANGLO-AMERICAN HAMFEST

R.S.G.B. BULLETIN

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FREQUENCY UTILISATION

DURING the years immediately preceding the war, radio amateurs, the world over, were striving to make the best possible use of the limited frequency bands allotted to them for experimental purposes. The advent of crystal control, coupled with the development of the single-signal superheterodyne receiver, had helped towards the solution of the problem, but much still remained to be achieved from the purely technical aspect. We have no means of ascertaining the present state of the radio art, but the time seems opportune to give thought to other considerations bound up with the question of frequency utilisation.

Prior to the war British amateurs were permitted to operate in six frequency channels, *viz.* 1,720 kc/s.–1,995 kc/s., 3,505 kc/s.–3,730 kc/s., 7,005 kc/s.–7,295 kc/s., 14,005 kc/s.–14,395 kc/s., 28,005 kc/s.–29,995 kc/s. and 56,005 kc/s.–59,995 kc/s.

Experience gained over many years had shown that these bands were capable of producing quite different types of results. For instance the " top band," as the channel between 1,720 and 1,995 kc/s. was called, was very suitable for work within the British Isles, whilst the 14 Mc/s. band was especially useful for long distance work. Frequently, however, amateurs used 14 Mc/s. for local work, at times when the band was open for DX. The 7 Mc/s. band suffered in like manner, although, due to conditions, the number of distant stations heard on that band during 1938 and 1939 was less than on the higher frequencies.

When peace returns the problem of accommodating the many newcomers who will wish to share the ether will be considerably greater than in pre-war days unless we tackle the task in a straight-forward and unselfish manner.

By making full and proper use of every band and by using each band for the purpose for which it is best suited we shall go a long way towards easing the situation. In peace time it seemed to be the ambition of most amateurs interested in communication experiments to select a frequency as near to the edges of a band as their licence permitted, with the result that the centre section of each band was frequently deserted. The old 28–30 Mc/s. band provided a very bad example of frequency utilisation. During those periods when the band was open for DX the vast majority of the activity took place between 28,000 and 28,500 kc/s. An amateur who had the courage to operate his station on, say, 29,950 kc/s. would, after a very short time lose heart because no replies were received to his repeated calls. The vicious circle would be completed when he finally, in desperation, reverted to an edge-of-the-band frequency. Mindful of this state of affairs certain well-meaning amateurs hit upon the bright idea of sending a special Q signal to indicate from which part of the band they proposed to start their search for replies to their Test or CQ calls, but we doubt whether the idea was really popular.

It seems clear that the only satisfactory method of obtaining full use of our frequency allocations is to spread ourselves evenly over every kilocycle of every band and to use each band for its proper purpose. It would not be practicable, because of local interference, to attempt to devise regional schemes whereby, amateurs say in one District used one section of a band, while those in a neighbouring District used another section of the same band.

It is difficult at present to form an opinion as to the type of frequency control that will become popular after the war, but there are indications that the master oscillator may oust the quartz crystal for DX work. If this should happen we may find that the problem can be solved by the calling station setting his frequency to that of the caller. This suggestion is not new, in fact it dates back to long before the war, but like other bright ideas it was not in general use, for the simple reason that 90 per cent. of pre-war amateur stations were controlled by a quartz crystal. Although most operators possessed more than one crystal, very few had sufficient to enable them to operate on a multitude of spot frequencies in any given band.

Clearly if the master oscillator is to succeed the crystal oscillator, our ideas concerning frequency measurement will have to undergo some radical changes. For example, it will be useless to employ equipment which employs cheap and unreliable components, whilst condensers and dials will have to be made specially for the purpose. Temperature control will come into its own. The Society is fortunate in as much that it can call upon many highly qualified members for advice on frequency measuring problems. Which reminds us that this is the time of year when under normal conditions, every amateur worth his salt would be planning his winter programme. With the war on its last legs in Europe, we think it appropriate to suggest to members, especially those newcomers who aspire to operate a station after the war, that the first essential to a post-war licence will, if we know anything about it, be the production of evidence that the applicant possesses accurate frequency measuring gear. *Verb sap !*

J. C.

AUDIO FREQUENCY OSCILLATORS

PART I

By C. W. Cragg (2HDU)

The Audio Oscillator, for so long regarded as the poor relation of its radio frequency counterpart, has been somewhat neglected by technical journalists. This series of articles will, it is hoped, go some way towards redressing the position.

AUDIO frequency oscillators may be divided into four main classes; (*a*) inductive feed-back types, (*b*) those employing resistance capacity networks for tuning, (*c*) negative resistance oscillators, and (*d*) beat-frequency oscillators.

The chief requirements of an audio oscillator used for testing purposes are good frequency stability and waveform, together with a stable output voltage. The circuits to be described are all capable of fulfilling these conditions when properly adjusted.

Inductive Feed-Back Oscillators

The types of oscillators with which all amateurs are familiar on the higher frequencies may, in general, be used at audio frequencies merely by altering the circuit constants, but the waveform is likely to be poor unless some kind of stabilisation is employed. The most common method of doing this is to include a resistance in the feed-back path. Figs. 1 and 2 illustrate this principle. In Fig. 1 stability is achieved by the resistance R which is adjusted until the oscillator will only just start up when switched on. As the value of R is increased the output and degree of distortion will decrease, while the frequency will increase. To tune to any given frequency it is necessary to vary the resistance R and the capacity C2 which tunes the transformer primary. For the best operating conditions the value of the cathode bias resistor should be such as to bias the valve to normal Class "A" working. This resistance need not be by-passed. No grid-leak and condenser combination is used since grid current would cause serious distortion and C1 should be large enough to cause negligible phase change at the operating frequency (·5μF will suffice for the range of frequencies normally required).

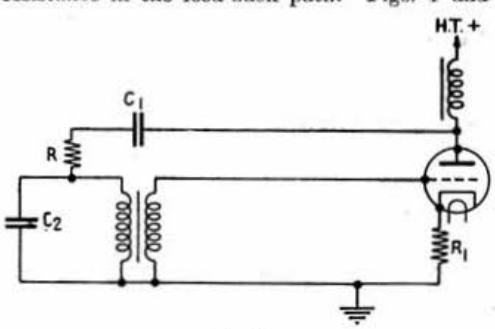

Fig. 1.
Tuned-anode resistance-stabilised oscillator. R1 1,000 ohms. C1 0·5 μF. R and C2 adjustable for different frequencies. Anode choke approx. 20 Henrys. Valve 6J5 or similar type.

The transformer will have a considerable effect on the operation of the oscillator and should preferably have a ratio of about 1 : 1 with a good "Q." This will assist in obtaining tight coupling between primary and secondary, and will ensure that the value of R is several times greater than the valve anode impedance, which condition is favourable to good stability, since any change in valve characteristics will then have little effect on the tuned circuit. To obtain a good "Q" transformer any one of the special high permeability materials may be used for the core with good effect. A primary inductance of about 1 henry will be suitable for a range of frequencies between about 400 and 5,000 c.p.s. The inductance of the anode choke should be about 20 henrys.

To change frequency a two-pole switch is used, bringing into circuit different values of capacity at C2 and resistance at R. The output may be taken either from the valve grid or from the junction of R and C1. As with all oscillators designed for stability, low-loading is essential, and an amplifier should be used in most cases. This will also act as a buffer and prevent changes in load from affecting the oscillator. Any medium or low-impedance valve will give good results.

The Hartley circuit shown in Fig. 2 is very similar to Fig. 1. A high "Q" coil is again desirable and to obtain tight coupling it should be tapped about half way up. A 1 : 1 transformer may be used as in the previous case; if, however, the same transformer is used in both circuits, to tune to the same frequency, this latter arrangement will require only one quarter the capacity of the other, since all the coil is tuned, whereas only half the coil was tuned previously. The output may be taken from the grid or cathode, or from a coupling winding on the transformer. A two-pole switch is again required in order to change frequency, by altering R and C2. In this circuit R is adjusted as before until oscillation just takes place; its value may be as large as 100,000 ohms. Since this resistor is in the cathode circuit only a small current is taken by the valve (about 1 mA in the case of a 6J5 with 250v H.T.) and a large amount of negative feed-back is applied. The anode decoupling resistance and condenser may be of any convenient value to ensure that the anode is effectively at earth potential with respect to audio frequencies.

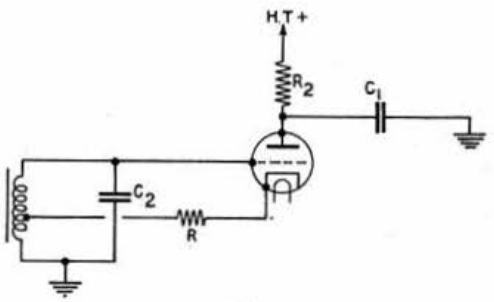

Fig. 2.
Resistance stabilised Hartley oscillator. C1 1 μF. R2 50,000 ohms. R and C2 adjustable. Valve 6J5.

Both these circuits can be made to produce an output with less than 1 per cent. total distortion, using a single valve amplifier. This type of stabilisation is not usually possible at R.F. as the capacity across the stabilising resistances becomes appreciable.

Resistance Tuned Oscillator

Resistance tuned oscillators may be subdivided into two classes, first, those in which feed-back is controlled by means of a resistance capacity network,

and takes place at one frequency only, and second, those in which feed-back occurs at all frequencies, with negative feed-back applied at all frequencies except that at which oscillations are required. The effective feed-back is, therefore, positive at one frequency only.

Phase Change Oscillator

Between the grid and anode circuits of a valve there is a 180° phase change. To cause a valve to oscillate, an in-phase voltage from the anode circuit must be fed back to the grid and in order to bring about this condition the anode voltage must be changed through 180°. One way of achieving this is to make use of one of the network arrangements shown in Fig. 3. If a single resistance and condenser

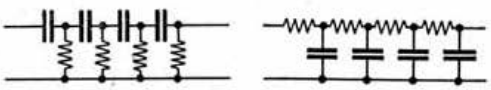

Fig. 3.
(a) Phase advancing circuit. (b) Phase retarding circuit.

are connected in series, and a voltage is applied across the ends, then the voltage across the condenser will lag behind the applied voltage, while that across the resistor will lead. The condenser voltage will lag

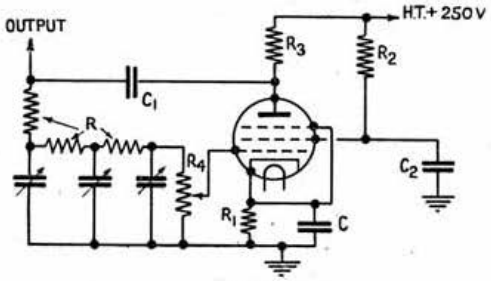

Fig. 4.
Phase-retarded oscillator. C (see text). C1, C2 ·5 μF. Tuning condensers ganged ·0005 μF. R1 1,000 ohms. R2 1 megohm. R3 250,000 ohms. R4 5 megohms (oscillation control). Valve 6J7G or similar. Approximate values of R—
50–200 c/s. ... 10 megohms. 800–3,500 c/s. ... 600,000 ohms.
200–800 c/s. ... 2·5 megohms. 3,500–14,000 c/s. ... 150,000 ohms.

by an angle whose tangent is ωCR, where $\omega = 2\pi$ frequency and the resistance voltage will lead by an angle whose tangent is $1/\omega CR$. With a single resistance and condenser, a 180° phase shift cannot be obtained, consequently a minimum of three combinations is required. The anode voltage is applied to one end of either type of network and the grid connected to the other. The amount of phase change varies with frequency, but for one frequency only it will be exactly 180°. At this frequency, oscillation will take place.

There is, of course, a loss in the filter network which has to be less than the valve gain. The more sections used, the smaller will be the overall loss, but after four sections the progressive decrease in loss brought about by adding more sections is slow, so that little is gained.

Of the two types of phase-change circuit, the phase-retarding type gives slightly less distortion, since it is also a low-pass filter and the amount of harmonic reaching the grid is thereby reduced.

To change the frequency of oscillation the values of either the resistances or condensers may be altered, but as ganged condensers are more readily obtainable than ganged resistances it will generally be more convenient to use the former. Either a three-or four-gang ·0005 μF will suffice. The use of variable capacities also maintains a more constant output voltage over the tuning range which, incidentally, will be slightly wider if four sections of phase-changing are used. A range of frequencies of about 4 : 1 can generally be covered with the three sections. Where a wider coverage is needed a band-switch must be incorporated to change the value of the resistances.

A circuit for this type of oscillator is shown in Fig. 4. A greater output is usually obtained at the low frequency end of each range and to counteract this condition, with its secondary effect of increasing distortion, negative feedback may be applied by using a low value of by-pass condenser in the cathode circuit. This has the effect of applying more feedback at the low frequencies, thus reducing the output. The actual capacity must be found experimentally, but it will be in the region of 0·1 to 2 μF according to the value of bias resistor used and the frequency range. When more than one range is required it may be necessary to switch-in different values to obtain the best results.

The oscillator may be slightly improved by using three, or any odd number of valves. If an even number is used, a multi-vibrator will result and oscillations will occur at any frequency but the required one. The output from an amplifier with an even number of stages is in phase with the input, whereas it is required to be out of phase, and the network then changes the phase by the correct amount at just one frequency. When a multi-stage circuit is used there must be as little phase-shift as possible in the couplings between the valves. Instead of this, however, the phase-changing circuits may be placed one between each valve so that the overall

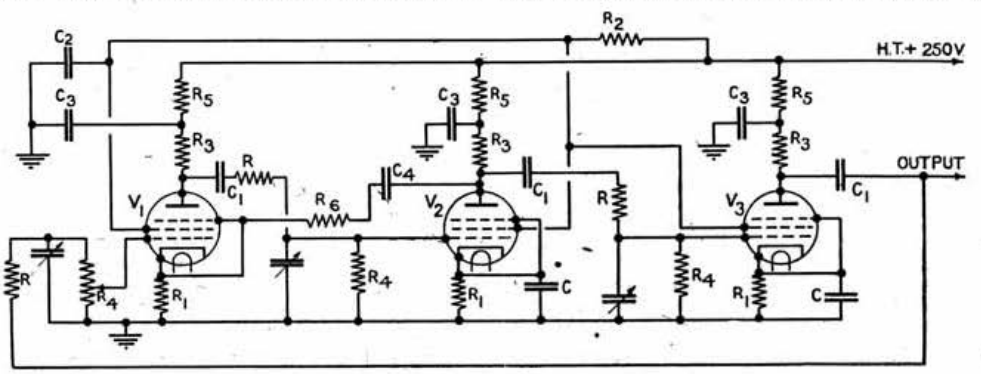

Fig. 5.
Multi-stage Phase-change oscillator. C, C1, R, R1, R3, R4 as for Fig. 4. V1, V2, V3 6J7G. C2, C3 8 μF. C4 ·5 μF. R2 250,000 ohms. R5 50,000 ohms. R6 100,000 ohms, but make as low as possible (negative feed-back adjustment).

change is zero (Fig. 5). As considerably more gain is available in the three-stage circuit more negative feedback can be employed and the output, therefore, remains more constant and less distorted. Negative feedback is obtained between V1 and V2 by means of R6 and C4. As before, the cathode by-pass circuits may be used to give feedback varying with frequency. With these and other types of oscillator the circuit is adjusted, by means of R4, until oscillations just start. Output is taken from any anode into an amplifier with a high-impedance input.

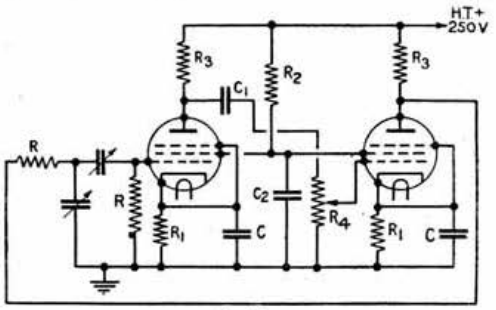

Fig. 6.
Phase advance-retard circuit. C, R1 as for Fig. 4. C1 ·05 μF. C2 ·5 μF. Valves 6J7G. R2 500,000 ohms. R3 250,000 ohms. R4 ·5 megohm (oscillation control). Frequency $\frac{1}{2\pi \times R \times C}$ c/s. where C is in microfarads and R is in megohms. Loss in network is approximately four times at frequency of oscillation.

Phase Advance-Retard Oscillator

Instead of changing the phase by 180° as in the previous circuit a single advance and a single retard section may be used. At one particular frequency the overall change will be zero, then, and an amplifier must be used whose input and output are in-phase. Any amplifier with an even number of stages will serve for this purpose. The phase-change network acts in a similar manner to a band-pass filter. Here again, the couplings between the stages may form the filter, and only a two-ganged condenser is needed for tuning. The amount of feed-back is adjusted by means of R4 (see Fig. 6). If more than one band is to be used the resistances must be switched, and the feed-back to the grid altered, so that pre-set potentiometers or fixed resistors may be used and adjusted when tuning-up the oscillator. Negative feed-back may be applied as in almost any other oscillator, provided, of course, there is enough gain to spare in the amplifier.

Oscillator using R/C Frequency Discriminating Network

The circuit shown in Fig. 7 acts as a band-pass filter

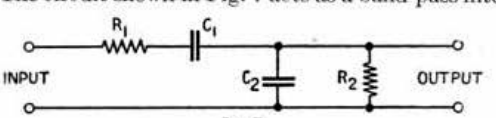

Fig. 7.
Frequency-discrimination network. Maximum output at frequency $\frac{1}{2\pi\sqrt{R1 \times C1 \times R2 \times C2}}$. If R1 = R2, and C1 = C2 this becomes $\frac{1}{2\pi R \times C}$

in that the output is a maximum at the frequency at which the resistance R is equal to the reactance of C. The frequency of maximum output is therefore $1/2\pi RC$. At this frequency the output voltage is one third of the input voltage.

An oscillator employing this network must have its input and output voltages in-phase since there is no phase-shift in the network (see Fig. 8). Only a small degree of gain is needed to obtain oscillation, although it is better if a reasonable amount of negative feed-back is applied with a frequency characteristic in order to counteract the varying output voltage as the circuit is tuned. Tuning is best accomplished with a two-gang condenser of the normal type; this means that the rotor will be "hot" and cannot be earthed. An insulated spindle may be necessary in some cases to avoid hand-capacity, but no other ill-effects should be encountered. To effect tuning it is better to vary

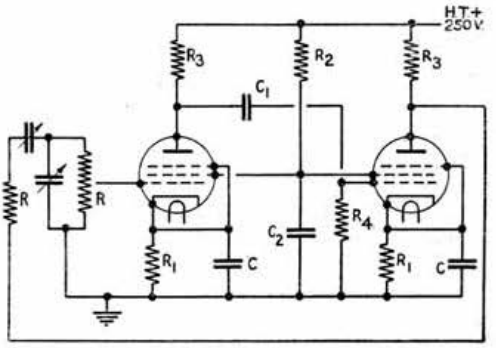

Fig. 8.
Oscillator with R/C frequency-discriminating network. C, R1, R3 as for Fig. 4. C1, C2 ·05 μF. R2 500,000 ohms. Tuning condenser ·0005 μF two-gang. R (see Fig. 7).

the capacity rather than the resistance as the impedance of the network then remains constant with frequency. If the resistances are varied the valves will be feeding into different loads and consequently the gain will alter.

This oscillator and most resistance capacity tuned oscillators, give a wider frequency range with a given

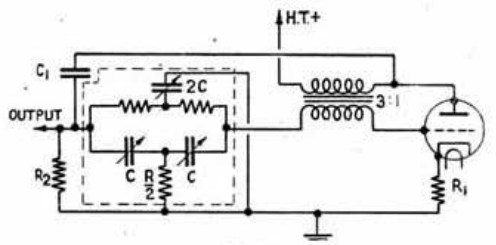

Fig. 9.
Negative-feedback oscillator. R1 1,000 ohms. R2 ·5 megohm. C1 ·5 μF. Transformer approx. 3 : 1. Valve 6J5. With ratios of capacity and resistance shown, frequency = $\frac{1}{2\pi R \times C}$. The tuning network is shown dotted.

variation in capacity than do L/C circuits, since the frequency varies inversely as the capacity, and not inversely as the square root of the capacity. For stable operation the tuning condensers should, therefore, be of good quality.

Negative Feed-back Oscillators

The negative feed-back type of oscillator employs the circuit of Fig. 9. Positive feed-back is applied at all frequencies, and negative feed-back is applied *via* the R/C network. This network acts rather like high-pass and low-pass filters in parallel so that the output is a minimum at one particular frequency. At this frequency, negative feed-back is a minimum and oscillation occurs. One disadvantage is that three condensers must be tuned although a four-gang ·0005 μF type can be used, with two sections in parallel.

With this circuit, frequencies up to a 100 kc/s. can be covered, while the previous circuit will operate even higher. For optimum results the condensers and resistances should be in the ratios shown,

although the circuit will operate with different ratios. Using the ratios quoted, the frequency of oscillation will be $1/2\pi RC$ as before. The self-resonant frequency of the transformer should be above that at which it is used, so for the higher audio frequencies a 100 kc/s. I.F. transformer will be satisfactory.

Wien Bridge Oscillator

The well-known Wien bridge may be used to control the frequency of an oscillator. The principle employed

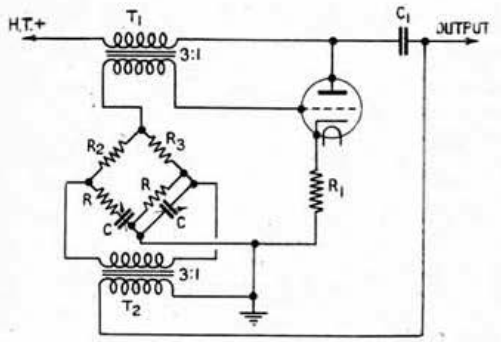

Fig. 10.
Wien bridge oscillator. R1 1,000 ohms. C1 ·25 μF. Transformers 3 : 1. Valve 6J5. When R2 = 2 × R3 frequency = $\frac{1}{2\pi R \times C}$.
The value of R should be as nearly as possible two-thirds of R2.

is again to use it to control negative feed-back so that it is a minimum at the required frequency. A typical circuit is shown in Fig. 10. Positive feed-back is applied by the transformer T1 and negative feed-back *via* the bridge circuit.

The bridge will be balanced at one frequency only, and at this frequency negative feed-back will be a minimum and oscillation will occur. For tuning, a two-gang condenser only is required and in this case the rotor may be earthed. A single transformer with two secondaries (or a split secondary) may be used, provided the windings are connected in the proper sense. The primary of T2 now becomes the same as T1, and C1 will not be needed.

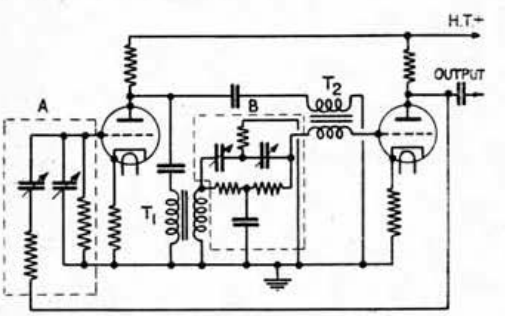

Fig. 11.
Circuit suggested by the author, employing the tuning networks Figs. 7 and 9.

The bridge will be most selective when the left and right arms are equal. This condition is obtained by making R2 equal to twice R3 and R approximately two thirds of R2.

From the foregoing it will be seen that there is a wide range of circuits suitable for resistance capacity-tuned oscillators. By using combinations of these circuits very low distortions may be obtained. For example, the feed-back circuit used in Fig. 8 might be combined with that of Fig. 9 to produce the arrangement of Fig. 11. This circuit has not yet been tried by the author, but it would seem to offer possibilities. Neglecting the tuning elements shown dotted at B, the circuit is the same as Fig. 8 except that triodes are used instead of pentodes. When section B is added, *i.e.* with the transformer connected to give negative feed-back, this is applied at all frequencies but one. If the two tuning elements are tuned to the same frequency it would appear that very low distortion should result. This circuit would be difficult to tune over a band, but by switching the condensers, of which there are five, it should be satisfactory for a number of spot frequencies.

(to be continued)

Silent Keys

It is with regret that we record the names of the following members who have made the Supreme Sacrifice :—

Corporal F. E. J. Day, R.C.A.F., **BERS521** of Hamilton, Ontario, Canada.

Telegraphist J. P. Hagerty, R.N.V.R. (Submarines), **BRS5505** of Liverpool.

Wing-Commander D. V. Ivins, R.A.F., **BRS3509** of Blackpool.

Sergeant D. E. Robbins, R.A.F., **BRS6349** of Barnet, Herts.

Flight-Lieutenant E. S. Sellek, **BRS3785** of Chippenham, Wilts.

* * *

It is also with regret that we record the passing of Mr. T. A. Lewis, **2FTO** of Doncaster, Yorks, who served in the R.A.F. until his discharge on medical grounds last year, and Mr. Sidney Wright, **G2DR:** Mr. Wright was for many years Northern Representative of the Society, and a tower of strength in the amateur movement during the early 1920's. His station, then at Shipley, Yorkshire, was well known throughout the world and many first contacts stood to his credit. For the past few years he had been living in London, and just recently in Scotland, where he had business interests. His passing will be mourned by all " old timers " who will remember him for his cheerful outlook on life and intense enthusiasm for amateur radio. Our condolences are offered to his relatives and friends.

AN ELECTRONIC REPRODUCER FOR STEEL STRINGED INSTRUMENTS

By G. H. Schuler (2BMU).*

THE electromagnetic reproducer to be described may be used with any steel-stringed instrument which has an overall measurement across the strings of not more than about 4 in. The device will only function with *steel* or *steel foundation strings*, the principle of operation being a steel string (an armature) which vibrates across a magnetic field, thereby causing a change in the lines of force cutting through a pair of coils. This has the effect of setting up a minute current within the windings, which is then fed into an amplifier in the normal way. As this current is very small the amplifier must have a high gain and good power output. An output of 12 watts is suitable if it is intended to use the instrument in a large hall, but for the home, 3 to 4 watts will be found difficult to live with !

Constructional Details

The core Fig. 1 (*a*) on which the coils are wound, is the heart of the reproducer. As weak cores give low output, aim for the best obtainable. The writer obtained two pieces of tool-steel 3½ in. long, ½ in. wide by 7/16 in. thick, drilled with a ⅛ in. hole and hardened. These were magnetised at an auto-equipment Service Station for 9d., and proved very satisfactory. For those who wish to make their own cores any good steel may be used, providing it is hardened.

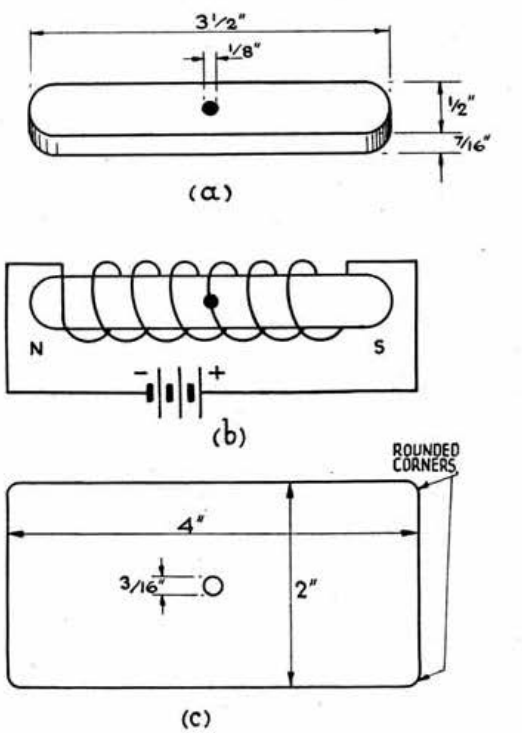

Fig. 1.
(*a*) The core. (*b*) Magnetising the core. (*c*) Jig dimensions (two required).

After completion, the cores are magnetised by winding-on about 100 turns of 22 S.W.G. wire connected to a 6 volt accumulator as shown in Fig. 1 (*b*). The polarity of the finished magnet will then be as indicated. As it is important to know the polarity of the magnets they should be marked accordingly. It will take about one minute to magnetise the cores but if the windings appear to overheat during this period the applied voltage should be reduced to 4 volts. When placed with their poles opposed and with one held vertically, the finished magnets should support their own weight.

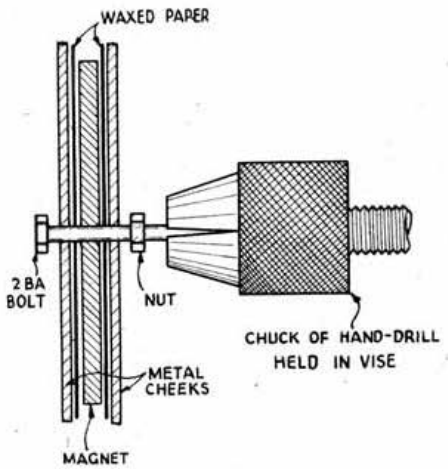

Fig. 2.
Method of jig assembly before commencement of coil winding.

The coils are best wound on a jig as shown in Fig. 1 (*c*). This consists of two metal plates 4 in. by 2 in. drilled 3/16 in., with rounded corners (to save cutting the wire when winding) which form the cheeks. A 2 BA bolt 2½ in. long is then passed through the 3/16 in. hole in one of the cheeks, next a piece of waxed paper 4 in. by 2 in. is threaded on to the bolt, then one of the magnets, followed by another piece of waxed paper 4 in. by 2in., and finally the remaining metal cheek. The whole is then clamped together by means of a 2 BA nut. A turn of Empire tape should be wound around the magnet before winding the coils. Two ounces of No. 40–42 S.W.G. enamelled copper wire will be sufficient to wind the two coils.

Winding the Coils

Commence the winding by soldering a length of *Litz* to the wire selected for the coils and anchor this securely to the core by means of thin gummed paper or Chattertons compound ; this forms one of the tails for connecting purposes. Place the jig assembly in the jaws of a hand drill, which in turn is clamped in a vice, and turn the handle of the drill slowly (Fig. 2). As the wire is so fine it is easily broken, and whilst it can easily be joined (using non-corrosive flux) it is well worth while to take time and thus be rewarded on completion with a coil " all in one piece." Lay the

* 4 *Jutland Avenue, Cark-in-Cartmel, via Carnforth, Lancs.*

wire on evenly and symmetrically. Two pairs of hands *are* better than one, so get someone to assist if possible. The coil should occupy about ¼ in. in depth, therefore, if the former is marked before commencement it will be a simple matter to determine when this depth has been reached.

When the wire has been wound on, solder another *Litz* tail to the outside end and again anchor securely. The coil is now complete, but before removing from the jig, melted paraffin wax must be poured over the windings and impregnation assured by heating carefully over a low gas jet; the wax will hold the windings rigid. When cool, the metal cheeks may be removed and the surplus paper trimmed level with the coil.

The second coil can now be wound, particular care being taken to wind it in the same direction and in the same manner as previously.

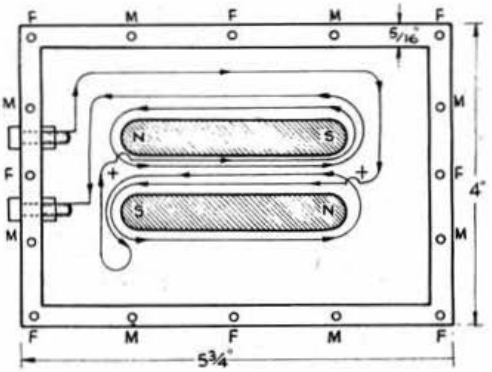

Fig. 3.
Shows frame dimensions and coil positions.

Assembly Details

The two coils are now built into a case, the frame of which may be made from ¼ in. ebonite, hardwood or other strong and rigid insulating material, and drilled as shown in Fig. 3. A sheet of thin fibre or cardboard forms the top, which is cut to fit the frame, and the holes, corresponding to those marked " F " in the frame, are drilled. A sheet of aluminium or other stiff non-magnetic metal forms the base, in which holes are drilled, as those marked " M ". The base is secured to the frame by means of countersunk brass nuts and bolts, the nuts being placed on the metal side and the heads of the bolts flush with the frame. Two 2 BA clearance holes are then drilled in the metal base and the coils fixed thereto by means of 2 BA countersunk nuts and bolts, the nuts again bearing on the metal base. Fig. 3 shows the approximate position occupied by the coils.

Particular care must be taken to ensure that the coils are correctly connected, a north and south pole must be in *opposition* and the windings must be in *opposite* direction (see Fig. 3). After making the connections between the two coils the " free " ends are joined to the sockets, or terminals, in the frame. The faces of the magnets should now be carefully exposed and any superfluous paper or wax cleaned off. They may then be given a light coat of varnish, after which, some more paraffin wax is melted and carefully poured *around* the coils.

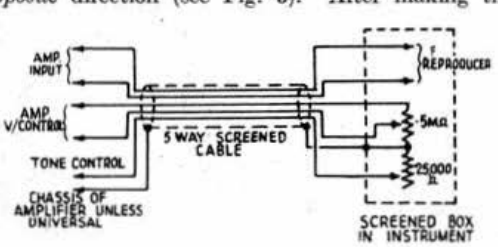

Fig. 4.
Method of incorporating volume and tone controls in body of instrument.

The fibre top is fixed by means of brass nuts and bolts, the nuts again being against the metal base.

If it is intended to use the instrument as a permanent electronic device, the reproducer can be secured by nuts and bolts. In this case it is a good plan to make the metal base slightly longer than 5¾ in., give an overlap of, say, ½ in. each end to accommodate the fixing screws. The original reproducer was mounted by means of two nuts and bolts (marked " + " in Fig. 3), which passed through the base into the instrument. In some instruments it will be found possible to use ordinary brass wood screws for this purpose. For occasional use, however, rubber suction cups could be used as a fixing medium, but whether the fixture is permanent or temporary, the body of the instrument has no effect on the sound reproduction when operated electrically. The reproducer should be placed under the strings of the instrument so as to allow the minimum amount of clearance—the nearer the better without actually touching—and a screened lead taken from the sockets or terminals to the amplifier. Other methods of electronic reproduction may suggest themselves; headphone units minus diaphragm and of sufficient number, placed under the strings and connected in series, with two bobbins to each string would probably work satisfactorily.

A screened multiple-cable from the amplifier will enable volume and tone controls to be mounted conveniently on the body of the instrument, thus giving the instrumentalist full control (see Fig. 4).

The 28 Mc/s. Band

Mr. F. H. Watts, **G5BM**, of Cheltenham, reports that the first signs of " amateur " activity on the 28 Mc/s. this year were noted by him on June 6—significant date—when D3JWW and D4WYF5 were logged. The band remained open most nights from that date until June 29, when D4PGF and 3FWW were heard fairly regularly.

During July (particularly on the 13th, 14th, 15th, 19th and 20th), D4WYF5 (28,000), D3JWW (28,030), D4PGF (28,100), D4XLD and D4FBC were heard. Reception was chiefly in the evenings but on the 13th, 14th and 19th the band was open as early as 09.00 G.M.T. On August 1 D3JWW was heard.

* * *

The following information regarding German frequency standard stations will, Mr. Watts suggests, be of interest to members. These stations send VIS followed by their calls, continually throughout the 24 hours. They are very useful for checking frequency meters, besides providing an indication of length of skip on the various bands.

D4WYF2	.. ..	3,600 kc/s.
D4WYF3	.. ..	7,000 "
D4WYF4	.. ..	14,130 "
D4WYF5	.. ..	28,000 "

There is probably a station signing D4WYFI on 1.7 Mc/s., but G5BM has not yet located it.

* * *

Mr. L. C. B. Blanchard, **BRS3003**, reports that during the period between August 20 and September 18 the band was again open for European short-skip signals, (mostly between 1730–2000 GMT) when a number of stations were heard calling " CQ TEN." These included D3JWW, D3JMS, D4PGF, D4RMQ, D4UDS and D4WYF5. On September 6 at 1914 GMT D4UDS was heard in QSO with D3JMS (RST 334). Harmonics of a few European commercials were also heard, including EAV2 (32 ? Mc/s.), JZKA (28.2 Mc/s.), GBA2 (27.9 Mc/s.), SDE3 (?), and THB4 (28.5 Mc/s.). The latter is believed to be the harmonic of a French Colonial.

The " Hissing Phenomenon " was heard on several evenings around 1915 GMT, indicating magnetic disturbances; this was particularly noticeable between September 9 and 16.

∴ PROMPT PAYMENT OF YOUR ∴
SUBSCRIPTION HELPS HEADQUARTERS

A VERSATILE COMPONENT ANALYSER

By R. T. JENKS (2DYZ)*

THE analyser to be described is simple to construct and has the additional merit of cheapness. The power pack is built up on a baseboard, the sides of which are then screwed on and the whole covered with "rexine" to give the instrument a finished appearance. The bridge circuit components are assembled on to the panel and connected to the power pack by means of flexible leads, the panel being held in position by means of four small screws. The completed set measures 9½in. × 8 in. × 4½in.

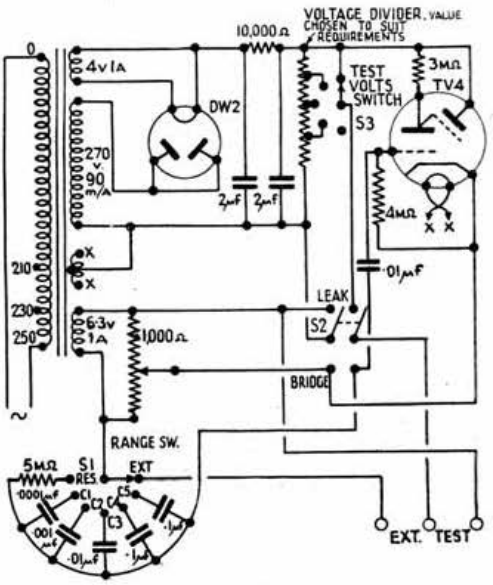

Fig. 1.
Circuit of component analyser.

The Power Pack

The power pack components are screwed to the baseboard in the most convenient positions, care being taken to provide clearance for all panel-mounted components. The mains transformer used in the original model delivers only 270 volts, but it is proposed to change this later to one delivering 400 volts. A 10,000 ohm resistance does duty as choke.

The Leak Circuit

The leak circuit includes a high voltage supply (selected by means of a "Test Volts" switch, S_3), and a neon tube in series with the condenser to be tested. An electrolytic condenser will give a glow which should die away in about 15 seconds. (Do not forget to observe polarity.) A good mica or paper condenser will flash the Neon once. Small condensers (.0005 µf and lower) have to be watched very carefully for a flash. A steady bright glow denotes a short-circuited condenser whilst no flash signifies an open-circuit or a very small capacity. An intermittent flash indicates a leaky unit and a steady dim glow a high resistance leak. The last mentioned test does not necessarily mean a defect when the condenser is an electrolytic.

All leakage tests are carried out using the "Test" terminals and with the switch, S_2, set at "Leak." The "Test Volts" switch, S_3, is set according to the voltage rating of the condenser.

* "Seawalls," Seawall Road, Stoke Bishop, Bristol, 9.

The Bridge Circuit

The bridge circuit is a variation of the old "hum in the phones" arrangement. The "standards" are arbitrary and may be altered to suit the ranges required, but it is essential to have good insulation throughout the components and wiring. Poor insulation will seriously affect the balance on small capacities and small resistances. The values used for the input condenser, and the associated grid resistance for the "Magic Eye," were chosen to provide a high input impedance when testing large electrolytic condensers —incidentally, the "Magic Eye" works in reverse.

Operation

For condenser or resistance tests the component should be connected to the "Test" terminals and the switch, S_2, set at "Bridge." The correct range is selected by means of the switch, S_1. The dial is then rotated until a balance is obtained on the "Magic Eye" and the value of resistance or condenser is

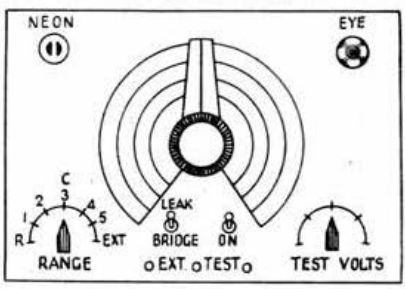

Fig. 2.
Lay of component analyser.

read-off on the scale. A balance at the extreme right of the scale indicates a short-circuit, and a balance at the extreme left an open-circuit. To use the external circuit, set the switch, S_1, to "Ext." and the switch, S_2, to "Bridge." Connect a known standard to the "Ext." terminals and the unknown resistance or condenser to the "Test" terminals (Ext. + and Test + are common). The ratio is indicated on the outer scale. Transformer ratios, centre-tapped windings and inductances can be checked in a similar manner.

Calibration is easily carried out using known values of resistances and condensers across the "Test" terminals. Small condensers should be connected directly across the "Test" terminals in order to minimise capacity in test leads. It is worth while obtaining close-tolerance resistances and condensers for the standards, as the accuracy of the instrument will be considerably improved by their use.

Congrats

● To Mr. Reginald B. Lever, **G8QS**, who was married to Miss Sybil Gaines at Prestwich, Manchester, on September 23. G8QS is now discharged from the R.A. on medical grounds after rising to the rank of sergeant.

● To F./Lt. D. C. Derry, **G8PQ**, on his marriage to Miss Dorothy Waye (W.A.A.F.), at St. Anne's Church, Manchester on September 12, 1944.

ANGLO-AMERICAN HAMFEST

IT is an ill wind that blows no good at all, for it has taken a world war to bring about the first Anglo-U.S. Hamfest. This unique event took place at the Mostyn (American Red Cross) Club, Edgware Road, London, W.1, on September 23, and in spite of the fact that less than a week's notice was possible, some fifty U.S. and twenty-five British amateurs attended, to make a great success of what, its organisers, had regarded as a tentative experiment. It was evident that the Americans not only welcomed the opportunity to meet their British confreres, but also the chance of meeting fellow Americans. Two W4's from the same town, for example, met for the first time since leaving home, neither knowing that the other was in England. Many of those present had travelled long distances to attend, and there is no doubt that, with sufficient notice and publicity, a far larger gathering could be arranged in the future.

Proceedings opened at 8 p.m. when, after everyone had signed the attendance log, the meeting was declared open by Chaplain-Major Joseph D. Andrew, W4EFG, who introduced the joint Chairmen, Lt.-Col. David Talley, W2PF, and Mr. E. L. Gardiner, G6GR, President of R.S.G.B. After a brief word of greeting on behalf of A.R.R.L. and R.S.G.B., a roll call was made in which those present, in call district order, stood and announced their call-sign and home town.

Every W district was represented, as was each British numerical prefix together with a few A.A. and B.R.S. members. Following this general introduction the assembly posed for a photograph, after which F./Lt. John Clarricoats, G6CL (General Secretary) was invited by Lt.-Col. Talley to address the meeting. In his talk, which was mainly intended for the information of the American section of his audience, G6CL explained the constitution, aims and organisation of the Society, emphasising the fact that the R.S.G.B. is a democratic Scientific Society, whose objects could be summarised under the following headings: (1) To disseminate technical information to members through the medium of the BULLETIN; (2) To negotiate with the G.P.O. in all matters affecting the issue of British Isles amateur licences.

Various subsidiary functions of the Society were also touched upon, including the organisation of Contests and Field Days, the work of the QSL Bureau, the sponsoring of an Experimental Section and the arrangement of lectures and local meetings throughout the country.

He reviewed the fortunes of the Society, from its pre-war membership of some 3,000 to its present strength of 7,500. The Society's part in launching the Royal Naval Wireless Auxiliary Reserve and the Royal Air Force Civilian Wireless Reserve was mentioned, and reference made to the Society's efforts on behalf of its members who are prisoners of war.

Under the heading of post-war plans, the real reason for the Society's continued activity was stressed, namely, to press for the earliest possible restoration of our licence facilities. Other projects mentioned were the establishment of a Headquarters Station and the extension of our technical publications service.

The Secretary appealed for the closest possible co-operation between the A.R.R.L. and the R.S.G.B. in order to present a strong united front at future International Telecommunications Conferences. In conclusion he issued a general invitation to American amateurs in this country to join R.S.G.B., and so keep themselves informed of the various local meetings and other functions continually taking place.

At this point the meeting was declared an "open forum" by the Chairman, who asked that the general trend of discussion should be towards post-war plans and activities.

Views were expressed on the following subjects: (*a*) the desirability of post-war international DX telephony channels being located at one end, rather than in the centre of a particular band; (*b*) frequency utilisation, with special reference to the need for

(*Continued on page* 64.)

ANGLO-AMERICAN HAMFEST HELD AT THE MOSTYN (AMERICAN RED CROSS) CLUB, LONDON, SATURDAY, SEPTEMBER 23, 1944.

Front row: Mr. Arthur Milne, G2MI (Hon. Editor), F/Lt. John Clarricoats, G6CL (General Secretary), Miss Pamela Clarricoats, Miss Nell Corry, G2YL, Mr. E. L. Gardiner, G6GR (President), Lt.-Col. David Talley, W2PF (Chairman of Meeting).

Letters to the Editor

British and American Licences Compared

DEAR SIR,—With reference to the fourth paragraph in the August Editorial, I disagree with your statement that British amateurs would probably show little interest in local traffic handling. During many discussions in the past on this subject, I have formed the opinion that quite a number of amateurs would, in fact, find considerable interest in this branch of amateur radio. It is understood that the reluctance of the authorities to grant permission for traffic handling is on the grounds of loss of revenue. One feels that the small amount of revenue involved would not be a loss likely to be felt by the Post Office.

I am in favour of a probationary band for newly licensed amateurs with a further examination before qualifying for operation in the normal bands.

Finally, let all telephony be restricted to the ultra-high frequency bands!

Yours faithfully,
JAMES N. ROE (G2VV).

DEAR SIR,—Having studied the statutory enactments and the conditions under which United Kingdom and United States Amateur licences were issued before the war, I should like to offer the following points for consideration when the question of post-war licences is discussed:

(1) The distinction between Artificial Aerial and Full radiating licences to be retained.

(2) Power, in the case of Full licences, to be limited to 10 watts for the first year, 25 watts for the second year and 50 watts for the third and subsequent years. No greater power to be permitted save in very exceptional cases. (Telephony on 160 Metres to be restricted to 10 watts only.)

(3) Telephony and Telegraphy to be permitted on all bands.

(4) The first year's licence to be restricted to certain bands (including one V.H.F. band) where risk of interference with other services is slight.

(5) General message handling to be prohibited, although restricted message handling on V.H.F. bands to be encouraged. All messages to be concerned with Amateur Radio and experiments in connection therewith. All messages to be relayed by telegraphy only. All messages to be filed for inspection by the G.P.O.

(6) Permission to employ more than one operator to be readily granted.

(7) Portable licences (usually) restricted to one county and power restricted to 10 watts, should be available on application by any person who has held a licence for two or more years. All portable call-signs to have a special designation (*e.g.* G, number, three letters).

(8) Proof of activity of station to be required annually on paying licence renewal fee.

(9) Fees to remain as before.

In connection with points (5) and (6) a little explanation is required. The object of (5) is to enable persons conducting propagation experiments, and the like, to send and receive messages from persons not in possession of a transmitting licence or who, in the case of V.H.F. bands, are out of range. The object of (6) is to enable an amateur interested in radiation experiments to allow a fellow amateur to operate his transmitter while he makes measurements, etc.

A further point worth consideration is the question of a technical examination in addition to a Morse test. However, I do not feel qualified to express an opinion on this matter although it would seem to be an advantage for licensees to possess some knowledge, if only elementary, of theory.

Yours faithfully,
T. CHAS. BRYANT, LL.B. ((London), (G3SB).

DEAR SIR,—In the August issue you ask for views on licencing matters. Here are mine:

In order that DX and local working shall not get in the way of each other, I consider it necessary that we should be permitted to retain *all* the present frequency allocations. The number of transmitting amateurs is likely to increase after the war, thus adding importance to this point.

In order that television and frequency-modulation experiments may be carried out without interference with or by other types of transmission, I consider that the policy of allocating higher-frequency bands, as they become workable, should be continued *with special reservations being made for these special types of transmission.*

I believe there would be advantage in permitting the use of any power up to 50 watts for a flat-rate licence fee of say 20s. or 25s. p.a., with no power increase except for very special experiments for which the fee would be increased ten or even twenty times, renewable every three months.

If International agreement still requires the Morse qualification, there should be no nonsense and the test should be repeated at least annually. This would have the double effect of endorsing Treaty signature and tending to prune our ranks of the less valuable members. R.S.G.B. might be able to help G.P.O.

With 73 and all best wishes to our negotiators.

Yours faithfully,
JOHN B. LONGRIDGE (G3DN).

DEAR SIR,—With reference to your Editorial in the August issue of THE BULLETIN on the post-war issue of licences, the following points may be of interest if and when this problem is again tackled by the P.M.G. There are many things that can be said for and against the use and issue of licences both in this country and U.S.A., but I think on the whole we over here were quite satisfied with the general conditions laid down by the P.M.G. except for perhaps the power and frequency bands employed. These two points may never be settled satisfactorily to all concerned unless we can get an active amateur as P.M.G.!

Dealing with the power question first, I would suggest that the number of years a station has been in operation should have some bearing on this question. Many of us to-day have had 25 years of Amateur Radio (and in those days it could be nothing else) with 20 years or more as radiating stations, yet the limit generally was 10 watts in spite of the experience gained in the operation of transmitting equipment for all that time. If some scheme was laid down whereby on first being licensed a station operated on say 5 watts for the first year and then up to say the fifth year on 10 watts and beyond that rising to say 50 or 100 watts maximum; this should safeguard any interference caused by the misuse of power by the inexperienced. A 100-watt maximum should be sufficient for most requirements and no doubt as in the past the P.M.G. would grant special permission when satisfied that certain tests or experiments warranted extra facilities.

The question of licence fees hardly enters into the problem, as we all know a two-letter call can never be bought at any price, it is looked upon as an achievement won usually with the burning of much midnight oil and the loss of beauty sleep. At the same time there is no reason to believe these should be any different from those prevailing before the war, merely the cost of the work involved in the issue of the licence.

Some small technical examination could be instituted but I hardly think this necessary if the sale of complete transmitters is banned so that all apparatus in use must be constructed by the user who should then have a thorough knowledge of its working. The problem of frequencies is more international and can only be settled by conference between nations, and here the Allies have the majority. It is to be hoped therefore that they will not let the Amateur down when this time arrives and will bear in mind the wonderful work, knowledge and experience he has contributed to this war in all capacities and in all ranks.

Perhaps in appreciation of these services the P.M.G. will allow us the use of the full international frequencies allotted; after all there are enough channels for all services and all countries in the frequency spectrum if these are strictly measured and adhered to.

Yours faithfully,
CYRIL R. WATERER (G2HP).

DEAR SIR,—The Editorial in the August issue will undoubtedly be read with great interest by many new members. I think, however, that the underlying difference between British and American licences was not sufficiently clearly pointed out. In the United States, it is one of the *rights* of a natural-born citizen that he shall be allowed to have an amateur station and operator's licence, provided he passes the necessary qualifying tests, *i.e.* a Morse test (which as far as I remember is necessary under International regulations) and a technical examination.

In this country, however, the official attitude seems to indicate that transmitting licences are granted *not as an inalienable right of the individual, but as a favour*, for which cash payment is expected. There is no set technical examination, the granting of a licence depending more or less on the whim of the official dealing with the application. In pre-war days, individual applications were necessary for the v.h.f. bands, higher power, etc., consequently there were really dozens of different grades of licence, ranging from the 10 watts licence for work on 160, 40 and 20 metres to the (very rare) kilowatt licence for all bands except 160 metres. The existence of these multifarious grades of licence was probably one reason for the "one station—one operator" rule. I do not think you were correct in stating that American amateurs had to pass a stiff examination before being allowed to use the v.h.f. bands.

Now for a few ideas on what I think our regulations should permit after the war.

(1) Any licensed amateur operator to be allowed to operate any licensed amateur station.

(2) General permission to use all amateur frequency bands (including 3·5 Mc/s.), up to 60 Mc/s.

(3) If the limitation of power is still considered advisable, the institution of no more than three grades of licence, with maximum powers of, say, 100 watts, 300 watts, and one kilowatt.

(4) Portable and portable-mobile operation to be permitted to any amateur station without special authority, on any authorised amateur band, subject to similar rules to those under which this type of operation was permitted in the U.S. before the war.

(5) The use of C.W. break-in to be permitted legally.

(6) Frequency modulated transmissions to be permitted on all authorised amateur bands above 30 Mc/s.

(7) Similar regulations for other wide-band systems, such as television.

(8) Removal of the restrictions on total time of operation.

I am not in favour of message handling being permitted. The institution of a probationary period for new licencees on low power and C.W. only, would probably be a good idea, but I do not insist on it!

On the question of power, I suggest a minimum of 100 watts, because I think it is a very good all-round figure. The valves and components are not at all expensive, and at the same time it is sufficiently high to permit consistent results. It is certainly time that the 10-watt licence was discarded. I recall being present at the September, 1943, meeting at the I.E.E. when G6LJ delivered his paper on the " Development of Amateur Radio," and G2MI later gave us the *real* story behind the 10-watt licence.

The only reason for item 8 above is that the regulation in question has never been the slightest good ; it serves no useful purpose and might just as well be removed. The same might apply to the limitation of aerials to 150 ft. The latter regulation is part of the " 10-watt licence " story mentioned above.

There is one matter which all amateurs will hope to have cleared up, and that is the thorny one of the 7 Mc/s. band. The B.B.C. having " purloined " our frequencies (one of their stations being only 3 kc/s. from my own pet crystal frequency !), are we likely to get them back ? If we are permitted the use of the lower 200 kc/s. of this band, will we be permitted to use the other part subject to protection of B.B.C. stations ? Anyway, let's hope so.

Yours sincerely,
A. G. DUNN (G3PL).

Compulsory Break-in Advocated

DEAR SIR,— On all licenced British amateur experimenters the Post Office imposes a general obligation, regarded as of the highest importance, that they " interfere as little as possible with others," but the authorities do little to see that the obligation is adhered to, except when broadcast listeners are annoyed.

I suggest that when our licence conditions are revised, the P.M.G. makes telegraphy and telephony " break-in " working compulsory for newcomers and old timers alike.

If this cannot be done then I think the R.S.G.B. should use its influence to persuade all members to adopt this system as an imperative necessity, to lessen prospective post-war QRM in congested bands.

Yours sincerely,
N. P. SPOONER (G2NS).

Re-issue of Licences

DEAR SIR,—It is recognised that the radio amateur has justified his existence in the past and, during this war, has made a very considerable contribution to its successful prosecution.

The necessity for the establishment of priorities in the use of the frequency spectrum after the war will require the radio amateur to justify his continued existence.

It may be suggested by official bodies that the amateur organisation can be replaced by organisations similar to the pre-war R.N.W.A.R. It may be alleged that research establishments and manufacturing organisations have now fully explored the radio field on frequencies up to 100 Mc/s., leaving the amateur nothing to do. In spite of these allegations, however, the amateur can still give good reasons for his continued existence.

Firstly, the enthusiasm and collaborative spirit arising from amateur radio has been responsible for the high efficiency with which war-time radio activities have been carried out ; the same spirit is not produced in a regimental and official organisation.

Secondly the British amateur undertakes to do experimental work : 90 per cent. of this work is experimental in an educational sense. The remaining 10 per cent, could be classed as research or development.

Nevertheless, experimental work done for educational reasons should be sufficient to justify the amateurs existence and hence the re-issue of licences.

I make the suggestion that the licences should be issued in two forms :

(1) Experimental licence for educational use.
(2) Research and development licence.

Users of the first licence would be restricted to a maximum power of 25 watts while the holders of the research licence would be restricted to 500 watts.

Qualification for the first licence would be 15 w.p.m. Morse and the possession of an R.S.G.B. Proficiency Certificate.

Qualification for the second licence would be a degree, associate membership of the I.E.E., or an equivalent standard, and 15 w.p.m. Morse.

The suggested R.S.G.B. Proficiency Certificate would ensure a minimum standard of operating and technical proficiency which an applicant must have before being allowed to operate his own station.

Yours faithfully,
H. TURNER (G8VN).

Amateur or Experimenter

DEAR SIR,—The dictionary definition of an " amateur " is "one who cultivates an art for pleasure and not for profit," and so would appear to be a fitting title for most of the fraternity. Does G6YN mean by " seriously engaged on radio experimental work " that most R.S.G.B. members are occupationally employed thus ? If so then they are surely " professionals," whether in the Services or in industry.

This, then, leads to the point as to whether the R.S.G.B. is an " amateur " organisation or whether it is to take a similar mantle to the I.R.E. ? Personally, I am all in favour of high standards and progress, but at the same time feel that the word " experimenter " does not necessarily provide any improvement on the word " amateur " unless it is proposed to abandon the amateur status altogether. Perhaps I am misunderstanding the difference between amateur and experimenter in 6YN's view. I have always regarded the amateur *as* an experimenter although I do agree that we have two camps : the station-operating or communications types and the circuit developing and constructing types.

Perhaps it would help to have these points defined ?

Yours faithfully,
E. V. R. MARTIN (G2TL).

[*Editorial Note.*—The writer of this letter was at one time chairman of the Derby Wireless Club, which was founded in 1911—two years before the birth of the London Wireless Club, forerunner of the R.S.G.B.]

The Morse Code Qualification

DEAR SIR,—In the September issue of THE BULLETIN I notice F./Lt. Spary claims that quite good wireless operators can be turned out in a few months. Also from time to time claims are made that the Services can turn out good operators in a few weeks. May I, a professional telegraphist of 30 years standing, be permitted to comment on that " hardy annual " the Morse qualification ?

If the claims of Mr. Spary and others can be substantiated, why all the fuss over the Morse qualification for a full license ? It would seem that after a short course of instruction anyone should be able to pass the test, the speed for which is not high.

No, Sir, the fact is that learning Morse is not so easy after all. In fact, most people find it very tedious and hard going even to acquire the speed for an amateur licence. All the talk and correspondence as to the necessity or otherwise of the Morse qualification is a roundabout way of trying to get it cut out because of this difficulty.

It is well known in the profession, that not everyone can become a good operator and still fewer become very good operators. This is not a reflection on any system or person. It is just a peculiarity of telegraphy. After all how many of those who set out to learn a musical instrument succeed in becoming top class performers.

Even to those adapted to telegraphy, good operating can only come after years of practice and experience in the same way that Mr. Spary claims for a good mechanic.

Telegraphy is used at some time or another on all commercial wireless channels, even when the principal method of communication is an automatic system. This is because Morse can be read when all other methods are hopeless. Bearing this in mind, why should it be unnecessary in the case of amateur stations where the apparatus, power, etc., are not generally up to commercial standard ?

It would be far better for the Amateur Radio movement if, before polluting the ether with over-modulated unreadable telephony, every amateur made sure that he could put on the air a good telegraphic signal, properly sent.

I hope the Morse code qualification will remain and that the standard is raised, not because I want the ether to myself but because I want to see the amateur status raised. A high operating standard is one way of doing it.

Yours faithfully,
J. W. ISMAY (G6JI).

The Radio Amateurs of Belgium were ready

From *Union Jack*, a newspaper published for British troops serving overseas, we learn that behind the broadcasting of the new Belgian National programme by Liege Radio is one of the most dramatic stories of the war. The Resistance Movement received valuable help from *radio amateurs* who had managed to hide precious equipment from the Germans, but one vital part could not be procured—valves. The call was sent to London. Valves were promised—to be dropped by parachute. They would arrive at pre-arranged places on moonlight nights.

An agreed message in the Belgian transmission of the B.B.C. would give the signal when the planes were going out. Reception Committees for these parcels were organised. They waited evening after evening round their sets listening for the agreed message. There was some breakage when the valves arrived and some were intercepted by the Gestapo. But enough arrived safely.

Last January the leaders of the Reception Committee and chie of the whole radio organisation were arrested, but they had already appointed deputies—men who knew enough to keep the threads together.

Before D-day they sent this message to London : " We are ready."

Now they have proved it.

We are indebted to Sig. G. B. Haylock, 2DHV. for sending the above interesting account of the part played by Belgian radio amateurs in the liberation of their country.

Can you help ?

Mr. H. B. Bowden, **BRS5052**, 25 Princes Street, Dunstable, Beds., seeks information regarding the Belmont, Model 650, Receiver.

BRITISH ISLES NOTES AND NEWS

DISTRICT 2 (North Eastern)

D.R.: C. A. Sharp (G6KU), 50 Moore Avenue, Wibsey, Bradford. Bfd. 10772. Scribe: H. Beadle (G8UO), 13 Chandos Street, Keighley.

G3HA is now in Malta. 8JD (M.N.) while on leave visited 2SU. 3FX (R.A.F.) is now in India after a long stay in Ceylon. 2LT was recently visited by 3VY and GI5HU. The latter expressed his surprise at the lack of interest in Sheffield. What about it chaps? The notes as a whole are a very poor show this month. Please let us have your future support. G8UO.

DISTRICT 3 (West Midlands)

D.R.: V. M. Desmond (G5VM), "The Chestnuts," Hanley Castle, Worcester. Scribe: E. J. Wilson, (2FDR), 48 Westbourne Road, Olton, Birmingham.

Birmingham.—The Annual General meeting of M.A.R.S. was held at the Chamber of Commerce on September 19, 1944.

In his presidential address Mr. C. Naylor Strong gave a brief account of the activities of the Birmingham Wireless Club from 1920 until its finish, and of the early days of M.A.R.S. The following officers were re-elected: President, C. Naylor Strong; Hon. secretary, E. J. Wilson; Hon. treasurer, B. K. George. 2FDR.

An airgraph from 5UH gives the news that he is now in Italy. He recently met 2FC. S.-Sgt. A. J. Rawlings, 6841, now in France, inquires after his old Bristol friends, 2FC, 6HN and 6GN. Sgt. D. Upton, 3106, sends a very interesting account of his wanderings through Sudan, Egypt, Persia, thence to Tunisia and Italy. He hears regularly from 8TC.

Cheltenham and Gloucester.—BRS8140 echoes the hope that there will be more news from this area. 8716 writes in the same strain.

Swindon.—An inquiry comes from 2DTQ stationed near Chippenham as to meetings in that locality.

Hereford.—BRS8362 reports and would like to hear from other members in that locality. 6943 (Monkton Farleigh) is prepared to attend meetings held in the Bath area and hopes to get to some of those held in Bristol. G6RB.

DISTRICT 6 (South Western)

D.R.: W. B. Sydenham, B.Sc. (G5SY), Sherrington, Cleveland Road, Torquay. Torquay 2097.

Taunton.—G4BN, 5AK, 5LM, 6LY and 2DRW met at the Y.M.C.A., Taunton on September 10, to hear a talk on U.H.F. by an allied amateur.

Interesting letters are to hand from G3KX and 5TN, while news has also been received of G3NB, 5BW and 6LQ.

Exeter.—There was an attendance of 23 at the September meeting held at the Y.M.C.A. when we were pleased to welcome Mr. H. A. M. Clark, G6OT, who opened the proceedings with a very illuminating account of R.S.B.G. activities. G5SY also spoke. It was a great pleasure to the other members present to see their D.R. again. A very excellent film show was then given, the films included National Field Day activities, "Scrap Book" and also some shots of the better-known amateur stations. G5YR very kindly provided the projector and screen. An excellent tea followed. The next meeting will be held on November 25, at 2.30 p.m., again in the Y.M.C.A. G5SY.

IMPORTANT NOTICE

CLOSING DATE FOR NOVEMBER ISSUE OCTOBER 30th. REPORTS SHOULD BE POSTED TO REACH D.R.'s AND SCRIBES BY OCTOBER 23rd.

DISTRICT 4 (East Midlands)

Deputy D.R.: Albert E. Clipstone (G8DZ), 14 Epperstone Road, West Bridgford, Notts.

Leicester.—An interesting Resistance-Capacity Bridge was demonstrated by BRS5329, who also provided an outstanding tea, to a well supported meeting last month. Arrangements are in hand for weekly Morse classes in preparation for the "Day."

A special turn out is requested on October 29, 2.30 p.m., for the reunion with G2IX at 19 Francis Avenue, Narborough Road, Leicester. (*via* BRS5605.)

Mansfield and Sutton.—BRS8035 (Mansfield) assisted in the visit to Ericsson's, of which company he is a member of the staff.

The T.R., who regrets the scarcity of news from this area, extends an invitation to members to write to him or call at, 18 Farndale Road, Sutton-in-Ashfield. (*via* BRS7171.)

Nottingham.—The visit to the Crystal Department of Messrs. Eriesson was made most enjoyable by the Manager (Mr. W. E. Hunt) and his assistant (Mr. E. Walker). The latter gave a descriptive talk before the visit proper commenced. Messrs. Hunt and Walker were assisted by BRS8035 in conducting some 28 members round the works. A collection for the P.O.W. Fund realised 24s.

Included in the party were "old timers" G5DM, 6CW and 8DD, who like many others were amazed at the complex gear required for this work. The tour, which lasted about 2 hours was thoroughly enjoyed by all present, for it is not often that laymen are privileged to see this type of production. A visit to another section of the same works is being arranged for December, but on that occasion it will be necessary for those who wish to attend, to write previously to G8DZ giving their National Registration Number in order that a permit can be obtained. The party will be limited to 25.

Congrats to BRS6748 on receiving an Honorarium for his article on "A Combined R.F. Oscillator and B.F.O."

The October meeting will take the form of a talk and demonstration of test gear at G8DZ (see "Forthcoming Events"). G8DZ.

DISTRICT 5 (Western)

D.R.: R. A. Bartlett (G6RB), 31, King's Drive, Bishopston, Bristol. Bristol 46960.

Bristol.—Local meetings were resumed last month, and it is hoped that attendances will improve now that prospects are brighter. Discussion ranged from the technical to the best way of persuading members who never attend local meetings to put in an appearance occasionally. It was decided that the T.R. and D.R., with the help of those present, should go through the local membership list at the next meeting. Possibly we may be able to obtain some idea of the strength available at present in this locality. We were very pleased to welcome an OK amateur at this meeting.

2BSU is back in this country again after a long spell in W. Africa.

DISTRICT 7 (Southern)

D.R.: W. E. Russell (G5WP), "Milestones," Mayford, Woking, Surrey. Woking 1589.

Bournemouth.—G2DP, 5RS and 6NA have been among recent visitors to the town. The next meeting will be held on October 28 3 p.m., at 45 Parkwood Road. (*via* 2HNO.)

Coulsdon.—Letters are to hand from Sgt. Young, 2AYM, and Capt. Wickham, G2DW, R.A.M.C. The former, in the B.N.A.F., wishes to be remembered to 5AN, 5XH and 5XW, whilst 2DW who has been over the other side since "D Day" hopes to contact other members. (*via* BRS3003.)

Croydon.—The September combined Districts 7 and 13 meeting was attended by G2DP, 2HP, 2UA, 2HHD, 1545, 3003, 6894, 8417, and two visitors. 6814 has built an eight-valve receiver which, proving troublesome, is to be the subject of an "inquest" at a future meeting. 2HHD has moved from District 13 to 7 as the result of a fly-bomb incident. 2DP met 5HI in a tram queue, 'DP at one end and 'HI at the other, but the QSO was cut short by the arrival of the tram. The T.R. has received another long letter from 4095, only twenty pages this time! See "Forthcoming Events" for details of next meeting. An extra meeting will be held in October at G2VB's. Will all who expect to attend please send a card, so that Mrs. 2VB may make arrangements? (*via* G2DP.)

Guildford.—Success attended the efforts of G5RS to restart local meetings. Nearly thirty members and prospectives (who were "signed-up" before leaving) greatly enjoyed a talk by 6NA on selectivity. 6SC, 2VB and 3003 endured long journeys to attend. Many of the newer members showed interest in proposals to hold Morse classes and arrange introductory talks on Amateur Radio. The next meeting will be held in November (details next month or from G5RS). G5WP.

DISTRICT 8 (Home Counties)

Deputy D.R.: L. W. Jones, 16 Leys Road, Cambridge. Tel.: Cambridge 3406.

A meeting will be held on Friday, October 27, at 7 p.m. to which all amateurs who expect to be transmitting in Cambridge after the war are invited. The purpose of the meeting will be to try to arrive at some satisfactory means for dealing with the elimination of interference between one station and another. Will all those who are likely to be in this category please communicate with G5JO not later than Monday, October 23, when information will be sent to them as to where the meeting will take place? Others interested in short-wave reception, who would like to attend will

be welcome providing they communicate with G5JO in advance. Those affected are asked to give serious consideration to these problems beforehand, as it is felt that considerable improvements over and above those existing in peace-time can be made by getting together. G5JO.

DISTRICT 11 (North Wales)

Deputy D.R.: C. Spillane (BRS1060), "Woodside," Meliden Road, Prestatyn.

An informal meeting was held at the Savoy Cafe, Prestatyn, on September 17, when the following attended: G2GZ, 6KP (on leave in the District), GW3CF, 4CK, 2HIY, BRS4444, 8152, 8265 and 1060. The meeting turned out to be an all-Service affair, with five R.S.G.B. Districts represented. BRS4444 cycled 40 miles to attend. GW3CF brought along a charming young lady thus keeping a double date. We learn that Mrs. G6KP doubted the fact that her husband was off to pay us a call but this report should fix it. (O.K. 6KP?)

G8JM reports fit and well from Malta. BRS4728 (Italy) mentions that there are two other BRS members in his unit. GW8WJ (N. Africa) is already arranging post-war schedules with amateurs he has met out there. BRS5520 (India) reports by air mail having spent a few days in Bombay seeing the sights.

Forthcoming Events

Oct.	21	District 15, 3 p.m. at The Excelsior Hotel, 1 Ladbroke Gardens, Ladbroke Grove, Notting Hill, W.11.
,,	22	District 12, 3 p.m. at BRS4486 (PXL), 390 Camden Road, London, N.7 (opposite Holloway Gaol. Trolley buses 627, 629, 653, and bus 29).
,,	22	District 4, 6 p.m. at 14 Epperstone Road, West Bridgford, Notts.
,,	28	Anglo-American Hamfest, 2 p.m. at Mostyn (American Red Cross) Club, 28–50 Edgware Road, London, W.1.
,,	28	District 7 (Bournemouth), 3 p.m. at 2HNO, 45 Parkwood Road, W. Southbourne.
,,	28	District 7 (Reading), 6.30 p.m. at Palmer Hall, West Street.
,,	29	District 4, 2.30 p.m. at 19 Francis Avenue, Narborough Road, Leicester.
,,	29	District 5, 3 p.m. at 17 Colston Avenue, Centre, Bristol.
,,	29	District 7 and 13, Combined Meeting, 3 p.m. at G2VB, 35 Grangecliffe Gardens, South Norwood, S.E.25.
,,	29	Scotland "A" District, 3 p.m. in the Royal Technical College, George Street, Glasgow, enter door in Montrose Street. Lecture by Mr. J. K. McDowall, GM3AR, on "Receivers."
Nov.	5	District 7 and 13, Combined Meeting, 3 p.m. at Y.M.C.A., North End, West Croydon.
,,	21	Midland Amateur Radio Society, 6.30 p.m. in Chamber of Commerce, New Street, Birmingham. Lecture: "Electronic Heat" by Mr. Rigg.

GW4CX (Flint), after a long silence, reports from Warwickshire, where he is now a Staff Sergeant with the Royal Engineers. As he has only been in the Service a short time we congratulate him on his rapid promotion. BRS8038 (Wrexham) reports *via* G2GZ from Lancashire, where he is taking a course for R.A.F. Wireless Mechs. He is doing quite well on the course, which is of 10 months duration. All the above send 73 to District members.

An attempt is being made to compile a full list of those members in District 11, who intend to resume activity as soon as possible after the war. Information should be sent to BRS1060 at his home address. BRS1060.

DISTRICT 12 (London North and Herts)

D.R.: S. Buckingham (G5QF), 41 Brunswick Park Road, New Southgate, N.11. Enterprise 3112.

North London.—Congrats to Mr. Stan Deverell, 2FVX, who was married on September 30; to Mr. E. H. Laister, BRS3386, who has been nominated to serve on Council next year; and to Junior Associate S. R. Broadbridge on passing his Oxford Higher Certificate Exam. with a Distinction in History. An attendance of 13 was recorded at the September meeting held at BRS3386, when G6CL gave an account of the Anglo-American hamfest held at the Mostyn (American Red Cross) Club on the previous evening. Thanks are recorded to our host and hostess for a splendid tea. The October meeting will be held at the home of Capt. Phillips, PXL, when a discussion will be opened on frequency control. (For details see "Forthcoming Events.")

St. Albans.—At the last meeting, which was transferred at short notice to the home of BRS3412 because of the illness of 4639's father, only 2CNC and 2HAB were able to attend. This meeting provided one of those coincidences common to Amateur Radio for both have been working for the same firm for years without knowing the other was there. 2CNC is to be congratulated on a particularly good promotion at work.

The T.R. has been pleased to contact Mr. Cocks (a very early amateur who held transmitting licence No. 12 issued before 1914) and Sq. Ldr. J. Hum, G5UM, who has settled down locally. G5QF.

DISTRICT 13 (London South)

A.R. (South Eastern and Central), S. E. Langley (G3ST), 19, Elm Gardens, Mitcham, Surrey (Temporary Address).

South Eastern and Central Areas.—Congrats. to Mr. Walter Heath, M.P.S. (2HHD) who announces the arrival of a son. G2VB, who is holding a meeting at his home, 35 Grangecliffe Gardens, South Norwood, S.E.25, on Sunday, October 29 at 3 p.m., would like to receive a card from all who intend to be present.

Several local members attended the Anglo-American Hamfest held at the Mostyn (American Red Cross) Club, Edgware Road, on Saturday, September 23. A jolly good evening was enjoyed, and we hope this will be followed up in the future. We should like to thank our American friends for the splendid reception they gave us.

G3ST wishes to place on record his warm thanks and appreciation to G5PY, 1545 and 4324 for their ready help and sympathy in his recent unfortunate experiences. There, indeed, was an example of real Ham friendship. G3ST.

DISTRICT 14 (Eastern)

Scribe: L. J. Fuller (G6LB), 14 High Street, Walton-on-Naze, Essex.

Chelmsford.—The September meeting, held at BRS5242, was attended by only four members. A discussion and demonstration took place on Microphone pre-amplifiers. G6LB.

DISTRICT 15 (London West, Middlesex and Buckinghamshire)

D.R.: H. V. Wilkins (G6WN), 539 Oldfield Lane, Sudbury Hill, Greenford, Middlesex. Byron 3369.

District meetings will be resumed this month. For details see "Forthcoming Events."

Local members who had the opportunity of meeting our American friends at the Mostyn Club recently, look forward to the next gathering on October 28.

G5JL again writes from Italy where he is laid up with damaged ribs—the result of playing football, not fighting! He says it just shows the terrible dangers to which they are exposed! 7235, in a letter from Europe, tells of his experience during the dash halfway across the continent. His letter will be shown round at the next District meeting. 8136 has been constructing a receiver and side-swiper during spare time in the Forces. 8096 (R.E.M.E.), of Cardiff, has visited the D.R. G6WN.

DISTRICT 17 (Mid East)

D.R.: A. C. Simons (G5BD), Admiralty Road, Mablethorpe. (Tel.: 69.)

Those present on September 23 at the Grimsby meeting included G2VY, 3OS, 3VP, 4GX, 5BD, 2BYS, BRS5960, 8562, and 8710. An excellent ragchew preceded the film show which was arranged by G3OS who arrived complete with cycle, camera, cine-camera, films, projector and transformer. The sum of £1 was collected for the R.S.G.B. P.O.W. Fund.

During September the D.R. received a visit from BRS7391 (District 2), whilst reports are to hand from 3CZ (Lincoln) and 5LL (now in Italy). 8034 expects to be home from India early next year. G5BD.

UNITED STATES AMATEURS EXTEND A CORDIAL INVITATION TO ALL PRE-WAR LICENCED MEMBERS

to attend the

SECOND

ANGLO-AMERICAN HAMFEST

at the

MOSTYN (AMERICAN RED CROSS) CLUB,

28–50, EDGWARE ROAD, W.1

(Two minutes from Marble Arch)

on

SATURDAY, OCTOBER 28th, 1944

The meeting will be called to order at 2.15 p.m.

DISTRICT 18 (East Yorkshire)

District Scribe: S. Davidson (G6SO), 10 Sidney Street, Scarborough.

Hull.—BRS1948 has just had his first leave for 18 months. 4530 has also had some leave but has now given up all hope of ever being accepted for air-crew duty. 2QO has left for an overseas destination, believed to be ZD something. A new list of members in this area is being compiled. Mr. Dunn, G3PL (79 Hayton Grove) would like to hear from those interested in starting local meetings again.

Whitby.—Sgt. H. Mills (R.A.F.), 5796, spent a short leave in the town recently. G6SO.

DISTRICT 19 (Northern)

D.R.: R. J. Bradley (G2FO), 36 Raby Road, Stockton-on-Tees.

The only news to hand this month is from G3UB, who reports that he has completed a heterodyne frequency meter and is at present constructing a crystal gate receiver. He sends 73 to all district members and especially to G3ZY, 5QY, 5RI, 4LI and 2XT. He would like to contact members in and around Stoke. G2FO.

Scotland

Scottish Records Officer: J. Hunter (GM6ZV), 51 Camphill Avenue, Glasgow, S.1. Langside 237.

Mr. W. Stirling, GM6RV, 85 Glencairn Street, Stevenston, Ayrshire, will be glad to hear from members in that part of the country with a view to holding regular meetings.

"*A*" *District.*—At the September meeting which was well supported, GM6MD described methods of coupling between stages in transmitters. Disused apparatus brought along by the speaker was disposed of. Visitors included Messrs. Allenby and Parker (2CSV) of the R.A.F. and BRS4474. GM2KP has been home after several months at sea. The feature of the October meeting will be a talk by GM3AR on "Receivers," a sale of disused apparatus will also take place.

"*B*" *District.*—Meetings are receiving increasing support. Members still in the District would like to hear from those who are in the Services.

"*H*" *District.*—A hearty welcome is extended to the following new members who are resident in the District: BRS6907, 6935, 7192, 7217, 7367, 7545, 7610, 7814, 8062, 8073, 8169, 8219. Sincere congratulations and the good wishes of all in "H" are extended to the Deputy D.O., Sgt. J. Millie, GM8MQ, on his marriage to Miss Mair Evans on August 12. Congrats. also to D. Wemyss, BRS6627, on his promotion to Captain. After a spell in hospital W/Cmdr. Bill Craig, GM6JJ, is now back in harness as fit as ever. There is no news from members abroad, but no news is good news and so we wish them the very best of luck and hope to hear from them before very long. Members are reminded that letters and reports should be sent to the D.O., A. E. Lawson, "Makora," Kinghorn, Fife. GM6ZV.

Northern Ireland

D.R.: J. N. Smith (GI5QX), 19 Hawthornden Drive, Belmont, Belfast. Telephone: Belfast 63323.

Not a single post-card has been received by the D.R. regarding the proposed P.D.M. Therefore, no further steps will be taken about it at present.

GI5TK reports having met G5RV, G8NY and BRS1066 who were in GI on business. He asks that his 73 be conveyed to G3VB who is stationed at Gibraltar.

Several new members are warmly welcomed to the district, and all good wishes are tendered to G4RX who has returned to G. after a sojourn in our midst. GI5QX.

KHAKI and BLUE

● We are indebted to Sgm. G. Haylock, **2DHV**, for sending a list of Society members serving with the C.M.F. and M.E.F. Unfortunately the list is too long to publish, but the record is being kept at Headquarters. Incidentally, several of those listed are now back in England, including S./Ldr. John Curnow, G6CW. The latter landed in France on D plus 1 and returned in August.

● P./O. J. F. Lewis, **BRS4434**, whose home address is 42 Garthorne Road, Forest Hill, London, S.E.23, would appreciate letters from G2JB and 3CI. He would also like "gen" on an oscilloscope, complete with time base and sweep amplifier. (Any offers for an article?—ED.)

● We have heard of some strange ham meetings during the past five years, but few more interesting than the one which took place recently between Capt. J. W. Mathews, **G6LL** and F./Sgt. A. W. Leonard, **G5KV**. We leave 5KV to tell his story. "What was perhaps the biggest thrill was my meeting with G6LL of Society fame, while flying over the Pyramids. His bound copy of the Handbook Supplement did the trick, though QRM was rather heavy for a ham chat at 200 m.p.h. It was rather bumpy, too, though neither of us succumbed to air sickness." 5KV hopes to meet the Duration Dxers shortly. Incidentally his C.O. is W./C. Ken Jowers, G5ZJ. He has also met F./Lt. Noel Simmonds, G3AD.

● In a letter from Malta to G2MI, Warrant Telegraphist J. Dickson, **G2HV**, compliments Mr. W. A. Scarr, G2WS, on his recently published paper "Radio and its Relationship to Kindred Sciences." He submits some notes on the atom which we hope to publish later. His comments on the ordeal through which Southern England has been passing, make interesting reading. He writes "The Home Front is again the most dangerous, with the doodle-bugs. We sitting in safety and comfort here feel that we are dodging the war!"

● About 30 members of the Duration Dxers Club met in Delhi on August 21 to hear a lecture by Col. Bohannan, W4AV. Frank Adams, G2YN, is the new Hon. Treasurer.

DX visits H.Q.

On September 12 last, the President and General Secretary had the pleasure of meeting Lt.-Col. Charles Porter, W2OA, and Lt.-Col. David Talley, W2PF, both serving with the U.S. Army Signal Corps. W2OA, who has been in the Middle East for some months was present at the last Cairo Conventionette. He is a member of the DX Century Club. W2PF in pre-war days was closely associated with the U.S. Army-Amateur Communication organisation, and is now on special duties in London.

On the following day the Secretary and Hon. Editor entertained Major Ed. Hopper, W2GT, who, at the time of Pearl Harbour was heading the DX Century Club with 152 countries confirmed.

G2MI and 6CL are holders of the DX C.C. certificate and W2OA was the first U.S. holder to visit H.Qs.

Cairo Meeting

Mr. W. E. Marsh, SU1WM, states that arrangements are being made to hold a two-day meeting in Cairo next month. Friday, November 24, will be given over to informal discussions followed by a dinner in the evening, whilst on Saturday, November 25, Major Ken Ellis, SU5KW, will organise a Radio Quiz. N.F.D. films taken in Egypt before the war will also be displayed.

Mr. Marsh can be contacted at 3 Rue Kattini, Tanta, Egypt.

News from the Kreigies

● Capt. E. S. Shackleton, **G6SN**, captured at St. Valery in June, 1940, writes, "tobacco and cigarettes are coming through regularly and very glad am I to see them. Thank all very much indeed for the kindness."

● Sgt. "Snowy" Campbell, **VK3MR**, who was "adopted" as next of kin by the Society three years ago writes, "I have just received a book on H.F. tubes which has followed me from Italy, I guess you (G8TL) were the culprit, so thanks a lot. Its good stuff. I have also received cigs. from R.S.G.B. which were greatly appreciated and used as currency. Red Cross foods are life savers."

● Lt. E. M. Frost, **BRS2692**, writes, "since my letter in May I can account for five cigarette parcels. Thanks very much."

● Lt. E. W. Rodwell, **G8AG**, writes, "many thanks for yet another parcel of cigs. This makes the 11th received from R.S.G.B. to date. I am struggling with a couple of languages which may be useful after the war."

Colour Code Mneumonic

Mr. J. K. McDowall, **GM3AR**, submits the following mneumonic devised by his son, BRS5578: Black Bob Ran Over Your Green Before Violet Grew Wise.

The initial letter of each word represents the Colour Code sequence.

Congrats

● To Mr. L. R. Harper, GM5JK and his wife on the safe arrival of a daughter—Elspeth—on August 17, 1944.

HEADQUARTERS CALLING

August Council Meeting

Resume of the Minutes of a meeting of the Council of the Incorporated Radio Society of Great Britain, held at the Kingsley Hotel, Holborn, on Monday, August 28, 1944, at 6 p.m.

Present.—Messrs. E. L. Gardiner (President), S. K. Lewer, H. A. M. Clark, A. O. Milne, A. E. Watts, D. N. Corfield, F. Charman, F. G. Hoare, G. R. Scott Farnie, W. E. Russell and J. Clarricoats (General Secretary).

Apologies were received from Messrs. A. D. Gay, A. J. H. Watson and H. W. Stacey.

(1) It was unanimously resolved to elect 180 Corporate Members (144 proposed by Corporate Members, 36 supported by references), 8 Associates and 6 Junior Associates.

(2) It was reported that due to the military situation in Europe the Government had decided *pro tem.* to withhold the despatch of parcels to prisoners of war. It was agreed to draw the attention of members to the fact that the balance in hand of the European Fund had fallen to £140, and to make an appeal for an increase in donations.

(3) Honoraria totalling £64 1s. 0d. were awarded to BULLETIN contributors as per the list published in the September issue.

(4) The Midland Amateur Radio Society wrote to suggest that the affiliation fee for Societies be increased to 21s. per annum. It was agreed to discuss the suggestion further at a later meeting.

(5) It was reported that Mr. Stacey had been in communication with the Ashton-under-Lyne Radio Society, in regard to the complaints raised by them and referred to at the previous meeting.

(6) A new member wrote to enquire whether the Society is in a position to arrange for members to be given an opportunity to purchase surplus Government radio equipment direct from disposal stores. Council expressed the view that the Society could not undertake to act as an intermediary in connection with the disposal of surplus equipment and valves, but it was agreed to write to the Board of Trade for information in regard to the disposal of surplus components, meters, etc. The view was expressed that surplus components and new valves would probably be offered to the original manufacturer after the war.

(7) It was agreed to take no action at present in regard to I.E.E. meetings.

(8) It was reported that the G.P.O. Liaison Committee had prepared a comprehensive list of headings to guide the discussion of post-war transmitting licencing policy.

(9) Council continued its consideration of transmitting licence matters and in particular the "Summary of Licence Conditions" in the form modified and approved by previous Councils.

The meeting closed at 9 p.m.

Experimental Section

We welcome the appearance of U.H.F. and Micro-wave Equipment Group Letter Budget No. 9 dated August 1944, issued by the Group Manager, Mr. H. H. Phillips, GW4KQ, 82 Cottrell Road, Roath Park, Cardiff. The current issue contains contributions covering a wide variety of U.H.F. topics.

Members who wish to join this very active Group should communicate with the Group Manager.

I.E.E. Radio Section Meetings

By courtesy of the President and Council of the Institution of Electrical Engineers, members of the Society are invited to attend meetings of the I.E.E. Radio Section.

A list of forthcoming meetings is given below:—

Oct. 25 Professor Willis Jackson, D.Sc., D.Phil., and J. S. A. Forsyth, B.Sc. "The Development of Polythene as a High-Frequency Dielectric."

Nov. 1 E. B. Moullin, M.A., Sc.D. "Theory and Performance of Corner Reflectors for Aerials."
H. Page, M.Sc. "The Measured Performance of Horizontal-Dipole Transmitting Arrays."

Nov. 21 Discussion on "New Aspects of Post-War Interference Suppression." (Opened by P. R. Coursey, B.Sc.).

Dec. 6 L. Essen, B.Sc., Ph.D. "The Measurement of Balanced and Unbalanced Impedances at Frequencies near 500 Mc/s. and its Application to the Determination of the Propagation Constants of Cables."

Dec. 19 Discussion on "The Sound Channel in the Television Receiver."

1945.

Jan. 16 Discussion on "Frequency Allocation for Long-Distance Communication Channels."

The meetings will be held at the I.E.E., Savoy Place, Victoria Embankment, London, W.C.2, commencing at 5.30 p.m. Tea will be served from 5 p.m. Members who attend these meetings are requested to sign the Visitors' Book.

The Association of Scientific Photography

Meetings of the above Association will be held on the following dates:—

Nov. 25 3 p.m. at 16 Princes Gate, London, S.W.5. Subject: "Electron Micrography."

Dec. 30 2.30 p.m. at Caxton Hall, Westminster, London, S.W.1. Subject: "The Choice of Materials for Scientific Photography."

R.S.G.B. members are invited to attend these meetings.

The address of the Association is Tavistock House North, Tavistock Square, London, W.C.1.

R.S.G.B. Prisoners of War Fund

PARCELS.—Due to the changing war situation the despatch of parcels to prisoners of war in Germany is held up for the time being. Our last despatches were made in June.

DONATIONS.—The General Secretary acknowledges with thanks on behalf of Council, receipt of donations from: Cairo Meeting per SU1SG, £5; A. G. Dunn, G3PL, 10s.; R. Bradley, 4209, 10s.; District 7 (Reading) per G2YI, 15s.; J. N. Walker, G5JU, 5s.; F. W. Cole, G4CX, 5s.; A. Boa, SU5BO, 17s. 6d.; S. Buckingham G5QF, 10s.; W. F. McAinsh, GM8MN, £1; D. H. Morley, 4634, 4s.; F. L. Frith, G8JD, 6s.; C. E. Alleway, G6KL, £1 1s. 0d; District 7 (Thornton Heath), PG2DP, 14s.; W. T. Burbage, 5929, 5s. 3d.; F. Boad, G8IF, 5s.; F. Halfacre, 8130, 5s.; Anon, 6s. 2d. **Total Receipts to date £1,358 19s. 9d. Total Expenditure to date £857 12s. 0d. Balance in Hand as at September 30th, 1944:—European Fund £141 7s. 9d. Far East Fund £350.**

American Publications

The Society is in a position to accept orders for the following publications which are ordered individually from America:

"QST" (Official monthly publication of The American Radio Relay League). By subscription, per annum	17s. 6d.
"The Radio Amateur's Handbook" (A.R.R.L.) ..	10s. 6d.
"The Radio Amateur's Handbook"—Special Defence Edition (A.R.R.L.)	8s. 6d.
"The Antenna Handbook" (A.R.R.L.)	4s. 0d.
"A Course in Radio Fundamentals" (A.R.R.L.) ..	3s. 6d.
"The Radio Handbook" (Editors and Engineers Los Angeles)	12s. 0d.
"Radio" (Monthly publication of Radio Ltd.) per annum	21s. 0d.

Orders must be accompanied by a remittance made payable to the Society and rates and prices are subject to alteration without previous notice. Delivery can be expected in about 12 weeks from date of order. Service Addresses must not be used. Single copies of text books only may be ordered.

Members who change their address during the currency of a subscription to *QST* or *Radio* should advise the publishers *direct*.

ANGLO-AMERICAN HAMFEST—

(*continued from page 57*).

propaganda designed to encourage the full use of frequencies throughout each band, thereby avoiding " crowding " at the ends.

The meeting was of the opinion that great benefits would accrue from an International Amateur Conference held prior to the next International Telecommunications Conference. It was also considered that post-war amateur allocations should be the same width internationally, and that it would be of mutual benefit to amateurs if international non-commercial message handling was permitted.

Several American amateurs expressed the opinion that greater attention should be paid to the question of aerial design as opposed to the use of extremely high power.

One particularly significant sign of the times was observed when a W5 asked for a show of hands from those who intended to concentrate almost exclusively on the ultra-high frequencies after the war. He received the support of some 40 per cent. of the meeting.

As the hands of the clock passed 10 p.m. so the eyes of all present strayed more towards one of the most amazing displays of near pre-war refreshments seen in London for many a long year. When the mental and moral strain had become almost too much to bear, the Chairman called for an adjournment so that justice could be done. Hence-forward general ragchew was the order of the day and we know of several G's who had a long walk home in the wake of the last bus, after what had been a most memorable evening.

Roll Call

The following is a complete list of those who signed the Attendance Book :

W1KMH, 1APQ, 1DTS, 1BMV, 1DUJ, 1DJC. 2ERS, 2LR, 2HGP, 2OHG, 2NC, 2NJG, 2PF. 3USA. 4EFG, 4FKR. 5HXL, 5EEB. 6OCA, 6DCT, 6BLX, 6RPE. 7GZI, 7IXV (6OOV), 7IDZ, 7IXX. 8OMM (8GYO), 8FFK (8URA), 8IZG, 8KFZ, 8KCG, 8QBU. 9CCS, 9SNW, 9FET, 9SYX, 9KOW, 9VUD, 9MFD, 9IWH (9ESQ), 9FVQ, 9IPO, 9YNX, 9IVB, 9YKA, 9LTX, 9DPU. G2TJ, 2MI, 2IG, 2YL. 3ST, 3YY, 3SU, 3UQ, 3UH. 4KY. 5LN, 5QF, 5PY. 6WN, 6GR, 6CL. 8KZ FWA, 2CBB, 2APH. VE3DG. BRS8417, 5716, 4324, 3003, 7655, 5246, 1545, PXL (pre 1914 war).

Next Meeting

The next Anglo-American meeting will take place on Saturday, October 28, 1944, at the Mostyn (American Red Cross) Club, 28–50 Edgware Road, W.1, but due to the limited accomodation available pre-war licenced amateurs only can be admitted on this occasion. The meeting will commence at 2.15 p.m.

Congrats

● Belated, but none the less sincere, to Major Sydney Chapple, **G6SC**, and his wife on the birth of a son and heir, Stuart Richard. The young man " came to town " on March 12, 1944.

● To Maurice Tapson, **G6IF**, and his wife on the birth of a second daughter—Beverley Ann.

● To Mr. and Mrs. B. McK. Davidson, **BRS3011**, of Aberdeen, now proud parents of a daughter—Monica McKenzie, born September 11, 1944.

● To Major C. R. Emary, M.B.E., **G5GH**, ex **VS6AX**, who was married on June 20 last.

● To Flying Officer J. R. Ford, **BRS4376**, of Winchmore Hill, London, who was married on Saturday, September 23, to Miss K. Samwells.

● To F./O. Leslie Viney, **G2VD**, of Finchley, London, who was married on August 26 last to Miss Alexina Brown.

● To L./Cpl. P. E. Murphy, R.E.M.E., **BRS6640** (now in Normandy), whose wife presented him with a daughter—Christine Helen—on June 27, 1944.

● To Sgt. W. Ripley, **G4AD**, of Leeds, who was married on August 19, 1944.

● To Mr. and Mrs. N. B. Greenall, **BRS8212**, on the birth of another junior operator, Jeffrey David.

● To F./O. A. E. C. George, **BRS4115**, who was married in June last to S./O. L. E. Findon of Ilford. Husband and wife are both Signals Officers. BRS4115 sends greetings to Derek Wintle, G4GG, and to all other old friends who sojourned at Nos. 2, 3 and 4 R.S. during 1940–1943. He will welcome letters which should be sent to him at Great Shelford, Cambridge.

EXCHANGE & MART—ADVERTISEMENT RATES

MEMBERS' private advertisements 2d. per word, minimum 3s. TRADE advertisements 4d. per word, minimum 6s. Box Numbers : 6 words, plus 1s. TERMS : Cash with order. All copy and payments to be sent direct to Advertisement Managers, Parrs Advertising Ltd., 121 Kingsway, London, W.C.2, by the 30th of the month for following month's issue.

ALL KINDS OF PRINT.—Send your enquiries to G6MN, Castlemount, Worksop.

B.C.L. basic superhet kit.—Chassis, gang condenser, S.M. dial, coils, I.F.Ts., W. C. switch, £2 2s. Mains transformer, 27s. 6d. W4 or W6 Westectors, 1s. each. 0.1μf 350v condensers, 6d. 100K ½ watt resistances, 3d. Aluminium diaphragms for Browns' " A " type headphones, 4s. pair. Postage extra.—G6SC, 7 Rutherwyke Close, Ewell, Surrey.

Advertisers and buyers are reminded that under Defence Regulations 1939, *Statutory Rules and Orders* 1940, *Number* 1689, *a permit (T 99 G) must be obtained before sale or purchase of certain electrical and wireless apparatus, particularly such valves and apparatus as are applicable to wireless transmission.*

FOR SALE.—Hallicrafter Sky-chief, requires new H.F. coil. £10 or near offer.—G6OV, 61 The Circle, London, N.W.2.

FOR SALE.—Hallicrafter Sky Champion, continuous coverage 1,500kc to 43Mc, 8 valve, 4 spares, 110–250v A.C., almost new, £27 10s. or offer. Also large box spare parts, two moving coil speakers, valves, transformers, " junk," etc., £5. Tena Banjo with case, etc., £4.—36 The Avenue, Hatch End, Middlesex.

FOR SALE.—Hallicrafters SX25 receiver, new 1942, perfect condition, not marked.—Offers to 2FRV, " Sherwood," Queens Promenade, Douglas, I. of M.

FOR SALE.—Premier " 5V5 " communication short-wave receiver, A.C. (1941) as new. What offers ?—WILSON, Gospel Oak, Purton, Wilts.

HALLICRAFTER New Sky Champion complete with carrier strength meter, instructions, pair old Browns' type " A " phones, £18. Perfect. First cash secures.—191 Aragon Road, Morden, Surrey.

MONOMARK service.—Permanent London address. Letters redirected. Confidential. 5s. p.a. Royal patronage. Key tag 9d.—Write BM/MONO7A, W.C.1.

McELROY " Bug " key wanted.—Price and details to G3QD, 95 High Road, Beeston, Notts.

NUMBER of transmitting and receiving components for disposal, all finest makes, no junk. Send S.A.E. for list.—PRYOR, 67 Wingfield Road, Trowbridge, Wilts.

REQUIRED urgently.—Copy of *Radio Engineering* (2nd edition), by Terman. Good condition.—2FJG, 9 Romney Avenue, Burnley, Lancs.

RME 99, 12 valve communication receiver, one of the few in the country, now for disposal. Continuous coverage .550/33.0 Mc/s. in six steps. Offers are invited, purchaser must test and collect from North West.—Box 437, PARRS, 121 Kingsway, London, W.C.2.

SALE.—Taylor model 60 A.C. all-wave signal generator, complete with dummy aerial, spare set of new valves, perfect condition, £16.—BRS5087, 13 Braeside Road, Southampton.

SALE.—Remington A.C./D.C. shaver, complete in leather case. External resistor needs rewinding, £3. " W.W." Quality amplifier, separate power pack, BTH RK energised speaker, BTH needle armature pick-up, £20. Wanted : 6-volt car battery charger.—G8JK, CHADBONE, Trees Avenue, Hughenden, Bucks.

SURPLUS.—One Atlas eliminator, two tappings 150v, 30s. Milnes H.T. Unit, with booklet, empty 30s. Brush crystal microphone on desk stand, 55s. 250v transformer with two 4v windings, 20s. H.T. Accumulator charging equipment, 200v transformer and rectifier, 30s.—Box 438, PARRS, 121 Kingsway, London, W.C.2.

SX24 Hallicrafters communications receiver for sale, with phones and loud speaker.—Send S.A.E. to BENNISON, c/o Associated Airways, Liverpool (Speke) Airport.

VALVES wanted urgently.—W31 (Osram) or VP1321 (Mazda) ; new 3Q5GT ; 7-pin Pen20.—Particulars to ARMSTRONG, North Hall, Basingstoke.

WANTED.—Communications receiver. RME69 with DB20 or HRO. Must be in perfect order.—Price and particulars to G6BW, White Orchard, Churchill, Somerset.

PATENTS AND TRADE MARKS

KING'S Patent Agency Ltd. (B.T. King, G5TA, Mem. R.S.G.B., Reg. Pat. Agent), 146a Queen Victoria Street, London, E.C.4, Handbook and Advice on Patents and Trade Marks free. Phone : City 6161. 50 years' refs.

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