THE T&R

BULLETIN

A JOURNAL FOR

RADIO EXPERIMENTERS

Vol. 16 No. 6 DECEMBER 1940 (Copyright) Price 1/6

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THE T. & R. BULLETIN

OFFICIAL JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

DEVOTED TO THE SCIENCE AND ADVANCEMENT OF AMATEUR RADIO

Hon. Editor: ARTHUR O. MILNE

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Vol. XVI. No. 6

DECEMBER, 1940

CONTENTS

THE RADIO TRADE

THIS, our Christmas issue, seems an appropriate one in which to refer to the outstanding support which the Society has received from the Radio Trade ever since the great "close down."

Advertising in technical journals, exclusively intended for members, undoubtedly calls for a certain amount of initial courage, because circulation is restricted. On the other hand advertisers realise that their appeals will be read by a much higher proportion of knowledgeable readers than would be the case if their announcements appeared only in the more popular type of publication.

T. & R. BULLETIN advertisers have, by their continued support (and many of them are entitled to rank as "Old Timers"), demonstrated conclusively that Society members are among their best customers. The concerns whose announcements we are proud to accept are among the top flight in the Radio Field. Many have built up their trade in the "ham" market. Others, whose products are household words, know that Society members discriminate, and choose for their experimental work, material which carries with it a reputation of the highest order.

Assessing the value of a particular advertisement is no easy task especially when the manufacturer sells through factors to the retail trade. In such cases it is the retailer who can judge the value of an advertisement more fully than the advertiser responsible for its insertion—which, brings us to the first point we wish to emphasise. When purchasing from your local retailer, material which you have seen advertised in this Journal, ask him to mention the fact when placing his next order with the factor or manufacturer. This request may in itself appear trivial, but in the aggregate it will provide a useful guide for those who pay to announce their products.

Frequently in the past our friends in the radio trade have shown us evidence of the pulling power of the T. & R. BULLETIN advertising, but for every letter which refers to this Journal a dozen omit the reference, yet it is certain that the order has been placed as a result of an announcement appearing within these pages. Our second request then is to ask all who purchase goods, as the result of a BULLETIN advertisement, to state that fact when placing their order.

Many readers will have noticed that one or two of our most consistent advertisers have in recent months been compelled to offer an explanation for slow delivery of, or even inability to supply, certain lines. The explanation is simple—the needs of the Services and Government Departments must come first. Be patient and if you do not receive the goods you have ordered quite as quickly as you expect, remember that conditions are abnormal. In making inquiries

(*Continued on page* 204)

A SIMPLE BUT EFFECTIVE RESISTANCE AND CAPACITY BRIDGE

By W. B. SYDENHAM, B.Sc. (G5SY)

By the inclusion of a tuning indicator of the type used in many broadcast receivers, a highly sensitive measuring device becomes available for A.C. Bridge Measurements.

Introduction

IT will be generally agreed that it is good policy to test all components before incorporating them in apparatus under construction. This is all the more important if, as is the case with the author, one is continually pulling old instruments to pieces and using the components again and again. An easily built, accurate, speedy and reliable instrument for the purpose of testing and measuring resistances and condensers should therefore prove of great value in any amateur's workroom. It is claimed that the resistance and capacity bridge described below completely satisfies these requirements.

The Bridge method used is the usual one, according to which a potential difference is applied to the points A and C of a resistance mesh ABCD (Fig. 1A). If the point B is made movable, some more or less sensitive detector device (G) connected between B and D will show when these are at equal potential. Under these circumstances $y/x = R_2/R_1$, so that if R_1 and the *ratio* of x to y are known, R_2 can be calculated.

From the radio point of view a much more useful arrangement results if the potential applied is made alternating, for in addition to resistances it will now be possible to measure capacities, formerly a more difficult operation. The basic circuit is as Fig. 1B. It should be noted however, that in this case, when equality of potential, or balance, is obtained at B and D, then $x/y = C_2/C_1$. The inversion in the equation will be clearly understood if it is realised that the higher the capacity of a condenser the *lower* is its impedance.

In the past it has not been easy to find this kind of balance at all accurately, owing to the difficulty of making or obtaining a sufficiently cheap, yet sensitive, A.C. balance indicator. Now, however, in the "tuning eye" indicator such as is used in many receivers, a comparatively cheap component, which is eminently suited for the purpose, is available. A device of this type has been incorporated in the design described.

The Circuit

Fig. 2 shows the arrangement used by the author. An A.C. potential of about 50 volts (derived from one winding of a small transformer) is applied through a 1,000 ohms, 3 watts safety resistor (which also acts as a voltage limiter for the lower impedances) to the ends of a 2,000 ohms potentiometer, and also across the outer terminals of either two resistances, or two condensers (depending upon which is being tested) arranged in series with each other. One of the latter is the component to be measured, which is connected across the terminals "R or C." The other, which must be of known and suitable value, is selected by means of the low capacity switch shown, or connected externally across the "Match" terminals, in which case the switch must be moved to the stud marked M. The extra potentiometer shown in series with the 1 μF standard condenser is used for power factor measurement and its use will be described later.

The grid of the tuning eye, a 6E5, is connected through a ·01 μF condenser to the junction between the two resistances or condensers, while the cathode is joined to the potentiometer slider. The precise type of H.T. unit used to supply voltage to the tuning eye is not important, but it is desirable to employ one producing about 200 volts.

It may perhaps be considered somewhat difficult and expensive to provide accurate standards of resistance and capacity, such as those shown connected to the selector switch in Fig. 2, but this is not the case, since it is quite unnecessary to use exactly the values quoted. What *is* required, however, is that the values used shall go up in multiples of

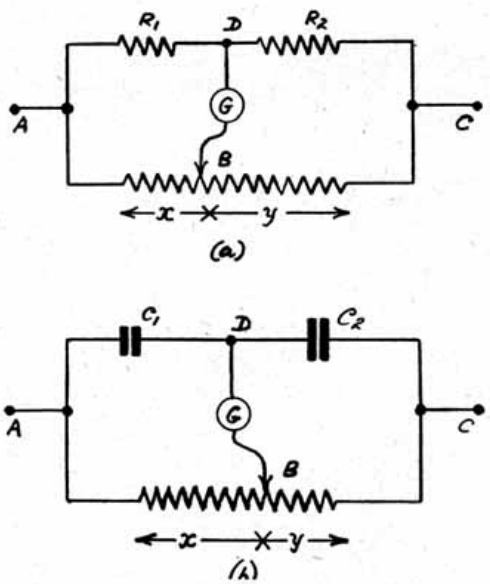


Fig. 1.

(*a*) Illustrates the basic principle of all simple bridge networks. If the pointer B is moved along the resistance x-y until equality of balance is registered in the device G, the value of the unknown resistance R_2 can be found from the simple equation $\frac{y}{x} = \frac{R_2}{R_1}$.

(*b*) The basic bridge network for capacity measurements. The value of the unknown C_2 is obtained from the ratio $\frac{x}{y} = \frac{C_2}{C_1}$

approximately 100, and when purchasing, the makers should be asked to state the exact measured value of each. This information can usually be obtained on payment of a small extra charge. It will be found, however, that for all ordinary purposes the nominal value is all that is required.

When the slider of the potentiometer is swung during a test, it will be found that the " shadow area " of the 6E5 varies, the balance being indicated when this is at a maximum. If the essential leads

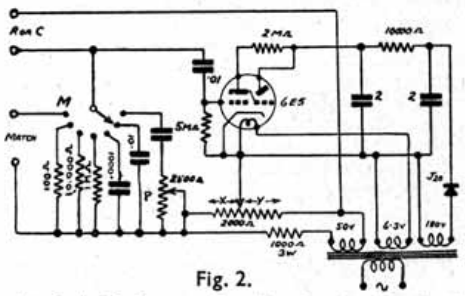
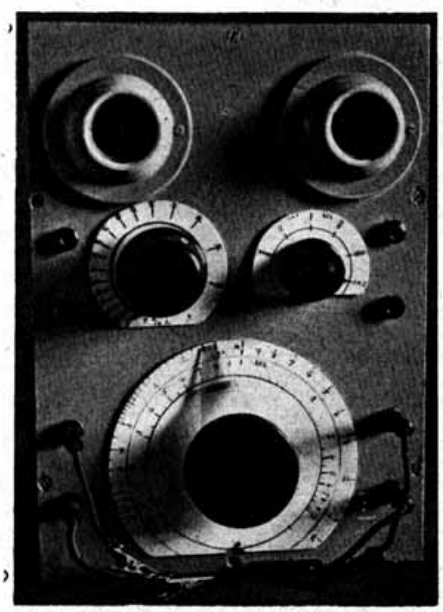


Fig. 2.

Circuit of the Resistance-Capacity Bridge described by the author. The " magic eye " indicator provides a very sensitive balancing device.

are kept short, particularly those from the potentiometer to the standards, and to the terminal A, and a high value of grid leak used, the point of balance should be quite critical, except perhaps on the very highest impedances.



Front view of the Resistance and Capacity Bridge.

The 6E5 Tuning Eye is top left, and the Leakage Test Neon Lamp top right. The centre controls are (*left*) Percentage Power Factor, (*right*) " R or C " Selector Switch. Potentiometer Dial is in the centre at bottom. " Match " Terminals bottom left, " R or C " Terminals bottom right. 200-v. D.C. Terminals top left, Leakage Test Terminals top right.

Calibration

It is necessary to calibrate the potentiometer (which should have a uniform element), in such a way as to indicate the ratios between the two portions x and y (Fig. 2) for different positions of the slider. If the series of standards shown is used, the calibration should be carried well out on either side, to beyond the points where one portion is ten times the other. It will then be possible to measure all capacities from 10 $\mu\mu$F to 10 μF, and all resistances from 10 ohms to 10 megohms. Two scales, however, must be provided, since the numbering for capacity is in the opposite direction to that for resistance.

The calibration can be carried out in various ways. The one adopted by the author was as follows : The overall resistance of the potentiometer was first measured by means of an ordinary D.C. Wheatstone Bridge. One lead from the measuring apparatus was

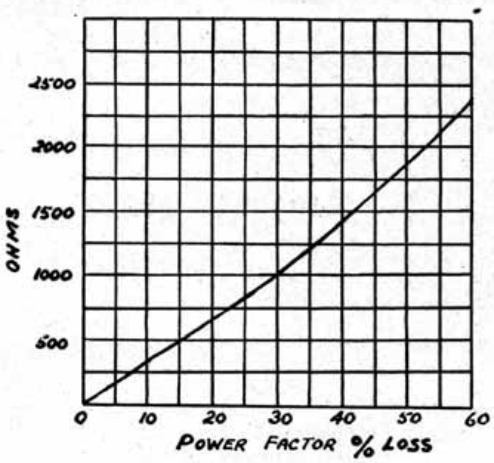


Fig. 3.

The Power Factor Potentiometer Scale may be calibrated by reference to this graph.

then connected to the potentiometer slider, and the other lead to one end of the potentiometer. Having calculated the value of resistance required to produce the ratio sought, the slider was turned until this value was indicated, and the pointer position marked on a card or ivorine scale attached to the potentiometer.

An example will perhaps make this clearer. Suppose the overall resistance to be 1,950 ohms, and the point for ratio $x/y = 4$ is required ; then the actual resistance of the portion x should be 4/5 of 1,950 = 1,560 ohms. The slider is therefore turned until the measuring apparatus indicates this value. Proceed in this way until sufficient points have been marked. If necessary, further sub-division can be carried out by guesswork.

The one calibration will serve for both scales, since, for example, the points marked 10, 2 and ·5 on the capacity scale, will become ·1, ·5, and 2 on the resistance scale.

Operation

Suppose we are now ready to carry out a trial

measurement of capacity. A condenser which appears to be about ·01 μF is connected to the " R or C " terminals, and the selector switch placed in the ·01 position. When the tuning eye is glowing fully the potentiometer is swung until balance is obtained, and the value on the capacity scale is read. Suppose this reads ·85, then the actual value of the specimen is ·85 of ·01, or ·0085 μF. If balance should come in a very lop-sided position another standard value should be tried.

When measuring large paper condensers of poor power factor it will be found that the shadow area will not open out fully. The 2,500 ohm potentiometer placed in series with the 1 μF standard is used to balance out this effect, at the same time providing a simple way of measuring the power factor, by indicating the amount of resistance needed to balance the power loss. This potentiometer may be calibrated in percentages according to the graph of Fig. 3.

Extensions

The general usefulness of the instrument can be extended by one or two additions. For example, the various A.C. and D.C. supplies can be brought out to additional terminals so that these voltages are available for other testing purposes. Further, another positive H.T. lead into which is placed a small 200 volt neon indicator lamp, may be brought out to yet another terminal. This will enable leakage tests to be carried out on condensers, the rate of flashing of the lamp being a measure of the leakage.

Conclusion

No hard and fast rules have been laid down regarding components or particular layout employed because those who wish to construct the bridge will no doubt have a number of components available. It can safely be stated, however, that the time spent on the construction will be well worth while, as an extremely useful instrument will be the result.

The Editorial Staff at Headquarters extend Seasonal Greetings and Best Wishes for the New Year to Members everywhere.

Arthur Milne, G2MI
An Appreciation

With the appearance of this issue our old friend and colleague Arthur Milne, G2MI, severs his official connection as Honorary Editor. Appointed two years ago to succeed Mr. Bevan Swift, G2MI has, in every conceivable manner, co-operated with the present writer in the preparation of each issue.

Although the task of editing the Society's Journal falls upon the shoulders of Headquarters permanent staff, it frequently becomes necessary to obtain a second opinion. G2MI's advice and co-operation in that connection has been of inestimable value on many occasions.

Due to evacuation to Harrogate he felt compelled to relinquish his office, but we are assured of his continued co-operation, both as BULLETIN draughtsman (a job he has tackled for more years than we care to remember!) and as compiler of that popular feature " The Month ' Off ' the Air."

In recording our thanks to him for his past editorial services we express the sincere hope that it will not be too long ere he is back in London participating in the official activities of the Society he has served—and is serving—so well. J. C.

Don't Rush

Miss Dorothy Doughty, McConnell Avenue, Bayport, L.I., New York, would be glad to correspond with any British amateur on active service.

Canadian News Reel

Hats off to the Canadian Operator's Association who, although restricted to a four page Bulletin, known as " *Xtal JR*," devote half their available space to recording the name, rank, regiment and call sign of Canadian amateurs on active service. The October list ran to over 100 names.

Fred Saxon, VE3SG, the Hon. Secretary of the Association, reports having entertained Sgt. T. Wimbush, G6HP, ex SU2TM, who is now serving with the R.A.F. in Canada. We also understand that N. A. L. Timbers, G5TR, is with the R.A.F. " over there."

From Mr. Saxon we learn with much regret that Horace Stark, VE3UH, whom many of us met recently at G2YL's home, has been reported missing from the *Margaree* when she was rammed by a merchant ship. Mr. Stark joined the Society immediately he came to Great Britain and although only here for a short time he was taken into our circle and warmly welcomed. Canada's loss is ours.

Another Canadian amateur Harry Rees, VE3AKA, lost his life when the *St. Malo* was torpedoed.

It may interest home members to know that every member of the staff of the Radio Inspector's Office at Toronto has ordered a copy of the Society's new handbook. We are greatly indebted, first to Mr. Saxon for giving us such an encouraging order, and second to the R.I. and his colleagues for " Buying British."

MATHEMATICS FOR THE RADIO AMATEUR

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

PART III.—COMMONLY USED FORMULAE

Ohm's Law and its Application to Meters.

IN Part II it was shown how the application of Ohm's law readily solves problems in which the values of bias resistances are required.

It is just as simple to find the values of series or shunt resistances which will increase the range of a meter, or alter its function. In every case one has to remember that Ohm's law can be applied to any circuit, or *part* of a circuit, in which direct current is flowing. If any two of the quantities—current, resistance, potential difference—are known, either for a complete circuit or for any part or branch circuit, then the third quantity is found by applying Ohm's law.

In the cases examined below, the methods of obtaining the general formulae are given. The reader can then solve his particular problem either by substituting in the appropriate formula, or by following out the general reasoning, using his specific values instead of the symbols.

Application to Meters

(*a*) *Ammeters, or milliammeters.*—When current passes through a meter winding there is a fall in potential across the meter. To minimise this drop in voltage the resistance of the meter must be small. If E is this voltage drop, I_m is the current being measured and R_m is the resistance of the meter (this value can be obtained from the makers), then $E = I_m \times R_m$.

Extending Range.—By the addition of a suitable shunt, *i.e.* a resistance in parallel with its own resistance, a meter can have its range extended. Suppose a meter, reading to I amps. (I can, of course be fractional), is to be converted to read to n × I A.

Then in Fig. 2, if I_m and R_m refer to the meter; and R_s and I_s to the shunt, $I = n \times I_m$ and $I_s = I - I_m = (n-1) \times I_m$.

E volts being P.D. across *both* meter and shunt, applying Ohm's law to meter, $E = I_m \times R_m$, and to shunt, $E = I_s \times R_s = (n-1)\ I_m \times R_s$

$$\therefore I_m \times R_m = (n-1)\ I_m \times R_s. \quad \therefore R_s = \frac{R_m}{n-1}$$

Example.—Consider problem 1 set in Part I in which an 0–1 mA. meter was to be converted to read to 25 mA. Here $n = 25 \div 1 = 25$. Hence, since $R_m = 50$ ohms, substituting in above formula,

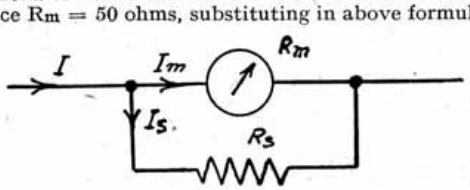


Fig. 2

The range of a current meter may be extended by the use of a suitable shunt.

$$R_s = \frac{50}{25-1} = \frac{50}{24} \text{ ohms} = \mathbf{2{\cdot}0833\ ohms.}$$

Note.—This problem can be solved easily without referring to a formula. It can be said that since the meter at full scale deflection takes 1 mA. the shunt will have to take 25—1 mA. Since current is inversely proportional to resistance, R_s must be 1/24th of the resistance of the meter, which as before = **2·0833 ohms**. The point the author wishes to make here is that although no formula has been stated explicitly, yet the reasoning is exactly the same as that used to obtain the result

$$R_s = \frac{R_m}{n-1}$$

Therefore, the method of using symbols cannot be of terrifying difficulty to anyone who employed the other method.

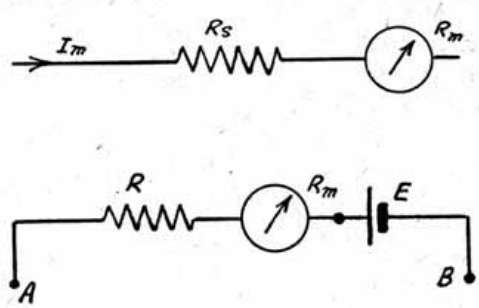


Fig. 3

(*a*) A current meter may be converted to a voltmeter by the employment of a suitable series resistance.
(*b*) Resistance may be measured by inserting a suitable value of resistance in series with a source of voltage and a milliammeter.

(*b*) *Voltmeters.*—As the current taken by a voltmeter must be very small, especially when measuring voltages in circuits in which the total current is of the order of milliamperes, it should therefore have a high resistance.

Extending Range.—Suppose the meter in Fig. 3A reads to E volts and it is desired to convert it to read to n × E volts. A series resistance, R_s ohms is used as shown. If P.D. across meter = E, since total P.D. = n × E, then the P.D. in R_s = $n \times E - E = (n-1) \times E$. Let I_m = current passing. Considering meter, $E = I_m \times R_m$; considering series resistance, $(n-1) \times E = I_m \times R_s$ *i.e.*

$$E = \frac{I_m \times R_s}{n-1}$$

$$\therefore I_m \times R_m = \frac{I_m \times R_s}{n-1} \text{ or, } R_s = R_m \times (n-1).$$

Example.—A meter of 5000 ohms resistance reads 0–5 volts. What series resistance must be used to enable it to read to 20 volts?

It is desired to multiply the range by 4; hence in the formula above n = 4.

$\therefore R_S = R_m \times (n-1) = 5000 \times 3 =$ **15000 ohms.**

(*c*) *Using Milliammeter as Voltmeter.*—To use a current meter (reading at full scale deflection a current I_m) as a voltmeter, a series resistance R_S is employed. Using the same symbols as above, in conjunction with Fig. 3A, and considering the fall in potential across R_S and meter, $R_S \times I_m + R_m \times I_m = E$.

$$\therefore R_S + R_m = \frac{E}{I_m} \text{ } i.e. \text{ } R_S = \frac{E}{I_m} - R_m.$$

Example.—Consider Problem 1 (b) set in Part I., in which a 0–1 mA. meter, of resistance 50 ohms, has to read to 10 volts.

$$R_S = \frac{10}{0{\cdot}001} - 50 = 10000 - 50 = \textbf{9950 ohms.}$$

(*d*) *Measuring Resistance with a Milliammeter.*—In Fig. 3B, a meter of resistance R_m is in series with a known resistance R, and a battery of E.M.F., E. When A and B are connected, suppose the meter shows that a current I_1 is flowing. Then $E = (R + R_m) \times I_1$. If an unknown resistance R_x (which can be in a circuit provided that no current is flowing in that circuit) is inserted between A and B, the meter will show a current of I_2.

$$\therefore E = (R + R_m + R_x) \times I_2.$$

$$\therefore (R + R_m) \times I_1 = (R + R_m + R_x) \times I_2; \text{ or}$$

$$(R + R_m) \times I_1 - (R + R_m) \times I_2 = R_x \times I_2;$$

$$i.e. \text{ } R_x = \frac{(R + R_m) \times (I_1 - I_2)}{I_2}$$

For convenience, with a 0–1 mA. meter, E and R could be selected so that full scale deflection would be given on connecting A and B; *i.e.* if resistance of meter were 50 ohms, battery 3 volts and the known resistance R = 2950 ohms, I_1 in above would be 1 mA. and the formula reduces to

$$R_x = \frac{3000 \times (1 - I_2)}{I_2}$$

if I_2 is in mA.

If a resistance across A and B now shows 0·6 mA. passing, we have

$$R_x = \frac{3000 \times (1 - 0{\cdot}6)}{0{\cdot}6} = \frac{3000 \times 0{\cdot}4}{0{\cdot}6} = \textbf{2000 ohms.}$$

And so for any reading from 0 to 1 mA. giving corresponding values of the unknown from 57000 to 0 ohms. This upper value is based on the presumption that the meter can be read accurately down to 0·05 mA., *i.e.* to 1/20th of full scale.

Problems

(6) For rapid practice in using Ohm's law, fill in the blanks in the following:—

Current.	Voltage.	Resistance.
10 mA. ..	—V. ..	45000 ohms
32 mA. ..	800 V. ..	— ohms
— mA. ..	300 V. ..	12000 ohms
1·5 A. ..	1000 V. ..	— ohms
— mA. ..	250 mV. ..	10 ohms
10 μA. ..	— V. ..	20000 ohms
— mA. ..	1000 V. ..	½ megohm.

(7) It is desired to take currents of 25 mA. at 400 volts, and 20 mA. at 250 volts from a 500 volt power supply; and also to have an idling bleeder current of 10 mA. What bleeder resistance should be used; and where should it be tapped?

(8) A valve has an amplification factor of 10, and is to be run under Class C conditions with 600 volts on the anode. The anode and grid currents are 105 mA. and 15 mA. respectively. What is the minimum value of cathode bias resistance required?

(9) What resistance value connected in parallel with a resistance of 30000 ohms will give an effective resistance of 20000 ohms?

(10) A 0—1 mA. meter of internal resistance 50 ohms is connected in series with a variable resistance, a 1·5v. cell and two test prods. On shorting the prods the variable resistance is altered until there is full scale deflection on the meter. The prods are then connected across an external circuit and the meter reads ·4 mA. What is the external resistance?

Suggested Exercises

Circuits could be examined to discover why voltage dropping and bias resistances were of the stated values.

Further practice in the application of Ohm's law could be obtained by designing a resistance network which would convert a 0—1 mA. meter into a general test meter; *i.e.* enable resistances, voltages and higher current values to be measured.

(*To be continued next month.*)

Correction.—Due to a printer's error in our last issue the answer to problem 1(*a*) was given as 2·0933 instead of **2·0833.**

Definitions and Formulae for Students

We are tempted to wonder how many members possess the *Pitman* sixpenny booklets which bear the above general title. They are excellent value for money, several of which are invaluable to amateur radio experimenters.

Those of chief interest are *Radio and Engineering*, by Starr, and *Practical Mathematics*, by Toft. The former publication which has just appeared again in fully revised form, contains nearly 50 pages of Definitions and Formulae. The definitions are clean cut and extremely accurate, whilst the formulae rebased on standard practice and the B.S.I. British Standards Glossary.

The Practical Maths booklet has been reprinted four times in recent years, conclusive proof of its continued appeal.

Our advice is write to *Sir Isaac Pitman & Sons Ltd.*, Pitman House, Parker Street, London, W.C.2, for a complete list of these pocket booklets.

Elementary Meteorology

Members interested in the above subject may like to note that Mr. W. H. Pick, B.Sc., F.C.P., F.Inst.P., has recently revised his *Short Course in Elementary Meteorology*. This is an Air Ministry publication obtainable from H.M.S.O. Price 2s. 6d. (postage 4d.)

RANDOM REFLECTIONS

By Commentator

In a waring world it is refreshing to read a contribution which brings home in no uncertain fashion the need for preserving Ham Spirit. May its moral find a wide response.

THERE are times when it is good to look back. Much that " Ham Radio " meant before war put QRT to many of its activities, seems now to be a thing of the past. The empty shack, the dispersal of friends, the absence of QSL's in the morning post, the usual sked. which is now no more ; these things have for many ended what was, for them, the essence of " Ham Radio." As the war continues and erstwhile " hams " meet on Active Service, they will all, sooner or later, start reminiscing. " Do you remember the 1938 N.F.D.? " " Were you at the last Convention ? " " Do you remember when old Bill worked VK ? " " Do you remember . . . " ; and so it will go on.

It is only right that this should be so. As the war develops and involves more and more countries in an orgy of destruction, one by one the remaining beacons of amateur radio become extinguished, and one wonders whether some future day may come when the question will be heard : " What *was* this Ham Radio ? " If it does, it will indeed be a sorry day. Whether or not it comes depends on how we conduct our affairs now. But before we say more on this point, let us consider what it is which makes our hobby unique among the activities of mankind. What is it about amateur radio which knits men of every nation together by a bond of comradeship in a world stark mad with national hatred ? What is it which makes two individuals separated by thousands of miles, who have never met, or set eyes on each other, friends for life ? What is it which insures hospitality in every foreign land—or did at any rate before the war—for he who can say, " I'm a fellow radio ham " ? What is it about our hobby which attracts thousands of adherents in every civilised country of the world ?

For some, no doubt, it is the fascination of communicating with another human being hundreds of miles away. It cannot be denied that there is an almost uncanny fascination in sending a radio signal far out across space and getting an intelligent answer back. This fascination in being able to send messages across wide areas of the world's surface, without the intermediary of a human messenger, is no new thing. It is as common to the African native tribesman with his beating of drums as it is to any twentieth century amateur with his commercially-built transmitter and receiver.

For others the fascination is undoubtedly in experimentation. They have, deep down in their bones, a spirit of the pioneer. They like to delve into the unknown ; they like to help advance the science of radio. For them amateur radio is a serious pursuit ; they are interested in it for its own sake, and in the amateur movement they meet others similarly minded, and are able to discuss and argue with them about their ideas and notions on this or that problem.

And yet again, for others, amateur radio offers an outlet for their creative instincts. They enjoy making things. Their friends and relations say they're just grown-up schoolboys. In building equipment and gadgets they get their enjoyment from the actual construction of the job. DX and " rag-chews " don't interest them as much as making sure the job is a fine example of their handiwork. They are craftsmen at heart, not radio operators. In amateur radio they meet other craftsmen whose work they can discuss and compare with their own. " Ham Radio " has room for them all, but none of these reasons really explains the unique nature of the movement. It is more than a club of radio operators, of experimenters or of craftsmen. No matter which of the above interests was the initial cause of the prospective amateur " joining up," when he does get into the " fellowship " he soon finds that there exists a " something " ; an indefinable sense of the greatest comradeship he has ever come across. No matter what his social status, what his income, what his creed, what his nationality or colour, provided he abides by the unwritten laws of " ham " conduct—which he will soon learn—he is as good as the best. On the air, at local meetings, at Conventionettes and Conventions, during his travels at home or abroad ; wherever he comes up against others whose passport is a QSL card, he knows he will find hospitality and comradeship. This is the Spirit which makes the amateur radio movement distinctive ; which places it amongst the highest, most cultured, most uplifting of human activities. It is one of the best " Friendly Societies " the world has ever seen. Quite on a par with such movements of International fame as the Boy Scouts, the various International sporting clubs and similar movements.

Upon what does the success of this comradeship in amateur radio depend ? It depends chiefly on free intercourse and communication between all its members. An international jargon, and a ready means of communication, have enabled all its members in the most distant parts of the world to keep in touch with one another. Conventions and local meetings have brought together groups of similarly-minded people and the spirit of the thing has spread until now there can hardly be a country where a " ham " isn't to be found.

But the " forces of evil have reared up their heads," as the preachers would say. Not only do they wish to curtail our freedom in the wider spheres of life, to destroy our Nation, our democracy, our very country, but they are endeavouring to sow seeds of national hatred and jealousy and so disrupt the countries they wish to attack. International friendship is a thing they fear most. We amateurs know too well that the first signs of dictatorship are the disappearance from the " air " of the call signs of the subjugated country. Free intercourse with the outside world will not suit the dictators. Neither will meetings of groups of people behind closed doors. Neither will free discussion in Society and Club magazines. By stopping all these things that have managed effectively to turn their people from intelligent free-thinking individuals, with a sense of something worth while in life, into senseless automatons.

And now here is the moral. For obvious reasons the authorities have stopped our activities on the air. But they have not stopped our other activities. Our meetings can go on as before—not quite so conveniently perhaps, but there, the fellow who had the farthest to come always *was* the most regular! Our friendships can go on. We may be separated, we may not be able to meet on the train, in the café or at the "local" as we used, but we *can* write. Stamps don't even yet cost the price of an International Postage Coupon, many of which we readily parted with for some QSL or the other.

Never again let it be found necessary for the Editor of our BULLETIN to publish an appeal for news from members. Of all times, now is the time for full District notes. If you are in the Services send your T.R. a letter occasionally. If you've been evacuated, send him a post card saying where you are and what you think of your new QRA. If you are a warden, let's know how many 500-pounders you've stopped! If you're in the A.F.S., well let's hear from you too.

When the very foundations of "Ham Radio" are being shaken, it is up to us (who have watched it working and known it at its best) to see, by gathering together as we did of old, by talking of our hobby over our coffee and sandwiches or our beer and sausages or whatever it may be, by corresponding regularly with those with whom we should never have thought of missing a sked, and extending toward other "hams" the hospitality we would have shown in days gone by, that the Spirit of our Movement is kept alive, so that the day shall never come when the question is heard: "What *was* that 'Ham Radio'?"

THE T MATCHED AERIAL

John Kraus, W8JK, doyen of many aerial systems bearing his name has, in collaboration with S. S. Sturgeon, W8MPH, recently described in *QST** a new design of T Matched Aerial.

After pointing out that some operators find it inconvenient or difficult to employ a "Y" or "Delta match," the author describes an arrangement which is pictured in Fig. 1A. The transmission line divides at a point close to the aerial and each wire extends parallel to it for a short distance before making a right-angle bend and connecting to the aerial. Referring to Fig. 1, L is the length of the aerial, D the distance along the aerial between the points where the line connects to it, A the distance from each end of the aerial to the nearest tap, and S the spacing between the aerial and the parallel wire of the "T match."

In constructing an aerial of this type it is only necessary that either A or D be specified. For convenience, however, the author specifies both dimensions.

Open wire lines of any convenient characteristic impedance may be used for feeding a half wave aerial with "T match." For a 600 ohms line the recommended dimensions are as follows, where f is the operating frequency in megacycles:—

$$L = \frac{475}{f} \text{ feet.}$$

$$D = \frac{114}{f} \text{ feet.}$$

$$A = \frac{180{\cdot}5}{f} \text{ feet.}$$

$$S = \frac{114}{f} \text{ feet.}$$

As an example, an aerial cut for 14·2 Mc. would have the following dimensions:—

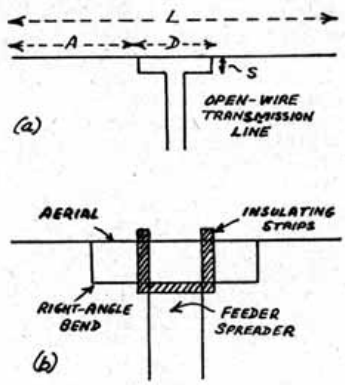
L = 33 ft. 5 in. D = 8 ft.
A = 12 ft. 8 in. S = 8 in.

These dimensions are suitable for matching an open wire line having a characteristic impedance of about 600 ohms.

* *September*, 1940, *page* 24.

It should be noted that the formula for the aerial length gives a slightly longer length than the usual formula.

Tests have proved that the performance of the "T match" is excellent and entirely comparable with those obtained with the "Delta" or "Y" match.



(a) The T matched half-wave aerial (dimensions are given in the text), and (b) method of supporting matching section.

It appears that the dimensions D and L are not critical but in the latter case it is important that it should be fairly close to the resonant value.

If tubing is used for the radiator instead of, for example, No. 14 S.W.G. (No. 12 B. & S.), it may be necessary to shorten L by about 1%. When using a T matched half-wave as the driven element of a beam aerial, some change in D may also be desirable.

An arrangement for supporting the centre of a "T Match" is shown in Fig. 1B. Two insulating strips of paraffined wood or ceramic are used to maintain the spacing at the centre and to carry the weight of the transmission line. An approximate

(*Continued on page* 204.)

Letters to the Editor

The Editor does not hold himself responsible for opinions expressed by correspondents

More About Horizon Distances

SIR,—Referring to a letter " Horizon Distances," page 412 of the April issue, I should like to call attention to some errors therein. In the formulæ given, the last term in each should contain the square root of the height. However, even with this correction, the expressions will not give answers in the units stated. The first one is for *statute* miles (not nautical miles), for a normal earth. The second is also for statute miles, but for an earth whose radius is 4/3 normal length.

The formula as shown in the March issue, page 373, except for the earth's diameter, is correct as it stands. The fact that the figure 5280 appears in the expression indicates that the result will be in statute miles.

In order to obtain a better conception of the units involved, it may be well to run through a derivation of the formula for horizon distance. In the accompanying diagram, A and B are two points on the earth's surface representing, respectively, the location of an observer and his optical horizon. Further,

R is the earth's radius.

h is the height of the observation point above the earth's surface.

d is the distance, along the earth's surface, between the points A and B.

θ is the angle subtended at the earth's centre O by the arc d.

The formula is based on the trigonometric relationships

$$\theta = \frac{d}{R}$$

and $$\cos\theta = \frac{R}{R+h}.$$

Now, $$\cos\theta = 1 - \frac{\theta^2}{2!} + \frac{\theta^4}{4!} - \frac{\theta^6}{6!} + - - - - -.$$

For the very small angles with which we will be concerned, we may neglect all terms following the second, so,

$$\cos\theta = 1 - \frac{\theta^2}{2},$$

and $$\frac{1}{\cos\theta} = \frac{1}{1 - \frac{\theta^2}{2}} = \left(1 - \frac{\theta^2}{2}\right)^{-1}.$$

Expanding the last term, we obtain

$$\left(1 - \frac{\theta^2}{2}\right)^{-1} = 1 + \frac{\theta^2}{2} + \left(\frac{\theta^2}{2}\right)^2 + \left(\frac{\theta^2}{2}\right)^3 + - - - - -.$$

Here, again, we may neglect all terms after the second, hence,

$$\frac{1}{\cos\theta} = 1 + \frac{\theta^2}{2}.$$

Since $$\frac{1}{\cos\theta} = \frac{R+h}{R} = 1 + \frac{h}{R},$$

$$1 + \frac{\theta^2}{2} = 1 + \frac{h}{R},$$

and $$\frac{\theta^2}{2} = \frac{h}{R}.$$

Substituting for θ, $$\frac{d^2}{2R^2} = \frac{h}{R},$$

$$d^2 = 2Rh.$$

The mean radius of the earth is 3960 statute miles. The formula for statuté miles is, therefore,

$$d^2 = 2 \times 3960 \times \frac{h}{5280} = 1{\cdot}5h,$$

$$d = \sqrt{1{\cdot}5h}.$$

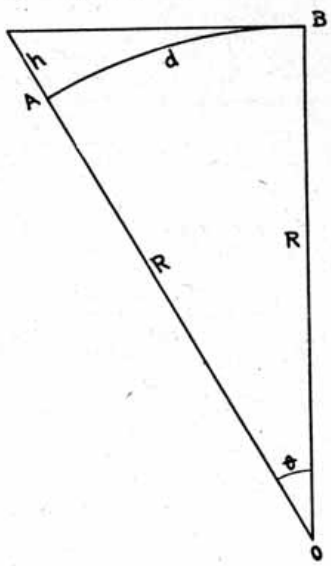


Diagram showing distance to horizon.

This distance d is known as the distance to the *optical* horizon. Sometimes, to allow for refraction, or bending of rays around the earth's surface, an earth with a radius 4/3 times normal is used to calculate horizon distances. This has the effect of slightly flattening the earth's curvature, hence giving a greater horizon. In this case the formula becomes

$$d = \sqrt{2h}.$$

The equations can be written in the form

$d = 1{\cdot}225\sqrt{h}$, for normal earth (optical horizon)

$d = 1{\cdot}414\sqrt{h}$, for earth of 4/3 radius.

Distance d is in statute miles; height h is in feet.

It should be remembered that these simplified formulæ are for an ideal earth. All heights and distances must be referred to sea level.

Yours faithfully,

Box 626, ARTHUR M. BRAATEN (W2BSR).
Riverhead, L.I., N.Y

"Contrasting Weather" and 56 Mc. Conditions

Sir,—There are several points in Mr. Parker's article on "'Contrasting Weather' and 56Mc. conditions" in the October BULLETIN which are rather obscure and there seems to be some confusion of ideas. Possibly I have failed to grasp some fundamental conception, not explicitly stated in the article, which would have prevented these difficulties from arising, but I venture to raise these points in the anticipation that some explanatory notes from Mr. Parker will elucidate the obscurities which may be troubling others like myself.

First, the expression "contrasting weather" does not seem to have any clear meaning. It is difficult for the reader to decide whether the contrast refers to the comparison of weather conditions at different times or in different places, or whether it refers to a comparison of weather conditions and propagation conditions. An explanation of this terminology would have clarified the approach to the problem.

Taking the other points in the order in which they occur, it is odd to find a scale of 7 being used as a measure of propagation conditions. Technical people, generally speaking, use a scale of five, ten, or some other "round" number, and sometimes nine where as many degrees as possible are available without running into two figures. No serious criticism can be made against a scale of seven, but on the other hand, there seems to be nothing gained by this departure from a very convenient conventional practice.

The mental approach to the question of temperature recording seems to have been rather haphazard. One gets the impression that it was a case of "Think of a number . . ." It appears that the results recorded and the conclusions drawn are all based on temperature measurement at the author's station, which seems to be in conflict with his statement that "Local temperature changes produce anomalous results." This conflict still seems to exist notwithstanding the differences between temperature and *changes* of temperature.

When considering the question as to whether atmospheric pressure should be examined in its relationship to propagation conditions, the author remarks that "in any gas, temperature and pressure are interrelated." This relationship is readily examined, of course, when the gas is in a confined space, but it seems to be an open question in the case of the atmosphere, and a careful meteorological study, would be required to correlate the results with atmospheric pressure.

The drawings of Figs. 2 and 3 are a little confusing, if not actually incorrect. I can find no reason for the curved paths in the "dense layer" of Fig. 3 (presumed to be of uniform density), which are in perplexing contrast with the straight paths in Fig. 2. On the one hand, in Fig. 2, there appears to be abrupt reflection where the "dense layer" meets the "density gradient," and on the other hand, in Fig. 3, the ray is evidently considered as penetrating the "density gradient" partially before being reflected downwards. If two different processes are being considered here, it would be important to make this point clear.

Finally, the author advances the hypothesis that:

conditions × *temperature* = *constant*

which is difficult to reconcile with his statement that "it seems certain that a high temperature is more favourable for propagation than a low temperature." The law which the author postulates requires the opposite of this condition.

A great deal has been written in recent years on the relationship between weather and propagation conditions, and the methods used to investigate this problem are nearly as numerous as the people who have made the experiments. The methods used by amateurs are usually characterised in being solitary enterprises, owing to the difficulties in achieving widespread and prolonged collaboration. In this connection, I should like to draw the author's attention to two articles in *Experimental Wireless* of December, 1925, and March, 1928, in which I described some methods, suited to amateur technique, of investigating the effect of weather conditions on long-distance reception. I mention these articles in case they may contain some helpful ideas for those who are still struggling with this rather unwieldy problem.

Yours faithfully,

S. K. LEWER, G6LJ.

Maths. Articles

SIR,—May I congratulate you on the inclusion in THE BULLETIN of the series of articles "Mathematics for the Radio Amateur"?

The first set of questions were particularly well chosen for the purpose of testing the Amateur's knowledge of first principles and if they are a fair sample of what we may expect for the future, there seems little doubt that the articles should prove very useful both to the beginner, too often groping in the dark, as well as to the "old timer" whose memory may be a little hazy.

Yours faithfully,

A. J. H. WATSON (G2YD).

[*Mr. Watson's letter is one of many received expressing appreciation of the new series of Maths. Articles.*—ED.]

The Valve Position—A Warning

SIR,—Does the Board of Trade realise that the ban placed upon the importation of radio valves, combined with the almost complete cessation of radio valve manufacture in this country, will result, if maintained indefinitely, in a terrifically high percentage of radio receivers being rendered useless during 1941, with the more or less deplorable consequence that an ever increasing number of homes throughout the country will be unable to hear B.B.C broadcasts?

Yours faithfully,

LEONARD HEYS.

Congratulations

To Stan Granfield, G5BQ, of Cambridge and our District 8 representative, who has been appointed Headmaster, for the duration, of one of the biggest day and evening schools in the Eastern Counties.

New Books

EXPERIMENTAL RADIO ENGINEERING. By E. T. A. Rapson and E. G. Ackermann. Pitman; 8s. 6d.

This is a book which should prove invaluable to student and teacher alike. It gives a full description of 80 experiments for use in a Radio Engineering Course covering Circuit Design, Valves, A.F. and R.F. Amplifiers, Receivers, Electro-Acoustics and Cathode-ray tubes. The procedure for each experiment and the basic theory are clearly set out, together with typical results obtained in the author's laboratory.

Many amateurs will find the material offered in this book of great value in their experimental work even although some of the apparatus described may not be available. Among the experiments described which will be of interest to most amateurs are those dealing with the design and performance of oscillators, modulation measurements with the cathode ray oscillograph, and some of the tests on receivers.

It is, perhaps, unfortunate that all tests dealing with aerials, feeders and radiation in general are conspicuous by their absence. Such work must surely come within the scope of the four years course on which the syllabus is based. A minor criticism, also, is that the circuit diagrams are a little inconsistent in some places. For example, in some circuits the symbol used to represent a resistance is that common on the continent while in others the standard British convention is employed.

The book, however, fulfils a very definite gap in the students' literature of the subject and we trust that we may look forward to the day when another edition may appear covering an even wider field.

H. A. M. C.

"Learning Morse"

From the offices of our esteemed contemporary *The Wireless World*, we have received a copy of the recently published Fourth Edition of "Learning Morse."

The text and illustrations have been fully revised and much new advice given on methods of learning the code, key manipulation and equipment. We can most strongly recommend this little booklet to all who have yet to master the mysteries of the dot and dash.

It is priced at 6d. (postage extra) and can be obtained direct from *Iliffe & Sons*, Dorset House, Stamford Street, London, S.E.1, or from booksellers.

J. C.

Diaries for 1941

The *Osram* Diary for 1941 contains useful data on Osram Lamps, Car Bulbs, Valves and Cable Formulæ. A list of the addresses and telephone numbers of Electrical and Allied Institutions is of special value, now that temporary addresses are fairly common. Bound in leather with gilt edges this "featherweight" diary should prove of interest to all in the Radio trade.

The Wireless World Diary and Reference Book for 1941 makes its customary and welcome appearance.

The reference section contains comprehensive lists of the principal long-, medium- and short-wave broadcast stations, followed by the "Q" code. Morse code, Abbreviations, Call-sign Allocations, Useful Formulae and Resistance Colour Code.

Several Abacs, a Wattage table and Wire tables are also included. An extensive Valve Reference section occupying 20 pages will be found of special value to amateurs, as will the Circuit section.

The diary proper is arranged to provide one week at each opening.

The price of this very useful publication is 2/– (plus purchase tax) obtainable from booksellers, or direct from the Publishers, *Iliffe & Sons*, Dorset House, Stamford Street, London, S.E.1.

Trade Notes

The "Flik-o-Disk"

In a busy world where time means money, any device aimed at *saving* time, saves money. The "Flik-o-Disk" Calculator which has been placed on the market by *Ionic Laboratories*, 514 Ipswich Road, Slough, Bucks, is one of the most ingenious electrical time savers we have seen.

The Disk answers quickly and accurately, all problems involving Ohm's Law. All scales are direct reading and the accuracy of graduation is of a very fair order.

The disk is of white erinoid or similar composition and appears to be strong and durable.

For the experimentally minded amateur who requires a quick means of calculating E, I, V, and W, this new device should prove very useful. The price is **4/6**.

J. C.

A Murphy Mixer-p!

We have been asked by *Murphy Radio Ltd.* to correct a "howler" which inadvertently crept into their advertisement published in our September issue, page 82. Under the heading "Other Technical Advances" it was stated that "gain is increased by the use of an HL41DD valve *following the mixer* in place of the usual variable, Mu type." As most readers will know, the HL41DD valve is a double-diode-triode, which is used as an L.F. amplifier and A.V.C. and second detector. The valve following the mixer is, of course, the normal I.F. amplifier, so that the italicised words in the sentence quoted above should not have appeared.

A Handbook Sales Suggestion

Mr. J. N. Roe, G2VV, suggests that members employed in radio factories would help the Society, and their friends, if a notice could be displayed intimating that the member concerned is prepared to order a quantity of Handbooks at one time, thereby avoiding individual postage charges.

Headquarters will always be pleased to quote for quantity orders.

Incidentally, Mr. Roe has sold over **3 dozen** copies by the method suggested.

EXPERIMENTAL SECTION

Manager: A. M. H. FERGUS (G2ZC).

IN this issue, the last of a momentous year, I should like to strike a personal note, for with the opening of a New Year, we shall have a new E.S.M., as I have asked Council to relieve me of the work " for the duration."

In writing my " Swan Song," and reviewing the past, I would like to say it has been my endeavour all through, while not forgetting the serious side of the Section, to try and keep alive the " Ham Spirit." An even better phrase would be, to say that I have endeavoured to run E.S. as a " Happy Family." Whatever the results have been over the former is not for me to say, but over the latter I can take my leave knowing what a grand crowd have been with me and behind me, and to one and all I would like to say " Thank you."

I have been splendidly backed by my untiring G.M.s, and G.C.s, and the groups pulled their weight well, until with the war starting, our organisation found itself with more important work to face, and face it it has done, in all branches of the Services. The few who can still " experiment " are doing so, and I look forward, not without a lot of optimism, to the future when, with new ideas, new circuits, etc., the section will once again come up to full strength, and into its own.

To all members, past and present, I send my personal Christmas and New Year Greetin gs. Wherever you are, or whatever you are doing, a very sincere wish for " Good Hunting " and a speedy return to rejoining the " happy family " again.

No one wishes you that more than I do, so 73.

G2ZC.

Aerial Group

Although the G.M. Mr. O. M. Derrick, GM3OM, is now serving with the R.A.F. he has expressed his keen desire to carry on the work of the Group. Members interested in aerial problems, especially any who are in a position to provide *précis* of new systems described in foreign journals, are asked to write to Mr. Derrick, c/o his home address " Gowanhill," Drip Road, Stirling.

Propagation Group

Mr. Dennis Heightman, G6DH, 254 Burrs Road, Clacton has consented to take charge of this Group, and his first report is expected next month.

Group members are urged to accord to G6DH that same co-operation which was given to Mr. Williams, G2XC, the retiring G.M. The latter, in spite of his R.A.F. duties, has very kindly furnished Cosmic Notes which appear below.

Receiver Group

Due to a month's illness, the G.M. has reluctantly been compelled to miss his report this month. In addition to his own ill-luck, his parents' home in London has been bombed and both have suffered from severe shock.

We trust the New Year will bring better fortune to Mr. Heap whose energetic efforts on behalf of the Receiver Group have been so greatly appreciated.

Transmitter Group

It is regretted that Mr. Phillips, GW4KQ, has been unable, so far, to provide *précis* of recent new transmitter developments. Members in a position to assist in running this Group are urged to communicate with the G.M. at 132 Clare Road, Grangetown, Cardiff.

G6CL.

Cosmic Notes

NO data has been received for the period August 18 to September 15, but information covering the four weeks September 16 to October 12 follows.

No outstanding solar phenomena have been reported, but spots were most numerous from September 19 to 21.

Magnetic Conditions

Conditions generally were quiet, but small to moderate disturbances occurred during the following periods :—September 26 to 28, October 1 and 7 to 8.

Ionosphere

Ionosphere storms were reported from Washington, D.C., U.S.A., as follows. September 25 and 26 (mild), 27 and 28 (severe), 29 and 30 (mild), October 1 (mild, increasing at 19.00 G.M.T. to severe), 2 (moderate), 3 and 4 (mild), 8 (moderate).

Irruptive fade-outs occurred as follows :—October 7 at 13.44 G.M.T. and October 8 at 17.31 and 20.25 G.M.T. These were recorded at the National Bureau of Standards, U.S.A., while from Tokyo a fade-out is reported to have occurred at 18.32 G.M.T. on September 26.

Critical frequencies for the F_2 layer at Washington were :—September 18, 8,400 kc. ; September 25, 9,500 kc. ; October 2, 10,900 kc. These figures are for the ordinary ray. In previous "Cosmic Notes " the figures have been for the extraordinary ray, but it is now the usual practice to give the critical frequency for the ordinary ray. The critical frequency for the ordinary ray is, of course, slightly lower than for the extraordinary ray. As a comparison the figures for the extraordinary ray were as follows :—September 18, 9,200 kc. ; September 25, 10,200 kc.

The Cosmic Data from Science Service now gives the ionosphere measurements for each day, and not once a week as previously. During the period September 26 to October 2 the critical frequency for F layer at midnight was generally of the order of 4 to 5 Mc., but fell to 3 Mc. on September 28 and rose to 6·1 Mc. on September 26.

The midday F_2 layer figures reached 11 Mc. on September 29 and fell to 8 Mc. on October 1.

G2XC

Season's Greetings

Dorothy Hall, W2IXY, extends season's greetings to all her friends in Great Britain and the British Empire.

KHAKI AND BLUE

Items for inclusion in this exclusive feature should reach the Secretary-Editor not later than the first day of the month preceding date of publication.

Hearty congratulations are extended to Sgt. Popay, G8DY of Skipton, Yorks, a recent recipient of the A.F.M. The medal was awarded in recognition of his good work during the early days of the war when he participated in many raids over Germany. Sgt. Popay held his call whilst at No. 1 Signals School.

Immediately H.Q.s heard of the honour which had been bestowed, arrangements were made with F./Sgt. A. Dickinson, G4DP, to present to Sgt. Popay, on our behalf a copy of *The Amateur Radio Handbook*.

F/Sgt. Dickinson, G4DP, with Sgt. Popay, A.F.M., G8DY.

Ex-residents of the Cadogan Arms will be interested to hear that G8BQ, 2CGN and BRS3825 are helping it to retain a ham atmosphere. We wonder whether Max & Co. started a visitors' book when they laid the trail last winter!

* * *

F. Roden White, G8TX, who is now a F./Lt. at a Suffolk R.A.F. station, has, like the old lady who lived in a shoe, met so many hams he cannot remember all their calls! His present "Chief Engineer" is G5QO whilst G4JU is on his staff. He mentions that he went to France with mobile gear but only arrived in time to take "evasive action"! He met Tony Chapman, G2IC when abroad.

* * *

A.C.2 N. Owen, G4KS, writing from a well known North Western seaside resort, reports having met GW4NZ and 2HNL in strange circumstances. He was seated in a morse class when he heard someone in the next class call out for GW4NZ. As he could not see who it was he decided to arm himself with a copy of the "Bull." on the morrow. After waving it conspicuously for a few moments he "raised" GW4NZ and 2HNL, with the result that between them they have located five other amateurs in adjacent classes. At a recent gathering held at the QRA of H. Fenton, who was home on leave G4KS met GW3GL and 2FAQ. Later G2GA, 3OS, 3XN and 2CYV loomed into the picture. Life for hams at — seems to be quite cheerful in spite of drills and potato fatigues!

G4KS would be glad to hear from old friends *via* his home address at 19 Northampton Road, Broughton, Kettering, Northants.

* * *

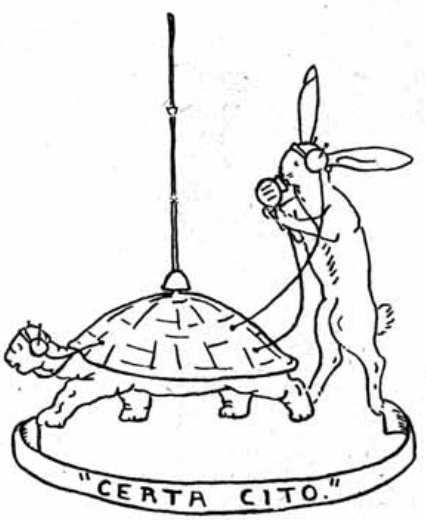
Congratulations to Ian Hennell, 2HJP, who after serving as a Telegraphist in the R.N.V.(W.)R. has now been granted a commission as Sub-Lt. R.N.V.R.

* * *

Sig. G. V. Haylock, 2DHV (Royal Signals) sends greetings to old friends in the Sidcup, Medway and Gravesend areas. He has met several ZL amateurs, whilst on active service. He would like to hear from G3OW and 2DOH *via* his home address, 28, Longlands Road, Sidcup, Kent.

* * *

Home members with memories of B.E.R.U. Contests will be interested to learn that Paul Caboche, VS8AS, of Port Louis, Mauritius, is now a wireless operator at a station somewhere in the Indian Ocean.



Swift and Sure.

Lucas Ralli, G4AJ, who is serving as a subaltern in the Royal Corps of Signals suggests this new design for the Corps badge to replace Mercury!

John Grieve, BRS3605, of Derby, whose photograph appears in this column, has recently returned to his home town after a spell of duty as Radio Officer with the Merchant Navy. John had the unique experience of leaving his appendix " on the line " ; in other words, the operation was performed around the Equator. Unfortunately, complications set in, with the result that he lost a " good ship." He found life at sea very interesting, and hopes to spin a few tales when he returns to take out a G call.

Like other Radio Officers who have written to us, he was amused at the recent controversy, for, as he points out, how often do we blokes get addressed by any name other than " Sparks " ?

* * *

Writing under date of October 6 from " Somewhere at sea," John Holding, G4AS (now a Captain in the R.C. of S.) reported that he, in company with Col. Bailey, G2QB, and 2/Lt. P. M. King, G4GY, were on their way to an overseas destination. John also advised that Stanley Higson, G2PH (ex-G2RV), is also now a Captain in Royal Signals, and is stationed at Freetown, Sierra Leone.

Members who wish to write to G2PH, 2QB, 4AS or 4GY may do so *via* Headquarters.

* * *

P./O. Stan Henton, G5VU, writing from the Isle of Man (DX C.C. aspirants please note !), reports himself fit and well. He wishes to be remembered to the Notting-Hams and to all old friends who were with him at No. 2 Signals School last summer.

* * *

Tel. R. Beardow, G3FT, will be glad to meet amateurs located in ZB2. He can be located *via* the W/T Station. His efforts to trace Sgt. Waddington have so far proved unsuccessful.

* * *

Congrats to E. Y. Nepean, G5DN, R.C. of S., upon promotion to the rank of Major. G5DN was the original AC4YN. Shades of DX days gone by !

John Grieve, BRS3605

is a Radio Officer in the Merchant Navy. The " bit " at the side has been left in to show that he has been to sea !

Sig. Cliff Sharratt, G4CJ, who is serving with the Royal Signals reports being on rest in the Cheltenham area. After initial training in the Midlands last winter his Division moved to Suffolk where he had the pleasure of meeting G2AN, T.R. for Ipswich. Later he was at Div. H.Q. when G4PJ was an operator at a distant station. Occasionally, so we understand, they lapsed into " Ham " procedure when army procedure was not sufficiently explanatory ! The good old phrases so familiar on the DX bands were soon being used " very unofficially " by all the ops. in the group, which in spite of its lapses " licked all the others hollow ! "

When our correspondent returned to his home on leave recently he found that his keys and buzzers had been " borrowed " by the local Home Guards, Signals Section.

G4CJ sends greetings to all old friends and passes on the news that " when we've read the ' Bull.' we make out practice messages from its contents." G5WP please note !

* * *

P./O. Bill Wadsworth, VE5ZM, now on an Officer's Course at No. 1 Signals School, reports having met G3HT, 4DH, 6FM, GM6LD, VE4QS and VK2AKL. Bill is anxious to arrange an R.S.G.B. meeting at the school early in the New Year. Members interested can reach him *via* Bristol Wood, Officers' Mess.

* * *

Congratulations to F./Lt. A. E. Mitchell, G8DF, who was recently married in Aberdeen to Miss Irene Garland. G8DF, it will be remembered, was operator on Lord Moyne's yacht during a cruise around the West Indies on behalf of the Government.

* * *

A.C.1 F. L. Leach, 2FNU, who is at an R.A.F. station in Wiltshire, would like to hear from members of the Gloucester and Stroud Radio Clubs. Letters should be sent *via* his home address, 38 Wellington Street, Gloucester.

* * *

Friends of Dr. E. S. G. K. Vance, G8SA, our pre-war Mansfield T.R., will be glad to hear he is now a Captain in the R.A.M.C. attached to the The Royal Warwickshire Regiment. After numerous moves he has settled down at a well-known east coast holiday resort. He sends season's greetings to members who knew him.

* * *

Sgt. A. Evans, GW4MZ, R.C. of Signals, writing from his home in Llandudno, tells us he returned safely from Dunkirk. Apropos the recent suggestion that the original R.A.F. C.W.R. contingent should identify themselves with some appropriate slogan on their QSL's after the war, Sgt. Evans considers, and rightly we think, that similar recognition should be claimed by all who served abroad up to the time of the Dunkirk evacuation.

* * *

Congratulations to F./Lt. Austin Forsyth, G6FO, of Newport, Mon., on his recent marriage to A.S.O. M. E. Coates, W.A.A.F., of Sutton Coldfield.

* * *

A.C.2 W. G. Hall, G8JM would appreciate hearing from friends *via* his home address at 48 Hawkdene Road, Chingford, E.4. He sends 73 to all in District 14.


SANTA NEVER-KEPT-A CLAUSE
PERMISSION TO TRANSMIT
ON THE COMMAND ONE! TAKE THE KNOB IN THE FORE FINGER ETC.
EXPERIMENTING WITH THE GEAR FORBIDDEN.
CRIMES:-
1. FOR TOUCHING BOTTLES
2. FOR LOOKING IN GEAR
3. FOR TURNING KNOB TO RIGHT ON THE ORDER "LEFT"
4. FOR SWITCHING ON ETC.
AFS
RECEIVING LICENCE 10/-
YOU MAY RECEIVE:- PERHAPS, B.B.C., WHEN ON, JAMMING PERMITTING, IF QRG IS NOT PINCHED BY SERVICES. YOU CAN HEAR ALL THE JUNK ON YOUR OWN BANDS, WE HAVE IMPROVED TMC FOR YOU. IF YOU LISTEN DURING AIR RAIDS YOU'LL BE SUSPECT AND C.I.D WILL VISIT, ETC.
HUSH HUSH WORK
A NIGHTMARE COMES TRUE!
G.TOOSE-EADY. 1940.

V. J. Flowers, G8QM, who was one of " The Early Birds," would like to contact some of his old B.E.F. friends. Letters should be sent *via* his home at 72 Willifield Road, Golders Green, London, N.W.11. He tells us that, after obtaining a lift from a private car near to where he is stationed, the driver turned out to be G2QV. A pleasant evening was subsequently spent at his QRA. G8JM, who has met G8VH and 8NM in recent weeks, sends 73 to his friends in North London.

* * *

Pat Whittle, 2AOW, who has recently moved from North London to " Kaercolin," Highfield Avenue, Dovercourt, Essex, extends a warm welcome to Service members who visit his town or district. Pat works in Trinity House, and his father is a Naval Lieutenant.

G3KB, of Shipley, Yorks, is serving with the R.A.F

Congratulations to G4HW who has been appointed a Flight-Commander in the recently formed Eagle Squadron. He hopes to meet some American hams in the course of time.

* * *

We understand from Mrs. Johnson that her husband, G3KB, is getting plenty of QRO experience at an R.A.F. station in Yorkshire. He has contacted several SP amateurs at his Squadron. G3KB will be glad to receive letters *via* his home address, 13 Selbourne Terrace, Shipley, Yorks.

* * *

That " wee fellow " who answers to the name of Andrew Leitch, G5YA, has obtained his commission. Although a 2/Lt. in the R.A. Andrew can't get away from the boys in Blue, for we notice that his letter is written from a R.A.F. mess in Oxfordshire.

He asks whether any charitable soul has a broadcast set to spare for the use of his boys who, to quote his words, "are having a dull time waiting, waiting, and waiting some more, for an enemy that comes but rarely so far."

Letters and offers can be sent *via* G6CL.

G5YA sends Season's Greetings to all old friends.

* * *

A.C.2 Maurice Newman, G3DZ, who was one of the " Early Birds " tells us he has been attached to Balloon Command for Signals duties since July. He seems to have made a tour of G judging by his list of counties " worked ! " Due to a clerical error, G3DZ was recorded as a non-member in the list of Early Birds published in the October BULLETIN. Letters can be sent *via* his home address, 3 Cambridge Avenue, New Malden, Surrey.

* * *

Old Timers will be pleasantly surprised to hear that Hugh Ryan, G5BV, is now Captain and Adjutant to an R.A.O.C. Division (Home Forces). He wishes to be remembered to his many friends who can write *via* his home address, 24 Woodhayes Road, Wimbledon Common, London, S.W 20.

* * *

W. W. Taber, G3GU, of 12 Lee Park, Blackheath, S.E.3, is now training for a commission as a Naval Airman in the Fleet Air Arm. He records that his amateur experience helped him when he appeared before the Selection Board. Before enlisting he was giving Signals Instruction to No. 21 (Lewisham) Squadron, A.D.C.C.

* * *

Leonard Lott, G6PT, advises us that he is in charge of the Y.M.C.A. Forces Canteen at Burnham-on-Sea, Somerset. Amateurs who find themselves in that area should make a point of introducing themselves. A recent visitor was Cpl. Barnes, G3JO, of Swindon. Occasionally Mr. Lott can be found at the Y.M.C.A. huts at Cheddar and Highbridge.

* * *

Cpl. A. M. Boyce, 2CMR, reports that G4AI and 2CHW are now trainees at No. 3 Signals School. He records his thanks to Mr. Arnott, G8GN, of Monmouth, for kindly sending him QST each month.

Silent Key

L.A.C. DONALD BIGGS (G6BI) R.A.F.

Amateur Radio has lost one of its most ardent followers, and the Society one of its keenest members by the tragic death of Donald N. Biggs, G6BI, due to a flying accident early in November whilst serving in the R.A.F.

Don Biggs became an amateur in 1933, and from that time onwards until shortly before the outbreak of war, he was very closely associated with all amateur radio functions in both District 7 and District 15. Never one to thrust himself to the fore, Don, nevertheless, joined wholeheartedly into any movement which he considered to be in the best interests of his beloved hobby. During 1938 he was made first President of the Kingston and District Amateur Radio Society, of which in 1935 he had been co-founder with the writer.

Don was a typical " ham " in the best sense of the word. Of a generous and a free-and-easy disposition, he was always willing to assist and make welcome the young radio enthusiast, and many will feel, in common with the writer, a great sense of personal loss at the news of his death. He leaves a widow and small son, to whom all members will wish to extend their sincere sympathy. G6RS.

THE "SECOND - EARLIES"

By "LOFTY"

HAVING read with interest of the doings of the C.W.R. "Early-birds" in France, the writer felt that he would like to chronicle the adventures of a second C.W.R. party, whom he has dubbed, in the manner of Mr. Middleton, the "Second-Earlies."

It was a great disappointment to many eager reservists, who had reported to their town centres on the outbreak of war, to be sent home to await further instructions, especially when letters began to arrive from their fellow Hams bearing the magic letters "By A.D.L.S." However their turn came at last and the beginning of October, 1939, saw at No. 2 E. & W. School perhaps the greatest gathering of amateurs of all time—to be eclipsed, we fervently hope, at a Grand Victory Convention held in honour of the restoration of our transmitting facilities by a grateful Government!

We were not to be left long in this Convention atmosphere, for in small batches we were interviewed and given a trade test. The following morning we were called from our fatigues (the writer was helping the cook to make apple pies, which, perhaps fortunately, he never had the chance to sample!) for a special parade, during which the flight-sergeant read out twenty-two names. The rather wondering owners of these names were paid, and an hour later had started on a cross-country trek to a well-known "jumping-off" place, spending the journey examining their new pay books and secretly not a little proud of their A.C.2 W./Op. classification. (Yes, poor innocents, we had yet to learn that "A.C. plunks" were the lowest form of animal life!) [Not quite.—Ed. !]

On arrival, we were greeted by a high official of the C.W.R. who told us that we had been selected to go to France by air on the following morning to join the C.W.R. pioneers, of whose work he spoke very highly. We scarcely had time to discuss our reactions to this exciting news before we were marched away to be medically examined, vaccinated and inoculated, and to conclude a very memorable day those of us who were still in civvies were taken to the stores to be kitted-out.

The night was very far spent as we trudged slowly back to our barrack room carrying our bulging kit bags with arms already beginning to feel a little sore as a result of the medical officer's ministrations. We were none of us in too good a shape when we donned our uniforms the next morning, and it was wisely decided to give us a day's rest before undertaking the next stage of our journey.

Thus, that afternoon we marched off to the tailor's shop, attempting to emulate the smartness that comes from weeks of "square-stamping," and returned trying to look as if the neat "sparks" badges on our right sleeves were no recent acquisition!

Early on the following morning we embussed for the airport and had our first view of the Imperial Airways Ensign that was to be our "magic carpet," and waited anxiously until the mist that threatened delay gradually dispersed. After we had been individually weighed with our kit (a rather staggering figure) we embarked in the Ensign and soon the ground was rapidly receding from us.

From our elevated viewpoint we could see what a beautiful country we were leaving behind us—and how well worth fighting for! Soon we had our first view of the Channel and a little later the white chalk cliffs were slowly fading from sight. Some excitement was caused as we identified ourselves to a patrolling destroyer, and then we had our first view of the French coast. The writer felt a queer thrill as he saw a diminutive motor car proceeding along the right side of a road and then the strange thought occurred to him that he would not like to risk a parachute jump! However he quickly realised that the space and weight of these useful accessories was occupied by apparatus more necessary to our future work, so he stopped thinking of this vain fancy! Soon the great landing wheels (which had not ceased revolving since they left English soil) touched the ground and we crowded out to air our French on the soldiers who ran out to welcome us.

* * *

This seems a good place at which to leave our little party, at least for a while. But we hope this brief record has been of interest to readers and has awakened pleasant memories in the minds of the undermentioned who became the residents of "Sparks Hotel," Somewhere-in-France, during October, 1939.

Barker, Barry, Broadbent, Buchan (G4QA), Cameron (2BKC), Danks, Edwards, Johns, Johnson, Lloyd, McMinn (G.M3YN), Middle (G4CM), Mills, Norton (G4KZ), Parr (G6AN), Payne (G8FV), Peattie (2FQG), Roberts (2FNC), Scales (2FNS), Sharples, Simpson (G8DI) and Smith.

(Since penning the above the author has read with deep regret that John Buchan has died from war injuries)

Air Defence Cadet Corps

The Secretary-Editor will be pleased to hear from all members who hold commissions in, or who are Honorary Instructors to, Air Defence Cadet Corps.

It is hoped to publish a complete list of names next month. Officers are requested to state their rank, Squadron name and number.

New Squadrons have recently been formed at Hinkley, Birmingham, Walsall, Devonport High School, and Torquay, bringing the total to over 200. There are now 18,400 Cadets in the movement and Signals instructors are still wanted. Offers can be directed to G6CL or to A.D.C.C. Headquarters, 1A, Kinnaird House, Pall Mall East, London, S.W.1.

A Verse from Birse

I'm sending you my 73,
You hams, where'er you be—
On land, on sea, or in the air,
Good luck from 5UT.

The G.P.O. has my TX,
And even my morse key,
So I'm sending you this message,
Via the R.S.G.B.

But when this "blitz" is over,
And I've got back my rig,
We'll chew the Rag on 1.7
With a bigger, better sig.

GM5UT.

Season's Greetings and 73.

WE would again direct the attention of those sending in lists of calls for inclusion in this feature to the fact that no useful purpose whatsoever is served by referring to foreign call signs, other than those of U.S.A. amateurs.

To avoid any further misunderstanding we have drawn up the following simple rules :—

1. Lists must be set out in strict alphabetical order of call sign and must reach Headquarters not later than the 28th of the month.
2. The style must adhere exactly to the example given below :
   G9AA* (20 Smith Street, London, S.W.30) to G1AB, 2ZZ, 3YY, 4BB, 5ZO, 6ZY, GI1DD, 2LL GM1AA, 2AA, GW1CC, 2DD.
3. Lists of Calls *must* be sent to Headquarters on a separate sheet of paper or postcard and be very clearly written in block characters.
4. Only British Isles, British Empire and U.S.A. calls may be included.
5. Not more than 12 calls may be included in any one list.
   Lists which fail to conform to the rules will not be published.

* *Service members will give their regiment or home address only.*

G2DP (6 Dunheved Close, Thornton Heath, Surrey), to G2BB, 2IJ, 2JB, 2JK, 2RD, 2UJ, 3CU, 3DF, 4AA, 5MA, 5OX, 2FQQ, and all old 56 Mc. friends.

* * *

G2JD (162 Sidegate Lane, Ipswich), to G2DT, 2YS, 3IN, 3ZQ, 4RW, 6AB, 8AN, 8IS, ex 8KB, 8WI.

* * *

G2VV (27 Riverdale Gardens, St. Margarets-on-Thames, Middlesex), to G2GG, 2JB, 2OA, 2ZY, 5NF, 5RS, 8IV, VK2VV, VU2FO, W1BUX, 1CMX, 1WV.

* * *

G2YV (R.E.), to G2KG, 3HB, 4CN, 4CP, 5LK, 6GO, 6SW, EI2M and 8J.

* * *

GW3AX to G3BQ, 3FT, 3DO, 6HU, 6WI, 8CP, 8KP, 8TD, GI5ZY, EI2P, VE1DQ and 1EI.

* * * *

G3BN (R.A.F.), to G2BK, 2GA, 3DH, 3GS, 3HV, 3NL, 4CH, 5LW, 6VQ, 8NF, 8NL, 2HCL.

* * *

G3FT (R.N.V.(W.)R., home address : 3 Geneva Gardens, Whalebone Lane, North Chadwell Heath, Romford, Essex), to G2FX, GW2XZ, G3AC, GW3CR, G3DI, 3GS, 3GW, 3II, 3IS, 3LT, 3WP, 2ATB.

* * *

G3JF (R.A.F.), to G2RU, 3HP, 3WR, 3YY, 4HS, 6CY, 6RM, 8OQ, 2CIA.

* * *

G3LT (89 Sandhurst Road, Kingsbury, N.W.9.), to G2QY, GW3CR, G3DI, 3FS, 3FT, 3GS, 3IS, GM3LO, GI5UW, O6PM, 6ZO and 8VN.

* * *

G3OA (2 St. Mary's Cottages, Hart Road, Thundersley, Essex), to G3LM, 3LW, 3NP, 3TS, 4FN, 5MM, BRS1295.

G3PZ (61 Broadway, Northampton), to G2IX, 2RI, GW2NG, 3CR, 3QB, 3XW, G3IS, 3RF, 5HS, 6GO, 6VD, 8VN.

* * *

G3SI (Mill End, Thaxted, Essex), to G3GS, GM3LO, G3MI, 3OS, 3OZ, 3PV, 3SB, GM3TR, G3WD, 3YX, 4CP, GW8SO.

* * *

G3WP (41 Queen Street, Brightlingsea, Essex), G2GU, 2SO, 3GW, 3UC, 6AB, 6DH, 8AA, 8AX, 8TL, 8WI, 8WC, 2HLP and members of the S.H.R.T.S.

* * *

G3WU (13 Oslo Road, Burnley, Lancs.), to G2FX, 2RB, 3HJ, 3HK, 3IY, 3ZM, 4CH, 4NY, GM3LO, GW3XW, 2CUO, 2BFB.

* * *

GW3XW (Swansea), to all old friends wherever they may be.

* * *

G3YK (32 Emerson Avenue, Middlesbrough), to G2HN, 2IK, 2LU, 3LP, 3NA, 3QS, 3WH, 3YJ, GM3UA, 6CU, 6MB, 8GM.

* * *

G4AY (R.A.F.), to G2UJ, 3ZC, 5KV, 5OQ, 5PQ, 6ML, 8JS, 8KW, GM3QA, 2CQJ, 2DZT.

* * *

G4CJ (R.C. of S.), to G2TM, 3VV, 3ZC, 4FJ, 4JS, 4KT, 5BW, 2FUC and all Blackburn members.

* * *

G4DC (c/o 185 Ware Road, Hertford), to G3BR, 3OV, 3SH, 3ST, 3WX, 4CH, 4DD, 4KY, 4LY, 5TN, 5WG, 8GP.

* * *

G4FN (R.A.F.), to G2CD, 2IZ, 3GF, 3GW, 5IL, 6AB, 6NU, 6VC, 8VG, W1BLO, 1FSI and all "Eagles."

* * *

G4KS (R.A.F.), to G3FS, 3YY, 4HS, 4HV, 5LP, 2BIL, 2DFG, 2FQZ, 2HLF.

* * *

GM4MV (32 Margaret Street, Greenock), to GM3TD, 5RH, 6IJ, 6IS, G3BU, 3SN, 3XT, 4JV, 4MR.

* * *

G5FA (35 Torrington Gardens, London, N.11), to G2YW, 2ZV, 3IV, 5YV, 6JB, 8DF, 8IT, GW8QI, GM3LO, I5ZGY, 8BK, SU5BO.

* * *

G5QU (16 Canterbury Road, Redcar), to G2FO, 2VV, 3IV, 3LS, 3UG, 5QY, 5XT, 6CV, 6HV, 6TR, 8AR and 8RW.

* * *

G5TZ (82 High Street, Newport, I. of W.), to G2AO, 2JS, 2XV, 2ZV, GW3KY, G3YK, 3YY, 6CW, 6YU, 8OK, GI8PA, W2IXY.

* * *

GI5ZY (" Bel-Air,"York Avenue, Whitehead, Co Antrim, N.I.), to G2FX, 3FQ, 5CJ, 5FA, 8IV, 8IO, 8TY, GM3LO, 6WD, GW5PH, EI8L.

* * *

GI6TK (60 Victoria Avenue, Belfast, N.I.); to G2YL, 3IV, 5RI, 6HV, 6MK, 6YL, 8AR, VE5AAD, VK3HG, VU2AN, W9MUX, 9OKZ.

G8CP (Newhaven Rectory, Sussex), to G2AT, 2NV, 3YY, 5BJ, 8FI, FP, LY, GM3TR, GW3XW, EI8J, W1WV, ZS1AH.

* * *

G8DI (c/o. " Beverley," Wood Lane, Hucknall, Notts.) to EI8N, G3GH, 4DC, 4DP, 5GJ, GI5QX, GI5ZY, GI6TK, G8DZ, GI8TK, G8UJ, 8UO, and all Liverpool Amateurs.

* * *

G8IO (58 Norfolk Road, Sheffield, 2), to G2HB, 2IU, 2IW, 3IZ, 3MY, 3RP, 3RZ, 4AI, 4JW and 8CP.

* * *

G8NM (R.A.F.), to G5DW, 6VT, 6WJ, 6YL, 8WR, and all Barnsley Amateurs.

* * *

G8PQ (R.A.F., India), to G2XK, 3OI, 5US, 6TV, 8DY, 8FC, 8PF, 8PI, and all members of R.A.F., A.R.S.

* * *

G8QM (R.A.F.), to G2YD, G3GX, 5QF, 5WW 6QM, 6ZO, 8DR, 8DV, 8HB, 8NV, 8TB, 8PI.

* * *

G8TR (c/o 57 Ripley Street, Warrington, Lancs.) to G3TM, 3WT, 3VW, 5RY, 5XM, GM8CN, G8IZ.

2BIB (R.A.F.; Home address, 6 West Cliff, Whitstable, Kent), to G2UJ, 3BD, 4BY, 4FI, 5CI, 5FA, 5HF, 6PA, 2AAN and 2DRR.

* * *

2BNK (The Newlands, St. Mary's Road, Leamington Spa), to G2KT, 2WG, 3JW, 3LA, 3MV, 3VD, 8KM, 2CIH, 2CYW, 2DWQ and all B. & D.A.R.S. members.

* * *

2DHV (R.C. of S.), to G2IZ, 2MI, 2UJ, 3GW, 3OW, 4FN, 5IL, 5MM, 5OQ, 5UK, 6AG, 6VC.

* * *

2FCJ (34 Elmwood Road, Chiswick, London, W.4), to G2QT, 4GD, 6RW, 6XP, 8QH, GW3AJ, W8OQF.

* * *

2FWA (72 Kimberley Road, Croydon, Surrey), to G3HG, 4AA, 5CI, 6QB, 2FRM, W2ALP, 8SGJ.

* * *

2FWV (6 Maresfield Road, Preston, Lancs. late Westerham Hill, Kent), to G2NK, 4HW, 4IG, 6HK, 8KV, 2CLG, 2FKC, and all Bromley amateurs.

* * *

BRS3825 (R.A.F.), to 2CUB, 2FBG, 2FMV, 2HGQ, BRS3856.

ON ACTIVE SERVICE

FIFTEENTH LIST

WE publish below our fifteenth 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 December 2, 1940.

Rank and Name	Regiment or Branch	Pre-war Call or B.R.S.
Cpl. A. S. Beach ...	R.A.F. ...	3885
L.A.C. C. J. Binning ...	,, ...	3893
2 Lt. P. Blair ...	R.A. ...	3889
A.C.1 H. Boakes ...	R.A.F. ...	G8SB
Cpl. B. Bowker ...	,, ...	3881
L.A.C. L. C. Carden ...	,, ...	G8HY
L.A.C. I. B. Clark ...	,, ...	2BIB
Sgt. S. W. Clark ...	,, ...	2AMW
Sgt. W. Crockett ...	,, ...	3888
Cpl. H. W. Dawes ...	,, ...	3896
A.C.2 O.M. Derrick ...	,, ...	GM3OM
Cpl. R. Edwards ...	,, ...	3884
Pte. W. L. Ely	R.A.O.C. ...	1535
A.C.2 G. W. B. Evans ...	R.A.F. ...	GW3GL
A.C.2 W. G. Hall ...	,, ...	G8JM
L.A.C. D. M. K. Harrower	,, ...	GM6NX
Sig. G. V. Haylock ...	R.C. of S. ...	2DHV
L.A.C. R. T. Henley ...	R.A.F. ...	2CMH
Sgt. F. Horky	,, ...	ex OK2HY
L.A.C. D. Huppler ...	,, ...	2HCT
A./A. D. B. Johnstone...	,, ...	3876
L.A.C. H. Kirtland ...	,, ...	3878
A.C.1 F. L. Leach ...	,, ...	2FNU
Gnr. I. G. McFadyen ...	R.A. ...	3400
A.C.2 H. S. McLintock	R.A.F. ...	G8NM
A.C.2 R. A. Nice ...	R.A.F. ...	3085
Tel. J. E. C. Nicholls ...	R.N.V.(W.R.)	3882
A.C.2 J. Ostle	R.A.F. ...	2DYV
L.A.C. J. T. Parker ...	,, ...	3890
Sgt. P. Pearce	,, ...	G4AA
F./Lt. J. G. Ratcliffe ...	,, ...	3381
Driver R. C. Ray ...	R.E. ...	G2TA
2/Lt. A. M. Read ...	Cheshire Regt. ...	1986
A.C.2 S. Roberts ...	R.A.F. ...	GW4NZ
A.C.1 S. R. Richards ...	,, ...	3723
A.C.2 B. K. Rowell ...	,, ...	G5RL
Capt. H. Ryan	R.A.S.C. ...	G5BV
A.C.2 E. T. Sands ...	R.A.F. ...	2BXW
L.A.C. J. Sewell ...	,, ...	3887
Lt. G. J. Aikman Smith	R.A. ...	3891
Sig. H. J. Smith ...	,, ...	3044
Tel. V. W. Sowen ...	R.N.V.(W)R.	2BYC
A.C.2 L. J. Stevens ...	R.A.F. ...	G3YH
L.A.C. J. Stevenson ...	,, ...	GM3TX
Cpl. K. F. B. Stone ...	,, ...	3886
A.C.1 C. C. Thackery ...	,, ...	3880
A.C.2 C. Wakeman ...	,, ...	G4FN
F/Lt. T. Roden White...	,, ...	G8TX
Pte. R. A. Woodage ...	R.A.P.C. ...	3726
Spr. P. Woollett ...	R.E. ...	1759

Corrections

Private G. P. Watts (BRS3129), recorded as R.A.M.C. in List 5, is now serving as A.C.2 in the R.A.F.

* * *

L.A.C.W.H. Abraham (GW3AJ) recorded as GW3AX last month.

THE MONTH "OFF" THE AIR—November, 1940

By Arthur O. Milne (G2MI)*

Notes and News

G8UO, who is a much better telegraphist than typist, has heard UX1CZ calling CQ, on 7 Mc. and "test ZRF" on 14 Mc. Several stations have also been heard on 14 Mc. sending QRA de WKS, QRA de WDT, etc. LZ3BB has been heard on 7 Mc. working Russians. Is this station in Bessarabia?

YU's are also active, amongst them YU7GG. SMO94, TF2B and HB3RM are suspicious calls, the last named claiming to be in Berne. YL2FS has also been heard in contact with UK5RA. BRS3319 reports much Russian and German activity, including UK3AH and ES9E on 7 Mc. OK3SP, LX1AR and TF3D are questionable calls.

G8IL, now in Wiltshire, reports conditions as very poor on 28 Mc., 14 Mc. fair and 7 Mc. very good, and remarks on the excellent notes of some of the 7 Mc. Russians. 3·5 Mc. produces W1, 2, 3, 4 and 8 before midnight with W3FL on 'phone as an outstanding signal. Jerusalem on approximately 650 kc. has been coming in well lately.

BRS3003 reports D4AUF, D4NLO, D4VRR, U3FN, YU7XI, F8PU and UK8PU (Pooh!) all on 7 Mc. G5RI breaks forth with a voluminous report from a town in Wales. He characterises it as an "extract" from his log. Here are some extracts—UE6BC, 7 Mc., XU5W7, 14310, U9MO, 7055, CT1MN, 7120, NY4AE, 14275, EK1JF, 14 Mc., U4OO, 7110, CT2AK, 7095, and numerous CM and CO stations. He lists 43 Russians, 22 Germans, and numbers of other calls, including HB3BZ, 3BY, 3BW, 3GR, 5R, 9DD, SV1XA, YU7AL, YT1AA, LY3WW, LZ1AA, ON3FZ, SM7WZ, EA4LN, CN2ML and YL2FS.

BRS2763 gives details of a contact between D3IQN and "W6LBB" on 3·5 Mc. at 20.30 G.M.T.! The latter stated that he was located at the South Pole, using a commercial transmitter of 15 kW. input. His aerial was suspended between the Pole and the southernmost tip of South America and that with this rig he hoped shortly to work Saturn and Mars! The QSO was on C.W. and in German!

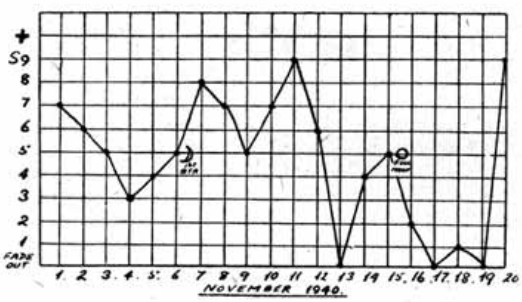
BRS3766, whose "Conditions/Moonshine" graph for WGEA appears on this page, reports that the Russians have held a Contest, calling "test U." A number of interesting calls were heard. U8IL, U9MJ, 14300, U9MO, 14320 and U9AW, 14310. Philippine Islands have been coming in well recently; the best were KA1BN, 1DM, 1HR, 1LB, and 1NF on C.W. and KA1FH on telephony. K4DSA on 14200 is also a good 'phone signal. Another interesting one was W6RTS/KA1, portable on C.W., calling "test." Shades of Sunday mornings on 7!

G8IO has been hearing KA7FS well recently and also reports a "phoney" with the call CA7B. BRS3593 provides a mixed grill of Broadcast and amateurs, amongst them being PRA8 on 5·01 Mc. at S5 around 0830 and also 23.00 G.M.T. This is the Radio Club of Pernambuco. HCJB is a Broadcast-cum-Ham station working as follows: Amateur 28370 kc. with a 5 element rotary. Experimental and mobile HC1JB on 14 Mc. Broadcast HCJB on 12·4 Mc. with 10 kW input to a 4 element rotary. There is a nice photo of the station on his card.

BRS3593 complains of the number of Broadcast stations "gate-crashing" our bands, and suggests that I.A.R.U. should try to do something about it. Most of the offenders are South Americans.

Hams and the War

Members will be sorry to hear that G8TY's home has been badly damaged by bombs. Three H.E.'s have also disturbed the rural calm of 6CJ's garden but, fortunately, the damage was slight and the big sticks stood up to it. G6PR records the arrival of a 500 lb. H.E. some 50 yards from where he was walking. He adds the somewhat laconic comment: "This proved rather disturbing for a few minutes!" 2FWV, who is now in Lancashire from Westerham, is busy on war work and reports a few cracked windows at the old QRA.



Observations on 19 metre transmissions from WGEA recorded by BRS3766.

G8IL has information that G8TO, of 7 Mc. "high quality 'phone" fame, is a prisoner of war in Germany, but has no details.

G2NS wonders, now that the German amateurs have added "und HH" to the Ham abbreviations, whether they salute the Fuhrer's foto on the shack wall before or after sending HH or do they salute with the left hand whilst sending HH with the right?

Maybe they stand to attention, give the salute with the right hand, meanwhile giving HH with the left foot.

BERS195

Our worthy Trebilcock gets a subhead all to himself this month. Referring to the June notes he tells us that Ilo Ilo, in the Philippines is pronounced Eel oh, Eel oh (All alive oh?), so we were wrong after all! He also invites members or amateurs from overseas who find themselves in Sydney, N.S.W., to get in touch with him. His telephone number is Liverpool (N.S.W.) 184. Address, c/o Aeradio Station, Liverpool, N.S.W. Both he and his 8/40 Morris will be placed at the disposal of the visitor.

KH6SHS and KC4USC on 14 Mc. gave him his 173rd and 174th countries respectively.

* 1, Kent Drive, Harrogate.

INDEX TO DISPLAYED ADVERTISEMENTS

NY1AE is operated by ex W6OXH and is located at Summit, Canal Zone. KF6SJJ (ex W1KFY), on Howland Is., seems to be the only bright spot on the DX horizon, so far as the W's are concerned.

Eric gives some interesting dope on KC4USC, the Byrd snow cruiser located a few hundred yards from the West Base station KC4USA. He operates on 7 Mc. C.W. with an input of 100 watts to a 275-foot single wire aerial. This station was copied solid for 104 minutes, during which time he contacted eight Americans. He gave the temperature as 62 degrees below zero. The operator was ex OM1TB, ex XU2ZA, the "handle" being Felix. He said, "Pse QSL *via* ARRL" and that KC4USC would QSL during January and February, 1941.

The operator at KC4USC says he is on 28 Mc. every day from 21.00 to 03.00 G.M.T. and that the band is very good there. His frequency is 28600 kc.

A new station on Guam is KB6GJX, 7 Mc. C.W. around 10.00 G.M.T. He is a Navy operator.

SEASONAL GREETINGS TO ALL–

My 1st is in December, but not in Xmas.
,, 2nd ,, ,, Xmas ,, ,, ,, December.
My 3rd is in Clarry ,, ,, ,, John.
,, 4th ,, ,, Varney ,, ,, ,, Louis.
,, 5th ,, ,, Simons ,, ,, ,, Arthur.
,, 6th ,, ,, Whyte ,, ,, ,, Ham.
,, 7th ,, ,, Hutson ,, ,, ,, Geoff.
,, 8th ,, ,, Kirk ,, ,, ,, Jim.
,, 9th ,, ,, Gay ,, ,, ,, Alfred.
My 10th is in Scholefield ,, ,, ,, Jim.
,, 11th ,, ,, Allen ,, ,, ,, Bert.
,, 12th ,, ,, Hunter ,, ,, ,, John.
,, 13th ,, ,, Brown ,, ,, ,, George.
,, 14th ,, ,, Milne ,, ,, ,, Arthur.
,, 15th ,, ,, Pettitt ,, ,, ,, Frank.
,, 16th ,, ,, Garnett ,, ,, ,, Francis.
,, 17th ,, ,, Holmes ,, ,, ,, Robert.

"CIEL."

American Notes

G8TD recently heard one of the regular contacts between W2IXY and W4DSY in which the latter mentioned that he had been off the air for a fortnight and that when he switched on the transmitter, four mice walked out! Traps laid in amongst the works accounted for the four, and re-baited, caught another three. It makes us wonder what we may find in our gear when it comes out of pawn!

It is understood that the Cuban amateurs have sent a delegation to the U.S.A. to try and persuade the F.C.C. to rescind the ban on W–CM contacts.

W4DSY, whose voice must be familiar to most of the 14 Mc. 'phone fraternity, said that several of his pals had "crept across the border to join up in the Canadian forces."

2CDT, writing from a northern town, has news of W4FQT and his son W4GDH. The latter, who is 17 years of age, has just been elected president of his college radio club. W4FQT has moved to California and will soon be on the air with a W6 call. He is official radio station for the American Legion for emergency work.

W6QVY, of Salt Lake City, one of G2MI's regular correspondents, tells about the peculiar laws governing those who sail on the Great Salt Lake. According to national rules for motor-boat and sail-boat racing, all contestants must wear a life saver. Because a cork life-saver would prove a hindrance in the heavy water, it has long been the practice to put a steel weight on each ankle to keep the feet down if one should fall in. Whoever makes the national rules has now ruled that for Great Salt Lake racing, a nine-pound lead weight must be worn on each foreleg. When the city commission heard this, not to be outdone, they passed a law that any person on any boat must wear this gadget! Steel and lead have reached a premium in consequence and one foundry is working 24 hours a day on orders. We are tempted to wonder how many of the city fathers have shares in the foundry! Anyway, as W6QVY remarks: "Can you imagine what it is like to walk around a boat with 18lb. of metal hanging on your legs!" It's enough to sink a small boat, we should think.

Radio has introduced a new certificate to give the W's something to do, now that DX is at a premium. W.A.A.P. (Worked All American Possessions) is its name. Proof of contact with 15 different areas is required. The areas are: K4, KB4, KC4, K5, K6, KB6, KC6, KD6, KE6, KF6, KG6, KH6, K7, KA and W. The rules are (1) 15 confirmations required. (2) Contacts may be on 'phone or CW. (3) Confirmations may consist of QSL cards, letters or mail sent direct to the Editors of *Radio*.

From the pages of the same magazine we learn that ON4HS is safe in England.

W2IXY reports hearing a new station "Radio Brazzaville" (French Africa) between 0600–0630 G.M.T., but no frequency is mentioned in her letter. Up to the time of writing Dorothy had had 46 contacts with KC4USA. We wouldn't mind having just one!

W2IXY was mildly amused lately to receive from the A.R.R.L. a tie-pin and note, to the effect that she was the New York zone winner in the last contest. She worked 29 stations and told the A.R.R.L. she was not competing! She has now contacted 107 countries on two-way 'phone—a wonderful achievement for a YL.

Sign-Off

The continued support in the shape of news for this feature is most gratifying. May I take this opportunity of thanking everyone who has contributed their share and to ask that in the New Year an ever-growing volume of information will be forthcoming, so that we can carry on. No "motor" can run without fuel and in that respect this "Mota" is just like any other! A happy Christmas and bright New Year to you all.

Correction

We have been asked by Mr. White, G3XP, to point out that he was not present at the recent R.A.F. Meeting held at No. 2 Signals School. The member who forwarded the report was under the impression that Cpl. R. A. Farmer, BRS3836 held that call because, in the course of a talk he referred to his association with G3XP. BRS3836 has tendered his regrets to Mr. White for the mistake.

The 28 Mc. Band

By NELLY CORRY (G2YL)

THERE was a gradual deterioration in conditions during November, and, though they were fairly good from October 30 to November 12 inclusive, the autumn " peak " period had dwindled to a " molehill " by the end of the month.

The only Eastern Hemisphere DX was reported by the late L.A.C. Biggs, G6BI, whose tragic death on active service was announced a few days later. He heard harmonics of JUX and JUY at 11.00 G.M.T. on November 2, and KA1DM calling "CQ TEN," RST559, at 16.50 G.M.T. on November 3.

From Europe U3DS, possibly a harmonic, was heard by BRS3003 at 13.25 G.M.T. on November 3, and ES4G was logged 50 minutes later by G4MR, calling " Test U " and working one soon after. European commercial harmonics, including FZM, IQA, IRJ, ODD, RKB, RKC, RKI and RNN, were audible on at least nine days, usually strongest in the mornings or early afternoons.

PY7VB still punches the key optimistically, and was heard again by BRS3003 at 17.05 G.M.T. on November 15. The only other South American signals were the usual LSA/LSA2, on 31·5 and 27·5 Mc., which were heard daily, except on five days, from October 30 to November 26.

From the West Indies G4MR heard another C.W. station, viz., CM8AP, calling CQ at 14·48 G.M.T. on November 3, and a K4 station was logged the same day. In fact, November 3 was definitely the outstanding day of this autumn, as it produced amateur signals from six of the seven countries heard during the month, *i.e.* KA, U3, ES, CM, K4 and W. (The number of different countries reported on 28 Mc. during November, 1938, was 71, and even a year ago 23 were still active and audible. No prize is offered for a correct forecast of the number of countries which will be heard in November, 1941 !)

W's in all districts were heard by G4MR on October 30, and from all except one on October 31 and November 11, but after November 13, when the band apparently suffered a complete fade-out, W's were received only spasmodically, with lower QRK's and more QSB than earlier in the month. On most days East Coast stations were easily in the majority, but G4MR and BRS3003 logged a few W5's on 13 days, and W9's on 15 days between October 30 and November 24. W's were only reported on three days after November 17, and it looks as if " dead band " conditions will predominate from now until the spring.

The following are thanked for their reports on conditions : G4MR, G8TR, BRS3003 and BRS3593.

The Ultra-Highs

By CONSTANCE HALL (G8LY).

In ringing down the curtain for the time being on our monthly U.H.F. commentaries, we extend to Miss Hall our grateful thanks for her past unflagging efforts to obtain news, as removed from abstract theories. We trust that it may be possible to present a quarterly U.H.F. Review in place of monthly notes. News items for inclusion in future reviews should be addressed to Miss Hall, North Waltham Rectory, Basingstoke, Hants.

112 Mc. DX

Apropos our remarks last month, in regard to records, we learn from November *Radio* that it was W6MKS not W6OIN who was associated with W6QZA in setting up the 215 miles contact. At the time W6MKS was operating from his home station. W6QZA who has been the northern end of many 200 miles contacts on 112 Mc. is planning to work on 224 Mc.

400 Mc.

E. H. Conklin records, in the same issue of *Radio*, that W6IOJ and W6MYJ have contacted one another over a distance of 11 miles on 400 Mc. WE316A valves were used in the transmitters and 955 acorns in the receivers.

Commercial work around 400 Mc. has, according to Conklin, been going on at R.C.A. for several years.

Results can be summarised as follows :—

462 Mc. ..	14 miles (6 watts)	
432 Mc. ..	30 ,, (15 ,,)	No fading in a car receiver.
411 Mc. ..	65 ,, (100 ,,)	No fading over water.
	113 ,, ...	Bad fading at ground level.
	172 ,, ...	Aircraft at 7,500 ft.
406 Mc. ..	112 miles	Stations at 250 ft. and 400 ft. above sea level respectively.

More recently 500 Mc. television links have been established over a distance of 30 miles with only little fading.

In recording these achievements we wish to make it clear that British commercial interests, and quite possibly the Services, could, if circumstances permitted, provide a very good reply. Unfortunately, for the moment, news of U.H.F. work in this country is quite rightly surrounded in mystery. When the war is over we are tempted to wonder whether it will be so difficult after all to work across the " pond" on frequencies which up to a few years ago were regarded as useless for DX.

Finale

While in no way under-rating the interesting contributions which have been received recently from a few enthusiasts, it seems to the writer that after surviving for 15 months with no amateur signals to report, this space might well be filled with more useful general information.

As U.H.F. articles now appear frequently in *The T. & R. Bulletin* they should be of far greater interest than anything these notes can hope to

(*Continued on p.* 204).

BRITISH ISLES NOTES AND NEWS

District Notes

Due to prevailing circumstances we would urge all D.R.'s and Scribes to post their notes in time to reach Headquarters by not later than *December* 28.

DISTRICT 1 (North Western)

THE District Representative (Mr. J. Noden, G6TW) and the District Scribe (Mr. H. W. Stacey, G6CX) send their best wishes to all, and hope that members will have a cheerful and happy Christmas, in spite of rationing, bombing, black-out and "Blitzkriegs." Conditions have not favoured personal meetings during the past year, but the D.R. looks forward to renewing contact with each member in the not too distant future.

The District Scribe would like to thank those members who have sent him information for these notes during the past year, and hopes that they will keep up the good work throughout the coming year. Reports are scarce, but the members who are with the Forces look forward to all the news they can get, so it is up to everybody to send in news whenever he can.

Burnley.—G5ZN has had the pleasure of a visit from 2BFB, who is a radio mechanic in Scotland. Others away on service are 3IY and 3ZM. Members of what was known before the war as "the Burnley network" (consisting of G3VO, 3VO, 3KT, 3SJ, 3WU and 3XK) keep in touch and meet often. The T.R. (G5ZN) sends Christmas greetings to all on behalf of the Burnley members.

Bury.—Mr. Cyril Turner (G8NL) writes that he was very pleased to receive a short visit from 6XM and 3GR, who are at present stationed in Bury. Apparently many amateurs are in the area from time to time, and he will be only too pleased to arrange a "rag-chew" at any time if visitors will get in touch by telephone beforehand. Activity in the area is curtailed very much on account of the various war duties of the few remaining members, but reports will be welcomed.

G8NL sends his best wishes for the New Year to Bury, Rochdale, Blackburn, Burnley and Manchester members, whether at home or "Somewhere in England," and looks forward to a speedy return to the good old days.

Liverpool.—Mr. J. E. Appleton (G3VF) reports that he has been prompted to prepare the following notes by 2DCG and his Service friends, who are all anxious to have some news of Liverpool.

Despite an air raid, 2DCG recently held a "Ham-fest" at his home, at which 3WT, 3VF and 8DI were present. It was regretted that 6KS was unable to attend, but he was in Liverpool shortly afterwards and visited 3VF. He certainly looked well and paid tribute to the GI amateurs for their hospitality. He manages to get to the Belfast Y.M.C.A. about once every three weeks.

Many of the local members are with the forces, and others are engaged upon Civil Defence or other duties of national importance, so that meetings are rarely possible and reports are scarce, but G3VF hopes to send further news whenever he can.

G6CX.

DISTRICT 2 (North Eastern)

Sheffield.—Up to the time of writing, the appeal made last month with regard to District notes has met with little response. G2LT in sending season's greetings hopes that in the New Year, local members will let him have reports. 3PP and 3VY are on active service, the latter would welcome letters. His address can be obtained from G2LT. G8IO is planning a switch and distributor board for the shack. 4HT continues to listen on 28 Mc. BRS3789 is having trouble with his receiver, which recently followed him from Bournemouth.

Reports from South Yorkshire members should be sent to G2LT.

Forthcoming Events

Dec. 21	District 15, 2.30 p.m. at BRS3318 25 Harley Street, W.1.
,, 22	District 12, 2.30 p.m. at G2YD, 46 Friars Avenue, Friern Barnet Lane, N.20.
,, 22	District 1 (Liverpool Section), 6 p.m. at 2DCG, 5 Tollerton Road, West Derby, Liverpool.

Keighley.—G8UO has been pleased to hear from 3UF who is a Leading Telegraphist in the Royal Navy. 3ZK who was T.R. for Halifax, is with the R.A.F. as a wireless mechanic. 3UI and 4DB, both bombardiers in the R.A. are serving with Signals sections. 5GJ is having an interesting time in the RA.F. 8UO sends season's greetings to amateur friends in and out of the Services.

For new members it may be stated that the Keighley area includes Baildon, Bingley and places in between. Reports from members in this area would be appreciated.

G8UO.

DISTRICT 6 (South-Western)

The small number of members left in the District are still carrying on as best they can. A certain amount of constructive work is being carried out on the measuring instrument side and should prove of great value later on.

We sincerely thank those who have written in during the past month. Particularly interesting letters have been received from G6RF and G5JD, who, in decidedly different ways, are finding much of interest in radio. Local members will be glad to learn that both G5ID and 5GD have now obtained their commissions, the former in the R.C. of S., and

the latter in the R.A.F. We offer them both our warmest congratulations. 5ID recently called on 5SY, and, with so much to tell on both sides, the time passed all too quickly. We hope that many more members, when home on leave, will call. The D.R. takes this opportunity of expressing the sincere wish that all members, wherever they may be, will have a Happy Xmas, and that the New Year will have much better things in store. G5SY.

DISTRICT 7 (Southern)

Better and better! Thanks to the efforts of G2GK, 2KU, 2HNO, and BRS3003 we have notes from almost all the areas forming this District—there are just one or two that haven't clocked in yet but we haven't given up hope—yet!

Croydon.—G3VN has joined the R.E.'s; best of luck O.M. 3VB is busy with the construction of a new receiver. 5XW who is the owner of a fleet of motor coaches is busy driving them around for the Army. 2FWA is polishing up his code ready for the great day; both he, and 4NI have had visits from the P.O. Congratulations to 4AA on becoming a Sergeant Observer. 8TB and 2CRD are taking a "rest cure" with the R.A.F.! 3179 whilst on short leave paid a visit to 3003. 2CRD celebrated his 21st during the month and several hams were present at the jollification. 2ANR has our best wishes for his trip overseas. 2MV keeps active on the ultra-highs using a 1–10 and a *Hallicrafter* 5–10. 4BW found that his shelter warden was a ham so now the "blitz" is almost forgotten. 2BCI is now in the B.B.C. research department.

(By G2KU and BRS3003.)

Bournemouth.—Congratulations to 4KV on receiving a commission in the A.M.P.C. 4MY is building a freq. meter. 2NS is giving weekly lectures to the H.G. signals. 3VY is now "one of the gang." 2CXP is enjoying life in the R.A.F. 2HNO had 3VY,4IJ, and 4MY in the shack when they heard a whistle—and it wasn't the receiver! (By 2HNO.)

Kingston.—The T.R. would be very glad to hear from any amateurs in the area. His new address is 91 Manor Road, Walton-on-Thames. 3OR who is very busy by day and night is preparing for better days ahead. 5LC and 6GB are now keen motor cyclists. Both have suffered damage to property. 2GK has also had his RX twice re-aligned, unwillingly. Best wishes are sent to all old members of the T.V.A.R.T.S. including G6PK, 6PK, 8HA, 8IP, 8MK, 8SM, and 8TX. (By G2GK.)

Portsmouth.—There have been many visitors to the town and the local group has been pleased to meet ZB1BJ, VK2FT. (who has just been married), G3XV, and 8JV, G2KU, 4GL, and 2BGH were recently "all at sea" and had quite a good field day of their own. (By G2KU.)

Guildford.—Welcome to 3VB who, by coming to Guildford bumps up the present ham population by about 50 per cent. 8IX returned for a short leave and seems to be enjoying life in the R.A.F. since there are four amateurs in his hut. 6NA seems to have about the same luck, with five hams in the "tea swindle," whatever that may be! 5WP, still running code classes, wonders what to do with the new pupil who seems to send Czech at 35 per at the first lesson!

Best wishes for Christmas and the New Year are sent by the authors of the above notes to all members now on active service. Seasonal greetings are also sent by the D.R. to all District 7 members—and if you are going to make any resolutions *don't forget the Notes.* Many thanks to all those who have helped with the running of the District during 1940.

The tragic news of the death, on active service, of Donald Briggs, G6BI, has been received with deep regret by all in District 7 who knew him.

G5WP.

DISTRICT 8 (Home Counties)

Not a single report is to hand, but that will not prevent the D.R. from using this space to send his personal good wishes for Christmas and the New Year to all members at home and abroad.

G5BQ.

DISTRICT 9 (East Anglia)

Lest we forget—congrats to our Secretary-Editor and all those who have managed to present such a good Balance Sheet at the end of a very difficult year.

Yarmouth.—Interest in short-wave work is still being maintained by BRS3821 and 3766. G3RW and 2BIC have been on leave but not much was seen of them by the locals.

Norwich.—G6QZ is still going strong on 28Mc. He and 2MN appear to be upholding amateur radio in the City.

Northwold.—G4LO who sends 73 to all in the District is still doing a spot of listening when occasions permit.

King's Lynn.—At long last G5UD has been over to see the D.R. whilst on leave. He was looking quite fit and ready for anything! 2DCQ also made a visit before sailing. 2HBZ has joined the R.A.F.. as operator mechanic and 2CFO has been seen in the town on a few days' leave. What has happened to BRS1291? We have not seen him of late. (Not now a member.—ED.) G2XS.

DISTRICT 10 (South Wales & Monmouthshire)

Cardiff.—After several months dormancy, activities have reawakened and the first of a series of monthly informal Sunday afternoon meetings was held at GW2UH on October 27, at which GW3VL, 4KQ, 8NP, 8WU, and 8UH were present.

GW5BI is now a Signaller in the R.C. of S.; 5XN and 8AM are with the Home Guard whilst 3VL and 8WU are busy in various directions.

Service members will be cordially welcomed at all meetings and those in or near the city should communicate with either the Scribe, 5FN at 90 Coleridge Avenue, Penarth, or the T.R., telephone 2697 during business hours, who will be pleased to give information about meeting arrangements.

GW4KQ.

Swansea.—Swansea's addition to the R.A.F. is P/O. K. Walker (GW2WO) who took his appointment during October. Congrats O.M. Local members are pleased to welcome GW4CC and GW3XW to the society. Amateur radio continues to flourish and the writer hopes that all who can do so will send notes for these columns. News is at a premium, yet every member we meet asks "what has happened to so-and-so these days." Come on fellows, let's hear from *you.*

GW3AX takes this opportunity to wish all readers the compliments of the season. GW3AX.

DISTRICT 11 (North Wales)

We have been advised by Mr. David Mitchell, GW6AA, that he is recommending to Council that Mr. N. E. Read, G6US, 24 Church Street, Oswestry, be appointed Deputy D.R. for the war period. In anticipation of his appointment we would ask all members to send notes direct to G6US to reach him by the 24th of each month.

Prestatyn.—BRS1060 reports that a very successful meeting was held on November 26 at the home of a prospective member, Mr. Neville Ross, " St. Davids," Fforddlas, Prestatyn. The following were present G2KI, 6FK, 8JM, BRS1066 and Mr. K. Evans (new member) representing the Services and GW3CF, 4CK, 2HIY and BRS1060 the " locals."

Local members record their thanks to Mr. Ross and his parents for extending hospitality.

G6FK gave a talk on aerial systems which he is to follow with discussions on amplifiers, etc.

An open meeting is to be held at the Savoy Café, High Street, Prestatyn on December 17 from 7 p.m. onwards when it is hoped that all members in the services as well as many from the District will attend.

Service members in the Prestatyn area should communicate with Mr. C. Spillane, BRS1060, Woodside, Meliden Road. G6CL.

DISTRICT 12 (London North and Hertford)

North London.—The November meeting held at G6CL was well attended. Among the dozen members present was Ernie Dolman, 2DCG on leave from Sheerness. A good ragchew took place, and many topics were discussed ranging from G6LL's new frequency meter (which 2YD and 5FA have since been to Cuffley to see, and are contemplating building) to the usual bomb stories. The best of the latter was told by G3SH, who, feeling hungry one night went along to get a little something " which he fancied " in a basin ; then bang !—the basin disappeared. When he got home he found a silk scarf round his neck ! G4DC brought along the relays which he described in the September " BULL " just to prove that they really did exist, and a very fine workmanlike job he had made of them too !

Both G8TY and 8NY have recently had their homes damaged by enemy action, but we are pleased to report that neither they nor their families suffered any hurt. G8TY has had a letter from 8KW who is now in Egypt with the R.C. of S. and he sends 73 to all district members. Members of the Edgware S.W. Society in particular will be interested to hear *via* G2VK that 3VW is now stationed at Aden with two other hams and seems to be enjoying himself, spending his spare time fishing and sunbathing. He has lost so many fishing lines that he has now resorted to aerial wire and with it hopes to catch a few sharks !

St. Albans.—We welcome 2CNC to the district now that he has settled down at St. Albans from Jersey where he unfortunately had to leave his gear. He will be pleased to arrange meetings locally and has already met G4GT and 6IF. He would appreciate hearing from any member who could assist him in Lamp Signalling practice.

Watford.—From the Watford Area G3NR reports that 2DFS has now volunteered as a wireless mechanic in the R.A.F. 8CK has been receiving special instruction at a technical school and is now in control of a transmitter to his great delight. Congratulations to 5RD who is now married and living at Sunbury. 3PV has been home on leave from the R.A.F. and reports well, while 3NR himself is still busy on constructional work when Home Guard duties permit, his latest effort being an absorption wavemeter for 5, 2½ and 1 metre.

G8DR visited 5FA and 6CL while on leave from Scotland and is looking fit and well. He reports meeting plenty of hams in his travels and sends 73 to all old friends.

The next district meeting will be held at G2YD 46 Friars Avenue, Friern Barnet Lane, N. 20, on Sunday, December 22, at 2.30 p.m. instead of 3 o'clock.

G5QF and 5FA send greetings and best wishes for Christmas and the New Year to their friends everywhere. G5FA.

DISTRICT 13 (London South)

We have been requested by Mr. L. Sanderson, G8TN, 104 Croxted Road, West Dulwich, to state that, in order to revive interest in the District, a meeting will be held at his address on Sunday, December 22nd, at 11 a.m. 'Phone (Gipsy Hill, 1578). No. 3 buses pass the door. Future meetings will be held in the homes of other members.

Due to poor attendances at West Norwood Brotherhood Hall, meetings there have been suspended.

DISTRICT 14 (Eastern)

Chelmsford.—An attendance of six was recorded at the November meeting held at G5RV ; G6LB, 5CA, BRS3650, Mr. F. Varney and Mr. Goodchild being present. Superheterodyne receiver design and performance were among the subjects discussed. A comparative performance test between 6LB's Howard 430, 5CA's Howard 450, Mr. Goodchild's Sky Champion and 5RV's SX16 is to be staged at the December meeting to be held at G6LB's new QRA, 167 Galleywood Road, Chelmsford.

G5RV has constructed a " Hetrofil " unit (*vide* Q.S.T. September, 1939) for which he claims two improvements on the published design. It certainly adds considerably to the performance of even a good superhet.—(Article please. ED.) 3BS and 2KG are busy in the County of Broad Acres. 2AJF who is in the R.A.F. has not reported for some time, but we hope he is fit. 8PB is now a Flight-Sergeant. Congratulations Peter.

Dovercourt.—2AOW from District 12 is now at " Kaercolin " Highfield Avenue, and is anxious to get in touch with local members.

The D.R. takes this opportunity of wishing everyone in District 14 a very happy Christmas—wherever they may be.

Southend.—Mal Geddes, G2SO, whose address is now 16 Carlton Drive, Leigh-on-Sea, was pleased to welcome Max Buckwell, G5UK, when the latter was home on leave. Local members would like to hear from G6CT who is believed to be near Watford, 5XI, still in VS7, spends much of his spare time sight-seeing!—3OA appears to spend most of *his*, writing to Service members. We were sorry to hear that G2SO recently fractured his right arm in an accident. He is studying for A.M.I.R.E. G6UT.

DISTRICT 15 (London West, Middlesex and Buckinghamshire)

Although nothing definite has been fixed regarding District Meetings the D.R. is in contact with one member who has kindly offered accommodation.

Should arrangements be made in time to fix a December meeting which can be announced under Forthcoming Events the details will be found under that heading.

No individual reports have reached the writer, but he has had contact with a few members and either received or seen letters from others. G4FS writes that he is kept busy with R.A.F. service engineering. 8IH in a letter to 6RW from "somewhere with the Navy" says the beer is rotten where he is and, judging from the photographs he sends the climate needs something to quench the thirst! We send him our 73 because we know he still gets the "BULL." even out there. 2CZM does a little listening and practises code to enable him to join the Navy as telegraphist, when his time comes. 2CLL says he now has time to reflect on the faults with his gear and is digesting the Handbook so that he will be in a better position when we can resume. BRS3741 bemoans that he could not qualify as wireless operator in the R.A.F. as he is colour blind.

In response to the request last month G6XP came forward and is entertaining the lads in his locality, including G8GG.

G4FS is in urgent need of an A.R.R.L. Antenna Book, new or second-hand—what offers? Details to D.R. please.

Peter Bradley. G8KZ, now holds the stock of District cigarettes and would be pleased to hear from anyone who can give him details of local members who have not been sent any. His address is 348, Portobello Road, W.10.

The D.R. send season's greetings to members everywhere and especially to his friends on active service. G6WN.

DISTRICT 16 (South Eastern)

All District members will be glad to read news of fellow-members and friends as the result of an excellent response to our Christmas greeting appeal.

First and foremost comes a most welcome letter from Bert Allen (G2UJ), your peace-time D.R. Bert is actually residing in the District at the present time, after his various adventures, and so is meeting former colleagues and taking as keen an interest as ever in Society matters. G2RC and 3UB, of Districts 13 and 1 respectively, are with him. He would like to know the present QRA of G8NO. G5FN writes to him, and he has met 4AY. UJ also has news of 5OQ and 4IB, who are in Scotland, and is in touch with 6OB and 6PA. Thanks for your letter, O.M.; the District will join you in sending best wishes.

A letter from G3SL includes greetings to the Ashford Group. SL has met Society members in various counties since joining the Forces, and is at the moment stationed in Yorkshire.

G3WR writes once more from Brighton and Hove, and his notes are set out below. Also from Brighton is a letter from G3YY, who has news of 8OQ and 3JF, both in the R.A.F. He adds a welcome to 2CMH, a new member of the Society. 3WR is listening regularly on all bands, including 56 Mc.

Another South coast letter is from G4FV, of Eastbourne, who is also in the R.A.F. He sends Christmas greetings to all, and especially to G2AO, 3AT, 3CX, 5BW and 5IH.

Paul Smith (2FWV), late of Westerham Hill and now living in Preston, is still a keen supporter of District 16, and sends greetings to old friends. He is anxious to see the District Notes extended.

G4GW has sent notes of the Heathfield Group. We are glad to know that there is still some activity in this part of Sussex.

A new-comer to District 16, G4FB of Tonbridge, is listening on 14 Mc., and is busy with Home Guard duties. He sends greetings to all.

Finally may I, as your deputy D.R., send my very best wishes to all District 16 members, wherever they may be? Ham spirit and the Christmas spirit have much in common, and may we all help to keep both alive at this season.

Brighton and Hove.—No meetings have been held during the past three months, but activity continues on a small scale. G6CY is constructing a valve voltmeter, and 3YY is listening regularly. No individual reports are to hand, but local members take this opportunity of sending greetings to all those who are on active service or engaged in civil defence. Good luck to them in 1941, and a speedy return to many happy contacts.

Heathfield.—G4GW reports that 8PN is serving in the R.A.F., whilst he himself is building a new receiver. 5JZ, 5AQ and 2HLF are still listening regularly. G2WS.

DISTRICT 18 (East Yorkshire)

Hull.—Many local members were on leave during the early part of November, including G5HA, 6OY, and 2BRY.

Although no reports of radio activity have been received, the possibility of starting meetings again has been discussed. Members still in the area are urged to get in touch with the writer.

To all our friends we wish the best of luck for Christmas and the coming year. G8UL.

DISTRICT 19 (North Eastern)

The present year has passed by without the receipt of a single report—indeed a poor show. The D.R. would like to remind members in this District that many amateurs serving in the Forces depend upon these columns for news of their friends, and we are sure that many of them must be very disappointed when they find no news and no mention of District 19. Come on, chaps, it's up to you! Make a New Year resolution to send a postcard every month. The address is R. J. Bradley, G2FO, 36 Raby Road, Stockton-on-Tees. Please do your best to keep these notes going throughout the coming year.

The D.R. takes this opportunity of wishing all members a Happy Christmas and an ever happier New Year. G2FO.

Scotland

At time of writing there have been a few offers to act as Scribes, as a result of the appeal made last month; it is hoped to publish a list of names in January. Further offers will be appreciated.

"A" District.—There was a fair attendance of members at the November meeting. Mr. Cleghorn, R./Signals (GM3BZ) has been a welcome visitor at the last two meetings, and we hope that other service members who find themselves in Glasgow will come along to future gatherings, where they will be made very welcome. An appeal is made to District members to support the meetings. Last

month it was omitted to include greetings to GM6MD from GM8HA. Members will be glad to hear that Jim Stove (GM5ZX) reports coming through the recent "Blitz" on Coventry safely. Mr. J. D. Gillies (2FZT) has been released from the Army to undertake important work. Mr. L. B. Fisher (GM4MV) reports having met Sub-Lt. Ewing (G8MO), of Bristol. Mr. H. A. M. Clark, G6OT (the Society's Treasurer) paid a short visit to GM5YG recently.

"F" District.—The D.O., Mr. D. M. K. Harrower, recently joined the R.A.F., and is now L.A.C.

"H" District.—Meetings are being held regularly on the last Sunday of each month at 3 p.m. at member's QRA's in the following order: A. W. Lawson, "Makora," Kinghorn; K. Fraser, 6 McDuff Crescent, Kinghorn; J. C. B. Carr, Windmill Road, Kirkcaldy; W. Hopcroft, 3 McKenzie Street, Kirkcaldy; W. Anderson, 48 Rosslyn Street, Kirkcaldy. The next takes place at Mr. K. Fraser's house on Sunday, December 29, at 3 p.m.

At a meeting held in May it was suggested by GM6JJ that a Scottish Conventionette should be held, and all were in favour. Since then the idea has "not been so hot," as it appears to be difficult to arrange a convenient date owing to members serving with H.M. Forces probably being unable to attend. Still, it might be worth trying before the spring. What do members think?

The continuation of morse practice at the meetings has been quite successful.

The D.O., Andrew Lawson, regrets the scarcity of notes, but he wishes to point out that if members in the Services would be good enough to drop him a letter he would be in a better position to keep everyone in touch *via* THE BULLETIN. Those still behind the lines are doing their best to keep the "H" flag flying, so let us have a line or two. All at home send 73 and good luck to those in the Services. The latter should send their addresses to the D.O. from time to time, as they may wish to contact others by letter.

GM8SQ has left for the Stirling district; 3NH has gone to Dundee, and 3UU to Aberdeen. We wish them good luck in their new appointments.

Members will be glad to hear that GM8MQ, who was wounded in France, has now completely recovered and is back on the job as fit as ever.

Scotland, North.—In our notes last month we inadvertently "promoted" Mr. W. N. Craig, GM6JJ, to F./Lt. rank. His correct rank is F./O., and all reports from the *North* of Scotland (not the East) should be sent to reach his private address, The Manse, Fortrose, Ross-shire, not later than the 22nd of each month.

GM6JJ, whilst on leave last month, visited GM2NQ and attended the "H" District meeting. He advises us that G5OQ, GM6SJ and SP2OF are in the District. GM4MQ and 6SR were also contacted during his visit south.

GM8MQ, who is now in the Bedford area, has met G5LW and 8RY, and hopes to revive interest in the county town. His phone is Ampthill 3175.

GM6ZV

Northern Ireland

Visitors to GI during the last few weeks have included G3ID, 3NC, 3NW, 6PW, GM3UM, 8HJ, 2BLO, VE2AES, VE3TV, VK3IR, 3UH, 4CJ, BRS3376, 3856, EI3P, 6L. Their arrival brought the number of visiting hams to 57, a higher total than the normal peace-time complement of GI amateurs. We are glad to report that Alan Mears, G8SM, is recovering from his illness and hopes soon to be on leave. Congrats. to GI8MI and 4OB who have obtained commissions in the Royal Corps of Signals.

A warm welcome to membership is extended to Messrs. T. Linton, BRS3883, S. Clarke, 2AMW, and V. W. Sowen, 2BYC.

A programme of lectures is being arranged for Wednesday evenings at the Y.M.C.A. Radio Club. It is hoped that as many visiting amateurs as possible will attend.

The D.R. wishes to record that the following members, in addition to those previously listed, have been prominent in extending Ham Hospitality, GI5SJ (Belfast T.R), 2KR, 3JP, 5QX and 8GK.

Several GI's have recently acquired new receivers so we hope they will supply G2MI with some notes for his article.

Northern Ireland members deeply mourn the loss of their friend Louis Scholefield, G5SO, who lost his life in a flying accident near Belfast on November 15. He was a frequent visitor to the Y.M.C.A. Radio Club and extremely well liked.

GI6TB.

* * *

In Mr. Sang's covering letter, accompanying the above notes, he referred to the fact that a newspaper report of the highly successful District Meeting held on November 16 had been forwarded to Headquarters. Up to the time of going to press this had not been received, presumably due to censorship delays.

G6CL.

Silent Keys

RAYMOND L. SAVAGE, (G3AV)

We have to record with deep regret the death on November 5, 1940, of Raymond L. Savage, G3AV, at the early age of 37.

Mr. Savage, whose home was at Kingston-on-Thames, was a brother of Mr. H. A. Savage, G2SA, and although only licensed shortly before the war he had been closely associated with G2SA in radio work for nearly 20 years. During his active career as a licensed amateur he concentrated on low power experiments, and was proud to have worked all continents.

He had many friends in amateur circles and the news of his sudden death will be received by them with sorrow.

To his widow, nine-year-old son, and to Mr. H. A. Savage, we offer our sincerest sympathies.

J. C.

C. H. ASHMORE (G3FQ)

It is with much regret we record the death on November 15, of Mr. C. H. Ashmore, G3FQ, of Rugby. An ardent 7 Mc. enthusiast he will be sadly missed by a great many members who in past days enjoyed a contact with him on that band.

To his widow we extend our very sincere sympathies.

J. C.

Trade Review

TAYLOR MODEL 60 SIGNAL GENERATOR

The Model 60 Signal Generator is an A.C. operated, modulated R.F. oscillator suitable for general service testing of receivers, additionally it can be usefully employed for many experimental purposes. The wave range covered is from 100 kc. to 46 Mc. The instrument is priced at £11 11s., and the manufacturers are *Messrs. Taylor Electrical Instruments, Ltd.*

The Signal Generator is housed in a black, crackle-finished metal case 12 in. long, 8 in. high and 6 in. deep and is fitted with a carrying handle. The tuning dial, centrally mounted, is of the aeroplane type 4 in. diameter, and clearly marked, a slow motion drive is provided. The frequency range required is selected by a five-position switch, the ranges being: 100–300 kc., 300–900 kc., 900–2,500 kc., 2·5–8 Mc. and 8–23 Mc.; the sixth range has a calibration on the dial but this is obtained by utilising harmonics of the 8–23 Mc. range.

The attenuator comprises a coarse adjustment in four steps of 10 times multiplier. This is obtained by means of a stud switch, having every other stud blank and earthed, and carbon resistor L type pads. A fine adjustment utilises a carbon track type potentiometer. The output of the attenuator is fed to a small socket into which a screened output lead (supplied with the instrument) is plugged.

A switch on the panel is arranged to provide either internal modulation at 400 cycles, 30 per cent. modulation or an unmodulated carrier. An A.F. output of 400 cycles can also be obtained *via* an output control to a jack, this jack can further be used for modulation from an external source. A mains adjustment and on-off switch is mounted on the side of the case, a pilot lamp being fitted to the front panel.

No dummy aerial for the generator is provided, but this can be supplied by the makers. Other models essentially similar, and priced at £11 11s. each, are available for A.C./D.C. and for battery operation.

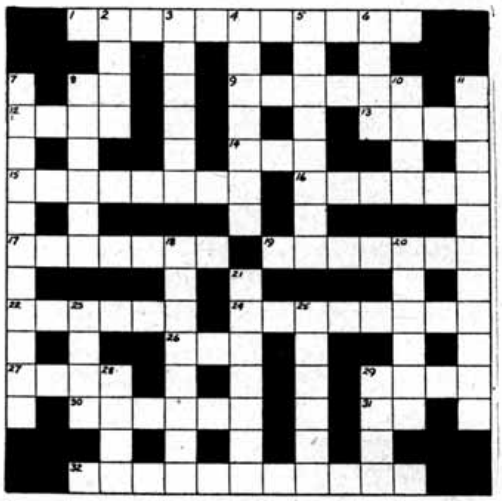
On test the frequency calibration was found to be quite accurate, in no case being greater than the thickness of the indicator pointed. The 400 cycle A.F. output was close enough for all practical purposes to that figure, and the wave shape was satisfactory but not perfectly sinosoidal. The A.F. output at maximum was approximately 3 volts. The R.F. output attenuator coarse multiplier was found not to maintain the 10–1 ratio very well, due to leakage, particularly on the short-wave bands. The fine adjustment calibration was as accurate as could be expected from this type of control.

It is felt that it would have been better to have omitted the marking "Microvolts" applied to the attenuator, in view of the fact that no provision is made for adjustment of the input to the attenuator, or percentage modulation. As a result it is possible that some misconception might arise. Nevertheless the generator is a neat, well built and well finished instrument and for the purpose it is intended represents very good value. For those building receivers it would serve as a very useful piece of equipment.

D. N. C.

A CRYPTIC CROSSWORD WITH A "HAM" FLAVOUR No. 7.

By "RUSTY."



CLUES

ACROSS.

1. Trico alloys are very upset in a this circuit (11).
8. This forty was a well-known bottle years ago (2).
9. Without direction yet seems to indicate a S.A. ham (6).
12. A well-known law on buff envelopes? (4).
13. Narrow fillet fed to transmitters (4).
14. Age-old mixed Spanish prefix (3).
15. Maybe once the apple of your eye, now safe with the P.M.G. (4, 4).
16. Circuit with ceremonial core (6).
17. 6L6? (7).
19. Heavy-hearted country (7).
22. Is the trouble with this antenna to be found in its bad start? (6).
24. In XU (8).
26. 1885 x 6 down this is the wavelength of a tuned circuit (1, 1, 1).
27. Disaster found in any station or final (2, 1, 1).
29. This is what you are reading (4).
30. Was always heard in a call from Holland (6).
31. A good this is a joy to hear (2)
32. 25 down for U.H.F. (8, 3).

DOWN.

2. Half of 15 across (4).
3. Magnetic fields may this but surely not where stated (6).
4. Gift of capital letters? (7).
5. An elastic limit of input? Sounds like a bevy of Amazons (3, 5).
6. See 26 across (4).
7. Just $C_6H_5CH:CH_2$ to the chemist but an insulator to us (11).
8. Quantity of a horse? (6).
10. Substitute for a sky-hook (4).
11. Finally you should have been this (11).
18. Twenty is usually a this band (8).
20. QRM is this to a QSO (2, 4).
21. Cat ices (anag.) (7).
23. Another revolution ended by the Navy? (4).
25. Radiator mostly Prospero's sprite, slightly mixed (6).
28. Remember this on forty? (4).
29. There appears to be a Ham up at the bottom of this Italian lake (4).

* * *

The instigator of the above crime, presumably in mitigation thereof, offers to donate a copy of *The Amateur Radio Handbook* (it will be a new one !) to the sender of the first correct solution examined.

Send your entry to W. E. Russell (G5WP), "Milestones," Westfield Road, Mayford, Woking, Surrey, to reach him not later than January 1, 1941. The entries (note the plural) will be bundled together and opened at the same time. No cheating allowed and only one entry from each member !

The First Thousand

With the publication of our 14th Active Service List last month, the number of members serving in H.M. Forces passed the 1,000 mark—a wonderful record and one which the Society is proud to proclaim.

It may interest those in the Services to know that over 60 per cent. are in the R.A.F. whilst the Royal Corps of Signals and the Royal Navy occupy second and third place with 14 per cent. and 12 per cent. respectively

Although every endeavour is made to keep our lists up to date, and as accurate as possible, omissions and errors are unavoidable. In this connection we solicit the co-operation of all members in our self-imposed task of providing a complete record of the part played by the Radio Amateurs of Great Britain in the present struggle. The value of our record in the years to come will more than compensate us all for the time devoted now to its preparation.

The Handbook Committee Takes a Bow

Although we are becoming somewhat *blasé* to receiving bouquets concerning the Handbook from our members, it is seldom that a non-member takes the trouble to write.

The following appreciation from a non-member living in Andover is therefore recorded as providing an exception to the general rule.

"I must congratulate you on an excellent production. I have read many Radio books but have felt there was still *the* book to be produced. Your Handbook is the nearest possible to this on earth."

RADIO RIDDLE-ME-REE No. 1

Prepared by J. IRWIN, G4FD.

My 1st is in Lodge of syntonic jars fame.
,, 2nd ,, ,, Heaviside also Oliver by name.
,, 3rd ,, ,, Fleming the scientist renowned.
,, 4th ,, ,, Edison first "canner" of sound.
,, 5th ,, ,, Volta whose pile gave us pressure.
,, 6th ,, ,, Ampere, of current we measure.
,, last ,, ,, Watts—of these our inputs ne'er lacked.

(Solution on page 204.)

"HAM-RADIO" CROSSWORD No. 6

SOLUTION

1 N	E	2 U	3 T	4 R	A	L	5 I	6 S	7 I	N	8 G
E	■	9 N	R	A	■	■	10 M	A	N	■	R
11 W	E	D	■	12 D	A	M	P	■	13 S	U	E
F	■	14 E	M	I	R	■	15 E	M	U	■	A
16 O	E	R	■	17 A	C	18 I	D	■	19 L	E	T
U	■	20 R	U	T	■	21 S	A	G	A	■	B
22 N	23 E	U	■	24 I	R	O	N	■	25 T	26 O	R
27 D	A	N	■	O	■	■	C	■	28 E	M	I
L	■	■	29 A	N	30 O	31 D	E	32 S	■	■	T
33 A	M	34 P	S	■	35 B	C	■	36 M	37 U	S	A
N	■	M	■	38 F	■	■	39 L	■	N	■	I
40 D	E	G	E	N	E	R	A	T	I	O	N

HEADQUARTERS CALLING

A MESSAGE FROM OUR PRESIDENT

IN a few days I shall be handing over the responsibilities of my office to Mr. A. D. Gay, G6NF, but before doing so I should like to take this opportunity of recording my warm thanks to Council, Members, and Headquarters Staff for the splendid co-operation which has been accorded to me during my six years as your President.

The growth of the Society in peace-time has been eclipsed by the amazing progress of the past 16 months. That we shall continue to extend the sphere of our influence is certain, for we have shown by deeds—not words—that the amateurs of Great Britain are a force to be reckoned with now and in the years to come.

In placing the supreme control of the Society in the hands of Mr. Gay you have chosen one who is at heart the very essence of an amateur. His life has, for many years, been devoted to the promotion of our work, both as an executive officer and as a prominent experimenter. I have every confidence that under his leadership the Society will pass from strength to strength.

To Members everywhere, and in particular to all who are on active service, I extend my best wishes for Christmas and the New Year.

Good Luck and God Speed,

ARTHUR E. WATTS, G6UN,
President.

The Handbook Reprinted

As announced elsewhere in this issue the 2nd Edition of *The Amateur Radio Handbook* is being reprinted. Published late in July, nearly 4,000 copies have been sold—sure proof of its appeal.

At the time of writing (December 7) about 30 copies were in stock but as orders continue to pour in it is doubtful whether any will be available after December 15, in which case we crave the indulgence of members who neglected our earlier advice to order early for Christmas.

The new printing, which contains a completely revised list of " Selected References," will be available early in the New Year.

Members in Signals Schools should communicate with the Secretary-Editor who will be pleased to quote special prices for quantities of one dozen or more.

Call Sign Badges

Due to the prevailing conditions the delivery of badges and car plaques carrying a call sign cannot be guaranteed, but every effort will be made to supply within 14 days.

A Christmas Present from Council

Arrangements have been made to supply free of charge, to members, *sending a stamped and addressed envelope*, a windscreen sticker. This device should prove useful to those on active service who run their own cars, and at present have no visible means of identifying themselves with the amateur movement. An odd one stuck up in barracks may also prove the means of a ham introduction.

Applications should be addressed to :—

" Sticker," R.S.G.B.,
16 Ashridge Gardens,
London, N.13,

and don't forget the S.A.E. !

American Publications

Although repeated references have been made in past issues to the terms and conditions under which Headquarters agrees to handle orders for American publications, many members still appear to be under the misapprehension that stocks are available in London.

To clarify the position we repeat—*every order for every American publication handled by the Society is sent to America for execution*, consequently a delay of 4–8 weeks is unavoidable under existing conditions.

Members on active service should always give a permanent address to which the book or periodical is to be sent. To give a Service address is to court disappointment, in view of the vagaries of Service movements.

A complete list of current prices for American publications which can be handled by Headquarters appears on Page 168.

Greetings, Coventry

Coventry, scene of the most gruelling of all Nazi air attacks, has for many years claimed to possess the highest percentage of licensed amateurs among all British Isles towns.

When the news of its ordeal reached us, our first thoughts were for the safety of those good friends who, steeped in the high traditions of the amateur movement, have always extended a warm welcome to all who visited their ancient city.

Although, up to the time of going to press no direct news had been received we fervently hope they are all safe.

On behalf of members everywhere, we send a message of good wishes and good cheer.

Come what may, the Spirit of Coventry, like the Spirit of Amateur Radio, will never die.

Returned Bulletins

Our recent appeals have met with little response. The old story continues and month by month, dozens of copies are being returned because members are too *lazy*—yes lazy—to send a post card advising their new address. Weeks afterwards when they " come to " we receive plaintive wails because they have not received recent copies of THE BULLETIN.

Do please co-operate. If you move, advise Headquarters without delay.

Since July, over 100 members have been " lost." Can you help us to find them ?

A Censorship Matter Concerning Service Members in Northern Ireland.

A serious difficulty is being created unwittingly by relatives of service members who have been transferred to Northern Ireland. As should be well known by now this Journal, in company with all other publications, has to be passed *via* the Military Censorship, if addressed to anyone in that country. Very frequently copies addressed by us to members in England, Scotland or Wales are re-directed by relatives to an address in Northern Ireland, with the result that the Society is " called over the coals " for sending publications to a Censorable country in a manner contrary to law.

During the last two months a large number of BULLETINS have been returned to Headquarters by the Censor, and an explanation demanded.

We therefore appeal to all Service members in Northern Ireland, as well as to all who may be going to that country, to arrange with their relatives to return BULLETINS to *us* so that they may be despatched *via* the Censor.

Ham Hospitality

We are pleased to give publicity to the following additional names of members who have kindly offered to extend " Ham Hospitality."

Kinross, Scotland.—L. Welsh (BRS209), 10 Montgomery Street, or at " Advertiser " Office, Kinross. Phone : 2127.

Leigh-on-Sea, Essex.—M. Geddes (G2SO), 16 Carlton Drive.

Portsmouth.—R. Holmes (G6RH), 68 Carmarthen Avenue, Cosham.

Sheffield.—J. D. Kay (BRS3789), 31 Highcliffe Drive, Sheffield 11.

Spalding, Lincs.—W. G. Johnson (G4MS), Pinchbeck Hall (Spalding 186).

Lydd, Kent.—A. E. Tillyard (G2IJ) Ness Road (change of address).

Let's Show it

London members, ever ready to extend Ham hospitality to visiting amateurs, are anxious that no member on active service in the London area shall be " left out in the cold " during the coming Christmas season.

Service members who wish to be entertained are invited to communicate immediately with the Secretary-Editor, whilst London members willing to extend hospitality should write or telephone without delay, giving precise details of the facilities available and travelling directions.

True Ham Spirit

We quote freely from a letter received from Mrs. H. L. Phillips of 33 Dale Gardens, Mutley, Plymouth.

" My husband, BRS1615, is away from home but my Mother and I would gladly welcome any of your members who may care to call. It is possible that many may be passing through our town and may get " stuck " during these difficult times, quite apart from the many others in the Services who may like to plant their feet on a hospitable hearthrug. In any way possible we should like to help."

Mrs. Phillips concluded her letter with a word of thanks to that venerable old gentleman " Granfer " whose articles she has read with great pleasure.

Members everywhere will join with us in saying " Thank you Mrs. Phillips—you are indeed a good Ham."

* * *

A further example of true Ham spirit is shown by Leslie Wright, G3SI, of Mill End House, Thaxted, Essex, who offers to extend hospitality to any overseas or British Isles amateur on service who would like to enjoy a few days quiet rest. Any member desirous of taking advantage of this kind offer is asked to give Mr. Wright a day's notice in advance. His telephone number is Thaxted 359.

Stamps and the Black-out

We would remind members that the R.S.G.B. Philatelic Section, operated by Mr. A. O. Milne (G2MI), 1 Kent Drive, Harrogate, is open to all interested in stamp-collecting. Exchange booklets are sent out monthly and many good items are always included. To date some 15 members are in the section—more are welcome. Write to G2MI for details.

New Members

B. POWELL (GW3XW), 119 Emlyn Road, Mayhill, Swansea.
P. G. PEARCE (G4AA), 8 Westbury Road, Croydon, Surrey.
R. J. STELLIG (GW4CK), Romir, Victoria Road, Prestatyn.
S. ROBERTS (GW4NZ), 3 The Croft, Neath Abbey, Neath, Glam.
H. W. MITCHELL (2AMG), 271 Sandon Road, Stafford.
S. W. CLARK (2AMW), 32 Glantone Street, Belfast.
E. D. HART (2BVH), June Hill, Rectory Avenue, High Wycombe.
V. W. SOWEN (2BYC), 4 Wells Walk, Ilkley, Yorks.
R. T. HENLEY (2CMH), 2 Dale Crescent, Brighton, 6.
G. V. HAYLOCK (2DHV), 28 Longlands Road, Sidcup, Kent.
L. D. HODGE (2FZM), 7 Bessbrook Road, Aigburth, Liverpool, 17.
D. HUPPLER (2HCT), 4 Berkshire Road, Henley-on-Thames, Oxon.
E. M. DAVIES (2HIY), Edelweiss, Glyn Avenue, Prestatyn.
F. J. COLLIER (2HLJ), 63 Hill Road, Pinner, Middx.
R. S. WEBLEY (BRS3875), Tegelon, Highcliffe-on-Sea, Hants.
D. B. JOHNSTONE (BRS3876), 1 Cowens Terrace, Windsor Road, Ramsey, I.O.M.
T. D. SHERLOCK (BRS3877), 46 Tennyson Road, Stoke, Coventry,
H. C. KIRTLAND (BRS3878), 103 Larkswood Road, S. Chingford. E.4.
C. R. DOWNES (BRS3879), 8 Tregenna Court, Alexandra Avenue, S. Harrow, Middx.
C. C. THACKERY (BRS3880), Maltby House, London Road, Tathwell, Louth, Lincs.
B. BOWKER (BRS3881), 6 Woodland Avenue, Hazel Grove, Stockport.
J. E. C. Nicholls (BRS3882), 43 Mount Street, Diss, Norfolk.
T. LINTON (BRS3883), 18 Ritchie Street, York Road, Belfast.
R. EDWARDS (BRS3884), 7 Linkfield Lane, Redhill, Surrey.
A. S. BEACH (BRS3885), R.A.F.
K. F. B. STONE (BRS3886), 32 Liphook Crescent, Forest Hill, S.E.23.
J. SEWELL (BRS3887), Imber Croft, Wanborough Lane, Cranleigh, Surrey.
W. CROCKETT (BRS3888), Talbot Cottage, Shenley Church End, Bletchley.
P. BLAIR (BRS3889), R.A.
J. T. PARKER (BRS3890), 9 Cheltenham Road, Broadway, Worcs.
G. J. AIKMAN SMITH (BRS3891), R.A.
A. C. HADDY (BRS3892), 99 Tolmers Road, Cuffley, Herts.
J. BINNING (BRS3893), 106 Turncroft Lane, Stockport, Cheshire.
A. JORDAN (BRS3894), 4 Park Road, Hanwell, W.7.
J. G. LAWSON (BRS3895), 27 Castle View, Dodworth, Near Barnsley.
H. W. DAWES (BRS3896), 36 North Street, Calne, Wilts.
W. OLIPHANT (BRS3897), 20 Smeaton Street, Ruchill, Glasgow, N.W.
G. E. PERRETT (BRS3898), 3 Cottersloe Road, Norton, Stockton-on-Tees.
K. W. EVANS (BRS3899), 63 Penns Lane, Erdington, Birmingham, 24.
SGT. F. HORKY (ex OK2HY), c/o. R.A.F.

EDITORIAL.—(*Continued from page* 169)

regarding communication receivers, members should *in their own interests* enclose a stamped and addressed envelope so that the advertiser can give an approximate date for delivery. Much disappointment will be avoided if this suggestion is followed.

Finally we should all do well to remember that several prominent advertisers have at present very little in the way of material to offer to the ordinary member, but as proof of their interest in the Society, they are content to keep their names before us. This demonstration of goodwill is a feature of war-time conditions which few outside the amateur movement could appreciate.

In recording our thanks to those concerns in the Radio Trade who have supported us during the past year, we express the sincere hope that the year ahead will bring them all a record turn-over.

J. C.

THE T MATCHED AERIAL—(*Cont. from page* 176)

right-angle bend is made at each end of the "T" adjacent to where the wires connect to the aerial. By using sufficiently heavy gauge wire this bend can be made self-supporting.

The author concludes his article with information concerning the 2-wire half-wave aerial described in *Radio*, May, 1939, and June, 1939, under the title of "Multi-wave Doubtlet Antennas" and in *Electronics*, January, 1940, under the title "Multi-wire Dipole Antennas."

THE ULTRA HIGHS.—(*Continued from page* 194)

aspire to at present. When any information of special interest comes to hand it will be published and the American U.H.F. news (so kindly supplied by W9BNX and W1DHQ) is always available, in full, for the asking. The writer would like to take this opportunity of thanking all those who have supported this column since taking it over, and especially those who have continued to report even when there was very little chance of hearing any amateur signals.

I wish all my readers as happy a Christmas as circumstances will permit, and may we all meet again on the U.H.F.'s in 1941.

73 everybody and good luck.

Emergency Home Service Receiver

Due to a typographical error the condenser values quoted beneath the circuit published on page 136, November issue, were reversed. C_1 and C_2 should have read ·1 μF, whilst the grid tuning condenser C_3, which was not marked should have read ·0003 μF. There is no C_4 in the circuit.

The Stork has Called

Congratulations to Dr. and Mrs. Arthur Gee, G2UK, of Boston, Lincs, and to Mr. and Mrs. Mal Geddes, G2SO, of Southend, who have taken on the strength their first junior operators.

Master Richard Gee reported for duty on November 3, and Malcolm jnr., on August 28.

* * *

RADIO RIDDLE-ME-REE No. 1

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EXCHANGE AND MART.

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ALL KINDS of PRINT. Send your enquiries to G6MN, Worksop.

BRAND NEW Eddystone ECR Receiver and Speaker. What offers?—G6HP, c/o 56 Devonshire Road, Chorley, Lancs.

EXCHANGE.—500-volt 200-mA. Transformer with 3 fitments for Bug Key in good condition or 6 P.O. Sounder Relay; or what have you?—G8RY, 315 Stafford Road, Oxley, Wolverhampton.

FOR SALE.—Garrard Automatic Record Changer complete with pick-up. Rola G12 Speaker, mains energised. B.T.H. RK Senior Speaker with built in rectifier, together with B.T.H. Mahogany cabinet on legs. Haynes 14-watt Duophase Amplifier, ML4, Push Pull PX25's, 2.U14's, complete with two sets of valves. What offers?—G3DO, 27 Pilkington Avenue, Sutton Coldfield, Birmingham.

OFFERS WANTED.—Hallicrafters 1940 S2OR 9-valve with 3-Gang Bandspread. Perfect as new.—WILLIS, 15 Weston Crescent, Norton, Co. Durham.

SALE.—Hallicrafter Sky Challenger (S×15), purchased 1938. 9 valves, crystal filter. 9–550 metres. Cost £25. Little used, £10 or offers.—W. MURRAY, Rockfort, Milngavie, near Glasgow.

WANTED.—Howard 460 or any good Communication Receiver. Must be in perfect condition. Please state price.—G. SPRIGGS, 28 Almorah Road, Hounslow, Mddx.

WANTED.—Milnes H.T., heavy discharge, 150 volts. Complete recording gear (110-volt D.C.), 110-volt Storage Cells, minimum 150 amps. Masteradio Vibrator from 6 or 12-volt accumulator to work "Sky Champion" receiver.—"ROBIN HOOD," Catsfield, Nr. Battle, Sussex.

WANTED.—Valve Tester and Analyser for British, American and side contact valves. Also reliable Multi-range Meter. Offers to A. S. CONTOPOULOS, Barakat, Sudan.

PATENTS AND TRADE MARKS

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

RADIO MAP AND GLOBE

WEBB'S RADIO MAP of the World enables you to locate any station heard. Size 40" by 30". 2-colour heavy Art Paper, 4/6, postage 6d. Limited supply on Linen, 10/6, postage 6d. WEBB'S RADIO GLOBE—superb 12" full-colour model Radio prefixes, zones, etc. Heavy oxidised mount. Post paid. 27/6.—WEBB'S RADIO, 14 Soho Street, London, W.1. Phone: Gerrard 2089.

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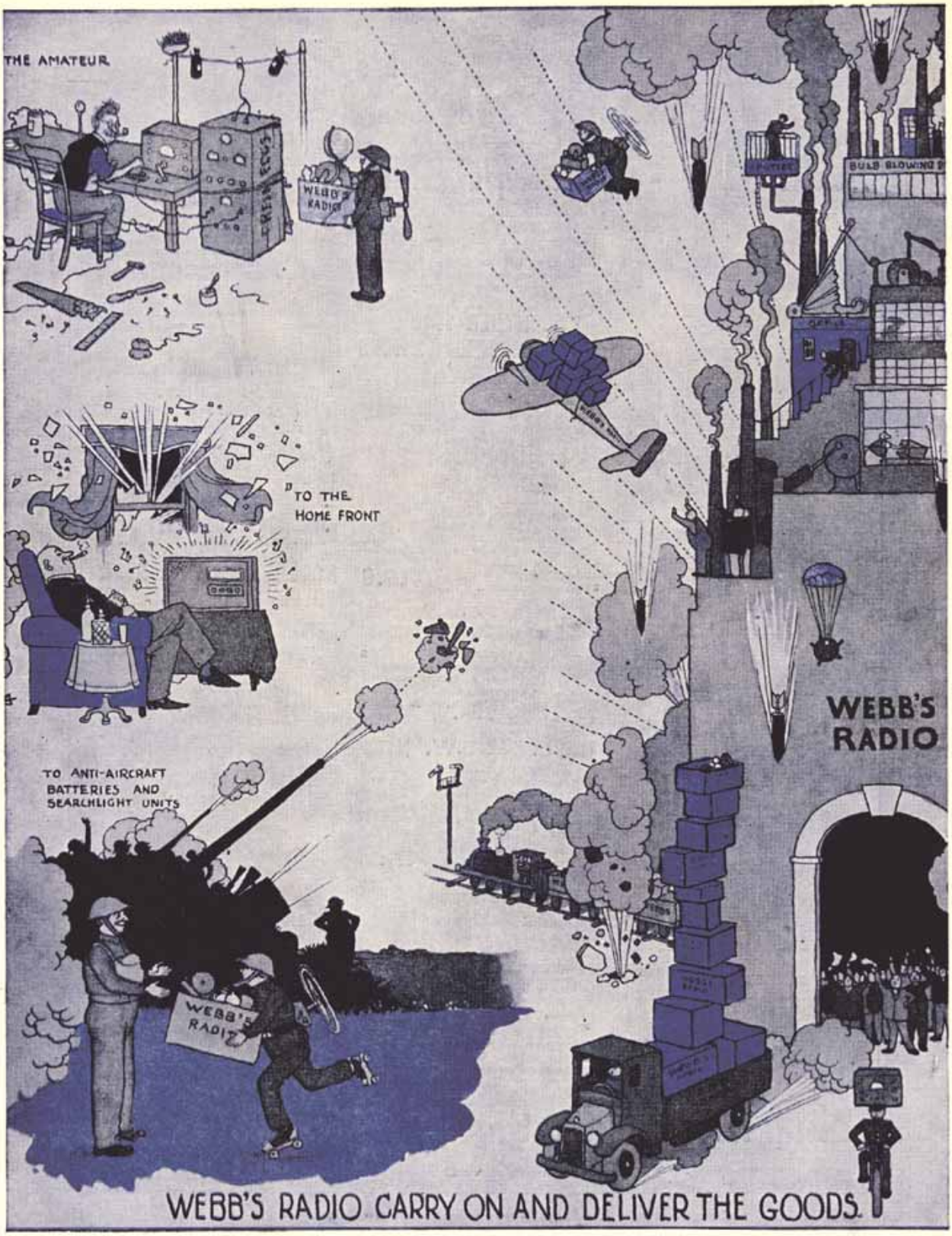
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