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BULLETIN

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

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- CONTEST REPORTS

R.S.G.B. BULLETIN

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Editor :
JOHN CLARRICOATS

Editorial Office :
NEW RUSKIN HOUSE, LITTLE RUSSELL ST., LONDON, W.C.1
Telephone: Holborn 7373

Advertisement Manager:
HORACE FREEMAN

Advertising Office :
PARRS ADVERTISING LTD., 121 KINGSWAY, LONDON, W.C.2
Telephone: Holborn 2494

Honorary Editor : ARTHUR O. MILNE.

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VOL. XXIII — No. 4

THE EXHIBITION SEASON

INCLUDED in each copy of this issue is a Catalogue of the Amateur Radio Exhibition which the Society is organising next month. It is pleasing to notice that so many sections of the industry will be represented at this unique and important event. The reason for the support is not hard to seek, for there can be few radio concerns to-day which are not fully aware of the value and importance of the Amateur Radio market.

In these days of paper rationing, when the amount of space which we can devote to advertisers' announcements is strictly limited, members who visit the Exhibition will be able to obtain at first-hand, information concerning the performance of a wide range of equipments, valves and components which would normally be described in the pages of this Journal.

A close contact between the manufacturer and the customer is always desirable but, whereas, in most walks of life the ultimate purchaser has little knowledge of the problems involved in the production of the goods he wishes to purchase, the majority of those who attend the Amateur Radio Exhibition will be practical men possessing a sound technical knowledge of what is being offered.

The interest which the radio industry is showing in the Amateur Radio market is particularly gratifying to those who have consistently advocated a "Buy British" policy. Now that foreign markets are to all intents and purposes closed British radio manufacturers have a golden opportunity of building-up a reputation which will survive the fiercest competition in the years that lie ahead. There are clear indications that the industry realises the position and is taking the necessary steps to enlist the support of British amateurs.

The old cry that the amateur market is too insignificant to bother about is no longer heard. Instead, as we shall find when the Exhibition opens, some of the most prominent firms in the industry are going all out to provide us with the very best that modern methods can produce.

Before the war one or two enterprising firms risked considerable capital in designing and marketing communication type receivers, but unfortunately very few of them could compete with American models. Today, with a potential market at least five times greater than in 1939, and with war-time production experience to guide them, several companies are offering receivers designed especially for radio amateurs. By adopting a courageous policy these firms are now in a position to offer receivers at prices which compare most favourably with those of foreign competitors. In the field of performance we believe they are at least equal to comparable American types.

British valve manufacturers also recognise the importance of the amateur market, and many new types will be making their bow next month. It is perhaps a little unfortunate that valve prices remain on the high side, but these will, no doubt, show a substantial drop as soon as the demand increases.

It is perhaps a little early to expect manufacturers to be in a position to offer components and valves suitable for the new V.H.F. bands—soon to become available to us—but the Exhibition will certainly enable members interested in this work to discuss their problems with experts in the industry.

Although paper restrictions will limit the amount of free literature that can be distributed, every exhibitor will be anxious to provide as full a service as possible in this respect. Those who cannot visit the Exhibition will find the Catalogue of value as it will enable them to see what the trade has to offer, and, if they so desire, to make application direct to exhibitors for descriptive literature covering those products in which they are interested.

In selecting mid November for the Exhibition the Council had in mind that hotel accommodation is normally much easier then than at any other time of the year. When the dates were fixed it was not known that the Royal marriage would take place on the day after the Exhibition opened. However, this event may provide a very good excuse for a large number of provincial ladies to insist that their men folk shall visit the Exhibition !

By the time this issue appears Radiolympia will have ended. Next month it will be our pleasure to welcome to the Royal Hotel many of the firms who exhibited there together with several others who were unable to be represented at the larger show.

The first Amateur Radio Exhibition will be *your* Exhibition. Its ultimate success will depend upon individual support and interest.

J. C.

THE STATION BEHIND THE CALL

THE BULLETIN intends to publish, from time to time, photographs and descriptions of members' stations. Not only elaborate installations, but rigs that show ingenuity and a fresh approach to operating techniques will be featured. So please send a clearly defined photo and a few hundred word write-up of YOUR shack.

All material published will be paid for at the rate of £2 2s. 0d. per article.

Contributions should be addressed to, The Editor, R.S.G.B. Bulletin, New Ruskin House, Little Russell Street, London, W.C.1.

FOLDED DIPOLES

WITH EQUAL AND UNEQUAL ELEMENTS

H. A. M. CLARK, B.Sc., (ENG.), A.M.I.E.E. (G6OT)

Here at last is a method of finding the effective resistance of a folded dipole in which the wires are not all of the same diameter. An easy-to-use Abac is given—which saves all the arithmetic.

A DIPOLE consisting of a resonant wire, approximately half a wave long and fed at the centre constitutes a very popular aerial in itself, and frequently forms the basic element of directional arrays. If the element is adjusted to resonance, the impedance seen at the centre where the feeder is attached is substantially a pure resistance which, if of the right value, conveniently matches the feeder line, thus eliminating any standing waves on the feeder with consequent reduction of feeder losses and radiation.

The value of the resistance seen at the centre of the half-wave aerial depends upon the radiation resistance and the ohmic resistance of the aerial conductor. The latter can always be made negligibly small by using a wire or rod of adequate size, leaving the radiation resistance the only relevant factor. The radiation resistance depends upon the diameter or width of the aerial in relation to its length and upon the nearness of other conductors, such as reflector and director elements, or the earth. For most dipoles, as used by amateurs, where the diameter is a very small fraction of the length, the radiation resistance when the aerial is in free space is 73 ohms. If the aerial is near the earth, as in most practical cases the resistance remains in the order of 75 ohms at heights of $\cdot 25\lambda$, $\cdot 5\lambda$, $\cdot 75\lambda$, λ, etc., but it may rise as high as nearly 100 ohms at $\cdot 35\lambda$, and fall as low as 60 ohms at $\cdot 67\lambda$.

Matching Dipole to Feeder

If we take an average representative value of 75 ohms it is obvious that we can feed it with one of the several types of co-axial cable which are available with characteristic impedances of about 75 ohms, and obtain a good match at the aerial end of the feeder. It may be desired, however, to use one of the balanced types of feeder consisting of a pair of open wires spaced 4 in. to 6 in. apart, or perhaps the type which consists of two wires spaced about $\frac{1}{2}$ in. apart in a flat polythene ribbon. Such feeders will have characteristic impedances of about 600 and 300 ohms respectively, and some means must be found to match the aerial to the feeder. A number of ways of doing this are known and many are detailed in Chapter 12 of the *Amateur Radio Handbook*. On page 204 (2nd edition) there is described a very elegant way in which the impedance of the aerial may be raised by either 4, 9 or 16 times, by means of making the aerial in the form of one or more narrow loops, or folding it back on itself in some other way, so that although the overall length of the aerial is still approximately one half-wavelength the aerial current flows through two or more paths in the aerial.

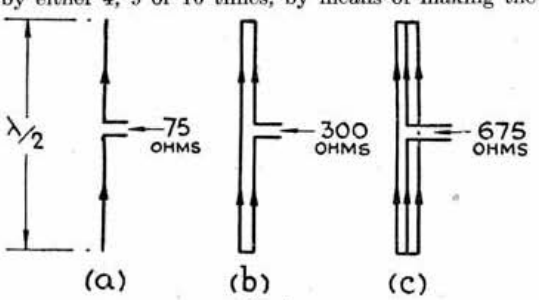


Fig. 1.
(a) Orthodox centre-fed half-wave dipole, in which the resistance seen at the feeder junction is 75 ohms. (b) Folded dipole consisting of two wires in parallel which raises the resistance to 300 ohms. (c) Similar arrangement of three wires in parallel with an input resistance of 675 ohms.

Two of the commonest arrangements of this type are shown in Fig. 1.

Fig. 1 (*a*) shows the normal single wire half-wave aerial with an impedance of 75 ohms. In what follows it is to be understood that where a "half-wave" aerial is referred to, the usual end correction must be applied in practice for actual resonance, by making the overall length about 5 per cent. short of the actual half-wavelength.

Referring now to Fig. 1 (*b*) the dipole consists of a complete loop, still a half-wave long but very narrow, say one or two inches for frequencies up to 60 Mc/s. In the single wire case the currents in both quarter-wave limbs are flowing in the same direction at any instant. In the folded dipole the current must reverse its direction in the wire after it has flowed through a quarter-wavelength, but since the wire has been folded back on itself the current in both halves will be flowing in the *same* direction in space. The radiation will, therefore, be exactly similar to that from a single wire dipole. For the same power radiated from the folded wire as from the single wire, the total current in the two dipoles must be the same, and thence the current in the two wires in one case must add up to that in the single wire of the other case. If the two wires are of the same size the current in each will be the same, *i.e.*, one-half that in the single wire case. The input power is, however, fed into one of the wires only. Since the power is given by I^2R it will be seen that if the power is to be the same in the two cases and the input current of the folded wire only is one-half that of the single wire, the input resistance of the folded dipole must be *four* times that of the single wire dipole, *i.e.* 300 ohms. Such a dipole would, therefore, match a 300 ohm feeder quite satisfactorily and yet behave in all other respects like a single wire dipole.

The increase in resistance is equal to the square of the number of wires provided they are of the same diameter. Thus a two wire dipole has *four* times, and a *three* wire dipole *nine* times that of a single wire. The three wire dipole shown in Fig. 1 (*c*) will, therefore, have an input resistance of $9 \times 75 = 675$ ohms. Such an aerial would, therefore, match an open wire line such as a pair of 18 S.W.G. wires spaced 7 in. apart. In practice a match within about 10 per cent. is quite adequate so that a 600 ohm line, say two 16 S.W.G. wires, 5 in. apart would be expected to be quite satisfactory.

This multiplication of the input resistance can be used for other purposes than matching a dipole to a high impedance feeder. When a reflector and director are put close to a dipole in order to modify the polar diagram, they have the effect of reducing the radiation resistance of the dipole. For example, a reflector placed $\cdot 15\lambda$ behind a dipole will reduce its resistance to 25 ohms, whilst in a three element beam with reflector and director spaced at say $0 \cdot 1\lambda$ from the dipole the resistance will fall to about 10 ohms. It is impracticable to construct a feeder with as low a characteristic impedance as this. One

method of obtaining a match, therefore, is to make the driven element a three wire dipole as in Fig. 1 (*c*), in which case the resistance will be raised from 10 to 90 ohms and a 90 or 100 ohms twin polythene feeder can be used quite satisfactorily.

Unequal Diameter Elements

So far only aerials with one or more wires of the same diameter have been discussed, and it is seen that the resistance can be multiplied by 4, 9 or 16 by the use of two, three or four wires. These are rather large steps and it may be that it is required to multiply the resistance by some intermediate factor, say 6 or 12, in order to effect a match in a particular case.

It has been known for some time that this can be done by using wires or rods of unequal diameter in the same loop. Up till now, however, it has been common practice to employ hit and miss methods to obtain these intermediate values.

In the June, 1947, *R.C.A. Review*, W. van B. Roberts has developed a formula for calculating the multiplying factor when unequal diameters are used. This is information which the author believes has been wanted by the amateur for sometime. The mathematically minded are recommended to refer to the original article, but for the sake of those who merely wish to apply the results the formula is given here with acknowledgment to the author and an original Abac will be given by means of which the resistance of any practical arrangement can be obtained without any arithmetic.

Fig. 2 (*a*) shows a two wire folded dipole with one conductor, to which the feeder is connected, of diameter d_1, and the other of diameter d_2. The spacing between centres of the conductors is D and this is assumed to be small compared with the length of the aerial which is nominally a half-wavelength. If R is the resistance of the equivalent dipole (*e.g.* 75 ohms for a plain dipole or say 10 ohms for a dipole with close-spaced reflector and director) and Ra is the apparent input resistance of the folded dipole, then

$$Ra = K_1 R \text{ where,}$$

$$K_1 = \left(1 + \frac{Z_1}{Z_2}\right)^2.$$

In this formula Z_1 is the characteristic impedance which would be possessed by a feeder consisting of two conductors of diameter d_1 and spaced D, while Z_2 is the impedance of a feeder with conductors of diameter d_2, also spaced D.

First of all let us assume that the wires are of equal size, *i.e* $d_1 = d_2$, as in Fig. 1 (*b*). Then

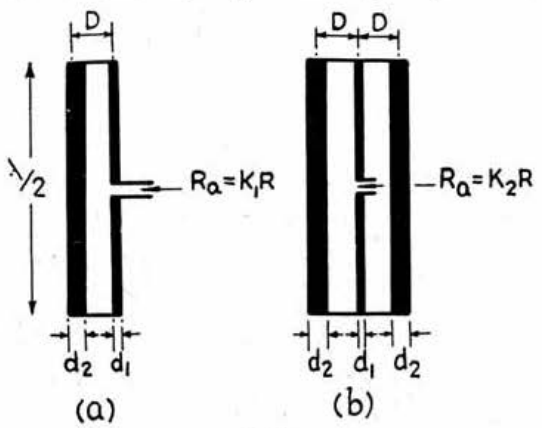


Fig. 2.
(*a*) Two wire folded dipole in which the conductors are of different diameter. (*b*) Three wire arrangement with unequal conductors.

obviously $Z_1 = Z_2$ or:

$$K_1 = (1 + 1)^2 = 4$$

which agrees with our previous result obtained without mathematical argument.

For the three wire case of Fig. 2 (*b*):

$$K_2 = \left(1 + \frac{2Z_1}{Z_2}\right)^2$$

If we again consider the case where $d_1 = d_2$ then $K_2 = (1 + 2)^2 = 9$, which again checks our previous reasoning.

If the conductors have different diameters the result can be calculated as follows. As an example consider a two wire case where the diameter of the conductor connected to the feeder (d_1) is $\frac{1}{4}$ in. and that of the other (d_2) is 1 in. with a spacing of say 3 in.

Now the characteristic impedance of a two wire feeder is given by

$$Z = 276 \log_{10} \frac{2D}{d}$$

Therefore, $Z_1 = 276 \log_{10} \frac{6}{.25} = 381$ ohms

and $Z_2 = 276 \log_{10} \frac{6}{1} = 215$ ohms

Instead of doing these calculations the results can be obtained from an Abac such as that on page 178 of the *Amateur Radio Handbook*.

These values can now be put in our formula with the result that:

$$K_1 = \left(1 + \frac{381}{215}\right)^2$$
$$= (1 + 1{\cdot}77)^2$$
$$= 2{\cdot}77^2 = 7{\cdot}7$$

Thus by using unequal diameters of the values given the input resistance has been raised by 7·7 instead of 4 as for the equal diameter case. Notice, that if the diameters are equal the factor is 4 regardless of the spacing, but if they are unequal the factor *will* depend upon the spacing.

It is interesting to note that factors of less than 4 can be obtained by putting the feeder in the larger diameter conductor. If this were done in the above example,

$$K_1 = \left(1 + \frac{215}{318}\right)^2$$
$$= (1 + {\cdot}676)^2$$
$$= 1{\cdot}676^2 = 2{\cdot}81$$

Thus, if the dipole were part of a three-element close spaced array, the impedance with the feeder in the smaller conductor would be $10 \times 7{\cdot}7 = 77$ ohms, and with the feeder in the larger conductor $10 \times 2{\cdot}81 = 28{\cdot}1$ ohms. The latter arrangement is not often met in practice but there may be cases where it is of use.

If *two* large diameter rods were used as in Fig. 2 (*b*) then the factor becomes,

$$K_2 = \left(1 + \frac{2 \times 381}{215}\right)^2 = 20{\cdot}6$$

Such a large factor is not likely to find practical use, but with rods of only slightly different diameters useful values in the range between 9 and say 15 can be obtained.

Use of an Abac

The above calculations can be avoided by an Abac of the form given in Fig. 3. The previous example for the two wire case with 1 in. and $\frac{1}{4}$ in. rods spaced at 3 in. will be used to show the method.

The diameter of the element connected to the feeder ·25 in. (d_1) is found on the scale on the right-hand side of the paper, point A. A straight line is

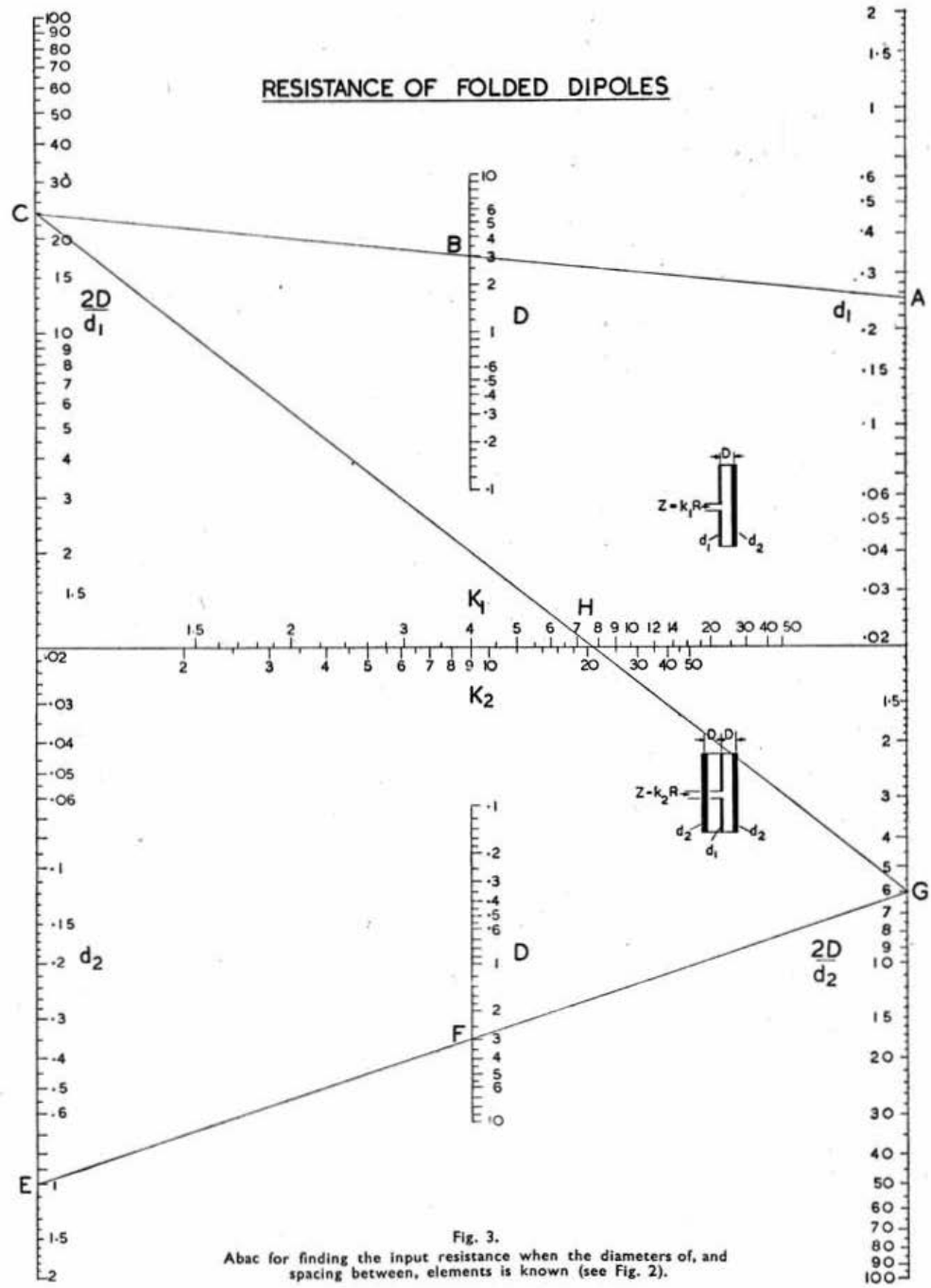


Fig. 3.
Abac for finding the input resistance when the diameters of, and spacing between, elements is known (see Fig. 2).

drawn across the chart through the point B, which is the spacing (3 in.) cutting the left-hand scale of $\frac{2D}{d}$ at point C.

A similar procedure on the three lower scales, *i.e.* from E at 1 in. through F at 3 in. to G gives $\frac{2D}{d_2}$. The ruler is now laid between the points C and G and it cuts the upper horizontal scale at the point H, which is 7·7 as previously calculated. If the dipole has three conductors, the lower horizontal scale is read giving 20·6.

The diagram can be used to solve a problem in the reverse order. Suppose it is required to make a dipole match a cable of 110 ohms and it has a director and reflector so spaced that a single wire dipole would have a resistance of 10 ohms. (There are curves giving these values in some of the American handbooks.) The ratio required is, therefore, 11, which is likely to be obtained most easily with a three conductor arrangement.

Suppose we choose a $\frac{5}{16}$ in. diameter rod for the fed element and a spacing between elements of 2 in. Starting with $d_1 = \cdot 3125$ in. and $D = 2$ in. we get

(*Continued on page 75*

GENERAL PURPOSE POWER UNIT

By P. J. H. MATTHEWS (G3BPM)

THIS power unit was designed bearing in mind the many varying requirements of the average amateur station over a period of years. It is intended as a permanent piece of equipment from which can be run, crystal oscillators, frequency doublers, power amplifiers, V.F.O's. and modulators.

The unit provides the following outputs : (*a*) 520 v. or 500 v. at 100 mA ; (*b*) a stabilised supply of 285 v., 214 v., 140 v. and 71 v. at a total current of 40 mA ; (*c*) a stabilised supply of –150 v. for biasing purposes ; (*d*) two low-voltage supplies, 4 v. and 6·3 v., for heaters.

Circuit Design

To ensure good regulation two mercury vapour rectifiers are used in a full-wave arrangement followed by a two-stage filter which can be arranged either for capacity input or choke capacity input, thus obtaining good regulation with very effective smoothing. With capacity input a higher output may be obtained than by the choke input system but the regulation is not so good.

The outputs of 285 v., 214 v., 140 v. and 71 v. are stabilised by means of a STV280/40 "Stabilovolt," and are individually decoupled by means of 2μF condensers across each output.

The use of mercury vapour rectifiers makes it desirable to incorporate an automatic delay device to ensure that they have thoroughly warmed up before the anode voltage is applied. With the arrangement employed it is possible to obtain a delay of 12–100 seconds, this being continuously variable by means of the resistor in the grid of the delay valve.

A meter measures the output voltage or current, provided it is obtained through the full filter or "Stabilovolt." A switch (S4) is fitted which converts the meter from a voltage to a current measuring device and is calibrated to read 0–700 v., 0–200 mA.

Bias Supply

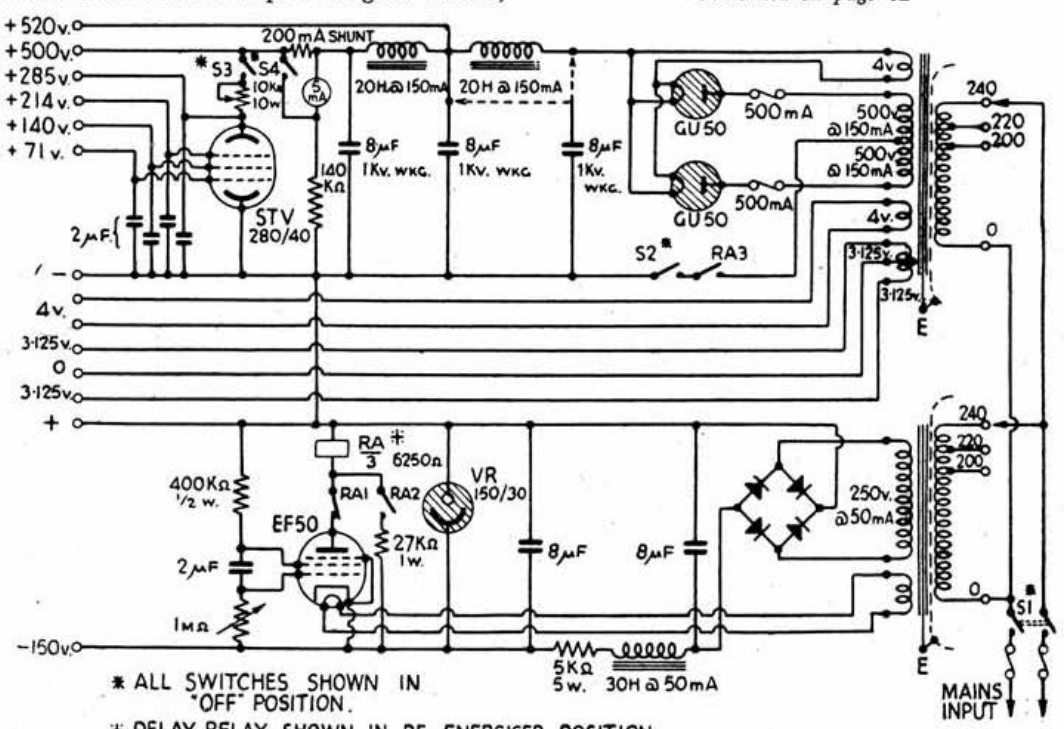
The bias supply uses a separate transformer which also supplies the heater current for the delay valve. A selenium metal bridge rectifier is necessary as it is very desirable for the –150 v. bias to be available immediately upon switching on, thereby preventing any possibility of damage to equipment should the H.T. become accidentally applied. This supply is smoothed by means of a capacity input filter and stabilised by means of a VR150/30. The bias supply also provides H.T. for the delay circuit.

Switching

Four switches are fitted and used in the following manner : S1 is a double pole switch controlling the mains input ; S2 is a single pole switch fitted in series with the delay relay contact in the H.T.-return line controlling the H.T. manually ; S3 is a single pole switch permitting the "Stabilovolt" to be switched out of use when not required ; S4 is also a single pole switch by means of which the 0–5 milliammeter is converted from a voltmeter to an ammeter and *vice versa*. The meter and resistance provide a discharge path for the filter capacitors when the equipment is switched off.

The meter shunt should be adjusted to suit the individual meter movement used. The meter may be recalibrated by affixing a plain paper scale over the

Continued on page 72



Circuit Diagram of General Purpose Power Unit

ATLANTIC CITY — ACT V

By JOHN CLARRICOATS (G6CL), GENERAL SECRETARY

BY now most members will have some knowledge of the final decisions reached at the Atlantic City Conference. Immediately the news became known on September 11 a circular was issued to the Regional and County Representatives as well as to those sections of the technical press interested in Amateur Radio. The effect of this circular was to stop the many rumours which have been " going the rounds " in recent weeks. Unfortunately a new type of rumour started up almost immediately and as a result Headquarters wasted much valuable time in denying that the new bands were operative immediately. We find it difficult to understand why level-headed members should imagine for one moment that an epoch-making international treaty, such as the one which has just been signed, can take effect at once.

To deter any further enquiries we wish to state that the new frequency allocations are unlikely to come into effect until January 1, 1949.

As expected the closing stages of the Conference were hectic in the extreme. Towards the end of August it became increasingly clear that the deadlock which had prevailed in the Working Group dealing with frequency allocations must be broken if the Conference was to finish on September 15.

The 1·7 and 3·5 Mc/s. Bands

There is little need to enlarge upon what has been reported earlier in regard to the " top-band " other than to record that the U.K. proposal which confers upon European countries the right to allocate 200 kc/s. in that band to amateurs, went through without further opposition. We do not yet know where the new band will be located, but it seems probable that it will fall between 1750 and 1950 kc/s. to permit of doubling into a portion of the 3.5 Mc/s. band.

The 3.5 Mc/s. band is to be extended in Europe by 50 kc/s. This means that the portion between 3635 and 3685 kc/s., which was denied to us under the terms of the Cairo Conference Convention, will be opened up, giving us a clear run from 3.5 to 3.8 Mc/s. The band will, as at present, be shared with other services, but we are confident that this arrangement will be much more satisfactory than the original U.K. proposal that the band should be reduced to 100 kc/s. on an exclusive amateur basis.

The 7 Mc/s. Band

The "carving-up" of the 7 Mc/s. band went according to plan. Our only comment is that we think the amateurs of Europe deserved better treatment than they received from those nations which persist in flooding the ether with broadcasts that are listened to by mythical audiences. Frankly we doubt whether more than a microscopic proportion of North American and Australasian listeners obtain any real pleasure or entertainment value from 7 Mc/s. broadcasts. As for European audiences we adhere to our previously expressed view that they are not interested in propaganda broadcasts thinly veiled as entertainment.

However, it is no use crying over spilt milk. The diplomats beat us and we must grin and bear it. We shall nevertheless be interested to learn later on how the European broadcasters fare when they begin to pump programmes into those Regions where amateurs will still be using the full 7 Mc/s. band. As far as North America is concerned we cannot help thinking that the tens of thousands of amateurs who use that band will swamp them out.

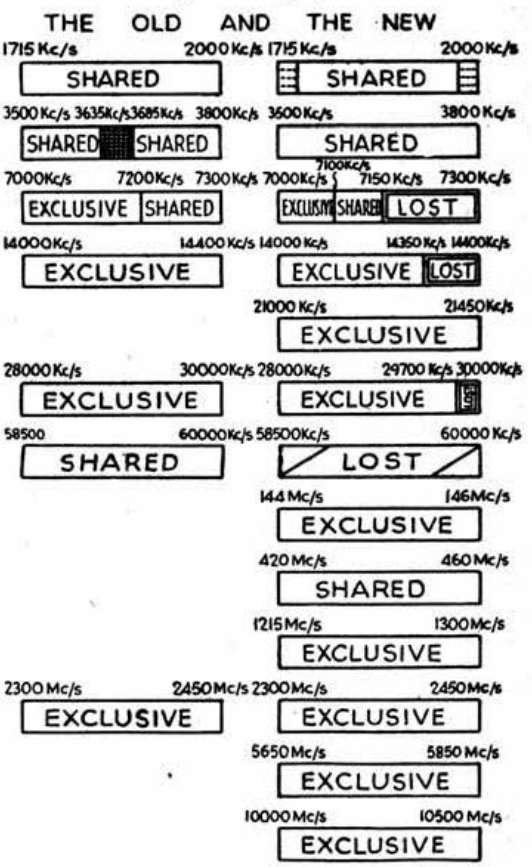
The 14 Mc/s. Band

For the reason that we regard the loss of 50 kc/s. at the high frequency end of 14 Mc/s. as our most serious reverse, we propose quoting at length from the official report of the 22nd Meeting of Committee 5. It was at that meeting the decision was taken to reduce the width of the band and to permit the U.S.S.R. to operate fixed stations between 14250 and 14350 kc/s.

In opening the meeting the Chairman (Col. A. H. Read of the U.K., successor to Col. Sir Stanley Angwin) recalled that two distinct proposals emerged from previous discussions, namely one for allocating 400 kc/s. exclusively to amateurs and the other for allocating 300 kc/s. to amateurs and 100 kc/s. to the fixed service. He added that all delegates had recognised the desirability of allocating this band on a world-wide basis.

The delegate of the UNITED STATES said that the position taken by his country on this question was too well known to need repeating. Countries which had opposed allocating 400 kc/s. to the amateur service had based their opposition on the needs of the fixed service. While recognizing the needs of that service, which were as acute in the United States as in other countries, it did not seem that the slight percentage increase that the fixed service would obtain in this part of the spectrum would justify such a serious loss to the amateurs. The majority of countries had supported 400 kc/s. for amateurs at the previous meeting when this question was studied, and he hoped that in this case, as in many others, the minority would join the majority in allocating 400 kc/s. to the amateur service on a world-wide basis.

VENEZUELA reminded the Committee that Sub-Committee 5A, in its final report had unanimously accepted the allocation of 400 kc/s. to the amateur service between 14000 and 14400 kc/s., and Venezuela still supported this proposal.



Amateur Allocations for the European Region as agreed at the Conference

The delegate of the U.S.S.R. said that either of the two alternatives would be acceptable to his country provided that in either case the U.S.S.R. had the use of 150 kc/s. between 14000 and 14400 kc/s. for the fixed service so that if 400 kc/s. were allocated to amateurs the U.S.S.R. would share 150 kc/s. between the fixed and amateur services, while if amateurs were allocated 300 kc/s. the U.S.S.R. would share 50 kc/s. in this way.

CANADA appreciated that it might be essential for the U.S.S.R. to share part of the band allocated to amateurs, but earnestly hoped that such sharing would not be contemplated by other countries. He considered that the allocation of 400 kc/s. to amateurs, with 150 kc/s. shared in the U.S.S.R. with the fixed service, was the most generally satisfactory solution.

FRANCE challenged the statement made by the United States regarding the majority which at an earlier meeting had expressed support for an allocation of 400 kc/s. to the amateur service. If attention were confined in effect to the European region there was, on the contrary, a very strong majority in favour of 300 kc/s.; a regional allocation might therefore be a solution but this was clearly undesirable. The countries of the world falling into two broadly equal divisions—those wishing to allocate 400 kc/s. to the amateurs and those wishing to allocate only 300 kc/s.—it seemed that a reasonable compromise would be to allocate 350 kc/s. to the amateur service. Looking at the question from the point of view of amateur solidarity, European amateurs would be very grateful to those of the United States if an increase of 50 kc/s. in the band available to the former resulted from the latter accepting a 50 kc/s. reduction of the band to which they had access. The delegate reminded the meeting that the Chairman of the Conference had said that no country could expect to see its requirements completely satisfied and that compromises were necessary in the case of every service.

The UNITED KINGDOM said that the fundamental problem was that of trying to meet the requirements of the fixed and maritime mobile services between 8 and 17 Mc/s. Several countries had arrived at the conclusion that the needs of the fixed service were such as to necessitate some reduction of the amateur allocations being made in favour of the fixed service, and the Working Group, although they had not been able to arrive at a solution to the problem, had been led to the same conclusion. Already many countries had rightly paid tribute to the services rendered by amateurs, but it must not be assumed from this that the width of the bands at present allocated to them must not be altered. Every service must accept changes at one Conference or the other and the Committee had already applied this principle in allocating 450 kc/s. to the amateurs at 21 Mc/s. On the same principle they ought to revise the 14 Mc/s. band. The United Kingdom had already said that she could accept any allocation between 300 and 400 kc/s. on which unanimous agreement could be reached—it was now clear that unanimous agreement on 400 kc/s. could not be obtained. At the same time it was necessary to have in mind the need for finding the best solution for the amateurs as a whole and to avoid favouring the amateurs in one part of the world at the expense of those in another part. It would therefore be better to come to agreement on a world-wide allocation of 350 kc/s. than to allocate 400 kc/s. in one part of the world and 300 kc/s. in the other. The United Kingdom was strongly in favour of allocating 350 kc/s. to the amateur service, and 50 kc/s. for the fixed service, on a world-wide basis. At the same time she would not object to the proposal made by the U.S.S.R. since that country, by reason of its vast size, might need a special solution.

EGYPT, BELGIUM, INDIA, NORWAY, CUBA, SWITZERLAND, AUSTRALIA, ITALY, SWEDEN, THE NETHERLANDS and DENMARK indicated that while they preferred their initial proposals they were ready to support the proposal advanced by France and the United Kingdom if in that way unanimous agreement could be reached.

CHINA and NEW ZEALAND supported 400 kc/s. The latter country considered the arrangement for sharing this band (as proposed by the U.S.S.R.) to be most unsatisfactory. The amateurs of New Zealand would wish to communicate not only with those of China, the United States and Canada but also with those of all the European countries. The delegate appealed, therefore, to the U.S.S.R. to envisage exclusive world-wide allocation of the band allocated to amateurs.

The delegate of the U.S.S.R. said that the amateurs of the U.S.S.R. would have wishes similar to those of the New Zealand amateurs. They would, moreover, be able to satisfy those wishes since the U.S.S.R. was prepared to allocate 400 kc/s. to the amateurs. The fact that part of the band would be shared with the fixed service did not mean that the amateurs would not be able to use the whole of the band. The U.S.S.R. would use care in choosing the frequencies allocated to the fixed service. New Zealand, and other countries, should therefore feel no anxiety on this question.

The UNITED STATES pointed out that 34 countries had expressed their views at the earlier meeting. On the present occasion many of them had not yet spoken and it must not, therefore, be assumed that there was a majority in favour of the compromise proposal.

NETHERLAND INDIES, PHILIPPINES, the UNION OF SOUTH AFRICA, ECUADOR, the FRENCH COLONIES, PORTUGAL, PERU and the UKRAINE indicated their willingness to accept the compromise of 350 kc/s. in the interests of unanimous agreement. The Ukraine emphasised how great were the needs of the fixed service in that country, which had been ravaged by the war and where, at present, radio was the only means of communication. Bearing in mind the progress that had been made in radio technique, the loss to the amateurs in this part of the spectrum, whose characteristics had now been thoroughly studied, was very slight and was, moreover, compensated for by an increase in other parts of the spectrum. The Ukraine pressed, as Poland had done earlier, for the allocation of 350 kc/s. to the amateurs, with a special note to cover the requirements of the U.S.S.R. and the Ukraine.

VENEZUELA pointed out that, with the reservation made by the U.S.S.R., only 250 kc/s. would be allocated exclusively to the amateurs. The delegate asked how the U.S.S.R. proposed to allocate frequencies in this band to the fixed service so as not to interfere with the amateurs.

The U.S.S.R. recalled that when the discussion started the U.S.S.R. had pressed for 200 kc/s. for amateurs and 200 kc/s. for the fixed service. However, they had now agreed to accept, reluctantly, an increase of the band for amateurs up to a maximum of 400 kc/s. on condition that the U.S.S.R. be allowed to use part of the band for the fixed service as well, because of their special geographical difficulties. By carefully selecting the frequency appropriate to the time of day and the distance to be covered, and using directional aerials, satisfactory sharing could be assured. The delegate asked all the other countries to extend the same sympathy to the U.S.S.R., as regards this difficult problem, as a number of countries had already shown.

CANADA asked: (*a*) whether the U.S.S.R. would agree to accept a power limitation; (*b*) whether the U.S.S.R. would agree to operate their fixed services on a non-interference basis.

The delegate of the U.S.S.R. said that he could appreciate the difficulties and uncertainties of those countries which were in favour of allocating 400 kc/s. to amateurs but were nearly ready to accept 350 kc/s. He had already expressed the U.S.S.R.'s readiness to take the necessary technical steps to minimize the possibility of interference. *The U.S.S.R. would carry out their responsibilities in this connection and he thought that if his statement were recorded in the present report, that would constitute a sufficien guarantee.* (The italics are ours.—ED.)

The delegate of the UNITED STATES said that his country could not consider accepting the compromise proposal unless it was absolutely certain that agreement could not be reached on the basis of 400 kc/s. for the amateur service. He recognised the validity of the remarks made by the United Kingdom regarding the usefulness of the 14 Mc/s. band to amateurs for long-distance communications, and he fully agreed that the amateur allocation must be made on a world-wide basis. Regarding the statement made by the U.S.S.R. as to the sharing of 100 kc/s. in the U.S.S.R. between the amateur and fixed services, he assumed that the *frequencies assigned to the fixed service would be used solely for internal domestic communications, since it was clear that other countries would be unable to participate in fixed service transmissions from the U.S.S.R. on these frequencies.* (The italics are ours.—ED.)

He was now compelled, although very reluctantly, to agree that the majority were prepared to accept a world-wide allocation of 350 *kc/s. and 50 kc/s. to the amateur and fixed services respectively*, with a note permitting the U.S.S.R. to share 100 of the 350 kc/s. allocated to amateurs between the amateur service and U.S.S.R. fixed services. In the light of this majority opinion the United States was now prepared seriously to consider this compromise solution on the condition (*a*) that it was accepted unanimously and (*b*) that the facilities for sharing in the U.S.S.R. were not extended to other countries, since the amateur allocation would then no longer be exclusive but extensively shared and this would be entirely unacceptable to the United States.

CHINA said that she would bow to the inevitable and reluctantly accept the compromise solution.

The delegate of the UNITED KINGDOM said that he had assumed that the proposed sharing of part of the amateur band in the U.S.S.R. was to provide for internal services. The undertaking given by the U.S.S.R. was extremely valuable and he wished to express the United Kingdom's gratitude for this undertaking and also for the helpful attitude the U.S.S.R. had shown in the discussion leading to a solution of the problem. Thanks were also due to the United States for the magnificent gesture they had just made.

CANADA asked for confirmation that the band shared in the U.S.S.R. between the amateur and fixed services would be 14250–14350 kc/s. The CHAIRMAN replied that he understood that to be the position.

That then is the *official* story, which makes it clear, for all to see, why we have lost 50 kc/s. in our most valuable DX band and why 100 kc/s. of the remaining portion will be shared in the U.S.S.R. between the amateur and fixed services.

The 21 and 28 Mc/s. Bands

The decision to allocate to amateurs 450 kc/s. on a world-wide exclusive basis between 21 and 21.45 Mc/s. will be warmly welcomed but we should not lose sight of the fact that in making this gesture the Conference also approved the reduction of the width of the 28–30 Mc/s. band by 300 kc/s. We recognise of course that the amateurs of North America have been restricted to the band 28–29.7 Mc/s. ever since licences were re-issued after the war. The loss of those last 300 kc/s. may not be regarded as very serious although we believe that many European amateurs will be sorry to see their one remaining interference-free DX channel taken away.

The V.H.F's

The position in regard to the 5 metre band remains unchanged except that it can now be stated officially that European amateurs are not provided for in this part of the spectrum. Our hope lies with the G.P.O., who have agreed to explore the possibilities of amateurs using certain frequencies around 60 Mc/s. on a non-interference basis.

The decision to allocate a band around 2 metres will be welcomed by all who are interested in V.H.F. technique. Already distances up to nearly 600 miles have been covered within the U.S. (where the band is open to amateurs) so there should be plenty of scope over here for those who are doubtful about the future of 5 metre work.

Nothing much is known in amateur circles about the behaviour of waves in the decimetric and centimetric ranges, but with four new bands shortly to become available we are confident that much fresh ground will be broken.

In describing the bands above 150 Mc/s. we believe that it will be advisable to adopt the metric notation. We suggest therefore that the following nomenclature be used :

420– 460 Mc/s.	..	70 cms.
1,215– 1,300 „	..	25 „
2,300– 2,450 „	..	13 „
5,650– 5,850 „	..	50 mms.
10,000–10,500 „	..	30 „

It is a little unfortunate that harmonic relationship has not been preserved at this part of the spectrum, but a perusal of the allocation table shows that certain frequencies in the 2 metre band will triple into the 70 cms. band whilst certain frequencies in that band will triple into the 25 cms band.

Band Planning

Now that our fate has been settled for the next few years we can again turn to a consideration of band planning problems. We do not doubt that many members have ideas on the subject, but we would sound the warning that, as far as the DX bands are concerned, no system of band planning will be successful unless world-wide agreement is reached. With that thought in mind we are strongly of the opinion that the I.A.R.U. Societies should consider the many viewpoints which are held both in this country and abroad, and if necessary a conference should be held for this purpose.

The Farnborough Meeting

By "SEE JAY"

A VERY successful Official Regional Meeting was held in the Assembly Hall of the Royal Aircraft Establishment, Farnborough, Hants., on Saturday, September 13, 71 members and friends being present. Mr. W. H. Allen, M.B.E. (G2UJ), Regional Representative, presided and in his opening address announced the details of the amateur frequency allocations as finally agreed at the Atlantic City Conference. Mr. Allen paid tribute to the very co-operative attitude of the official delegates of the British Government towards the Amateur Service, pointing out that without their support frequency losses in certain bands would have been very much greater. As an illustration of the difficulties encountered at the conference in reconciling the very divergent views of the delegates of the different countries on frequency allocation problems he invoked the aid of Mr. W. E. Russell (G5WP) to read that part of the Conference Report dealing with the discussion on the 14 Mc/s. band. The audience was left in no doubt as to the difficulties involved !

Mr. Hammans (G2IG) member of Council, then spoke on various Society matters, ranging from the distribution of M.O.S. surplus gear to paper supplies for the BULLETIN, and pointed out that if groups of members wished to put forward suggestions, complaints, etc., for the attention of Council they should do so as members of the Society, via their County and Regional Representatives, and not *via* local radio societies (even if affiliated to the R.S.G.B.), since the former method was the only effective constitutional means of bringing such matters forward.

Mentioning that the thickness of the protective armour of speakers at Official Regional Meetings increased in proportion to the number of meetings attended, he then dealt with members' questions !

Mr. J. N. Walker then followed with a most interesting talk on the Eddystone S640 receiver, and the meeting subsequently adjourned for tea.

Immediately afterwards there followed that essential feature of all such occasions, the " swindle," presided over by Mr. J. St. C. T. Ruddock (G8TS), A. R. for Farnham and District, ably assisted by Miss Nell Corry (G2YL) and Mrs. G8TS, as a result of which many members became richer by such diverse objects as PT15's and an Eddystone loudspeaker. However, the winning of a Q.C.C. crystal by a member of Council should not be taken as having any bearing on the V.F.O. problem !

The film show afterwards included a pre-war N.F.D. film, enlivened by a " shot " of a remarkable experiment in biometry by means of a tape-measure, and a most interesting R.A.F. instructional film, loaned by the Royal Aircraft Establishment, dealing with principles and operation of I.F.F. Mk. III the radar method of identification of friendly and hostile aircraft.

A display of amateur-built and new R.A.F. radio equipment arranged round the Assembly Hall aroused considerable interest, the R.A.F. section including a transmitter type T 1509 (designed at R.A.E.) similar to that presented to the Society by Messrs E. M. I.

Mr. Allen later expressed the thanks of the meeting for the excellent arrangements made by Messrs. Ruddock and Spencer, and the meeting then adjourned, after what, in the opinion of those present, had been a most enjoyable afternoon.

Brighton Hamfest

A Hamfest is to be held at 7 p.m. on Friday, October 31, 1947, at the Golden Cross Hotel, Western Road, Brighton (near the Clock Tower), when a special attraction will be a display of amateur gear. There will also be numerous contests for which prizes will be awarded, and if available, the films taken during N.F.D. will be shown.

The charge for admission of 1/– is payable at the door.

RARE DX.

A group taken in Trincomallee, Ceylon. *Left to right* : BRS9863 (H.M.S. *Glasgow*), VS1BF (also known as CTPG, H.M.S. *Contest*), VS7IT (late VS7GT, R.N.A.S.), G3BMJ/VS7 (H.M.S. *Glasgow*), VS7EV (G2VA, Chief Coxswain, Trincomallee), G3CHP (VQ9IW H.M.S. *Jamaica*).

DIRECTION–FINDING CONTESTS

By J. M. S. WATSON, (G6CT)

AS announced in the March issue the Contest Committee arranged to hold two Portable direction-finding events, the first to be in the North London area on May 18th and the second in the South London area on July 6. Many requests had been received from members of the Society and its Affiliated Societies for a lead to be taken in the post-war development of this very interesting and instructive side of radio. The response, in spite of petrol rationing, has been very good and the generous assistance of several car owners has been appreciated.

Curiously enough a good deal of the support for these events has come from non-licensed members. The Contest Committee are very appreciative of the fact that they have at last found an experimental subject which caters for, and is supported by, such members. The active co-operation of several affiliated societies is also gratefully acknowledged.

D/F FIELD DAY RESULTS

NORTH OF THE THAMES—MAY 18, 1947

Position.	Name	Call Sign.	Time Taken.	Affiliated Society.
1st	*W. F. Holdaway	BRS15028	2 hrs. 4 mins.	Romford and District Radio Society
2nd	†S. T. Smith	G3BSI	3 hrs. 7 mins.	Southend and District Radio Society
3rd	†R. A. Davis	——	3 hrs. 20 mins.	Romford and District Radio Society

SOUTH OF THE THAMES—JULY 6, 1947

Position.	Name.	Call Sign.	Time Taken.	Affiliated Society.
1st	*G. T. Peck	——	1 hr. 27 mins.	Southend and District Radio Society
2nd	†W. F. Holdaway	BRS15028	1 hr. 31 mins.	Romford and District Radio Society
3rd	†K. Finch	——	2 hrs. 7 mins.	Reading Radio Society

North of the Thames Event

Assembly for the first event was at High Barnet, when 17 competitors and a total of 67 persons took part in the search for a hidden transmitter located at the edge of a small wood on a large common two miles North of Watford. The direct line of approach from the start was barred by a river, several roads were very twisting and a railway line on the far side formed another barrier. The actual transmitter and operators were so well concealed that they could not be seen even at a distance of five yards. This was accomplished by entering the large thicket along a self-made path which was blocked and camouflaged when the operators took to cover. The aerial was also concealed as it ran within the bushes and a tree. The effect of this natural screening resulted in a fairly weak signal at the start but most members obtained good "sensed" bearings and within about one hour several parties were observed to be in the immediate vicinity of the transmitter.

To prevent car drivers being tempted to drive at fast road speeds transmissions took place at intervals of nearly half-an-hour. This meant that several members had to wait long periods for another transmission with the result of course that spectacular results were prevented. The duration of each transmission was only two minutes and when after a period of 2 hours 4 minutes Mr. W. F. Holdaway, BRS15028, unearthed the transmitter he was congratulated on a very creditable performance. Good team work by his party and excellent equipment helped him in no small way.

Fig. 1 shows Mr. Holdaway, assisted by G3FT, operating his receiver at the start. Fig. 2 shows the happy and successful competitor just after his arrival at the transmitter.

Second place was taken by Mr. S. T. Smith, G3BSI, who arrived at 16.37 (3 hours 7 minutes from the start). Third position was taken by Mr. R. A. Davis, who arrived at 16.50.

After the event a very enjoyable tea was provided at the Red Lion Hotel, Radlett, where experiences were discussed. Indications of support for further events was very good. A request was also made for experiments along similar lines using the V.H.F. bands.

South of the Thames Event

The assembly for the second event on July 6th was at Godden Green, a small village a little east of Sevenoaks. On this occasion the hilly nature of the County of Kent was turned to good use in hiding the transmitter. On the steep south slope of the North Downs and a little N.W. of Snodland, there is an old chalk quarry, the edges of which are heavily wooded. The transmitter was again completely concealed whilst the aerial (some 200 ft. long and

Fig. 1. *Photo. F. G. S. Wise.*

Mr. W. F. Holdaway, BRS15028, of the Romford and District Radio Society, winner of the first and runner-up in the second event, with Mr. R. Beardow, G3FT, at the start of the North of the Thames D/F.E Field Day.

* To be awarded miniature cups. † To be awarded certificates of merit.

Fig. 2. *Photo. F. G. S. Wise.*
The winner of the first event (2nd from left), receives the congratulations of (left to right) G3FT, G4FN, G2BMI and G2LC. G6CT, organ ser of the two events, is in the left background with another member of the winning team.

practically vertical) was made of thin camouflaged wire which, although well in the open was difficult to see even when one knew where to look for it. The severe screening of the aerial to the north by the Downs resulted in a fairly weak signal in that direction, the strong radiation to the south giving members, who were taking signal strength measurements into consideration, a false indication of their distance from the transmitter and its location.

In spite of the difficulties caused by the above mentioned features two parties were within half-a-mile of the transmitter after only three short transmissions. The fourth transmission brought these parties even closer and as a result of his bearings, Mr. G. T. Peck arrived at a spot 15 yards from the transmitter within a few minutes of the fourth transmission ending. For 20 minutes the transmitter crew lay flat on the ground, screened by some stinging nettles, whilst Mr. Peck stood with his receiver in his arms, his phones on one ear and the other straining for any suspicious sounds. In an attempt to switch on the transmitter silently the crystal oscillator vibrator supply was brought into operation several seconds before the power amplifier. This was unfortunate for the operators as Mr. Peck got a snap bearing on the oscillator and covered the remaining distance in no time ! The total time taken from the start (some 9½ miles distant in a direct line) was 1 hour 27 minutes.

While the above related happenings were taking place, Mr. W. F. Holdaway, BRS15028, had left the road a little higher up the hill and was working his way down towards the transmitter. Four minutes after Mr. Peck's arrival a loud noise was heard and a minor avalanche was observed coming down the side of the quarry ! When the dust cleared away Mr. Holdaway was observed wearing his D/F crash helmet, or more accurately an old bowler hat modified to contain an R.F. stage and crystal detector ! His chin strap formed the frame aerial, the on/off switch gave the appearance of a badge, whilst a large tuning dial on top of the crown produced a Prussian military effect ! All the equipment was tested and found to be in full working order.

Third place was taken by Mr. K. Finch who arrived at 15.37. Considering the fact that this was only the second test he had ever entered his performance was very good. Most of the other twelve competitors arrived before transmissions ceased at 17.00.

The tea party took place near Wrotham. After announcing the results the organiser extended a special welcome to the many ladies who were present —another good feature of these events. It was also explained that the R.S.G.B. would probably arrange one or two events next year more on the basis of National Finals.

Future Plans

Reports of D/F activity have been received indirectly from many parts of the country, but information direct to the Contest Committee would be welcomed. To obtain a high degree of efficiency each area should, it is suggested, hold several minor events using the R.S.G.B. rules as a basis. The only possible amendment to those already published may be to allow the transmitter to be located anywhere within the ten mile radius providing it is not on private property. The difficulty of obtaining a really good transmitter location within 15 yards of a road is far greater than it appears.

In conclusion our thanks are recorded to G2LC, 2SO and 4FN who remained in uncomfortable positions for several hours while operating the portable transmitters.

The Amateur Radio Exhibition

ADMISSION to the Exhibition will be by catalogue, *not by ticket*. Interested non-members may obtain a catalogue either at the door (price 1/-) or upon application to Society Headquarters (price 1/3d. post free).

The Exhibition will be officially opened at 2.30 p.m. on Wednesday, November 19th, 1947, by Col. Sir Stanley Angwin, K.B.E., D.S.O., T.D. Doors will be opened half-an-hour before the opening ceremony.

Members visiting the Exhibition will receive a small pin-type badge which has been so designed as to provide space for the inclusion of a call sign or B.R.S. number.

Members are especially requested to sign the Visitors' Book on the Society's stand, and to leave for display a QSL card.

London members who are free during the day and willing to assist on the Society's stand, are requested to communicate with the Secretary stating dates and hours they will be available.

The Exhibition will be open on :

Wednesday, November 19, from 2 p.m. to 10 p.m.
Thursday, November 20, from 11 a.m. to 10 p.m.
Friday, November 21, from 11 a.m. to 10 p.m.
Saturday, November 22, from 11 a.m. to 8 p.m.

The earlier closing hour on November 22 is necessary to enable exhibitors to vacate the building at an agreed time.

Provincial members who propose spending a few days in London during the period of the Exhibition may still be able to reserve accommodation at the Royal Hotel. When writing to the Manager it is desirable to state that the reservation is in connection with the Society's Exhibition.

The Royal is located in Upper Woburn Place, Bloomsbury, and can be reached most easily by Underground (Piccadilly Line) to Russell Square, or by any bus running between Kingsway and Euston Road.

The Management of the Royal Hotel has agreed to provide a cafeteria service throughout the period of the Exhibition. A private bar will also be open during licensed hours.

Visitors to the exhibition will (unless new restrictions are imposed) be able to obtain meals in the hotel dining room.

FIRST ALL-EUROPEAN DX CONTEST

EARLIER in the year the Netherlands Society (V.E.R.O.N.) suggested to the other I.A.R.U. Societies that an All-European DX Contest be arranged. The suggestion met with general approval and accordingly the sponsoring organisation was invited to prepare a set of rules. These are set out below.

During the Contest, European stations will attempt to work as many different countries as possible outside that Continent, whilst the rest of the world will strive for European contacts.

Basically, the Contest will follow the lines of the ever-popular A.R.R.L. Contest.

The event will be run in two sections (telegraphy and telephony) and certificates of merit will be awarded to the national winner in each section.

The idea behind the Contest—which it is hoped will become an annual event—is to overcome the difficulty experienced before the war, of several European Societies staging minor international Contests.

Contest Rules

TELEGRAPHY CONTEST.

1. The contest will run from 1801 GMT, Friday, November 28th, until 2359 GMT, Sunday, November 30th, 1947.
2. Only two-way telegraphy contacts will count.
3. A six-figure group will be exchanged. The first three digits will constitute the RST report of the station to which the number is sent and the last three a self-assigned serial number which will be used throughout the contest.
4. All contacts must take place within the contest period.
5. Logs must include: call, date, time, serial numbers exchanged, band used and points claimed.
6. All amateur bands may be used.
7. Off-frequency operation will result in disqualification.
8. Scoring: Both the European station and the station outside Europe receive one point when the European serial number is acknowledged by the station outside Europe. Each station, similarly, may add two additional points when a six-figure number has been acknowledged by a European station. Every completed QSO will count a maximum of 3 points. Scoring points will be multiplied by the number of countries worked. The multiplier will be increased by working the same countries on additional bands.
9. European stations may work a maximum of three stations per country, except that if only one-way exchanges with any of these three have been made, additional stations to give a maximum of three may be worked. European stations cannot obtain more than 9 points (basic) per country. This quota will be permitted in each band. For stations outside Europe there is no quota.
10. The same station may only be worked once per band.
11. Each station may be operated by one operator only. More than one receiving operator and receiver in use at one time is not permissible.
12. Cross-band contacts will not count for points.
13. The list of call-prefixes as given in QST, February, 1947, will be used as a counting standard, except that in this contest the U.S.A. Districts 0–9 and the Canadian Districts 1–8 each count as a different country.
14. Every entrant must submit a signed statement with his log certifying that he has abided by the rules of the contest.
15. Logs must be sent to: QSL Bureau V.E.R.O.N., Post Office Box 400, Rotterdam, Holland, and envelopes must be postmarked on or before December 31st, 1947.
16. There is neither a world winner nor a continental winner. The entrant who obtains the highest score in his country will be the winner in his locality. An artistic certificate will be awarded to him by the organising society (V.E.R.O.N.).
17. The decision of the Contest Committee will be final in all cases of dispute.
18. No correspondence can be entered into.

TELEPHONY CONTEST.

1. The contest will run from 1801 GMT, Friday, December 12, until 2359 GMT, Sunday, December 14th, 1947.
2. Only two-way telephony contacts will count.
3. A five-figure group will be exchanged. The first two digits constitute the readability and the strength reports of the station to which the number is sent, and the last three a self-assigned serial number which will be used throughout the contest.

4 to 18.—Same as for the c.w. contest.

Call Sign..... *Name*..... *Address*.....

Date	*GMT*	*Stations worked*	*Country*	*Worked record of new countries each band*				*Serial Numbers*		*Points*
				3.5	7	14	28	*Sent*	*Received*	

No. of Stations worked	*Bands*	3.5	7	14	28	*Total*
No. of Countries worked						

Total Points .....

Countries for ALL Bands .....

Final Score .....

I hereby state that in this contest, to the best of my knowledge and belief, the scoring points and facts as set forth in the above log and summary of my work are correct and true.

.....

Signature of Operator.

FIVE METRE FIELD DAY—JULY 20th, 1947

THE first Five Metre Field Day to be held since the war took place on July 20 last, and proved to be both popular and successful. Over 140 stations were heard on the air during the day, and an entry of 31 logs from portable stations all over the country was very gratifying. The winner, Mr. J. Spragg, operating his station G3APY on the Crich in Derbyshire, is to be congratulated on a very fine performance, as also are the runners-up, G5MA and G2NH.

Equipment Used

The equipment at G3APY/P was entirely home constructed, a fact which is worthy of note in these days of the "commercial trend." The receiver—a double superhet—consisted of EF54's in the r.f. and mixer stages, with a 955 acorn valve as local oscillator. A pair of 6SG7's gave i.f. amplification at 1.6 Mc/s., followed by a 6SA7 as second mixer and oscillator. Another 6SG7 was used as the i.f. stage at 150 kc/s., followed by a 6SQ7 as second detector and l.f. amplifier, 6H6 A.V.C. and noise limiter and a 6J5 as the output stage. A 9002 was used as the beat frequency oscillator.

The transmitter consisted of a 6SH7 as C.O. and 1st F.D., followed by 6V6 2nd F.D., 6V6 3rd F.D. and an 832 P.A. running at 22 watts input. The aerial was a 3 element rotary beam, using two directors with a folded dipole as radiator. Power for the receiver was derived from batteries whilst a rotary converter supplied the transmitter.

Both runners-up used modified HRO's for receiving and 3 element beams. On the transmitting side, G5MA used a 6N7 as a push-push doubler in the final running at 12 watts modulated by a single 6L6, whilst G2NH ran 6 watts to a CV63 running as a doubler and modulated by a KT61.

Conditions

Conditions throughout the country appeared to be quite good during the Contest, and a large number of contacts at distances greater than 100 miles took place. All the DX contacts, which took place, were of the tropospheric nature and so far as is known no Sporadic E contacts were made. The high level of activity contributed greatly to the success of the event, and proved that the band must frequently be "open" during the morning if only stations were active at that time.

The winner had 14 QSO's at distances over 100 miles, the farthest being with G5BY on Bolt Tail, South Devon, a distance of 230 miles. Other DX stations worked by G3APY/P included G5MA/P (Storrington, Sx.), G2XC (Portsmouth), G2NH/P (nr. Alton, Hants), G6LK (Cranleigh) and G8TS/P (Farnham).

Mr. N. H. R. Munday, operating G5MA/P, one mile south of Storrington, Sussex, had eight contacts over 100 miles, four of these being made during the last hour. G2IQ and G3MY/P, both at Sheffield, were his best at 180 miles.

Mr. E. A. Dedman, operating G2NH/P, two miles north east of Alton, Hants, had nine DX contacts, with G5MQ (Liverpool) at 177 miles as his best.

Check Logs

The Contests Committee thank the following stations who submitted check logs which, as usual, proved of great value :—G2AJ, 2BMI, 2LC, 2QY, 2XC, 3YH, 5MR, 5OJ, 5VM, 8DA, 8GX and 8LY.

Comments

From letters received and remarks heard on the band afterwards, there is no doubt that a good time was had by all, most stations stating that they would be out again on September 7. A few stations complained of the inability of telephony stations to hear C.W., and others of the local neighbour who overmodulated and occupied 200 kc/s., but on the whole the criticisms were not as severe as after Contests on the other bands. It is hoped that what is still a moderately tidy band will always remain as such.

The Contests Committee thank all those who took part in the event, and wish them the best of luck in future Field Days.

A list of entrants, in order of merit, appears below:

Position	Call Sign	Points	Q.T.H.
1	G3APY/P	283	Crick, Derbyshire.
2	G5MA/P	253	1 mile S. Storrington, Sussex.
3	G2NH/P	242	2 miles N.E. Alton, Hampshire.
4	G CW/P	214	4 miles N.E. Leek, Staffs.
5	G2CUA/P	163	6 miles, S.W. Dorking, Surrey.
6	G3MY/P	161	6 miles W. Sheffield. Yorks.
7	G8SM/P	151	2 miles S.E. Guildford, Surrey.
8	G4NT/P	149	2 miles N.E. High Wycombe, Bucks.
9	G8NV/P	136	2 miles W. Wendover, Bucks.
10	G8QX/P	133	Malvern Hills.
11	G2AK/P	130	Barr Beacon, Nr. Birmingham.
12	G5JU/P	129	9 miles S.W. Birmingham.
13	G4AP/P	126	5 miles S.E. Swindon, Wilts.
14	G5RP/P	122	4 miles E.S.E. Wantage, Berks.
14	G2ATK/P	122	3 miles E. Henley-in-Arden, Warks.
16	G8TS/P	120	2 miles E. Farnham, Surrey.
17	G6NB/P	99	4 miles N. Aylesbury, Bucks.
18	G8SK/P	91	Tylers Causeway, Herts.
19	G6YU/P	79	3 miles N. Coventry.
20	G3TN/P	77	8 miles N.E. Preston, Lancs.
21	G2WS/P	55	2 miles N.N.W. Westerham, Kent.
22	G8QM/P	54	6 miles E. Newmarket, Suffolk.
23	G3PZ/P	47	3 miles S.E. Cheltenham, Glos.
24	G3CRO/P	44	Palmers Green, N.13.
25	G3BY/P	42	4 miles S. Glossop, Derby.
26	G6OH/P	32	4 miles S.E. Ascot.
27	G5QK/P	24	Rayleigh, Essex.
28	G8NF/P	21	7 miles S.W. Huddersfield.
29	GM8JW/P	11	6 miles N.E. Newmains.
30	G3HW/P	8	Haytor, S. Devon.
31	G3BWS/P	7	2 miles S.E. Chatham, Kent.

GENERAL PURPOSE POWER UNIT—*Contd. from p. 65*

original scale and marking the new calibration with Indian or drawing ink, and checking the meter against one of reliable accuracy.

R1 is a 10kΩ 10 watt resistor with a sliding tap which should be set to approximately 5·5kΩ.

Fuses are fitted in series with the mains input and also in the leads to the anodes of the mercury vapour rectifiers, the latter ensuring that no serious damage can occur due to the H.T. output being accidently shorted. Their ratings should be 3 amps. and 500 mA. respectively.

Contests

The Contests Committee wish to thank the ten BRS members who promised their support should a Reception Contest be organised. It is apparent that the interest of the vast majority of the BRS membership does not lie in contests, and it has therefore been reluctantly decided to discontinue holding Reception Contests.

The Contests Committee regrets that the entry of Mr. E. A. Dedman, G2NH (732 claimed points) was omitted from the list of entries in the senior B.E.R.U. Contest published in the August BULLETIN. Apologies are tendered to Mr. Dedman.

The rules for the 2nd Section of the Top Band Contest to be held during the week-end, November 29–30, will appear in the November issue.

AMERICAN JOURNEY

BY JOHN CLARRICOATS (G6CL), GENERAL SECRETARY

In this article, the second of a series, we follow our President and Secretary from West Hartford, Connecticut, to Atlantic City, New Jersey, the venue for the recent International Telecommunications Conference.

IT is surprising how few British amateurs knew the precise location of Atlantic City until the name suddenly came into the news a few months ago. For some reason it was generally associated with Georgia, perhaps because of its similarity to Atlanta, capital of that State. By now, however, it is as well-known in amateur circles as is New York or Chicago.

Atlantic City is famed for its Boardwalk (featured in one of the illustrations), and for its annual bathing beauty contest which, sad to relate, was not scheduled to take place until long after most of the delegates had returned home!

The town has a resident population of about 60,000, including a high proportion of coloured people, but during the summer months that figure is increased ten-fold. That it is an expensive place goes without saying, for it is familiarly known as the "play ground of the millionaires." We did not meet any millionaires, but we certainly *did* meet many very interesting people.

Atlantic City is unlike any British resort we have visited. It has no esplanade or promenade as we know them—the Boardwalk being reserved for pedestrians and the custodians of the famous wheel chairs. These latter are pushed by coloured attendants and for 5/– the lazy ones can be transported a considerable distance in the space of an hour.

An interesting feature of the town is that all the avenues which run parallel with the Atlantic are named after the main oceans of the world, whilst those which are built at right angles to the Boardwalk are named after the States of the Union. We experienced some difficulty initially in locating some of them due to the fact that we had not appreciated that they are arranged, with few exceptions, in the order in which the States are learnt at school!

Our journey to Atlantic City was made early in the morning of May 14th when our fellow travellers from West Hartford were Mr. and Mrs. K. B. Warner.

We will not record our views about hotel accommodation in Atlantic City other than to say that by the time we left we felt sure we had paid for the furniture in our room at least 200 times over!

Our first day was spent in "orientation" (an Americanism which we believe means getting to know people with the help of a glass in one hand!) Included among the personalities we met were Charles R. Denny (Leader of the U.S. Delegation, Chairman F.C.C., and later Chairman of the Conference), F. Colt de Wolf (Chief of the Telecommunications Division, U.S. Dept. of State and later Vice-Chairman of the Conference), General Frank E. Stoner (Chief Communications Engineer, United Nations), Paul D. Miles (Chief of the Frequency Service Allocation Division, F.C.C., and later spokesman for the U.S. in Committee 5—the all-important Frequency Allocation Committee), Eric C. Smith (Under-Secretary P. & T. Dept., Union of South Africa), H. W. Curtis (Deputy Director General Post Office, New Zealand), and G. C. W. Brown (Controller of Radio, Dept. of Transport, Canada). In addition we contacted the members of the United Kingdom delegation led by Col. Sir Stanley Angwin, K.B.E., D.S.O., T.D.

Col. Sir Stanley Angwin, K.B.E., D.S.O., T.D., Leader of the U.K. Delegation with C. R. Denny (Left), Chairman of the Conference.

A. L. Budlong W1BUD, Assistant Secretary A.R.R.L. (Right) with George Grammer W1DF, Editor Q.S.T. on the Boardwalk.

I.A.R.U. Representation

Informal meetings took place immediately in the Ambassador Hotel—venue of the Conference—between Messrs. Warner and Budlong (representing the A.R.R.L.), and Mr. George W. Bailey and the R.S.G.B. delegates (representing the I.A.R.U.). Various plans of action were considered and steps taken to carry them into effect.

. In accordance with internal A.R.R.L. policy, Messrs. Warner and Budlong were attached to the U.S. Delegation instead of to the I.A.R.U. Delegation which was headed by Mr. Bailey, President of the A.R.R.L. and the I.A.R.U.

Mr. Bailey was unable to remain after the opening Plenary Session which took place on May 15th. Consequently the only English-speaking I.A.R.U. delegates present for the major portion of the Conference were the President and Secretary of the R.S.G.B. According to the official records there were in addition present as I.A.R.U. Representatives, Lt.-Com. J. A. Cerdan, from the Mexican Society, A. Guimaraes from the Radio Club of Uruguay, C. Nouel from the Radio Club of Venezuela, and Alex Reid, General Manager, Canadian Section of the A.R.R.L., but as far as we know none of these representatives was able to spend more than a short time at the Conference. Later, K. T. Chu, a Technical Adviser to the China Delegation, was listed as an I.A.R.U. Delegate. Mr. Chu, who is President of the C.R.R.L., remained until the end of the Conference. Capt. Rorholt was also listed later as a Delegate representing the Scandinavian Societies, but his duties in Washington prevented him from making a lengthy stay.

Ham Contacts

One of our first jobs was to link up with the local group of amateurs. Thanks to Larry Norcross, W2PXZ, of Linwood, a detailed list of names had been got together and sent to A.R.R.L. H.Q. prior to the Conference. Within a few minutes of the list coming into our possession we had made telephone contact with Larry's home and had fixed up a meeting for that evening. However, before that time arrived we got in touch with Charles Munroe, W2ACX, in Atlantic City, and inside an hour were at his station. The chances of a contact with London did not seem too rosy, but to our surprise and pleasure we had the good fortune to raise G6AG on our first call. Munroe, who is an engineer at one of the *five* Broadcasting stations that serve Atlantic City, runs a very efficient 200-watt station complete with rotary beam, but suffers from the disadvantage of being at sea level surrounded by roads carrying heavy motor traffic.

The evening of May 17 was spent in the company of W2PXZ, W2LS and W2SKI (and their ladies), who did much to lay the foundations for many future happy gatherings. We learnt during that evening that in pre-war days the Atlantic County amateurs ran a well-supported radio club, but for a variety of reasons it had ceased to exist. It is pleasing now to record that as a direct result of the many "ham" meetings that took place during the period of the Conference the Atlantic County Amateur Radio Association is being re-formed.

"Mud Ducks" as Was !

Those who were active on the DX bands before the war need no reminding that one of the best known U.S. stations heard in the U.K. was that operated by Fred Hartley, of Vineland, N.J., under the call of "W3 Mud Ducks." Unfortunately for Fred and many of his compatriots the recent re-organisation of call areas has robbed him of that famous call. In its place he has acquired one that is already well-known in England—W2MI. Shortly after our arrival in Atlantic City we met Harold Anderson, W2FMQ, of Margate City, a master at the High School. It was "Andy" who arranged our visit to W2MI and acted as our guide into the hinterland of New Jersey. As it is beyond our capabilities to describe in a few words the gear at W2MI we will remain content by stating that it is probably the best equipped station we visited. Fred runs a steady kilowatt on 14 Mc/s. phone into a Sterba curtain, but as far as we can remember this is only one of about a dozen other aerial systems that can be brought into use.

AT W2PG—PORT REPUBLIC.
W2PXZ, Mrs. Norcross, G6CL, W2PG, Alec Baird, G6LJ, G2EC, G./Capt. Blair.

From W2MI we worked G2MI and G3BPM (located temporarily at G6CL) but conditions that day were poor due to the presence of thunderstorms in the neighbourhood.

Whilst there we met G3NQ who had just arrived by air from England and was proceeding with his family to Canada. During the evening we had an excellent contact with G2XV (Cambridge) who at the time was putting over a very strong signal.

W2PG Port Republic N.J.

Until we arrived in New Jersey the name Port Republic meant nothing to many of us. To-day it is almost as well-known in amateur circles as the Conference City itself. The reason is not hard to find for it is in that little straggling township 20 miles behind Atlantic City that Clem Giberson, W2PG, has his home.

Our first meeting with the Giberson family took place on Sunday, June 1, when a party which included Col. Eric Cole, G2EC (Chairman BJCB Board), and G./Captain Hector Blair (D. D. of S., Air Ministry), drove over to Port Republic.

Clem is the fortunate owner of many acres of property so no aerial problem need ever bother him. During the time we were in New Jersey he employed a mighty rhombic, the far ends of which were more readily reached by car than on foot ! The station itself is in the attic and runs with an input of 1 kW.

Throughout our stay, Clem was of immense help and could not have done more for us than he did.

During our several visits to his station we formed the opinion that the outstanding signals from England were those radiated from G2PU (Cambridge), and G6BY (Weston-super-Mare), although G2MI, G2UV and G3BPM frequently hit S9 on the meter of the HQ129 during schedules.

This record cannot be considered complete until our grateful thanks are recorded to Mrs. Giberson (Marge) for her hospitality. On many occasions she remained on watch with us until early in the morning, providing cups of tea at frequent intervals ! Yes, it *is* a fact that many of our American friends make tea and enjoy drinking it in the English way. Like us they have little time for tea made with lukewarm water from "dancing dollies"—our nickname for tea bags.

Tuckerton Radio, WSC.

One of the most interesting visits we made during our stay was to the Tuckerton Radio Station which is located about 20 miles north of Atlantic City on very flat, almost marshy, land. It may surprise many old timers to learn that the station still uses a pair of Alexanderson alternators which were installed shortly after the 1914–18 war. These old machines continue to give excellent service and seldom require maintenance. As a matter of historic interest the main aerial

mast is the one originally built by the Germans when they owned the station prior to the first world-war. At Tuckerton we had the pleasure of meeting a number of amateurs including W2FLO and W2BFV.

Ocean County Radio Association

Having heard that there were several foreign amateurs present at the Conference the executive of the go-ahead and very active Ocean County Radio Association arranged a special meeting during June at an hotel on Brant Beach about 50 miles north of the Conference City. Unfortunately the only other Conference delegates who could attend in addition to G6LJ and G6CL were HC1FG and HC1FM, both members of the Ecuador delegation. The meeting was supported by some 50 local amateurs and a pleasing feature of the gathering was that many of them expressed a desire to join the R.S.G.B. The visitors were given an opportunity to address the meeting, a facility which was warmly appreciated.

Our pilot on this occasion was Bill Savell, W2LS, who is an engineer with one of the commercial cable companies. Incidentally W2LS has an outstanding low power 28 Mc/s. station and it was through his station that our friends from Quito were able to maintain almost daily schedules with home.

Atlantic City Hamfest

We have already published in these columns an account of the International Hamfest held in Atlantic City on June 7. It is sufficient here to say that this gathering served a dual purpose. First it provided an opportunity for the local amateurs to meet representatives from no less than 14 foreign delegations. Second it paved the way, as nothing else could have done, for the resuscitation of organised local activities.

The help so readily given by the Rev. Stanley Wagg, W2JBF (in whose Church Hall the meeting was held), and his wife, coupled with the great efforts made by Larry Norcross and others, culminated in a function that will live long in the minds of all who were fortunate enough to be present.

(*To be continued*).

FRANKFORD RADIO CLUB, PHILADELPHIA, PENNSYLVANIA. JUNE 27, 1947.

It was at this meeting that 30 members of the Frankford Club joined the R.S.G.B. *Back row:* W2PWP, 2SAI, 2AQW, 3DWR, 3CPV, HC1OE, W3GHD, 3GYV, 2PIN, 3EQA, 3AGV. *Second row:* W3DOU, 3HFD, 3EM, 3BXE, 2HEH, 3NAH, 2RDK, 3EVT, 3JBC, 3JSU. *Third row:* W3CHH, W3KT, W2FXN, W2OXX, G6CL (Secretary R.S.G.B.), W3BES, W3FUF, W2QCL, W3MFM, W3GRS, W2PG. *Front row:* W3EER, EP1C, W3FLH, W2QKE, W3CBT, W3PN, W2RSO, W3IXN.

FOLDED DIPOLES—(*continued from page 64*).

$\frac{2D}{d_1} = 12 \cdot 8$. Laying a line through the factor of 11 on the upper horizontal scale gives $\frac{2D}{d_2} = 9 \cdot 1$. Laying off a line from here through $D = 2$ in. gives a value of $d_2 = 0 \cdot 44$ in. which is almost exactly $\frac{7}{16}$ in. The dipole will, therefore, consist of a centre element of $\frac{6}{16}$ in. with a $\frac{7}{16}$ in. rod spaced at 2 in. on each side.

In this way any similar problem can be solved. In general, when the multiplying factor lies near 4 a two conductor arrangement should be used and when near 9 three conductors are best. In this way the diameters will be kept reasonably similar which makes a more rigid structure. When one diameter is fixed and the solution for the other diameter results in an inconvenient size try other spacings until a readily obtainable diameter is found.

First Class Operators Club

We are informed by Capt. A. M. Houston Fergus (G2ZC), the honorary secretary, that the F.O.C. is holding an open contest during November, in which all transmitting amateurs are invited to take part. The rules appeared on page 359 of the August issue of *Short Wave Magazine*.

There is also a listener section, open to BRS members, the rules for which will be published in the November issue of *Short Wave Listener*.

Radio Amateur's Handbook

We are advised by the A.R.R.L. that supplies of the 1947 edition of the *Radio Amateur's Handbook* are now exhausted and that the 1948 edition is unlikely to appear until the end of 1947 or early in 1948. The price of the new edition will be 12/6 and orders can be sent to Headquarters in the usual way.

THE MONTH ON THE AIR

By A. O. MILNE (G2MI)*

Beware!

EVEN if you don't read the rest of this feature, read this bit, read it, mark and learn it and tell the others! There is trouble in store for someone, possibly all of us because certain people persist in operating 'phone on 7 Mc/s. dead, leaving their side bands to slop over plus 5 kc/s. outside the band. Some of them are outside with the fundamental and spread down to 6990 kc/s. Now it happens that there is a service communication channel on 6995 and they are experiencing serious QRM from G and GW amateurs—so look out. Unless you want the reimposition of the 5 kc/s. tolerance on our already truncated 7 Mc/s. band, make it a rule not to operate 'phone lower than 7005 kc/s. and make sure you know where the band edge comes. There used to be a good, old-fashioned "ham" term for silly people who did things like this, they were known as "lids." We can't afford to tolerate them.

Whilst on this question of QRM, a similar warning might be heeded by the users of the 1.7 Mc/s. band. Remember that this band is shared with small ships. Most of these ships are fitted with poorly designed equipment and in particular very "flat" receivers. Amateurs using this band, especially those who live near the coast are advised to make sure that no small ship is trying to make a "link" call to the shore before they start up. Many rude things were said about amateurs by skippers last winter when they were held up by bad weather. This applied particularly to the Thames Estuary where colliers trying to get vital supplies through to London had their difficulties increased by thoughtless people blotting out the band.

If these fellows don't get through then there is no coal for electricity. No juice, no Ham radio and that might be one of the least consequences of consistent bad behaviour. So be careful. We want to retain that band which, remember, is used by us on a non-interference basis, hence the power limit of 10 watts.

Bechuanaland.

Here's some good news for well behaved amateurs; Andrew Boa ex G5BO will shortly be active as ZD8B. His QTH is Long Beach Cottages, Georgetown, Ascension. 'BO will be working 14 and 28 and says it will be no good calling him on his own frequency. Crystals are 7005, 7057, 7131. Power 100 watts.

General Notes and News.

G8TD reports HS1SS as U.S. Military Attache U.S. Embassy, Bankok and ZD4AM as Box 8 Tafo, Gold Coast. ZD4AB, AH and AL are all on 28 Mc/s 'phone 'AI and 'AM are on 14 Mc/s. ZD1WB is at Waterloo Airport, Freetown, Sierra Leone. ZD4K is a pirate. G6RH reports KJ6AA on 14062, LU1ZA on 14030 (who say he is in the South Orkneys!), VR2AR on 14140, VR2AP on 14105, VR5IP heard on 13955, VR5PL on 14010 and ZD3B on 14070. C6HH in Zone 23 on 14070 and C9JW in Manchuria on 14030. Nice ones on 28 Mc/s. are ZS4P in Basutoland and ZS6OL in Bechuanaland.

G6ZO reports much early morning activity on 7 Mc/s. CW. XE1A, ZL2SR, ZL4IB, ZL4FT, ZL2MM, PY1LQ, PY2AFS have all been worked between 7000 and 7080. ZL4GA is on each morning on 7006 at 7 B.S.T. looking for G's. BERS 195 in Tasmania continues to hear G's working local 'phone QSO's! G6ZO has worked G8XY/VO on 7060.

AR1YL on 14 Mc/s. says QSL *via* W2QPV. ZD3B is c/o B.O.A.C., Bathurst, Gambia. He QSL's. QSL J9SIR, Marshall is *via* W8SIR. ZM6AF is Box 90, Apia, W. Samoa. G4CP says ZB1AI is a new one QSL to C.P.O.'s Mess R.N., Stn., Malta or *via* R.S.G.B. TF1AB only QSL's when he receives a card; Box 1080, Reykjavik. G8IG has worked LA2GU in a Skymaster from Corsica to Lyons. XZ2AF is on his way home and will be G3DJK. ZS6OL is c/o R.A.F., Gaberones Bech. (28120) and is having some cards printed. QSL to ZD4AL *via* R.S.G.B. Don't QSL EP3D *via* R.E.F. They have sent all the cards back to R.S.G.B. QSL to R.S.G.B. We can deliver them.

We have our doubts on VR4AS. He may be a ship. W2NNV/MX on 28 Mc/s. 'phone is at Mukden. G3ZJ/I6 is now signing as I6ZJ and he has I6ZJ cards.

Via G6QX comes a complaint from LX1AB that many pirates are using LX calls. Only those LX calls listed in the Call Book are genuine. ZB1AF is now G3CKF. Anyone who has not yet received his QSL should apply again *via* R.S.G.B. Anyone interested in correspondence with Austria should write to OE3I4, Christian Zangerl, Donbirn l, Nachbaurstr 28, Klbj. D2CD is now back in this country. QTH is 22 Drummond Drive, Stanmore, Middlesex.

ZB2B until recently held by Bert Glass has been transferred to Frank Reeman, Naval Signal Centre, H.M. Dockyard, Gibraltar. Bert has returned to U.K.

G2GK has worked YA1AB, several YA's are active but we have no authentic information about them. Gives TR1Q as C. G. Carson, Trip. Sig. Sqdn., Libya M.E.L.F., and EK1TF as H. Plummer W3DIA, Box 57, B.P.O., Tangier. VP9K is on his way home.

Phil Bates our listener correspondent in Philadelphia has heard G4KY on 28 Mc/s. 'phone when he was using only 3·6 watts. Says J9AAR is back in the States. Capt. Peter Keller the famous XADZ is now ZC6DZ. QSL *via* R.S.G.B.

VQ3EDD QSL's 100% *via* R.S.G.B. G3ATU has worked RAEM/MM when his position was 77° 15′ N. 96° E. Says he will soon be in Franz Joseph Land in Zone 40. G2CHI has worked the mysterious DF3AA and G2NS says he thinks he is a "phoney."

Congratulations.

To G6CJ for running top score G in the 1946 W.I.A. DX Contest with 2079 points. To G8IG the runner up with 666 points, and G8QZ third with 330.

DISTINGUISHED VISITOR

During her recent visit to England, Dorothy Hall, W2IXY, was the guest of members of the Sheffield town group. Featured in this photograph from left to right: G3FA, 2MF, W2IXY, G2HQ, 4JW and ZC6MF.

* 29 Kechill Gardens, Hayes, Bromley, Kent.

THE MONTH ON FIVE

By W. A. SCARR, M.A. (G2WS)*

AS was to be expected, European contacts *via* the "sporadic-E" layer have fallen off in recent weeks, though reports from Europe of earlier reception of G stations continue to arrive. A German listener in Berlin, using a straight receiver and indoor aerial, logged GW2AVV, G2BMZ, G3YH and G5BY on August 24 between 17.45 and 18.52 G.M.T. all at S9. A message relayed *via* VK5NR and G6WT gives news of a late August DX contact on 6 metres between VK5KL and W7ACS/KH6—the latter station being located at Pearl Harbour. A rough estimate of the distance would be 4,000 miles.

By the time these notes appear the Autumn DX season will be with us and perhaps the best chance ever of spanning the Atlantic on "five." As already announced, the maximum usable frequency (M.U.F.) is likely to reach a higher figure this Autumn than for many years, giving F-layer reflections of signals in the order of 50 or even 60 Mc/s. Watch on the 28 Mc/s. band for exceptionally good conditions and a sharp look-out for DX signals at somewhat higher frequencies will show how the M.U.F. is varying. Many U.S.A. stations will have beam aerials directed on this country and watch should be kept for their signals between 50 and 52 Mc/s., especially during the late afternoons. If they are well received, there is a chance that our 58·5 to 60 Mc/s. signals may get across and a trans-Atlantic contact at these frequencies would indeed be a great achievement.

The future of our 5-metre band is still in the balance and the soundest advice is still to "ignore all rumours." Nevertheless it appears more than likely that the band will be retained for a year or more without alteration and this should be an incentive to those who have so far not worked on the highest frequency band to gain valuable experience of its properties during the coming months, particularly as there seems to be a strong possibility that a narrow band in the region of two metres will become available in due course. If this comes true, it will be for those who have mastered the principles of good reception and high quality transmission on "five" to lead the way in securing an equally high standard of operation on "two."

Recent reports received include one from G8JO (South Shields) who mentions a falling off in conditions during September, the best DX contact being with G3BXE (Cambridge). When F8CT was worked in August, that station reported the reception on July 31 of G3KH, G4AU, G8NM and GM8MJ.

BRS12875 (Hull), who expects to be on the air in a few weeks, has been active with a 4-valve converter and has logged G2MR, 5MA, PA0PN and ON4DJ.

GW2AVV (Port Talbot) comments on the lack of 5-metre activity in South Wales. High mountain ranges make DX reception extremely difficult in this part of the world and only after much patient effort were G5BY and G5ZT worked. Naturally the mountains do not prove such an obstacle to "sporadic-E" contacts and QSO's with HB9BZ and OK1RY in August must have given 2AVV the satisfaction of knowing that at any rate his gear was functioning efficiently.

G5BD (Mablethorpe) found August 19 the best day of the summer for conditions generally. He laments a falling off in activity in the Midlands in recent weeks. F3HL has requested 5BD to publish his QTH, which is Robert Muguet, 15 Avenue du Petit Fabron, Nice.

* 8 Beckenham Grove, Shortlands, Kent.

Australian Amateurs to use F.M. and Pulse

The Wireless Institute of Australia announces that VK amateurs are now permitted to use F.M. and Pulse on the following frequencies:

F.M.—27·185 to 27·455 Mc/s., and on 50 Mc/s. and above.

Pulse.—166 Mc/s. and above.

The VK's are hoping to make F.M. DX contacts on 27 and 50 Mc/s. and ask British amateurs to keep a watch on these frequencies.

Belgium Licences

As the result of negotiations between U.B.A. and the Belgium Post Office improved licence facilities have been granted to Belgium amateurs. Three classes of licence are to be issued, viz.:—

Class "A" 35 watts (Fee 180 francs, about £1).
Class "B" 75 watts (Fee 360 francs).
Class "C" 150 watts (Fee 1,200 francs).

Belgium amateurs are authorised to use the following frequencies: 3510–3625, 7020–7280, 14050–14350, 28050–29950, 58500–60000 kc/s. Amplitude modulation only is permitted.

Palestine Licences

A number of amateur licences have now been issued to Service personnel stationed in Palestine. QSL cards for these stations may be sent *via* the R.S.G.B. Bureau or direct to: The Secretary, Palestine Communications Committee, c/o Chief Signal Officer, H.Q. Palestine and Transjordan, British Forces in Palestine.

Thames Valley Amateur Radio Transmitters' Society

Four stations were installed and operated by members of the T.V.A.R.T.S. when the club held an exhibition of Short Wave Equipment at Cigarette Island, Hampton Court, on September 13, 1947, in aid of the local Scout Jamboree.

Many 7 Mc/s. stations were contacted by G6MB/P, including G4BZ of the "Overland Party" en route for Tanganyika. Mr. L. Cooper (G5LC), President of the Club, sent a "Bon Voyage" message to the party then located 14 miles north of Abbeville, France.

On 5 metres, G8SM/P was called by a Danish station, but the contact ultimately failed. "Walkie Talkie" sets were demonstrated by G3AIU/P and G5LC/P, while apparatus built by G2DGO, G6NB and Mr. G. Roberts was on show. The exhibit also included QSL cards and midget "Resistance" equipment.

The Club Committee was assisted by G3BF, G4CI, G4FC, G6LD, G2AIW and others.

Royal Signals Old Comrades Association

There are in London several thousands of men and women who at some time have served in the Royal Signals, and an effort is now being made by Brigadier G. C. Wickins, C.B., C.B.E., T.D., D.L., and the committee, of which he is Chairman, to contact them at a "Re-union Smoker" for Royal Signals on the 18th October, which is being organised by the newly formed London Branch of the Royal Signals Old Comrades Association.

Membership is open to all ranks and all ex-members of the Corps or of its predecessor the Signals Service, R.E.'s and to N.C.O.'s and men of the Indian Signal Corps. In fact, anybody who served at any time with Signals is eligible for membership. There is a modern touch inasmuch that women who served in the A.T.S. in any Royal Signals trade can join.

Headquarters of the London Branch is at 206, Brompton Road, and the Honorary Secretary is Mr. J. Boyd of the Inland Telecommunications Department at G.P.O. Headquarters, whose home address is, 10, Cyprus Road, N.3. Telephone number—Headquarters 1234, Extension 4535.

HIC ET UBIQUE

The Empire DX Certificate

The following corrections and additions should be made to the list of Empire countries and call areas eligible for the Empire DX Certificate, details of which appeared in our last issue (page 52).

Dominions.

Queensland	VK4
Papua	VK9
Cape Province	ZS1
Cape Province	ZS2

Colonies.

Aden	VS9
Bechuanaland Protectorate (Not British Bechuanaland.)	
Brunei	VS5
Christmas Is.	ZC3
Kuweit (Not Kuiwait.)	
Laccadive Is.	VU4
Malaya	VS2
Maldive Is.	VS9
Niue	ZK2
Sarawak	VS5
Singapore	VS1
South West Africa (Not a Dominion.)	ZS3

Unlicenced Transmissions

At the Wirral Justices' Court sitting at Birkenhead on August 28, Reginald C. J. Maude, of 40 Raeburn Avenue, West Kirby, Cheshire, was fined £10 for operating wireless transmitting apparatus on July 14 without a licence.

Mr. Roger Lewis for the postal authorities said it was the first case of its kind in the Wirral area. For some time there had been complaints of interference with reception generally and of rather strange broadcasts which especially affected licenced amateurs. The broadcasts were on 200 and 160 metres, and the 200 metre transmissions were usually prefaced by the announcement, "This programme comes from the Radio Broadcasting Company." While on the 160 metre band Maude used the call sign G5BT.

Electron Jubilee Exhibition

The fiftieth anniversary of the discovery—by Sir J. J. Thomson—of the existence of the electron, is being marked by an Electron Jubilee Exhibition at the Science Museum, South Kensington.

The section devoted to the development of the Thermionic Valve and the Cathode Ray Tube will prove of special interest to the amateur as not only early valves are shown, but also many modern U.H.F. types including magnetrons, klystrons and grounded grid "disk-seal" triodes. Practical applications in radar, navigation and broadcasting are illustrated by means of diagrams and working models.

The exhibition runs from September 27, 1947, until January, 1948, and is open between 10 a.m. and 6 p.m. weekdays and from 2.30 p.m. to 6 p.m. on Sundays. Admission is free.

Measurements Group E.C.B.

Mr. J. B. Harris, G3ABT, 65 Gurney Court Road, St. Albans, states that Measurements Group Paper No. 3 is now in circulation. F./Lt. Halligey, G8PI, contributes an article on the construction of test gear and Mr. D. W. Davidson some notes on the radio control of model aircraft.

Members of this Group are urged to pass on the Paper as soon as possible. One of the earlier Papers has not yet been returned.

Mr. Harris will be glad to hear from members interested in measurements who are not yet members of his Group.

Slow Morse Transmissions from G8TL

Transmitting amateurs are kindly requested to avoid operating on a frequency of 1896 kc/s. between the hours of 22.00 and 23.00 on Tuesday evenings. At this time Mr. C. H. L. Edwards, G8TL, transmits slow Morse for the benefit of interested amateurs. When absent on Society or other business his place is taken by G6HU, G4GA or G3FT.

Letter and figure groups are sent first and later transmissions are made in plain language at speeds which vary from 4 to 15 w.p.m.

In order to enable listeners to obtain experience in copying different "fists" G6HU, 4GA and 3FT assist in the instruction.

G8TL wishes to thank all those who have written to him about the service, which incidentally has continued without a break since November, 1946, and to congratulate those of his pupils who have now passed the G.P.O. Morse test. His thanks are also recorded to the other three members who have collaborated.

Sacrilege!

Due to a printers error which passed unnoticed we referred in the first part of "Atlantic Journey" to that mysterious object which hangs over Mr. K. B. Warner's desk at League Headquarters as the "wolf hong." As every "old timer" knows the correct spelling is "wouff hong." It is a close relation of that other equally mysterious device the "rettysnitch."

"The QSL Bureau—A Warning"

The paragraphs headed as above in the February, 1947, issue of the R.S.G.B. BULLETIN have brought an objection from the *Short Wave Magazine* to the phrase ". . . members only risk losing their cards by wasting their money on commercial QSL Bureaux because the vast majority of their cards will come to the R.S.G.B."

This was not intended as any reflection on the methods adopted by the *Short Wave Magazine* in handling QSL cards. But we do wish to make it plain that member-societies of the I.A.R.U. do not clear cards to non-member organisations in countries where there exists a member-society officially recognised by the Union—such as the R.S.G.B., which has for many years operated an internationally-recognised QSL Bureau. Member-societies of the I.A.R.U. have, however, agreed to accept cards for non-members if arrangements are made for their collection.

We understand that the *Short Wave Magazine* QSL Bureau operates almost exclusively on a direct mailing basis, and that I.A.R.U. QSL Bureaux are not used unless the postal address of a station is unknown.

Our Front Cover

THIS month's picture, which is reproduced by courtesy of Messrs. Radiocraft Ltd., of Upper Norwood, S.E.19, shows a Model 7 AvoMeter being used on a small Transmitter to check the anode voltage of the first valve, a 6L6, which was being adjusted to run at 325 volts. The H.T. anode and screen feed to the transmitter are supplied by the bleeder resistor. The Model 7 AvoMeter is a multi-range A.C./D.C. instrument which is particularly suitable for radio testing by virtue of its comprehensive range of readings and small power consumption. Fully descriptive pamphlet available on application to The Automatic Coil Winder & Electrical Equipment Co., Ltd., Winder House, Douglas Street, London, S.W.1.

NEWS FROM HEADQUARTERS

COUNCIL, 1947

President :
STANLEY K. LEWER, B.Sc., G6LJ.

Executive Vice-President : V. M. Desmond, G5VM.
Hon. Secretary : H. A. M. Clark, B.Sc.(*Eng.*), G6OT.
Hon. Treasurer : A. J. H. Watson, F.S.A.A., G2YD.
Hon. Editor : Arthur O. Milne, G2MI.
Immediate Past President : E. L. Gardiner, B.Sc., G6GR.

Members : I. D. Auchterlonie, G6OM, G. F. Bloomfield, Ph.D., A.R.I.C., G2NR, C. H. L. Edwards, A.M.I.E.E., G8TL, K. Morton Evans, O.B.E., G5KJ, R. H. Hammans, G2IG, J. W. Mathews, G6LL, W. A. Scarr, M.A., G2WS.

G.P.O. Liaison Officer: Arthur E. Watts, G6UN.
General Secretary : John Clarricoats, G6CL.

August Council Meeting

*Resume of the Minutes of a Meeting of the Council of the Inc. Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.*1, *on Thursday, 7th August,* 1947.

Present.—The Executive Vice President (Mr. V. M. Desmond in the Chair), Messrs. Auchterlonie, Bloomfield, Clark, Edwards, Morton Evans, Mathews, Milne, Watson, Watts and John Clarricoats (General Secretary).

In Attendance.—Mr. S. A. Howard (Chairman, Social Committee), and Mr. H. Freeman (Advertising Manager) were in attendance during part of the discussion on Agenda Item 5 (Amateur Radio Exhibition).

Apologies.—Apologies were presented for the absence of the President (Mr. S. K. Lewer) and Messrs. Gardiner, Hammans and Scarr.

* *

Finance.
The Quarterly Balance Sheet as presented by the Hon. Treasurer was accepted and adopted.

Staff.
Mr. J. P. Hawker, G3VA of Minehead, Somerset, was appointed to the post of Assistant to the General Secretary.

Amateur Radio Exhibition.
Messrs. H. Freeman, S. A. Howard and John Clarricoats were appointed to serve on the Exhibition Committee and given full powers to act on all matters relating to the Exhibition.
Resolved—
(*a*) to organise a luncheon for trade exhibitors.
(*b*) to invite Col. Sir Stanley Angwin, K.B.E., D.S.O., T.D., to open the Exhibition at 2.30 p.m. on November 19th, 1947.
(*c*) to request the Social Committee to arrange station visits or other social functions on the Sunday following the closing of the Exhibition.
(*d*) to distribute an Exhibition Catalogue free of charge to members.

A Draft Agreement for Exhibitors was presented by Mr. Freeman (Exhibition Manager).

International Telecommunications Conference Report.
The General Secretary presented a report dealing with his visit to the United States.

Official Regional Meetings.
Approval was given to the holding of O.R.M.'s in Bedford (Region 6) and Farnborough, Hants (Region 8).

I.A.R.U. Calendar No. 32.
Resolved to record an " aye " vote in favour of the admission to the I.A.R.U. of the—
(*a*) China Amateur Radio Relay League (C.A.R.L.).
(*b*) Radio Club Paraguayo (R.C.P.).
(*c*) Radio Club de Chile (R.C.C.).

I.T.C. Conference.
The Secretary reported upon the latest developments at the Conference (see " Atlantic City Act III " August Bulletin).

Regional Notes.
A resolution was submitted from certain members in Region 14 requesting that Regional Notes be restored. Resolved to take no action in view of the fact that a Special Meeting of the Council is to be held to consider all decisions reached at the Delegates Conference.

QSL Bureau.
A resolution was submitted from certain members of the Slough group requesting that a permanent QSL Bureau be established. Resolved to take no action in view of the fact that the future of the Bureau is to be considered by the Council at an early date.

Membership.
Resolved to elect 166 Corporate Members, 27 Associates and 7 Junior Associates. Six Junior Associates applied for and were granted Corporate Membership.
Resolved to grant affiliation to the Malvern & District Radio Society and H.M. Signal School Radio Club.

N.F.D.
The Contests Committee reported that due to the receipt of the Cambridge N.F.D. entry one month after the published closing date they had decided to disqualify the entry.
Resolved to accept the recommendation of the Contests Committee and to advise the Regional Representative concerned that the score of the Cambridge N.F.D. stations will be recorded in the report of the event, together with a note to the effect that the entry was disqualified due to the arrival of the logs four weeks after closing date.

DX Century Club Claims.
The Secretary reported that the A.R.R.L. is unable to agree to any I.A.R.U. Society (other than the A.R.R.L.) judging claims for the DX C.C. Certificate. It was explained that this certificate is issued by the League and not, as in the case of the W.A.C. certificate, by the I.A.R.U.

Headquarters' Station.
Mr. Clark reported that :—
(*a*) certain constructional work in connection with the aerial system was now in hand and that plans had been submitted to the Holborn Borough Council.
(*b*) the masts were now at the spar makers.
(*c*) some delay had occurred in connection with the licence which in its turn had held up the production by the G.P.O. of the drive unit.
(*d*) a good deal of auxiliary gear was now at Headquarters.

Mr. Clark hoped to be able to report good progress at an early date.

Sussex C.R.
Resolved to appoint Mr. G. W. Morton, BRS.10,769, Acting C.R. for Sussex.

Articles of Association.
Resolved to appoint the Officers of the Society, together with Messrs. C. H. L. Edwards and A. E. Watts, to serve on an *ad hoc* Committee to consider what changes should be made to the Society's Articles of Association.
Numerous minor matters were considered and decisions reached.
The meeting closed at 10.25 p.m.

Special Council Meeting

Resume of the Minutes of a Special Meeting of the Council held on September 4th, 1947, *for the purpose of examining the Report of the* 1947 *Delegates Meeting which took place in Birmingham on April 19th,* 1947.

Present.—The Acting Vice President (Mr. V. M. Desmond in the Chair), Messrs. Auchterlonie, Bloomfield, Edwards, Mathews, Milne, Scarr, Watson and John Clarricoats (General Secretary).
Apologies were presented for the absence of the President (Mr. S. K. Lewer) and Messrs. Clark and Evans.

Representation.
RESOLVED that for 1948 the Regional Representatives shall be elected by the Corporate Membership in Great Britain and Northern Ireland.
RESOLVED further that as from January, 1948, all Representatives shall hold office for a period of two years.
RESOLVED further that in the event of no nomination being received at any election for the post of Regional, County, Town or Area Representative, the Council shall reserve the right to make an appointment.
RESOLVED further that every nomination for the office of Regional Representative shall be supported by five Corporate Members and that every nomination for the office of County, Town or Area Representative shall be supported by two Corporate Members.
RESOLVED further to publish a notice advising the membership of the procedure to be adopted for the election of Representatives.

Regional Notes.
RESOLVED to defer a final decision regarding Regional Notes until the October Council Meeting.
In this connection it was pointed out that during the next few weeks several O.R.M.'s would be held and that these meetings would enable the representatives of the Council to test the feeling of local groups on the desirability or otherwise of reviving the publication of notes.

Other Matters.
RESOLVED—
(*a*) to publish a notice inviting members to submit a description of their station.
(*b*) to send to R.R.'s a copy of each Resume after it has been approved for publication.
(*c*) to discuss again with Causton's the complaint that the Bulletin distribution is uneven.
(*d*) to record that subsidies cannot be paid to local groups for the purpose of holding meetings.
(*e*) to record that it is not in the best interests of the Society to publish the full text of Council minutes.

Council agreed that in general all other matters referred to in the Report had either been dealt with at the meeting or subsequently.

New Books

FUNDAMENTALS OF RADIO. Edited by W. L. Everitt. Constable & Co., Ltd. 400 pp. Price 27s. 6d.

In this volume we have a comprehensive text-book of radio engineering compiled by five eminent American engineers and edited by a well-known radio author. The theory of radio is covered using only elementary algebra. Present-day practice in amplifier, transmitter, aerial and receiver design is described. It is inevitable in the present advanced state of the art that some subjects should appear to be treated somewhat briefly in a book of this size, but within this limitation the authors have presented a work useful to all users of radio equipment.

* *

RADIO TEST INSTRUMENTS. By Rufus P. Turner. Ziff-Davis Publishing Co. 221 pp. Price 25s.

This American publication, which is dedicated to W4EAP, who gave his life in the Japanese war, covers the construction, operation and calibration, of all the usual types of instruments used in radio laboratories, including vacuum-tube voltmeters, impedance bridges, oscilloscopes, signal-generators and frequency meters. Some of the apparatus described is of commercial origin but in most cases circuit diagrams and layouts with photographs are given to enable the reader to construct the instruments for himself. This should prove a useful book for the amateur who is seriously interested in measurements.

* *

THE PHOTOGRAPHIC RECORDING OF CATHODE RAY TUBE TRACES By R. J. Hercock. Ilford, Ltd. 60 pp. Price 5s.

This is the first of a series of Ilford Technical Monographs. It contains a lot of useful information to those interested in making photographic records of oscilloscope experiments, giving full details of suitable types of tubes, films, exposures and developers to use. H. A. M.C.

* *

GUIDE TO BROADCASTING STATIONS (Third Edition). Compiled by *Wireless World*. Published at 1/- (postage 1d.) by Iliffe & Sons, Ltd. Size 4¼ in. wide by 5¾ in. Paper covers plus 64 pages.

The demand for this booklet, first published in January last as *Broadcasting Stations of the World*, has been such that a third completely revised and enlarged edition has been produced.

The lists, giving details of three hundred European medium- and long-wave stations and one thousand short-wave stations of the world, are arranged in both order of frequency and geographically. All entries have been checked against the frequency measurements made at the B.B.C.'s receiving station at Tatsfield.

* *

Sound Recording—The Official Journal of the British Sound Recording Association (BCM/BSRA, London, W.C.1.). Published quarterly, price 2s. 6d. This magazine contains articles on all aspects of modern recording and sound reproduction technique as well as notes on the Association's activities.

* *

These You Can Hear, by W. Norman Stevens has been written for the newcomer to S. W. listening. The author includes pictures and descriptions of well-known S. W. Broadcasting stations and some tables of station frequencies and optimum times of reception. Published at 2s. by the *Amalgamated Short-Wave Press, Ltd.*

* *

The second post-war *Eddystone Manual* concentrates mainly on V.H.F. equipment. The clearly-illustrated constructional articles include full details of a compact 60 Mc/s. 25-watt crystal-controlled transmitter using a pair of 4074 A twin triodes; a three stage straight V.H.F. receiver with balanced R.F. circuits; and an E.F. 54 preselector. For normal short wave coverage, a battery two valve receiver is described. General notes on V.H.F. circuitry and simple aerial systems are included.

The manual, which maintains the high standard set by previous issues may be obtained from *Messrs. Stratton & Co., Ltd.*, Alvechurch Road, West Heath, Birmingham 31, price 2s. 6d.

* *

The new T.C.C. booklet "Capacitors for the Ham," gives full details, illustrations and prices of the wide range of transmitting and receiving condensers available from this firm. Their address is: *The Telegraph Condenser Co., Ltd.* (Radio Division), Wales Farm Road, North Acton, London, W.3.

Congrats

● Members will be interested to learn of the engagement, recently announced, between Miss Janet Attlee, eldest daughter of the Prime Minister, and Mr. Harold W. Shipton, BRS10762 of the Burden Neurologic Institute, near Bristol.

● To Mr. and Mrs. J. W. Owen, BRS13347, on the birth of a son, David.

● To Mr. T. Simkins, M.B.E. (G2QA) of Grimsby, on his recent marriage to Miss Jean Handy.

● To Mr. C. E. D. Mclean, G2CLS, and his wife, of 3, Churchill Drive, Ambiecote, Stourbridge, Worcs., on the arrival of a son, Michael.

● To Mr. J. Wightman, BRS13511, now the father of a junior op.—David.

● To Mr. D. W. J. Haylock, G3ADZ, and his wife, of Southsea, Hants., on the safe arrival of a daughter, Rita—a sister for Carole.

● To Mr. H. W. Simpson, G8DI and Peggy on the birth of a son, David, on October 2.

Strays

W1IIM, Boston, Mass., reports that 3·5 Mc/s. British phone stations come through very well from October to February between 22.00–24.00 G.M.T., and asks operators to keep a look-out for replies between 3800–3900 kc/s. It should be remembered that although the American C.W. band is from 3500–4000 kc/s. the 'phone band is only 3850–4000 kc/s. W1IIM will be on 3860 kc/s.

* *

Mr. T. J. S. Cole, formerly G3YU and now VE3AAU, is operating on 14 and 28 Mc/s. He would like to arrange skeds with stations in the Worcester-Malvern district. His address is 134 Brighton Avenue, Ottawa, Ont.

* *

"La Coupe du R.E.F. 1947," the annual contest organised by the "Reseau des Emetteurs Francais" was won this year by FA8IH, well-known to British Amateurs for his work on 28 and 56 Mc/s. Algeria was also the leading District.

* *

The "Radio Club Argentino," Av. Alvear 2750, Buenos Aires, would be grateful for reports on the signals of "LRA1" Radio de Estado" working on 9,690 kc/s. All reports will be confirmed.

* *

Mr. A. Rielly, ZL3LO, 52 Springfield Road, St. Albans, Christchurch, N.Z., would like to contact members interested in stamps. He can procure most New Zealand and Pacific Islands of the better sort. He would particularly like recent gramophone records of swing and dance recordings.

* *

Mr. M. Meldrum, BRS12296, of 14, Ardee Terrace, Sligo, Eire, is anxious to make contact with members living in that country.

* *

Mr. G. Inglis, BRS8317, c/o May and Baker (India) Ltd., P.O. Box 693, Bombay, extends hospitality to members passing through that city. His telephone number is 32693 during the day and 44406 in the evening.

Ex-Service Radio Equipment

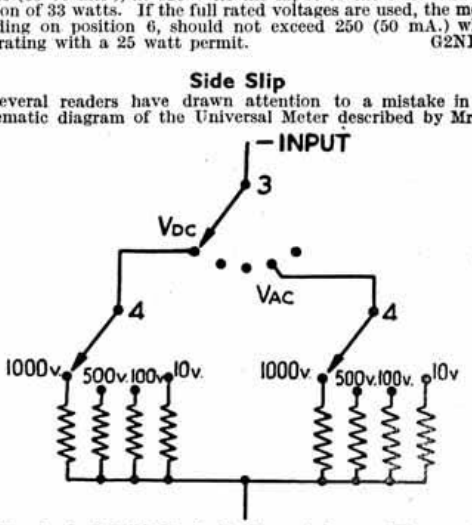
Mr. Elliott, BRS11732, informs us that in response to the paragraph published in our last issue, he has been inundated with requests for information regarding various types of ex-Service radio equipment. He asks members to be patient and wait for replies as the task of duplicating the information is occupying a great deal of his spare time.

B2 Transmitters—A Warning

We are in receipt of information that several 25 watt stations are using B2 transmitters at their full rated output possibly not realising, owing to the shunts on the meter, that the actual input to the P.A. may be well in excess of 25 watts when adjusted in accordance with Service instructions. Reference to the September issue will show that when adjusted to a meter reading of 325–350 volts (65–70 mA.), at 520 volts the input to the P.A. is in the region of 33 watts. If the full rated voltages are used, the meter reading on position 6, should not exceed 250 (50 mA.) when operating with a 25 watt permit. G2NR.

Side Slip

Several readers have drawn attention to a mistake in the schematic diagram of the Universal Meter described by Mr. A V. Howland, BRS10269, in the August issue. We reproduce above a corrected version of the negative imput circuit.



JUNIOR STAFF

There is a vacancy at headquarters for either a youth or young girl (14-16 years of age) for general clerical duties.

Apply in writing to the General Secretary.

Bradford Amateur Radio Society

The Society recently held a successful A.G.M., a gratifying feature being the attendance of several new members. The Society has a full syllabus, details of which will be circulated as soon as copies are received from the printer. In handing over the duties of Secretary to W. S. Sykes (G2DJS), 287, Poplar Grove, Great Horton, the retiring Secretary, G4GJ, thanks all those who have assisted him during his term of office and trusts that the same loyalty and goodwill will be extended to the new Secretary.

Grimsby Amateur Radio Society

The above Society now holds meetings at 7.30 p.m. every Thursday at 115 Garden Street, Grimsby. The support of more local BRS members is sought and a welcome will be extended to any newcomers who turn up.

Harrogate & District Short Wave Radio Society

The Society has obtained premises at the rear of 31, Park Parade, Harrogate, and will re-commence regular meetings as soon as cleaning and decoration is completed. Inquiries to K. B. Moore, Hon. Secretary, Spinney Cottage, 2a, Wayside Cresent, Harrogate.

Proposed Merseyside Society

It is proposed to form a Merseyside Radio Society from the Liverpool section of the R.S.G.B. A general meeting will be held to discuss this proposal at 2.30 p.m., October 25, at the Old Swan Social Club, 29 Derby Lane, Old Swan, and all Liverpool members are asked to attend.

Tram routes 9, 10, 49, and bus routes 60, 61 and 81 serve the area. A copy of the Agenda can be obtained from the T.R.

G3BNO.

Stourbridge and District Amateur Radio Society

A meeting of the Society was held at King Edward School, Stourbridge, on September 2nd, when 33 members and five visitors enjoyed an interesting and instructive talk on "Transformers," given by Mr. N. B. Simmonds, of Simmonds Bros., Stourbridge.

Meetings take place on the first Tuesday in each month and anyone wishing to join the Society should contact the Secretary, W. A. Higgins, G8GF, 35, John Street, Brierley Hill, Staffs.

The Radio Society of East Africa

The arrival of the first post-war issue of the "Proceedings of the RSEA" brings proof of the great interest being taken in Amateur Radio in Kenya, Uganda and Tanganyika. Under the patronage of H. J. Walker, M.B.E. (VQ4CRC) and with S. A. Pegrume, F.R.S.A., A.M.I.R.E. (VQ4CRE) as Editor, the issue contains articles on rotary beams, principles of matching and DX news. A complete list of licence holders shows that 28, VQ4, 13, VQ3 and 8 VQ5 calls had been allocated up to June 1947. The Gatti-Hallicrafter Expedition has been provisionally granted the calls VQ4EHG, VQ5GHE (Base), VQ5HEG (Mobile) and VQ3HGE.

Can You Help?

Mr. G. Milner, BRS7989, 8 Thorn Lane, Leeds, 8, would appreciate receiving information on the Telefunken RL12P35 valve especially base connections and operating data.

Mr. C. T. Fairchild, G3YY, 75 Holland Road, Brighton 7, Sussex, would like to contact any member who has had experience in adapting the R.A.F. Type 27 V.H.F. converter for 58 Mc/s. operation.

Mr. H. Heaton, BRS14027, 192 Kirkgate Road, Wakefield' Yorks, needs an instruction manual for the AR77E.

Mr. T. G. Rennie, GM4NR, 4 McVicars Lane, Dundee, Angus, requires the circuit and power plug connections for the TCS6 receiver and transmitter units.

Mr. E. K. Freestone, G3ADL, 25 Whitbread Road, Brockley, London, S.E.4, seeks details of the Naval C.R. Tube type N.C. 16 and also the Ratheon RX 235 rectifier.

Mr. J. R. Parsonage, BRS13904, 5 Henley Road, Buddisom Park, Chester, is in need of information about the American Radar Monitor Unit type AN/APA–1.

2nd Lt. J. B. Church, 2 A.A. Gp. (M.) Signals Regt., Waller Barracks, Devizes, Wilts., seeks details of the VHF Transceiver, CZR, 43, AAX and other U.S. Naval equipment.

Mr. A. W. Barry, BRS10552, c/o 80 Salisbury Road, Harrow, Middlesex, would be interested to hear from any member who can give him details of the "CV67" Klystron.

Mr. R. C. Taylor (ex 2HCJ), The Lodge, Higher Walton, Warrington, has instruction manuals for the R208, R308, R206 MKI, R103A, Wireless Sender 12 HP and 76. He seeks information on the following equipment: U.S. Navy; NC1415 Intercomm., ASB6-CAY46 AAM, ASB7-ACE, ASB8-ACE, ABK5, ASB8: Air Ministry R3132, RF Unit 27, TR1196, TR113C: British Navy Transmitter 7AD-W4832A.

Mr. L. Wilks, G2FHI, "Font Avon," Gobowen. Oswestry, Shropshire, wants circuit diagrams of the TCS6 receiver, A.M. Tester 74A and Wavemeter DN1, Mk. II.

Mr. C. J. Ellett, G3ARJ, Meppershall, Shefford, Beds., needs details of the BC 923A, T1360C, TR1621 and T3040D, and the Type 3 Mk. II Transreceiver.

Mr. J. Machin, BRS14243, Ullathorpe, Springfield Park Road, Horsham offers to supply details of the SCR211AG and SCR211 AK.

Mr. T. H. Wright, G3CLO, 59, Bury Green Road, Cheshunt, Herts., requires details of the U.S. Signal Corps Transmitter-Receiver Type BC659H.

Mr. J. A. Plowman, G3AST, 140, Wardown Crescent, Luton, Beds., requires information on the TCS6 Transmitter which is part of the U.S. Naval Installation CKP522–45A.

Mr. A. R. Kerr, BRS9936, 73, Lynwood Road, Ealing, W.5, has an A M Oscillator Type 37 and wishes to modify it for operation on 14 Mc/s. He has no details of the circuit.

Mr. E. C. Cross, BRS10831, Hazeldene, Hillingly, Hailsham, Sussex, requires technical details of the American BC1306 Transmitter-Receiver.

Mr. N. E. Peart, BRS15394, 601, Chamber Road, Hollingwood, Oldham, requires details of the B21A receiver.

Mr. H. Lynch, BRS14309, Myrtle Yards, Somerton, Cowes, Isle of Wight, would appreciate details of the R5/ARN7.

Mr. G. W. Jones, BRS8461, 58, Harpers Lane, Smithills, Bolton, Lancs, requires the circuit diagram of an Admiralty Pattern W2508 Wavemeter G73.

Around the Trade

Messrs. Stratton & Co., Ltd., of Birmingham, have now published an instruction book to be issued with their Type 640 Eddystone Communications Receiver. Produced on fine art paper with stiff covers and well illustrated, this 16 page manual contains a detailed technical specification of the instrument, hints on installation and operation, external S meter connections, and a particularly clear circuit diagram. Re-alignment procedure and check voltages for servicing are shown and a complete list of component values included.

It is to be hoped that other British manufacturers will follow this excellent example.

* * *

An article from a recent issue of *The Economist* has just been reprinted in booklet form by *The Mullard Wireless Service Co., Ltd.* In a brief introduction the publishers stress the urgency of employing industrial electronics wherever it can contribute to the solution of manpower, production and quality problems.

The article itself successfully defines electronics, surveys its wide fields of applications and gives some indication of economic factors involved in its use.

* * *

We have recently inspected samples of cables manufactured by *Aerialite Ltd., Castle Works, Stalybridge, Cheshire.* Of special interest to amateurs are the polythene co-axial and the twin feeder cables both of which are boxed in 60 ft. lengths.

These cables are eminently suited to amateur requirements and have the following characteristics:—

Data.	*Co-axial.*	*Balanced Twin.*
Nominal Impedance	67/77 ohms	85/95 ohms.
Capacity	21 $\mu\mu$F/ft.	14·7 $\mu\mu$F/ft.
Attenuation	6·0 db/100 ft./200 Mc/s.	3·8 db/100 ft./200 Mc/s.
Loading	80 W/100 Mc/s...	450 W/100 Mc/s.
Overall size	¼ inch	⅜ inch.

A length of the balanced twin type feeder has been tested with a half-wave dipole on 7 Mc/s. with very satisfactory results.

* * *

Palace Electrical Co. Ltd., 32 Chiltern Street, London, W.1, have recently extended their activities to cover the supply of components and completed equipment for radio amateurs. The call G3CBJ has been issued to the company.

* * *

Marconi Instruments Ltd., have just announced the setting up of a permanent factory at Longacres, St. Albans, specialising in the production of electronic apparatus for Communications, Industry and Medicine.

Quite True

You can send a message around the world in one-seventh of a second, yet it may take years to force a simple idea through a quarter inch of human skull.—*Readers' Digest.*

FORTHCOMING EVENTS

REGION 2.

Oct. 20, 27, Nov. 10, 17. **Bradford** (Short Wave Club), 7 p.m., Temperance Rooms, Harewood Street.
Oct. 20, Nov. 3, 17. **Halifax**, 7.30 p.m., Toc H Rooms, 32 Clare Road.
Oct. 20, Nov. 17. **Middlesbrough**, 7.30 p.m., Cleveland Scientific and Technical Institute, Corporation Road.
Oct. 21, Nov. 4, 11. **Bradford** (Amateur Radio Society), 7.30 p.m., Cambridge House, 66 Little Horton Lane.
Oct. 21, 28, Nov. 4, 11, 18. **Catterick**, 7 p.m., S.T.C., H.Q. Block, Vimy Lines.
Oct. 22, 29, Nov. 5, 12, 19. **Doncaster**, 7.30 p.m., 73 Hexthorpe Road.
Oct. 22, Nov. 5, 19. **Huddersfield**, 7.30 p.m., Plough Hotel, Westgate.
Oct. 22, Nov. 12. **Sheffield**, 8 p.m., Dog and Partridge, Trippet Lane.
Oct. 22, Nov. 12. **Sunderland**, 7.30 p.m., 16 North Bridge Street.
Oct. 22, 29, Nov. 5, 12, 19. **York**, 8 p.m., 29 Victor Street.
Oct. 24, Nov. 14. **Barnsley**, King George Hotel, Peel Street.
Oct. 24, 31, Nov. 7, 14. **Leeds**, 7 p.m., Swathmore Settlement, Woodhouse Square.
Oct. 24, Nov. 5, 14. **South Shields**, 7 p.m., St. Paul's School. Westoe.
Oct. 29. **Hull**, 7.30 p.m., Imperial Hotel, Paragon Street.

REGION 5.

Oct. 24. **Cambridge**, Jolly Waterman.
Oct. 24, Nov. 7, 21. **Southend**, 7.45 p.m., Room C, Art School, Victoria Circus.
Nov. 4. **Chelmsford**, 7.30 p.m., 184 Moulsham Street.

REGION 7.

Oct. 16, 23, 30, Nov. 6, 13, 20. **Ruislip**, 7.30 p.m., Oddfellows Hall, Waxwell Lane, Pinner.
Oct. 17, Nov. 14. **West Norwood**, 7.30 p.m., Brotherhood Hall. "Frequency Modulation," G4DN.
Oct .19. **Ilford**, 2.30 p.m., Town Hall (Lambourne Room).
Oct. 19. **Enfield**, 3 p.m., A & B Cafe, Southbury Road, (junction with Ladysmith Road).
Oct. 21. **Slough**, 7.30 p.m., Congregational Church Hall, Church Street.
Oct. 21, Nov. 18. **St. Albans**, 8 p.m., "The Beehive," London Road.
Oct. 22, 29, Nov. 5, 12, 19. **Edgware** (Edgware and District Radio Society), 8 p.m., Orchard Cafe, Broadway, Mill Hill.
Oct. 26. **Weybridge and Woking**, 3 p.m., Old Studio Restaurant, Balfour Road, Weybridge. (card to G6NK if attending.)
Nov. 4. **Welwyn Garden City**, 8 p.m., Council Offices, Welwyn Garden City.
Nov. 7. **Southgate**, 7.30 p.m., Merryhills Hotel (near Oakwood Station).
Nov. 11. **Croydon** (Surrey R.C.C.), 7.30 p.m., "Blacksmiths Arms," South End, Croydon.
Nov. 11. **Peckham**, 7.30 p.m., "The Kentish Drovers," Rye Lane (next to Jones & Higgins).
Nov. 16. **Ilford**, 2.30 p.m., Town Hall (Lambourne Room). "Quartz Crystals," G2RR.

REGION 8.

Oct. 20, 31, Nov. 17. **Brighton and Hove**, 7.30 p.m., Golden Cross Hotel, Western Road, Brighton.
Nov. 1. **Southampton**, 7 p.m., Venue from G3AD.
Nov. 6. **Worthing**, 7.30 p.m., Olivers Cafe, Southfarm Road. Junk Sale.
Nov. 6. **Bournemouth**, 7.30 p.m., "Cricketers Arms," Windham Road.

REGION 9

Oct. 17, Nov. 14. **Bristol**, 7 p.m., Keen's Cafe, Park Row.
Oct. 18, Nov. 15. **Plymouth**, Scouts H.Q., Buckland Terrace, Millbay Road.
Oct. 20, 27, Nov. 3, 10, 17. **Stroud**, Clubroom, Cainscross Road.
Nov. 19. **Exeter**, 95 Sidwell Street.

REGION 10

Nov. 10. **Cardiff**, 7 p.m., Park Hotel.

REGION 11.

Oct. 19, Nov. 16. **Rhyl**, 3 p.m., Crown Hotel.

REGION 14.

Oct. 29. **Glasgow**, 7 p.m., Institute of Engineers and Shipbuilders, 39 Elmbank Crescent, Glasgow.
Nov. 13. **Stirling** (including Falkirk, Alloa and Larbert), 7.30 p.m., Plough Hotel, Stenhousemuir.

WEST OF SCOTLAND REGIONAL — MEETING —

CHRISTIAN INSTITUTE, 70 BOTHWELL STREET, GLASGOW

SATURDAY, OCTOBER 18th, 1947

Assemble ... ... 3 p.m.
Meeting ... ... 3.30 p.m.

Thereafter at

"THE GROSVENOR," GORDON ST., GLASGOW

Reception ... ... 6 p.m.
Dinner ... ... 6.30 p.m.

Inclusive charge, 12/6

Tickets from J. Hunter, GM6ZV, 20 Mansefield Crescent, Clarkston, or local C.R.'s, not later than October 11th.

HOME COUNTIES REGIONAL — MEETING —

DUJON RESTAURANT : BEDFORD

SUNDAY, OCTOBER 26th, 1947

Assemble ... ... 12.30 p.m.
Lunch ... ... 1 p.m.
Meeting ... ... 2.30 p.m.
(Followed by a lecture and demonstration on "Micro-waves," by Dr. C. G. Lemon, G2GL.)
High Tea ... ... 5.30 p.m.

Inclusive charge, 10/–

Tickets from Regional and County Representatives.

SOUTH EASTERN REGIONAL — MEETING —

TOLLARD ROYAL HOTEL, BOURNEMOUTH

SATURDAY, OCTOBER 25th, 1947

Lunch ... ... 1 p.m.
Meeting ... ... 2.30 p.m.
Tea ... ... 4.30 p.m.

Inclusive charge, 10/6

Tickets from F. WHITE, Chester House, Chine Crescent, Bournemouth, or Headquarters. (Overnight accommodation can be arranged. Terms: 13/6 bed and breakfast at hotel, also includes admission to dance in the evening.)

EAST MIDLANDS REGIONAL — MEETING —

VICTORIA STATION HOTEL, MANSFIELD ROAD, NOTTINGHAM

SUNDAY, OCTOBER 26th, 1947

Assemble ... ... 2.30 p.m.
Meeting ... ... 3 p.m.
Tea ... ... 5.15 p.m.

Inclusive charge, 5/–

Tickets from A. C. Simons, G5BD, Church Road, Mablethorpe, or A. E. Clipstone, G8DZ, 77 Julian Road, West Bridgford.

EXCHANGE AND MART SECTION

Due to paper restrictions advertisements are only accepted "for Insertion when space is available." No advertisement must exceed 50 words. **RATES: Members Private Advertisements 2d. per word, minimum charge 3/-. Trade, 6d. per word, minimum charge 9/-.** Use of Box number **1/6** extra. Send copy and payment to **Parrs Advertising Ltd., 121 Kingsway, London, W.C.2.**

A.C. Generating plants, petrol driven, 300, 1,000, 3,000, watt.—Details, G. R. OVERTON, BRS6415, Rockland All Saints, Attleborough, Norfolk. [509

AMATEURS.—Coil Induction Tables. Full details in display advertisement, August Bulletin. 7s. 3d. Post free from "TECHNICAL INSPECTION," 14 Silverston Way, Stanmore. [511

AMATEUR leaving district. Must sell. Mullard C.R. Bridge, Walsall Multi-meter, 30 watt amplifier, Speakers, C.R. Tubes, Transmitter valves. Usual Ham stuff. Valve Voltmeter. Inspection. Any fair offer. Mostly new gear.—G. A. TAYLOR, 125 Manchester Road, Denton, Manchester. [522

AMERICAN and English radio text books. Periodicals by Reyner, Ghirardi, Cocking, Scroggie, Rider, etc. Cheap. S.A.E. List. Garrard induction gram motor, £5. Atlas Eliminator, 6 taps, 25s.—WALSBY, 18 Bell Vue Road, Southbourne, Hants. [499

ARMY R109A 8-valve superhet 2-4·9 Mc/s. 4·9-12 Mc/s. Working order, spare valves; Vibrator, 6-volt accumulator operation. B.F.O., RT/CW crash limiter, super slow drive. Ideal 40 and 80 metre mobile, £10, or exchange 12 in. C.R.T. 2½ in. plug in type 0-250 micrometer 600 ohm., £2. Transformer 6·3v. 25A Secondary strip copper, £2. CV6's (RK34) unused, £1 each.—Box 528, PARRS, 121 Kingsway, London, W.C.2. [528

BEAMS for 10 metres, everything you need for 3-element beam, duralium tubes with adjustable ends, 8 ft. dural boom, Allumin; casting support to mast top, easy to build, erect single handed, helpful instructions supplied, £5 10s. 0d.; carr. paid. Limited number; don't delay.—HERBERT TEE (G8DC) 469 Higher Brunshaw, Burnley, Lancs. [549

BRAND NEW.—5Y3G, 12J5GT, 25Z4GT, 2101, 7s. 6d. FC4, KT33C, PEN A4, KT41, 7S, 9s. each. Other ham gear cheap—partially selling up.—BM/ESPB, London, W.1. [496

BRS14527 unused valves, 807, 10s.; 866, 20s.; 813, £2 5Z3, 5s.; 3Q5, 5s.—C. W. JAMESON, 3 Vicar's Hill, Armagh, N. Ireland. [498

B2 Transmitter/Receiver, complete ready for instant use, 3-18 Mc/s., easily adapted 28 Mc/s., also one B2 Transmitter only. Offers, Box 510, PARRS, 121 Kingsway, London, W.C.2.

BULS, 1941 to 1947. In order, 50s. the lot; or what have you? BRS4333, "Loanhead," Greengairs, Airdrie, Scotland. [503

CHANNEL ISLANDS calling.—GC2CNC offers winter accommodation in Jersey. H. & C. Excellent cuisine. Moderate terms. LORRAINE GUEST HOUSE, 8 Havre-des-Pas, St. Helier, Jersey, Channel Islands. [506

COMPLETE Transmitter.—Bandswitching all bands. 120-150 watt phone. C.W. appearance and performance faultless. Neat 3-tier rack and panel. P.A. 814, modulated by four 6L6 P.P. Par: (60 watts audio). Stages metered. Air-tested and calibrated. Complete, £67 10s. 0d., carriage paid. Photo and details: G8DC, 469 Brunshaw Road, Burnley. [521

COMMUNICATION Receiver A.C./D.C. National 80X, 10 valves, crystal gate, S-Meter, auto trans., spare valves, good on ten metres, £35. Also Hallicrafter Skybuddy, ideal for beginner, £15. Instruction sheet both sets.—DWYER, 63 Halifax Road, Grenoside, Nr. Sheffield. [493

COMMUNICATIONS Receiver.—6-valve Superhet, new valves, recently re-aligned. Complete coil units for amateur bands, 10 to 160 metres. Less Power Unit, £10.—Box 508, PARRS 121, Kingsway, London, W.C.2. [508

COMMUNICATION Receiver for sale. 8-tube, V.H.F. 30 down to 4·5 metres. Ex-W.D.R.208, been hotted up; almost new; service book, spare valves, phones, noise limiter, 'S' meter, A.C. mains or 6v. First offer, or exchange for good camera.—Box 554, PARRS, 121 Kingsway, London, W.C.2. [554

COMMUNICATION Receiver, R.107, in perfect condition. Complete with instruction manual, but less case, £16.—G3BSW, 31 Cavendish Avenue, South Ruislip, Middlesex. [504

COMMUNICATION Receiver.—10 valves, 2 I.F., RF, BFO, Noise Limiter, etc. 10-20-40 metres: black crackle cabinet: good band spread; £15, plus carriage or would exchange for good portable broadcast receiver, or modulation equipment.—EDGE, G6GD, 2 Green Mount, Stamford Road, Bowdon, Cheshire. Phone: Altrincham 0875. [566

CONVERTORS.—Unused, 12-volt input, 475-volt, 200 mA., output, £3 each or offers for 18. Wearite battery, signal, generator M/L waves, £4. Fifty Service sheets. Offers. 26 Second Avenue, Chelmsford. [597

COULPHONE RADIO, 58 Derby Street, Ormskirk, Lancs. The best selection of amateur construction gear in the country, including Eddystone components. Send 2½d. stamp for latest 24-page catalogue. [523

C.R. 100 Receiver; perfect order; 6-band 60 kc/s. to 30 Mc/s. 200-250v. A.C. operated B.F.O. optional A.V.C., etc. First offer over £30 secures. Also one B.C. 348, working order with power pack, £18; without power pack, £14.—Write FRASER, 2 Steel Street, Warrington, Lancs. [558

EDDYSTONE Model 308 Communication Receiver, ex-Admiralty 40 kc. to 31000 kc., in almost brand new condition, £35.—82 Framlingham Road, Sale, Cheshire. [530

EDDYSTONE 358X continuous coverage from 14Mc. to 600 kc. and converter for the 5 and 10 metre amateur bands. Power pack, £40.—Box 546, PARRS, 121 Kingsway, London W.C.2. [546

EDDYSTONE Receiver 358X, £40; also Trophy 8, £18 Exceptional condition. Mullard G.M. 3152 Oscillograph, new, £55. Valves, new SP2, TH2, VP2, 6K7G, 6V6G at 6s. 6d. 807, 5U4G, GDT4G at 12s. 6d. Wanted, SX28 or AR88.—WILLETTS, Bungalow, Bishop Sutton, Nr. Bristol. [542

EF50's, EF54's tested, 7s. VR135's, 5s. Ceramic Valve-holders, EF50, 1s. 3d. Meters 0–500 microamps, 2 in., 15s. 0–1mA, 2½ in., 21s. List 1d.—G8FJ, 7 Kingshill Crescent, St. Albans. [561

EXCHANGE.—Pair new GU50's for a T.Z.40, 811 or 834.—Box 518, PARRS, 121 Kingsway, London, W.C.2. [518

EXCHANGE.—Pair 813's (10 hrs. use) for good microphone or speaker. Wanted: circuit Hallicrafters S27.G3CHV,—HEATON, Thymebank, Furzefield Road, Beaconsfield, Bucks.

FAMOUS 1155 communication receivers, 5-waveband, £13 10s., modified (extra L.F. stage), £14 10s. Tested at despatch.—PIPPET, Busketts Way, Ashurst, Southampton. [501

FERRANTI Electrostatic 0–2,000 voltmeter, 2½ in. dial. Perfect; £4 or offers.—G3AZD, 60 Lewisham Park, Lewisham, S.E.13. [517

FOR SALE.—Pair 813's, 50s. each; 808's (4), 40s. each; 807's (4), 15s. each. Numerous 6·3v. octal valves, including. SP41's, all at 4s. each. All tested and guaranteed.—G3BZD, 54 Chaddlewood Avenue, Lipson, Plymouth, Devon. [524

FOR SALE.—Walkie-Talkie (Mk58) with headphones, mike, etc. Perfect order, £7. Also Crossly 5-valve superhet, short and medium wave bands; bargain, £7 10s.—BRS10,47F, 36 Salisbury Road, Norwich. [526

FOR SALE.—Walkie-Talkie, type Mk I, with spare valves rod telescope—wire aerials, headphones and microphone set vibrator pack, 2 accumalators, spare vibrator, battery box, spare battery; £10. R1155, brand new, separate 6V6 output, power pack and 6 in. speaker; £17.—ELLIS, 16 St. Botolphs Road, Sevenoaks, Kent. [565

FOR SALE.—Phillips PCR Communications Receiver, 7 valves, separate power pack, internal speaker, 2 extension and 2 gram sockets, range 16–50, 200–550, 800–2,000 metres, £15. Amplifier, 2 inputs, 15 watts, push pull output, spare set of valves, £8. 2 Marconi pick-ups, 28s. each.—1 Clarion pick-up, 16s.—49 Montague Road, Cambridge. [495

FOR SALE.—Brand new unboxed 100 TH. Offers wanted. Four crystals in holders, 7280, 7210, 7290, 3584 kc/s. and one Mc insert, £3.—G3UC, 41 Denmark Street, Lancaster. [514

FOR SALE.—AR88 brand new condition, £60.—NELSON, 70 Spencer Avenue, Earlsdon, Coventry. [539

FOR SALE.—R.C.A. AR88, excellent condition, with spare valves, £50.—SHAW, Stamford Road, Shefford, Beds. [547

FOR SALE.—CR.100, good working condition, £35.—BRS6462, 36 Devonshire Road, London, S.W.19 [550

FOR SALE.—National FBY reconditioned. New valves 6·3v., ·3 amp. Covers. 20, 40, 80, m. Ham Bands. £18 10s. or nearest offer. (2) FT15's, 25s. each.—GM2FJT, T. C. IRVING, 35 Dumbarton Road, Stirling. [563

GW6AA would like to contact other British Amateur Transmitters contemplating settling in New Zealand. Please write—DAVID MITCHELL, "Eryl," Upper Colwyn Bay, North Wales. [441

G3DI.—Complete phone TX for sale. 6L6GX, C.O., HY25, B.A., TZ40's, P.P. final plate mod. 4-stage promod. triodes P.P. to TZ40's, class B. 4 power packs. Rack 8 ft. D104 mike. M.E. 12 in. L.S. Many valves. What offers? AR88 with 'S' meter, £55.—Phone 4030. Write 122 Hillmorton Road, Rugby.

HAMMARLUND Comet Pro Crystal model, 550 to 8 meters, working, as new, £20; carriage paid. Some spare tubes and all literature.—G6GO, The White House, Ashby Parva, Rugby. [535

H.R.O. Senior, power pack, with auto transformer for 230v., 9 bandspread coils, manual; offers over £50. National NC 100X complete, speaker, manual; offers over £45. V.H.F. Superhet, easily modified to cover 56 Mc/s., rack mounting; offers over £6.—Box 551, PARRS, 121 Kingsway, London, W.C.2. [551

JACK PORTER, LTD. (Radio) manufacturers and suppliers ex-Government surplus equipment; competitive prices; List 1d.—22–31 College Street, Worcester. [552

JAMES S. KENDALL, A.M.I.R.E., 133 Osmaston Road, Birmingham, 17, can supply power packs of neat design, 6 × 5 ins., rated 250 volts, 80 mA. and 6–3 volts, 4 amps. Features: low hum level on/off switch. pilot lamp, captive head, heavy duty terminals. Plug in mains connector, mains voltage to order. Price £4 post free. [505

MAGNETIC Wire Recorder, super console model. Offers: would consider exchange. RX, etc., Collins 'phone and C.W. Transmitter, complete with microphone, motor generator, etc. Offers. National 110 receiver, £10. 6 voltage stabiliser valves at 3s. each. Six 0–250 M/A meters at 10s. each. Also quantity of high-class apparatus for disposal. S.A.E.—MORTIMER, 51 Townhead Road, Dore, Sheffield. [555

MILLIAMMETERS.—The popular Weston Model S20 0/1 mA. moving coil meters with 2½ in. dial, panel mounting, boxed in makers original cartons at 50s. each, post free; cash with order.—P. TAYLOR, 2a St. James Street, Taunton. [533

MINIATURE Porcelain Stand-off Insulators; 5 for 1s. 1d. from G6MN, Castlemount, Worksop, Notts. [534

MONOMARKS.—Permanent London address. Letters redirected, 5s. p.a. Royal patronage.—Write MONOMARK BCM/MONO7A, London, W.C.1. [160

NATIONAL NC81X amateur bands 10–160, 10 valves, crystal, 110–230 volts, AC/DC, £30.—BRS10906, 15 Martindale, S.W.14. [556

NATIONAL H.R.O. with power pack. Bandspread coils, 1·5 to 30 Mc/s. Almost new, £30 or offers.—FOX, "Roselea," West Street, Eckington, Sheffield. [502

NEW valves: 83, 89, AC2/Pen, MHL4, OZ4, AC4/Pen, 6R7, 76: Offers.—Wanted: Crystal Mike, T55, 7 Mc. crystals.—2 Cliff Road Gardens, Leeds, 6. [500

NEW.—R.C.A. Ribbon Microphone with built-in transformer and grip switch on desk stand, with cable; £7 10s. 0d.—STROUDS, Pangbourne, Berks. [519

PATENTS and Trade Marks. Handbook and advice free.—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. Phone: City 6161. 50 years' refs.

QSL CARDS.—Distinctive and attractive designs. Samples and prices from G5KT, 33 Howard Road, Westbury Park, Bristol, 6. [559

QSL's and log books (P.M.G. approved). Samples free; state whether G or BRS.—ATKINSON BROS., Printers, Elland.

RACKS.—Three-stage with louvred sides and back, 85s. Rack only, 45s. International racks with louvred sides and back, 125s. Rack only, 65s. Panels, chassis, etc.—UDALL ELECTRICAL ENGINEERING CO., LTD., Great Bridge, Staffs. [532

RECEIVER.—Type R103A, 7-valve, A.C. Mains, 100–250 volts, 50 cycles, or 6-volt battery, 1·7–7·5 Mc/s., A.V.C., B.F.O., complete set of new valves and vibrator pack. Price £9 or nearest offer.—G3AUY, 26 Marsh Hall Road, Widnes. [540

REQUIRED Selsyn indicator, 5-terminal D.C. (continous wound) Potentiometer, also few blower mechanisms, less motor as used in cooling radar apparatus. Good price paid for material in perfect order. No callers.—G3AAG, 87 Ennerdale Road, Richmond, Surrey. [513

R110 6c. superhet, 5–30 metres. Internal speaker B.F.O., A.F., R.F. gain, A.V.C. Phone jacks. Muirhead dial. 100–250v. or 6v. accumulator. Powerful and sensitive, £17.—C. GIBBINS, The White House, West End, Herne Bay, Kent. [479

R.1155, Mod; 5Z4G Rect; 6V6GT output, with instruction book. Fb Receiver; £15.—G3AZO, 56 Gifford Terrace Road, Mutley, Plymouth, Devon. [520

R1155 Receiver, 6L6 output, £12 10s. B.C. 312 N. Receiver, new condition, £20 10s.—BRS6898, 11 Gallipoli Terrace, Port Talbot, Glamorgan. [538

R1155.—Genuine Model N. ham bands, 1·7 to 14. New condition, spot-on calibration. Very reliable, 5 districts W worked on 3·5, £16 or £19 10s. complete with power pack.—G4GJ, Mayfield, Wagon Lane, Bingley, Yorks. [543

SALE.—R1132A unmodified, £10. Carriage extra or collect.—TAYLOR, 134 High Street, Barnet, Herts. [494

SALE.—Hallicrafters SX16 Receiver minus S-meter. 545 kc/s. to 62 Mc/s. Crystal filter. Requires complete overhaul, £12 or near offer.—G3CDW, 3 St. Margarets Road, Hoylake, Cheshire. [537

SALE.—4 boxed T20, 17s. 6d. each. New complete 14 Mc/s. Johnson "Q" antenna, 35s.: new "Meico" M/C mike with chrome table stand: gift at £4 10s. Cossor 399A double beam oscilloscope, £35 or nearest.—G3LB, Ripon, Yorks. [557

SALE.—Telefunken Communication Receiver, 7-valve, 2·5–25·5 Mc/s., 3 bands, B.F.O., R.F., A.F., gain, internal speaker, power pack, phone jacks, phones; complete, £15, or near offer.—BRS6445, Room 7, 36 Chislehurst Road, Bromley, Kent. [544

SALE.—Eddystone 504 communications receiver, condition as new; £55 or near.—SYNGE, Ardwyn, Border Road, Heewall, Cheshire. [553

SELLING OUT.—Standard table rack, panels, chassis. Coils 59, GTIC, Dials, V/Condenser, Milliameter and many other components. Gift. £5, plus carriage.—BAMPTON, Ball Lane, Kennington, Ashford, Kent. [525

SKY CHAMPION.—First offer over £20. Buyer collect.—G2HR, 25 Clivedon Road, Highams Park, E.4. (Larkswood 2933). [564

SURPLUS to requirements.—1155 unmodified, but realigned, complete with power supply, output stage and speaker in louvred steel cabinet to match receiver. All components brand new, £19 lot or offers for 1155.—DUESBURY, 5 Ravine Terrace Sunderland. [531

TYPE 37 Exciter/Transmitter, 20/80 Mc/s., V.F.O., £5. Bendix superhet ex SCR–522, easily adapted 56 Mc/s., 11 tubes, £1 15s. Twenty tubes, 832, 954, 9004, etc., first reasonable offer. Exchange last two items pre-war QST's or Bulls.—DUNCAN, 23 Noran Avenue, Dundee. [536

VALVES.—Unused, unboxed, Pair PX25's 30s.: Pair 35T's 60s., 35Z4GT, 25L6, 6X5G, X65, KT44 (2), E.1192, KT8C, EL33, 10s. each. Y63 (2), 12SA7, 12SK7 (5), 6s. each.—BRS-10321, 105 Highfield Road, Romford, Essex. [529

WANTED.—Power pack, accessories and circuit data for B2 Trans-receiver. Please send particulars and price to WILSON, 28 Dundonald Road, Bristol 6. BRS14627. [515

WANTED.—May issue of *Audio Engineering*, 7s. 6d. offered for copy or exchange for recent issues of *Radio News*.—30 Langland Crescent, South Stanmore, Middlesex. [516

WANTED.—Four coils for National H.R.O., any range. Please state condition and price to DAVIS, 36 Trinity Road, Stotfold, Beds. [527

WANTED urgently.—American 884, 885 or 6Q5G (884 preferred).—TAYLOR, 3 Oast Cottages, Davington, Faverham. [541

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