

THE T&R

BULLETIN

A JOURNAL FOR
RADIO EXPERIMENTERS

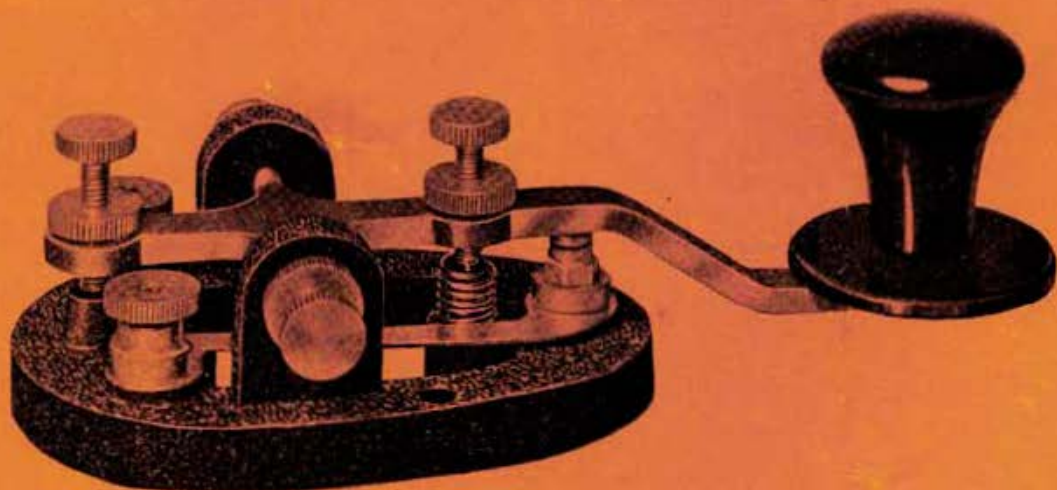
Vol. 17 No. 9

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MORSE INSTRUCTION



SEE OUR SPECIAL ANNOUNCEMENT ON PAGE 305

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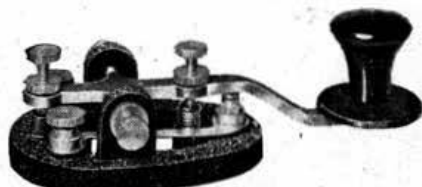
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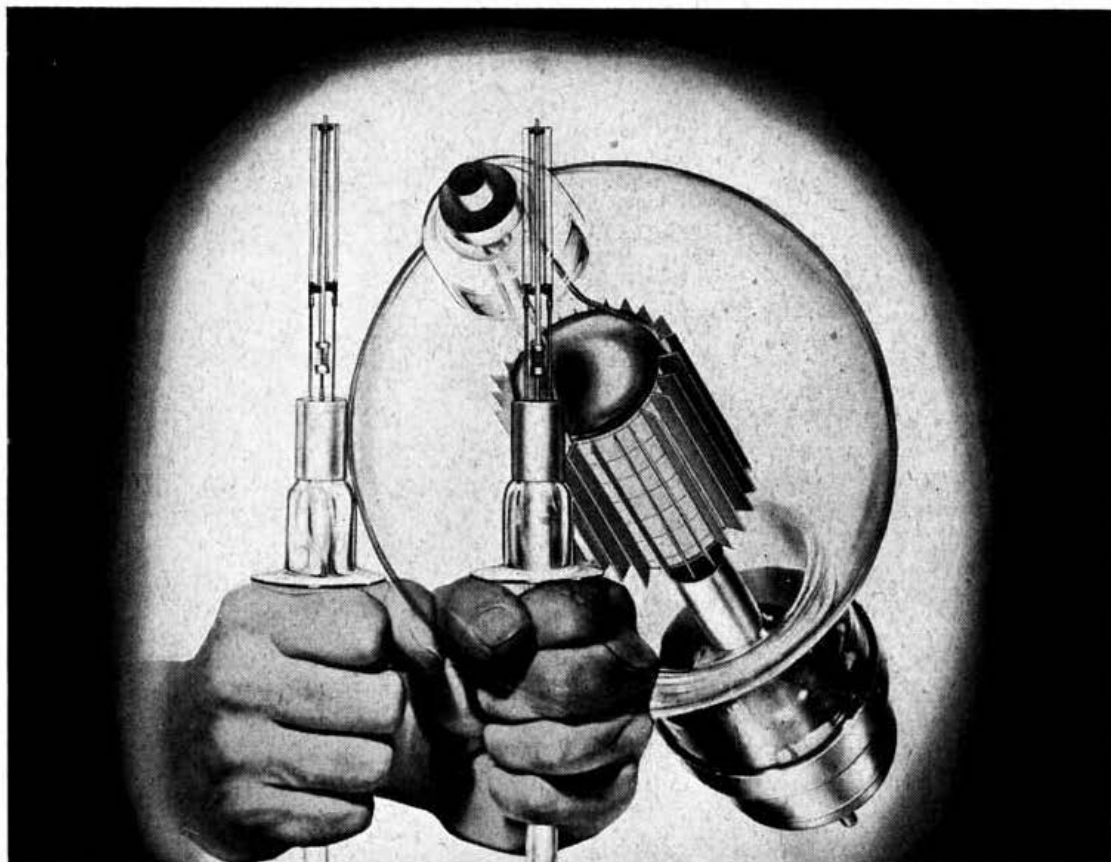
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DEVOTED TO THE
SCIENCE
AND ADVANCEMENT
OF AMATEUR RADIO

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Vol. XVII. No. 9

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MORSE, MATHS AND MICRO-WAVES.

THE new member—and this month we welcome no less than 130 of them—may perhaps wonder how it is possible for the Society to cater for so many shades of interest. Perhaps after a perusal of this issue he may find an explanation.

For nearly 20 years, those responsible for producing THE T. & R. BULLETIN month by month, have endeavoured to keep in mind that the interests of the average member are catholic. They have recognised, too, that many readers are qualified engineers holding academic distinctions, whilst many others possess little more than a genuine interest in the science of radio communication.

In pre-war days, when paper was not rationed and active experimental work covered transmitting as well as receiving, it was generally possible to publish a wide range of technical material. Under existing conditions the task is far from easy but thanks to the excellent co-operation of many "old-timers," and some newcomers, it has been possible to maintain a standard which appears to satisfy most members.

In this issue, for example, three widely divergent subjects receive special prominence. We refer to the article—the first of a series—on Morse Instruction, the contribution from our "Maths Master," and the appeal by our Experimental Section Manager, for members to join a new group concerned with V.H.F. and Micro-wave problems.

That each of these subjects will appeal to every member is asking too much, but there will be many who will find Mr. Mainprize's "pearls of wisdom" valuable to them in training Air Cadets and others, whilst Mr. Theakston's masterly exposition on the subject of Graphs will provide food for thought for many who are swotting hard in preparation for examinations in or out of the Services.

Mr. Heightman's appeal is chiefly directed to the advanced worker—the man who "knows his onions" and is willing to place on record the results of his experience. The study of V.H.F. and Micro-wave technique should provide most valuable data after the war; the fact that a group is to be started *now*, augers well for the future.

Of more topical interest are the special monthly features "Khaki and Blue" and "District Notes and News." The sole purpose of these features is to keep members in touch with one

(Continued page 340)

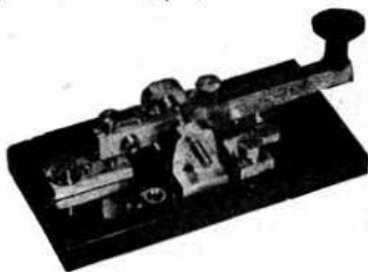
MORSE INSTRUCTION

By B. W. F. MAINPRISE, B.Sc.(Eng.), Dip. Elect. Eng. (G5MP).

Acquiring skill at morse is an art which often confronts the newcomer with difficulty. Here the writer suggests that some of the more general methods are capable of improvement, and discusses the subject from the point of view of both instructor and beginner.

MORSE has always been an essential requirement for a radio operator. War has focussed even more attention on it, as is shown by the numerous instruction classes set up at training centres. Further proof of its importance is evident from the fact that during the winter of 1939-40, all Italian broadcast stations operating on medium and short wavelengths, devoted a 40-minute period every weekday afternoon to classes in morse. An instructor, complete with his buzzer and his beginners, was brought to the microphone and a novel entertainment was provided by listening to the transmissions and hearing the pupils reading out the letters they had copied.

Skill at morse involves a considerable amount of practice. There are probably no short cuts to success—at any rate none will be found in this article—but it is proposed to survey some of the more universal methods of approach, and to suggest that improvements may be possible in some respects.



An example of a Heavy-Duty Bar-type Key as supplied by Webb's Radio.

Learning the Code

First we must consider the order in which a beginner should best learn the morse sounds. The method generally adopted is to take the letters in alphabetical order, learning perhaps A to E the first time, then tackling, say, F to K, and so forth. In most cases the beginner learns the alphabet to some extent on his own, before attending instruction classes, so this procedure is the natural one. Can it be improved on at all? The writer feels that it is not entirely satisfactory, and that an alternative method of approach may be more suitable.

Morse letters may be divided into groups according to their formation, which may be from one to four dits or dahs. The groups will then be as follows:—

Unit letters

ET

Two-unit letters

AIMN

Three-unit letters

DGK OR SUW

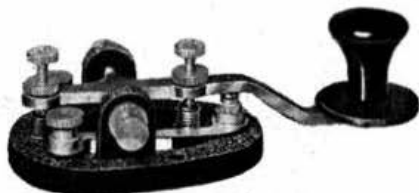
Four-unit letters

BCFHJLPQVXYZ

The beginner starts with the first group, which, as it consists of only two letters will not demand much practice. Then the group of two-unit letters is tackled. When able to recognise these without hesitancy, the three-unit group can be proceeded with. Ample practice should be carried out at this stage, for as all the vowels have been covered, a wide range of words becomes possible. Finally, the alphabet is completed by mastering the four-unit group. This comprises a dozen letters, and is thus the largest, but for some reason or other, the letters which most beginners have difficulty in memorising are in the three-unit group. The cause of this is not apparent.

The advantage of this method would seem to be as follows. Suppose the beginner is learning the letters in groups, and hears a three-unit letter keyed. He will know that the letter can only be one of eight. If, on the other hand, he has been taking the letters in alphabetical order, it might be one of 26. He is faced with a greater choice of possibilities to range through in order to decide what the letter is, and will consequently take longer over this process than in the preceding case.

Actually the writer suspects that even if a beginner is learning the sounds in alphabetical order, he unconsciously tends to identify them largely by separating them into groups according to the approximate number of units in their formation. This process probably continues even in the case of an accomplished operator. Evidence of this is provided by tuning in a station transmitting at 40-50 words a minute. Such a speed is naturally well above the attainments of the average person who is not exclusively engaged in reading morse, yet it will be found that even a person of very modest attainments can at once tell whether the station is sending letters or numerals. Also he will easily identify those parts where the text changes from words to groups of numerals, although he will be quite unable to copy the transmission at all. How then does he recognise the difference between letters and numerals? Surely by unconsciously noticing the length of the combinations, which will be constant at five units for numerals, but will vary from one to four units for letters. Therefore, if he reads largely by a sorting process, it will be just as well for him to approach the alphabet by sorting the letters into groups according to the number of units in their formation.



The new Raymart "Speed" Key possesses several novel features, including a dropped arm designed to give more speedy operation.

"Opposites"

There is one point on which beginners should be cautioned. They will often see mentioned in booklets on the subject, that memorisation of the morse alphabet is assisted by taking the letters in pairs of "opposites." The letter A for instance is *dit dahh*, while N is the opposite, *dahh dit*. Similarly, B pairs with V, D with U, and so on, only the letters C, H, J and Z having no "opposites," unless continental accented letters are included. This method appears attractive, and some learners are assisted by it. Many however, develop the habit of writing the "opposite" for the correct letter, and later on, experience considerable difficulty in curing themselves of this habit. An instructor will soon have his attention drawn to those pupils who have been learning the alphabet in pairs of "opposites" by the fact that when he keys a word such as *map*, they will copy it as *map*. Therefore, any beginner who is thinking of using this method should be warned that he may, in a few weeks time, have developed an uncanny knack of selecting the "opposite" instead of the correct letter.

Early Stages of Instruction

Now we can proceed a step further, and examine the case of a beginner who has already memorised the morse alphabet to some extent. In an elementary class, it will often be found that quite a number have already reached this stage, either during the period between enrolling and attending for instruction, or as a relic of school days or scout training. On being asked by the instructor to send, for example, the letter G, such a beginner will probably pause a few moments, and then send *dahh dahh dit*. True, his spacing may not be good; the great thing is that he knows the correct combination. But when after a brief conversation the instructor says "What is this letter?" and keys *dahh dahh dit*, the beginner generally makes a number of wild guesses before arriving at the correct answer. Thus, he knows that G is *dahh dahh dit* but he fails to recognise *dahh dahh dit* as G. The instructor's task is consequently to devise some means whereby the beginner can speed up his conversion of sound into letters. The hours per week which the learner can spend at morse instruction classes are limited, so that he requires a method which he can use at odd moments when he cannot sit down in front of his receiver and operate his key.



Fig. 1.
The normal type of morse practice card bears little relation to the sound.

Practice Cards

One method which suggests itself is the use of practice cards, a common form of which is shown in Fig. 1. In this type the morse character is written on the front of the card, in the form of dots and dashes, whilst the letter represented is written on the back of the card. Sometimes the letter is written on the front above the dots and dashes.

Cards of this type are available from several firms, but the writer cannot convince himself that they are of much assistance, in fact, in the case of wireless operators, who spend almost all their time reading by *sound*, as distinct from printed tape, they would seem to exert a retarding influence. The reason is that when the beginner is alone and using these cards, he becomes accustomed to recognising letters by the printed appearance of dots and dashes, consequently when he receives a letter by sound, he first tries to convert it to the form of dots and dashes, which he visualises, and then converts these into the appropriate letter.



Fig. 2.

The letter G as recorded by a typical tape machine.

Morse character cards are excellent for a would-be land-line or cable operator learning to read morse, if the recorder pen was in contact with the tape only during the actual dots and dashes, so that letters would be traced out exactly as on the printed cards. Unfortunately such pens are seldom met with, owing to the difficulty of ensuring rapid flow and cessation of ink each time it touches and leaves the tape. These pens are normally kept permanently in contact with the tape, and this is kept moving to prevent flooding or congealing of the ink at the point of contact, a difficulty which would arise if the tape kept stopping. The dots and dashes are more usually indicated by displacement of the pen from its normal trace; Fig. 2 shows how the letter G would then appear. This form has little resemblance to that shown in Fig. 1, unless all but the top horizontal lines are covered over. Cards of this type would thus seem to be of limited assistance, and we require to examine whether some improved form cannot be devised.

Sound Formations

We see that our novice-operator requires to recognise sound combinations, and to write them as letters. Therefore, a logical development would seem to be the writing of the *sounds* on the cards in place of dots and dashes. The card for G would then appear as in Fig. 3. Faced with this card, the beginner would say to himself quietly, "*dahh dahh dit*; that's G," and by practising at odd moments with these cards would soon impress on his memory that this sound *was* G. Then, when in the instruction class he hears the combination *dahh dahh dit* keyed, he will repeat the sound to himself and rapidly recognise it as G.

A point to insist on is that when the beginner is sending, he should mentally repeat to himself the sound he is keying, thus *dahh dahh dit*, or whatever combination is being sent. Similarly, when using the

practice cards, or copying at beginners' speeds, he should repeat the sound to himself. Not only will this facilitate his recognition of the various combinations, but it will also balance the spacing of his sending.

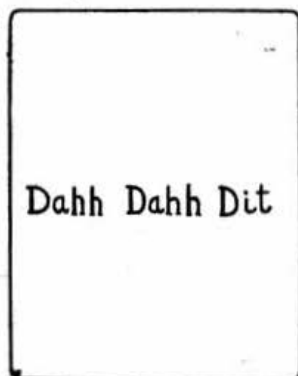
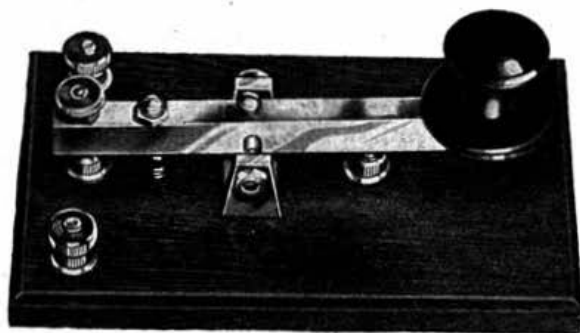


Fig. 3.
An improved card suggested by the writer. It carries the actual morse sound.

As cards of this type do not appear to be on the market, the beginner will have to make his own. But this is a simple job. A suitable minimum size is about $1\frac{1}{2} \times 2\frac{1}{2}$ in.; although they may be larger if preferred. In stiffness and glossiness the material should resemble that of playing cards, as this makes for easy handling. The covers of catalogues, issued by some exclusive firms, are excellent in this respect. The firms in mind show a complete window display consisting of one shoe, or perhaps one hat, plus a sprig of holly. As might be expected, their catalogues have (or had) vast expanses of unmarked paper and covers of just the right stiffness and glossiness for cards.

A catalogue cover measuring approximately 9 in. \times 12 $\frac{1}{2}$ in. right across will provide cards for 26 letters and four punctuation marks of the dimensions suggested above. The cover should be lightly ruled into rectangles, which are cut out. The sound characteristics are then written on the face of the card, while the letter represented is inscribed boldly on the back. A little care should be taken to write the sound characteristics neatly, so that they can be read at a glance without hesitation. Additional cards can be prepared for the numerals (though the regular formation of these, makes them readily memorised) and for the few accented letters.



Signalling Equipment Company offer several models of Morse Keys including the Commercial Type illustrated.

The use of these cards will enable the beginner to practise his reading by sound at various intervals during the day—intervals which would otherwise be lost as far as morse practice is concerned.

Mental "Sending" Practice

The instructor must also provide some means whereby the beginner can practise the equivalent of sending, when by himself, i.e. his conversion of letters into morse characteristics. This can be done in the following way.

When the beginner is walking down the street, or travelling by train or bus, he can silently translate into morse the advertisements all around, which their sponsors are so breathlessly hoping will catch his glance. Posters, shop signs, notices, street and house names all provide easily readable material for conversion into morse. Motor index numbers, too, are excellent as they combine letters with numerals. If the beginner can lightly follow the appropriate key movements without attracting attention, so much the better, as this will help the muscles of his wrist to grow accustomed to the action required for the various letters. Short intervals spent in this way will considerably speed up the beginner's process of thinking out the correct morse combination for each letter, so that when he has a key in front of him, he will have to pause for a very much briefer period before keying each letter. Practice of this kind is quite pleasant, and involves no strain. In addition, the beginner may enjoy the satisfaction that notices ranging in infinite variety from *No Betting Slips to be Passed* to more personal instructions are affording him valuable guidance on correct etiquette!

In Part II of this article, it is proposed to discuss some other aspects of morse instruction, which, as far as the writer is aware, have seldom appeared in print. One example is the deliberate allowing of one's attention to wander while copying. This often permits a much better copy to be made, than if one is anxiously trying not to miss the next letter—a frequent cause of failure with beginners.

(To be continued.)

LONDON MEETING

Saturday, March 28th, 1942

at the

Institution of Electrical Engineers
Savoy Place, Victoria Embankment
London, W.C.2

LECTURE — 2.30 p.m.

"CONCENTRIC PIPE TUNED
CIRCUITS"

By D. N. CORFIELD, (G5CD), D.L.C.

The I.E.E. will be open from 2 p.m.
for informal discussions

ALL MEMBERS WELCOMED

AN A.C. MAINS OSCILLATOR FOR MORSE CODE PRACTICE

By R. S. HOLDEN (GI5HU) and F. MORRISON.

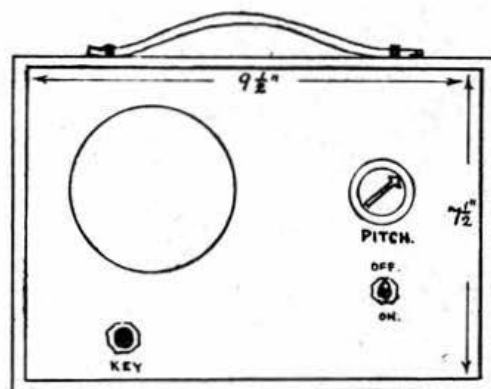
AFTER some experience with the training of Air Cadets and others, using an ordinary buzzer and permanent magnet loud-speaker, it was thought that better results would be obtained if the pupils were trained to receive the type of signal which they will encounter in actual practice. It was decided that the best, and most useful piece of apparatus, would be one embodying an oscillator driven from the A.C. mains. The following circuit and design was adopted after experiment.

Construction

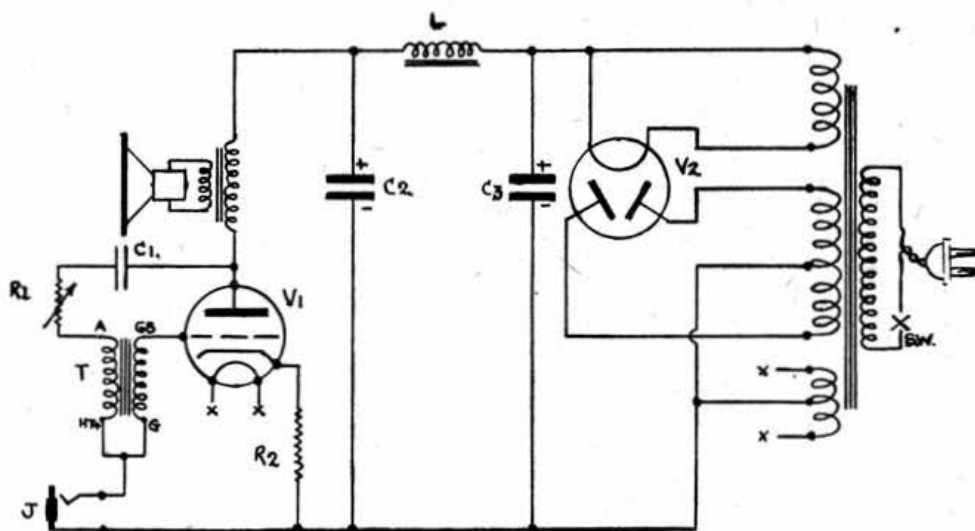
The components are assembled on to a three-ply chassis measuring $9\frac{1}{2}" \times 7\frac{1}{2}" \times 1\frac{3}{4}"$ deep, and a front panel measuring $9\frac{1}{2}" \times 7\frac{1}{2}"$. Those components mounted on the panel are the mains energised speaker, a variable resistance, a key jack, and an "on-off" switch. The valve holders and the mains transformer are mounted on top of the chassis, and the fixed condensers, cathode resistance and L.F. transformer on the underside.

On the inside, and in the centre of the back strip of the chassis, is mounted a plug-adaptor with the front plate removed. Two holes are drilled through the back of the chassis to allow another plug to pass

through, and to make contact with the adaptor. This latter plug is connected to about 18 feet of twisted flex, to the other end of which is connected another plug, or adaptor, for connection to the source of supply.



Front view of A.C. morse code oscillator.



Circuit diagram of A.C. mains code oscillator.

C1 .0015 μ F
C2 8 μ F
C3 4 μ F
V1 AC1HL valve
V2 U12/14 rectifier

R1 250,000 ohms
R2 1,000 ohms (1 watt)
T L.F. transformer (3 to 1 ratio)
L Loud-speaker field coil.
J Key jack

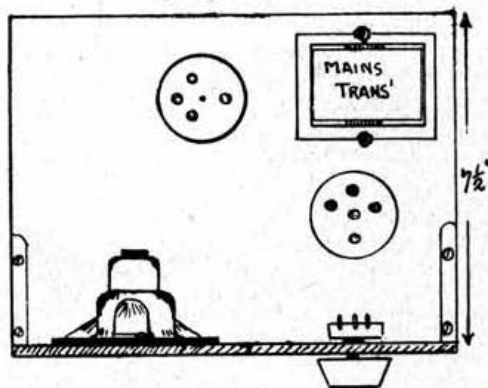
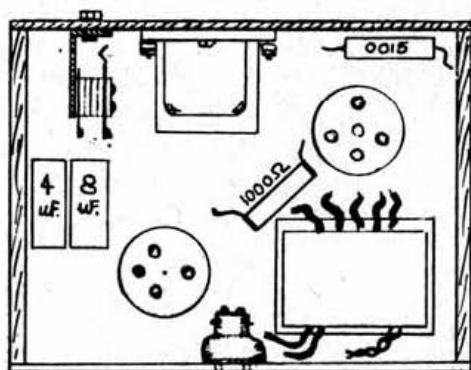
Various ways of connecting the L.F. transformer were tried and that shown in the circuit diagram was found to give the best results. The particular type of valve used will govern the value of the fixed condenser used between the grid and anode. This is a matter for experiment. A P.M. speaker used in conjunction with an ordinary L.F. choke, was tried in the oscillator and this gave equally good results.

As there is sufficient volume to carry a good audible signal to a class of from 40 to 50 pupils, it has been found unnecessary to include a volume control.

The pitch control gives a variable note of over one complete octave and the note produced is equal to the finest crystal control.

The apparatus is placed in a box with hinged back and when carrying it from place to place the flex leads can be coiled up inside.

This little oscillator has given very satisfactory results, and has certainly proved to have been worth the little time spent on its construction. It should prove a great boon to those members who are acting as instructors to the A.T.C., Home Guard, etc.



Under chassis and plan views of the A.C. mains code oscillator.

● ● ● — — — ● ● ●

They were the pre-war back-room boys.
Do you recall them ?
In those early wireless days of cat whiskers and earphones they built their own sets—then they built their own broadcasting stations.
When 2LO or later B.B.C. went off the air they went on.
What fun it was listening to those pioneers !
Didn't they and we get a kick out of it ?
Where are they to-day ?
Where are their stations ?
For security reasons the indiscriminate use of wireless apparatus is banned.
But—
Are the services of these pioneers and their stations lost for all time ?
Are we in the strong position to-day so far as communications are concerned that we are independent of them ?
Suppose there is invasion, suppose all land communications are cut, these wireless stations should be ready to be at the service of the community.
What good is it that they should be sealed up in some central area—useless—dead as the dodo ?
They are as useful as a car without a battery.
In these days when wireless components are at a premium no transmitting plant should be out of service.
Let it be sealed up for safety reasons if that is deemed necessary.
But let all the back-room boys be earmarked for their special job in the emergency.
Select the sites for their stations, too. See that they are ready to go into service at once.
For any favour don't adopt the ostrich policy—don't remain dumb.

The Scottish Courier, February 10, 1942.

MATHEMATICS FOR THE RADIO AMATEUR

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

SECOND SERIES—PART VIII. GRAPHS

The Graphical Solution of Quadratic Equations—continued.

I. By Graphing the Function

It has been indicated already that the solution of linear equations can be obtained from the graph. In just the same way, a quadratic equation may be solved from its graph.

Thus, in Fig. 12 (Part VII) the graph of $y = 2x^2 + 5x - 3$ gives instantly the solution of the quadratic equation $2x^2 + 5x - 3 = 0$.

At the points A and B,
the value of $y = 0$
i.e. $2x^2 + 5x - 3 = 0$

Further, the values of x given by OA and OB must satisfy the equation since the points are on the curve.

$$OA = -3, OB = \frac{1}{2}$$

hence, the values of x which make $y = 0$, are
 $x = -3$, and $\frac{1}{2}$.

[This can be checked by applying the formula previously learned.

The solution of $ax^2 + bx + c = 0$

$$\text{is } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

In the example under discussion, $2x^2 + 5x - 3 = 0$, a in the general equation = 2, $b = 5$, $c = -3$

$$\begin{aligned}\therefore x &= \frac{-5 \pm \sqrt{5^2 - 4 \times 2 \times (-3)}}{4} \\ &= \frac{-5 \pm \sqrt{49}}{4} \\ &= \frac{-5 + 7}{4} \text{ and } \frac{-5 - 7}{4} \\ &= \frac{1}{2} \text{ and } -3.\end{aligned}$$

By Using Standard Graphs

There is another interesting way of solving graphically quadratic equations.

In Fig. 15, the three curves $y = x^2$, $y = 2x^2$ and $y = 3x^2$ are drawn.

Tabulated values are:—

x	0	± 1	± 2	± 3
$y = x^2$	0	1	4	9
$y = 2x^2$	0	2	8	18
$y = 3x^2$	0	3	12	27

Let AB be the line $y = 6 - x$

(a) Let AB cut the curve $y = x^2$ at a and a_1

Then the values of x for those particular points a and a_1 satisfy not only the curve $y = x^2$, but also the line $y = 6 - x$.

Hence, at a and a_1

$$x^2 = 6 - x [= y]$$

and the values of x obtained from the graph give the solution of the equation

$$x^2 = 6 - x$$

$$\text{or } x^2 + x - 6 = 0.$$

These solutions are seen to be

$$x = -3, \text{ and } 2.$$

(b) Let AB cut the curve $y = 2x^2$ at b and b_1 .

At these points, therefore, by identical reasoning since b and b_1 are on the line and the curve,

$$2x^2 = 6 - x$$

$$\text{or } 2x^2 + x - 6 = 0.$$

Hence the abscissæ for b and b_1 give the solutions of the quadratic equation $2x^2 + x - 6 = 0$.

These solutions are found to be

$$x = 1\frac{1}{2}, \text{ and } -2.$$

(c) Let AB cut the curve $y = 3x^2$ at c and c_1

In exactly the same way, the abscissæ of c and c_1 give the values of x which solve the equation $3x^2 + x - 6 = 0$.

These values are found to be

$$x = 1.3, \text{ and } -1.6.$$

Thus if permanent accurate graphs of $y = x^2$, $y = 2x^2$ and $y = 3x^2$ are drawn, it is a simple matter to solve many quadratic equations, or to test solutions obtained by calculation.

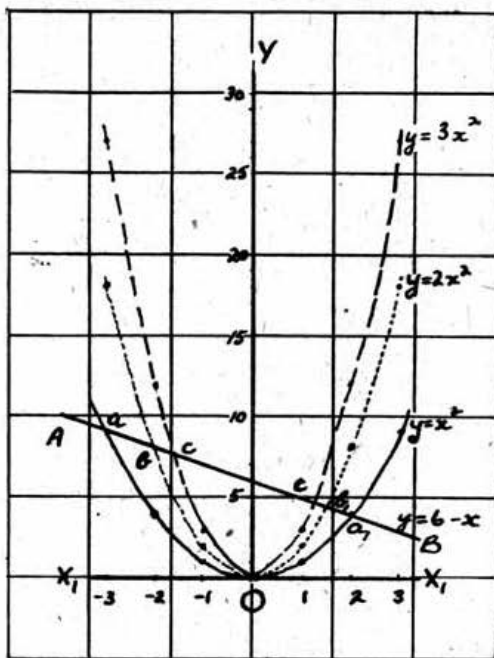


Fig. 15.

The graphical solution of three quadratic equations:
 $x^2 = 6 - x$; $2x^2 = 6 - x$; $3x^2 = 6 - x$.

E.g. (i) To solve $x^2 + 4x - 5 = 0$.

On the prepared graph of $y = x^2$ draw the straight line $y = 5 - 4x$. [Note reverse of sign.]

At the points of intersection

$$\begin{aligned} y &= x^2, \text{ and } y = 5 - 4x \\ \text{i.e. } x^2 &= 5 - 4x \\ \text{or } x^2 + 4x - 5 &= 0. \end{aligned}$$

Hence the abscissæ of the points of intersection give the 2 values of x which solve the equation.

[Note.—To draw a linear graph, only 2 points are necessary.

For $y = 5 - 4x$

$$\begin{aligned} \text{when } y &= 0, 5 - 4x = 0, \text{ i.e. } x = 1\frac{1}{4} \\ \text{when } x &= 0, y = 5. \end{aligned}$$

Thus the two requisite (and sufficient) points $(1\frac{1}{4}, 0)$, $(0, 5)$ are obtained, and a straight line is drawn through them.]

(ii) To solve $2x^2 - 3x - 2 = 0$.

On the prepared graph of $y = 2x^2$, find the points of intersection of

$$y = 2x^2, \text{ and } y = 2 + 3x.$$

(iii) To solve $3x^2 - 8x + 4 = 0$.

Find the abscissæ for the points of intersection of $y = 3x^2$, and $y = 8x - 4$.

THE SLOPE OF A GRAPH

The idea of the "slope" of a curve will become of increasing importance in our work and so a brief introduction is relevant here.

Measuring the Slope of a Line

As with a hill, the slope of a line can be measured or expressed in two ways. These two methods are, as will be indicated, fundamentally the same.

Using Angle Measure

The slope of any line can be expressed in angle measure by giving the angle, θ , it makes with the horizontal.

If the slope is downwards, the usual convention will be applied and the angle will be termed a negative one, i.e. the slope can be given as (-30°) . Alternatively the terms "angle of elevation" or "angle of depression" can be used for a positive (above the horizontal) or negative (below the horizontal) angle respectively.

Using Distances

The alternative method to the angular one, although similar to the one adopted for roads and railway lines, is not exactly the same, and the difference must be clearly understood.

A motorist who says a hill is "1 in 10" means that the vertical height his car is raised, is a foot (yard, mile, etc.) for every 10 ft. (yards, miles, etc.) he has travelled.

This is not what would be meant by a mathematician who said that a line had a slope of "1 in 10." He would mean that the vertical distance gained would be 1 in. (foot, yard, etc.) for every 10 in. (feet, yards, etc.) travelled horizontally.

Illustration of these Different View Points

In Fig. 16 (a) AB is a straight line.

[It is actually the line $y = \frac{3}{4}x + 2$]

OL = 3 units in length

OM = 2 units

Hence the slope is:—

(1) Using the angle θ ,

$$\text{Such that } \tan \theta = \frac{OM}{OL} = \frac{2}{3},$$

$$\text{or where } \theta = \tan^{-1} \frac{2}{3}$$

[Notice this convenient notation

" $\tan^{-1} \frac{2}{3}$ " is read as "the angle the tangent of which = $\frac{2}{3}$."

Similarly " $\sin^{-1} \frac{5}{9}$ " means "the angle the sine of which = $\frac{5}{9}$."

" $\theta = \cos^{-1} \frac{8}{10}$ " means " θ is an angle, the cosine of which = $\frac{8}{10}$."

(2) Using the motorist's method of expressing the slope of a hill,

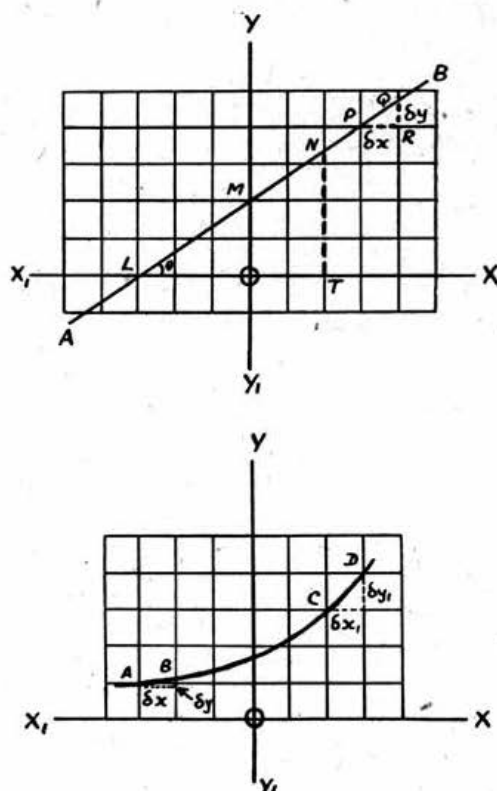


Fig. 16.

The slope of a curve (a) linear, (b) non-linear equals $\tan \theta$ or $\frac{\delta y}{\delta x}$.

MORSE

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Wireless World says of this book: "Contains a surprising amount of directly useful information. Undoubtedly the most praiseworthy feature is the actual photographic oscillograms demonstrating and interpreting the many effects seen on the screen."

Electrical Review says: "The author is eminently suited to write a textbook of this kind, having an intimate knowledge of the practical design and operation of such apparatus."

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By J. H. REYNER, B.Sc. (Hons.), A.C.G.I., etc. 42s. net.

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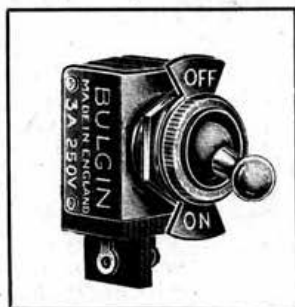
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Since $LM^2 = OM^2 + LO^2$ (Pythagoras').

$$LM^2 = 2^2 + 3^2 = 13$$

$$\therefore LM = \sqrt{13} = 3.6 \text{ approx.}$$

$$\text{Hence } \frac{\text{vertical distance travelled}}{\text{distance along the slope}} = \frac{OM}{LM}$$

$$= \frac{2}{3.6}$$

i.e. the slope is "2 in 3.6."

(3) Using the mathematical method :—

$$\text{Slope} = \frac{\text{vertical distance travelled}}{\text{horizontal distance travelled}}$$

$$= \frac{OM}{OL} = \frac{2}{3}$$

i.e. slope is "2 in 3."

It will be observed that the slope "2 in 3" is exactly the same as saying that the tangent of θ is $\frac{2}{3}$.

It will be in either of these two forms that the slope will be given, and meant, in future work. The slope as given in (2) above, will be left strictly for motorists, etc.

Note

Although the slope of the line AB in Fig. 16 (a) has been measured by using OM and OL, the intercepts on the axes, it must not be thought that this is essential.

Thus in Fig. 16 (a),

NT is any ordinate

LT is the distance between the foot of this ordinate and the point at which AB cuts the axis.

Triangles MLO and NTL are similar.

$$\therefore \frac{NT}{LT} = \frac{MO}{LO} = \text{slope of line.}$$

Slope and Equation of Straight Line

Referring to the line AB in Fig. 16 (a),

$$\text{Slope is 2 in 3, or } \tan^{-1} \frac{2}{3}.$$

$$\text{Equation of AB is } y = \frac{2}{3}x + 2.$$

i.e. the slope is the coefficient of x in the equation when the coefficient of y is unity.

Examples

(1) In Fig. 9 (Part VI),

LM is the line $y = 2x + 7$.

$$\therefore \text{slope is 2 in 1, or } \tan \theta = 2.$$

This is confirmed by inspection, for

$$\frac{MO}{OL} = \frac{7}{3.5} = \frac{2}{1}.$$

(2) Consider the line $2y = 4 - 3x$

$$2y = 4 - 3x$$

$$\therefore y = \frac{4 - 3x}{2}$$

$$\text{i.e. } y = 2 - \frac{3}{2}x$$

$$\therefore \text{slope is } \tan^{-1} \left(-\frac{3}{2} \right).$$

The negative sign shows a negative angle of slope; that is, the line slopes upwards from right to left.

Slope at a Particular Point

In referring to a straight line, as in the case considered so far, the slope of the line is constant throughout.

This is not so with a curved line, such as ABCD in Fig. 16 (b), in which the slope is changing continuously.

How then is the slope of a curved measured when it is varying?

This point will be studied in detail later, but a preliminary note on the matter is appropriate here.

In Fig. 16 (a), let P and Q be two points close together on the curve. [The fact that the "curve" here is actually a straight line will be ignored for the time being.]

Then QR is the difference between the ordinates of the two points, i.e. the difference in the values of y for P and Q.

Also PR is the difference between the abscissæ of the points, i.e. the difference in the values of x for P and Q.

Let these differences be represented as follows :—

$$PR = x_Q - x_P = \delta x$$

$$QR = y_Q - y_P = \delta y$$

In these expressions δx and δy , the Greek letter δ (delta) does not mean a factor multiplying x and y , but is to be considered as indivisible from x or y , and making the whole term mean "a small increment or increase in x (or y respectively)."

i.e. δx means "a small increase in x "

δy means "a small increase in y "

For the portion of the curve between P and Q

$$\text{Slope} = \frac{QR}{PR} = \frac{\delta y}{\delta x}$$

This portion may not be linear, and so the expression $\frac{QR}{PR}$ would be meaningless if the slope varied.

There is no stipulation as to the distance PQ, except that P and Q are to be close together. This being so, they can be understood to be very close, and can almost coincide.

If this happens, i.e. P and Q approach until they are an infinitesimal distance apart, the portion PQ of the curve will be linear.

Then $\frac{QR}{PR} = \frac{\delta y}{\delta x}$ gives the slope at Q, which by data, is now almost coincident with P.

[This ratio, $\frac{\delta y}{\delta x}$, giving the slope at P, is called the differential coefficient of y with regard to x ; and the analysis above will form an introduction to the study of calculus, at a later date.]

Reverting now to the fact that the curve considered here is linear, it is seen that PRQ and LMO being similar triangles,

$$\frac{QR}{PR} = \frac{MO}{LO}$$

i.e. slope of PQ = slope of LM.

This should be so since PQ and LM are each portions of one straight line.

(Continued on page 336).

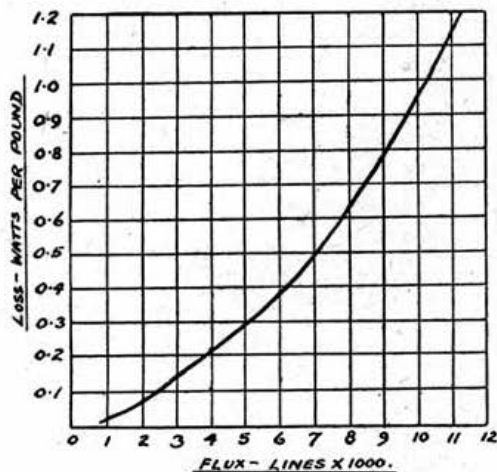
In our example, the Flux Density was assumed to be 60000 lines, giving 0.4 watts per pound loss. If this figure is multiplied by the weight of the core (6.5 lbs.), the Iron Loss can be obtained:—

$$6.5 \times 0.4 = 2.6 \text{ watts.}$$

Substituting in the original equation the efficiency is therefore:—

$$\frac{60 \times 100}{60 + 2.48 + 2.6} = \frac{6000}{65.08} = 92\%$$

This design can be considered satisfactory, and from the Volts-Drop column in the Copper Loss table it will be seen that there is no serious drop in voltage in any of the windings at full load.



Approximate Core-loss Curve.

Should the core losses be excessive, the volts-per-turn figure should be reduced, but this will produce larger windings which will take up more room and will increase the copper losses. The reverse condition also applies, therefore a good design should balance up to give the lowest possible total loss. Some actual tests will be described next month. G5HF.

Book Reviews

D/F HANDBOOK FOR WIRELESS OPERATORS. By W. T. Crook. Pitman; Price 3/6 (64 pp. and 85 diagrams).

There are few D/F textbooks available at popular prices, yet many hundreds of Service operators need authentic information to help them in their studies. Mr. Crook's new book fills the bill admirably and at a price within the reach of everyone.

Obviously before the reader can commence to study D/F problems he must possess a knowledge of elementary radio theory. Mr. Crook assumes this fact and then plays up to it by maintaining as far as possible interest in the practical side of the subject.

Specific D/F apparatus is not referred to—a wise decision—because the variations in detail are very wide and nothing would be gained by describing actual sets which may become obsolete in a short time.

The author, in his preface, states that he has aimed to give the student such knowledge of the principles of all D/F apparatus and its operation as will enable him to view any D/F station through the specialist's eye, and consequently to take up his duties with the minimum of delay necessary to master local details.

Perusal of the opening chapter entitled "General View of D/F," furnishes ready proof that the author's aim is to be accomplished as his story is unfolded. His explanations are lucid, his diagrams self-explanatory. Subsequent chapters deal with Rotating Frame D/F, the Bellini-Tosi System, Sensing and Fixing, Errors in D/F, Siting and Calibration.

We strongly recommend this publication to all who are studying or using D/F equipment.

J.C.

The 28 Mc. Band

CONDITIONS on the higher frequencies during the past month were mainly poor, and judging by commercial harmonics, probably no 28 Mc. amateur stations would have been audible even if they had been active. There were severe fade-outs for several hours on the afternoons of February 21 and 28, which extended to frequencies well below the 7 Mc. band.

BRS3893 reports several commercial harmonics heard on the morning of January 20, viz., RIK 28.8 Mc/s. Moscow 27.8 Mc/s., SUZ and RYS 27.7 Mc/s., and a French-speaking broadcast on 27.2 Mc/s. During the period, February 1-26, G4MR found the most consistent signals were LQE 24.5 Mc/s., audible on 16 days, and WBK 23.4 Mc/s., heard on every day except three. Only three signals above 25 Mc. were logged, viz., W2XWE 25 Mc. on February 2, and W5XAU 26 Mc. and NSS 25.3 Mc. on February 14.

It is rather interesting to recall what the band was like in the palmy days of five years ago. During February, 1937, countries contacted included VK, ZL, K6, J, VU, W and VE (all districts), LU, PY, HK, ZS, ZE, VQ4 and FQ3, and the band was frequently open until 22.00 G.M.T. G6LK gave W6TH R7 when the latter's transmitting aerial was lying on the ground, and G6DH worked VK, VU, FB8, PY, W and YT in one hour on February 28. Here's hoping we'll all have our tickets back in time for the next sunspot maximum!

N.C.

Any Offers

The General Editor will be pleased to consider for publication an article dealing with the construction of decade attenuators and output meters.

"For Murder will Speak"

Apropos the paragraph published in our last issue under the title "Have you read this book?" we have reason to believe that the author is not an amateur in any sense of the term, but he had amateur collaboration when writing "For Murder will Speak."

KHAKI AND BLUE

Serving in the R.A.O.C. are Major Candow, G5SC, Capt. Chapple, G6SC and Lt. Collins, G8SC. This should be an incentive for G4SC, 3SC and 2SC (if they exist) to join the Ordnance Corps, as they should be Lt.-Col., Colonel and Brigadier respectively before long!

Capt. Chapple, who draws attention to the coincidence of the SC's, is meeting plenty of hams as a result of displaying the R.S.G.B. "sticker."

▼ ▼ ▼
 Congratulations to P./O. Peter ("Tiny") Tremaine, G8PB, on his "elevation to the peerage". After serving as W.O. Sigs., Peter is now at a Scottish R.A.F. station, but expects to be posted to No. 1 S.S. before long. A joyous bind o.c.!

▼ ▼ ▼
 From F. E. Scales, 2FNS, whose address is 113 North Parade, Sleaford, we learn that Cpl. Middle, G4CM, is still at Aden, wallowing in a winter temperature in the nineties! G4CM, who has re-mustered as a W.O.M., would be glad to hear from any of "The Second Earlies." (As his BULLS. have been returned from his last known home address we suggest letters be sent *via* 2FNS.—ED.).

▼ ▼ ▼
 Cpl. R. H. Gatland, 2FTP, an instructor at No. 3 S.S. and located in X15 No. 4 Wing, reports that although the Tumuli Society has not been able to keep up official activities, the club room at S75 is still a hive of industry every evening. It is hoped that new arrivals at the School will make their number.

A monthly news-letter from No. 3 would be welcomed at Headquarters—Scribe wanted. Don't rush!

▼ ▼ ▼
 Prior to leaving for service abroad S./Sgt. D. Allanson, BRS4136, asked that his greetings be conveyed to G8KM, a radio officer under whom he was proud to serve, and to 2DVQ and his sister, BRS4618, for the kind hospitality extended whilst he was stationed in Bolton. Best wishes are also sent to G6LZ, 2ABF and 2BDA.

▼ ▼ ▼
 Cpl. A. Squires, 2CDG, who is at an R.A.F. station in Sussex, seeks news of G8RR. He met G8VS recently, otherwise ham contacts have been few and far between.

▼ ▼ ▼
 L./Cpl. A. Moston, GW2GV, who is located near Bury, Lancs, contacted a number of amateurs, including W4BRT and W6KEV, whilst on a course at the M.C.S.

▼ ▼ ▼
 D. A. Hann, G3UY, 17 Addison Road, Guildford, seeks news of G. A. Neville, G3WN, R.A.F.

News is to hand *via* Cpl. Bewlay, G8HX, that Ft. Sgt. Popay, G8DY, has been awarded a bar to his D.F.M. for further good work over enemy territory. G8DY joined the R.A.F. before the war and took part in the pre-war activities of the Cranwell and Lincoln Radio Societies. He was awarded the D.F.M. last year for outstanding operational work with a bomber squadron.

Until recently he was serving with a squadron in Lincolnshire but we understand he has now been posted elsewhere.

▼ ▼ ▼
 Cpl. F. Hunt, BRS4058, serving at an R.A.F. Station in Cornwall sends greetings to L.A.C. H. Abraham, GW3AJ, now in the M.E. They were at No. 2 together for some months.

▼ ▼ ▼
 Apologies to Sub.-Lt. J. A. T. Bousfield, 2FQQ, who was incorrectly reported last month as a Telegraphist. Friends of Mr. Bousfield will, of course, know that he obtained his commission in the R.N.V.R. last July.

▼ ▼ ▼
 Members of the E.S. in particular, will be interested to hear that their old colleague P./O. E. J. Williams, G2XC, topped the list at the passing out exam. of his course at No. 1 S.S. Ted is now serving at an R.A.F. station in South Wales.

▼ ▼ ▼
 "Cadoganites" and others who know Frank Wyer, G8RY, will like to know that he is now a Pilot Officer enjoying a little "square bashing" at Uxbridge, in company with VE3AHX, VE3AHV and VE3IM. Congrats, and good luck to you all. Frank wishes to be remembered to G3SS and 8BQ.

▼ ▼ ▼
 Under date of January 8, Capt. Stanley Higson, GW2PH, wrote from the Gold Coast to say that he hoped to be returning home early in the Spring. He reported hearing from John Holding, G4AS, who at the time (October) was in Baghdad.

▼ ▼ ▼
 Cyril M. Lyons, VP5MK, one time B.E.R.U. Representative for Jamaica and now serving as an L.A.C. in the R.A.F., wishes to be remembered to all old friends. Cyril has recently returned to England after a period of service in the M.E. He is now at a Berkshire station.

▼ ▼ ▼
 F./Lt. Jack Hum, G5UM, writing from Iceland reports a land line QSO with Alec Heathcote, G3JR, and a visual one with ZL1JZ. There are numerous U.S. hams in TF including W4OQ and W5GPJ. Jacks send 73 to all old friends in District 12.

▼ ▼ ▼
 F./Sgt. Fielding, a new member, who is at No. 5 S.S., requests that his 73 be conveyed to 2FPI and G3HG who are serving in the Middle East.

COMPANY LIMITED BY GUARANTEE.

Memorandum

AND

Articles of Association

OF

**THE INCORPORATED RADIO
SOCIETY OF GREAT BRITAIN**

Incorporated under the Companies Acts 1908 to 1917.

COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL.

Memorandum of Association
OF
**THE INCORPORATED RADIO SOCIETY OF
GREAT BRITAIN.**

1. The name of the Company (hereinafter called "The Society") is "THE INCORPORATED RADIO SOCIETY OF GREAT BRITAIN."

2. The registered office of the Society will be situate in England.

3. The objects for which the Society is established are :—

(A) To succeed to and take over such of the property, rights and obligations of the existing Radio Society of Great Britain as may lawfully be acquired and taken over by the Society.

(B) To promote the general advancement of the science and practice of Radio Communication, and to facilitate the exchange of information and ideas on these subjects among its members, and to obtain the maximum liberty of action consistent with safeguarding the interests of all concerned, and for this purpose :—

(1) To hold Meetings of the Society for reading and discussing communications bearing upon radio science or the application thereof or upon subjects relating thereto ;

(2) To hold or to promote Exhibitions of instruments, apparatus or other appliances connected with Radio Science or its applications ;

(3) To print, publish, sell, lend or distribute the proceedings or reports of the Society or any papers, communications, works, or treatises on Radio Science, or its applications, or subjects connected therewith in the English or any foreign tongue or any abstracts or translations thereof or extracts therefrom ;

(4) To take charge of the books, pamphlets, publications, manuscripts or instruments at present in the possession of the Radio Society of Great Britain, and to observe and perform the Trusts of any deed affecting the same or any of them, or to form any additional library of books, works, manuscripts on Radio Communication or the applications thereof or other subjects allied thereto ;

(5) To borrow or raise money as the Society may think fit ;

(6) To make grants of money, books, medals, apparatus or otherwise for the purpose of promoting invention and research in Radio Communication or its applications or in subjects connected therewith ;

(7) To form Sections of its members united in pursuit of some common interest ;

(8) To affiliate with itself British, Colonial and Foreign Societies interested in Radio Communication ;

(C) To purchase, take on lease, or otherwise acquire, and also let, lease, or to dispose of any premises or other property for the purposes of the Society, subject to the provisions of Section 19 of the Companies (Consolidation) Act, 1908 ;

(D) Subject to the rules of law affecting champerty and maintenance to raise and administer funds for the purpose of protecting and indemnifying members of the Society from and against unfounded claims and to take steps to defeat such claims, and for the purpose of affording to its members legal advice and assistance in connection with their wireless experiments ;

(E) To consider, originate and support improvements in the law which may seem directly or indirectly conducive to any of the Society's objects, and to resist and oppose alterations therein which may seem to the Society directly or indirectly adverse to the interests of the Society or its members or any section thereof ;

(F) To do all such other lawful things as are incidental or conducive to the attainment of the above objects.

Provided that the Society shall not support with its funds any object or endeavour to impose on or procure to be observed by its members or others any regulation, restriction or condition which if an object of the Society would make it a Trade Union.

Provided also that in case the Society shall take or hold any property subject to the jurisdiction of the Charity Commissioners for England and Wales or Board of Education, the Society shall not sell, mortgage, charge, or lease the same without such authority, approval or consent as may be required by law, and as regards any such property the Managers or Trustees of the Society shall be charge-

able for such property as may come into their hands, and shall be answerable and accountable for their own acts, receipts, neglects, and defaults, and for the due administration of such property in the same manner and to the same extent as they would as such Managers or Trustees have been if no incorporation had been effected, and the incorporation of the Society shall not diminish or impair any control or authority exercisable by the Chancery Division, the Charity Commissioners or the Board of Education over such Managers or Trustees, but they shall, as regards any such property, be subject jointly and separately to such control or authority as if the Society were not incorporated. In case the Society shall take or hold any property which may be subject to any trusts, the Society shall only deal with the same in such manner as allowed by law having regard to such trusts.

4. The income and property of the Society, whencesoever derived, shall be applied solely towards the promotion of the objects of the Society as set forth in this Memorandum of Association; and no portion thereof shall be paid or transferred directly or indirectly, by way of dividend, bonus, or otherwise howsoever by way of profit, to the members of the Society.

Provided that nothing herein shall prevent the payment, in good faith, of reasonable and proper remuneration to any officer or servant of the Society, or to any member of the Society, in return for any services actually rendered to the Society, nor prevent the payment of interest at a rate not exceeding 5 per cent. per annum on money lent or reasonable and proper rent for premises demised or let by any member to the Society; but so that no member of the Council of Management or Governing Body of the Society shall be appointed to any salaried office of the Society, or any office of the Society paid by fees, and that no remuneration or other benefit in money or moneys worth shall be given by the Society to any member of such Council or Governing Body except repayment of out-of-pocket expenses and interest at the rate aforesaid on money lent or reasonable and proper rent for premises demised or let to the Society; provided that the provision last aforesaid shall not apply to any payment to any Railway, Gas, Electric Lighting, Water, Cable, or Telephone Company of which a member of the Council of Management or Governing Body may be a member or any other Company in which such member shall not hold more than one-hundredth part of the capital, and such member shall not be bound to account for any share of profits he may receive in respect of any such payment.

5. No addition, alteration, or amendment shall be made to or in the regulations contained in the Articles of Association for the time being in force, unless the same shall have been previously submitted to and approved by the Board of Trade.

6. The fourth and fifth paragraphs of this Memorandum contain conditions on which a licence is granted by the Board of Trade to the Society in

pursuance of Section 20 of the Companies (Consolidation) Act, 1908.

7. The liability of the members is limited.

8. Every member of the Society undertakes to contribute to the assets of the Society, in the event of the same being wound up during the time that he is a member or within one year afterwards, for payment of the debts and liabilities of the Society contracted before the time at which he ceases to be a member, and of the costs, charges and expenses of winding up the same, and for the adjustment of the rights of the contributories amongst themselves, such amount as may be required not exceeding one guinea.

9. If upon the winding up or dissolution of the Society there remains, after the satisfaction of all its debts and liabilities, any property whatsoever, the same shall not be paid to or distributed among the members of the Society, but shall be given or transferred to some other institution or institutions, having objects similar to the objects of the Society, and which shall prohibit the distribution of its or their income and property amongst its or their members to an extent at least as great as is imposed on the Society under or by virtue of Clause 4 hereof, such institution or institutions to be determined by the members of the Society at or before the time of dissolution, or in default thereof by such Judge of the High Court of Justice as may have or acquire jurisdiction in the matter, and if and so far as effect cannot be given to the aforesaid provision then to some charitable object.

10. True accounts shall be kept of the sums of money received and expended by the Society, and the matters in respect of which such receipts and expenditure take place, and of the property, credits, and liabilities of the Society; and, subject to any reasonable restrictions as to the time and manner of inspecting the same that may be imposed in accordance with the regulations of the Society for the time being, shall be open to the inspection of the members. Once at least in every year the accounts of the Society shall be examined, and the correctness of the balance-sheet ascertained by one or more properly qualified Auditor or Auditors.

WE, the several persons whose names and addresses are subscribed, are desirous of being formed into a Company in pursuance of this Memorandum of Association. H. C. L. HOLDEN, Brig.-Gen., 2, St. John's Park, S.E.2 (Army Retired Pay); MAURICE CHILD, 60, Ashworth Mansions, Maida Vale, W.9 (Director of Company); O. F. BROWN, 13, Hampstead Way, N.W.11 (Civil Servant); J. H. REEVES, 2, Penywern Road, S.W.5 (Tutor); H. R. HALLIWELL, 2, Princes Road, Crumpsall, Manchester (Electrical Engineer); GERALD MARCUSE, Queens Park, Caterham (Merchant); H. BEVAN SWIFT, 49, Kingsmead Road,ulse Hill, S.W.2 (Electrical Engineer).

Dated the 22nd day of July, 1926. Witness to the above signatures, FEARNLEY OWEN, St. Michael's Alley, Cornhill, E.C.3 (Solicitor).

COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL.

Articles of Association

OF

THE INCORPORATED RADIO SOCIETY OF GREAT BRITAIN.

PRELIMINARY.

1. For the purposes of registration the number of Members of the Society is unlimited.

2. These Articles shall be construed with reference to the provisions of the Companies Act, 1929, and terms used in these Articles shall be taken as having the same respective meanings as they have when used in that Act.

3. The Society is established for the purposes expressed in the Memorandum of Association.

MEMBERSHIP.

4. The Society shall consist of:—

Honorary Members	{ Who shall be known as Corporate Members.
Members	
Associates	{ Who are Non-corporate Members.

5. Subject as hereinafter provided, on and after the 22nd day of October, One thousand nine hundred and thirty-two, then existing Honorary Members shall continue to be Honorary Members, then existing Members shall continue to be Members, then existing Associate Members shall become Members, then existing Associates shall continue to be Associates, subject to the obligations attaching to such various classes.

6. The rights and privileges of every member of any class shall be personal to himself, and shall not be transferable or transmissible by his own act, or by operation of law.

7. The Society may admit such other persons as may be hereafter qualified and elected in that behalf as Honorary Members, Members and Associates respectively, and such persons shall sign the form contained in the Schedule hereto, or such form to the like effect as may from time to time be authorised by the Council.

HONORARY MEMBERS.

8. Honorary Members shall be persons who have rendered acknowledged eminent service to the science of Radio Communication, and shall be elected by the Council.

MEMBERS.

9. Candidates to be eligible for election as Members must be engaged in research or experimental work in the science of Radio Communication.

ASSOCIATES.

10. Candidates who do not fulfil the foregoing conditions, but who are interested in the science of Radio Communication are eligible for Associateship, but not being Corporate Members shall not vote upon matters affecting the Management of the Society.

ADMISSION OF MEMBERS.

11. Honorary Members shall be proposed at one Meeting and elected by ballot at a subsequent Meeting of the Council, and every such election shall be announced at the next Meeting of the Society. Not more than one Honorary Member shall be elected in any one year.

12. Vice-Presidents shall be distinguished Corporate Members, who shall be proposed at one Meeting and elected by ballot at a subsequent Meeting of the Council, and every such election shall be announced at the next Meeting of the Society. The name of any Vice-President may be removed from the list of Vice-Presidents at any Meeting of the Council.

13. Every candidate for election as a Corporate Member of the Society other than an Honorary Member shall be proposed by a Corporate Member, having personal knowledge of him, but if the candidate is unacquainted with a Member who will propose him he may accompany his application form with two suitable references in writing from persons of standing to whom his work in the science of Radio Communication is known.

14. The name of every candidate shall be submitted to the Council, who shall approve or reject him. The Council may in their discretion reject any candidate.

15. A candidate whose application is rejected shall not have his name submitted again for election within twelve months of the rejection.

16. No entry shall be made or kept in the records of the Society relating to any candidate whose application is rejected.

17. Every person elected as a Corporate Member shall be informed of his election by the Secretary, and such election shall not be effective until the person so elected shall have paid his first Subscription or Life Composition.

TRANSFER FROM ONE CLASS TO ANOTHER.

18. Candidates for transfer from one class to another shall be proposed and supported in the manner prescribed in Article 13 for election to the respective class to which the candidates are desirous of being transferred. Such proposals for transfer shall be dealt with by the Council in the same manner as generally prescribed under admission of members.

SUBSCRIPTIONS AND RETIREMENT OF MEMBERS.

19. The annual subscription shall be £1 1s. per annum for town Corporate Members, 15s. per annum for country Corporate Members, 12s. 6d. per annum for Dominion, Colonial and foreign members residing outside the British Isles, and 10s. per annum for Associates who, not being Corporate Members, shall not receive individual Notices of Meetings, or publications issued by the Society, other than the Journal.

20. Town Members are those whose residence or usual place of business is situate within a radius of 25 miles from Charing Cross. Other Members resident in the British Isles are country Members.

21. Every Member admitted into the Society shall be liable to the payment of his annual subscriptions until his name shall have been removed by the Society from their Register as hereinafter provided, or until, having previously paid all arrears, he shall have signified to the Secretary in writing his desire to resign.

22. Any Member whose subscription is three months in arrear shall not be entitled to attend or take part in the Meetings of the Society, nor to receive the Society's printed papers, nor to vote. Any Member who is twelve months in arrear with his subscription shall be deemed to have forfeited his claim to membership. His name may be removed from the Register by order of the Council, but he shall nevertheless continue liable to pay the arrears of subscription due at the time of his name being so removed.

23. The Council shall have power at their discretion to reinstate such Member on payment of all arrears.

24. Subject to Article 26, Corporate Members shall have the right to be present and to vote at all Meetings, and to propose candidates for membership.

25. Under such regulations as the Council may deem necessary, Members shall be entitled to the use of such instruments and books as the Society may possess.

26. Annual subscriptions shall be payable by each member for twelve months in advance reckoned from the first day of the month in which he was elected.

LIFE MEMBERSHIP.

27. At any time after election to the Society a Member may, subject to the approval of the Council, commute all future annual subscriptions by a payment of Ten Guineas, which shall entitle such

Members to all privileges and rights of ordinary membership for the remainder of their lives.

EXPULSION.

28. The Council may at a meeting specially convened for the purpose expel any person who shall have acted wilfully in contravention of these Articles, or who shall, in the opinion of the Council, have been guilty of such conduct as shall have rendered it undesirable in the interests of the Society that he should continue a Member thereof, and the Council may remove the name of any Member who is expelled from the register of Members, and any person so expelled shall not be entitled to have returned to him any moneys paid by him as entrance fee, subscriptions or otherwise. On a motion for expulsion at least eight Members of the Council shall vote, and unless three-fourths of the votes are in favour of expulsion the motion shall be lost. No member shall be expelled unless and until he has been given reasonable notice of the meeting at which his expulsion is to be proposed and a proper opportunity of being heard at such meeting in his own defence.

OFFICERS AND MANAGEMENT.

29. The affairs of the Society shall be managed by a Council consisting of the President, the immediate Past-President, the acting Vice-President, the Hon. Secretary, the Hon. Treasurer, the Hon. Editor of the Society's Journal, seven elected Corporate Members, and not more than four representatives (being Corporate Members of the Society) selected by the Council from one or more Sectional Committees.

30. All members of the Council shall retire annually in December and shall be eligible for re-election, provided that no President shall hold office for more than three consecutive years, no acting Vice-President for more than three consecutive years, and no Member of the Council, other than the Hon. Treasurer, the Hon. Secretary and the Hon. Editor of the Society's Journal, shall serve for more than three consecutive years.

31. No person shall be eligible to serve on the Council who is not a Corporate Member of the Society.

MEETINGS.

32. An Annual General Meeting shall be held in December of each year, at which the Officers, Auditors and Council for the ensuing year shall be elected.

33. The President of the Council shall have power to call Special General Meetings at such time as he or the Council shall see fit.

34. Special General Meetings shall also be convened by the Council on such requisition, or in default may be convened by such requisitionists as provided by Section 114 of the Companies Act, 1929.

35. At a Special General Meeting no business other than that specified in the Notice calling the Meeting shall be transacted.

36. Subject to the provisions of Section 117 (2) of the Companies Act, 1929, relating to special resolutions, at least seven clear days' notice of the time and place of every General Meeting and of the business to be transacted shall be posted to every Corporate Member of the Society. No business other than routine business shall be taken at any Meeting without such notice.

37. Ordinary Meetings shall be held, at time and places appointed by the Council, to hear and discuss lectures and papers relating to branches of knowledge having a bearing upon the science of Radio Communication.

38. The Chair at a General or Ordinary Meeting, or at a Meeting of the Council, shall be taken by the President of the Society, or, in his absence, by the acting Vice-President of the Society. In the absence of the President and the acting Vice-President, the Chair shall be taken by any past President or Vice-President present, failing these the Members present may elect any Corporate Member as Chairman.

39. At a General Meeting each Corporate Member shall have one vote, which shall be given personally or by proxy. Ten Corporate Members shall form a quorum.

40. The Chairman of any Meeting shall, in the case of an equality of votes, have a second or casting vote.

41. An attendance book shall be kept, which all Members and visitors shall be required to sign.

VISITORS.

42. Each member whose subscription is not in arrear shall be at liberty to introduce one visitor at Ordinary Meetings, and to the Society's premises, provided such visitor has not been expelled from the Society or refused membership. The same visitor may not, without the consent of the Council, be introduced more than three times in one year.

NOMINATIONS FOR ELECTIONS OF THE COUNCIL.

43. Not later than the 24th day of October in each year the Council shall send to each Corporate Member entitled to vote a list of duly qualified persons whom they nominate for the offices of President, acting Vice-President, Hon. Secretary, Hon. Treasurer, Hon. Editor, and other elected Members of Council in December next following. This list must include at least two names of persons not serving on the existing Council.

44. After the issue of the Council's list, and not later than the thirty-first day of October following, any ten Corporate Members (but not more than ten) may nominate any other duly qualified person by delivering their nomination in writing to the Secretary, together with the written consent of such person to accept office if elected but each such nominator shall be debarred from nominating any other person for the same election.

BALLOT FOR ELECTION TO THE COUNCIL.

45. If any nomination in accordance with Article 44 has been made, then and only then, and not

later than five days before the date of the Annual General Meeting, the Council shall send to each Corporate Member entitled to vote a ballot paper, containing the names of all persons duly nominated, stating which persons are nominated by the Council, and giving the names of the Members by whom every other person (if any) is nominated.

46. Each Corporate Member voting shall erase sufficient names to reduce the number of names on the ballot paper, after such erasure, to the number to be elected to the respective offices. The ballot papers shall be returned so as to reach the Secretary not later than three days before the date fixed for the Annual General Meeting, and they shall be so marked and returned as may be from time to time determined by the Council.

47. At the Ordinary Meeting preceding the Annual General Meeting, the Members present shall choose two or more scrutineers for the purposes of the ballot. The ballot papers shall be delivered unopened by the Secretary to the scrutineers, who shall open them and count the votes and report the result to the President or to the Chairman before the hour fixed for the Annual General Meeting.

48. In the event of the scrutineers being unable to report the election of the prescribed number of persons to fill the vacancies in the Council owing to an equality of votes, they shall submit the names of the candidates having the same number of votes to the President or Chairman of the Annual General Meeting, who shall determine by his casting vote or votes which candidate or candidates having equality of votes shall be elected.

49. The President, or the Chairman of the Annual General Meeting, shall announce the result of the ballot and declare the new Council duly elected.

50. The persons elected shall take office on the 1st day of January next following.

MEETINGS OF COUNCIL.

51. The Council shall make provision for carrying out the objects of the Society, and for conducting its affairs in accordance with the Memorandum and Articles of Association. They shall, subject to the Regulations of the Society for the time being, and to the provision of the Statutes, have the sole control and management of the income, property, and affairs of the Society, and may appoint and dismiss any paid officers or servants.

52. Meetings of the Council shall be summoned by the Secretary, under the direction of the President. Five Members shall form a quorum.

53. The Council shall meet at least once in each calendar month during a Session.

54. In addition to the Meetings mentioned in the last article, the President may at any time direct the Secretary to summon a special Meeting of the Council; and he shall direct a Special Meeting thereof to be summoned at any time upon a requisition addressed to him by three Members of the Council.

55. Questions arising before the Council shall be decided by a show of hands, except in any case in

which a ballot shall be demanded, or in which a ballot is required by these Articles, and, in case of an equality of votes, the Chairman shall have a second or casting vote.

56. Any Member of the Council who shall be personally concerned in a question under consideration shall retire during the discussion and determination of the same.

57. If at any Meeting of the Council business be introduced of which notice has not been given either at the previous Meeting of the Council or in the summons calling the Meeting, any Member present shall be entitled to require that no vote or decision shall be taken on such business until the next Meeting of the Council; but, subject as aforesaid, any business may be transacted at a Meeting of the Council without notice of such business having been given.

58. The Council shall, at the Annual General Meeting, present to the Society a Report on the position of the Society, financially and otherwise, and on the affairs and proceedings of the Society generally during the previous year.

59. The Council shall have power to make from time to time such regulations, not being inconsistent with these Articles, as they may deem to be for the well-being of the Society.

ACCOUNTS AND AUDIT.

60. The Society shall, at the Annual General Meeting in December of each year, appoint properly qualified Auditors to audit the Society's accounts for the ensuing year. They shall audit the accounts to be produced at the Annual General Meeting. No Member of the Council shall be eligible to act as Auditor.

61. The Auditors shall have access at all times to books, accounts, and vouchers and shall have the right to such information and explanations as they require. The Society in General Meeting may make reasonable restrictions as to the time and manner at and in which the books and accounts of the Society shall be open to the inspection of the members, and subject thereto such books and accounts shall be open to their inspection at all reasonable times during business hours.

62. The Report of the Treasurer shall be presented at the Annual Meeting, duly audited. A copy of the Report and Accounts shall be sent to each Corporate Member at least seven days before the date of the Meeting.

63. The Auditors shall report to the Council, and such report shall be read before the Society in General Meeting.

64. The provisions of Sections 132, 133 and 134 of the Companies Act, 1929, shall apply and be observed.

INVESTMENTS OF THE SOCIETY.

65. Such of the moneys of the Society as shall not be required for the immediate purposes thereof may be invested from time to time by the

Council (either in the name of the Society or in the name or names of such person or persons on behalf of the Society as the Council may from time to time appoint) in any of the public Stocks, or Funds or Government Securities of the United Kingdom or India or in Bank of England Stock, or in or upon the Bonds, Mortgages, Debentures, Stocks or Securities of any Municipal Corporation in Great Britain, or in or upon the Debentures, Preference Shares, or Stocks of any Railway Company in Great Britain or India, or upon any other Security that may be approved by the Society in General Meeting; with power to vary such investments for others of any kind hereby or hereafter to be authorised, provided that moneys subject or representing property subject to the jurisdiction of the Charity Commissioners for England and Wales shall only be invested in such securities and with such sanction (if any) as may for the time being be prescribed by law.

SECTIONS.

66. The Council may authorise the formation within the Society of sections, consisting of groups of its Members, united in pursuit of some common interest. Such sections shall be formed and governed by regulations which shall have been approved by the Council, and shall be in accord with the Memorandum and Articles of Association of the Society. The management of the affairs of a section may be entrusted by the Council to a Committee.

67. The President and Secretary or Hon. Treasurer of the Society shall be *ex officio* Members of all Sectional Committees, and as such shall be entitled to be present at Committee and other Meetings of the Sections.

68. The recognition of a Section shall be given by the Council in writing, but no such recognition shall be accorded until compliance has been made with the requirements of the Council and the scheme, containing the objects, rules, and other particulars, has been approved by them.

69. The Council may invite representatives of a Section to Council Meetings when matters concerning their Section are to be discussed.

AFFILIATED SOCIETIES.

70. The Council may admit Societies interested in the Science of Radio Communication to the privileges of Affiliation at any Meeting of Council.

71. The annual subscription to be paid by an Affiliated Society shall be regulated by the Council.

72. An Affiliated Society which is twelve months in arrear with its annual subscription may, after due notification of the amount of the arrears, be removed from the Register by order of the Council, but shall be liable for all arrears due at the time of removal from the Register.

NOTICES.

73. A Notice may be served by the Society upon any Member, either personally or by sending it through the post in a prepaid letter addressed to such member at his registered address.

74. Any Notice sent by post shall be deemed to have been served at the time when the letter containing the same would be delivered in the ordinary course of the post; and in proving such service it shall be sufficient to prove that the letter containing the Notice was properly addressed and put into the Post Office.

75. Any Member residing out of the United Kingdom may name an address within the United Kingdom at which all Notices shall be served upon him, and all Notices served at such address shall be deemed to be well served. If he shall not have named such an address he shall not be entitled to any Notices.

THE SCHEDULE.

I, the undersigned, agree that in the event of my election to membership of The Incorporated Radio Society of Great Britain, I will be governed by the rules, regulations and Articles of Association of the Society as they now are or as they may hereafter be altered; and that I will advance the objects of the Society as far as shall be in my power;

providing that whenever I shall signify in writing to the Secretary that I am desirous of withdrawing from the Society I shall after the payment of any arrears which may be due by me at that period be free from this obligation.

WITNESS my hand this

day of

Names, addresses and descriptions of subscribers :
H. C. L. HOLDEN, Brig.-Gen., 2, St. John's Park, S.E.2 (Army Retired Pay); MAURICE CHILD, 60, Ashworth Mansions, Maida Vale, W.9 (Director of Company); O. F. BROWN, 13, Hampstead Way, N.W.11 (Civil Servant); J. H. REEVES, 2, Penywern Road, S.W.5 (Tutor); H. R. HALLIWELL, 2, Princes Road, Crumpsall, Manchester (Electrical Engineer); GERALD MARCUSE, Queens Park, Caterham (Merchant); * H. BEVAN SWIFT, 49, Kingsmead Road, Tulse Hill, S.W.2 (Electrical Engineer).

Dated the 22nd day of July, 1926. Witness to the above signatures, FEARNLEY OWEN, St. Michael's Alley, Cornhill, E.C.3 (Solicitor).

Blil Heathcote, ZS6CS, who was our pre-war representative in South Africa, informs us that he has obtained permission from his company to engage in part-time training with the S.A. Engineering Corps (Wireless Section). His pal, Tommy Yule, has accepted similar service with the S.A. Corps of Signals.

v v v

W.O. Norman Guy, G2DN, who was for long associated with the now defunct "ZQ party," has recently left for TF and VE. We trust he enjoys his trip and that many ham contacts are established *en route*.

v v v

A belated, but none the less welcome New Year's greeting card, of unique design, reached Headquarters on March 1 from Dev. Deveen, G4HF, who is a member of the London Varieties Entertainment Branch and now at G.H.Q., M.E.F.



F./Lt. Jack Hum, G5UM (left), and L.A.C. Robertson, ZLIJZ, send greetings from Iceland.

Major E. Y. Nepean, G5DN, writing from Iraq early in December, confirmed the news, received via GW2PH and reported on page 322 that Capt. John Holding, G4AS, is in his neighbourhood. Both are fit and well.

v v v

Old timers will remember that Major Nepean was the originator of the famous call AC4YN, in fact, he chose it because it was similar to his earlier G call, —5YN. News has just been received that Reg. Fox who succeeded Major Nepean as Wireless Officer at Lhasa and made AC4YN world famous, has, through illness, been compelled to leave Tibet for a warmer climate. H. G. Baker, BERS451, late of Jubbulpore, India, in a letter dated January 1, addressed to Headquarters, reports that he was selected at very short notice to take over from Mr. Fox, who is now in Bombay. Mr. Baker's address is British Political Mission, Lhasa, Tibet, at which address he will be glad to receive letters from old friends.

No recent news has come to hand from Reg. Fox but in the hope that he will receive this issue safely, we send him best wishes for a full and complete recovery to health.

Our greetings are also sent to the new custodian of AC4YN; may we soon hear that call again.

Pte. Fred Wingfield, G3CX, well known to many Sussex members, wrote from the M.E. (Iraq?) under date of November 30, to say that he had met Phil Evans, GW8WJ, and Jack Taylor, G8TH. He had just enjoyed a spot of leave in Palestine after being in "dry dock". Fred won't risk losing war time issues of the BULL. so Mrs. CX sends him "potted extracts" each month.

v v v

By the same post that brought a letter from our East Anglia D.R., G2XS, bemoaning his inability to "raise" hams by means of his windscreen sticker, came a note from L.A.C. H. G. Chandler, G6BP, who is stationed at an R.A.F. station near Norwich. G6BP reports that two of his S.O.'s are hams—G2RI and 3NC—and that previously G2NG and the late G8HA held the same post. 2FGB was with him for some while but he has now gone overseas. Rumour hath it that some American amateurs are attached to his station, but no contacts have yet been made. G6BP sends 73 to all old friends in District 7.

v v v

Lt. H. Jones, G5ZT, now serving aboard H.M.S. "Devonshire" wishes to be remembered to all friends in Preston and elsewhere. Paul Smith, 2FWV, who sends this request, regrets the absence of news from District 16. He is now in Cornwall.

v v v

Congrats to Joe Bryden, 2BOL, on his promotion to Captain. Pre-war members will remember him as the designer of several ingenious remote controlled models displayed on the Society's stand at Olympia.

BOLTON CALLING!

A

CONVENTIONETTE

will be held in

**THE ASPIN HALL,
DEANS GATE, BOLTON,**

on

Sunday, March 29th, 1942

at 2.30 p.m.

INCLUSIVE CHARGE 2/6.

Reservations to G. Shackle (2DVQ), 32 Bromwich Street, Bolton. R.A.F. personnel should advise Sgt. D. Carr (G2XU) to assist catering arrangements. Early reservation is essential.

YOUR COMPANY IS REQUESTED.

Our President Greets WIBOO and W3AXR

First official contact between the Society and U.S. amateurs on active service in Great Britain, was established last month when Mr. A. D. Gay, G6NF (President), had the honour of entertaining Lt. Julien Edgerley, WIBOO, of Massachusetts, and Lt. Frank Homsher, W3AXR, of Pennsylvania, officers in the U.S. Naval Reserve.

In extending a welcome to these two well-known amateurs, G6NF expressed the hope that they would advise their colleagues to communicate with the Society on their arrival in Great Britain.

WIBOO and 3AXR are attached to a R.N. Signals School.

Gibraltar Amateur Radio Society

Amateurs serving on "The Rock" turned up in force at the special meeting held on January 30. Unfortunately the President, G15MZ, was absent but G5NM filled the breach and presided over a meeting which included the new, but we hope, soon to be familiar, faces of VE5TR and G8IH.

VE5TR who hails from Vancouver, B.C. and now serving as a Pilot Officer in the R.C.A.F. was prevailed upon to give a talk on ham radio in Canada. Afterwards he was plying with questions concerning conditions in his country.

Later, G5NM read a cordial letter from G6CL conveying the good wishes of Council and stating that the Gibraltar A.R.S. is now in honorary affiliation with the R.S.G.B. A letter was also read from G3FT, late of the Gibraltar Naval W/T Station.

The problem of finding a new QRA for meetings is still unsolved. The ideal room would be one which is available at all times, and which can be fitted up as a workshop, but due to the crowded state of Gibraltar to-day, such a place will not be easy to find.

We hear and observe that:

G8IH has not been unknown to include his own call in test "Syko" transmissions.

G15MZ had some interesting QSO's in EK1 recently.

G5NM is likely to give a talk on the construction of bug keys in the near future—he made "fahsands of 'em"!

W6HCL, of Santa Barbara, California, is "somewhere on the Rock," with the R.A.F.

BERS 494 has been employing somewhat unorthodox aerial systems—not to mention power supplies—on an Army set.

G8IH and G6ZY recently arranged a "swap" to the mutual benefit of the Army and the Navy! G6ZY.

R.A.F. Bolton Amateur Radio Society.

It is with much pleasure that we announce the formation of yet another R.A.F. war-time radio Society.

The Society will be known as the R.A.F. Bolton Amateur Radio Society, and meetings will take place at R.A.F. Bolton. For security reasons normal meetings of the Club will be confined to R.A.F. personnel, except when special authority is obtained for individuals to attend.

R.A.F. members serving in the vicinity are cordially invited to contact the Honorary Secretary, Sgt. D. Carr, 63 Manchester Road, Bolton, who incidentally was primarily responsible for forming the Society.

We understand that Wing Commander Hamilton has accepted the position of President, and that S./Ldr. Vaughan is the Vice-President, with F./Lt. Leary undertaking the duties of Honorary Treasurer. The Chairman is P./O. Viner.

At the inaugural meeting no less than 40 of those present applied for R.S.G.B. membership.

The newly formed Society will take an active part in the meeting (announced elsewhere in this issue) which is to take place on March 29.

Ashton-under-Lyne and District Amateur Radio Society

Amateurs stationed in or around Ashton are cordially invited to visit the headquarters of the local radio club which meets on Wednesday evenings at the Beaconsfield Conservative Club, Stalybridge Road.

Interest is being maintained among members by frequent code tests organised by G6DV. Additional interest is provided by a multi-stage superhet whilst lectures are given at frequent intervals by G3BY and others. Recent subjects discussed have included V.H.F. transmitters, aerial arrays and wave propagation.

Are You in Northern Ireland?

If so you are invited to visit the City of Belfast Y.M.C.A. Radio Club (G16YM), Wellington Place, Belfast, N.I., or to get in touch with R. S. Holden, G15HU, 260 Grosvenor Road, (Hon. Sec.), or F. A. Robb, G16TK, 60, Victoria Avenue, Sydenham (Hon. Treasurer).

A Unique Record.

Can any ham equal Don Knock's (VK2NO) record of having served in all four Services? He joined the R.N.A.S. in 1916, was transferred to the R.A.F. in April, 1918, served for a time in the Merchant Navy as a marine engineer, and now holds a commission in the Australian Army Signals Corps. To cap it he was one of the first Boy Scouts and took part in the ceremonies connected with the funeral of King Edward VII.

Correction

Mrs. Jennings, wife of G4BY, asks us to state that Gunner Peter Seath, G4FI, whose death in a Prisoner of War camp was reported in the January issue, succumbed to diphtheria and not to pneumonia. Peter was taken prisoner in Crete on June 1, 1941, and died on October 5.

Stray

W. Anderson (2FQO), 93 High Street, Newburgh, Fifeshire, would like to hear from GM2SL, 2WL, 3DP, 3IK, 5FT, 6IW, 6ND, 6QD, 6RF, 6VH, 8AH, 8FM, 8HJ, 8MJ, 8QD, 8RJ, 8VL and all old B.R.S. and A.A. friends.

ON ACTIVE SERVICE

THIRTIETH LIST

WE publish below our thirtieth 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 March 2, 1942.

Rank and Name	Regiment or Branch	Pre-war Call or B.R.S.
Pte. T. H. Aldrich ...	R.A.M.C.	4728
A.C.1 A. Avery ...	R.A.F.	4732
Capt. J. Banham ...	R.C. of S.	4739
Tel. W. Bell ...	R.N.V.(W.)R.	4733
Pte. C. Beaumont ...	R.A.S.C.	4811
A.C.2 R. Blackwood ...	R.A.F.	4817
L.A.C. R. S. Borman ...	"	4712
Cpl. J. F. Brooks ...	"	4759
Sig. H. R. Butterworth ...	R.C. of S.	2HDO
Lt. M. H. R. Carragher ...	Queen's Royal Regt.	4795
Lt. C. E. Cater ...	R.A.O.C.	4726
A.C.2 D. R. Church ...	R.A.F.	4710
Sig. A. Collins ...	R.C. of S.	2FII
L.A.C. W. H. Coy ...	R.A.F.	4723
Cpl. H. Cox ...	R.A.O.C.	4740
Sig. D. F. Craig ...	R.C. of S.	4046
C.S.M. J. A. Craigie ...	"	4787
A.C.2 L. E. Currington ...	R.A.F.	4741
C.S.M. J. Davidson ...	R.C. of S.	4730
Sig. R. A. Delahurst ...	"	G4QD
Spr. P. H. Draycott ...	R.E.	4707
P/O. J. W. Dunn ...	R.A.F.	4771
L.A.C. P. Egan ...	"	4769
Pte. F. Elliott ...	R.A.O.C.	4051
F./Sgt. F. J. Elliott ...	R.A.F.	4791
Lt. A. L. Fayerman ...	R.C. of S.	4766
Cpl. E. G. Finch ...	R.A.O.C.	2755
Sgt. E. K. Freestone ...	R.A.F.	4727
C.Q.M.S. E. Freshwater ...	R.C. of S.	4785
Sadler A. A. Fyfe ...	R.A.S.C.	4758
Pte. J. S. H. Garner ...	R.A.O.C.	2BHH
Cpl. J. Glenn ...	R.A.F.	4772
L./Cpl. P. Gourlay ...	R.C. of S.	GM3LO
Pte. P. H. Greenwood ...	Somerset L.I.	2BUJ
L./Sgt. R. A. Gurton ...	R.A.O.C.	4804
Sgt. K. Hailstone ...	R.A.F.	4705
Sgt. R. Hall ...	R.A.O.C.	2HCU
L./Sgt. C. R. Hampton ...	"	4805
L.A.C. P. L. Hampton ...	R.A.F.	4722
A.C.2 D. G. Hicks ...	"	4753
Cpl. T. W. Hudson ...	"	2BHA
L.A.C. S. L. Jacobs ...	"	4806
L.A.C. W. Johnson ...	"	4796
P/O. C. E. Jordan ...	"	4764
Sig. H. S. King ...	R.C. of S.	4786
Sgt. N. J. Kite ...	R.A.F.	4754
L.A.C. K. Lindsay ...	"	4803
Sig. M. F. Long ...	R.C. of S.	G2CL
Cpl. A. Lord ...	R.A.F.	G6AI
Tel. A. W. Mann ...	R.F.R.	4757
Sig. C. G. Mattock ...	R.C. of S.	4773
Cpl. C. Meek ...	R.A.F.	4752
A.C.2 R. E. Molland ...	"	4163
P/O. J. K. Moodie ...	"	4794
Cpl. C. R. S. Moon ...	"	G5MN

Rank and Name	Regiment or Branch	Pre-war Call or B.R.S.
Sig. J. F. Moseley ...	R.C. of S.	2CIW
L./Cpl. A. Moston ...	R.A.O.C.	GW2GV
Sig. F. Norman ...	GuardsA'm'd.	4813
	Div. Signals	
A.C.2 M. G. Price ...	R.A.F.	4708
Cpl. D. Prowse ...	"	4797
Cpl. F. S. Richardson ...	R.A.O.C.	4801
A.C.2 R. J. Rowbottom ...	R.A.F.	G3VP
W./Mech. H. Royle ...	F.A.A.	2BFJ
Sig. H. R. Shipway ...	R.C. of S.	4716
Sgt. N. E. B. Stapleton ...	R.A.	4767
Pte. W. S. Sykes ...	R.A.O.C.	2DJS
Major E. W. Tapper ...	R.A.	4191
2nd/Lt. H. E. F. Taylor ...	R.C. of S.	VU2FS
Cpl. D. Tazzyman ...	"	4729
Sig. A. S. Thomas ...	"	GW3AX
Cpl. H. G. Thomas ...	R.A.O.C.	4743
F./Lt. L. H. Thomas ...	R.A.F.	G6QB
A.C.2 K. Thompson ...	"	4765
L./Cpl. F. V. Trigg ...	R.C. of S.	4815
A.C.1 G. F. Walker ...	R.A.F.	4776
F./O. G. E. Wheeler ...	"	4084
A.C.1 D.M. Williams ...	"	2CSX
F./Sgt. T. Whitley ...	"	4731

Merchant Navy Records

In order that Headquarters records shall be made as comprehensive as possible, it is proposed to publish lists of members serving in the Merchant Navy.

The following details are solicited:—

Name; Rank; Call Sign or B.R.S.; Name of

Company; Name of present Ship.

Ship names will not be published.

Information should be sent to Headquarters as soon as possible.

"HAM-RADIO" CROSSWORD No. 10

SOLUTION.

1	R	2	E	3	V	4	O	5	L	6	V	7	E	8	O	9	C	10	C
11	E	12	O	13	I	14	V	15	M	16	O	17	R	18	S	19	E		
21	C	22	A	23	L	24	I	25	B	26	R	27	A	28	T	29	E	30	A
31	O	32	U	33	E	34	D	35	G	36	A	37	S	38	E	39	S		
41	I	42	M	43	M	44	E	45	R	46	S	47	E	48	A	49	T	50	E
51	L	52	E	53	A	54	D	55	A	56	S	S							
61	C	62	O	63	L	64	D	65	H	66	I	67	L	68	L				
71	T	72	O	73	O	74	U	75	N	76	F	77	A						
81	H	82	N	83	C	84	S	85	E	86	S	87	S	88	I	89	O	90	N
91	U	92	L	93	T	94	R	95	A	96	E	97	P	98	L	99	O		
101	M	102	R	103	R	104	E	105	F	106	L	107	E	108	C	109	T	110	E
111	P	112	R	113	O	114	U	115	D	116	O	117	C	118	E	119	E		
121	S	122	L	123	S	124	R	125	E	126	T	127	U	128	R	129	N	130	S

73.

G2HV (R.N.V.(W.)R.) to G3JS, 3JM, 3PA, 6CY, 8AC, 2DHL, BRS3623, 4548 and all R.N.V.(W.)R. and Brighton and Hove old friends.

▼ ▼ ▼

G2XC (R.A.F.), to G2XU, 2YL, 2ZR, 2ZV, 3WZ, 3YY, 4FA, 6TV, 8BD, 8GG, 8LO, 8LY and all members of the S.H.R.T.S.

▼ ▼ ▼

G3AN and **2HBG** (R.A.F., Sudan), to G2AA, 2IX, 2RI, 2XD, 3BU, 3KH, 4BJ, 5MY, 5GN, 5ZP, 6AY, 6GO, 6IM, 6JQ, 6VD, 8CZ, 8LD, GW3CR, GM6IS, VK3MR, ST2CM, 2BLR, 2CFC, 2DLZ.

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G3BR (R.A.F.), to G2WI, 3GK, 3SH, 3YK, 4DC, 4DD, 6JB, 8GP, 8PT, 8RN, 8WO, 2CFD.

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G3CX (Rose Cottage, Old Heathfield, Sussex), to G2AO, 2AX, 2PA, 3AT, 4FV, 5IH, 5OC, 5JZ, 5RO, 6GO, GW5KJ.

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G3LP (R.A.F.), to G3HC, 3IO, 3LZ, 3SB, 3YH, 4IP, 5KT, 5QG, 8KL, 8SR, 8SZ, 8UR.

▼ ▼ ▼

G3UY (Guildford), to G3WN, 3YK, 3ZI, G15OY, 8PA, E17M.

▼ ▼ ▼

G3WX (R.A.F., Cape Town), to G2ZL, 3LY, 3SH, 4DC, 6QM, 8GP.

▼ ▼ ▼

G3YY (R.C. of S.), to G2AO, 2LC, 2OD, 2RD, 2RU, 2XI, 2ZV, 2CIA, 2DDD, 2FAD, 2FQZ and 2HLF.

▼ ▼ ▼

G4FN, to G2CD, 2IZ, 2YH, 3BN, 3GF, 3GW, 4AK, 5IL, 6AB, 6VC, W1BLO, 1FSI and all the "Eagles."

▼ ▼ ▼

G4QD (R.C. of S.), to G2QB, 2RF, 5AX, 6FW, 8GA, SUI8G, SU8MA, VE3DQ, VP6TR, VQ4CRH, W1BLO, 8DST and all 7 and 14 Mc/s. friends.

▼ ▼ ▼

G5DN (ex AC4YN), to G2BI, 2CW, 2FL, 2GG, 2NO, 3DN, 4AS, 6RB, 6SE, 6WT, 2DBK, VU2FO and all old friends in District 5.

▼ ▼ ▼

G5IV (R.A.F., N.I.), to G2BH, 2SO, 3PG, 4JJ, 5KM, 6LZ, 6XG, 6PY, 8IJ, 8NM, 8WF, 2DQL.

▼ ▼ ▼

G6QF (37 Bee Fold Lane, Atherton, Lancs.), to G3IM, 3TK, 5YV, 5ZN, 6CB, 6SO, 8UL, GM8MQ, W2IOP, 2BTO, 2FMF, BRS3688 and all old friends.

▼ ▼ ▼

G8NS (R.A.F.), to G2WR, 3GS, 3VG, 5AX, 5RL, 5KV, 8DI, 8WI, BERS195 and all Notting-hams.

▼ ▼ ▼

G8SI (60 Angusfield Avenue, Aberdeen), to G2OU, 2HC, 2IK, 2SD, 2TL, 3BT, 3OS, 3SI, 3UP, 5YY, 8AZ, 8BN.

▼ ▼ ▼

G16TK, to G3AH, 3BR, 3JO, 4LZ, 6KS, 6OQ, 8DI, 8PR, 8PW, 8SM, 2AMW, E18N.

▼ ▼ ▼

GM3LO (R.C.S.), Aur the best tae auld pals.

GW2GV (North Wales), to G5UG, 8GG, 8RF, GW5OD, 6AA, 6OK, 2AMY and all old friends in District 11.

▼ ▼ ▼

2AKK (R.A.F.), to G2HW, 3VV, 4CJ, 4FD, 4JS, 6BH, 8FI, 8JA, 2FUC, VE4NJ and all Blackburn members.

▼ ▼ ▼

2ATB (A.T.S.), to LA6A, 9N, SP3DF and 2CVA.

▼ ▼ ▼

2BTO (R. Signals), to G3CJ, 6PO, 6QA, 6QF, 2ABF, 2ABT, 2DVQ, 2FPI, BRS4177, 4325.

▼ ▼ ▼

2CDG (R.A.F.), to G2RX, 3AD, 3SH, 4HK, 5RR, 8NY, 8VD, 8VS, GW3KY, 4KQ, 8WU.

▼ ▼ ▼

2CIL (c/o Y.M.C.A. Radio Club, Belfast, N.I.), to G2JB, 2JV, 2XC, 3OM, 3YY, 5CM, 5IR, 6NA, 8OS, 2AAH, 2DCT.

▼ ▼ ▼

2CIW (R. Signals), to G2CD, 2YH, 3GF, 3LW, 3OA, 4FN, 6DS, 8NY, BRS4094.

▼ ▼ ▼

2FQQ (R.N.V.R.), to G2FS, 3RF, 3XV, 4BW, 8PW, G15HU, 5QX, 6TK, GM3UM, GW3CR, 2BYC, 2HDC and all District 13 members.

▼ ▼ ▼

BRS4362 (R. Signals), to G3AO, 8HG, GM8MQ and 2BAG.

▼ ▼ ▼

ZLILI (Graham Bice) and **ZL2IO** (Sid Collins) (c/o Y.M.C.A. Radio Club, Belfast), to all New Zealand amateurs in the U.K.



Miss Denise Bullough, 2ATB, is a gunner in the A.T.S.

PRISONERS OF WAR FUND

Parcels

In accordance with the arrangement referred to in an earlier issue, monthly parcels, to an average value of £1 each, continue to be sent to the 17 members who are known to be prisoners of war.

Books

The response to the appeal for books has been negligible. Members in a position to supply novels (such as those in the Penguin series) or technical books of the type referred to last month, should communicate with Mr. C. H. Lamborn Edwards, G8TL, "Speedways," St. Bartholomews Lane, Sudbury, Suffolk.

Invalid Comforts

Advice has been received from the Army and Navy Stores to the effect that invalid comforts can now be sent, subject to a permit being obtained from the Red Cross, to prison camps. Mr. Lamborn Edwards, who possesses a complete list of goods which can be forwarded, would be glad to hear from the parents or relatives of any member who may be in need of invalid comforts so that a special parcel can be prepared.

Donations

It is with pleasure we have to announce that donations received to date have totalled over £200. Noteworthy was the addition to the fund last month of the sum of £18 15s. 2d., representing the refund on stamps from QSL envelopes which had been held at the Bureau for some years.

Regular monthly donations from several Districts are gratefully acknowledged.

A full list of recent contributions appears below:

	£	s.	d.
P. H. Smith, 2FWV	...	5	0
G. E. Jones, G6ZB	...	1	1
E. R. Martin, G6MN	...	5	0
H. W. Fisher, 2CKP	...	5	0
Anon	...	5	0
A. R. Young, 2DIQ	...	10	0
L. Ballingall, BRS4057	...	15	0
Mrs. E. Broomfield (wife of G6OQ who is abroad)	...	5	0
E. Spencer, G4HV	...	10	0

	£	s.	d.
Proceeds from sale of stamps from			
QSL envelopes	...	18	15
E. W. Rawlings, G5RS	...	5	0
M. T. Elvy, G3BQ	...	10	0
H. Harding, GW2HH	...	1	1
C. E. Brookes, BRS3811	...	2	0
F./O. J. H. Brownell, VE4BU	...	1	0
Anon	...	10	0
W. A. Nokes, G2ZJ	...	5	0
J. T. Shrouder, G6JT	...	10	0
District 13 (per G2GZ) (3rd donation)	...	8	6
H. Ridge, G3HR	...	4	6
P./O. E. J. Williams, G2XC	...	1	1
J. W. Paddon, G2IS (2nd donation) (per Finch Club)	...	1	0
T. H. Beaumont, G6HB	...	1	1
District 5 (per G6RB), (2nd donation)	...	2	10
H. E. Sutton, 2ANS	...	5	5
F. S. Adams, G2YN	...	10	0
W. F. Ralph, BRS4154	...	3	3
E. F. Watson, 2AGS	...	1	7
"Batchelors All" (per G8PP)	...	1	10
A. W. Alliston, G5LA	...	5	0
District 7 (per G2DP), (4th donation)	...	10	0
W. Hartley, G8UY	...	6	3
Anon	...	2	1
E. S. Elliott (ex G5LT)	...	10	0
P. L. Cawell, BRS4042	...	1	1
W. K. Mitchell, BRS2802	...	5	0
District 17 (per G2UK)	...	1	12
Scotland "A" District (per 2CHN)	...	3	3
E. Marshall (Father of G2XQ who is a prisoner of war), (3rd donation)	...	10	0
Sq./Ldr. L. H. Mansell, G6IH	...	1	1
District 8 (per G5BQ)	...	10	0
W. D. Ingle, GM2BD	...	10	6
L. Allen, BRS4497	...	5	9
F./Lt. K. Dunsford, G6KD	...	10	6
F. J. Taylor, BRS4249	...	5	0
R. T. Dealey, G6DT	...	6	0
Previously acknowledged	...	158	9

Total to date **£212 2 6**

AMERICAN COMMENTARY

We understand that the provisional plan announced in our last issue, whereby certain U.S.A. amateur radio stations would be permitted to remain active for emergency work, was abandoned as from January 9. In its place an official plan is being created to bring certain qualified amateurs back on the air under proper supervision, for definite defence communications in local A.R.P. work, and as an auxiliary to the telephone system. This new project will undoubtedly create a great deal of work for the American Radio Relay League, in the selection of the necessary personnel, in supplying technical data for station construction, and in teaching proper operating procedure. Above all, the League will have the important task of maintaining the "esprit de corps" of the Defence network operators.

We think it conceivable that WIAW (the League station) may be "reactivated" for the resumption of code learning transmissions, as the code proficiency programme operated by the League during the last few years has been very successful.

No official news has reached us regarding the future of the QST Laboratory, but in view of the wealth of equipment, to say nothing of the talent available, it seems possible that the energies of the staff may be directed to the investigation of such subjects as light-beam communication, infra-red, ultra-violet and wired wireless.

We, in R.S.G.B., need have no fears that the League will fail to prepare for the day when amateurs are again free to pursue their hobby.

THE MONTH "OFF" THE AIR—February

By A. O. MILNE, G2MI.

G3NP recently back from a long and exciting spell afloat as a radio operator in a merchant ship, says he has been torpedoed three times in this war but still likes the sea! Not long ago he called in at Pitcairn Island and had a personal QSO with Andrew Young, VR6AY. A ship calls there about once a month. Other ports of call were Jamaica, Bermuda and New Zealand and later New York. He also tells of an interesting visit to Radio City where he saw a number of broadcasts taking place, and was greatly amused by the activities of the "Cheer-Master" who holds up a board when the studio audience is required to clap! Even applause must not cut into an advertiser's time on the air! He is now away on his travels again, so we wish him the best of luck.

From G3SB comes news of an old friend of many British amateurs—HB9BG of Lucerne. I quote "I envy the times when we will be talking radio together. Let us hope it will not be too long till then. Personally I am quite often on the air, as my firm has a commercial licence, so I am sometimes transmitting under the call HBVP. Of course, I spend two-thirds of all the time in the Army here, since September, 1939. I am an officer in the wireless section."

Apropos of the competition, for which, by the way there have been no entries so far, G5OV mentions three rather exciting contacts. His first QSO outside Europe on 14 Mc. was with VK5WM! His second thrill was working VU2DY (later XZ2DY) who

learned the code and built his transmitter at 50V's home. The third, was working AC4YN. And how!

There is no further news of Eric Trebilcock but we feel sure it will take more than a few Japanese bombs to stop him writing or talking Ham Radio!

According to W2CMY, W2JQT is on his way to this country. Should this catch his eye, we should like to hear from him.

"Ham Chatter," the lively South African periodical, still turns up regularly each month. One of the items which caught our eye in the latest issue to arrive was a list of the contents of the official District 6 Christmas parcels sent to the boys "up North." Apart from their general enthusiasm, this little band of folk deserve the warmest congratulations on their magnificent work.

A letter from ZS6GR, quoted in "Ham Chatter," tells how he and ZS6GA share an old Egyptian tomb as a dugout! It is about twenty feet below ground and about twenty feet square, and contains 16 graves cut into the walls. Some of the fellows have their beds in them but so far have met nothing worse than scorpions and snakes. The general feeling is that radio and electric light would make the original inhabitants feel rather bewildered should they think of revisiting the scene!

And so ends the shortest M.O.T.A. yet! It's up to you, chaps!

(Late News.—Writing under date of December 31, Eric Trebilcock reported "All well." Extracts from his letter will appear next month.—Ed.)

A SUNDAY IN LINCOLNSHIRE.

SUNDAY, 22nd February dawned grey over No. 1 S.S., but the thought of the cheery welcome which awaited us at the "Queen's Head" acted as a strong tonic and enabled us to face with light hearts the struggle for a place in the bus and the prospect of a long walk through (dare we mention it?) a snow-storm.

By 4 p.m. the last few stragglers had squeezed themselves into the Bar Parlour and above the QRM of a general rag-chew could be heard the voice of one of our six American friends assuring G2OK that California was the finest spot on this earth.

A hasty count and the good landlady was assured that she might go right ahead with teas for 37 hungry hams. By this time, the sun had made an appearance and with it, the inevitable photographer, who insisted upon our forsaking the comfort of the parlour in order to stand shivering outside whilst he studied his "tuning notes" and squinted at us through his view-finder.

This ordeal over, we beat a hasty retreat into the cosy interior and on being informed that tea was ready, wasted no time in getting down to the real business of the afternoon. A sigh of satisfaction and a long line of empty plates bore eloquent testimony to the fact that justice had been done to the excellent tea provided.

Then followed the reading of a message from "Clarry" and letters from absent friends, after which the new D.R., G2UK, was warmly welcomed

and given an assurance of our support. In reply, Dr. Gee expressed great pleasure in being with us and only regretted that we could not all make a contribution to District 17 notes. His suggestion that a collection be made for the Prisoners of War Fund was heartily approved and subsequently put into effect.

Our U.S.A. friends upon being asked to tell something of their pre-war ham activities, provided an interesting and instructive half-hour and let us into the secret of that new unit of power—the "Californian Watt"!

To wind up the evening, the G's present were asked to relate their most interesting experience in amateur radio. It was difficult to decide which was the best, but G3NC's story of a portable rig using a megger for H.T. supply certainly brought the house down.

All too soon the meeting came to an end and we went our various ways cheered by the knowledge that Ham Radio was still able to provide a pleasant break in the dull daily round.

It is regretted that a complete roll call was not taken but the writer has a record of the following who were "on parade":—G2UK, 3NC, 6GQ, 2AZI, 2FCV, 2FNS, 2HNJ, 2CMN, BRS4363, 4616, 4469, 4169, 4477, GM2FY, VE5AAG, W6TIV, W7DCZ, W8TKA, W9MSI, C. W. Adams W5? Bob Cox. W9? G6TV.

BRITISH ISLES NOTES AND NEWS

District Representatives and Deputies.

DISTRICT 1 (North-Western). (Cheshire, Cumberland, Lancashire, Westmorland.) MR. H. W. STACEY (G6CX), "Sandreas," Edisbury Road, West Kirby, Wirral, Cheshire. Telephone: Hoylake 357.

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. Telephone: Torquay 2097.

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 54644.

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. C. SPILLANE (BRS 1060), "Woodside," Meliden Road, Prestatyn.

DISTRICT 12 (London North and Herts.). (North London Postal Districts and Herts., together with the area known as North Middlesex.) MR. S. BUCKINGHAM (G5QF), 41 Brunswick Park Road, New Southgate, N.11. Telephone: Enterprise 3112. Scribe: MR. P. R. SOLDER, (G5FA), 35 Torrington Gardens, New Southgate, N.11. Telephone: Enterprise 4347.

DISTRICT 13 (London South). (South-Eastern Area.) MR. L. H. SHERSBY (G2GZ), 41 Reverdy Road, Bermondsey, S.E.1. (Central Area.) MR. S. E. LANGLEY (G3ST), 62 Dumbarton Road, Brixton Hill, S.W.2. (South-Western Area.) MR. E. HAYTER-SIMMONDS (G8QH), 17 Roedean Crescent, Roehampton, S.W.15. Telephone: Prospect 1990.

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.) DR. A. GEE (G2UK), "Stonehaven," Horncastle Road, Boston, 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. Telephone: Langside-237.

NORTHERN IRELAND. MR. J. N. SMITH (G15QX), 19 Hawthornden Drive, Belfast. Telephone: Belfast 6323.

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

DISTRICT 1 (North Western)

Blackburn.—The gear of the late Jim Bolton, G4KT, was disposed of at an auction sale which was attended by 11 members. The sum of £19 1s. 9d. was realised and this was handed to Mrs. Bolton who invested it, in the names of her two children, during the local "Warship Week." She wishes to convey to all members her thanks and appreciation for this really splendid effort. (Thanks for your support O.M.'s.—G2TM).

As no one attended the meeting held at G2TM on "the Sunday before the 20th," there are no reports

for publication. BRS3627 is building a modified "Super Gainer" in collaboration with G2TM.

The T.R. will be glad to meet Service members who are stationed in the locality of his home at 11 Roe Lee Park. Telephone Blackburn 4117, Ext. 17, between 9 a.m. and 5.30 p.m. (via G2TM).

Bolton.—Inclement weather limited the attendance at the last meeting to five members including G8NI, who made the pilgrimage from a neighbouring town where he is stationed.

Congrats to Jack Crook, member of the now dormant Bolton Radio Society, on becoming the

proud father of a YL Junior Op. 2CKC and BRS4476, recently called on the T.R. The latter contacted a W9 and a ZL among the personnel at his new station. 2BTO, reporting a change of QRA, says he is breaking in his army boots very nicely and meets a ham with nearly every step he takes. His new QRA appears to rival the "Country Farmyard" in the density of its ham population.

It is hoped that there will be a good attendance at the Conventionette to be held on March 29th at the Aspin Hall, Bolton. G2XU, who is in charge of the social and catering arrangements, is very optimistic and promises wonderful things. If this meeting is as successful as anticipated it will be in no small measure due to his untiring efforts, so please roll up and support him. (via 2DVQ).

Whitehaven.—According to a letter from 2AYH, G3HJ is now in the M.E. 2ARW is about but has nothing to report. 6JZ is still in the Pioneer Corps. 2AUM, in East Africa, is finding things "cushy" at present. Jack Ivison, is at Leeds University on a radio course. No report has been received from our shy member, 2DWG. G4PZ, 6WR, 6ZT and BRS4745, who still meet fortnightly, have been pleased to welcome BRS4223, sojourning in Whitehaven from Blackburn. It is about time 8RZ came to life again. Newsy letters are received regularly from 3BW (Royal Navy) who is at school in the south. BRS4741 reports that 4NS has been home on his first leave from the R.C. of S. (Via G6ZT).

Stockport.—Only three members attended the last two meetings held at G3IR. This is far from encouraging in view of the notice in the December issue, and the promises of support made by members. It has been decided not to arrange future meetings for the time being.

G3IR recently met 4JN when on leave, whilst Sgt. Bowker telephoned when last home.

(via G3IR).

No further news has come to hand this month but the D.R. is glad to report that G8NS of District 4 has now been posted as fit for duty after his recent period of convalescence at West Kirby. He has been enjoying a spot of leave before re-joining his unit. G6CX.

DISTRICT 2 (North Eastern)

It is understood that ZL4DU is located in Yorkshire; G2MI hopes to meet him soon. G5GJ is now a Flight Sergeant and is stationed in District 6. 6HF has finished his 10-valve super which is now working well. 3UV is the proud father of a brand new YL junior op. 3HA, at No. 6 S.S., expects to be posted shortly. 8UO has heard from 3WD, 3WP, 3OA and BRS4412 and has had news of 8IJ. Will 2LT please write to 8UO?

There is no news from the rest of the District.

G2MI.

DISTRICT 4 (East Midlands)

Nottingham.—The meeting held at BRS4071 was attended by only four members. It is hoped that all others will realise that it is no easy task to organise meetings at the present time, and will attempt to support the efforts of the few who sacrifice their very limited spare time in order to keep things moving. After entertaining us with some very good recordings, 4071 demonstrated his new S.W. receiver. 8DZ brought along the V.H.F. receiver which is being developed by 2A00 and himself.

The next meeting will be held at 2A00, 78 Henry

Road, West Bridgford, on Sunday, March 22nd, at 3.30 p.m.

Congratulations and best wishes to 2DWZ who has recently taken unto himself a YF. We are glad to hear that 5TT is getting better again after a recent spell of his old illness. 2FXV is still pounding the pavements as a W.R. policeman.

Leicester.—In a cable to his father (BRS2793), VS2AR who was working for the Malay State Broadcasting Corporation, said that his wife and junior op. were en route to New Zealand. We sincerely hope that the next news will be good news.

2HBG writes from Sudan to say that he is still very much alive and kicking. He now has as companion none other than 3AN. Best of luck, O.M.'s.

Mansfield.—BRS3593 reports that there is very little local activity at the moment.

8NS hopes to be discharged from a convalescent home in the west in the near future. He has heard from 8OT who was home on 14 days sick leave.

Derby.—G2OU was recently visited by 8BN and 2CVV. The former, who was accompanied by his wife, has now been promoted to Sergeant. 2CVV is still on Army Co-op. work in the Midlands and is said to be spending his spare time on "bits and pieces for after the war."

It is reported that there is an XYL ham in town but up to the time of going to press 2OU's "D.F.ing" has not been successful. G6VD.

DISTRICT 7 (Southern)

Croydon.—The February meeting held at BRS4314 was attended by fifteen members and three prospective members. Those present included G2DP, 2FI, 2VB, 3DF, 3ST, 5AW, 5BT, 5PY, 6RF, 2ASD, 2HHD, 4150, 4314, 4324, 4603 and 4641. A

Forthcoming Events

- | | |
|---------|---|
| Mar. 21 | District 15, 6.30 p.m., at G2OL, 15 Queens Gardens, Ealing, W.5 (65 or 97 'bus from Ealing Broadway). |
| Mar. 22 | District 10, 3 p.m., at GW8UH, 29 Ladysmith Road, Cardiff. |
| Mar. 22 | District 12, 3 p.m., at G6CL, 16 Ashridge Gardens, Palmers Green, N.13. |
| Mar. 22 | District 13, 11 a.m., at G5AW, 68 Valleyfield Road, Leigham Court Road, Streatham. |
| Mar. 28 | London meeting, 2 p.m. at The Institution of Electrical Engineers, Savoy Place, London, W.C.2. Lecture 2.30 p.m.: Concentric Pipe Tuned Circuits. By D. N. Corfield, D.L.C. (G5CD). |
| Mar. 29 | Lancashire Conventionette, 2.30 p.m., at Aspin Hall, Deansgate, Bolton. (Inclusive charge 2s. 6d.) |
| Mar. 29 | Scotland "A" District, at 2.45 p.m., in the Coffee Room, Y.M.C.A. Residential Club, 100 Bothwell Street, Glasgow. |
| Apr. 5 | District 7, 3 p.m., at G2DP, 6 Dunheved Close, Thornton Heath (near pond). |

sale of G4AA's gear was held and Mrs. Pearce wishes to thank those who purchased items from her son's station.

We are glad to welcome 6RF from Plymouth who is now stationed locally. Best of luck to 6OD who has joined the Senior Service. 4314 has also joined up. 4584 was unable to attend the meeting as his wife was taken ill. (Best wishes for her speedy recovery, O.M.) 4NI has had another losing argument with the Doc, but fortunately all is well again. 4150's new Super is quite up to expectations and he is busy logging DX B/c stations. 2DP who is trying out three Hallicrafter S27's at work can think of some possible improvements. 2RD intends building a super with two I.F. stages.

G2DP would like the offer of a QRA in the Croydon area for the May meeting. Please write, call or phone THORnton Heath 2849 before March 25.

The next meeting will be held at 6 Dunheved Close, Thornton Heath (near the pond) on April 5th, at 3 p.m. *Everyone welcome.* (via G2DP).

Bournemouth.—Welcome this month to two new members—Mr. Zeid, 4685, and Mr. Gifford, 4694. The former is the brother of 2HAG and the latter a brother of 4179.

G4IJ is now safely at home with the R.C.S. His Comet-Pro has been acquired by 3789. 3VY has now recovered and has returned to his unit. 8KX paid a visit to Wales recently. 2FSL is home on sick leave from his Admiralty job and is shortly to have his tonsils removed. 2947, on leave, recently paid a visit to 2HNO. (via 2HNO).

Coulsdon.—4458 has constructed a Collin's Coupler and finds the signal increase far beyond his expectations. 6KM has been travelling round the country on business. 3003 has met several of the local hams including 2PL and XYL in their new QRA where he spent a very enjoyable evening discussing pre-war topics.

Where the majority of local members have got to is something of a mystery. Come on chaps, let's hear from you. (via BRS3003).

Oxford.—The February meeting, held at 2CVD's, was attended by G3HW, 3YO, 5RL, 8KL, 8NV, 8PX, LA6B, 2CVD, 2FQR and 2FSR. Topics were varied and ranged from crystal grinding to television. Best wishes to G2CL who has joined the R.C.S.

The next meeting will be held at 3 p.m., on Sunday, March 29th. Please write to 8PX, 1 Lovelace Close, Oxford, for details. All are welcome. (via G8PX).

Reading.—2HAX, who visited 5HH when on leave, is engaged on radio-location work somewhere in the North. Good wishes go with 6GT and 5HN who have recently joined the R.C.S. 2YB and 5HH are still doing a good deal of listening and tinkering with their receivers. 5HH is wondering what has become of 4AB. Reports for these notes would be very welcome. (via G5HH).

Guildford.—G6NA tells the story of the ex-railway telegraphist he went to see because of receiver trouble and found him copying code at 25 per off the signal meter, which he complained was rather sluggish!

The meeting at Guildford on February 28 saw a rather better attendance than of late. We were pleased to welcome 2FT from Mablethorpe, 2FWA and 3003. 2FWA mentioned that his stable-mate is 8CP and not 8CR as stated in the notes recently.

The next meeting will be held on Sunday, March 29, at the same place—the cafe at The Cinema, Woodbridge Road, Guildford, at 2.45 p.m.

G5WP.

DISTRICT 8 (Home Counties)

Fewer reports have come to hand this month, and so far only three donations have been received for the Prisoners of War Fund. To G2NJ and 3JU, many thanks. It is still not too late to help those friends of the ether, now not only QRT, but unable to enjoy the little personal QSO's that we are able to manage from time to time. Dig deep!

Cambridge.—The local radio fraternity was shocked to hear of the very serious accident to Sant Kharbandah (2PU). Homeward bound, after a visit to a theatre, he stumbled over a kerb-stone, and fell headlong into a wall. His injuries are very grave, and include a broken jaw, badly lacerated tongue, and broken nose. A series of operations and blood transfusions have taken place, and we are glad to report, at the time of going to press, that there is a slight improvement in his condition. Should anyone wish to write to him his address is Ley's Annexe, Addenbrooke's Hospital, Cambridge. 5JO is also confined to bed with mumps. 2XV reports as being fit, but very busy. 5BQ is taking an active part in the organisation of local Cadet units. 5DQ is still on his O.C.T.U. course in the South of England.

Peterborough.—G2NJ writes from the south-west that whilst at home, recuperating from illness, he met 5NP and 3DY (Whittlesey) who were on leave. 2NJ was pleased to learn from 3DY the whereabouts of 2UQ, and also discovered that 8QS is in Ireland.

St. Ives.—G5RL reports as usual. He has visited 8PX of Oxford and met 2FQR, who is at the same station, while the F./Sgt. in charge of RL's section is 3LA. Some concern is felt for the safety of XZ2DY and 8ST, last heard of in Burma and Malaya respectively. When 8ST wrote last, he had been listening to Daventry, way up in the jungle in Malaya. 4AZ and 5OV are both well, while Pat Crisp (6DX) is a F./Sgt. Instructor, somewhere in Yorkshire.

Bedford.—No report this month from BRS3585. Does this mean that he is now in the Services? Let's hear from you soon, O.M. 3JU has been giving Morse lessons to two colleagues who have volunteered for flying duties. He reports receiving U.S.A. and Canadian broadcast stations on the medium wave-band regularly whilst on night duty. G5BQ.

DISTRICT 9 (East Anglia)

Norwich.—G2MN reports that a VE has been heard of in the Norwich area but that he has not yet managed a contact.

Yarmouth.—BRS3468 has been on leave from GW. BRS3821 regrets that he has been placed in Grade 4 but no doubt he will find there are plenty of jobs on the Home Front. We wish him a quick return to good health.

Kings Lynn.—We have been pleased to welcome 5UD back to the fold, after his many journeys. He has been on leave. G2XS.

DISTRICT 10 (South Wales & Monmouthshire)

BRS4476, writing from the Isle of Man, says he has contacted ZL2MA and W9UYA who are serving on his station. During his training period G4GD was his instructor. BRS4420, who is welcomed to

the District, has already made contact with G5FN. GW2UL, 4GL, 2FQQ and G5FN meet almost daily at their base. The long-delayed meeting in Cardiff shows signs of materialising.

It is hoped that new members and others arriving in this area will contact the writer. G5FN.

DISTRICT II (North Wales)

Prestatyn.—There was an attendance of 18 at the February meeting when BRS2731 gave an interesting lecture-demonstration on radio 21 years ago. Lt. Litt, a visitor from the R. Signals, related his experiences as a Naval operator at CT2 during the last war.

The March meeting will be held at "Vale View," Meliden Road, Prestatyn, on Sunday, 22nd, at 2.30 p.m., when it is hoped to arrange a film show with the assistance of BRS2731.

Local news is scarce. GW3CF reports meeting G5ZI at an R.A.F. station in the District. BRS4027 has passed out from the N.W. Wireless College with a special P.M.G. certificate. BRS4023, writing by airgraph from the M.E., reports meeting several amateurs and asks that his 73 be conveyed to all old friends in the District. 2BRK has been contacted as the result of a sticker on the windscreen of his car. BRS1060 and 3044 were the detectives!

New members 4761 and 4762 are welcomed.

BRS1060.

DISTRICT 12 (London North and Hertford)

The 17 members who attended the last North London meeting, held at G5FA on February 22, were pleased to welcome VQ8AA whose signals were often heard in this country before the war; other visitors included G3SU, 5DP and 5VO. The Welwyn area was represented by G2CN. The usual rag-chew took place followed by a morse contest with some amusing angles suggested by G5DP. G3GX, who was home on leave from the R.A.F., showed us how it should be done. It is hoped to arrange a District Supper during May; watch for an announcement next month.

The following new members are welcomed to the District this month: 2FPP, BRS4659, 4674, 4677 and 4687. Letters have been received from LA9N, G5BB, 2CNC, 2FPC, BRS4116 and 4249. We should like to see some of the many new members at our meetings.

We are pleased to hear that LA9N is progressing favourably after his serious illness. He sends 73 to his friends in the District. G5BB (R.A.F.), is at present stationed in London, consequently he is able to get home once a week when he spends some time on post-war construction.

2CNC (St. Albans) is designing a 9-valve superhet receiver and is also interested in radio controlled models. He recently contacted BRS3412 who is now back home, and asks that other members in and around St. Albans should get in touch with him at 346 Hatfield Road. 2FPC, after two years in the Army, is now a Radio Mechanic in the R.A.O.C. and reports that overseas service is in the wind. (Good luck, O.M.). BRS4116 was recently home on leave and has now passed out as a Radio Mechanic in the R.A.F. He has been posted to No. 2 S.S. for a further period of training. BRS4249, another member who is busy receiver building, sends a photo of a well laid-out station, and a donation to the Prisoners of War Fund. (Thanks a lot, O.M.).

Congratulations to G5VY who has been commissioned in the R.A.F.V.R. (Training Branch) and is serving with the Enfield Squadron A.T.C. G8NY is now in the R. Signals and happy with a number of other hams, including 6LL.

The next meeting will be held at G6CL—war-time H.Q.—on Sunday, March 22, at 3 p.m. (Phone PALmers Green 3255). Make it the usual successful meeting fellows! G5FA.

DISTRICT 13 (London South)

South Central and South East Areas.—The February meeting held at BRS4234, was supported by 15 members and the next will be held on Sunday, March 22, at 11 a.m., at G5AW, 68 Valleyfield Road, Leigham Court Road, Streatham (No. 49 'bus from Streatham Common, or No. 137 'bus from Streatham Hill).

Ideas for keeping up interest at future meetings will be welcomed.

Local members seek news of G5OX, BRS4324 reports that his 56 Mc/s. super is going well, but some technical difficulties have arisen in connection with his new amplifier. 2DJK was unable to attend the last meeting, although on short leave, so sent 73. G2JB recently met F/Lt. L. H. Thomas, G6QB (remember him chaps? He used to be quite well known in South London years and years ago!!) 2JB shared digs. with VE4DO up to a short time ago and continues to meet many hams in his travels around the south coast. He has received news from G3CI who is in TF and also met 6KP prior to starting a W. Mechs. course. G2GZ and G3ST.

South Western Area.—Understand, gentlemen, that the pen of your scribe is filled with gall and wormwood. Our effort to keep a living link between the scattered members of this territory looks at the moment of writing like a failure. The Log Books have vanished again. It was hoped that the absence of Notes last month would stir a conscience somewhere or other and secure a belated return of one book, if not both. But no! - And no-one even wondered (audibly) where the Notes were...

We must accept your judgment, then, that the Logs were more trouble than they were worth. And lacking evidence to the contrary, we shall depend from now on upon letters from any who are interested in seeing this Area represented in these columns.

Please send in your news and views, your gossip and grouches, by the 18th of the month. They will be very welcome.

One or two members have faithfully done their job by the Logs, and warm thanks are hereby tendered. To others who have been ill-served we apologise. If time had not pressed so hard these days, we should have written to all of you...

Once before, we raised the subject of meetings, with little response. Again—who would like a meeting at a Holborn QTH one Sunday morning—or afternoon? G8QH.

DISTRICT 15 (London West, Middlesex and Buckinghamshire)

The February meeting proved to be a homely round-the-fire chat; those present included G2VB (who had travelled up from Croydon), G3UQ (who had to walk all the way home), 3SU, 4IH and 6WN. We thank 2ADL for his hospitality.

G2OL has offered to take the March meeting, when there is to be a gigantic junk sale. It is to be hoped

that as many as possible will endeavour to attend. See Calendar for details.

Letters have reached the D.R. from G8WR, BRS3754 and 3811. The D.R. has their addresses should anyone wish to write. BRS3754, now a telegraphist, had the pleasure recently of contacting VQ8AI. He reports that his BULL. still gets through although he has missed two issues. BRS3811 hoped to get along to the meeting together with G2DN and 2ZV but they were prevented from doing so. All send their 73 to the District.

G3UQ reports that G6CO whilst home on leave visited 8KZ but found him in bed with a cold. We hope he has recovered. 8VM is now in the R.A.F. 3XI met 4AR in Alexandria and W9RTU in the desert.

2FUX visited the D.R. on one of the worst nights of the winter. He likes the R.A.F., and says the work is very interesting. G6WN.

DISTRICT 16 (South Eastern)

The Deputy D.R. regrets that, chiefly through illness, he has been unable to forward notes to THE BULLETIN recently, but he is grateful to those who have continued to send him reports on District activities.

G6CY, acting T.R. for the Brighton area, reports a visit from G2RU when on leave from the R.C. of S. He has also met several Sussex amateurs including G2AO, 5JZ, 6XF, 8CP and 2HLF. G3YY and 4NY, telephoned when home on leave recently. G2KU reports that 4BW has left to join the R.A.F., and that he has met several U.S. amateurs who are in the Navy, as well as G2AU and 2BFL. GM3QH, G4HS, and others are still working with 2KU.

2HKU, 27 Unity Street, Sheerness, would like to meet members who are in the Isle of Sheppey.

BRS4163, formerly of Bognor Regis, met a number of members including G2UK and 6LH whilst stationed near Boston.

G3XV who is now in Brighton, hopes to meet many amateurs during his stay in Sussex. He sends his best wishes to all District members. G2WS.

DISTRICT 17 (Mid East)

Our appeal on behalf of the P. of W. fund has brought in £1 12s. to date, which amount has been sent to H.Q. As a number of members may still wish to contribute, any further monies received will be forwarded as a second donation at a later date.

Boston.—Welcome to BRS4163 whom we hope will enjoy his stay in the town. 2BQC and 2BUV have both been home recently. 2UK attended a very nice little hamfest recently where he spent a most enjoyable evening and came away with a handsome donation to the P. of W. fund.

Grantham.—BRS4183, of The Bungalow, High Street, Caythorpe would like to meet others living in the area. The D.R. too would welcome news from Grantham members.

Grimshy.—Our ex-D.R., A. E. Livesey, G6LI, says "the Jerries still have to reckon with anything I can do to upset them! Apart from joining the 'great majority' in being married last November, G6LI functions as always, with the common end in view." The best of luck to you and the YF o.m. A welcome is extended to C. W. Stimpson, BRS4657, a new member.

Horncastle.—2AAS sends best wishes to the Boston

lads now in the Services and also to 5IG. He is doing part-time work in the N.F.S.

Lincoln.—G2CR is now married and has left us for District 8. 3XM who reports that he is now "on the move," will have 5XU with him in his new sphere of activity where they hope to meet other hams in their travels.

Sleaford.—2FNS reports all well and busy. 4DV is expecting to join the R.A.F. in the near future and is swotting maths in the meantime.

Rutland.—C. W. Cragg, 2HDU, has responded to the request for notes from "England's smallest county." He writes from Bradford, where he is on electrical engineering work, to say that he has met a number of other amateurs in his works and seeks news of 3FW (Uppingham). He is building a 10-valve superhet which is progressing nicely. His home QRA is 48 High Street, Oakham, and he would like to hear of any other member living in Rutland. G2UK.

Northern Ireland

BRS4569 paid a flying visit to Belfast from the I.O.M., and met GM3TR and G16TK. BRS4535 has also been a recent visitor; G3BN came back for about three weeks during which time he renewed old friendships.

ZL1MV, ZL2IO and G5IV are together in the same camp. The latter two have made frequent visits to the Y.M.C.A. radio club, as have also G3TN, 3BG, 3PJ, 3NM, 8RI and BRS1616. Other visitors have included VE5PT, 3AHM, 5AEX, 5DT, ZL1LI and 2FJS. EI8P is engaged on special work with G16YW and G15SJ. Congrats to G16HI who is now a F./O. in the A.T.C. and to G8PI now a Warrant Officer in the R.A.F. GM3TR although still busy with the A.T.C. has found time to convert his BCL set to short-wave work by constructing a BFO. 6TK is engaged on Home Guard and A.T.C. duties and is experimenting with V.H.F. receivers. Tom Arnold, VU2AN, sends 73 via 6TK to all GI friends. Congrats to G15MZ on his fine work in Gibraltar and to 2FQQ on his recent marriage. He is now in Cardiff. It is hoped to meet a number of U.S.A. amateurs who are with the American Forces in GI. G15QX.

Scotland

Letters are to hand from BRS4046, who is with the many other hams at a "Country Farmyard," and BRS4333, who sends word that GM3BL is now likely to be in the R.A.F. He would like to hear from G3UR, GW3UO and GW3XW. During the month we were pleased to have a visit from GM2KP, who is serving in the Merchant Navy as a Radio Officer. He has had the misfortune to have been torpedoed twice. Ian McDermid, who has been home on leave, sends 73 to his friends.

It is pleasing to be able to report that the "A" District Meeting for February was again well supported. A very welcome visitor was F./Lt. H. W. Pope, G3HT, who made a four hours' bus journey to attend. Another visitor was F./Sgt. Blyth, GM5YX. As a result of collections taken at this and the previous meeting the sum of £3 3s. 0d. has been sent to the P.O.W. Fund.

The next meeting will take place on Sunday, March 29, at 2.45 p.m., in the usual place. We look forward to welcoming many visitors. GM6ZV.

HEADQUARTERS CALLING

January Council Meeting

Résumé of the Minutes of a Council Meeting held at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, on Saturday, January 10, 1942.

Present.—Messrs. A. D. Gay, E. L. Gardiner, H. A. M. Clark, J. W. Mathews, A. E. Watts, G. A. Jessup, S. K. Lewer, W. H. Matthews, E. H. Simmonds, A. J. H. Watson and J. Clarricoats (General Secretary).

An apology was received from Mr. W. A. Scarr.

1. New members of Council were welcomed by the President who drew attention to the confidential nature of Council proceedings.

2. Eighty new members were elected to membership. Of this number 66 had been proposed by Corporate members and 14 submitted references.

*3. A letter was read from H.M. Treasury thanking the Society for its loan of £500 to the Government free of interest.

4. It was reported that a 5th printing of 10,000 copies of *The Amateur Radio Handbook* became available on January 8th, but within two days some 3,000 copies had been sold.

5. It was agreed after discussion to fix the retail selling price of *Radio Handbook Supplement* at 2s. 6d., and to place an initial order for 30,000 copies.

6. A new cover design for the *Supplement* put forward by Mr. E. H. Simmonds, was approved.

7. It was agreed to hold an informal meeting at the I.E.E. on Saturday, March 28.

* This item was reported upon in the February issue of this Journal.

London Meeting

Mr. D. N. Corfield (G5CD), D.L.C., whose pre-war experimental work on the V.H.F.'s was well known to most members, has kindly consented to deliver a lecture on the important subject of "Concentric Pipe Tuned Circuits" at the London meeting arranged to take place on Saturday, March 28, at the Institution of Electrical Engineers.

The I.E.E. will be open from 2 p.m. for informal discussions and the lecture will commence at 2.30 p.m.

Members free for lunch are invited to meet at Slaters Restaurant, 393 Strand between 12.30 p.m. and 1 p.m.

At the conclusion of the meeting tea will be taken either at the I.E.E. or at Slaters.

It is hoped that Service members in the London area will make every effort to support this meeting.

V.H.F. News

Due to the entry of the U.S.A. into the war it now appears impossible to continue the quarterly review of V.H.F. amateur activities prepared by Miss C. Hall, G8LY.

We take this opportunity of thanking all members who have collaborated with Miss Hall in the past and hope the time is not too far distant when they will again be taking an active part in V.H.F. investigations as amateurs.

Memorandum and Articles of Association

For the guidance and information of new members, and others, who do not possess a copy of the Memorandum and Articles of Association of the Society, Council has authorised a reprint to be made for inclusion in this issue. New members will be supplied with a copy on election.

Correspondence with Headquarters

Considerable inconvenience and delay is often caused through the use by members of an incorrect London Postal District Number when communicating with Headquarters.

The correct District Number is N.13.

Communications must *not* be addressed to 115 High Holborn, W.C.2, the registered address of the Society.

Cloth Bound Handbooks

In answer to recent enquiries, Headquarters still holds stocks of cloth bound Handbooks; the price is 6s. 6d. by post.

Salvage.

A Short Story by G2MI—QSL Manager.

MOST of us will have realised by now that QSL cards are but a memory, until after the war. For many months no cards have been received at the Bureau. Considerations of space and the possibility of further domestic removals have focussed attention on the problem of what to do with the thousands of stamped envelopes held by the QSL Manager. Well, this is what has been done, with Council's approval.

Where the number and face value of the stamps warranted it, the envelopes have been returned to their owners. This still left thousands, bearing 1½d. stamps and at the most only two envelopes addressed to any one person. Obviously to return these was not worth the time and trouble either to myself or the recipient.

Accordingly the Post Office Accounts Dept. was contacted and they agreed to take over the whole lot and give the Society credit for their face value, less 5 per cent. commission. The sum of £18 15s. 2d. was duly received from the G.P.O., the envelopes and stamps have gone for salvage, and the money has been added to the Prisoners of War Fund. It is hoped that Members will endorse the action taken and that this handsome sum will have the chance to do rather more good than lying packed away in boxes in Harrogate.

NEW MEMBERS

Home Corporates

- G. A. RAEBURN (GM2KP), Ardbeg, Barbank Street, Portsoy, Banffshire.
 R. J. ROWBOTTOM (G3VP), 50 Greenhead Lane, Dalton, Huddersfield.
 D. G. R. BAWDEN (G3YI), H.M. Signal School.
 A. L. JEFFREY (G5UV), 21 Chestnut Avenue, West Wickham, Kent.
 A. LORD (G6AI), 272 Newchurch Road, Stacksteads, Bacup, Lancs.
 J. K. COOMBER (G8UG), 63 Salcot Crescent, New Addington, near Croydon.
 G. H. SCHULER (2BMU), 4 Jutland Avenue, Cark-in-Cartmel, via Carnforth.
 P. H. GREENWOOD (2BUJ), 49 Western Street, Swindon, Wilts.
 F. WILLIAMSON (2CJW), c/o 50 West Avenue, Leigh, Lancs.
 D. MCWILLIAMS (2CSX), c/o Mrs. H. Parry, Bryn Dinarth, Tan-y-Bryn Road, Colwyn Bay.
 E. P. INMAN (2DRA), 27 Harlow Crescent, Harrogate.
 A. COLLINS (2FII), 62 Hill Top Road, Northfield, Birmingham, 31.
 H. R. BUTTERWORTH (2HDO), 5 Pennant Street, Oldham, Lancs.
 E. H. TROWELL (2HKU), 27 Unity Street, Sheerness, Kent.
 A. R. KNIGHT (2HKQ), Arran Glen, Sterte Avenue, Poole, Dorset.
 P. H. DRAYCOTT (BRS4707), 47 Longreach Road, Knotty Ash, Liverpool, 14.

**WE extend a Cordial
Welcome to the**

**130
NEW MEMBERS**
whose names are listed

•
OUR THANKS ARE EXTENDED TO THEIR SPONSORS

- M. G. PRICE (BRS4708), 43 Victoria Road, Harborne, Birmingham, 17.
 J. A. BRODERICK (BRS4709), 6 Castle Terrace Road, Sleaford, Lincs.
 D. R. CHURCH (BRS4710), 22 Edgehill House, Loughborough Road, Brixton, London, S.W.9.
 J. THOMASON (BRS4711), 4 William Street, Leigh, Lancs.
 R. S. BORMAN (BRS4712), 220 Sladepool Farm Road, Maypole, Birmingham, 14.
 J. R. RESTELL (BRS4713), 3 Lime Avenue, Northfleet, Kent.
 J. E. YOUNG (BRS4714), 29 Leopold Road, Kensington, Liverpool.
 H. WALKER (BRS4715), c/o Messrs. A. Holt & Co. Laboratories, 9 Rumford Street, Liverpool.
 H. R. SHIPWAY (BRS4716), 39 Lorne Street, Reading, Berks.
 B. C. HOWARD (BRS4717), 123 Randall Avenue, Cricklewood, London, N.W.2.
 H. W. OSBORNE (BRS4718), 10 Woodbury Road, Stourport-on-Severn, Worcs.
 D. M. NESS (BRS4719), 38 Crosslee Street, Glasgow, S.W.2.
 T. W. HALES (BRS4720), 12 Holly Road, Temple Farm, Strood, Kent.
 C. S. OLSEN (BRS4721), 8 Belgrave Road, Holm Place, Halfway, Sheerness, Kent.
 P. L. HAMPTON (BRS4722), 109 Compton Road, North End, Portsmouth, Hants.
 W. H. COY (BRS4723), 30 Falcon Grove, Sherwood Rise, Nottingham.
 F. J. DOWIE (BRS4724), 63 Harold Street, Grimsby, Lincs.
 W. G. FROST (BRS4725), Brundells Farm, Great Bromley, near Colchester.
 C. E. CATER (BRS4726), 4 Ashford Avenue, Ashford, Staines, Middx.
 E. K. FREESTONE (BRS4727), 34 Wastdale Road, Forest Hill, London, S.E.23.
 T. H. ALDRICH (BRS4728), 4 Upper Clwyd Street, Ruthin, North Wales.
 D. TAZZYMAN (BRS4729), 134 Atlas Street, Brinsworth, Rotherham.

- J. DAVIDSON (BRS4730), 45 Belfast Road, Bangor, Co. Down, N. Ireland.
 T. WHITTEY (BRS4731), 120 The Avenue, Linthorpe, Middlesbrough.
 A. AVERY (BRS4732), 35 Arbitration Street, Doncaster, Yorks.
 W. BELL (BRS4733), 54 Huskisson Street, Liverpool, 8.
 A. T. JOHN (BRS4734), 37 Dawley Road, Hayes, Middx.
 R. B. HOOPER (BRS4735), 17 Carlingford Gardens, Mitcham, Surrey.
 C. MERRETT (BRS4736), 26 Port Street, Evesham, Worcs.
 J. G. VAN WENT (BRS4737), The Cottages, Coton House, Rugby, Warwicks.
 R. E. BELL (BRS4738), 121 Beaufoy Road, Battersea, London, S.W.11.
 J. BANHAM (BRS4739), Heathcote, Sans Souci Park, Malone Road, Belfast.
 H. COX (BRS4740), 123 Whalley Road, Shuttleworth, Ramsbottom, Manchester.
 I. E. CURRINGTON (BRS4741), Minden, Yelling, St. Neots, Hunts.
 A. F. HARPER (BRS4742), 5 Stuart Avenue, Hunt's Cross, Liverpool.
 H. G. THOMAS (BRS4743), Green Lang, Stockbury, Sittingbourne, Kent.
 J. BERRY (BRS4744), 84 Victoria Road, Keighley, Yorks.
 M. J. R. BROWNE (BRS4745), 25 Bennan Square, Glasgow, S.2.
 K. N. COATES (BRS4746), Highbury, High Street, Wolstanton, Staffs.
 H. HOWARD (BRS4747), 50 Parkwood Road, Isleworth, Middx.
 P. T. PITTS (BRS4748), 132 Tessall Lane, Northfield, Birmingham, 31.
 G. L. GREAVES (BRS4749), Underclieve, 32 Pines Road, Paignton.
 I. J. CONIBEAR (BRS4750), 42 St. Brannocks Park, Ilfracombe.
 M. W. DALLMAN (BRS4751), 20 Devonshire Avenue, Allestree, near Derby.
 C. MEEK (BRS4752), 79 Mathieson Street, Hutchesontown, Glasgow, C.5.
 D. G. HICKS (BRS4753), 44 Pine Ridge, Carshalton, Surrey.
 N. J. KITE (BRS4754), 10 Victoria Terrace, Bath, Somerset.
 D. E. HANSFIELD (BRS4755), 74 Bryan Road, Whitegate Drive, Blackpool.
 G. ALLEN (BRS4756), 13 Clifton Road, Eccles, Manchester.
 A. W. MANN (BRS4757), 13 St. Martins Road, Portland, Dorset.
 A. A. FYFE (BRS4758), 62 Morriston Road, Bishopmill, Elgin, Scotland.
 J. F. BROOKS (BRS4759), 47 Belsize Lane, Hampstead, London, N.W.3.
 J. A. PLOWMAN (BRS4760), 140 Wardown Crescent, Luton, Beds.
 T. O. HUGHES (BRS4761), 16 Edward Henry Street, Rhyl, North Wales.
 R. M. GILL (BRS4762), Vale View, Meliden Road, Prestatyn.
 W. A. T. BATT (BRS4763), Woolstone Corner, Uffington, Faringdon, Berks.
 C. E. JORDON (BRS4764), 41 Bury Crescent, Gosport, Hants.
 K. THOMPSON (BRS4765), 100 Torrington Street, Grimsby, Lincs.
 A. I. FAYERMAN (BRS4766), 123a Cowick Lane, Exeter, Devon.
 N. E. B. STAPLETON (BRS4767), Midland Bank Ltd., Mirfield, Yorks.
 H. E. GUNNING (BRS4768), 140 Thomas Lane, Liverpool, 14.
 P. EGAN (BRS4769), 98 Sydney Place, Bath, Somerset.
 S. C. MALE (BRS4770), 3 Chestnut Walk, Saltford, Bristol.
 J. W. DUNN (BRS4771), Wenlock, Middleton Road, Bognor Regis.
 J. GLENN (BRS4772), 76 Westfield Road, Hornsey, London, N.8.
 C. G. MATTOCK (BRS4773), R.C. of S.
 F. BELLWOOD (BRS4774), 74 Wood End Avenue, South Harrow, Middx.
 W. B. BARTON (BRS4775), Oxlynch, Stonehouse, Glos.
 G. F. WALKER (BRS4776), 24 Burlington Gardens, Acton, London, W.3.
 A. E. STEVENS (BRS4777), 8 Hawthorn Fosse, Newport, Mon.
 R. D. COX (BRS4778), 25 Benett Gardens, Norbury, London, S.W.16.
 W. J. A. CUNDY (BRS4779), 86 Beeston Road, Dunkirk, Nottingham.
 A. R. CLARK (BRS4780), Harriars Cottage, Hedgerley Lane, Beaconsfield, Bucks.
 C. M. FREE (BRS4781), c/o 97 Lane End Road, Sands, High Wycombe, Bucks.
 G. M. STYLES (BRS4782), 43 Melbourne Road, High Wycombe.
 S. LEWIS (BRS4783), 6 Saunderton Priory, Saunderton, near High Wycombe.
 J. T. STRINGER (BRS4784), 52 Bridge Street, Christchurch, Hants.
 E. FRESHWATER (BRS4785), 7 Fairfield Way, Barnet, Herts.
 H. S. KING (BRS4786), 8 Leaside, Mays Lane, Barnet, Herts.
 J. A. CRAIGIE (BRS4787), 67 Port Street, Stirling, Scotland.
 D. G. WHITE (BRS4788), 43 Thurbern Road, North End, Portsmouth.

- J. W. BAIRD (BRS4789), 3 Vennel, Linlithgow, West Lothian, Scotland.
 O. F. SIMKIN (BRS4790), 15 Hillside Road, Thorpe-next-Norwich, Norfolk.
 F. J. ELLIOTT (BRS4791), c/o 54 Wellington Street, Greenock, Scotland.
 J. E. OLIFFE (BRS4792), 46 Shakespeare Road, Bedford.
 LT. M. H. R. CARRAGHER (BRS4795), Queens Royal Regiment.
 J. K. MOODIE (BRS4794), 4 Hawthorn Gardens, Low Fell, Gateshead, 9.
 B. RATCLIFFE (BRS4795), 62 Windermere Road, Leigh, Lancs.
 W. JOHNSON (BRS4796), 16 Ramsden Wood Road, Walsden, Todmorden, Lancs.
 D. PROWSE (BRS4797), 18 Stocks Hill Estate, Menston, near Leeds.
 D. F. J. C. ROWAN (BRS4798), 8 Benton Lodge Avenue, Longbenton, Newcastle-on-Tyne.
 T. PACKARD (BRS4799), 109 Grosvenor Road, Chadwell Heath, Essex.
 G. BAUGH (BRS4800), 160 Caledonia Road, Wolverhampton, Staffs.
 F. S. RICHARDSON (BRS4801), 144 Muirhead Avenue, West Derby, Liverpool, 13.
 H. J. HAWKINS (BRS4802), 265 Gladstone Avenue, Wood Green, London, N.22.
 K. LINDSAY (BRS4803), 52 Lime Tree Avenue, Doncaster, Yorks.
 R. A. GURTON (BRS4804), 99 Farley Road, Selsdon, Surrey.
 C. R. HAMPTON (BRS4805), 10 West Terrace, North Ormesby, Middlesbrough.
 S. L. JACOBS (BRS4806), Elderfield Gardens, Kidderminster, Worcs.
 MRS. D. M. WOOLLATT (BRS4807), 3 Hinchley Drive, Hinchley Wood, Esher, Surrey.
 L. E. B. EVERETT (BRS4808), Flint House, Middleton-on-Sea, Sussex.
 M. S. P. WICKS (BRS4809), 91 Thorpe Road, Norwich, Norfolk.
 H. A. PARCELL (BRS4810), Hambrook House, Funtington, Chichester.
 C. BEAUMONT (BRS4811), 25 Wellington Road, Todmorden, Lancs.
 W. E. G. SCOTT (BRS4812), 48 Gassiot Way, Sutton, Surrey.
 F. NORMAN (BRS4813), High Mount, Wingerworth, near Chesterfield.
 G. A. COCKSEY (BRS4814), 60 Courtfield Rise, West Wickham, Kent.
 F. V. TRIGG (BRS4815), 68 Connaught Gardens, Palmers Green, London, N.13.
 G. R. GLEN (BRS4816), 13 Craigton Avenue, Milngavie, Dumbartonshire.
 R. BLACKWOOD (BRS4817), 895 Christchurch Road, Boscombe, E. Bournemouth.

Dominion and Foreign

- R. SANGSTER (VE3FB), 1,149 Dovercourt Road, Toronto, Ont., Canada.
 S./SGT. C. A. EPP (VE4ABB), Canadian Army.
 G. L. MITCHELL (W6GHX), Civilian Technical Corps.
 R. B. BISHOP (ZL1NW), c/o New Zealand House, 415 Strand, W.C.2.
 A. R. MCGEE (BRS498), 1,221-5th Street, N. W. Calgary, Alta, Canada.

MATHEMATICS FOR THE RADIO AMATEUR—

(Continued from page 319)

Consider now Fig. 16 (b). This shows clearly how the slope of a curve varies. Referring to increases in the values of x and y as δx and δy respectively, as above.

[These increases at C are marked with a subscript so that it does not appear that the values are equal for CD and AB. This is really unnecessary because δx means the increase in the value of x , and is understood to be at the point in question.]

$$\text{Slope at A} = \frac{y_B - y_A}{x_B - x_A} = \frac{\delta y}{\delta x}$$

From the diagram, this appears to be approximately $\frac{1}{5}$, or, at A, angle of slope = $\tan^{-1} \frac{1}{5}$.

$$\text{Slope at C} = \frac{y_D - y_C}{x_D - x_C} = \frac{\delta y_1}{\delta x_1}$$

By inspection it is seen that δy_1 and δx_1 are

approximately equal, or the angle of slope is $\tan^{-1} 1$ (or 45°) approximately.

Hence to determine the slope of a non-linear curve, it is necessary to know at what point on the curve the slope is needed. The method of calculating this slope will be learned from the study of the calculus.

Slope—A Rate-Measurer

It has been stated previously that one disadvantage of tabular presentation of pairs of associated values is that no information is given about the comparative rate of change of the quantities.

Using the convenient symbols δx and δy to represent increases in the values of x and y respectively

$$\frac{\delta y}{\delta x} = \frac{\text{increase in the value of } y}{\text{increase in the value of } x}$$

i.e. $\frac{\delta y}{\delta x}$ is a measure of the rate of increase of y compared with the increase of x .

$$\text{But } \frac{\delta y}{\delta x} = \text{slope,}$$

therefore the slope of a curve is a measure of the rate of increase of y with regard to x , at the particular point under consideration.

In Fig. 16 (a),

$$\frac{\delta y}{\delta x} = \frac{2}{3}$$

i.e. rate of increase of y

$$= \frac{2}{3} \text{ rate of increase of } x.$$

Inspection of the line AB in Fig. 16 (a) confirms this. As y increases from 0 at L, to 4 at P = an increase of 4 units, x increases from -3 at L to 3 at P = an increase of 6 units.

$$\therefore \frac{\text{increase of } y}{\text{increase of } x} = \frac{4}{6} = \frac{2}{3}$$

In Fig. 16 (b), similarly at A, y is changing at about $\frac{1}{4}$ the rate of x ; at C y is changing at about the same rate as x .

In Fig. 9,

$$\frac{\delta y}{\delta x} = \text{slope} = \frac{MO}{LO} = \frac{2}{1}$$

i.e. at any point y is increasing twice as fast as x .

Problems

(33) By drawing on a graph the curves $y = x^2$ and $y = 2x^2$, and using these as standard graphs, find the solution to:—

$$(a) x^2 + 4x - 3 = 0$$

$$(b) 2x^2 - 6x + 1 = 0$$

Check by calculation.

Solution to Problems

$$(30) \theta = 45^\circ \text{ and } 225^\circ$$

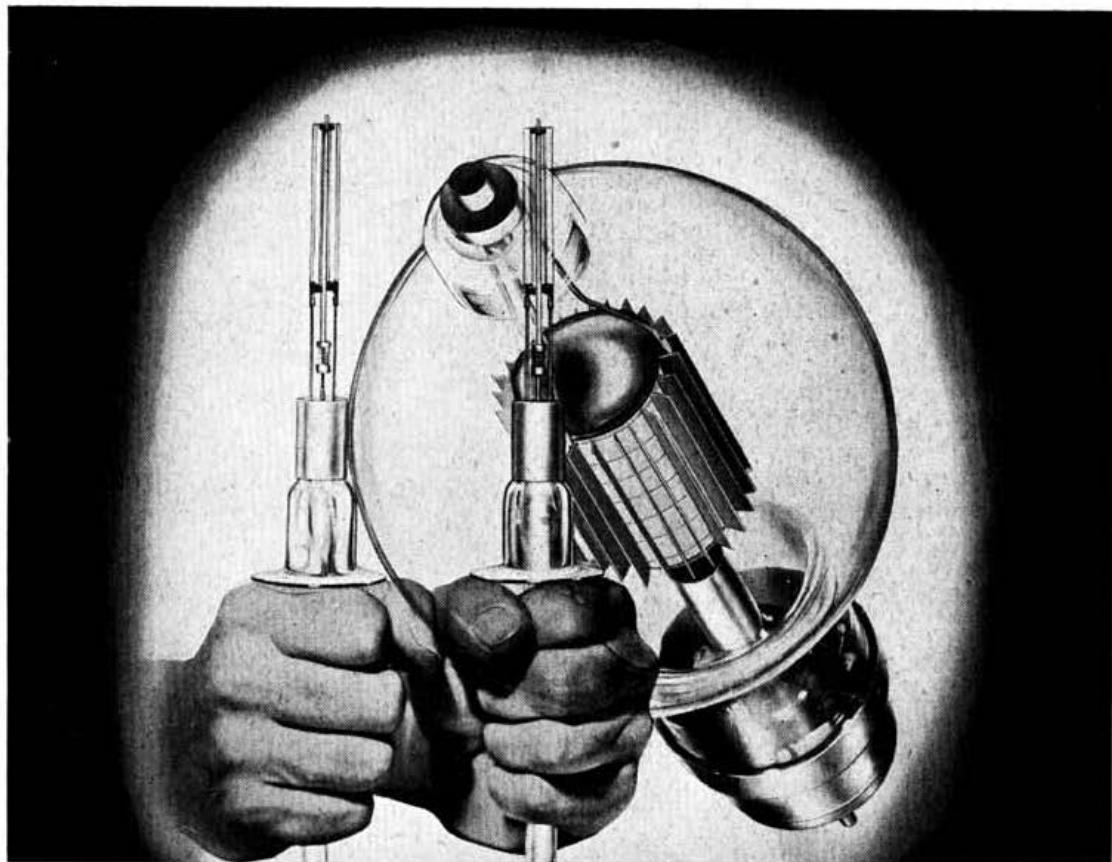
$$(31) (a) x = -3 \text{ and } 2$$

$$(b) x = -1 \text{ and } -1\frac{1}{2}$$

$$(c) x = -4 \text{ and } 1$$

$$(32) x = -3 \text{ and } 2. \text{ As in (31) (a).}$$

(To be continued next month.)



How Important is a Filament?

It's a well known fact that the vacuum valve is the heart of radio communications, but it is important to remember that the filament is the heart of the vacuum valve! Thus, the efficiency with which these tiny strands of tungsten wire perform may mean the difference between success and failure of the valve itself...victory and defeat for tanks or battleships...life and death for millions of people.

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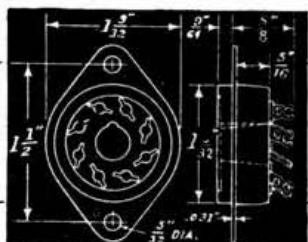
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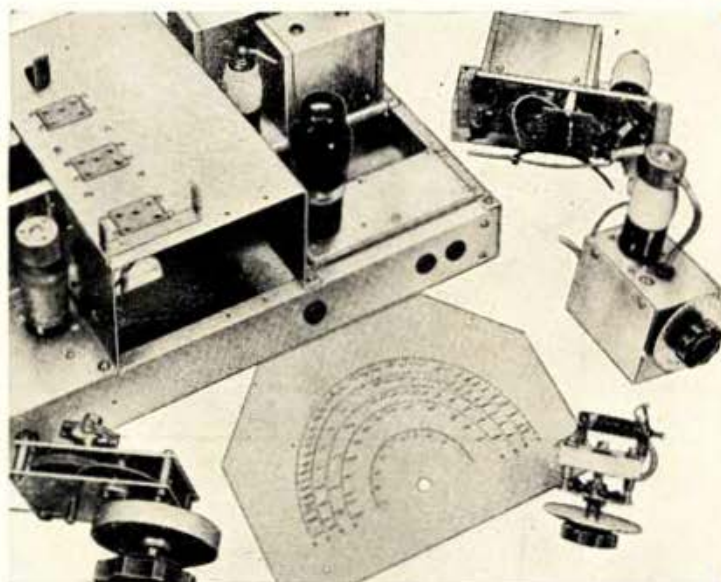
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