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**R·S·G·B**

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# **BULLETIN**

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

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# R.S.G.B. BULLETIN

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General Editor: JOHN CLARRICOATS.

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## OUR DX OF YESTERYEAR

NOW that we are deprived of the chance to chat with friends abroad, and the quest for QSL's has, for the moment, ceased, we may well be excused for failing to appreciate how splendidly the Fort of Amateur Radio is being held in other lands. It may, for instance, be news to many members to learn that *Amateur Radio* and *Break In*, official Journals of the Wireless Institute of Australia and the New Zealand Association of Radio Transmitters respectively, continue to appear regularly once a month, and that a newcomer *Ham Chatter*, has taken the place, temporarily at least, of *QTC*, pre-war Journal of the South African Radio Relay League.

Every issue of these publications brings fresh evidence of the spirit of comradeship which abounds in the ranks of Amateur Radio, and of the desire on the part of the controlling bodies concerned to provide maximum service to their members.

Our Australian contemporary publishes reports of meetings as well as technical and topical articles. Under the appropriate title "Slouch Hats and Forage Caps," Jim Corbin, VK2YC, records the happenings of VK's on active service. From the June issue we learn, on the authority of Max Cummings, VK3XN, that practically all the VK's with the R.A.A.F. got out of Malaya and Java, but those attached to R.A.F.

units were not so fortunate. We read too that Bob Cunningham, VK3ML, who could always be relied upon to put up a good show in B.E.R.U. Contests, is now a Squadron Leader, and that the owner of another familiar call, Ivor Miller, VK3EG, is now an Army Captain. Who remembers Ivor's great win in the B.E.R.U. Contest a few years before the war?

An invitation to Australian amateurs serving in England and Egypt, to contact the R.S.G.B. and the Experimental Radio Society of Egypt, is published in each issue of *Amateur Radio*.

The production of *Ham Chatter* by the Radio Amateurs Society (South Africa) is a particularly noteworthy effort, as it furnishes proof of the determination of a small group of Johannesburg amateurs (mostly pre-war members of S.A.R.R.L.) to keep alive the spirit of Amateur Radio until such time as the S.A.R.R.L. is again able to assume its full role as the National Society.

Charity functions have been arranged by R.A.S. in aid of the St. John's Auxiliary Hospital Endowment Fund. One such event, staged under the title "Sunlawn Revels," ran for five nights last June and resulted in a cheque for £200 being handed to Her Excellency Lady Duncan. Programme sales, amounting to £25 were credited to the R.A.S. War Comforts Fund, a fund which has already distributed a large number of comforts to South African amateurs in the Services.

"The Secretary's Hook" provides Mr. L. W. Ensor with the opportunity of passing on news received from members serving at home and abroad. We read of efforts made by one ZS amateur "to fix a loose sky wire in a hair-raising sand storm"; of a desert S.O.S. for some "dope" on a mixed bag of G and D valves, from a member who has been "stuka'd, machine gunned and tanked"; and of Padre Yule, ZS6BU, who is enduring QRM of all sorts including "flies, fleas, rats and other plagues Moses forgot to take with him!"

The "Ramblings of Blue Jay" and of "Ejucated William" are features we should be glad to offer to our readers if space permitted.

The stupendous efforts being made by our Canadian and U.S.A. friends are already well known to members, especially those who read *QST*, official Journal of the A.R.R.L. and the Canadian Section of A.R.R.L.

So long as such Journals as *Amateur Radio*, *Break In*, *Ham Chatter*, *QST* and our own BULLETIN continue to be published, the future of the Amateur Radio movement is assured.

From Headquarters of the R.S.G.B., we send greetings and best wishes for the New Year to all abroad who are planning for the day when war shall cease and the boys will come marching home again. J.C.

# FREQUENCY MEASUREMENT.\*

By H. V. GRIFFITHS.†

THE art of Frequency Measurement is one of the most exact in modern practice. Few, if any, other measurements can be carried out with greater accuracy. The relationship between Frequency with Time is complicated by the fact that we can establish the value of a known radio-frequency, in terms of cycles per second, with less likelihood of error than we can assess the duration of time-interval itself—unless almost identical equipment is used in each case. Thus, Time, originally based upon changes in the position of the earth with relationship to the sun, and subdivided by mechanical methods, was later determined with less variation by means of mechanical devices. The advent of what may be called electron-technique, i.e. the utilisation of equipment similar to that required for accurate measurement of Frequency, has enabled Time determination over short periods, to rival and excel determinations based upon purely mechanical "clocks."

## Historical Survey

In the early days of Hertzian waves, measurement of wavelength was by means of Lecher-wires, but as soon as the theory of electrical resonance was established this was replaced by frequency measuring devices. The first apparatus consisted of an absorption-wavemeter, which relied upon approximate knowledge of the values of L and C at resonance. From this simple arrangement the construction of oscillating heterodyne frequency-meters was a logical development. Notable examples of this type of instrument were developed by Messrs. H. W. Sullivan Ltd. and other concerns. My first experience of frequency measurement was obtained with the use of such instruments (some with temperature-compensated coils and condensers) which have been described by Mr. W. H. F. Griffiths, in I.E.E. papers.

In about 1933, the heterodyne oscillator of good design was still the most accurate device for frequency measurement. The error of measurement, using the "beat-null heterodyne" method, was probably between the limits of 1 part in 5,000 and 1 part in  $10^4$ .

## Tuning Fork and Crystal Standards

There was, however, a generator of fixed frequencies available which had a stability of oscillation greater than that of L/C circuits; indeed there were two such circuits coming into use, based upon oscillations or vibrations of a tuning-fork or quartz-crystal, maintained in both cases by valve feed-back circuits.

At that time, the low-frequency tuning fork was the more popular in England and a 1,000 c/s. fork, mounted in a container, the temperature of which could be closely controlled, was first used in my measurement-room for the purpose of checking the calibration of a heterodyne-oscillator only. It was obvious that, using the multiplier circuits then known, harmonics of the fork-frequency in the radio frequency bands could be used, not only to check the calibration of the variable frequency oscillator, but also as part of the measurement-technique. This was achieved by a method developed independently, with certain variations, at Tatsfield and at several other places here and abroad. Briefly, the new measurement

system used the sequence of 1 kc/s. intervals (in the form of harmonics generated from the fork-frequency), as "steps" to which the frequency of the variable R.F. Oscillator could closely be adjusted. By choosing a 1 kc/s. harmonic lower and adjacent to the unknown frequency to be measured, and by adjusting the R.F. Oscillator to this frequency and then heterodyning it with the unknown, an L.F. difference between the limits of 500–1,500 c/s. could be compared directly with an L.F. Oscillator. The sum of the R.F. and L.F. Oscillator frequencies would be the unknown frequency. Furthermore, the error of the L.F. Oscillator calibration could be made very small, since its range could be limited to the 500–1,500 c/s. band.

For measurements of stations which were very stable and adjusted closely to their allotted frequency, the station could then be compared directly with the standard 1 kc/s. harmonic by counting beats orally, visually or mechanically. This "count" could be used to correct the previous two-oscillator check, thus avoiding any errors due either to drift of the R.F. Oscillator during the primary check or to the L.F. Oscillator. Providing the first check establishes the kilocycle-number, and the sign of the L.F. difference-frequency—which it obviously does—the final measurement depends solely upon the error of the Frequency Standard—the one source of error which cannot be eliminated.

Another technical improvement which was then originated was to inject into the R.F. Oscillator a small synchronising-voltage from the harmonic-sequence, thus preventing drift during the primary check procedure above described.

At this stage of development the first tuning fork standard was replaced by a quartz-crystal standard, with decade steps of frequency subdivision. It is of interest to compare the steps of decreasing error of measurement which had occurred during the previous few years.

About 1927	Calibrated R.F. Oscillator.	1 part in 2,500.
.. 1933	Calibrated R.F. Oscillator.	1 part in 5,000.
.. 1933	Improved oscillator, Fork calibration.	1 in $10^4$ to 5 in $10^5$ .
.. 1934	Fork harmonics, R.F. and L.F. Oscillators.	1 in $10^5$ at best.
.. 1935	Crystal standard, etc.	1 in $10^6$ at worst. 3 in $10^7$ when corrected by counting.

Progressive changes and improvements to the Frequency Standards, and to the subsidiary equipment used for counting electrically through the gaps between the controlled harmonic-sequence, have reduced the degree of error, until it is now about one-tenth to one-hundredth of the later figures, in other words, only a few parts in  $10^9$ . The exact figure is however difficult to state categorically, owing to the complications involved in rating modern standards, i.e. in making comparisons of Frequency with the Time-period.

It should be recorded that in 1933 the harmonic sequence could only be extended to about 2,000 kc/s., which was quite good with the simple apparatus available, including a 1 kc/s. "standard"

\* A lecture delivered to the Society by the author at the Institution of Electrical Engineers, London, on July 25, 1942.

† Engineer-in-charge B.B.C. Measurement and Receiving Station

frequency. The development of short-wave broadcasting however demanded a great increase of the measurement band. To-day, measurements can be carried out over a range from audio frequencies up to 30 Mc/s. and—with only a slight sacrifice of accuracy—to 150 Mc/s. or higher. We were, of course, called upon to enter the ultra-high frequency range with the advent of Television.

Before describing briefly the more salient details of modern B.B.C. equipment, some fundamental and guiding ideals should be considered.

### Fundamental Ideals

Simplicity of method and of apparatus must be placed first. It is often forgotten in our too-complex civilisation. A good thing cannot *always* be simple but, of any two systems or devices of otherwise fairly equal merit, the simpler one will always be the better—not to mention, in all probability, the cheaper. So often, this tremendously important truism is neglected.

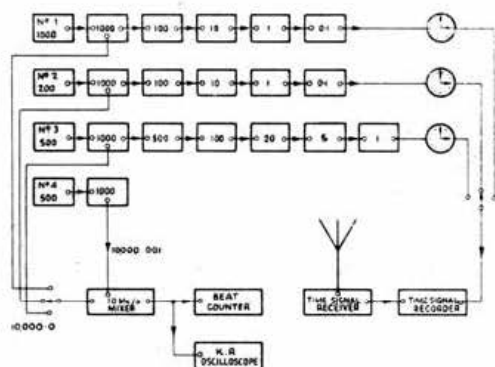


Fig. 1.

Frequency standards, B.B.C. Station 1942 Provisional lay-out.

To my mind, there is a great difference between considering what is possible in the laboratory and what may be very unsound technique at a station. In the laboratory, the staff may be highly qualified mathematicians, and there may be little restriction upon the time they take to carry out their work. On the station, such as the B.B.C. frequency measuring station, or the pre-war Bruxelles station maintained by the U.I.R., and with which there was frequent exchange of experiences, the case is very different. Hundreds of accurate measurements of signals varying widely in amplitude and noise-background may be required each day. The staff may not have any special arithmetical aptitude. They may be called upon to use a great variety of other fairly complex apparatus such as direction-finding, field-strength and modulation recording equipment, "diversity" receivers, directional aerials and so forth. One could for example tolerate a technique in the laboratory involving the measurement of the B.B.C. frequency of 877 kc/s., by commencing with a 1 kc/s. Standard, taking its 73rd harmonic on 73 kc/s., synchronising therewith a second multiplier, selecting the 12th multiple on 876 kc/s. and then comparing this with the 877 kc/s. frequency by referring it to the original 1 kc/s. Standard. Methods such as these are, however, far too cumbersome and liable to computation errors to be good policy in practical, regular work.

So, our first ideal must be simplicity, and part of this will mean that all arithmetical work must be reduced to the minimum of one simple addition—

mental addition. Even this is not quite ideal and efforts to eliminate it are not futile providing that they do not entail a big increase in circuit complexity, as they tend to do.

Other ideals are :—

1. Dials and calibrations should give a direct reading in frequency—increasing clockwise.

2. Harmonic sequences should be in decimal or decade progression, e.g., 0.1, 1, 10, 100 and so forth, as this corresponds with our numeral system and helps to avoid arithmetical and slide-rule errors.

3. Subdivision should also be decimal; avoiding vulgarity in fractions.

4. Multiplying and dividing circuits should be stably synchronised, pre-set and not liable to uncontrolled oscillation under conditions of valve-ageing or failure of input or supply voltages.

5. Only one basic, inescapable source of measurement error should exist—the error of the Frequency Standard.

6. Failure of any part of the chain of apparatus should immediately be apparent so that attempted measurements with the faulty apparatus become impossible.

Ideals (1) to (3) were attainable as far back as 1934 but (4) and (5) were not, whilst the method of multiplication and division of the standard frequency relied upon the original multivibrator circuit, which, in its early form (using triode valves) was not completely phase-stable even when correctly synchronised. Variations using modern valves show improvement in this respect but it is probable that the only present means by which these last two ideals may be satisfied is by the use of circuits (such as the co-called "regenerative modulator") which have been described in one form in a recent I.E.E. paper by Messrs. Thwaites and Laver and which have been developed in a parallel direction and for various uses, in the Post Office, the B.B.C. and elsewhere. With this type of circuit, uncontrolled oscillation is almost impossible and the sequence of division or multiplication will be either correct or absent.



Fig. 2.

Frequency checking and measuring position No. 1 at B.B.C. Station.



Let us now consider in greater detail modern technique, exemplified by the apparatus at a modern frequency measuring station.

### Modern Methods of Frequency Measurement

In order to detect and measure the R.F. signal, which will probably come from a distant station, each measuring position will require several radio receivers and aerials. Some of the latter may possess directional characteristics. We need not consider such minor points as feeders, methods of inter-connecting receivers and aerials, or signals from local sources. The receivers will have to cover the frequency-band between about 15 kilocycles to about 300 megacycles—1 to 20,000 meters—if every possible contingency is to be taken into account.

The broadcasting bands are rather more restricted, but the verification of interfering harmonics from long-wave telegraphy may call for measurements on the low-frequency fundamental and, similarly, the verification of alleged interference from broadcasting transmitters may necessitate excursions to frequencies higher than those normally used for broadcasting. There will also be other reasons, connected perhaps with experimental work by associated departments on transmitter drives, and the prevention of parasitic oscillation in transmitters, which may demand frequency measurement outside the usual limits assigned for broadcasting. So we cover this large range of frequencies with several different receivers. By using overlapping I.F.'s, together with an aperiodic detector circuit, there will be no gaps from the audio range to the V.H.F.'s.

Communication type receivers, with ganged tuning controls, are used, because the unknown must be found quickly with the minimum of twiddling. The measurement gear proper will call for enough of that! The sensitivity of the average communication receiver is ample, when it is realised that the method of measurement implies heterodyning the unknown and thus increasing the sensitivity of detection. In fact, one may carry out the most accurate type of measurement when the modulation of a telephony or broadcasting signal is quite indistinguishable through noise-background, simply because the signal is so weak.

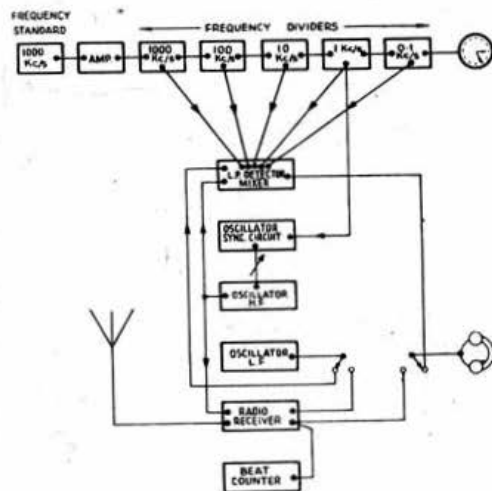


Fig. 3.

Block diagram of frequency measuring equipment position No. 1 at B.B.C. Station (1935 and subsequent).

### Frequency Standards and Their Errors

Next, let us consider the frequency standards and the method used to establish their errors, if any, and their long and short period behaviour. The ideal number of standards should be large, in order to enable closer checking of their individual behaviour by comparison with each other, for in no other way can their behaviour be judged instantaneously or over short periods of time. Over long periods of time, they may be compared with Time itself; i.e. they may be rated against Time to see whether they are gaining or losing. But, if the most accurate time signal has an error not greater than 1/100th second, this represents only an accuracy of time-determination of  $\pm 2$  parts in 8,640,000 between two time signals 24 hours apart.

Thus, in 24 hours, we could establish the rate of our standard to within something worse than 2 parts in  $10^7$ . We should require a period of 10 days to compare frequency with Time within a few parts in  $10^8$  and it takes over three months to reduce this error by another power of ten. Very long runs are thus needed in order to compare Frequency directly with Time and the comparison gives only the average behaviour of the Standard over the rated period; for the moment to moment behaviour, one must rely upon comparing several different Standards and upon the assumption that the short period variation of any one of them will not be greater than twice the difference between any two. For this reason, four is a reasonable number—a reasonable minimum number—of separate standards. With less than this number, the estimation of short-period stability and performance is reduced.

The short-period error of present Crystal Standards is certainly no more serious than the long-period error, which is not worse than a few parts in  $10^8$ . We are at present making comparisons with other authorities which may have made variations occasionally as great as 1 in  $10^7$  but, in the future, we expect with new equipment to obtain progressive improvement to better limits than perhaps the 1 part in one hundred million error—which is our present "target."

The block diagram, Fig. 1, shows three standards driving their synchro-clocks through separate divider chains, whilst a fourth is maintained slightly off frequency in order to produce countable beats for comparison purposes. Three of the final four standards will be housed in a subterranean room which is itself roughly temperature controlled and is not used for any other purpose. The temperature control system varies; we have systems based upon contact-thermometers and upon balanced A.C. bridge circuits. There are large variations of the average thermal-cycle and of the method of stabilising the power supplied. Batteries floating across rectified A.C. mains, Stabilivolts, baretters and saturated transformers are in use in one or other of the circuits to improve the stability of supply voltages. In one respect, this variation of circuit and method is reassuring, for it is an unlikely event that all the Standards will vary together over small limits, which might otherwise be difficult to detect; the fact that they do not all experience the same factors of variability reduces the liability to small undetected variation of frequency. In one case the use of a concrete plinth with a cork system of insulation from mechanical shock appears to have been a worthwhile precaution.

From the frequency standards, concentric low-impedance leads carry the standard frequency to other parts of the building, where the measurement positions are in operation. Fig. 2 illustrates the oldest (No. 1) position. This has synchronised dividers, R.F. Oscillators and L.F. Oscillator and a beat-counter based upon the uniselector relay. Some of the

apparatus is of commercial manufacture, some was made in the B.B.C. workshop. Much of it has been in continuous 24-hour operation for as long as five years and has proved very reliable.

The block diagram of this position is shown in Fig. 3. An example of the simple sequence of measurement will explain the process involved. Imagine that the 1 kc/s. harmonic sequence is a kind of ruler, marked with the exact intervals but without numbering. The R.F. Oscillator establishes the kilocycle number, the L.F. Oscillator gives the decimal part of the measurement, and the direct-count (when justified by the stability of the signal being measured) corrects the measurement for any error of interpolation. An example of a typical measurement may make this explanation clearer.

#### Example of Sequence Position No. 1.

(a) "Unknown" frequency (nominal).	877 kc/s.
(b) R.F. Oscillator adjusted and synchronised with standard 1 kc/s. harmonic on heterodyne difference (a) — (b)	876.000 kc/s. 1.000 kc/s. (approx.)
(c) L.F. Oscillator brought to zero beat with above heterodyne.	1.0042 kc/s.
Approximate measurement. Correct within $\pm 0.0002$ kc/s. or 0.2 c/s. = (b) + (c).	877.0042 kc/s.
Correction check. Standard 1 kc/s. harmonic .. "Unknown" exactly ..	877.00000 kc/s. 877.0041
Difference beats, shown on counter.	41 in 10 secs.
CORRECTED MEASUREMENT 877.0041 kc/s.	

The second measuring position is newer. Part is of commercial manufacture and part is home produced. The differences between this position and the one previously described are mainly in two directions.

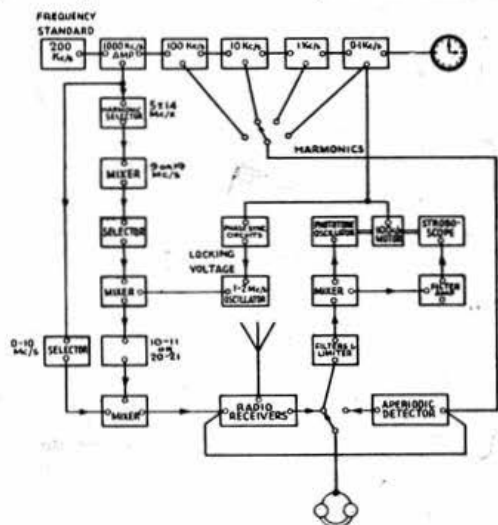


Fig. 4.

Block diagram of frequency measuring equipment position No. 2 at B.B.C. station (1942).

The R.F. Oscillator portion comprises a variable oscillator in the range 1,000 to 2,000 kc/s., which can be synchronised at will with any 0.1 kc/s. (i.e. 100 c/s.) step of the harmonic-sequence, or rather, sub-division sequence. This oscillator can thus be synchronised at any one of ten thousand points in its frequency-range. Its output frequency is extended below and above the 1 to 2 Mc/s. range by summation with megacycles/second multiples derived from the Standard, so that it is virtually able to build-up known frequencies from 0 to 30 Mc/s. in locked or synchronised steps of 100 c/s. (Fig. 4).

An example of the sequence of frequencies involved in a typical measurement has been prepared for comparison with a measurement of a similar "unknown" on the older No. 1 Measuring Position.

#### Example of Sequence Position No. 2.

(a) "Unknown" frequency .. (nominal)	877 kc/s.
R.F. Oscillator adjusted to nearest lower 1 kc/s. point, then to nearest lower 0.1 kc/s. point :	
(b) 1,877 kc/s. + 9,000 kc/s. — 10,000 kc/s. =	877.0 kc/s. approx.
(c) The R.F. Oscillator is then shifted 300 c/s. lower in frequency and synchronised exactly with the standard harmonic.	876.7000 kc/s. exactly
Difference-Frequency (a) — (c) =	0.3041 kc/s.
Photo-tone generator, reading 0 but developing exact frequency of ..	0.3800 kc/s.
Second difference frequency =	75.9 c/s.
Stroboscope reading 4.1 c/s. =	75.9 c/s.
Readings on dials of oscillator, phototone generator and on stroboscope, in order are :—	
10 Mc/s. 1 Mc/s. 100 kc/s. 10 kc/s. 1 kc/s.	
0 0 8 7 7	
0.1 kc/s. Phototone Stroboscope	
0 0 41	
MEASUREMENT = 877.0041 kc/s.	

In order to obtain certain obvious advantages, such as the great range on a single panel of the R.F. oscillator and the closer steps of synchronisation, the summations are more complex but this is to a great extent offset by the fact that each decade figure of the measurement (except the last one, which is of course the cycles/second figure) is indicated in the correct order on dials. The last figure of cycles/second—and, of course, fractions thereof—is read on a stroboscope disc engraved with the numerals from 0 to 9. The correct figure will be almost stationary because it is illuminated by the appropriate difference-frequency. Tenths and hundredths of cycles involved in the measurement may be obtained by counting the slow transits of whichever stroboscope numeral is moving most slowly clockwise, in a similar manner to the aural, visual or mechanical "count" mentioned when describing Position 1.

Readers may ask why accurate measurements of frequency, involving such complex apparatus, are necessary.

(Continued on page 80)

# TROUBLE TRACING

## PART I

By A. H. MASON (GM6MS).\*

It is surprising how many people, capable of designing and building their own communications receivers, are floored when faced with a strange set which does not function properly. The author in this article and others to follow will endeavour to show that, if tackled in a systematic manner, troubles can be tracked to their lair in a short time.

### No Oscillation

Let us assume that the reader has been asked to examine an "all-wave" receiver of the popular three-valve circuit type similar to that shown in Fig. 1, and that no one has interfered with the trimmers. The only information available is that

work some carbon tetrachloride or trichlorethylene with a brush between the vanes. This does not dissolve the beastly stuff but gets it moving and allows one to mop it up with a duster!

Another likely fault is an internal poor contact at C8 or C9. Try another condenser of between .0002 and .0005  $\mu$ F across each in turn, the receiver being switched to the medium wave band. Again, the possibility of faulty contact at the wave-change switch SW3 should not be overlooked; this can be cleared up by gently pressing the contact leaves with an insulated prod.

Before leaving the subject of the non-oscillating receiver let us consider the case of a set which is

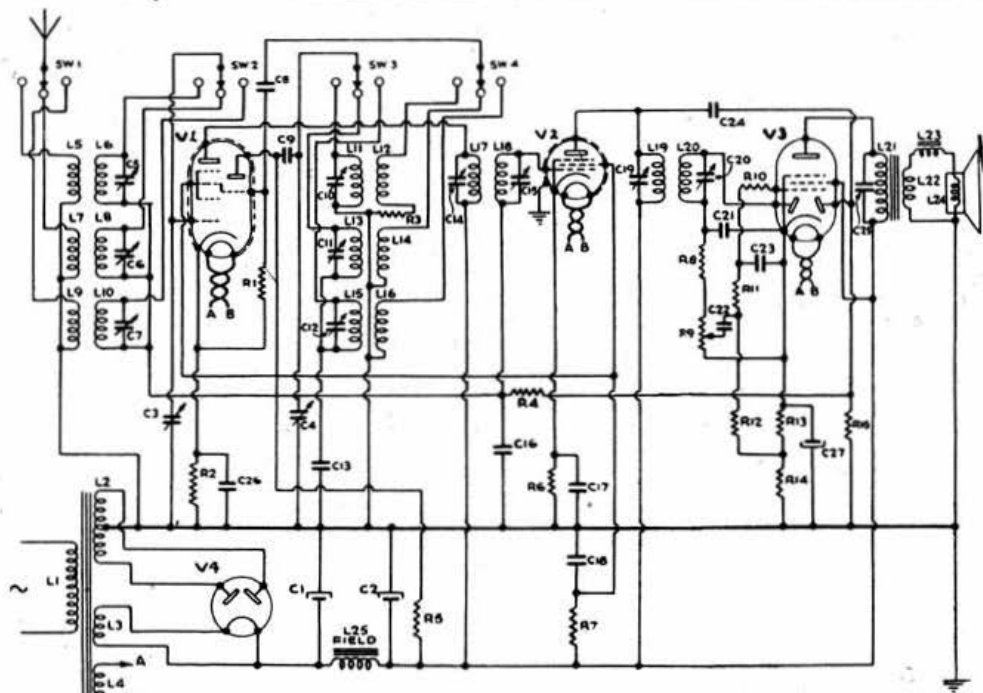


Fig. 1.

A typical three-valve "All Wave" Receiver.

signals cut out suddenly and the set is dead on *all* wave-bands. On test it is found there is considerable liveliness when V1 grid cap is touched. However, an aerial connected direct to this point does not help matters although plenty of "noise" is evident. It would appear that the oscillator section of the frequency changer is not functioning and it is advisable first to try the effect of changing this valve. As this makes no difference to the performance, it is necessary to test the most likely parts. First, turn the condenser gang to minimum capacity. Should the set burst into life, it is fairly certain that the vanes of C4 are shorting, either because they are bent or because some liquid from the electrolytic condensers C1 or C2 has leaked out and crept into the gang. The latter fault can be proved by disconnecting C4, when it will indicate a resistance varying in value as the gang is rotated. To remove the electrolyte,

inoperative on only one wave-band. Test the oscillator trimmer which applies to the band (C10, 11 or 12, in the hypothetical case) for a short circuit by unscrewing slightly, making certain that it is finally left in its original position if satisfactory. Be sure, of course, that the relevant coils are continuous.

Where the set operates normally on short waves and nothing is evident on medium or long waves, check the padding condenser C13 which may, surprisingly, be open-circuited or have become much lowered in value. It is however possible for oscillation to be maintained even where C13 is considerably lower in value than normal. The effect now is that the calibration at the low frequency end of the medium and long wave-bands is badly out. Again, if either C8 or C9 are low in value it is possible for signals to be quite normal on the higher frequency end of the short wave-band with a cessation of oscillation at a certain part of the scale. Of course

\* 390 Kings Park Avenue, Rutherglen, Glasgow.



nothing will happen on medium or long waves when the latter fault is present.

The writer is willing to admit that leakage between anode and grid coils is possible, with consequent hair-tearing, but happily such cases are rare.

### The I.F. Stage

Turning for the moment from oscillator faults let us imagine that signals are received on all bands, but an interfering whistle is present, varying in pitch as the receiver is tuned. It is fairly evident that the I.F. stage is oscillating and the cause may be due to one of several faults. First, touch the metallising of V2; if the self-oscillation ceases, the valve base is probably loose. Binding with No. 30 s.w.g. tinned copper wire, soldering the turns of wire together and then "secotining," very often clears the trouble. Should the main smoothing condenser C2 have become low in value, coupling between circuits can take place (as well as excessive hum being present) with resulting oscillation in the I.F. or for that matter the F.C. stage. In sets which use a large final smoothing capacity, such as 32  $\mu$ F, it will generally be found that satisfactory operation is very much dependant on this high value being maintained. If none of the aforementioned suggestions prove successful test capacities should be tried across C16 and C18 in turn.

"Motor-boating" may also be due to a loose valve base or low smoothing capacity although, where primary and secondary I.F. trimmers of each coil are combined, leakage between the trimming condensers can take place—as the writer knows to his cost! The effect of this is that in addition to "motor-boating," signals are generally weak, background noise varies in strength, and the volume control is noisy in operation, due to H.T. being applied to it. This trouble may often be cleared by isolating and replacing the faulty primary trimmers.

A tip regarding trimming condensers—if they are of the air dielectric type, the variation in capacity is generally small. Thus where trimmers of this type are fitted throughout the receiver and have been interfered with, it is still possible to receive signals. On the other hand, if, say, mica dielectric trimmers are used for tuning I.F. coils, a relatively small adjustment to each of them may "kill" reception entirely.

### The Detector and Output Stages

If the receiver appears to respond to all the I.F. and H.F. trimmers, and calibration is normal, but reception weak, a capacity of about 0.0002  $\mu$ F should be tried across the detection condenser C21 which should be temporarily disconnected. Alternatively, place a 0.5 megohm resistor across R8, and note whether the volume increases.

If the A.V.C. condenser C24 is leaking *slightly*, it can cause peculiar effects, such as very flat tuning at the I.F. trimmers with a general lack of life.

Distortion in the output stage, due to leakage in the bias condenser C27, should not be overlooked. In some receivers the parasitic stopper resistance R10 is fitted in the top cap of the output valve, and here the heat from the valve can cause the coating of the resistor to peel off. The effect, of course, is that fading, or complete cessation of signals takes place intermittently. Again, the control grid thimble of this valve is liable to develop a dry joint, for which the remedy is to clear out the old solder, clean the wire carefully and resolder.

In the next article the author will discuss faults likely to be met with in universal receivers.

(To be continued.)

## R.S.G.B. Prisoners of War Fund Statement by Council

In view of the fact that there has been a certain amount of criticism of the application of the above Fund, Council has decided to publish this Statement in explanation of the policy it has followed unanimously up to the present time. The points which have been criticised are as follows:—

- (1) The decision to send parcels only to prisoners of war who are R.S.G.B. Members.
- (2) The resolution that "no prisoner of war shall be entitled to receive parcels from the R.S.G.B. P.O.W. Fund unless he was a member of the Society at the time he was taken prisoner."

With regard to the first point, the R.S.G.B. Prisoners of War Fund was inaugurated as the result of a suggestion made to Headquarters in August, 1941. The initial and subsequent announcements made it clear that the Fund was promoted to provide parcels for members only, and undoubtedly the vast majority of members who have contributed, have done so in the belief that the money would be used for that purpose only. For this reason it was decided to send parcels only to prisoners of war who are members.

With regard to the second criticism, it was felt that the Fund might be subject to abuse if non-members discovered that by joining the Society they would automatically qualify to receive parcels.

Council in making their decision also took note of the following points:—

- (1) It is wrong in principle to allow monies collected for a specific purpose to be diverted into other channels.
- (2) Although the Fund has had so far only to provide parcels for about 20 members, it is conceivable that the number may increase considerably when Far East and Middle East casualties are announced. (In this connection it is possible that as many as 100 members may have been taken prisoner, but no information is yet to hand.)

**Future Policy.**—In response to recent representations made by members, it has now been decided to widen the scope of the Fund to include those non-members who held at September 3, 1939, full or artificial aerial licences issued by the G.P.O.

As from December 1, 1942, all donations will be used for the benefit of members and non-members (as defined above) unless the donor clearly states that the donation is to be used solely for members. The balance of the Fund in hand at November 30, 1942, including all donations received up to that date, will be used for the benefit of members only.

### Cairo Convention—New Style!

From Egypt, temporary home of G's, VK's, ZL's, W's and countless other amateurs, comes the news that on the day appointed for our Annual General Meeting, a Christmas Convention will be held in Cairo under the auspices of the Experimental Radio Society of Egypt. How much would we all give for a "hook up" that afternoon between the I.E.E., London, and a certain well-known spot in Cairo?

### OUR FRONT COVER

THE National HRO Communication Receiver is still acknowledged as the master of difficult operating conditions, and after years of high performance, wonderful tributes continue to be paid it by acknowledged experts.

National HRO Receivers are now only supplied to Government departments or to those who obtain an import licence, because their HRO will be used for work of special national importance. We join you in working for the day when these war-time restrictions may be cancelled.

Radiomart, G5NI (B'ham) Ltd., 48 Holloway Head, Birmingham, 1. 'Phone: Midland 3254.

# KHAKI AND BLUE

● From Frank Pettitt, **SUISG**, comes the news that a Hamfest has been arranged to take place in Cairo on December 19. It is now too late to give effective publicity to this meeting, but we suggest that home members, who have occasion to write by airgraph, within the next few days, to friends in Egypt, should ask them to get in touch with Mr. Pettitt, at 3 Rue Atabikah, Sidi Gaber. Incidentally Frank holds a stock of application forms for the use of those who wish to join the Society.

● Sq./Ldr. Ben Wallich, **G6BW**, is now living at "The White House," Adelaide Close, Stanmore, at which address he will be pleased to welcome old friends, especially U.S. amateurs with whom he has worked in the past. His telephone number is Grimsdyke 860.

● Capt. G. C. Price, **G2OP**, will also welcome British and overseas amateurs who are stationed in the Pembroke area. His address is, Bank House, Meyrick Street. Telephone: Pembroke Dock 39.

● Cyril Metcalfe, **2CFV**, who has recently been granted a commission in the R.A.F. with the rank of Pilot Officer, wishes to be remembered to his many friends in the Bedford area. He would like to hear from "Jazz" Ellett, 3585, and Claude Pettifer, **2DPQ**. Letters should be addressed to 165 Fort Austin Avenue, Crownhill, Plymouth.

● L.A.C. Don Duthie, **GM6IW**, having just returned from a long spell of duty in the Middle East, wishes to record his thanks to the many amateurs in Egypt, S. Rhodesia and S. Africa, who extended him hospitality. He is especially grateful to Mr. A. E. Hochstein, **SUIAX**, for his many kindnesses.

● L.A.C. Desmond Alimundo, **G4HK**, reports by Air Mail having met **VE4YB** and Cpl. Heffernan, **4342**. The latter who is at Air H.Q. has met **G2AF**, **50L**, **8DA**, **2BFB**, **4184** and **VE3TV**, but unfortunately most of his letter was censored.

● Wesley Taber, **G3GU**, now serving with a Naval Air Squadron in the M.E., sends a nifty photograph of himself taken recently in Alex. He wishes to be remembered to **G2WV**, **2ZQ** and all old friends. He has met only one ham—**VE3KW**—although he must have missed a few, as he mentions visiting the Royal Yacht Club of Egypt whilst on leave!

● From L.A.C. Harry Willetts, **2FPI**, we learn that **G5QY**, celebrated the completion of a neat 6kW bedside job by announcing his engagement! Sq./Ldr. Maurice Brookes, **G5OI**, recently visited his station, but **2FPI** was on duty. They are both "Early Birds."

● Sgt. C. D. S. Underwood, **G5UD**, having recovered from his recent serious illness now finds himself with the R.E.M.E. in the Swansea area, where he is seeking ham contacts. His present address can be obtained from H.Q.

● Cpl. Bryan Montague, **R.A.F.**, **2ANR**, writing from "George Cross Island," reports a recent meeting with Mr. Galea, **ZBIE**, pre-war **B.E.R.U.** representative for Malta. The latter is fit and well although very busy. **2ANR** has attempted to arrange a meeting but as many of the amateurs who were on the island have now left, his task is not an easy one. Sgt. G. E. Perrett, **3898**, is working with him and both intend joining the newly-formed **V.H.F.** Group. **2ANR** has some new ideas on concentric-line tuned circuits.

● Friends of Pte. Fred Wingfield, **G3CX**, of Heathfield, Sussex, will be surprised to learn that he has been invalided home from South Africa, after receiving wounds whilst serving in the Middle East. Fred had an exciting return journey when the ship was chased by a surface raider. He met several **Z5's** whilst in Natal.

● A.C.2 M. A. Newman, **G3DZ**, of Portsmouth, has recently been transferred to the Air Sea Rescue Service. Are there any other members in this service? He was on leave last month.

● Further to the notes published in our last issue, we learn from Mr. Clacy, **G6CY**, that C.S.M. Hill, **G2RU**, has arrived safely at his destination abroad, but his address is at present unknown. H. T. Lunson, **G3WR**, has returned from **VE** as a **P.O. R.A.F.** and has his wings.

● Friends of A.C.1 A. H. Bruce, **G5BB**, will be interested to hear that he has arrived in Nassau, Bahamas, after visiting New York and Miami. He writes eulogistically of the hospitality extended to him, and of the "will to win" spirit prevailing in America. He also speaks of having "hundreds of lizards and 3-inch long cockroaches, flies and spiders" as companions.

● Sympathies are extended to Sig. George Haylock, **2DHV** of Sideup, whose brother Sgt. B. T. Haylock has been killed in flying operations over Germany. They co-operated closely in experimental work prior to the war. **2DHV** who is now serving abroad sends his 73 to all old friends.

● Friends of L.A.C. Roland Richardson, **2CXT**, will be glad to learn that he is fit and well in Stammlager VII B, Germany. He reports the safe receipt of **P.O.W.** Fund parcels and records his thanks to all who have contributed to the Fund. He has met no amateurs since his capture.

● Sgt. Kenneth B. Wood was shot down over Germany two years ago. In recent letters to Headquarters he has expressed a keen desire to hear from any member of the Society with the time to write. Ken is not yet a member but if arrangements can be made he will join before long. Letters should be addressed: 541980,

Sgt. K. B. Wood, **R.A.F.**, British **P.O.W.** 150 Stalag Luft III, Germany. Incidentally Sgt. Wood "found" a copy of our handbook in his camp. As we are not allowed to send this book to prisoners of war, we can only assume someone had a copy in his possession when captured.

● Sgt. C. A. Zedy, **3732**, whose home address is 6 Norfolk Park Cottages, Maidenhead, Berks, would be glad to hear from any member serving at or near No. 14 I.T.W. Zedy is now a Sergeant Air Gunner in the **R.A.F.**

● A.C.1 Arthur Goode, **2DTP**, reports by airgraph that he and **G3HJ** attended as guests, the second meeting of the newly formed Advanced Air H.Q. Radio Club. The club has the backing of several officers who are very keen on the project. As this is the first intimation we have received that a Radio Club for Service men has been formed in the M.E. we are, at the moment, unable to give any details, but we gather the club is to be run in two sections, one for beginners, and the other for advanced experimenters. Incidentally **G3HJ** and **2DTP**, had to walk the last eight miles of their homeward journey to camp through velvet darkness. What enthusiasm!

● Sgm. N. Schembri, **4695**, writing from India where he is serving with a Medium Regt., **R.A.**, puts out a challenge to other army signallers. He asks "can anyone beat 70 miles R./T. on an Army 11 set using low power?" He used a Windom for this bit of DX!

● In a recent Airgraph to **GSUO**, L.A.C. Nuttall, **2AGP**, reports fit and well and asks that his congrats be conveyed to Ron Wood, **G3TK**, on the safe arrival of his junior op.

● Capt. Alec Garnock-Jones, **G8TJ**, serving with **R.E.M.E.** in Belfast would like to hear from old friends via his home address "Brentwood," Sandfield Park, Liverpool, 12.

● From Trinidad comes news of Sgt. Norman Owen, **G4KS**, who appears to be enjoying life as a wireless operator-air gunner. He arrived in **VP4** by air but whether he crossed the Atlantic by this medium is not clear from his letter. So far he has met no amateurs but he had an interesting experience in New York, when he went "on the air" over **WABC**. He is preserving the publicity photograph he collected for "line shooting" purposes at future ham meetings! **G4KS** wishes to be remembered to **G6AQ**, **8DI**, **8DZ**, **2FAD**, **5344** and all old friends.

● Pre-war Cranwellians will be glad to hear that D. C. Derry, **ex-G8PQ**, is now a Warrant Officer with the **R.A.F.** in India where he has been for four years. Letters can be addressed to him via **H.Q.**

● From Dum-Dum, India, comes news of Cpl. H. Dawes, **3896**, who asks that his greetings be extended to all old friends who were with him at No. 3 S.S. He has met a number of amateurs during his travels and at the time of writing he was planning to arrange a Meeting.

## Royce Wilkinson now an O.B.E.

Hot on the announcement that Sq./Ldr. R. C. Wilkinson, **D.F.M.**, **G4HW**, had been appointed to the command of Britain's crack fighter squadron, came the news that he had been made an Officer of the Order of the British Empire. On behalf of his many friends, we again extend warm congratulations.

## S.A.R.S.

The first meeting of this new Society was held on October 20, at The White Hart, Campton, under the Chairmanship of **W.O. F. Ingleton**, **G6FI**. Others present included **G5CW**, **6AN**, **8BX** and **2FON**. It has been decided to open the Society to all members of **R.S.G.B.** resident or stationed in the area. The next two meetings will be held on Tuesdays, November 17 and December 1, at 7.30 p.m.

Full details of future activities can be obtained from Cpl. F. Heybyrne, **BRS538**, c/o The White Hart, Campton, Beds.

## Washington Radio Club

Mr. William Smith, **W3GKP**, 10110 Pierce Drive, Silver Spring, Maryland (Corresponding Secretary of the Washington Radio Club), cordially invites members to write or telephone him on Washington, Republic 7400, Extension 61115, for details of meetings, if they are in the neighbourhood of the capital.

ARE YOU AT

No. 1 S.S. or No. 1 R.S. ?



If so, you are invited to attend Meetings in Hut 165 (No. 1 S.S.), on Monday, Dec. 7, and Wednesday, Dec. 16, at 19.30 hours.

## No. 1 S.S. Meeting

In spite of bad weather, an attendance of 80 was recorded in Hut 165 on October 21. Those present included: LA2UA, SP3DF, VE5QA, W1FVR, W6LWP, WSDNE, G2OA, WY, 4GD, HY, 5BS, 6BP, 8ON, UY, 2BLA, FCV, FVV, HCP, HJN, 626, 4169, 4691, 5231, 5243, 5316, 5428, 5467, 5470 and 5471.

The lecturer, Lt. Gale, W1FVR (U.S. Army), gave an excellent talk on resonant lines oscillators. He traced the history of this equipment, and combined theory and practice in a way which the audience heartily approved. Many were seen to be having a "busman's holiday" and were copying sketches and making notes industriously. Lt. Gale answered many questions and drew loud applause which was highly merited. A resonant lines oscillator constructed by Cpl. Cole, 2HJN, and Cpl. Witham using an RK34 was demonstrated on about 200 Mc/s. This proved a very great attraction as the set was undrained of on the preceding day yet was built in spare time by the corporals concerned. The high degree of workmanship displayed evoked much praise.

A collecting box for the P.O.W. fund produced 16s. The box is to be available at all meetings instead of having a definite collection at any one meeting, as some meetings just precede pay day!

On December 7 there will be a talk on High Quality A.F. Amplifiers by Cpl. Ball, 4169, to be followed on December 16 with another on Frequency Modulation. Venue, Hut 165; time, 19.30 hours. We are still wondering why we don't get three-figure attendances, as we can always count a few dozen who didn't come. What about it chaps? G8ON.

## A Night Out in the North

The most northerly R.S.G.B. function ever held took place on September 28 at a well-known Scottish hostelry, when a dozen or so members met for a convivial evening, under the chairmanship of Andrew Lawson, "H" District Officer.

Among those present were Ft./Lt. Alec Heathcote, G3JR, 2nd Lt. W. Robertson, GM6RI, Capt. M'Harg, and Mr. J. W. Mathews, G6LL. The latter gave an interesting talk on R.S.G.B. activities after which he was presented with a souvenir which will no doubt remind him of his visit to the north.

Later in the evening many ham topics were discussed, ranging in scope from a description by G3JR of the aerial system he described in a pre-war issue of the BULLETIN to speculation concerning post-war frequencies and call signs. The G.P.O. came in for some criticism for the ruthless manner in which certain amateur gear was removed at the outbreak of war.

In addition to those already mentioned, G3PJ, 6LC, 8RI, 4046, 5347 and 5598 took part in this Farthest North Hamfest. It is planned to hold others as opportunity permits.

## News from the Kriegies

Letters are to hand from the parents of Capt. Shackleton, G6SN, Lt. Quartermaine, G3FZ, and Lt. E. M. Frost, BR52692, giving details of their new addresses. "Shack" is now at Oflag IX A/Z—believed to be in Bavaria—"a stone-built boarding school with good sanitation, water and electric light" whilst Quartermaine and Frost have been moved to Oflag VIIIB, Ft./Lt. Babcock, G8LI, has been separated from G3FZ and 2692, and is now in Oflag XXIB. It is understood that Lt. D. L. Flower, G8TO, is also in Oflag VIIIB.

The parents or relatives of members who are P.O.W. are urged to keep Mr. Edwards advised of all changes of address.

Letters are to hand from "Snowy" Campbell, VK3MR, Prisoner of War in Italy, and from P.O. H. E. Cunningham, exG5CL. "Snowy" thanks everyone who has contributed to the P.O.W. Fund and asks that his regards be passed to all old friends. After sending several parcels of cigarettes it has now been discovered that our erstwhile DX friend does not smoke! He asks for chocolate but unfortunately that cannot be sent. He mentions in his letter "that 625 are enrolled in my class." We are not sure to what this refers unless he is acting as an instructor in Radio.

Mr. Cunningham acknowledges receipt of several parcels but laments the fact that no amateurs have so far been contacted. He too wishes to be remembered to all old friends.

## George Merriman, VS6AH, is Safe

After waiting anxiously for many months, news has just reached Mr. Harold Merriman, G6GM, of Holworthy, Devon, that his brother and sister-in-law are safe and well, although interned as prisoners of war by the Japanese. George Merriman, who operated from Hong Kong, under the call VS6AH, was one of the best known Empire stations before the war.

\* \* \*

Mr. Pat O'Brien, well known to old timers as VS6AE and XU1B, has arrived safely in England. After leaving Hong Kong in 1933 Mr. O'Brien moved to Canton where he carried on his amateur work under the call XU1B. Interned at the outbreak of the Far East war he was eventually released and after a long sea journey reached England last month. Mr. O'Brien is anxious to join the R.A.F., for as he puts it, "I am sound of body and mind and can do a lot of damage at 39 years young."

We wish him every success and a happy stay in Great Britain.

## Congrats.

- To Corporal and Mrs. Reg Farr, G8IJ, on the safe arrival of Brenda Joan during the DX hours of September 28, 1942.
- To Lieutenant and Mrs. J. A. T. Bousfield, 2FQQ, on the safe arrival of Daphne Christine. Father is serving with H.M.S. *Caduceus*.
- To Sq./Ldr. and Mrs. John Hunter, G2ZQ, on the arrival of Anthony John Noel, on October 13.

## Can You Help?

Ft./Lt. Alec Heathcote, G3JR, Marlow Cottage, Lostock Hall, Preston, would like to hear from any member, who possesses copies of *Radio* since March, 1940, whether any Kraus articles on aeriels have appeared, and if so on what dates? The information is urgently required and postage will be refunded.

\* \* \*

Petty Officer Odd Hope, LA2UA (now at No. 1 S.S., R.A.F.), is anxious to purchase for his wife, who is in Iceland, a good quality A.C.-D.C. radio-gramophone covering the medium and short-wave broadcast bands. Failing a radio-gram, he would be content with a normal broadcast receiver provided it covers the bands mentioned.

Letters should be sent c/o R.S.G.B. Headquarters, 16 Ashridge Gardens, London, N.13.

## Silent Keys

## A Tribute to Ron. Norman ex-G6DP.

It is with a sense of deep personal loss that we record the passing, after a short illness, of P.O. Ronald Norman, R.A.F.V.R., ex G6DP on October 29.

It seems but yesterday that he was with us at the Prestatyn P.D.M. full of life and as enthusiastic as ever about amateur radio in spite of being cut-off from his friends in London. Evacuated to Llandudno about two years ago he lost no time in establishing contact with John Bright's School Squadron A.T.C. After acting as an A.T.C. instructor he was later granted a commission in the R.A.F.V.R. (Training Branch).

On the day before he fell ill with pneumonia the writer was in his company at Llandudno. The memory of that warm sunny afternoon on the Great Orme will long remain. We shall remember him as a lithe, happy figure, climbing the rocks in chase of a small boy who had ventured to the highest point.

Ron gave up his call sign just before the war, but his interest in the Society never flagged. He had been a member for over 11 years and was well known in South London where he had lived prior to the war.

He was a fine workman and always anxious to give others the benefits of his knowledge. We possess at Headquarters a lasting tribute to his ingenuity in the form of a facsimile model of a triode valve which he designed to assist him in lectures to the lads of his Squadron. He was also a keen model boat builder and philatelist, specialising in ship stamps.

The funeral took place at Sanderstead Cemetery, on November 4.

Our deepest sympathies are extended to Mrs. Norman and her two young sons. J. C.

\* \* \*

The death is also announced of Mr. Edward Bridge, 2AUX, of Burscough Bridge, Lancs, who had been a permanent invalid since the last war when he won the Military Medal for conspicuous gallantry.

A short while ago he was awarded the British Empire Medal in recognition of his outstanding devotion to duty whilst engaged on wireless work during the present war.

To his relatives and friends we offer our sincere sympathies.

\* \* \*

The death occurred last month of Dr. G. A. E. Roberts, M.R.C.S.(Eng.), I.S.A., D.P.H. R.C.P.S. known to many members as G2IU of Twyford. Dr. Roberts who was in his 81st year, had been interested in radio and allied subjects since the early 'nineties, when he began experiments with Röntgen rays. He was one of the first general practitioners to make use of radium for therapeutic purposes. While Marconi's early discoveries were being discussed Dr. Roberts procured transmitting and receiving equipment and obtained one of the first P.O. transmitting licences. During the last war his station was taken over by the military authorities.

He was a very old friend of Mr. G. R. Marsh, G2IW, of Bath, who recalls that Dr. Roberts and himself were examined at the same time in his house for their new licences, which were granted shortly after the last war.

Sympathies are extended to his relatives and friends.



## MEMBERS ON ACTIVE SERVICE

## Thirty-Eighth List

WE publish below our thirty-eighth list of members on Active Service. Additional details and corrections should be advised to Headquarters as early as possible. The present list contains information received up to October 31, 1942.

Rank and Name	Regiment or Branch of Service	Pre-war Call or B.R.S.
Air/Electn. H. Adams .. ..	F.A.A.	5608
Cpl. J. R. Adams .. ..	R. Sigs.	GM5KF
Pte. G. Austin .. ..	"	G8GA
S./Ldr. H. N. D. Bailey .. ..	R.A.F.	G5BP
Sig. M. P. Bayliss .. ..	R. Sigs.	G3PO
Cpl. R. G. Bishop .. ..	R.A.A.F.	BERS506
A.B. J. E. Bowden .. ..	R.N.	5609
L.A.C. L. H. Bower .. ..	R.A.F.	5622
C.Q.M.S. H. T. Brock .. ..	R. Sigs.	G3FD
Sub/Lt. W. B. Brown .. ..	R.N.V.R.	G6QY
Ldg. Radio Mech. A. B. Carden .. ..	R.N.	5604
L.A.C. K. Carling .. ..	R.A.F.	5611
A.C.1 R. Carpenter .. ..	"	5535
Cpl. A. B. Chadwick .. ..	"	5576
Sgt. K. G. Chapman .. ..	"	5605
Cpl. L. Chappell .. ..	"	2A2I
Tpr. M. McE. Charlish .. ..	Recon. Sqdn.	5612
A.C.2 P. L. Clarke .. ..	R.A.F.	5616
Cpl. J. R. Cook .. ..	"	5610
Cpl. W. E. Cox .. ..	"	5618
L.A.C. H. Crowthorpe .. ..	"	G3HA
L.A.C. C. S. Cutts .. ..	"	5551
Radio Mech. C. Dabysing .. ..	"	BERS505
Cpl. W. D. Day .. ..	"	5571
L.A.C. G. R. Davies .. ..	"	5536
Cpl. S. R. Deards .. ..	"	G5PA
Cpl. F. J. Derrham .. ..	"	5619
Cpl. L. Down .. ..	"	5579
Cpl. J. Dunlop .. ..	R. Sigs.	5538
Sig. W. E. Feast .. ..	"	5591
A./P.O. M. O. Felix .. ..	R.A.F.	4318
L.A.C. S. Fife .. ..	"	5606
A./P.O. The Hon. J. Forbes .. ..	"	E18N/ G4JL
Cpl. H. R. Germain .. ..	"	5573
A.C.1 N. D. Glass .. ..	"	2FFM
Cpl. P. Gough .. ..	"	5620
A.C.2 H. Grant .. ..	"	5558
Cpl. L. Green .. ..	"	5629
P.O. Tel. H. E. Gurney .. ..	R.N.V.R. (E.A.)	VQ4SNA
A.C.1 J. H. Harwood .. ..	R.A.F.	5543
L.A.C. S. F. Hayes .. ..	"	5624
P.O. I. T. Haynes .. ..	"	4506
Pte. H. Heath .. ..	R.E.M.E.	2AOK
Cpl. W. E. Hoe .. ..	R.A.F.	G3KF
Cpl. N. G. Hollowell .. ..	"	5575
A.C.2 W. J. Inman .. ..	"	5541
Capt. A. Garnock-Jones .. ..	R.E.M.E.	G8TJ
A.C. D. R. Jones .. ..	R.A.F.	778
A.C.2 H. T. Jones .. ..	"	4524
A.C.2 J. D. Kay .. ..	"	3789
L.A.C. L. Kindleysides .. ..	"	5544
Sgt. E. J. King .. ..	"	5607
A.C.1 H. J. King .. ..	"	2AIP
Cpl. R. A. King .. ..	"	5574
Lt. Surgeon J. H. H. Knight .. ..	R.N.V.R.	2DGL
Capt. R. Lansley .. ..	R. Sigs.	G4KV
L.A.C. F. W. Lewis .. ..	R.A.F.	5566
T./Cpl. M. Logan .. ..	"	5615
F./Sgt. R. A. Loveland .. ..	"	2ARU
Sig. W. Lucas .. ..	R. Sigs.	G2OI
Cpl. R. E. A. Lund .. ..	R.A.F.	5630
Cpl. L. H. Luscombe .. ..	R. Sigs.	G8NY
Cpl. J. A. Nichols .. ..	R.A.F.	5577
Sig. B. H. Otley .. ..	R. Sigs.	5598
A.C.2 J. H. Owens .. ..	R.A.F.	5626
A.C.2 G. R. Oxlade .. ..	"	4635
F./Sgt. K. G. H. Parish .. ..	"	5627
L.A.C. W. H. Parrington .. ..	"	4463
Radio Mech. G. I. Petrie .. ..	R.E.M.E.	5588
A.C.1 A. J. Polley .. ..	R.A.F.	5570
Lt. G. H. Ramsden .. ..	R. Sigs.	G6BR
Radio Mech. D. C. Reece .. ..	R.A.F.	5589
F./Sgt. F. A. Reed .. ..	"	5564
Sgt. H. A. Richardson .. ..	"	5581
L.A.C. B. Rogers .. ..	"	5628
A.C.2 R. B. Sayers .. ..	"	5621
Cpl. A. C. Steadman .. ..	R.E.M.E.	5586
P.O. Tel. S. Tait .. ..	R.N.	5549
Cpl. C. A. Taylor .. ..	R.A.F.	4478
Cpl. G. H. Tedder .. ..	"	5617
Sig. S. Torkington .. ..	R. Sigs.	G3PY
2nd/Lt. B. H. Townson .. ..	"	5599

\* Non-members.

## Prisoners of War Fund

DONATIONS.—The General Secretary acknowledges with thanks on behalf of Council, receipt of donations from:—R.S.G.B., £100; C. W. Packe, G3OJ, £5; J. H. Crudgington, 4072, 2s. 6d.; Hon. J. Forbes, E18N, £2; S. Wilkinson, G3ZO, 2s. 6d.; F. Lucy, FR558, 3s.; J. W. Stanton, W9SP, 7s. 6d.; F. W. Fletcher, 2FUX, £1; Anon. "Blackwood, Mon." 10s.; E. S. Elliott, 3341, 10s.; J. Fairley, G2IX (Proceeds of Whist Drive) £2; W. G. Hopcroft, GM4AN (Proceeds from "Swear Box" at Victoria Tavern, Sincilairtown), £1; A. R. Pepin, G2MS, 17s. 6d.; Anon., 10s.; Anon., £2 2s.; F. J. Behn, 2581, £1; V. Delnevo, G3HC, £1; Mrs. Briscoe, 3484, 10s.; H. A. M. Clark, G6OT, 5s.; T. A. St. Johnston, G6UT, £1 1s.; "Helen" 2s. 6d.; T. L. Haigh, G8BT, £5; H. S. Norris, G8FJ, 5s.; Tel. J. Roberts, 2620, 5s.; E. S. Elliott, 3341, 10s.; J. Collins, 4617, £2 4s. 6d.; C. B. S. Seaman, 2603, 5s.; F. Pettitt, SU18G, 7s. 6d.; Mrs. Quartermaine (mother of G3FZ who is a P. O. W.), £2 2s.; District 7 (Croydon), per G2DP, 10s.; C. G. Allen, G8IG, £1; District 15 (H. Wycombe), £1 11s. 6d.; District 12 (Cock Meeting) £8 10s.; No. 1 S. S. Meeting, 16s.; L. Hill, G5WI, 5s.; F. Ruth, 2BRH, 5s.; R. J. Denny, G6NK, 5s.; P. N. Ridout, 2DKI, 5s.; District 13 (per G3ST), £1 1s. 6d.; N. T. Warren, 2BLB, £2 2s.; A. J. Garnock Jones, G8TJ, £1; E. Shields, 2HCO, 5s. Receipts to date, £600 11s. 10d. Expenditure to date, £262 15s. 4d. Balance in hand as at October 31st, £437 16s. 6d.

OFFICIAL PERMIT.—The Permit Branch of the Postal and Telegraph Censorship Department (M.O.I.) has issued Censorship Prisoners of War Permit P.W.842 to the Society. Subject to defined conditions, including the requirements of other Government Departments, the Society is granted permission to despatch by post, books, games, sports equipment (other than clothing, boots and skis), cigarettes and tobacco, to British and Allied Prisoners of War and internees in enemy or enemy-occupied territory or in neutral countries.

This means that from now on Mr. C. H. L. Edwards (Hon. Organiser of the R.S.G.B. P.O.W. Fund) will be permitted to despatch any of the items indicated without passing them through the Red Cross Society or commercial concerns.

Official information has also been received to the effect that "at present there is no ban on second-hand books to prisoners of war in Italy, but all books of this nature whether destined for prisoners in Germany, Italy, or elsewhere, must be carefully examined for annotations or markings of any kind, as marked books cannot be accepted for forwarding."

In view of this ruling Mr. Edwards requests members who donate second-hand books, to examine them carefully and remove all annotations and markings.

For the guidance of those who desire to donate books we give below a list of subjects which are banned:—

- Books of a political or controversial character.
- Books giving suggestions of any kind of escape.
- Scouting books.
- Books by Jewish authors.
- Books giving directions for making mechanism for the transmission of messages, or directions for making invisible ink.

It will be seen that section (e) precludes the Society from sending *The Amateur Radio Handbook* to prisoners of war. The Society's Journal has already been banned for transmission to prisoners of war by the censorship authorities.

BRIGHT IDEAS.—Mr. J. Fairley, G2IX, of Leicester, organised an R.S.G.B. P.O.W. Fund whist drive at his home last month, and raised the sum of £2. This is the second occasion that Mr. Fairley and his family have arranged events on behalf of the Fund.

Mr. W. G. Hopcroft, GM4AN, writing from the "Victoria Tavern," Sincilairtown, Kirkcaldy, forwarded £1, representing as he explained, "the contents of our swear box. The more they swear the better we like it. The charge is one penny per word!"

SCOTS WHA HA! Mr. Hopcroft, followed up his "swear box" donation by sending a bottle of Johnnie Walker Black Label to be auctioned at the October North London meeting. No less than £8 10s. 0d. was raised, which amount has been put to the credit of the P.O.W. Fund. Mrs. Winsford, wife of G4DC, made the last bid.

## Any News

Sgt. Frank A. McBrinn (G14OB), 3rd Indian Div. Sigs., Malaya (last heard of in Singapore).

## BRITISH ISLES NOTES AND NEWS

## DISTRICT 1 (North Western)

D.R.: H. W. Stacey (G6CX), "Sandleas," Eddisbury Road, West Kirby, Cheshire. Hoylake 337.

AS there is little to report this month, the D.R. appeals to the T.R.'s for news by November 25, so that our contribution to the December issue shows an improvement.

Mr. Lucas, G2OI, who is now in the R. Sigs., feels that he cannot, in the circumstances, continue as T.R. for Manchester, and he has suggested the appointment of a successor. Will the members in that area please get together, and nominate someone who is prepared to act until Mr. Lucas returns? 2OI at one time submitted reports every month without fail and it cannot be possible that activity has entirely ceased! The meetings held in Manchester before the war were exceedingly well attended.

The only notes are from 2DVQ (Bolton) who reports that apart from meeting 2BTO, who was home on leave, and 4043, he has not been able to contact any of the locals. The usual monthly meeting will be held at his home, 32 Bromwich Street, Bolton, on 6th December, at 2.30 p.m. G6CX.

## DISTRICT 2 (North Eastern)

As Mr. A. O. Milne, G2MI, has now returned to London, District 2 is without a D.R. Until such time as a successor is appointed by Council, members living or serving in the District are asked to send reports to Mr. H. Beadle, GSUO, 13 Chandos Street, Keighley, who has offered to act as Scribe *pro tem*, or to Mr. E. Walker, G2LT, 11a Welwyn Close, Intake, Sheffield. (Ed.)

Congrats to 4412 on reaching the rank of Sgt. Mechanic. He recently had a personal QSO with GM6WL. At last news has been received of G3KF, now a Corporal at an R.A.F. station in the South. 6ZN is with the R. Sigs. How about some news, O.M.? SUO has had the pleasure of visits from 3HA, 3YF and 4MC. The latter, having had the experience of flying the Atlantic, is now back in W. 472 is becoming ambitious and has moved his shack from the foundations to the spare bedroom. He is determined to conquer the Morse code and has obtained some special records. G2LT has just completed a three stage audio amplifier and is now building a single stage pre-selector. He has recently been visited by G15HU, 4HT and 8IO. 4HT has now moved North.

Members of District 2 will wish to extend their sympathies to the parents of Tel. H. V. Prince, G3UF, who has been reported missing, presumed killed in action. GSUO.

## DISTRICT 3 (West Midlands)

D.R.: V. M. Desmond (G5VM), The Chestnuts, Hanley Castle, Works. Hanley Swan 41. Scribe: E. J. Wilson (2FDR), 48 Westbourne Road, Olton, Birmingham, 27.

Birmingham.—At a meeting of M.A.R.S. held on October 18, Inspector G. Brown (G5BJ) of the City of Birmingham Police Force, gave a very interesting lecture on V.H.F. receivers. G5BJ was responsible for the "Duplex" telephony control of the City of Birmingham Police which is now in full swing. Twenty members were present.

Stafford.—Mr. H. W. Mitchell is doing his best to get things going in Stafford and has already contacted a number of local members. He reports that K. R. Boot, 2FZ, is now in India, and that 4CN and 2YV are in Iran. Congrats to 2YV on his recent "Pip." Unfortunately E. Bailey, 2CQU, is now a P.O.W., Singapore. (Details to H.Q., please.—Ed.)

Coventry.—G2LU has recently left hospital after being laid low with a few hundred volts—or was it thousands?

The T.R. (Mr. Gardner, G5GR), sends greetings to all newly-eligible local members and invites them to communicate with him c/o Bungalow, Worcester Road, Windy Arbor, Kenilworth. The Scribe has received letters from L./Cpl. Lane, and L.A.C. Dodd, 4558, both of whom report meeting amateurs from other countries. 2FDR.

## DISTRICT 4 (East Midlands)

Deputy D.R.: W. M. Vendy (G6VD), 9 Cecilia Road, Clarendon Park, Leicester.

Leicester.—A meeting will be held on Friday, November 27, at G6VD, 9 Cecilia Road, Leicester, at 8 p.m., when a discussion will take place on the organisation of future activities. It is hoped that the members who have been "hiding their lamps" of late will make every effort to attend.

News is to hand from 3761, studying medicine in Glasgow, 2BAP now a Sgt. in the R.A.F. and 2HBG, still going strong in the M.E.

Nottingham.—In view of the considerable amount of apparatus being constructed in the area a competition has been arranged to take place at the December meeting, when prizes will be given for the three best efforts.

The October meeting was supported by ten members despite bad weather. The next meeting will be at 5385, 61 Abbey Street, Lenton, Notts., on November 22, at 8 p.m.

Mansfield and Northampton.—G8HX asks the Mansfield "gang" when on leave to let him know so he can arrange to meet them at the "usual place." From 8DS we learn that the "Round Letter" has died a natural death mainly due to the activities of Mr. Censor! 3PZ has unfortunately been posted to a station in the West Country and will be unable to continue the good work at Northampton. Are there any offers of a Deputy? G6VD.

## DISTRICT 5 (Western)

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

A welcome letter comes from G4LW, of Trowbridge, who is now serving with the R.A.F. in Palestine. He receives THE BULLETIN regularly and says this enables him to keep the spirit of the game alive. He has met ZC6HS who is anxious for news of Capt. Cole ZC6EC, (Col. Cole, ex-ZC6EC, SU1EC, etc. is now in England.—Ed.)

Mr. C. F. Eastwell, 5518, a new member living in Swindon would like to get in touch with other members in the vicinity with a view to arranging meetings. His address is, Chosen, Broad Hinton, near Swindon. (News of activity in that area would also be appreciated by the D.R.)

The usual Bristol meeting was held on October 25, but the attendance was small—not surprising in view of the atrocious weather. As these meetings are attended by so few, the D.R. and T.R. are wondering whether different arrangements can be made to produce more enthusiasm. Suggestions are welcome, especially from those who never put in an appearance. How about it? Next meeting at 17 Colston Avenue, Centre, Bristol, Sunday, November 22, at 3 p.m. G6RB.

## DISTRICT 7 (Southern)

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

Bournemouth.—2HAG and his brother, 4685, have volunteered, one for the R.A.F. and the other for the R. Sigs. 4MY has recently constructed a useful modulator-to-be. 2FSL has been on holiday. Congrats to 2947 on his examination success. (Via 2HNO.)

Croydon.—VE3KE, who was stationed in the District for some time, was married a few months ago. He visited the T.R. last month. 6KM is building a new super about which we hope to hear more shortly. 4458 has had to build a new power pack for his receiver. (Via 3003.)

Croydon.—The attendance at the October meeting held at 4NI's was the smallest for many months, only ten members and one prospective member being present. Those were 2DP, 5BT, 1545, 3003, 4324, 4458, 4584, 4641, 5332 and Mr. Mawby. The latter is welcomed to the Croydon area. 4NI is still looking for a pair of transformers for matching into a pair of 6A6's. Offers to 86 Whitehorse Road, West Croydon. 4NI had a visit from SU5KW who seeks a QRA in the Croydon area. 5BT is troubleshooting after changing the VP4B's to 6K7's in his super. (Via G2DP.)

Woking.—G8IX, reporting via Airgraph, says that he is not impressed by the "Mysterious East," although he had a fine time at Durban. He has met several hams and has VE3ATO as tent-mate. 6NB wants regular meetings in Woking but as the remaining membership totals just five the outlook is not too good. If there are any others who like the idea and would support the meetings please write 6NB, Dunnam, Nursery Close, Woking. 5WP had a nice 'phone QSO (1942 P.M.G. type 1) with SU5KW which had to be terminated after the sixth three minute raton. 8LT, on leave, looked remarkably well and quite at home behind a half of ale. G5WP.

## DISTRICT 8 (Home Counties)

Deputy D.R.: L. W. Jones (G5JO), 16 Leys Road, Cambridge. Tel.: Cambridge 3406.

The month has brought no reports from Cambridge members although G5BQ is believed to have been practising for a mock battle, and 2XV is still trying to add to his store of bits and pieces.

Luton appears to have one or two interested young amateurs who G3KG is credited with training; 5363 reports from Huntingdon that he is studying for exams. 3JU is settled at Sandy as a civilian Met. Officer. 6DX and 5371 are known to have been in the district. The Deputy D.R. is still prepared to organise a meeting or other function if sufficient members will indicate their wishes. He again appeals for notes and news. G5JO.

## DISTRICT 9 (East Anglia)

D.R.: H. W. Sadler (G2XS), The Warren Farm, South Wootton, Kings Lynn, Norfolk. Castle Rising 233.

Norwich.—G2MM reports a visit from 5IX and mentions that 5QO has been seen around the town. 2MN recently came across a car with a sticker which turned out to be owned by 2CN, of Welwyn: a short QSO was enjoyed. We hear that 5LW was one of those who got away from Tobruk; when last heard of he was having a good time and hoped to be home soon. 46GF who has had to change his QRA reports that the daughter of 2XA is serving as a Chief Wren W./T. under his Command.

Yarmouth.—Congrats to P. Harrison, 3463, now a sergeant. Mr. Buck reports that local meetings continue and that membership is increasing. Visits have been received from 5037 and 3789. 4991 has obtained a Comet Pro. 3766 now in the M.E. is enjoying life as a signaller.

Congrats to B. W. W. Oliver, G3XT, of Saxmundham, who was married on September 26, whilst on leave.

Kings Lynn.—G5UD is now stationed in South Wales after a R.M. course; L. A. Bradshaw has rejoined his unit and is in the Midlands. G2XS.



**DISTRICT II (North Wales)**

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

Prestatyn.—The usual monthly meeting took place at "Vale View" on October 25 when, despite a small attendance, a very interesting afternoon was spent. A V.H.F. discussion took place and Morse instruction was given by 3044. Thanks are due to 4762 and his family for kindly providing tea. The next meeting will be held at "Vale View" on Sunday, November 22, at 3 p.m., when a junk sale will take place and further Morse instruction will be

**Forthcoming Events**

- Nov. 21 District 15, 6.30 p.m., at BRS4684, 17 Woodstock Avenue, Lady Margaret Road (Greenford end), Southall. Buses 55, 211, 105 or bus 120 and trolley 607 to Southall (long walk).
- Nov. 22 District 5, 3 p.m., at 17 Colston Avenue, Centre, Bristol.
- Nov. 22 District 12, 3 p.m., at G6CL, 16 Ashridge Gardens, Palmers Green, N.13.
- Nov. 22 District 13, 3 p.m., at G2VB, 35 Grangecliffe Gardens, South Norwood Hill, S.E.25.
- Nov. 22 District 14, 3 p.m., at G8DG, 8 Bosgrove, The Ridgway, N. Chingford. (No. 38 bus.)
- Nov. 22 District 15 (High Wycombe Section), 2.30 p.m., at 2HFY, "Doramy," White Close, Plomer Hill, High Wycombe. (Any bus from H. W. going west to Downley Pitch.)
- Nov. 28 London Meeting, 2.30 p.m., at Institution of Electrical Engineers. Discussion, "V.H.F. Technicalities," opened by J. N. Walker (G5JU).
- Nov. 29 Scotland "A" District, 3 p.m., in Room 24, Royal Technical College, George Street, Glasgow. (Enter by Montrose Street.)
- Dec. 6 District 7 (Croydon area), 3 p.m., at G2DP, 6 Dunheved Close, Thornton Heath. (Near Pond.)
- Dec. 15 Scotland "A" District, 7.30 p.m., in Institute of Engineers and Shipbuilders, 39 Elmbank Crescent, Glasgow.
- Dec. 19 Annual General Meeting, 2 p.m., at Institution of Electrical Engineers, followed by lecture on "Frequency Modulation" by A. J. Bayliss, B.Sc. (G8PD).

given. Incidentally, a percentage of the proceeds of the sale will go to the R.S.G.B. P.O.W. Fund, so come along, chaps, dig out your milliammeters, oscilloscopes, Avominors, etc., and help the good cause.

Those present at the October meeting included G8QS, 2CSX, BRS1450, 2731, 3044, 4762 and Mr. King. The first mentioned (Sgt. Coker) is at present stationed in the District. 2HCZ (Bangor) has joined the R. Sigs. and is stationed near London, whilst BRS1060 is now at 14 S. of T.T., R.A.F., looking for ham contacts. If any members are there perhaps they will look him up in Hut 507. BRS1060.

**DISTRICT 12 (London North and Herts)**

D.R.: S. Buckingham (G5QF), 41 Brunswick Park Road, New Southgate, N.11. Enterprise 3112. Scribe: P. R. Solder (G5FA), 35 Torrington Gardens, New Southgate, N.11. Enterprise 4347.

The fifty-six members and their ladies who sat down to tea at "The Cock" Cockfosters, Herts, on Sunday, October 25, helped to establish the best attendance at a District meeting held in the London area since the outbreak of the war.

Local members, several of whom were making their first appearance at a District meeting for many months, were especially pleased to welcome representatives from other parts of the country, as well as Lts. Heyerdahl, LA6A, and Brynildsen, LA9N, from Norway. Among the Service members present were Major J. V. Warner, G2WR, Capt. S. Higson, GW2PH, F./Lt. T. R. Theakston, 2DBK, P./O. W. Thompson, 3425, L.A.C. R. L. Duthie, GM6IW, Sgt. Brock, G3FD, Cpl. P. Gourlay, GM3IO, and Sgm. P. Birt, 4147. The A.T.C. was represented by F./O. Ash, G6OV, F./O. McFarlane, G8SK, P./O. Howard, G8TY, P./O. Harris, 2BAB and Capt. Phillips (ex PXL). Mr. H. V. Wilkins, G6WN, who was accompanied by his wife, represented the West London District.

Following an informal rag-chew the "male element" settled down to solve—or attempt to solve—a "Radio Quiz" devised and presented by G6CL and G6OT. The 30 teasers certainly taxed the mental capacity of most participants who presumably had anticipated a nice quiet Sunday afternoon! Mr. R. T. Reed, G2RX, proved to be the "brightest lad" scoring 49 points out of a possible 75. Other prize winners were Mr. E. H. Laister, 3386, F./Lt. Theakston, 2DBK, Mr. P. W. Winsford, G4DC, Mr. R. W. Newham, G3SU, and Capt. Higson, GW2PH.

The ladies, not to be left out in the cold, were encouraged to

try their hand at an "Advertising Quiz" devised by Miss Gadsden. In this Mrs. Theakston proved to be the most adept at linking up such tags as "Have you the figure that men admire?" with the appropriate advertising concern! Mrs. Winsford, after "tossing for it" with three other ladies, was awarded second prize.

After a very enjoyable tea G6CL announced that Mr. W. G. Hopercroft, GM4AN, had sent along a bottle of "Black Label" to be auctioned on behalf of the P.O.W. Fund. By means of accumulative bids and amid great excitement the gift was finally acquired by Mrs. Winsford whose final bid of 10s. brought the "accumulator" up to the totally unexpected figure of £8 10s., which amount has since been placed to the credit of the P.O.W. Fund.

At the request of the D.R. G6CL thanked all those who had supported the event and on asking for a show of hands regarding a projected dinner sufficient evidence was forthcoming to indicate that such a function would be well supported. It has been tentatively arranged to hold this event at "The Cock" Cockfosters, on Monday, January 18, 1943—when the moon will again be full!

The next District meeting will take place on Sunday, November 22, at G6CL, 16 Ashridge Gardens, Palmers Green, N.13, at 3 p.m., when it is hoped that many newly elected members living in the District will "make their number."

Lt. Ellis, SU5KW-G5KW, recently visited the parents of Sgt. Shears, G8KW, of Barnet, who was serving with his unit in Egypt. Mr. Ellis records his thanks to Mr. and Mrs. Shears for the warm welcome they extended to him.

Congrats. to Collin Coates, G5CS, on the arrival of a junior op. G5QF

**DISTRICT 13 (London South)**

A.R.'s: (Southern Eastern and Central), S. E. Langley (G3ST), 62 Dumbarton Road, S.W.2, E. H. Simmonds (G8QH) 17 Roedean Crescent, Roehampton, S.W.15, Prospect 1990 (Western).

South Eastern and Central areas.—Sixteen members supported the October meeting when the advertised junk sale proved quite successful. The auctioneer's fee of 10s. was credited to the P.O.W. Fund, together with 11s. 6d. collected from members. A feature of the meeting was a short film display given by G4KV. Mrs. Langley and her assistant are thanked for providing refreshments.

G2VB recently visited the parents of the late Lt. Atthill, G8CV, who lost his life in a swimming accident whilst serving in the M.E. Mr. and Mrs. Atthill wish to thank all members who sent letters of sympathy and regret they were unable to reply to them all.

Mr. Shersby, G2GZ, who is now in H.M. Forces, sends greetings to old friends. We wish him luck in his new sphere of activity. G3ST.

**DISTRICT 15 (London West, Middlesex and Buckinghamshire)**

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

The High Wycombe Group again showed what it can do by producing an attendance of 16 at the October meeting. G4CY and his wife arrived from Reading and talked of being "gate crashers"! No ham is a "gate crasher" at a ham meeting. Others present were G2RL, 5XB, 6IF, 6JK, 4780, 4781, 4782, 5266, 5421 and 5423, also 2HFY, with two prospective new members and two members who did not leave their BRS numbers.

Following the example set the previous month by G5XB, we learn that G2RL, 6JK and BRS4781 have, or are, constructing "supers." Before the meeting terminated at 7 p.m. the sum of £1 11s. 6d. had been collected for the P.O.W. Fund.

Although the usual District meeting was not so well attended we were pleased to welcome 2DZD, 3811 and 4942, all in R.A.F. blue. Others present were G6WN, 2ADL, 4684, 5056 and 5533. Mr. and Mrs. Sherry (G6JK) and Mr. and Mrs. Jones (4684) are thanked for their hospitality and for providing refreshments.

Further meetings have been fixed for November.

Many members will be surprised to hear that "Dud" G6CJ, has undergone an operation for appendicitis. He has returned

**★ LONDON MEETING ★**

J. N. WALKER (G5JU) will open a discussion on

**V.H.F. Technicalities**

at a Meeting to be held on

**SATURDAY, NOV. 28th, 1942**

at

**The Institution of Electrical Engineers  
SAVOY PLACE, VICTORIA EMBANKMENT**

**COMMENCING AT 2.30 P.M.**

home and is making good progress towards full recovery. We send him our good wishes. G3GY, by airgraph, reports well and sends Christmas and New Year Greetings to all. He has seen 4AR but not 3XL.

We here in District 15 send Christmas and New Year Greetings to members everywhere abroad. G6WN.

### DISTRICT 16 (South Eastern)

Deputy D.R.: W. A. Scarr, M.A. (G2WS), 8 Beckenham Grove, Shortlands, Bromley, Kent. Beckenham 1131.

Fred Wingfield, G3CX (Heathfield) has returned from overseas and expects to be in the District for some time. W. R. East, 5548 (Welling), now in the Forces and stationed in Lincolnshire, sends best wishes to all members. 2HKU (Sheerness) and 4721 are learning Morse. The former has received news of 2BAJ (Gibraltar), G3GW (Canada) and 2DHV (on the high seas.)

G6CY sent his usual report concerning local members on active service (see K. and B.); 5344 is busy with receiver construction; 6RM is now a F./Lt. G2WS.

### DISTRICT 17 (Mid East)

D.R.: Dr. A. Gee (G2UK), "Stonehaven," Horncastle Road, Boston, Lincs.

Boston.—Congrats to 2BQC on his promotion to Sergeant. He reports meeting 2FFD of Horncastle, who is expecting to go overseas shortly. 2HBN is reported to be fit in the M.E. 2BUV, who has reached his destination safely, looks like having a white Christmas! 6LH now has some of his model aircraft flying nicely. 2UK is building a superb.

Grimby.—The D.R. was pleased to receive a visit from two old R.N.W.A.R. colleagues, 5MT and Mr. Smith, 5601, both of Grimby. The latter is a new member to whom we extend a hearty welcome.

Seaford.—4DV, who reports from Somerset that he is now in the R.A.F., sends best wishes to the locals.

Skewness.—A letter from C. E. Wilkinson, 4390, gives the news that he is now in the R.A.F. as a W.O.M. His sergeant is 3UP. Through reading THE BULLETIN in a NAAFI, he met 5PQ. He would like news of 5LL and 5CY. G2UK.

### DISTRICT 18 (East Yorkshire)

(As Mr. Mitchell, G5MV, has now ceased to be a member, notes should be addressed to Mr. S. Davidson, G6SO, 10 Sydney Street, Scarborough. It is hoped to make a new appointment at an early date.—Ed.)

Scarborough.—G6CP has been home on leave before proceeding to an advanced fighter base. 2DDA (also R.A.F.) is now back with his unit after being discharged from a convalescent depot. He recently visited G6SO.

G8KU (R.N.V.R.), a P.O.W. in Germany has been transferred to a new camp after a short stay in Stalag VIII B. His full address is Tel. P. B. Briscoe, B.P.O.W. 448, Feldpost, nr. 35465B, Germany. (This appears to be an entirely new type of address as no Stalag number is included.—Ed.) He reports fit and well and mentions that he is doing a job in the open air with not so much free time as at the last camp. There are good entertainments available in addition to a band. G6SO.

### DISTRICT 19 (North-Eastern)

D.R.: R. J. Bradley, G2FO, 36 Baby Road, Stockton-on-Tees.

Newcastle.—BR55257 was pleased to read news of 6VG and 6PB in our last notes. He reports that 5275 is with the R.A.F. somewhere in G. 5164 is in ZBI, 4470 is at the B.B.C. 5236 anxiously awaits results of his request to meet W's from Boston, Mass., and Cleveland, Ohio. 8IF who is in the Home Guard Ack Ack sends 73 to 6XO, 8KK and 8JO.

Durham.—BR53844 is studying electrical engineering but still finds time to service BCL receivers.

Stockton-on-Tees.—Hearty congrats and all best wishes to 6ZT on his recent marriage to Miss Boothman. G2FO.

## Scotland

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

"A" District.—The recently introduced mid-monthly meetings are being well supported. At the October meeting Sgt. Valchera, 5432, gave a most interesting talk on Impedance Matching and demonstrated a motor which he had designed and built. The Quiz is proving a popular feature at these meetings. At the meeting on Sunday, October 25, in the Royal Technical College, Mr. A. H. Mason, GM6MS, lectured on "Servicing Radio Receivers." He dealt with the subject in a broad manner and gave several practical hints gained during his long experience. The discussion which followed brought out many points of interest, chief of which was the difference between servicing receivers for pleasure and profit! Lt. Terry wound up the meeting with a most lucid explanation of the cold cathode rectifier.

GM4JO reports receiving a visit from W6RUP (Los Angeles), and mentions that VE3AVF has now left his unit. He recently, much to his astonishment, unearthed G2PB from among his staff and reports that the latter has now gained his third stripe. G2V has had a visit from 2KP who was home on leave from the M.N. Also on leave during the month was Don Duthie, 61W, paying his

first visit home after returning from the M.E. where he had been for some time past.

"C" District.—It is with pleasure that we record receipt of a letter from the D.O., Mr. T. Reay, GM3IX, who intends to circulate District members to find out what prospects there are of holding regular meetings. Mr. Reay will be pleased to refund postage, or supply stamped envelope labels, to any serving member of "C" District who would care to send him reports.

"H" District.—We welcome two new members, 5319 and 5320, and look forward to hearing from them. 6JJ now back again in Scotland reports having had news of G6SD, 6PA, GM5YX and 6JH. 6JJ hopes by this time to have contacted 2DVV, who is now a sergeant in the R.A.F. somewhere in Scotland. 2FQO has had a spot of illness, from which we trust he has now recovered. Will Mr. J. Robertson, of Glenfarg, please contact 2FQO. GM2NQ had the honour of officiating at "The First Most Northerly Hamfest in Scotland," which is reported elsewhere in this issue. The D.O. hopes to hear from some of the District members who so far, have been silent. He reports contacting F./O. R. Young VE3AB, through the medium of THE BULL.

Details of meetings will be found under "Forthcoming Events." GM6ZV.

## News from VK.

Two letters from Eric Trebilcock, BERS.195, who is now in Queensland and safely married to boot, bring news from the Australian war zone.

After reporting that his famous collection of QSL cards had to be left to the Japs, he mentions that he and many others owe their freedom and probably their lives to two R.A.A.F. officers, Ft./Lts. Grey, VK4LN, and Mather who piloted the rescuing flying boats into Salamana under the very noses of the Japanese. Both have received the A.F.C. in recognition of their splendid work.

He quotes a strange story from an Australian newspaper about the jungle fighting in New Guinea, a story which will thrill all those who remember the fascination of portable radio and field days. The story can be told because it discloses no information to the enemy. The Japs know all about it, to their bitter cost! It concerns "Golden Voice" the mystery radio transmitter which betrays every movement on one of the enemy's advanced aerodromes across the mountains from an Allied base.

Only the highest Allied staff officers know the identity or nationality of this voice, which uses a portable transmitter from the mountains. Daily, and sometimes at night, the voice comes over the air "Golden Voice calling! Six bombers and eight fighters are taking off!" Back at the advanced Allied base radio operators hear the warning and flash the news to the A.A. guns and fighter pilots.

Jap. patrols have been out after him for a long time, because they too can hear his transmissions but apparently he is too clever for them.

Said an A.A. gunner, "He's up in the mountains somewhere, and I reckon he's saved the lives of many of our fellows. He must be a fine bushman to move about as he does without being caught. Whoever he is, he's a real hero and deserves a medal. But most of the fellows just call him 'Golden Voice'."

We wonder if he will prove to be just another of those amateur chaps?

## 73.

G3CX (Dorrie Lodge, Heathfield, Sussex), to G3LK, NX, SS, 4FV, 5RO, YC, 6GO and 2FQZ.

G3WK (Milton), to G2XC, 3VZ, 4FA, 6NZ, 6YK, eLO.

G4HK (R.A.F., M.E.), to G3MR, 6KS, LN, SO, 2DRR and 2BKO.

G5BB (R.A.F. Bahamas), to G2AT, 5HS, VV, 6AU, QM and 8CY.

G6BK (Blackwood, Mon.), to G2JL, GW2NG, 3AJ, 5BI and all old friends now absent from District 10.

G8UO (13 Chandos Street, Keighley), to G3KB, 3TK, 5GJ, 6ZN and GM3TD.

GW4CC (Swansea), to G3XN, 4BW, GW3AX, XW, 5PH, 8HI, GM3UA.

8RS4046 (R. Sigs.), to G2CL, 2UX, 5BM, 5HN, 8TN, 2AUA and 2CIW.

2BKO (R.A.F.), to G2MN, 2OI, 4NO, 4HK, 2DRR and all old friends in Manchester.

## Thanks

P./O. Frank A. Robb, GI6TK, wishes to thank G2UJ, 5MV, 3IV and 5CU for their hospitality during his visit to "G" in August.

**Changes of Permanent Address  
should be notified to  
Headquarters immediately.**

## HEADQUARTERS CALLING

### September Council Meeting

*Resume of the Minutes of a Council Meeting held at the Institution of Electrical Engineers on Monday, September 14, 1942, at 6 p.m.*  
**Present.**—Messrs. A. D. Gay (President), A. E. Watts, H. A. M. Clark, G. A. Jessup, S. K. Lewer, W. H. Matthews, W. A. Scarr, E. H. Simmonds, A. J. H. Watson and J. Clarricoats (General Secretary).

An apology was received from Mr. J. W. Mathews who was absent on Service duties.

1. One hundred and fifty-seven applications for membership were accepted. Twenty-seven applicants submitted references while the remainder were sponsored by Corporate members.

2. It was reported that the balance in hand of the Prisoners of War Fund amounted to £279 (Receipts £423, Expenditure £144).

3. After discussing the Prisoners of War Fund and its method of application, it was finally agreed to call a special meeting of Council to consider the matter further.

4. Mr. Scarr gave a comprehensive report on the investigations which he had carried out on behalf of Council regarding existing radio syllabuses. Council thanked Mr. Scarr for his very useful report.

5. Nominations for the 1943 Council were adopted.

6. As no further information had been received regarding a suggestion to establish a meeting place in Central London for the benefit of visiting amateurs, it was agreed to defer the matter *sine die*.

### I.E.E. Meetings

An attendance of about 45 was recorded at the October meeting when Mr. T. R. Theakston, B.Sc., 2DBK, gave a most informative talk on the application of mathematics to radio problems. The subject was dealt with in five sections: Arithmetic, including Logs; Algebra; Geometry, including mensuration and graphs; Trigonometry and Calculus.

Many valuable hints and short cuts were described and useful advice given on the preparation of dynamic curves. The lucid explanations and easy style adopted by the lecturer were much appreciated features of the talk.

The Chair was taken by Mr. H. A. M. Clark (Hon. Treasurer) who apologised for the absence of the President and Vice President both of whom were detained by pressure of private business.

Dr. George Bloomfield moved a vote of thanks to the lecturer, which was carried with acclamation.

The next meeting will be held at the Institution of Electrical Engineers, on Saturday, November 28, at 2.30 p.m., when Mr. J. N. Walker, G5JU, will open a discussion on V.H.F. technicalities.

### Handbook and Supplement

Permission having been granted by the Paper Controller for paper to be made available, reprints of the *Handbook* and *Supplement* are now in hand. Supplies are expected to become available late in November. In the meantime, members are reminded that both publications are available in cloth bindings at the following prices: *Handbook* 6s. 6d. post free, *Supplement* 5s. post free. If ordered together the two books will be despatched post free for 10s. 6d.

### Merchant Service Records

Members serving with the Merchant Navy are asked to forward brief personal details so that a complete record can be established at Headquarters. Previous requests have met with very little response.

The following information is requested:—

Name.  
 Call sign (or B.R.S.).  
 Details of Appointment or Rank.

### Cadet Organisations

Members who are serving as officers or instructors with Sea or Army Cadet organisations are invited to forward details to Headquarters.

### "Radio" Changes Hands.

We are advised by Mr. K. V. R. Lansingh (until recently the publisher of *Radio*) that his publication has been sold to Radio Magazines Inc., 132 West 43rd Street, New York City, a new firm composed of the former Editor and Advertising Manager. Until such time as the new publishers notify us of their subscription rates no further orders for this publication can be accepted by Headquarters.

### Radio Quiz

One of the features of the successful North London social gathering held at The Cock, Cockfosters, on October 25, was a Radio Quiz devised by G6CL and G6OT.

The Quiz is now available to D.R.'s and others who may care to test it out on "innocent victims" at local meetings. Application should be made to Headquarters stating the date by which it is required. Members who borrow the Quiz are urged to keep the cards clean.

### Side-Slips

Two draughting errors occurred in our last issue. In Fig. 2 of Mr. Coates article entitled *The Current Feed Back Amplifier* the screen and suppressor grid were shown reversed.

In Fig. 5 of Mr. Pollock's article *Vibrator-Operated Power Supply Units*, the condenser shown connected to one side of the primary winding should have been connected across the full winding. A connection should have been shown between the centre tap of the primary and the junction of filter tap and lower condenser.

### A Christmas Offer

Here is a special offer for those who wish to send a present to members on active service.

- (1) Cloth bound *Handbook*.
- (2) Cloth bound *Supplement*.
- (3) Packet of R.S.G.B. Notepaper.
- (4) Rubber stamp of Emblem.
- (5) Kilocycles-Metres Conversion Booklet.

The five items for 17s. 6d. post free.

### Annual Meeting of City of Belfast Y.M.C.A. Radio Club (G16YM)

At the annual meeting of the above club held in September, the following officers were elected for the coming year:—

**President**, Mr. J. Nickle (2HCC). **Vice-Presidents**, Messrs. A. T. Kennedy (G13KN) and J. Gallagher (2CIZ). **Hon. Sec.**, Mr. R. S. Holden (G15HU). **Hon. Treasurer**, Mr. F. A. Robb (G16TK). **Chairman**, Mr. R. Watson (G18GK). **Vice-Chairman and Librarian**, Mr. T. Linton (BR83883). **Committee**, Messrs. F. Morrison, S. Black (G13IA), Dickson, and Carmichael (2CHJ).

The chair at the meeting was taken by Lt. Ramsden, G6BR, who welcomed many visitors from the U.S. including W2BCU, 2GXC, 2IQU, 2MWA, 3FBO, 4HEV, 4WD, 5FSI, 5FTW, 60YD, 6TFC, and 8WVS. VE5ZM who was unable to attend sent his apologies.

A special QSL card is to be printed for distribution to visitors to the Club.

### The Radio Brains Trust Replies

We publish below a further selection of replies given by members of the Radio Brains Trust at its first session on May 30, 1942.

Q.: *What is a Wilson Cloud chamber?* (Submitted by R. C. Harris, 2BAB).

It has been shown by C. J. R. Wilson that if dust-free air, saturated with water vapour, be cooled by expansion to 25 per cent. greater than its original volume, water will condense upon any negative ions or charged particles which may be present, thus making these visible. The Wilson cloud chamber makes use of this effect to show the path of X-rays or like high speed particles, which as they traverse moist air liberate negatively charged ions, upon which droplets of moisture condense. These can be counted or photographed, and the effects of the rays thus studied.

Q.: *What is a Radio altimeter?* (Submitted by Mr. Brown of London.)

The radio altimeter was in use by American aircraft in 1939, being often described by the title of "terrain clearance indicator," on account of its ability to show height above ground rather than height above sea level, as in the older type of barometric altimeter. The apparatus makes use of the radio equivalent of echo depth sounding. A small radio transmitter carried on the aircraft, radiates a V.H.F. beam downwards. This is reflected at the surface of the ground below, and the resulting "echo" is recorded on a receiving system also on the aircraft. A cathode-ray tube is employed to indicate the time taken for the reflected wave to return, and since the speed of a radio wave is known, this time interval measures the distance which it has travelled, or twice the height of the aircraft. It is claimed that the system is capable of high accuracy, and will show the presence of such objects as trees or large buildings above which a plane is passing.

### Howlers from Hams

A Corporal Mechanic just down from one of those very "hush hush" stations, was discussing aerials—"We didn't have standing waves on our aerials."

A W.O. Sigs. testing a 1,000 cycle oscillator: "Tune it in on the receiver and let's see what it sounds like."

An E.C.O. for 1.2 Mc. was under construction and some difficulty had been experienced in obtaining the right value of capacity for a "High C" circuit. The S.S.O. was asked for suggestions. "Let's try this .0001; if we start on a high frequency we can work down!"

It is rumoured that a number of R.A.F. keys have been ruined because a Wireless Mech. told the operators to press harder when they complained to him that their signals were reported weak.

(Next please.)



## NEW MEMBERS

## Home Corporates

- H. N. D. BAILEY (G5BP), 163 Newland Park, Hull.  
 S. R. DEARDS (G5FA), 35 Marlborough Road, Bedford.  
 A. J. PARRY (G5XP), 15 Sandon Road, Walton, Liverpool.  
 W. B. BROWN (G6QY), 35 North End Avenue, Portsmouth.  
 T. E. ROWLEY (G6TC), 29 Leason Lane, The Scotlands, Wolverhampton.  
 H. J. KING (2AIP), 48 Mount View Road, London, E.4.  
 L. CHAPPELL (2AZI), Saranac, Cloughside, Disley, Cheshire.  
 F. A. ORMEROD (2CMO), 128 Leigh Road, Westhoughton, Lancs.  
 G. W. HILL (2DRQ), 135 Birchfield Road, Widnes.  
 N. GLASS (2FFM), 79 Emmanuel Road, London, S.W.12.  
 E. J. CASEY (2FMX), 14 Arbutnot Road, London, S.E.14.  
 R. S. ASHLEY (2HII), 28 Charnock Ave., Wollaton Park, Nottingham.

A CORDIAL WELCOME IS EXTENDED TO THE

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NEW MEMBERS WHOSE NAMES ARE LISTED

## Home Corporates (B.R.S.)

- R. E. M. CARPENTER (5535), 120 Hedge Lane, London, N.13.  
 G. L. DAVIES (5536), 1 Hillside Avenue, Wallasey, Cheshire.  
 H. W. G. THOMAS (5537), 11 Home Drive, Yeovil, Somerset.  
 J. DUNLOP (5538), 41 High Glencairn Street, Kilmarnock.  
 G. H. YORK (5539), Stoneleigh, Digby, Lincoln.  
 V. G. R. RIGBY (5540), 6 The Parade, Central Ave., West Molesey.  
 W. J. INMAN (5541), 189 High St., Harborne, Birmingham 17.  
 A. SWIRE (5542), 2 Mowbray Avenue, Sedgley Park, Prestwich.  
 J. H. HARWOOD (5543), c/o "Grafton," Bishopwood Road, Prestatyn.  
 L. KINLEYSIDES (5544), 86 Thompson Street W., Darlington.  
 L. L. CHANDLER (5545), 46 Worcester Road, Sutton, Surrey.  
 J. A. LEES (5546), 26 Selby Road, West Bridgford, Nottingham.  
 P. J. HOTCHKIS (5547), 5 Anderson Drive, Denny, Stirlingshire.  
 W. R. EAST (5548), 116 Park View Road, Welling, Kent.  
 S. TAIT (5549), 45 Alderman Place, Knightswood, Glasgow, W.3.  
 C. H. CHAPMAN (5550), 32 Rose Hill Road, Ashton-u-Lyne.  
 W. S. CUTTS (5551), 90 Poppleton Road, London, E.11.  
 M. N. HUCKLE (5552), 67 Burnt Ash Lane, Bromley, Kent.  
 J. S. ALLAN (5553), Invergarry, N. Hermitage, Shrewsbury.  
 J. H. SHARP (5554), 19 Pentire Avenue, Southampton.  
 Mrs. E. M. ROBBINS (5555), Kewar, Belle Vue Road, Henley-on-Thames.  
 T. M. EMERY (5556), 14 Hamilton Road, Bangor, County Down.  
 T. J. MONTGOMERY (5557), 28 Wandsworth Parade, Belmont, Belfast.  
 H. GRANT (5558), 1 Gibson Street, Tunstall, Stoke-on-Trent.  
 K. A. SCOTT (5559), 121 Penny Lane, Liverpool, 15.  
 F. SUTCLIFFE (5560), 53 Henrietta Street, Ashton-u-Lyne.  
 W. A. COLEMAN (5561), The Anchorage, Granat, Prestatyn.  
 W. A. BENT (5562), 8 Riverway, Stafford.  
 W. C. ARNOLD (5563), 1668 Bristol Rd., S. Rednal, Birmingham.  
 F. A. O. REED (5564), 13 Kilravock Street, London, W.10.  
 A. HILL (5565), Greenfoot Lane, Barnsley.  
 W. L. LEWIS (5566), 70 Wolverhampton Rd., Birmingham, 32.  
 A. McCALL (5567), 18 Dean Street, Kilmarnock.  
 H. MOOREHEAD (5568), 1 Watts St., Chadderton, Lancs.  
 B. MAPLEY (5569), 4 Hyde Terrace, Pimlico, Hemel Hempstead.  
 A. J. POLLEY (5570), 59 Meeting House Lane, London, S.E.15.  
 W. D. DAY (5571), 427 Ferndale Road, Swindon.  
 T. H. WALL (5572), 20 Stapleford Lane, Toton, Beeston.  
 H. R. GERMAIN (5573), 49 Lichfield Road, Sutton Coldfield.  
 R. A. KING (5574), 22 Horn Park Lane, London, S.E.12.  
 N. G. HOLLOWELL (5575), 2 New Wellington Place, Gt. Yarmouth.  
 A. H. CHADWICK (5576), Old Hall Farm, Fulbeck, Nr. Grantham.  
 J. A. NICHOLS (5577), School Street, Woodford Halse, Rugby.  
 W. T. McDOWALL (5578), 15 Ruthven Avenue, Giffnock.  
 L. DOWNS (5579), 54 Alfred Street, Weston-s-Mare.  
 D. W. MOULT (5580), 15 Meadow Road, Beeston.  
 SGT. H. A. RICHARDSON (5581), R.A.F.  
 P. JOYCE (5582), 16 Ebberton Terrace, Leeds, 6.  
 J. Y. SHILL (5583), 13 Blandford Avenue, Whitton, Middlesex.  
 M. CARTER (5584), 28 Mayfair Ave., Urston, Manchester.  
 H. W. HOSKINS (5585), Heatherdale, Meddins Lne, Kinvor, Staffs.  
 A. C. STRADMAN (5586), Bradda, Chellaston Rd., Shelton Lock, Derby.  
 R. J. BALDRESON (5587), 40 Cranbrook Road, Hounslow, Middx.  
 G. I. PETRIE (5588), 3 Cameron Drive, Bearsden, Glasgow.  
 C. C. REECE (5589), c/o 32 St. Brides Road, Wallasey.  
 C. LANCASTER (5590), Beamsley, Moor Lane, Aaddingham, Yorks.  
 W. E. FRIST (5591), 8, Bernard, Burntwood, Lichfield.  
 F. STATION (5592), Red Gables, Green Hill, High Wycombe.  
 L. J. COBE (5593), 25 St. Mary's Street, Stanmore, Winchester.  
 J. J. HENDERSON (5594), 2 Berclands Rd. Prestwick, Ayrshire.  
 J. H. ETHERINGTON (5595), 8 Rose Walk, Newhaven.  
 J. E. STONHAM (5596), 15 Eynsford Road, Greenhithe.  
 T. A. BURROWS (5597), 54 Raglan Street, Liverpool, 19.  
 SIG. B. H. OTLEY (5598), R. Sigs.  
 2/Lt. B. H. TOWNSEND (5599), R. Sigs.  
 J. WADDETON (5600), 337 North Road, Darlington.  
 F. W. SMITH (5601), 10 Henage Road, Grimsby.

- T. W. HICKINBOTTOM (5602), 5 Warneford Place, Moreton-in-Marsh, Glos.  
 J. W. LAWLER (5603), 93 Thornton Lodge Road, Huddersfield.  
 A. B. CARDEN (5604), 76 Fitzroy Road, Tankerton, Kent.  
 K. G. CHAPMAN (5605), 292 Gwendolen Road, Leicester.  
 S. FIFE (5606), 8 Bellefield Terrace, Orpington.  
 E. J. KING (5607), 32 Mansford Street, London, E.2.  
 H. ADAMS (5608), 6 Ariel Street, Weaste, Salford, 5.  
 J. E. BOWDEN (5609), 26 Green Acres Rd., King's Norton, Birmingham.  
 J. R. COOK (5610), 108 Strathairn Street, Roath Park, Cardiff.  
 K. E. CARLING (5611), 24 Orchard Close, Hales Place, Canterbury.  
 M. McE. CHARLISH (5612), 19 Cambridge Road, West Bridgford, Notts.  
 L. B. PESTELOW (5613), Wellington Rd., Finedon, Wellingboro.  
 R. A. WHITEHEAD (5614), 103 Ashton Road, Hall Green, Birmingham.  
 M. D. LOGAN (5615), Woodcroft, Porthsmouth Road, Esher.  
 P. L. CLARKE (5616), 69 Springfield Street, Birmingham, 18.  
 G. H. TEDDER (5617), 7 Granard Road, London, S.W.12.  
 W. E. COX (5618), Elsted, Freiston Road, Boston.  
 F. J. DERHAM (5619), 107, Ripon Road, Winton, Bournemouth.  
 CPL. P. GOUGH (5620), R.A.F.  
 R. B. SAYERS (5621), 52 Blenheim Crescent, S. Croydon.  
 L. H. BOWER (5622), 14 Clements Lane, Portland, Dorset.  
 G. WILLIAMS (5623), 3 Circular Drive, Lache Lane, Chester.  
 S. F. HAYES (5624), 155 Welbeck Road, Carlshalt.  
 A. H. WRIGHT (5625), 19 Amersham Road, London, S.E.14.  
 J. H. OWENS (5626), 10 Halkirk Road, Liverpool, 18.  
 K. G. PARISH (5627), 4 Warren Avenue, Richmond, Surrey.  
 B. ROGERS (5628), 8 Skipton Road, Salsden, Keighley.  
 L. J. GREEN (5629), 46 Pine Tree Avenue, Humberstone, Leicester.  
 R. E. A. LUND (5630), 7 Murray Road, London, W.5.

## Dominion and Foreign

- A. A. SOUTHALL (VESOR), c/o "Oaklands," Mountain Road, Caerphilly.  
 2/Lt. J. R. WINE (WSWGT), U.S. Army.  
 J. W. STANTON (W9PSP), 7321 South Shore Drive, Chicago.  
 C. DABYING (BERS505), 11 Mannington Rd., Deane, Bolton.  
 CPL. R. G. BISHOP (BERS506), R.A.F.

## Associate.

- E. J. GALWEY 180 Broomwood Road, London, S.W.11.

## AIR TRAINING CORPS

## Fourth List

THE following members are serving as officers in the R.A.F.V.R. (Training Branch) or as A.T.C. Instructors. Additions or corrections to this list or previous lists should be communicated to Headquarters.

Squadron No. and Name	Name	Call or BRS
— Bradford Wing	F./O. C. Sharp*	G6KU†
80 Bolton	P./O. W. B. Bennett*	2BDA†
173 Orpington	P./O. E. F. Gadsden*	4690†
282 East Ham	F./O. H. Lassman*	G2PX†
324 S. Shields	J. G. Carlson	Ex-G6GC-44
306 Runcorn	P./O. S. Palmer*	88IZ†
457 Farnborough	P./O. E. H. Jones*	G3CJ
488 Carshalton	W. D. Gilmour	G2VB
506 K. Williams Coll. (Isle-of-Man)	R. C. Bennison	4569
1183 Stranraer	P./O. A. D. Lamb*	GM2UU
1227	F./O. W. C. Pond*	G8WO
1259 Kilburn	S. J. D. Taylor	5296
1262 Blackburn	R. Holmes	G6RH
1419 Shaw (Lancs.)	P. F. Cundy	G2MQ
1437 Alton	J. Goodlad	G5LT
1830 Clacton	F./Lt. D. W. Heightman*	G6DH
1842 Leeds	P./O. A. S. Gosling*	G2VC

\* Commissioned R.A.F.V.R. (Training Branch).

† Previously listed as A.T.C. Instructor.

## CORRECTIONS

List 1.—F./O. H. Lassman has transferred from High Wycombe to East Ham.

List 3.—Mr. F. R. Joyce is an A.T.C. Instructor with Swadlincote Squadron, not Burton-on-Trent.

## Answers to Correspondents

MOMMA (Tooting).—No dear, an A.C.H. is not quite the same as an A.V.M. although they are both classed as airmen.

A./P.O. SNITCH (Oxford).—It is probable that your A.O.C. may object if you wear very wide rings on your sleeves.

A.C.2 NEWCOME (Blackpool).—The officer you saw with gold furnishings around his cap was not a Class Leader.

"BRISTOL WOOD."—Yes, it is against the rules for a W.A.A.F. to smile when she salutes you.

## Stray

Mr. J. Simpson, G4JS, who recently left Darwin, Lancs, at very short notice, is now living at 12 Perth Street, Edinburgh, at which address he would like to receive letters from old friends.

## FREQUENCY MEASUREMENT—(Continued from page 69)

Briefly the reasons are:—

1. International agreements specify certain tolerances for broadcast station carrier frequencies. Transmitter drives are becoming more and more stable and, as crowding of the available wavebands increases or other reasons arise which call for shared-frequencies, transmitters themselves must be kept very stable indeed and must be very closely adjusted, if listeners are to derive good service over reasonable areas. Before the war, the B.B.C. 1,149 kc/s. (261 metres) National Programme, and individual transmitters sharing this National common-wave, had to be very closely adjusted. Obviously, the Measurement Service must try to keep one jump ahead of the transmitters, just as the inspector's weights must be more accurate than the average shopkeeper's.

2. The prestige of known accurate measuring equipment will add weight to a complaint made to a foreign Administration regarding interference.

3. It is convenient—and less costly—to centralise all needful R.F. measuring equipment at one place, where measurements can be made of home and foreign short and long wave transmitters. Centralisation also allows for measurement to be made when transmitter-drive circuits are developed or tests made with crystal oscillators, temperature control systems and so forth.

Other, more purely scientific reasons can be included. Observations of short-wave Doppler-effect, of transmitter intermodulation products and such-like matters, often need accurate measurements within better limits than 1 part in  $10^7$  in order to provide information of real use.

## MORSE INSTRUCTION

### IMPORTANT NOTICE

Owing to the limited space available for our announcement this month, please see advertisements on

**COVER III. SEPTEMBER ISSUE**  
**PAGE 64 OCTOBER ISSUE**

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The Candler System Co., Denver, Colorado, U.S.A.

## EXCHANGE AND MART.

### Advertisement Rates

MEMBERS' private advertisements 2d. per word, minimum 3s. TRADE advertisements 4d. per word, minimum 6s. 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, Worksop.

COMMUNICATION Receiver, A.C. 220volts required. Must be in good condition.—Box No. 366, Gordon House, Farringdon Street, E.C.4.

SALE.—High fidelity 14-watt Audio Amplifier by Sound Sales. Dual Input Mike and Gram., gain controls. Circuit MSP4-MHL4 feeding pair PX25's in push-pull. Current balance adjustment (2 milliammeters), output transformer 6,000 ohm load. Built-in Power Pack, 200-250v. A.C. A magnificent job, very little used, in steel cabinet, 10 x 13 x 18 ins., black crackle finish, chromium handles and grille. Weight approx. 60lb. Permit required. Apply ARNOTT, Yew Tree House, Cheadle, Staffs.

SALE.—Premier Receiver, new; 1.76-25 Mc/s., 77, 6K7G, 6V6G, 6Z5. Bandspread, phone jack, speaker switch, etc. No cabinet, makers' data, etc., £8 8s.—F. LUCAS, Fivehead, Taunton.

SALE.—Weston, Ferranti M/C Meters. Stamp for list. Two standard 4096AB CR Tubes, Ediswan AH ditto; Baird Incendiary Bomb Detector (unused), offers. Details on request. Wanted: General Radio 650A Impedance Bridge, reasonable price.—COOK, BR82006, Grove House, Drove Road, Swindon.

WANTED.—Good quality A.C. Gram. Motor, also one each 6D6, 6C6, 43, 25Z5, 12A7 Valves.—E. MARTIN, G4BT, Boyles Court, Brentwood.

WANTED.—250volt. 25/30 Cycle Transformers, output 250-750volts; also 6.3 and 5volts. Make and price.—Sgt. JOHNSON (G8NS), Berkley House, Langwith Junction, Mansfield.

### PATENTS AND TRADE MARKS

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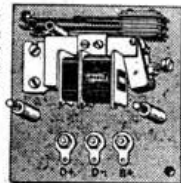
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