THE T&R

# BULLETIN

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# RADIO EXPERIMENTERS

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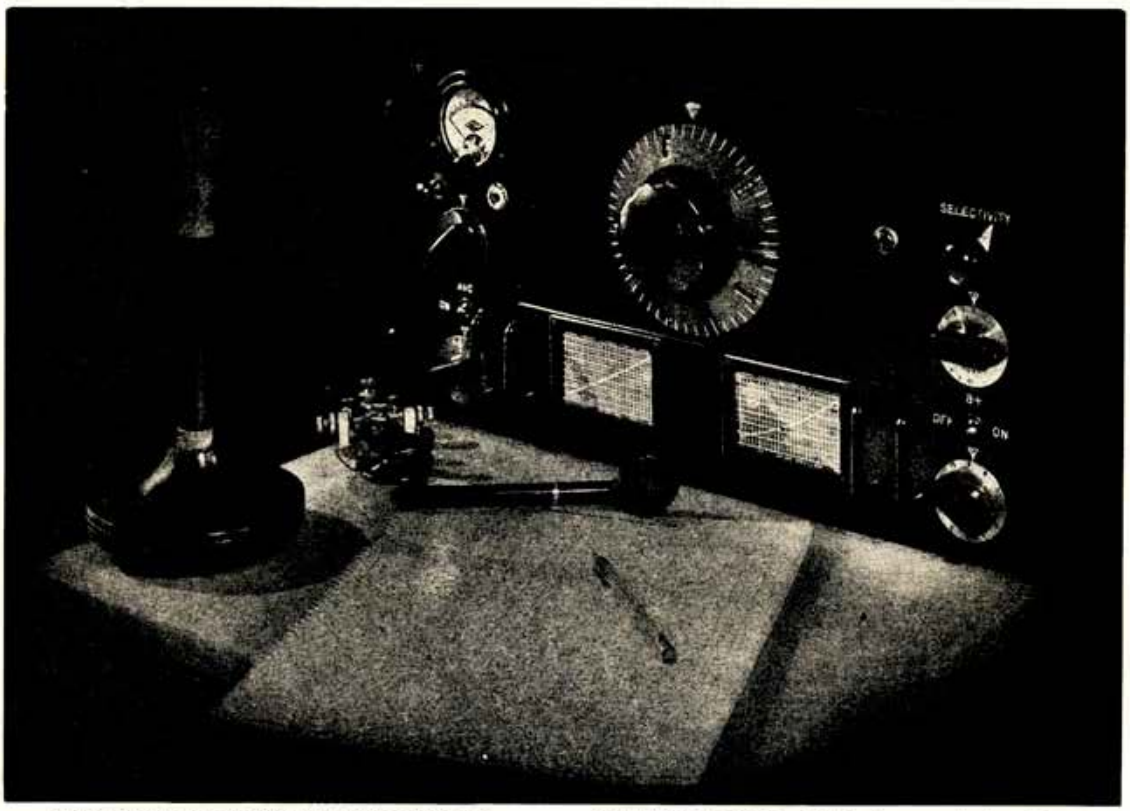

# THE T. & R. BULLETIN

OFFICIAL JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

DEVOTED TO THE SCIENCE AND ADVANCEMENT OF AMATEUR RADIO

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## THE LITTLE MORE HOW MUCH IT IS

HOW many members are to-day on active service? The answer, according to our records, is over 1,500, of which number probably one-third are abroad. Unfortunately a small proportion will take no further *active* part in winning the war, for the simple reason that they are now languishing, as prisoners of war, in Germany or Italy. For reasons, which are sound, it is not possible for us to send them this Journal, but in lieu thereof we can, and will, send them, with *your* help, a parcel at regular intervals. Food is banned but there are many other things which will bring a little comfort and cheer to our pals, who, for the moment, are "out of it."

For the past three months we have referred to our Prisoners of War Fund. During October the Fund leaped ahead, thanks to some very generous contributions from individuals and groups of members. It was with special pleasure that we read one letter which accompanied a donation of ten shillings.

> "*Four of us meet every second Saturday night and last night was the night.* THE BULL. *had but recently arrived, and we were discussing its contents over a quiet drink at the local, when somebody suddenly said 'what about sending a donation to the Prisoners of War Fund'? Well I never saw four half-crowns appear quicker in all my life, and here they are. Please put the donation down to the Whitehaven gang.*"

Whitehaven—a "dead" part of the country in a ham *sense*, but not so dead when it comes to Ham *Spirit*.

Then too at a certain London District meeting the same question was asked. In a brace of shakes thirty good boblets came forth to swell the total. At that meeting we were delighted to welcome two well known Norwegian amateurs who had recently escaped from the Nazi yoke. How quick *they* were to respond to the call to contribute.

The list of donations, published on another page, shows that the £30 mark has already been reached, but let us not be content. We plan to send a parcel at least once a quarter, but if the response comes, and we *know* it will, then it will be a monthly parcel throughout the New Year.

Christmas is near at hand—may we suggest that you divert just a little of your "spending money" to a cause which typifies all that is best in Ham Radio?

Those ham pals of ours who are in prison camps—"Shack" and Babcock, Lister and Garnett, Cunningham and Webb, Carr and Richardson, Quartermaine and Flower, Frost and Blair, Kay and Barry—and all others, will, when the time comes, thank *you* for remembering them.

Dig down deep.

J. C.

# A 4-VALVE BAND-SWITCHING RECEIVER FOR A.C. MAINS

By S. K. LEWER, B.Sc. (G6LJ).

*Selector switches in tandem, and the use of a ganged condenser with both large and small sections, are novel features incorporated in the design of this receiver, which gives complete coverage from 100 kc/s. to 26 Mc/s. with a directly calibrated dial.*

## Introduction

IT is probably true to say that before transmitting activities were brought to a close, the average amateur devoted considerably less attention to the art of reception than to the more exciting practice of transmission. This recalls the suggestion that the transmitting amateur's motto should be "It is more blessed to give than to receive"! However, at the beginning of the war the author, in common with so many others who were obliged to dismantle their transmitters, experienced an increasing interest in reception in its wider aspects, not limited in character to the amateur bands but extending to broadcast and commercial transmissions. The receivers in use up to that time were not suitable for general work of this kind, the bands being limited to the usual amateur channels and the band-spread being unnecessarily great.

## Specification

Accordingly a receiver was designed to serve as a stand-by set, having complete frequency coverage over as wide a frequency range as could be achieved, with the components in hand. This proved to be 0·150 Mc/s. to 26 Mc/s. (approximately 2,000 to 12 metres), and was effected in seven ranges.

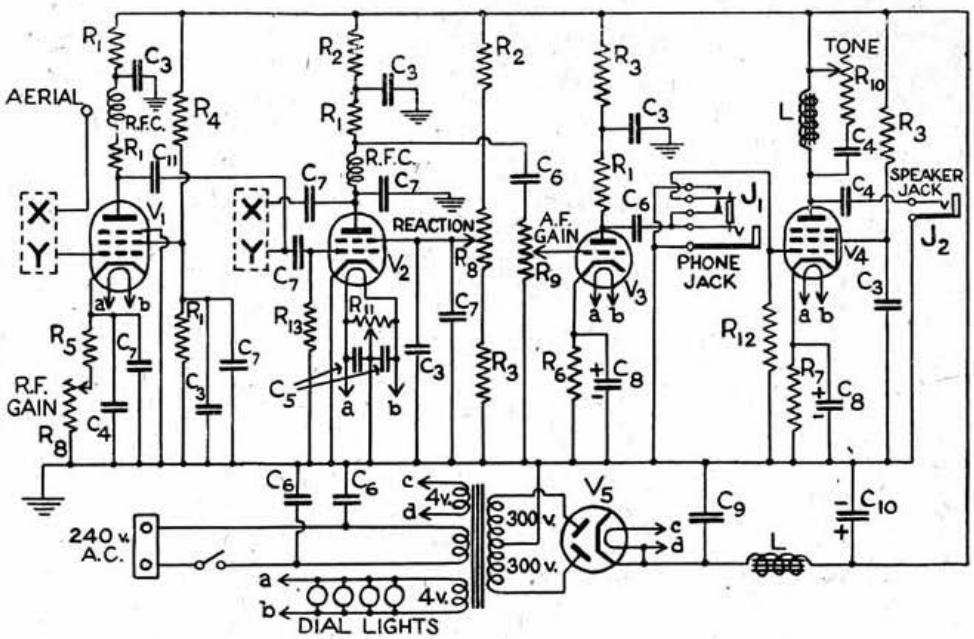



Fig. 1.

Circuit diagram of the complete receiver, excluding the tuning circuits. Each pair of leads marked XY connects to a tuning system as shown in Fig. 3.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $C_1$ | 1 μF paper | $C_8$ | 50 μF 50v. electrolytic | $R_3$ | 10,000 ohms 2 watt | $R_9$ | 500,000 ohms variable |
| $C_2$ | ·01 μF paper | $C_9$ | 4 μF 400v. test | $R_4$ | 35,000 ohms 2 watt | $R_{10}$ | 10,000 ohms variable |
| $C_{3,5}$ | ·001 μF paper | $C_{10}$ | 8 μF 550v. electrolytic | $R_5$ | 200 ohms ½ watt | $R_{11}$ | 200 ohms variable |
| $C_4$ | ·01 μF paper | $C_{11}$ | 5 μμF ceramic | $R_6$ | 600 ohms ½ watt | $R_{12}$ | ·1 megohm |
| $C_6$ | ·002 μF mica | $R_1$ | 50,000 ohms 2 watt | $R_7$ | 300 ohms ½ watt | $R_{13}$ | 2 megohms |
| $C_7$ | ·0001 μF mica | $R_2$ | 20,000 ohms 2 watt | $R_8$ | 50,000 ohms variable | | |

L 10-20 henrys V1—VMP4G V2—MS4B V3—MH4/K V4—MPT4/K V5—MU14

Many amateurs will regard the failure to include the 28 Mc/s. band as a serious drawback, but in the author's opinion, the uncertainty of that band, associated with the restriction to mere reception, removed the attraction that it formerly held and whatever interest might be considered to remain was not to be regarded as sufficient justification for trying to cover another 4 Mc/s. or so.

The frequency coverage in an ideal receiver should be uniform in each band, but this is very difficult to achieve in a simple receiver. An approximation to this ideal is effected by using smaller variable tuning capacities for the higher frequency ranges than for the lower ones. The actual coverage is given in Table I.

With seven bands to be covered, it was considered that coil-switching was much more satisfactory than plug-in coils, notwithstanding possibly greater losses in the switching method.

Since the receiver might be out of use for long periods, battery supply was considered unsuitable, and therefore the set was designed for mains operation (A.C. 50 c.p.s.).

A straight circuit was decided upon in the interests of simplicity in designing the tuning circuits, since in a stand-by receiver there would be no need for the high selectivity and sensitivity of the super-heterodyne. Second-channel interference and images do not appear, of course, in a straight set, and this is a point of real importance when it is desired to ascertain the true frequency of any station without delay. An R.F. stage was considered to be absolutely essential in order to achieve a reasonably reliable frequency calibration.

TABLE I.

| Band | Frequency Range |
|---|---|
| A | 26—16 Mc. |
| B | 16—9·6 Mc. |
| C | 9·6—5·6 Mc. |
| D | 6·0—2·0 Mc. |
| E | 2·2—0·7 Mc. |
| F | 0·9—0·3 Mc. |
| G | *0·3—0·1 Mc. |

* *Calculated: coils not yet available for this range.*

TABLE II.

| Range | Grid Coils | | | Coupled Coils | | Gap between Coils (inches) |
|---|---|---|---|---|---|---|
| | Diameter (inches) | Number of Turns | Wire (s.w.g.) | Number of Turns | Wire (s.w.g.) | |
| A | $\frac{3}{4}$ | 5 | 26 | 3 | 26 | $\frac{1}{8}$ |
| B | $\frac{3}{4}$ | 9 | 26 | 5 | 26 | $\frac{1}{8}$ |
| C | $\frac{3}{4}$ | 18 | 26 | 6 | 26 | $\frac{1}{8}$ |
| D | 1 | 20 | 34 | 9 | 34 | $\frac{1}{16}$ |
| E | 1 | 72 | 34 | 15 | 34 | $\frac{1}{16}$ |
| F | $1\frac{1}{4}$ | 170 | 34 | 20 | 34 | $\frac{1}{16}$ |
| G | The coils for this range had not been constructed at the time of writing. | | | | | |

Coil Specifications.

In each case, the coupled coil is wound on the same former as the grid coil. The inner ends of the pairs of coils are connected together and to earth. The coils are mounted so as to avoid unwanted coupling effects as far as possible without introducing unnecessarily long leads.

## Circuit

Turning to the circuit arrangement in detail, as shown in Fig. 1, it will be seen that the R.F. valve $V_1$ is a variable-mu pentode (VMP4G), which is choke-capacity coupled to a self-oscillating tetrode detector (MS4B). This is resistance-capacity coupled to a triode A.F. amplifier (MH4), which serves to feed the telephones when plugged into the jack $J_1$. For loudspeaker operation, the telephone plug is removed from its jack, thereby connecting the A.F. drive to the output pentode $V_4$ (MPT4). The loud-speaker is plugged in at the jack $J_2$. The power supply is quite conventional and uses a valve rectifier $V_5$ (MU14). "Catkins" were used for the two A.F. stages, simply because they had been lying idle in the junk box, but their glass counter-parts could equally well be used.

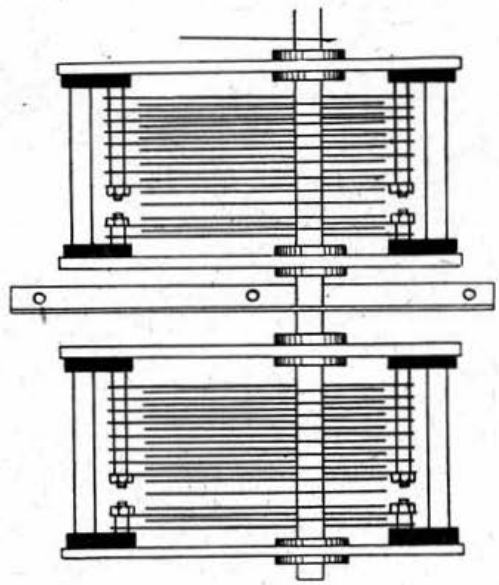


Fig. 2.

The converted two-gang condenser, showing the division of each original set of fixed vanes into a large section of eight vanes and a small section of two vanes.

## Tuning Circuits

The tuning circuits are arranged, as already mentioned, so as to utilise a smaller range of capacity variation for the higher frequency ranges. A two-gang condenser (2 × 0·0005 μF.) was converted into a four-gang condenser (2 × 0·00035 μF. + 2 × 0·00009 μF.) for this purpose, each of the original sections being divided into one large and one small section. This was achieved by cutting the supporting

rods carrying the 12 fixed vanes and re-assembling with the divided rods carrying 8 and 2 fixed vanes respectively. Both of the original two sections were treated in this way. Fig. 2 is a sketch of the re-constructed condenser.

The coil-switching circuit is rather unusual in that two banks of switches are connected in tandem. Fig. 3 shows the complete arrangement of coil-switching and condenser connections for the R.F. and detector circuits. In each case, the selector arm $S_1$ is connected to the smaller capacity and connects directly with the first three high-frequency range coils $L_1$, $L_2$, $L_3$ and $L_8$, $L_9$, $L_{10}$ (frequency ranges A, B, C). When the selector arm $S_1$ connects with the fourth stud, it brings into circuit the larger capacity section which remains in circuit together with the smaller capacity section while any of the coils $L_4$, $L_5$, $L_6$, $L_7$ or $L_{11}$, $L_{12}$, $L_{13}$, $L_{14}$, connected through the selector arm $S_2$, are being used. These coils correspond to the lower frequency ranges D, E, F, G.

In order to avoid absorption effects by coils not in use but unavoidably coupled to those in circuit, further switch sections are arranged to short-circuit the coils corresponding to the next lower frequency range to the one actually in use. These switches are $S_3$ and $S_4$ in Fig. 3.

The detector stage has an inductively-coupled reaction circuit, while the R.F. stage has an inductively-coupled aerial coil. These sets of coils are selected by the further switch sections $S_5$ and $S_6$. No short-circuiting is required for these coils since they are coupled to other coils which are themselves short-circuited whenever necessary.

In all, therefore, the switching arrangement comprises two sets of switches (R.F. and detector), each set containing three groups (grid coil, shorting connection, coupled coil), each group being made up of two four-way switches. In other words, two switch assemblies are required, each being 2-bank, 3-pole, 4-way. The arrangement of the switch sections is shown diagrammatically in Fig. 4.

The coil specifications are given in Table II, but it should be remembered that the frequency covered with any particular coil depends on the range of tuning capacity and it is unlikely that the stated frequency ranges will be obtained unless a strict equivalent of the modified tuning condenser is used. With other types of condenser, the table should be considered only as a rough guide to the coil sizes.

### Circuit Components

The remainder of the circuit does not require detailed explanation as it is quite orthodox. A 10,000 ohm variable resistance in series with a 0·01 μF. condenser connected across the pentode output choke provides an adjustable top cut in the speaker output. The R.F. chokes in the anode circuits of the R.F. and detector stages should be of good design, capable of operating effectively over

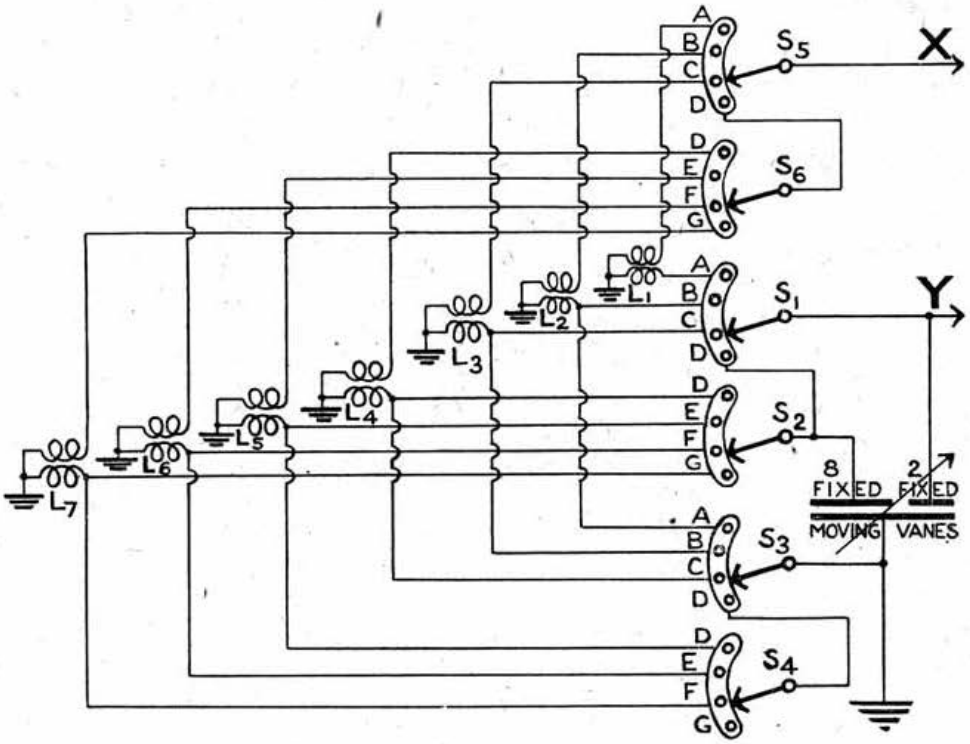


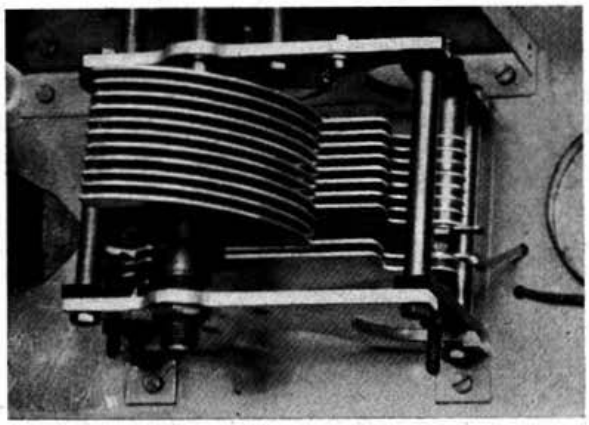

Fig. 3.

Complete arrangement of coil switching and special condenser connections for the R.F. and detector circuits. In the R.F. stage, X connects to the aerial, while in the detector stage, X is the reaction lead.

the whole frequency range from 100 kc/s. to 26 Mc/s. and should preferably be dissimilar in construction so as to reduce unwanted coupling effects that might exist.

The reaction control $R_8$ should be of high quality and free from scratchiness or any form of irregularity since any imperfection will result in noise or unreliability. With the particular components specified the adjustment of the reaction control does not cause the beat frequency to move rapidly out of audibility as it is moved beyond the oscillation point, although, of course, there is a small shift of frequency as the reaction control is varied. There are few conditions more irritating than a reaction control which tries to take charge of the tuning.

The heater potentiometer is not essential in the author's receiver, but it is wise to include it as a precaution against hum due to the heater currents. In the assembly, the potentiometer and the two by-pass condensers should be mounted close to the detector valve socket.



Close-up view of the converted two-gang condenser.

Careful attention should be paid to the wiring of the telephone jack $J_2$. It serves to connect the grid of the output valve to earth when the telephones are plugged in so that the loudspeaker is then silent.

## Power Supply

No special precautions were found to be necessary in the power supply. The filter consists of the usual 10 H. or 20 H. choke and an 8 μF. electrolytic condenser following the 4 μF. reservoir condenser. When the design of the set was being worked out on paper, considerable apprehension was felt as to the desirability of mounting the power supply components on the same chassis as the R.F. and detector stages. There seemed to be a widespread opinion that if this type of construction were adopted, it would be almost impossible to avoid mains ripple when the detector was adjusted to the verge of oscillation. Such a condition, of course, completely prevents the attainment of the full sensitivity of a regenerative detector.

Experience subsequently showed, however, that no such deleterious effects were introduced by the inclusion of the power supply on the same chassis. Even on the highest frequency range the verge of oscillation is free from ripple.

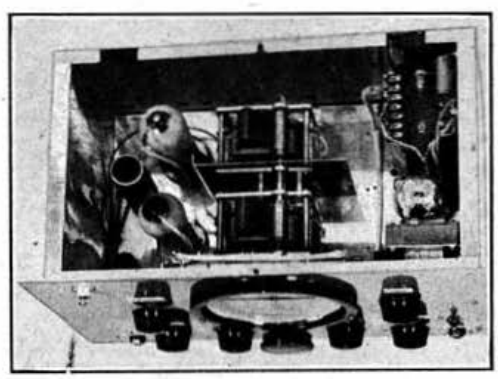
## Construction

A somewhat unusual form of construction was adopted for the chassis, if it can be so called. Aluminium sheets of suitable size were available for the panel and the deck, and the back and top, but not for the sides and the base cover. For the latter sections, therefore, wood covered with metal foil on the inside face was used. The outside dimensions of the set are: length 15 in. depth 9 in., height above the deck 6½ in., and 3½ in. below the deck, making 10 in. overall height. There was some difficulty in packing all the small components into the space below the deck without introducing long leads, and another inch or so in height below the deck would have greatly improved the accessibility.

Ample ventilation is provided by several ¼-in. diameter holes in the back (just above the deck level) and in the top. The top, back and base cover were not fitted until the assembly had been completed.

All leads carrying R.F. currents must, of course, be kept as short as possible. The smaller coils can be mounted by thick wires directly on the switch lugs, but the larger coils require some form of support to prevent them swinging. In fixing the coils in position, the high-frequency coils are fitted first so as to ensure the shortest leads for the highest frequency and also to ensure that the space is used to the best advantage. Paxolin tubes are used for the coil formers.

In a receiver having complete frequency coverage a really good tuning dial is essential. In this case, a circular dial with a double-ended pointer was used. It has a built-in fast-and-slow drive, the slow drive operating over nearly one complete revolution of the control knob, and outside those limits the same knob operates the fast drive. In practice this has proved to be very convenient, as the two ratios of 6 : 1 and 36 : 1 are well suited to the frequency coverage on the several bands. Four 6·3v. 0·3a. pea-lamps mounted on the drive frame serve to illuminate the dial from the rear. The lamps are run from the 4v. heater supply, thereby ensuring long life.



Plan view of the 4-valve all-wave straight receiver.

**Operation**

The set has been found very convenient to handle, especially for quickly looking round to see what activity exists on the various bands. Its sensitivity

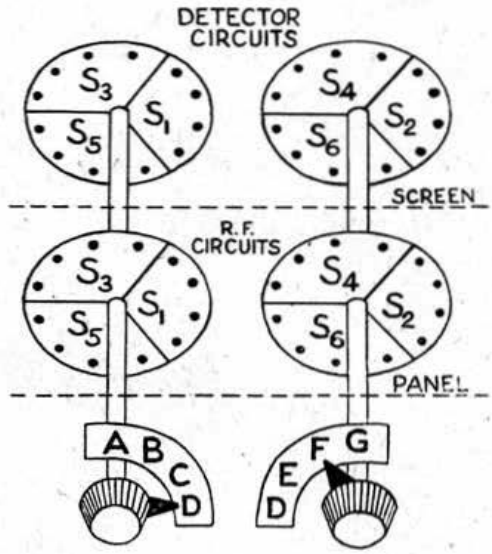
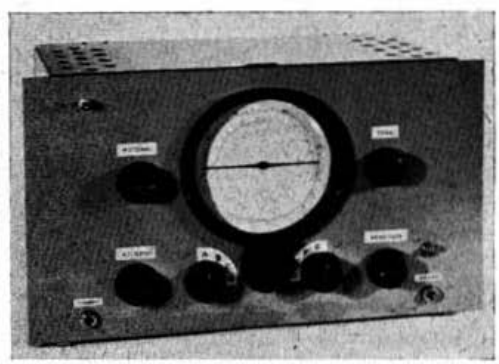



Fig. 4.
Arrangement of the switch sections.
For Range A, B or C, $P_2$ must be set to D.
For Range E, F or G, $P_1$ must be set to D.
For Range D, $P_1$ and $P_2$ must be set to D.

is not particularly high in comparison with present-day standards, but is adequate for all requirements except the reception of the weakest signals. Selectivity is of a reasonably high order unless the R.F.



Front view of the completed receiver. All controls are clearly indicated.

gain control is set very near its maximum. In most cases, the R.F. gain can be reduced in order to avoid cross-modulation, while an increase in the A.F. gain will bring the signal up to the desired level again.

# MATHEMATICS FOR THE RADIO AMATEUR

By T. R. THEAKSTON, B.Sc. (2DBK).*

## SECOND SERIES—PART V. GRAPHS

BEFORE proceeding to the study of the theory of Alternating Current, and looking still further ahead to an introduction to the Calculus, it will be necessary to have a knowledge of two common methods which are used to represent variable quantities. These methods, to be explained now, are (1) graphical representation ; (2) vectorial representation.

Frequently two different variable quantities are so related that an alteration in one produces an alteration in the other.

This is so, to take an everyday example, with the selling price of an article as compared with the rate of profit per cent. Here there is a mathematical basis which gives a corresponding price for a certain percentage profit. The different values possible for each variable can be shown by a tabulated list of percentages with the corresponding price for each. In other words, a ready-reckoner system will present the information which a trader may require.

A different type of variability, obeying no mathematical rule, is that given in the very common table of readings of temperature, at a certain place, on the different days of the month. Here, again, such information can be preserved for reference or record, by making a tabulated list of days of the month with the corresponding temperature for each day.

Such tabulated lists of data are of value ; but, often of greater value, is a *graph* which presents the same information in picture form. This graphical representation may give a clearer and quicker exposition of the facts.

Just as the position of a point on a floor may be indicated precisely by giving the distances of the point from two walls, and just as the position of a point on the earth is given by its distance from the two standard lines of reference (the Equator and the Greenwich Meridian) so the position of a point on paper is defined by its distances from two fixed lines.

### Definitions

*Graph.*—A graph is a line, straight or curved, which represents the relation between two variable quantities.

The quantities may vary independently ; as for example when the graph is meant to present, in picture form, statistics ; or one quantity may be a *dependent variable, i.e.*, having a value which depends on the value of the other varying quantity, as for example when the graph represents a mathematical equation or formula.

Whichever type the graph may be, it usually enables one to draw further inferences about the relationship between the variables.

It must be noted that when the treatment of the subject becomes more mathematical, the word "curve" will be used to denote the graph, whether the actual line is straight or curved.

*Axes.*—The axes are the two lines of reference, mutually perpendicular, forming four quadrants. (cf. Page 51, Part II, Second Series.)

* *"Westwood," Heslington Lane, Fulford, York.*

Thus in Fig. 7, these axes of reference are $XOX_1$ and $YOY_1$.

The horizontal axis, $XOX_1$, is "the axis of x."

The vertical axis, YOY, is "the axis of y."

*Origin.*—The origin is the point of intersection, O, of the axes, and is the point from which all distances are measured.

*Abscissa (plural-abscissæ).*—The abscissa of a point is its distance, from the origin, along the axis of x, or parallel to that direction, *i.e.*, the "x" value for the point.

*Ordinate.*—The ordinate of a point is its distance, from the origin, along the axis of y, or parallel to that direction, *i.e.*, the "y" value for the point.

*Co-ordinates.*—These two distances together, which are *both necessary and sufficient* to fix the position of the point, are termed the co-ordinates of the point.

*Examples:—*

(1) Consider the point P in Fig. 7.

The distance of P from O, in the direction parallel to OX (or $\perp$ OY) = x.

$\therefore$ abscissa of P = x.

The distance of P from O, in the direction parallel to OY (or $\perp$ OX) = y.

$\therefore$ ordinate of P = y.

The co-ordinates of P, and therefore its position, are expressed by saying

P is the point (x, y).

This general case shows, that in writing down the co-ordinates of a point, the "x value" is given first within the bracket.

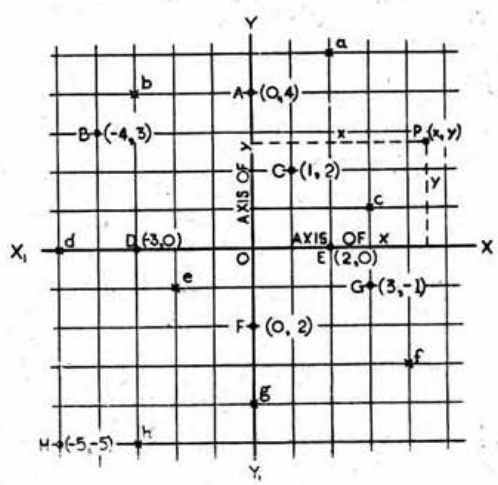



**Fig. 7.**

**The position of any point is determined by giving its co-ordinates with reference to the two axes $XOX_1$ and $YOY_1$.**

(2) The point C in Fig. 7 is where
abscissa (= x value) = 1.
ordinate (= y value) = 2.
∴ C is the point (1, 2).
(3) For point A,
its distance from O in the direction of x axis = O;
hence abscissa = O; ordinate = 4.
∴ A is the point (O, 4).
(4) Suppose the point (2, O) is required.
The co-ordinates tell us
abscissa of the point = 2;
ordinate of the point = O, *i.e.*, the point must be on the axis of x.
Hence E is the required point (2, O).

## Negative Quantities

In the familiar everyday graphs, all the quantities are, as a rule, positive, and therefore the graph is in the first quadrant only.

In the more mathematical type, such as a graph giving (1) the square root of numbers, (2) the values of sin θ for various values of θ, or (3) the solution of algebraic equations, negative values of each of the two variables are required.

These negative values are treated by adopting the same convention as the one described, when, in Trigonometry, it was necessary to consider angles of any magnitude.

This is, that in Fig. 7, values of x
to the right of $YOY_1$, are positive.
to the left of $YOY_1$, are negative.
Values of y,
above $XOX_1$, are positive.
below $XOX_1$, are negative.

*Examples :—*

(1) Point G in Fig. 7, is where
x = + 3, y = − 1.
∴ G is the point (3, − 1).
(2) Point F is where
x = O, y = − 2).
∴ F is the point (O, − 2).
(3) If a value of one variable, x, = − 3 made the other variable, y, = O, it is necessary to plot the point (− 3, O).
The point (− 3, O) is at D in Fig. 7.
(4) If y = 3 when x = − 4, the required point is (− 4, 3) = point B.
(5) If x = − 5 when y = − 5, the required point (− 5, − 5) = point H.

## Plotting Statistical Graphs

This type of graph, that in which the two variables have no inherent relationship, *i.e.*, where one variable is not a function of the other, is easily constructed.

*Units.*—Since the two variables are independent, and in different measures (*i.e.*, days °C; imports, months; skip distance, hours) the units on the graph for the ordinates—either of the quantities—are different from those for the abscissæ.

The units for each variable should be stated always.

*Scales.*—The scales, which again may be different, should be selected so as to have all the requisite values in the paper space available, and yet to be as large as possible. This ensures that the salient points of the graph are readily apparent.

The scales for each variable should be indicated always.

*Plotting.*—Squared paper is clearly required. The decimal type is the best. Of this there are two kinds. One is divided into tenths of an inch, with every half-inch line bolder. The other is in centimetres with subdivisions into millimetres.

The method of plotting hardly requires any elaboration. It can be summarised as :—

(1) Determine the *range* of values of each variable.
(2) Considering the space available, in conjunction with (1), fix the two scales.
(3) Draw the axes, and plot the points, marking the intersection of each abscissa with its corresponding ordinate, with a small circle or cross.
(4) Join up the points thus obtained, *in the order of plotting*, *i.e.*, in the order of the ordinates.

A point with regard to step (4) must be borne in mind. Since the two quantities which are being plotted have, in this type of graph, no definite interrelationship, the curve obtained will not be a smooth or continuous one. It will be a number of straight lines between succeeding points.

Further, interpolation, that is the determining of values intermediate between those given in the data, is not possible with any degree of accuracy. A *probable* intermediate value could, perhaps, be stated.

*Example :—*

The following readings of an R meter were obtained on signals from a certain country, at intervals of 2 hours, throughout a certain day :—

| Hours G.M.T. | 00 | 02 | 04 | 06 | 08 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. Strength R. points | 4 | 5 | 7 | 99 | 8 | 6 | 1 | 0 | 0 | 1 | 1 | 2 | 2 |

These figures do not, as they stand, present a very clear cut picture. They are, then, to be represented graphically.

The range, for time, = 24 hours. 30 squares are available horizontally, which comfortably allows 1 square for 1 hour.

The range, for strength, = 10 R points, counting R 99 as R 10, and if 25 squares are available vertically, this allows 2 squares for 1 R point.

The values for Time are marked out on the x axis.

The values for R are marked out on the y axis.

T = O, R = 4 gives the point (0, 4), *i.e.*, 4 units along the y axis.

T = 2, R = 5 gives the point (2, 5), *i.e.*, the point where the vertical line at x = 2 meets the horizontal line at y = 5.

And so, similarly, the points (4, 7), (6, 10), . . . (24, 2) are marked and joined by straight lines.

So Fig. 8 is obtained.

*Notes :—*

(1) It must be understood that although R = 8 at 08.00 hours, and R = 6 at 10.00 hours, and hence graph appears to show that MP = R strength at 09.00 hours, *i.e.*, = 7, this is not necessarily so. The probability is, however, by looking at the general trend of the graph, that R was approximately 7 at that time.

(2) The value of this graph is, in itself, not great. If the same procedure were adopted on several

successive days, a comparison of the several graphs obtained would probably afford a basis for some general and interesting conclusion. Even though specific values would vary from graph to graph, the general "shapes" might conform, and thus demonstrate some truth. It is presumed that if this hypothetical case became a reality, it would owe its inception to the search for some fact which only a number of observations could show.

### Mathematical Functions

*Function.*—If two variable quantities, x and y, are connected so that $y = 7x + 3$, we can say that

y is a function of x.

This means that the value of the variable, y, depends upon the value assumed by x.

E.g., if $y = 7x + 3$

when $x = 0$, $y = 7 \times 0 + 3 = 3$.

$x = 1$, $y = 7 \times 1 + 3 = 10$

x is here called the *independent variable*,

y is called the *dependent variable*,

and we can express this idea of functionality by writing $y = f(x)$

which means exactly what has been stated, *i.e.*, "y is a function of x," which again means, "y depends for its value on the value of x."

Note that f (x) does *not* mean $f \times x$.

Again, if $y = 3x^2 + 6x + 2$, there is again the dependence of the value of y upon the value of x.

When $x = 0$ $y = 3 \times 0^2 + 6 \times 0 + 2 = 2$.

$x = 1$, $y = 3 \times 1^2 + 6 \times 1 + 2 = 11$

etc., and so here, too,

$y = f(x)$.

If $x = \sin \theta$, clearly x has a value which is entirely fixed by that of $\theta$.

When $\theta = 0°$, $x = \sin 0 = 0$

$\theta = 45°$, $x = \sin 45 = \sqrt{2}/2$

$\theta = 60°$, $x = \sin 60 = \sqrt{3}/2$

etc., and we can write

$x = f(\theta)$.

### Tabular Representation of Functional Values

If it is required to exhibit the different values the two variables assume it can be done as follows :—

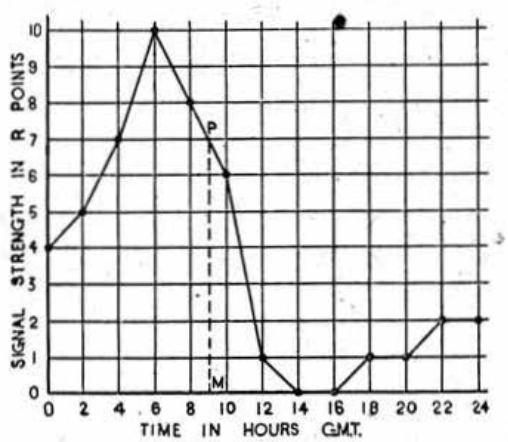



**Fig. 8.**

**A graph of statistics—the variation in signal strength with the time of day.**

Suppose $y = x^2$, then

when $x = -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3$

$y = x^2 = \quad 9 \quad 4 \quad 1 \quad 0 \quad 1 \quad 4 \quad 9$

This is quite clear; but what additional information have we? We are told nothing about *the rate of change* of y, and the idea of rate of change becomes of increasing importance as we proceed in mathematics (and in electrical theory). Then, too, we cannot tell, from these figures, what is the value of y when $x = 2 \cdot 5$. (Clearly arithmetically this is an extremely simple problem, but the example, too, is a simple one.)

By representing the changes in the two variables graphically, we are enabled to obtain much additional information, as will be shown subsequently.

As an aid in utilising the results of experimental work, graphs are also of immense importance.

To take a simple illustration :—

Suppose that, knowing nothing about the actual relation which holds between the time of swing (T/seconds), of a pendulum and its length (L), an experimenter obtained the following figures by varying the length.

| Length in ins. | 6 | 9 | 12 | 18 | 24 | 30 | 36 |
|---|---|---|---|---|---|---|---|
| Time for 100 swings. | 78 | 96 | 111 | 136 | 157 | 175 | 192 |

As written here there is no clear connection between the two variables. However, on graphing the values of Time against those of Length, with units of time along the x axis, and units of length along the y axis, the points would be found to be (within the limits of experimental error) on a smooth curve. Further this curve would be of exactly the same type as that obtained by graphing $y = x^2$. In other words, L must be a function of $T^2$, and can be denoted by $L = KT^2$, where K is a constant.

Then from the graph, the value of K can be found; and, to give one more example of the possibility in the graph, the length of the pendulum which would have a period of vibration equal to 1 second, can be found directly.

Hence a graph can have two distinct uses :—

(1) It can represent, in a useful manner, the variations of a function; and solve equations.

(2) It can interpret experimental results, and probably give the basic law which is responsible for the results obtained.

### Plotting Functional Values

The method is the same as that given previously.

(1) The tabulated data give the range of values for each variable.

(2) The units and scales are fixed. Note that when the graph is of an algebraic function such as $y = 3x^2 + 6x$, the units are numbers only.

(3) The intersection of each abscissa (horizontal distance from the origin) with the corresponding ordinate (vertical distance from the origin) is marked.

(4) The resulting points are joined by a smooth curve, which will be continuous. Note that the curve, instead of passing through all the plotted points, may require to be drawn in a mean position in order to retain its smooth contour.

The next article will be devoted to the consideration of four important types of functional curves.

(*Continued on page* 188).

# EXPERIMENTAL SECTION

## Rewinding Transformers

WITH the calling up of many Servicing Engineers there is an ever-growing demand for radio amateurs who are able to repair and service B.C. receivers. One difficulty which frequently crops up in this connection concerns burnt out mains transformers. Many amateurs fight shy of attempting to effect rewinds, although it is really a very simple matter. Further with the help of a slide rule or a little simple longhand arithmetic it is possible to redesign existing transformers. This is especially useful when changing over from British to American valves or *vice versa* for it is much more satisfactory to rewind the filament winding of a transformer than to use high voltage tappings and series resistors.

## Apparatus Required

The apparatus required is:—

1. A coil winding machine, which may range from an ordinary hand drill, held in a vice horizontally, to a motor-driven machine. A handy type of winder was described in the September 1941 issue of this Journal.
2. A continuity tester, such as a battery and flash lamp bulb.
3. An A.C. voltmeter, with ranges approximately 0–6, 0–250 and 0–500 volts.

## Sectional Windings

Many transformers now on the market are constructed with sectional windings and in such cases a replacement is very easy. If one of the original windings is burnt out it is usually possible to detect it because the outside tape will be scorched. The first task is to unscrew the bolts holding the core, as a preliminary to extracting the laminations. To remove the first lamination it will be necessary to bend it out with a screwdriver and grip it with the pliers. It is immaterial whether the first one or two are mutilated as in all probability there will be several over after reassembling. The reason for this is that the average amateur is seldom able to get the core as tight as the original manufacturer. After the first lamination has been removed the remainder will follow easily. A careful note should however be made of their combination so that they can be replaced in the same way.

Having extracted the laminations from one end, the sections of the winding can be removed. The next procedure is to identify them. The primary usually has thicker wire than the secondary although not as thick as the filament windings. There is also one lead for the " common " and three, or possibly more, leads coming out close together for the taps. If the primary winding has become shorted it will often be found that the defect is between the winding itself and one of the tapping leads which are brought through the winding. This fault may be patched up without a complete rewind, if the winding is not too badly burnt.

If the former is completely burnt out and beyond repair a satisfactory replacement can be made by using strips of sticky paper wound onto a suitably shaped mandrel. Alternatively the former may be made up from cardboard and stuck with sticky paper at the edges. With all these home-made formers, however, two layers of empire cloth should be put on before the winding in order to insulate it from the core. A varnish dip is also an extra safeguard. Home-made formers should be made about $\frac{1}{32}$" smaller in width than the original as they fill out with the winding.

The main H.T. secondary is of very small wire and has three leads, the two end leads being the same colour and in most cases different from the centre tap. If a resistance check is made, remember that the two halves will not be equal owing to the mean diameter of the outer half being greater than that of the inner half.

The insulation for both primary and H.T. secondary should be chosen very carefully and, if there is room, a layer of empire cloth should be placed on the former, up the flanges and over the top of the winding.

The filament windings may be a separate section or may be wound on top of or underneath the other windings. These usually consist of about 20 turns, and are very easy to rewind.

## Layer Windings

In the case of layer wound transformers (*i.e.* where the secondary is wound on top of the primary and the filament windings on top of the secondary) there is sometimes included an earth shield between primary and secondary. This should be taken out carefully as it can be used again. The shield lead is usually brought out separately. These transformers are more difficult to wind than sectional types, in fact it is necessary to completely rewind all the windings when the primary is faulty.

When investigating a layer wound transformer which has a short circuit between turns, the faulty winding can usually be traced with the help of a voltmeter in the following manner: If the secondary is below rating it is probably that winding which is faulty, but when the primary is shorted between turns the " volts per turn " go up and the secondary volts are therefore above rating. If the transformer is left switched-on in this condition there is danger of the secondary burning out as well!

Insulation between the windings of a layer wound transformer (which is very important) should consist of two turns of empire cloth lapped up the flanges of the former.

## Wire to be Used

Many transformers are wound with cotton covered wire although it is advantageous to use enamelled wire on grounds of space and economy. It should be remembered that enamelled wire must be carefully handled to avoid cracks. If a cotton covered wire winding is replaced by enamelled wire the winding will take up less space than previously and this should not be mistaken for a miscount in the number of turns.

## Reassembly

When the damaged windings have been rewound the core should be reassembled and the laminations replaced so that their insulated side is always facing the same direction. Great care should be taken to replace the laminations in correct sequence and

*Continued on page* 188

# KHAKI AND BLUE

By Airgraph, under date of September 23, comes news from F./Lt. Stan Henton, G5VU, who reports a meeting with SU1WM. Several of the hams on his station, including G3UG and 8OQ, have been doing fine work during the absence in hospital of the regular operators. We learn from G5VU that SU1WM hopes soon to arrange a meeting of amateurs now in SU.

v v v

Sgt. Donald Rock, G8PR, wishes to express his grateful thanks to those GI's who entertained him during his 15 months service with the R.A.F. in Northern Ireland. He mentions in particular GI5HU, 6TK, and G2FS and asks that his greetings be conveyed to them and to G6GH, 8BQ and 8PI.

v v v

F./Lt. L. H. Thomas, G6QB, now stationed in Bedfordshire, reports that in the course of his duties he frequently meets Messrs. Bush (VE3KW), Claydon (VE4ANT) and Williamson (VE3TW). He also mentions that W. P. Wilson (one time G2YQ) is now a Group Captain. " Tommy " sends salaams to all old friends.

v v v

Whilst on convoy work recently, Ldg. Tel. H. V. Prince, G3UF, H.M.S. Northern Princess, had a QSO with 2BYC, who was operating aboard an escort trawler in another convoy which they passed a mile or so away. G3UF and 2BYC were in the same R.N.V.W.R. unit prior to the war and their recent contact was their first since joining up. It would have been a *real* ham coincidence if their ships had collided !

v v v

Cpl. R. M. Evans, G6CU, of Maidenhead, writes from No. 31 R.S. to report his safe arrival in Canada after a rather eventful crossing. Eighteen of the 19 pupils in his first class were hams drawn from all nine Districts of U.S.A., K4, K6 and VK. His biggest task was to prevent the class developing into a ham fest ! He sends 73 to G5TP, 8MG and 8MS.

v v v

C.P.O. (Air) A. V. Dyer, BERS379, who is now located at an R.N.A.S. in Hants wishes to be remembered to VS6AQ and 1AL, and also to those Scottish H District members who know him. He is assisting 1216 Squadron (Eastleigh) A.T.C. whose O./C. is F./Lt. G. C. Stretton, G6MP.

v v v

Welcome to Harold O. Wright, W9UYA, L. D. Tallman, W1JTI, and Charles Gatkin, members of the British Civilian Technical Corps, now at No. 1 R.S., and to James V. Sims, W4GKR, now at No. 2 S.S. Welcome also to Mr. W. A. Shott, W6UGS, who is with Lockheed Aircraft in N.W. England.

v v v

R. Ward, BRS4151 who has just returned from his first trip to sea as 3rd Radio Officer, appears to have had a very exciting time, having been attacked for 60 hours in one spell. During his travels he has taken over duty at GYY and VPT and has had an interesting personal QSO with VK5KJ. He would like to hear from G3KT and other old friends.

v v v

A./F. J. E. Ironmonger, G8PO, of Retford, since joining the R.N.A.S. has met G2BL, 3ZV, 5FW, VS6BG, XU9ST, all of whom are in the same service. Contact has also been established with G3ZO, 4AF, 4HK and GM5SC. G8PO is engaged on D.F. work.

v v v

Cpl. D. Boffin, G3HS, whose home address is Coxwell Street, Faringdon, Berks, would like to hear from old friends.

v v v

F./Sgt. Dickinson, G4DP, who is living at Conisbrae, Green Lane, Scawthorpe, Doncaster, will be glad to hear from service members located near his home. At the aerodrome where he is stationed Fred Vost, G2DF, can be found in the room next to the Reception Office. Look for the R.S.G.B. sticker !

v v v

Sig. A. Roebuck, G8VK, of Huddersfield, has recently been transferred to R. Signals, and is now on a Line Mechanics course near his home town. He has had the good fortune to meet several amateurs on the course including G5GJ, 8RF, GW2GV and 2AMY.

v v v

Writing from H.M. Naval Base, Simonstown, South Africa, Mr. J. A. Burrows, BRS1751, tells of an interesting contact he had aboard ship, en route from Singapore, with Jim MacIntosh, VS1AA, who is spending his leave in the Union. Mr. Burrows who was in Hong Kong until recently, states that Mr. A. L. Braude, VS6AL, is Commanding Officer of the Signals Section of the Hong Kong Volunteer Defence Corps.

v v v

Cpl. H. Mee, G5MY, reports that G3CI, 3ZK, 2DRR, VE4FG, VE4MZ and ZL1JZ are with him at an R.A.F. station in TF. All the G's have recently been promoted to corporal rank.

v v v

Just before leaving for service abroad Sgt. Henman, G6HM, and A.C.1 Maurice Newman, G3DZ, wrote to ask that their greetings be conveyed to all old friends. The latter hopes to meet a few of his " Early Bird " pals who are now abroad again. Incidentally he was married recently.

v v v

Congrats to Ian McDermid, BRS2689, of Renfrewshire, who, after serving in the ranks, has been granted a commission in the R.A.F., with the rank of Pilot Officer. He wishes to be remembered to old friends.

In a long and interesting letter from Signals Training Centre, Mhow, Tom Arnold, VU2AN, reports his promotion to C.Q.M.S. (Foreman of Signals). He mentions that G3RI, 4CP and 4DD are all at his Centre, and that Jack Drudge-Coates, VU2FO, now a Captain, is in charge of operator's training. Major Twiss, VU2KK is also at Mhow.

Bill Metcalfe, VU2EU is on a F of S course, whilst VU2LJ is active in various directions.

As a result of an earlier reference in this column to the activities at Mhow, G8PQ has been able to contact VU2AN. His meeting with Tom was the first ham contact he had had during two years service in VU.

v v v

The many friends of Sgt. George Spencer, G2KI, R Signals, will learn with consternation, surprise and alarm that after a long innings, his bachelor days are numbered! George recently became engaged to Miss Meg Debenham of East Sheen, who is already well known to most members of the T.V.A.R.T.S. with which Society her fiancé was closely associated before the war. Congrats and good luck George and Meg.

v v v

From Mr. Stewart Clacy, G6CY, of Hove, we learn that F./Sgt. C. F. Barnard, G8AC is now at an R.A.F. station in Malta, A.C.1 C. R. Chick, G3JF, is with the West African Force, and L.A.C. W. Price, G8OQ, is in the Middle East. G6CY sends greetings to these, and all other members from the Brighton and Hove area who are serving abroad.

v v v

Congrats to G. P. Miller, GM3UM, who has now forsaken the uniform of the matlow for that of an R.N.V.R. sub-lieutenant. In his wanderings he has met G4JN, 6LQ, 6QY and 2FQQ.

v v v

From Mr. J. R. Tuck, G6TD, of Coventry, comes the news that "his right-hand man" A.C.1 G. E. Morris, 2CAH, is now a wireless operator somewhere in the Punjab. Morris experienced a minor shock recently when he discovered the Society's Handbook on sale in a local "book wallah's" shop. He parted up with four chips in double quick time!

v v v

Writing from sea under date of June 10, a letter reached Headquarters on October 13, from Radio Officer John Grive, BRS3605. He too has had some exciting experiences which include a hurried dash to a ship calling for assistance. He and his two colleagues sat up all night taking D./F. bearings, and it was with obvious satisfaction that they found themselves "on the spot" when dawn arrived. John sends 73 to old friends. We hope he ultimately receives ours in return because he gave no overseas address for a reply.

v v v

From an R.A.F. station in Wiltshire comes the first news for some months of Ben Wallich, G6BW, who has now "moved up" to Flight Lieutenant. Ben who is on "Intelligence" bemoans the fact that he has no hams on his station. We suggest he tries a move across country to No. 2 S.S.!

v v v

A.C.1 R. C. Kenny, BRS3825, after a long tenure at The Black Diamond, sorry, "Cadogan Arms," is now at the near London R.A.F. station which is the "home of hams." He sends 73 to G8BQ and 2FQH, and to 2DBM who is now in charge of a fitting party in Kent. Whilst in Anglesey recently, Kenny had the good fortune to contact VE3AAR. 2CUB who is believed to be in Cambridge is asked to communicate with BRS3825 *via* his home address.

v v v

A.C.2 R. F. Cowell, G3WX, who reports his safe arrival in Cape Town after a good trip, has already commenced to make ham contacts. He mentions having had a good time with ZS1K and ZS1T and of examining their collections of QSL's. G4GG is with G3WX and both send 73 to old friends as do ZS1K and 1T.

v v v

From G2ZZ we learn that W4BJN is a Lieut.-Com. in the U.S.A. Naval Reserve. His transmitter is now owned by the U.S. Government and is operated under the call WLO. He sends 73 to old friends.

v v v

Recalled at the last moment, after being warned for service abroad, "Early Bird" R. Stevens, 2BVN, now finds himself a Sergeant Observer in a night fighter squadron—a duty which appears to appeal to him more than the desert. 2BVN reports having received a letter from F./O. G. Mason, G5BR, who, with F./O. M. Brookes, G5OI, has been having a hectic time out East. He states that another "Early Bird," Dick Morris, 2BXQ, has gone to the States on a pilot's course.

There are no hams at his present station but judging by the number of Handbooks lying about the place, one would think otherwise.

v v v

From a "Country Farmyard" somewhere in England comes news of our Hon. Editor, G6LL, who reports that the following amateurs are at his station: Cpl. Chittleburgh, G6ID, Cpl. Buick, G3XJ, Sig. Kippin, G8PL, Hamilton, G4DN, Hill, G2RU, Houldsworth, G6NM, Limb, 2DTD and Garton, 2FZV. We understand that beer is good at their favourite pub., where they have started a fountain they can't plug!

v v v

From R.A.F., Habbania, Iraq, comes news of L.A.C. Vincent Richardson, G4NG, who asks that his greetings be conveyed to G5WP and other District 7 friends. He hopes to stay on in Iraq after the war in order to give some of his pals a YI contact!

## News from No. 1 S.S.

The first of a new series of regular monthly meetings was held on Monday, October 27 at No. 1 Signals School, R.A.F., when an attendance of 32, which included W1JTI (Boston, Mass), VE4QH (Calgary), VE5AAG (Vancouver), VE4APM (Calgary), VE5TE (Vancouver), VE5JK (Vancouver), VE4AAO (Sask) and VE4AKM (Sask), was recorded. After introductions, in which each person said a few words about his ham activities, the company settled down to a ragchew.

It was agreed:

(1) To hold regularly meetings on the last Monday in each month at 18.30 hours.
(2) To organise, early in the New Year, or sooner if possible, a Conventionette at Kirby la Thorpe.
(3) To arrange technical discussions.

In connection with item 2 a proposal to hold a meeting in Lincoln was defeated.

At the November meeting to be held on the 24th, P./O. E. J. Williams, G2XC, will open a discussion on aerial systems.

The laugh of the evening came when a certain A.A. holder described his artificial aerial as having a 66ft. top!

Mr. Norman Davis, G6TV, 57 North Parade, Sleaford, will be pleased to hear from members at the School.

Eric Ilott, G2JK, well known in South London, is now a 2nd/Lieut. in the R.A.O.C.

## A Minor Mystery

On September 12 a Money Order for 10/– (presumably to cover a war-time subscription) was issued from St. Marks Post Office, Lincoln, and posted in an R.S.G.B. window envelope to Headquarters. No clue to the name of the sender appeared on the order. The postmark on the envelope was Lincoln, September 13. Headquarters have a note of the counterfoil number.

Can anyone solve this minor mystery? If it is *not* solved someone will soon be complaining they have not received their BULLETIN!

**ARE YOU AT No. 1 S.S.?**

If so, you are cordially invited to attend a Meeting in Hut 2 at 18.30 hours.

**MONDAY, NOVEMBER 24.**

## Prisoners of War

From Mrs. Judy Spink, we learn that her husband, Sgt. W. Spink, G5SP, is a prisoner of war. His full address is Sgt. William Spink, British Prisoner of War No. 21132, Stalag VIIIB, Germany.

With reference to the paragraph published in our last issue concerning F./Lt. F. H. Babcock, G8LI, Miss N. Corry, G2YL, supplies the following details of his address: B.P.O.W. 95484, Oflag Xc, Germany.

From Sgt. I. B. Clark, 2BIB, comes the news that Gunner P. Sneath, G4FI, an ex-member of the Whitstable Radio Amateurs Club, is now a prisoner of war. His address is Gnr. P. Sneath, B.P.O.W., 11417, Stalag IIID.

Mrs. Spink and others have enquired whether *The T. & R. Bulletin* can be sent to Prisoners of War. We regret that the Military Censorship authorities will not permit *The Bulletin* or *The Amateur Radio Handbook* to be sent into enemy countries.

# 73.

**G3RY** to G2BK, 3DH, 3HG, 3JB, 3JT, 3SP, 5PX, GW5TC.

v v v

**G6HM** (R.A.F.), to G2GZ, 2JB, 2VJ, 2ZL, 3BR, GM4JO, G5PY, 6AZ, 6LK, 6WY, 2AIW, 2AMW.

v v v

**G8GD** (Sutton, Surrey), to G5QK, 5RF, 6BC, 6BW, 8BX, GM8MM, 2ATB, VK2AGU, W2IXY, ESN, 9GNU, ZS1AH, and all others with whom he has been in QSO.

v v v

**G8OT** (R.A.F.), to G3XA, 4DS, 5KG, 8HX, 8MR, 8NS, 8OM, 8SA, 2APT, 2DTQ, and all the "Robin Hood" gang.

v v v

**G8PO** (R.N.A.S.), to G2XV, 5JO, 5KG, 8KP, 8NS, 8OG, 8OM, 8ON, 8OT.

v v v

**G8UO** (13 Chandos Street, Keighley, Yorks), to G3BA, 3KB, 3XT, 4GJ, 5IV, 8IJ, 8KU, 8TJ, 8TK, GM3TD, EI5L and BRS4412.

v v v

**GI5HU** (260 Grosvenor Road, Belfast), to G3BN, 3IV, 3PR, 3RF, 3SS, 3TO, 5QU, 6UC, 8PW, GW3CR and EI5L.

v v v

**GM3OM** (R.A.F.), to GM6HX, 6RV, 6XW, 2UD, 5IR, 3NG, 3TR, GI6TK, GW5OD, 6AA, BRS193.

WEDDING BELLS.

Yet another member of the pre-war Tunbridge Wells group has fallen to the spell of the feminine sex. Here we picture Cpl. Laurence King, G4IB, R.A.F. (who was recently married to Miss Bowman) with a few of his witnesses! *Left to right*: 2DZT, G5KV, 4IB and 2HCB.

**POSTAGE DUE**

**For EVERY BULLETIN RETURNED TO HEADQUARTERS THE G.P.O. DEMANDS A SURCHARGE OF 1½D.**

***Please co-operate by notifying change of address immediately***

## Can You Help Our Czech Friends ?

The Czech Radio Society of Great Britain, appeals through its Secretary, Mr. J. T. Svoboda, who can be reached c/o Dr. E. Sahanek, 62 Exhibition Road, London, S.W.7), for radio and television receiver components. The C.R.S.G.B. has set up two research laboratories in this country, but their work is being hampered by lack of components.

Members in a position to assist are asked to communicate with Mr. Svoboda through the address given above.

As a matter of interest all Czech amateurs now in Great Britain, have been issued with call signs in the series OK5. Several newcomers have recently been elected to membership in the R.S.G.B.

## Around the Empire

Congrats to Ted Cook, ZS6BT (one time G6UO, of Gainsborough, Lincs.) who, after serving in the ranks of the South African Corps of Signals, has recently been granted a commission in the same Corps. Early in September he was located in Pretoria, but another move north was being awaited.

* * *

Also from the Union of South Africa comes news of Jim MacIntosh, VS1AA (Kuala Lumpur), who has been spending his leave at Knysna, Cape Province. Accompanying his letter were photographs to prove that, in addition to angling successfully for DX, Mac is not too bad with rod and line ! Prior to leaving Malaya he had chats with Archie Brown (late of Glasgow), and with Reg. Bee, VS2AG.

* * *

In a long letter dated August 26, another Jim (this time Jim Corbin, VK2YC, of Eastlakes, N.S.W.), requests us to again remind G's who find themselves near Sydney, to get in touch with him, or with Wal Ryan, VK2TI. Jim's telephone number is Mascot 560.

As the pre-war Federal Headquarters staff of W.I.A. (who resided in Victoria), are almost all in the Services, the " old men " of N.S.W., have taken over F.H.Q., for the war period. Ray Priddle, VK2RA is President, 2AJO is Vice-President and 2TI is Honorary Secretary.

Jim confirms the news published last month that Snowy Campbell, VK3MR, was taken prisoner in the Middle East. Another well known ham, in the person of VK2PX, got out safely from the Greece, Crete and Syrian campaigns.

Ray Carter, VK2HC (original B.E.R.U. Representative for Australia) has joined the R.A.A.F. as a W./Op. while Bill Moore, VK2HZ (ex-Federal President, W.I.A.) is now a P./O. somewhere in Malaya. Johnny Trail, VK2XQ, also in VS1, is now a Corporal, as are VK3RJ (late QSL Manager, W.I.A.), and VK2LZ. VK2EO was sent to head the naval station at Canberra at the outbreak of war and according to Jim, is " sore as a boil " 'cause he can't get away to some action !

Jim sends greetings to all old friends in Great Britain.

## Ham Coincidence

Sgt. J. D. Cameron, GM8CN, who is a wireless operator/air gunner, tells of an interesting ham coincidence. Early one morning he was returning in Wellington from an operational flight over Germany when a " technical hitch " made it necessary to land at a squadron some 230 miles from his home station.

After snatching a few hours sleep 8CN and his colleagues began to make enquiries about the return trip, as their own machine had been rendered u.s. The officer they approached proved very helpful and said, with a Canadian accent, that if any hitch occurred he could fix up a plane. " Just phone Wadsworth at X Squadron." That struck a chord and not knowing how common the name Wadsworth might be in Canada, GM8CN dashed after him. Sure enough on being challenged the Good Samaritan proved to be our old friend F./Lt. Bill Wadsworth, M.C., VE5ZM. Cameron was sorry when the time came to leave.

## Tribute

Last August we recorded that L.A.C. Leonard Nash, G4DA, had been reported missing, believed killed, in Crete.

In a letter to Headquarters L.A.C. J. Harris, 2FPY, of Tooting, London, and now in the Middle East, tells the story of how Leonard Nash met his death.

" While looking through the mail that arrived here yesterday I noticed that it contained a copy of the *Bull.* for a great friend of mine, namely Len Nash, G4DA, who, was a member of your Society. It occurred to me then that you had not (up to that time anyway) heard the very sad news that 4DA was killed in Crete while serving as a Radio Mechanic on . . . A.M.E.S.

" Len was a very likeable fellow and got on very well with everyone on the unit. It is a fact that at the time of the trouble, he was awaiting promotion, having been specially recommended. He was very keen on his job, a true ' ham ' and I know that he was studying in his spare time at the station to take his A.M.I.E.E. and City & Guilds exams. When the trouble started he was one of the chaps who stayed to destroy our technical equipment. I remember at the time he remarked to me that it made him feel pretty rotten to have to destroy such fine gear—equipment we had worked on, looked after, and maintained for so long—but it had to go; we never stood a chance of getting it off the Island.

" Len and myself sat near a machine gun all that eventful night and it was next morning when we moved back to the lines where our troops were, that Len got killed. We were ambushed by the enemy and it was a grim affair for awhile.

" I held the call 2FPY for about 11 months up to the time when war broke out. I joined the R.A.F. in February, 1940, and came out to M.E. in September of that year. I have met many hams since, in the R.A.F., and I first met 4DA on the boat coming over. He had a berth near mine and when we got to know each other was a ham, the result was obvious, especially as we were on the same unit."

# ON ACTIVE SERVICE

## TWENTY-SIXTH LIST

WE publish below our twenty-sixth list of radio amateurs on active service. Additional details and corrections should be advised to Headquarters as early as possible. The present list contains information received up to November 3, 1941.

| Rank and Name | Regiment or Branch | Pre-war Call or B.R.S. |
|---|---|---|
| A.C.2 R. P. Abram ... | R.A.F. ... | 4245 |
| Ldg. R./Mech. L. Allen | R.N. ... | 4497 |
| A.C.1 D. Anderton ... | R.A.F. ... | 2927 |
| P./O. D. A. Ashton ... | ,, ... | 4519 |
| A.C.2 J. L. Baker ... | ,, ... | 4476 |
| A.C.2 H. C. Barnett ... | ,, ... | 4513 |
| A.C.2 J. H. Barry ... | ,, ... | 4530 |
| A.C.2 A. C. Binstead ... | ,, ... | 4471 |
| 2nd Lt. R. S. Broom ... | R.A. ... | 3401 |
| W./T. Mech. J. F. Brown ... ... | R.N. ... | G3PI |
| A.C.2 J. A. Browning ... | R.A.F. ... | 4240 |
| Sq./Ldr. R. K. Budge | ,, ... | G8XH-8XI |
| Gnr. D. Bullough ... | A.T.S. ... | 2ATB |
| Sig. A. Burt ... ... | R.C. of S. ... | 4484 |
| Ft./Sgt. J. Carter ... | R.A.F. ... | 4495 |
| L.-Tel. H. E. Corke ... | R.N.V.(W.)R. | 4474, PR6 |
| A.C.2 D. P. Creese ... | R.A.F. ... | 4481 |
| A.C.1 G. D. Davies ... | ,, ... | 2FXA |
| A.C.2 J. B. W. Deane... | ,, ... | 4370 |
| A.C.2 G. A. Ginn ... | ,, ... | 4487 |
| A.C.2 A. G. Gomm ... | ,, ... | 4514 |
| L.A.C. J. Harris ... | ,, ... | 2FPY |
| Sq./Ldr. R. W. Hase ... | ,, ... | 4515 |
| Gnr. J. Heath ... ... | R.A. ... | 2FRJ |
| Pte. D. M. Henderson... | R.A.P.C. ... | 4504 |
| Sgt. R. T. Hewson ... | R.A.F. ... | G3RH |
| L./Sgt. K. J. Hills ... | R.A.O.C. ... | 4529 |
| Cpl. W. A. E. Holl ... | R.C. of S. ... | 2DSV |
| Bdr. J. R. Hutchison ... | R.A. ... | 4489 |
| A.F. J. E. Ironmonger | R.N.A.S. ... | G8TO |
| L./Cpl. G. M. Jenkinson | R.E. ... | 2FGQ |
| Cpl. C. J. Lamb ... | R.A.F. ... | 2BRQ |
| A.C.2 J. G. Lawson ... | ,, ... | 3895 |
| A.C.2 L. D. Lonsdale ... | ,, ... | 4490 |
| A.C.2 C. R. MacGregor | ,, ... | 4521 |
| P./O. R. D. McMillan ... | ,, ... | 2CWY |
| A.C.2 J. H. Palmer ... | ,, ... | 2DJA |
| A.C.2 G. A. Partridge ... | ,, ... | 4479 |
| Capt. E. R. Price ... | R.C. of S. ... | G4FP |
| A.C.2 F. R. Rogers ... | R.A.F. ... | 4477 |
| L./Air J. R. Seager ... | R.N.A.S. ... | G4AK |
| A.C.2 S. Simons ... | R.A.F. ... | 4528 |
| L./Air R. Soden ... | F.A.A. ... | 4498 |
| P./O. F. E. Sperring ... | R.A.F. ... | G8RS |
| P./O. H. A. Tapsfield ... | ,, ... | G3TJ |
| L.A.C. G. N. S. Taylor... | ,, ... | 2FYM |
| A.C.1 F. J. Tuckfield ... | ,, ... | 4523 |
| A.C.2 C. Turner ... | ,, ... | G8NL |
| L.A.C. M. H. Vincent ... | ,, ... | 4472 |
| P.O. E. V. Watkins ... | R.N. ... | 4496 |
| A.C.2 S. F. White ... | R.A.F. ... | 4512 |
| A.C.2 G. Whitehouse ... | ,, ... | G8WA |
| F./O. T. M. Wood ... | ,, ... | 381 |
| Sig. T. Woodcock ... | R.C. of S. ... | G6OO |

## From LORD HANKEY

### (H.M. Paymaster General)

THE following letter has been received by our President from Lord Hankey (His Majesty's Paymaster General), in connection with the appeal for Meters and Instruments.

*Paymaster General Office,*
*55, Whitehall, S.W.1.*
*7th November*, 1941.

*Dear Mr. Gay,*

*I have been informed by the Secretary of the Wireless Telegraphy Board of the great help afforded by members of your Society in response to an individual appeal made to your members last July.*

*As the Minister who has been charged with the responsibility of co-ordinating the requirements for radio personnel for the Services, I wish to express my great appreciation of the valuable assistance rendered by members of your Society.*

*Yours sincerely,*
*Hankey.*

*A. D. Gay, Esq.,*
*President of The Incorporated Radio Society of Great Britain.*

## Silent Keys

We regret to announce the death of Mr. William G. Dandy, 2DXW, of The Chase, Malvern, Worcestershire. Although a comparatively new member Mr. Dandy had been an active amateur for several years. Our sympathies are extended to his widow.

* *

It is also our sad duty to record the passing of Mr. C. H. Hill, ZS4M, of Bloemfontein, South Africa. An ardent supporter of the Society, and a keen participant in B.E.R.U. Contests, Charlie Hill was in the top flight of pre-war South African amateurs.

We extend our deep sympathy to his relatives and many intimate friends.

J. C.

## Radio Handbook Supplement

It is anticipated that this new Society Publication will become available early in the New Year. A further announcement will be made next month.

# THE MONTH "OFF" THE AIR—October, 1941

By A. O. MILNE, G2MI.

## Notes and News

THANKS, one and all for a very welcome increase in the number of letters and reports received this month. Once again the old firm has been saved from extinction! Please keep it up.

G8UO reports an increase in German "amateur" activity on 7 Mc. and a new crop of "phoneys" which include EA5S, CT1AD, HA4H, HA6T, HA9R, HB9E and CT1AA. This latter bird gives his QRA as "Lissabon" and uses a "dipool"; is this a new form of frightfulness? We know lots of folk we should like to drown in a nice deep dipool! Incidentally how long is it since the Portuguese started calling "Lisboa" by its new name?

BRS3766 says 28 Mc. has made a few spasmodic appearances and that some W activity has been noted, W5BGW being S9 phone. On 7 Mc., quite a number of American stations have been logged, the following in one evening (October 21): W1JRP, KMJ, 2CUM, LSR, MNT, 3COZ, CFT/8, JLJ, JOU, KMJ, VWH, 4AMB, CQR, CYD, 8RYT, VWH, 9GGS. At 01.15 there was also a nice T3 signal from SV9CD, calling CQ! 3766 has just received a QSL from NY1AE for a report sent since the beginning of the war. BRS3454 remarks on a wonderful phone signal on 14 Mc. at 20.22 B.S.T. on the 6th from W6EFC in Arizona, also W5HYT at 22.08 and W5SL at 22.50. K4's are very plentiful and include K4AH (an excellent signal), DDH, DSE, FAB, HBW, HHR, HWO all on 14 Mc. phone, also KA7FS and CO2LY. On the broadcast bands VONG and VONH, both in Newfoundland have been active on 15,250 kc/s. Another new one was a station in South Africa heard on October 12, at 19.30 asking for reports to be sent to Box 7885, Johannesburg.

A very nice letter comes from G6RJ of Halifax, whose appreciation of "Mota" almosts causes us to blush in confusion! Still it is encouraging to receive an occasional bouquet, especially when it is accompanied by some news as well! He reports considerable W activity and K4DDH S9X. TI9CA on phone is another good one together with a few PY's on c.w. With conditions so bad, what with magnetic storms, etc., he says it is very difficult to hear anything these days but we hope to have some more dope from that R.M.E.69 soon.

Bert Allen, G8IG, reports one or two nights of quite fair conditions sandwiched between some pretty dead periods. He has almost been reduced to working imaginary contacts on his audio oscillator! He and "Lil" recently had a reunion evening with Mr. and Mrs. Tucker, (G5DT) both of whom are well known over the air. Bert would like to have news of VK2ADE if anyone can oblige.

GM4GR, commenting on 500 kc/s. DX says that with a 200-watt ship transmitter, he has contacted shore stations over 900 miles distant.

## From the Four Winds

The irrepressible Eric Trebilock still comes up with the news each month, torpedoes, etc., notwithstanding He wrote during the rainy season; "80 in. so far, with the wettest month still to come!" He is still busy logging the world's DX and made 800 entries during June, bringing his grand total to 56,000. This latest effort includes signals from W, K4, K5, K6, KA, KB6, KG6, J, J8, XE, XU, HH, K7 and KVZE on Enderby Island. He corrects his recent reference to KEZE to KVZE, as he has now checked him up on c.w. KF6JEG was operating portable on Jarvis Island (KG6), during June but returned to Hawaii in August. XU4DG heard on 14 Mc. phone and c.w. is located at P.O., Box 172, Chungking Free-China. K6TCW (Helen) and K6QUD (Frank) of Honolulu are husband and wife; both are active on 14 Mc., c.w. and phone. K6QUD is ex-8JEO of Toledo, Ohio.

His list of DX heard is too long for reproduction but includes W5ADG, W6AD, AXQ, GM, DYJ, 7HWY and K6ETF on (wait for it!) Yes! 3·5 Mc. phone.

G6ZY now in Gibraltar has met BRS4099 and says how much they look forward to the arrival of THE BULLETIN. He sends 73 to all members of District 15 and all those who used to attend the I.E.E. meetings. 4099 sends greetings to amateurs in Halifax and District No. 2. W's romp in very consistently in Gib., as well as the South Americans. Some of the best being NY1AC, PY1AK, KX, JQ, W5EZK, KIP, IZU, HKJ (phone), K4HVC, HVQ, W6QMD, USA, and 7HYY. Rather surprisingly he says the 6's and 7's come in around midnight.

Tom Arnold, VU2AN, has G3RI, 4CP and 4DD with him. VU2FO and VU2KK are also at Mhow. Bill Metcalf, VU2EU, is polishing up his maths and VU2LJ is on Government work. G8PQ is another amateur from the old country who is now in India.

G2MI would like to send 73 to G4DD with happy memories of many pleasant phone QSO's on 1·7 Mc.

## American Commentary

From W6QVY (Raymond Fehr of Salt Lake City), comes the news that KA1MN is now living there and is operating under the call W6UES, with 125 watts of 1·7 Mc. phone.

W6GQC dropped in to say "goodbye." He left on August 17, to be radio operator on Johnston Island, South-east of Hawaii. He will be there for two years if he can stand it! It is a barren piece of sand 650 ft. by 700 ft. and has no trees, so life bids fair to be something rather less than exciting! He wanted to take his wife along but the Navy Department said "nothing doing." Ray himself is quite active on 14 Mc. and would welcome reports on his signals.

W2CMY mentions the hilarity with which the latest Axis propaganda stunt has been greeted in the U.S.A. Rome's famous interval-signal nightingale has been taught to whistle V's!

## WCFT

Finally we come to a most fascinating article in the October issue of *Q.S.T.* written by W1FTR, the operator aboard the schooner "Yankee." Many will remember hearing the call-sign WCFT or may have heard American amateurs working to the ship. 1FTR has a thrilling story to tell of how they dodged hurricanes and visited little-known islands. While at Panama, they were asked to take eight bags of

mail to Pitcairn Island. In the shipment was VR6AY's transmitter which had been sent to Panama for repair. It was finally landed from the " Yankee " after an exciting trip through the surf at Bounty Bay, just in time for the great close-down ! On arrival at Pitcairn they found that the New Zealand Government had sent ZL2FR to establish an official station on the island. VR6AY is still on the air but working Government traffic to Wellington. The ocean was so clear at Pitcairn that the anchor could be seen 120 ft. below. The remains of the " Bounty " can also still be seen, the imprint of the keel and some of the timbers !

**A Group of well known British Amateurs somewhere in England.**

***From left to right* (*front*): A. D. Gay, G6NF, H. A. M Clark, G6OT, W. H. Matthews, G2CD, A. E. Watts. G6UN. (*back*): H. V. Wilkins, G6WN, G. Exeter, G6YK, J. F. Payne, G2XP, F. Charman, G6CJ.**

By way of Honolulu and other Pacific islands the " Yankee " fetched up at Ocean Island's British Solomon Group and their first visitor was the British radio officer, in the person of VR4AD, to seal their radio equipment. W1FTR goes on to say: " In all parts of the British Empire we found that the amateurs had formed the first line of defence in communications. With the tremendous expansion necessary to maintain war-time communication, the hams had cheerfully contributed their services and equipment. It was another striking indication of the solidarity of the British Empire." In the Dutch East Indies, N1VIRA is still going strong and the amateurs are held in high regard by the Netherlands Government. At Singapore they received a visit from VS3AE, son of the Sultan of Johore. VQ3HJP was another well known DX amateur they were able to meet at Dar-es-Salaam.

In British Guiana they found that VP3BG has become the official broadcast station and that there is a network of outlying stations all over the territory. VP2AT in Antigua is another ham who has turned his station over for broadcasting. Many of us will remember him during B.E.R.U. contests on both 7 and 14 Mc. Best of luck Arthur !

### Corrigenda

" Marras," referred to at the foot of column one last month, may have puzzled some of you ! Put it down to 2MI's writing—it should have been Harrar. We must also apologise to Mr. Huntoon for spelling his name incorrectly.

## The 28 Mc. Band

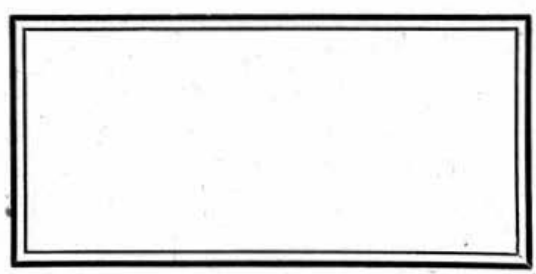
AMATEUR signals reported during October were more numerous than at any time since February, and conditions showed a great improvement on those of September. The band was open for U.S. phones on October 4, 5, 10, 14, 17, 18, 19, 22, 23, 25 and 26, and while East Coast stations predominated, a number of W4's, 5's and 9's were also heard on most days. On October 10, 14 and 18 every district was reported.

On the 18th, W's were logged at intervals between 15.15 G.M.T. and the unusually late hour of 21.50 G.M.T., and on the following night BRS3893 heard W3 and W5 at 22.00 G.M.T. U.S. Police stations above 30 Mc. were reported by G4MR and G5BM on October 18 and 22, and W5XAU broadcasting on 26·1 Mc/s. was often a good signal even when the 28 Mc. band was dead. West Coast calls logged by BRS3893 and BRS4202 included W7HOE, W7HVF, W7IGM, and W6AOE, 6BED, 6GMZ, 6IJB, 6MMB, 6OZC, 6PHX, 6RER, 6SQL, 6TMZ and 6TNN.

From still further West, BRS3893 heard K7ATI at 20.15 G.M.T. on October 4, and he, 2HFR and BRS4202 reported K6's on October 10, 14 and 18, *viz.*, K6MPN, K6OQE, K6PGP and K6USA. G5BM heard KB4HBX on October 14 and would be interested to know the QRA of this station. From the West Indies K4HVQ was the most outstanding station, being heard on eight days. Other Porto Rico calls reported were K4GTS, K4HZM, K4JUP and K4VXQ.

Amateur signals from South America were rare, and although PY 'phones were heard by 2FWA and BRS3003 on September 28, October 5 and 19, the only one positively identified was PY2QK. The fact that LQB4/LSA2 on 27·5 Mc/s. was heard daily, except on Sundays, suggests that activity among South American amateurs was not great at times when the band here was open for W's. The only European signals reported were broadcast and commercial harmonics from France, Russia, Italy, Germany and this country. BRS3893 logged two Asiatic signals, *viz.*, EPA on 40.6 Mc./s at 19.25 G.M.T. on October 3, and JNO on 27·9 Mc/s. at 10.22 G.M.T. on October 21 The Hissing Phenomenon was reported by BRS3003 at 12.45 G.M.T. on October 11, when strength rose at times to S6.

Reports from G4MR, G5BM, 2FWA, 2HFR, BRS3003, BRS3893 and BRS4202 are acknowledged with many thanks. N. C.



**PROBLEM PICTURE OF THE MONTH.**

**1. Flock of white eagles at 10,000 ft. in a snowstorm.**
**2. Rectangular section of Goering's liver.**
**3. District 2 Notes.**

# BRITISH ISLES NOTES AND NEWS

*District Representatives and Deputies.*

**DISTRICT 1 (North-Western).** (*Cheshire, Cumberland, Lancashire, Westmorland.*) MR. H. W. STACEY (G6CX), "Sandleas," Edisbury Road, West Kirby, Wirral, Cheshire.

**DISTRICT 2 (North-Eastern).** *Yorkshire* (*West Riding, and part of North Riding.*) *Acting:* MR. A. O. MILNE (G2MI), 1 Kent Drive, Harrogate, Yorks. Telephone: Harrogate 2161.

**DISTRICT 3 (West Midlands).** (*Shropshire, Staffordshire, Warwick, Worcester.*) MR. V. M. DESMOND (G5VM), The Chestnuts, Hanley Castle, Worcs. Telephone: Hanley Swan 41.

**DISTRICT 4 (East Midlands).** (*Derby, Leicester, Northants, Notts.*) *Deputy:* MR. W. M. VENDY, (G6VD), 9 Cecilia Road, Leicester.

**DISTRICT 5 (Western).** (*Gloucester, Hereford, Wiltshire.*) MR. R. A. BARTLETT (G6RB), 31 King's Drive, Bishopston, Bristol. Telephone: Bristol 46960.

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

**DISTRICT 7 (Southern).** (*Berkshire, Hampshire, Oxfordshire, Surrey.*) MR. W. E. RUSSELL (G5WP), "Milestones," Westfield Road, Mayford, Woking, Surrey. Telephone: Woking 1589.

**DISTRICT 8 (Home Counties).** (*Beds., Cambs., Hunts., and the towns of Peterborough and Newmarket.*) MR. S. J. GRANFIELD (G5BQ), 47 Warren Road, Milton Road, Cambridge. Telephone: Cambridge 56444.

**DISTRICT 9 (East Anglia).** (*Norfolk and Suffolk.*) MR. H. W. SADLER (G2XS), "The Warren Farm," South Wootton, King's Lynn, Norfolk. Telephone: Castle Rising 233.

**DISTRICT 10 (South Wales and Monmouth).** *Scribe:* MR. S. HOWELL (G5FN), 90 Coleridge Avenue, Penarth, Glam.

**DISTRICT 11 (North Wales).** (*Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire, and parts of Shropshire not in District 3.*) *Deputy:* MR. N. E. READ (G6US), 24 Church Street, Oswestry, Salop.

**DISTRICT 12 (London North and Herts.).** (*North London Postal Districts and Herts., together with the area known as North Middlesex.*) *Deputy:* MR. P. SOLDER (G5FA), 35 Torrington Gardens, New Southgate, N.11. Telephone: Enterprise 4347.

**DISTRICT 13 (London South).** To be appointed.

**DISTRICT 14 (Eastern).** (*East London and Essex.*) MR. R. L. VARNEY (G5RV), "Arvika," 184 Galleywood Road, Chelmsford, Essex. Telephone: Chelmsford 3394.

**DISTRICT 15 (London West).** (*West London Postal Districts, Bucks., and that part of Middlesex not included in District 12.*) MR. H. V. WILKINS (G6WN), 539 Oldfield Lane, Sudbury Hill, Greenford, Middlesex. Telephone: Byron 3369.

**DISTRICT 16 (South Eastern).** (*Kent and Sussex.*) *Deputy:* MR. W. A. SCARR, M.A. (G2WS), 8 Beckenham Grove, Shortlands, Kent. Telephone: Beckenham 1131.

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

**DISTRICT 18 (North and East Yorkshire).** (*East Riding and part of North Riding.*) MR. E. MITCHELL (G5MV), 40 North Marine Road, Scarborough.

**DISTRICT 19 (Northern).** (*Northumberland, Durham, and North Yorks.*) MR. R. J. BRADLEY (G2FO), 36 Raby Road, Stockton-on-Tees.

**SCOTLAND.** MR. JAMES HUNTER (GM6ZV), *Scottish Records Officer:* 51 Camphill Avenue, Langside, Glasgow.

**NORTHERN IRELAND.** MR. J. N. SMITH (GI5QX), 19 Hawthornden Drive, Belfast. Telephone: Belfast 633323.

New Members are cordially invited to write to their local Representative, enclosing a stamp if a reply is required.

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## DISTRICT 1 (North Western)

THE D.R. has received a letter from 2HDV in which he says: "News from the Manchester District has had a distinct negative bias for a long time. Surely there are some left who can find a few minutes to drop a line, even if they cannot find time for a meeting; talking of meetings I should like to know the feelings of members, who live around Stockport, regarding the possibility of a 'get together.'" He reports meeting G4JN (a Sub-Lt. in the Royal Navy dabbling with radiolocation) and mentions that his own time is fully occupied as Signals Officer in the Home Guard. What about it, Manchester?

The only other report comes from Liverpool, *via* G5RY, who says that activity is very keen in the town, with new members still joining the Society. He offers his congratulations to G2OA on his promotion.

Correction to last month's notes:—Will G3WT and 2KZ please write to 3VF.

Don't forget; news from you is news for others.

G6CX.

## DISTRICT 3 (West Midlands)

*Birmingham.*—The meeting of M.A.R.S., held on October 12, was thrown open for a general discussion on frequency stabilization and efficient dial calibration.

Meetings are held on the second Sunday of every month at the Hope & Anchor Hotel, Edmund Street at 11 o'clock. Members of R.S.G.B., either in the Forces or civilians will be very welcome. For further details phone 2FDR on NORthern 1201 or ACOcks Green 0541.

2FDR.

## DISTRICT 4 (East Midlands)

*Nottingham.*—BRS4172, who is taking a Radio Mechanic's Course, is thoroughly enjoying himself in the R.A.F. Where have some of our other R.A.F. wanderers got to ? What about a letter 6CW, 8JV and 5VU ?

G8DZ, who has added band switching to his home built Super, still spends a lot of his spare time in the "shack." Another very practical-minded member, also with an eye to the future, is 2AOO who has just completed a very high quality 20-watt modulator.

In the October BULLETIN BRS4071 was said to have attended meetings from S. London. This should have read Spondon (Lincs.).

*Leicester.*—2CFC recently paid a surprise visit to 6VD, before going back to the far northern extremes of the "Land of Harry Lauder" for the winter "sports," which he is taking this year with the R.A.F.! 8CZ is giving code practice to the Melton Mowbray A.T.C., the little spare time that remains is spent on the receiver.

### Forthcoming Events.

| | |
|---|---|
| Nov. 23 | District 5, 3 p.m., at G6RB, 31 Kings Drive, Bishopston, Bristol. |
| ,, 23 | District 12, 3 p.m., at G2YD, 46 Friars Avenue, Friern Barnet Lane, Whetstone, N.20. |
| ,, 23 | District 7, 2.45 p.m., at The Royal Hotel, Stoughton, near Guildford. |
| ,, 30 | Scotland "A" District, 2.45 p.m., in the Coffee Room, Y.M.C.A. Residential Club, 100 Bothwell Street, Glasgow. |

G2RI writes a cheery letter from No. 1 S.S. indicating, that he has nearly finished his course. He is looking forward to "Things to Come," and sends 73 to 5UQ, 3BU, 2IX, 5ZP and 2CFC.

*Mansfield.*—BRS3593 is spending most of his spare time on the receiver. 2AMD is still brandishing the soldering iron, and has been constructing some very useful pieces of gear.

8HX, who has just returned from leave, reports that during that time he was unable to get in touch with any of the local "gang." 8MR is expected to be sent overseas. 8HX would like to hear from 8OT and 3XA. 8NS recently had the misfortune to break his leg whilst playing football. We hope he is now fit. 8HX's XYL is doing her bit as a second opr. at a cinema, and 8HX is doing his best to give her a little technical training in the shape of Ohm's Law, etc., presumably with an eye to the future !

*Derby.*—At last a report from a Derby member ! G8BN, a corporal at No. 1 S.S., R.A.F., was married recently (congratulations to you both O.M.). He is now living temporarily in Sleaford. 8BN would like the present QRA of 2SD. G6VD would also like to know what has happened to the rest of the Derby membership !

*Northampton.*—G3PZ, still weather forcasting for for Air Ministry reports, that 3RF (at sea) is fit and well.

BRS 4330, has been accepted in the R.A.F. as a radio mechanic. Best of luck, O.M.

G6VD.

## DISTRICT 5 (Western)

*Bristol.*—A successful meeting was held at 2BAR on October 26. Due to short notice only 8 members were present but it is hoped that more will attend the next at G6RB on November 23.

The D.R. was pleased to receive visits last month from G5JU and G5KT when home on leave. He was also glad to hear from 2DRT who is in the R.A.F. There is no news from any other area. G6RB.

## DISTRICT 6 (South Western)

Reports are very scarce again this month, but there have been a number of replies regarding a meeting in South Devon. Thus encouraged, the D.R., with the able and willing assistance of G3JD, has gone ahead with the plans, with the result that it may now be announced that there will be a meeting at the Courtney Restaurant, Courtney Street, Newton Abbot, on Saturday, November 29, at 2 p.m. The inclusive charge will be 3/–. All those who intend to be present will greatly help if they will inform their T.R.s as quickly as possible. In these days it is obviously very necessary to be able to form an accurate estimate of the probable attendance.

A notice regarding the meeting will be found elsewhere in this issue.

*Plymouth.*—The T.R., G3TX, reports a little activity. 3TX and 2CJB often meet and discuss the future of ham radio. 2FKO is experimenting with his receiver, and 8PN has been home on leave.

*North Devon.*—The T.R. wishes to correct an error in last month's report. G8PF's C.O. is not a VK but VE3WP. Both 8US and 8PF have been on sick leave, so the opportunity was seized to hold a small informal meeting, which the T.R., 3BO, also attended. G5SY

## DISTRICT 7 (Southern)

*Bournemouth.*—G8KX and his wife recently paid a short visit to Bournemouth for the first time since their marriage. From 5PB we learn that 5SP, of Southampton, posted some time ago as "missing believed killed," is now a prisoner of war. 5PB also reports a visit from 2LD, of North Shields, now a Major in the R.A.

### South Western District
# MEETING
### *Saturday, November 29th, 1941*

AT

### THE COURTNEY RESTAURANT
### COURTNEY ST., NEWTON ABBOT

*(Fully Licenced)*

2 p.m. Informal gathering.
3 p.m. Short speeches and general discussion.
4.30 p.m. Tea.
5.30 p.m. "Gadgets." Bring yours.

INCLUSIVE CHARGE 3/–.

*Reservations to W. B. Sydenham (G5SY), "Sherrington," Cleveland Road, Torquay, by Tuesday, November 25.*

From 4KV we received a letter addressed to him from 3HG, who is a L.A.C. with the R.A.F. in SU. 3HG describes his QRA as " d——d hot uncomfortable desert " and says that he is working with 2FFM, 2FPI, 2ZY, 4JY, 3MP and 5OI. Quite a hamfest! 3HG, who was in France with the R.A.F., promises to add to the local QRM after the war.

The locals were very pleased to meet 5LT, of Medstead, who spent a short holiday in the town recently. 4MY and 2NS have completed their frequency-meters, and the former has also constructed a de luxe battery receiver. 4IJ has recently finished building a 56 Mc. super-regen. 2ADT, having returned from VE, is now a Pilot Officer-Observer. Congrats, ADT.

Correction:—Some time ago we reported 2HÁG had joined the R.A.F. He is, in fact, studying radio engineering at Bristol University.

(*via* 2HNO.)

**Twenty-two members and friends attended a recent meeting at Croydon.**

*Coulsdon and Purley.*—Those who met Vincent Williams, VE3KE, at the Farnborough meetings held some months ago will be pleased to hear that he recently underwent a successful operation for appendicitis and is now up and about again.

A welcome is extended to Mr. Watson, BRS4458, who is busily engaged on the construction of a straight receiver to work on 28 Mc. G8TB has been home on another short leave whilst G8IN finds all his time taken up with business matters.

*Croydon.*—Twenty-two signatures appeared in the attendance book at the October meeting held at 2FWA. Those present included G2DP, 2LW, 2OW, 2VB, 3FK, 3FP, 3ST, 6KM, 8TN, 2BLA, 2FWA, 2HHD, 2HMV, BRS1545, 3003, 4084, 4150, 4314, and 4324. The next meeting will take place at BRS4150, 42 Oakfield Road, West Croydon, on Sunday, December 7, at 3 p.m.

2BLA, a frequent visitor to Croydon, is now an A.C.1. 3VN, writing from Iceland, hopes to see England again before Xmas. So far, one letter bearing the Coventry post-mark, has arrived in response to last month's appeal. 2DP is now a Signals Instructor to the A.T.C. 2FWA, having joined the Royal Corps of Signals will be unable to carry on these notes. 2DP has agreed to take over as T.R. for Croydon, so please let him have *your* news by the 25th of the month. Either phone THOrnton Heath, 2849, or write to him at 6 Dunheved Close, Thornton Heath.

(*via* 2FWA.)

*Oxford.*—At the October meeting attended by 5TP, 8PX, 2ALG, 2CVD, and Mr. Purvis, pre-selectors formed the chief topic for discussion. 2ALG requires dope on transformer coupling between the two stages of his latest triumph—a pre-selector which makes his Sky-buddy like a HRO.

The next meeting is to be held at 2ALG, 31 Ridgefield Road, Oxford, on Sunday, November 30, at 3 p.m. Service members cordially welcome.

(*via* G8PX).

*Southampton.*—GW2UL, who has been posted to this town, would like to get into touch with local members. He would also like to hear from 2XX, who is believed to be in Winchester.

*Guildford.*—A meeting will be held on Sunday, November 23, at 2.45 p.m. The venue will be The Royal Hotel, Stoughton, the scene of many pre-war meetings and consequently well known to the habitués. For newcomers The Royal is in the Worplesdon Road, about a quarter-mile from the Guildford Bye-pass. A discussion will be held and it is hoped this will be the forerunner of an interesting series of meetings. G5WP.

## DISTRICT 8 (Home Counties)

This month a report comes from Bangalore, India, where Pat Fraser, 8ST, is stationed. The BULL. takes at least three months to reach him, but is no less welcome on that account. He has already earmarked a couple of 80ft. bamboo poles, and promises to do his best to give a call from " VU2ST " next N.F.D. !

*Cambridge.*—G2XV, who reports " All in order," says that pressure of business is keeping him fully occupied. He has heard from G3DY now stationed near the East Coast. Colin advises members who may be joining the R.A.F. to become Radio Mechanics. 3NQ has been staying with 2DT; they were recently encountered at the Cattle Market—were they junk-hunting? we wonder! N. V. Nichols, of Luton, who is in the R.A.O.C., has visited local amateurs. 5BQ has spent several evenings with key and buzzer, for the benefit of some of his colleagues, who are joining the R.A.F., and the R.S.G.B. too, he hopes.

*Bedford.*—BRS3585 reports that he has enlarged the shack, but that it is " business as usual " for visitors. 2FFG had leave for a few hours, but had no time for visiting. He has moved from District 6 to District 9. 2AYY, and Mr. Beckwith, have left this area, the latter having moved to District 4. 8LV has visited 2DPQ and BRS3585.

*March.*—Our reference to absence of news from this town brought a visit from 3WW who is helping the National effort by breeding rabbits on a considerable scale. He and 3BK, are helping the local A.T.C. in the capacity of civilian instructors. 3WW also gave news of 3DY, but said that the present whereabouts of 2UQ (R.A.F.) is unknown.

*St. Ives.*—G5RL reports meeting GW3CF, 2XG and others, while on his course for W.O.M. He is now stationed somewhere in the Oxford area, but managed a few hours at home, during the transfer. He says that 5OV is well, and that 6WA is still stationed in Kent.

All the best, everybody, and —•— please.

G5BQ.

## DISTRICT 10 (S. Wales and Monmouthshire)

Once again an appeal is made to members to forward notes. Previous appeals have only resulted in one report. Those who resided in No. 10 before the war, have asked for news, so *please* give it to them.

G6VV, late of the Medway group is now in Cardiff. A cordial welcome is extended to Mr. Evans who has just joined the society. G5FN.

## DISTRICT 11 (North Wales)

*Prestatyn.*—The monthly meeting was held at "Vale View," on October 19, when an attendance of 16 was recorded. Those present included VE4YG, GW4CX, 2ARB, 2HIY, 2HCZ, BRS1060, 2731, 2866, 3044, 4020, 4027, 4410 and 4444.

GW4CX arranged a very interesting Radio Symbol contest, and donated a useful prize to the winner (BRS4020). A junk auction followed with BRS2731 acting as an efficient auctioneer.

The next meeting will be held at "Vale View," Meliden Road, on Sunday, November 23 at 2.30 p.m., when members are assured of a good afternoon's entertainment.

## DISTRICT 12 (London North and Hertford)

The meeting held at G5FA on October 26, was attended by 14 members, including LA6A and LA9N whom we were pleased to welcome. Both have recently arrived in this country. BRS3766 of Great Yarmouth unfortunately lost his way and only arrived as the meeting was breaking up. The usual rag-chew took place during which G6CL raised some interesting points regarding post-war amateur radio. We were interested to hear from LA6A that E.D.R. (Danish Radio Society) is still in being. At the end of the meeting a collection was made on behalf of the Prisoners of War Fund and we were pleased to be able to hand to the Secretary-Editor the sum of £1 10s.

Letters have been received from G3MO, 8CK, BRS4116, 4163, 4219 and 4461. We should be glad to hear from more district members who are in out-of-the-way places. The following new members are welcomed to the district: 2HJN, BRS4419, 4425, 4448 and 4461.

G3MO has now passed through the W./Op.'s course and has been retained at the school as an instructor. He says "It certainly is grand to get the

Prestatyn Meeting, September 21, 1941.
*Front row*: Mr. Spencer, L.A.C. Blanchard, VE3AAA, BRS1060, G8QZ, VE4YG.
*Back row*: BRS4298, G5PO, Mr. Pearsall, BRS4027, Mr. Gill, 2HIY, 2HCZ, BRS3044, G8QO, G5FG, GW4CX, BRS4444.

GW4CK, who was recently home on leave, is now the proud possessor of two stripes. He is at present serving with R.A.F. in the London area. 5FU has also been home on leave, and is now believed to be somewhere in the North of England. GW2PH is reported to be on his way back from ZD4. We hope to have the pleasure of a personal QSO with him on his return. Ex-ZB2B having been out of action for a while with a damaged foot, is now on the road to recovery. He is anxious to contact any amateur who might be in his area. QRA is Sgt. Waddington, 10 Somerset Street, Llandudno. BRS4027 is taking a Radio Course at a N. Wales College with a view to entering the Merchant Navy.

*Bangor.*—2HCZ and BRS4298 have tried to arrange a meeting in the town, but their efforts did not meet with any success. BRS4298 has, it is believed now left for his home in Hove, but 2HCZ would still be willing to arrange some form of gathering for those interested. How about it Bangor? His address is E. Fish, 2HCZ, 5 Station Road, Bethesda. BRS1060.

BULL. each month, for it brings back old times and is like a connecting link with the more pleasant things in life," which is one more reason why you should all make it a duty to drop a line to the D.R. wherever you are. G8CK who recently took unto himself a wife is looking to the time when he can initiate her into the mysteries of transformer winding in the shack! From him also comes the news that 2HAR is building a new super straight receiver that has everything!

BRS4163 is returning to District 16 shortly and is volunteering for service with the R.A.F. as a Radio Mechanic. Best of luck, O.M. 4116 has now been drafted to South London on a radio course and hopes to meet a few more amateurs now he is back in town. 4219 has just completed a 4-valve superhet and is getting good results from it. 4461 who is at present operating a 10 kW. transmitter wants to know if there is any chance of the P.M.G. granting him a full licence for this input after the war! He used to be joint operator at VU2AA and VU2FJ during 1935. G5FA has now been granted a com-

mission as Flying Officer, R.A.F.V.R., with the City of London Squadron A.T.C. (Congrats., Bill, from us all in District 12. G6CL.)

The next North London meeting will be held at G2YD, 46 Friars Avenue, Friern Barnet Lane, Whetstone, N.20, at 3 p.m., on Sunday, November 23. (Telephone No. ENT. 2747.) Trolley bus 521 and 621, and then 10 minutes walk along Friern Barnet Lane. G5FA.

## DISTRICT 13 (London South)

*South Central and South East Areas.*—The October meeting, held at BRS4324, was attended by 18 members. Several members of H.M. forces were present including BRS379 who is now staying at 96 Bladindon Drive, Bexley. By the time these notes appear in print G6HM will be on his way to serve abroad (good luck, O.M.). We hear that G5WG has already arrived at an overseas destination, and we hope he receives the note of good wishes signed by members at the meeting. G2VB has taken up duties with the A.T.C.

The next meeting will be held at G2VB, 35 Grangecliffe Gardens, South Norwood, S.E.25, at 11 a.m., Sunday, November 23. G8TN.

*South Western Area.*—Cheers! One log at least has come home to roost this month, and very interesting reading it is, but where is the other one?

G6LR has been holidaying with 6BY in the West Country. (The latter has a "ham's paradise" apparently, and only wants his "ticket" back!) 3AD joined them for an evening. (Note to *all* hams: You're bound to meet 3AD one day. He meets everyone!) 5GQ signs in as a guest-artist with a lively entry.

G6BY himself, says news comes to him by every mail from W's 1DQ, 1TW and 4DSY. He has been hobnobbing with 6BW and 2BI. All visitors to his new QRA will be welcomed. Address: "Kaygor," Worlebury Park, Weston-super-Mare. Incidentally, this QRA puts 6BY out of District 13. (District 5, please note!).

G6DT is training cinema-projectionists all over the country and begs all picture-going hams to be grateful! He has heard from VP6FO and records "a star below the crown" for VU2FA, and a letter from G2IS who is in Washington D.C.

BRS4018, having obtained quite an erroneous impression of tidiness from 8QH's shack is busy at odd moments building a decent bench to work on. He's in the market for a 2 to 3 inch cathode-ray tube if anyone has one to spare.

G2JK sends a cheery photograph of himself in a brand-new second-loot's uniform, and provides some pithy suggestions in answer to 5PY's recent query. He casts his mind back to a day when he worked E17M on phone at R9 with an input of 0·025 watt—about 10,000 miles per watt. When the time comes, O.M., try it without *any* HT at all! 4RU—"partner in crime"—with 2JK signs in as a guest and is welcome.

That's all, for now. Logs back to 8QH on the 18th, please. *And where is Log No. 2?*

* * *

**Special!**

*Thanks to the kindness of G6DT we have the offer of an admirable QRA for meetings. It is almost next door to Holborn Tube Station. Will all Area members who are still in Town and who would like to attend a meeting there on Sunday, November 23, please send a postcard at once to G8QH, 17 Roedean Crescent, Roehampton, S.W.15, who will advise members individually of the exact address.* G8QH.

## DISTRICT 14 (Eastern)

*Chelmsford.*—G6LB has erected a very nice line in 40 foot sky hooks and is only waiting for the day when he can hang a real aerial on to it! 2SA continues busy with H.G. and other duties. 5CA and BRS4122 are "researching" hard while BRS3630 is *really* practising the code now! 3BS looks in at 5RV occasionally, when a good time is invariably had by one and all! In answer to last month's query 8PB writes to say that he has *not* frozen up yet and hopes to be home soon for a few days. 5RV has evolved a novel remote control apparatus for the B/C receiver with time switching or manual remote operation. P./O. Sperring, G8RS (late of Chelmsford), reports having met many hams in the R.A.F. We wish him the best of luck in his new work.

*Ilford.*—G3MD reports business QRM and that local news is scarce. L.A.C. Selby, 4LV, has gone East. 2RR sends 73 to the locals. 8TL is seen only on rare occasions these days. 3XS and 2XP were in town recently; the latter was seen hatching something up with 2CD. Letters have been received from 3OA (Thundersley), 8UO (Keighley) and 3YY (Brighton), all of whom, although busy, have not forgotten the good old days on the air!

G5RV.

## DISTRICT 17 (Mid East)

Our remarks in last month's notes, have brought a letter from G5IG, now in Edinburgh. He thanks 3XM for his good wishes and sends 73 to members of the Lincoln Short Wave Club, wherever they may be. He adds: "The photos of the recent meeting at Lincoln were very interesting, but it was too bad that most of the old faces were missing. I was pleased to see that G3CZ is still in the picture. Some day I hope to enjoy many more personal QSO's in the Lincoln District."

G3XM suggests that a local meeting be held every three or four months at Sleaford or Lincoln. What say to a Sunday afternoon meeting early in the new year with tea and a short talk or cine show? Any more in favour?

G4DV, who is back in Sleaford hopes to get down to some radio during the winter. He sends 73 to 6GH, 2BQC and 8BQ. BRS4270 and 2FNS are also in Sleaford.

From Navenby, G2YZ writes to say that although his QRA was in District 16, he has been in No. 17 for two years now and looks like staying. He reports that, being an optimist, he has been doing a bit of rebuilding and now has a new T.R.F. Receiver. He would like to hear from 3OW and 3FC who are in the R.A.F.

Congrats to 2BQC on his recent promotion to Corporal. He is to be married on December 27, and 6LH is to conduct the ceremony. A real ham wedding! 2BQC states that 8BQ is in Suffolk and 2ANU in Wiltshire; 2HBN was last reported in Bombay.

G2CR has now processed the cine film exposed at the Lincoln Conventionette and reports successful results. 6LH, who has taken to building model aeroplanes, is busy on a duration model, which it is hoped will eventually live up to its name! G2UK.

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### DISTRICT 18 (North and East Yorkshire)

*Hull.*—Service members recently on leave include G5MN (R.A.F.), 2HJZ (now commissioned as 2/Lt. Royal Signals), BRS1948 (R.L. instructor, R.A., whose XYL is also an R.L. instructress in the A.T.S.)

New member, 2CNX, is in the R.A.F.; Mr. Barry, also R.A.F., has applied for membership. BRS4043 has been accepted as a Radio Mechanic, R.A.F. G3PL has had letters from BRS4209, now in Redditch, who would like to meet local members, and from 2HAD (R.A.M.C.), who is stationed "somewhere in District 17." 2HAD, recently spent two months in hospital, and we hope he is once more enjoying good health. 8UL had a good time at the recent Lincoln meeting. The few remaining members still at home are busy in various branches of Civil Defence, etc.

Please try to send regular reports to the acting T.R. Most of the above news has been compiled from hearsay. It is known that several members are serving abroad; let's hear from you, O.M.'s!

G8UL (*via* 3PL).

*Scarborough.*—There is very little to report from Scarborough, except that 8KU/4BP and 2DDD have been home on leave.

G6TG reports that 2TK is now back in the town. He also had the pleasure of meeting VE4IF, and G6OC of Coventry. A surprise visit was received by the D.R. from 6PY, who was spending a few days in the town. The D.R. would like to hear from G2CP.

The D.R. thanks G8UL and 3PL for the regular reports now coming in from Hull. Service members look forward to reading news from their town, so those still in Bridlington, Thirsk, Whitby and elsewhere send that letter or P.C. now. G5MV.

### DISTRICT 19 (North Eastern)

Welcome to G3WP, 4KS and Mr. Ralph Plunkett (awaiting BRS No.) who are at present stationed in this district. 3WP is anxious to hear from other local members. Letters should be sent *via* his home address, 41 Queen Street, Brightlingsea, Essex.

*Newcastle.*—A very welcome letter from G5RI of Hexham, at present somewhere in G., gives news of ZU6L, G5QY, 6MK and 2APJ. ZU6L who was one of the Newcastle group while at College there in 1938–39 is now in command of a signals platoon and has been right through the affair in ET8. G5QY is now in Egypt and laments the high price of beer there! He also says: "I have been reading a lot of BULLS. recently which have travelled all over Africa. They were brought in by 2PFT, and I was pleased to find news of some old friends in No. 19 District Notes." G6MK who was until recently F./O. Medical at a fighter station, in G, has now left for the Middle East. 2APJ is at present in TF and appears to be fit and well.

G5RI also says that he is still unable to get in touch with 2YY of Berwick. Will anybody in possession of 2YY's present address please forward same to the D.R.?

*Stockton-on-Tees.*—G5QU, of Redcar, at present designing a new receiver, reports meeting 8RW while the latter was home on leave from the R.A.F. 2FO, who is also contemplating building a new receiver, is now fully recovered from a recent operation for appendicitis. It is authoritatively stated that 6ZT (until recently the most confirmed bachelor in the R.S.G.B.) is now engaged to be married. Congrats, Bert, O.M.!

From 5QY's remarks on reading news of old friends in the District Notes it will be seen how important it is to keep these going. Will everybody please do his best to help. Thanks, O.M.'s. [As a matter of interest G5QY has not been a member for three years.—ED.] G2FO.

### Northern Ireland

VE3QC, who comes from London, Ontario, has visited the Y.M.C.A. Radio Club. He is a welcome addition to the District. We are sorry to lose G8PR who has returned to G. In his place G8IP is welcomed. He tells us there are several hams in his camp, but so far they are unknown to us. BRS4196 has taken up instructional work with 1137 Sqdn. A.T.C. The information comes from GM3TR who is back with the same squadron after a good recovery from his recent illness.

News is once more to hand from 2COF who is in the Middle East. He sends 73 to his friends in GI.

The D.R. thanks GI6TK for supplying many of the above items of news. GI5QX.

### Scotland

There is a great dearth of news this month and we appeal to members to send in some news if these notes are to continue. Congratulations to Ian McDermid, BRS2689, on being granted a commission in the R.A.F. The monthly meeting of "A" District was rather poorly attended, although we were glad to welcome, for the first time, two recently elected members, Mr. Anderson and Mr. Macphee.

GM6ZV.

# HEADQUARTERS CALLING

## September Council Meeting

*Resume of the Minutes of a Council Meeting held at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, Saturday, September* 6, 1941.

*Present.*—Messrs. A. D. Gay, A. E. Watts, E. L. Gardiner, D. N. Corfield, S. K. Lewer, W. H. Matthews, A. J. H. Watson, H. V. Wilkins, and J. Clarricoats (Secretary-Editor).

*Apologies.*—Messrs. H. A. M. Clark, J. W. Mathews, W. A. Scarr, and G. M. R. Scott Farnie.

1. Of the seventy-seven new members elected, sixty had been proposed by Corporate members, and seventeen submitted references. One resignation was accepted.

2. The monthly statement of account was approved.

3. It was agreed to insure against loss or damage by enemy action such stocks of publications as may at a later date be held by the Society's printers.

## Prisoners of War Fund

The Secretary-Editor acknowledges, with grateful thanks, receipt of the following additional contributions to the above Fund.

| | | | |
|---|---|---|---|
| Anon ... ... ... ... ... | £5 | 5 | 0 |
| Anon ... ... ... ... ... | 5 | 0 | 0 |
| District 12 (North London) ... | 1 | 10 | 0 |
| R. G. Neale, G6GZ ... ... | 1 | 1 | 0 |
| R. Sunter, G3DH ... ... ... | | 19 | 0 |
| W. F. Thomson, BRS3425 ... | | 15 | 0 |
| Anon. ... ... ... ... ... | | 15 | 0 |
| Whitehaven Group, *via* G6ZT ... | | 10 | 0 |
| A. Dickinson, G4DP ... ... | | 10 | 0 |
| P. C. W. Green, BRS3753 ... ... | | 9 | 6 |
| Anon ... ... ... ... ... | | 5 | 0 |
| A. E. Ashfold, GW5AB ... ... | | 5 | 0 |
| A. J. Mitchell, 2DLX ... ... | | 5 | 0 |
| Previously acknowledged ... ... | 13 | 17 | 0 |
| Total to date ... ... | £31 | 6 | 6 |

## To our Friends Abroad

**We in the Old Country send sincere Good Wishes for Christmas and the New Year**

4. Letters were read from two members in which they expressed views regarding post-war licensing arrangements and permits for second-hand communications receivers. Appropriate action was taken in each case. A suggestion was made that the B.B.C. should be asked to provide programme time for broadcasts concerning amateur radio but it was agreed that under present conditions it would be unwise to follow up the suggestion.

5. It was announced that the fourth printing of the Society's Handbook would be available in October. The stock of the third printing had been reduced to only a few copies.

6. It was agreed that the new publication to be issued by the Society, would be titled *Radio Handbook Supplement.*

7. It was agreed to advise members that cloth bound copies of the Handbook would be produced, providing sufficient interest is shown in the project.

8. Nominations for the 1942 Council were dealt with.

9. It was reported that an Agenda, outlining the broad principles of post-war amateur operating, had been submitted to the G.P.O. preparatory to a meeting being arranged.

## Radio Amateurs again show the way

We are now in a position to state that the Council of the Society was asked in July last, to circularise all members resident in Great Britain, with a view to obtaining their support for a plan, put forward by the Wireless Telegraphy Board, to increase the number of meters and other instruments, available to the Services, for training purposes.

Recently Lord Hankey (H.M. Paymaster-General) referred publically to the need for meters, and invited the general public to co-operate with the Radio Manufacturers' Association.

We are pleased to record that prior to Lord Hankey's appeal being made, Society members had donated or offered for sale instruments valued at over £1000—a most satisfactory response. Thus once again the amateurs of Great Britain have given a lead in a matter of vital National importance.

For the information of those who offered meters for sale, and have not yet received settlement, a cheque should be in their hands by the end of the present month.

Members who are in a position to supply additional meters, cathode ray oscilloscopes, etc., are asked to write to the W/T Board, c/o Admiralty, London, S.W.1.

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## MATHEMATICS FOR THE RADIO AMATEUR—

(*Continued from page* 169)

### Problems

(18) What are the co-ordinates of the points a, b, c . . . h (marked with a cross) in Fig. 7 ?

(19) Taking any convenient scale, mark on squared paper the points A (8, 4), B (11, — 6), C (— 2, — 5) and D (— 5, 5). Join the points in order and ABCD will be found to be a parallelogram. By measurement and/or calculation, find the length of DA and of AB.

(20) Two points, A ($x_1$, $y_1$) and B ($x_2$, $y_2$) are joined by a straight line. Find an expression giving the length of the line AB. Test this with the results of Qn. 19.

(21) Plot the curve $y = 2x + 7$, taking values of x from — 4 to + 4 (*i.e.*, making $x = -4, -3, -2, -1, 0, +1, +2, +3, +4$ in succession, find the corresponding values of y, and plot the pairs of associated values). What is the value, from the graph, of x when $y = 0$ ?

(22) Plot the curve $y = x^2$, for values of x from $x = -4$ to $+4$. From this curve, what is the value (*a*) of y when $x = 3 \cdot 5$, (*b*) of x when $y = 12$ ?

(23) Plot the curve $x^2 + y^2 = 16$. ($x^2 + y^2 = 16$, $\therefore y = \pm \sqrt{16 - x^2}$. Hence give x the values from — 4 to + 4, and remembering that each value of x gives two values for y, a positive one and a negative one, plot the associated values).

(24) Plot the curve $y = \sin \theta$. (Give $\theta$ the values 0°, 30°, 60°, rising by intervals of 30° to $\theta = 360°$.)

(25) Graph the figures given for the time of swing and length of a pendulum, and from the graph find what length, L, gives a periodic time of 1 second. (It is necessary only to have the units for time starting from 78, and those for length starting at 6. There is no need to have all the unused space which starting on the x axis with T = O seconds would give.)

*Note :—*

The examples 21—24 will be treated fully in the text of Part VI.

### Solutions to Problems

(14) The Latitude of Cape Town was given, in error, as 33° 56′ N. It should, of course, have been 33° 56′ S. The correct solution then is 6,008 miles, 15° 21′ E. of S.

(15) 5,938 miles, 31° 39′ E. of N.

(16) 5,351 miles, 43° 9′ W. of N.

(17) 5,767 miles, 39° 14′ W. of S.

(*To be continued next month.*)

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## EXPERIMENTAL SECTION—

(*Continued from page* 170)

to see that no gaps are left. When the last few are assembled it will be necessary to knock them into position with a block of wood in order to avoid shorting the stampings. Care should also be taken to see that the core does not cut through the former.

After the core has been reassembled and tightened up, it is an excellent plan to dip the whole transformer in a varnish or lacquer as this will help to keep out moisture (the most frequent cause of breakdown). This treatment will also help to stop the core from humming.

G5HF.

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