THE T. & R.

BULLETIN

THE INC. RADIO SOCIETY OF GT. BRITAIN

AND THE BRITISH EMPIRE RADIO UNION

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The Incorporated

Radio Society of Great Britain

and the

British Empire Radio Union

53, Victoria Street, London, S.W.1 (Phone: VICTORIA 4412)

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R.S.G.B. CALENDAR

Unless otherwise announced all meetings are held at the Institution of Electrical Engineers, Savoy Place, W.C.2, commencing at 6.15 p.m. Tea is served at 5.30 p.m.

January 22.—Lecture by The Cosmos Lamp Works, Ltd., on "The Development of the Pentode."

Keep the dates *February* 19, *March* 30, *April* 22.

Details of forthcoming Local Conventionettes will be found under the District Notes Section as they become due. The full list appeared in the Convention Report, October BULLETIN.

The T. & R. Bulletin.

(*Published on the 14th of the month.*)

Hon. Editor: G. W. Thomas (G5YK).

Editorial Committee: A. W. Alliston (G5LA), J. D. Chisholm (G2CX), A. D. Gay (G6NF), J. W. Mathews (G6LL), A. O. Milne (G2MI).

Advertising Manager: H. Freeman.

All correspondence should be addressed to The Secretary (or other officer concerned,) The Radio Society of Great Britain, 53, Victoria Street, London, S.W.1. Insufficiently addressed letters may be considerably delayed.

T&R

Bulletin

The only Wireless Journal Published by Amateur Radio Experimenters in Great Britain

JANUARY, 1932 Vol. 7. No. 7

HON. SECRETARY'S REPORT, 1931

THE year just concluding will be looked back upon in the future as a further era in the Progressive Age through which the Society is now passing.

Interest in amateur Radio continues to increase rapidly, both at home and abroad. Many of our older members who, for various reasons, left us a few years ago have recently rejoined, but the outstanding advances have occurred in the B.R.S. section. During the present year nearly 300 new numbers have been allotted, giving a total B.R.S. membership of well over 500. Council have been fully alive to this increase in interest, and have made preparations to cater for it whenever and wherever possible. The series of National Morse Practices which were inaugurated on November 22 last are intended primarily for our B.R. Stations, and, thanks to valuable press publicity, we shall undoubtedly obtain a number of new members.

It is interesting to record that during the past twelve months a total of **343 home and 123 overseas members** have been elected. During this period 120 home and 50 overseas members have relinquished membership, giving a net gain for the year of 24 per cent. This increase is undoubtedly a record in our history. Authentic figures, unfortunately, are not available prior to January, 1930, but from past issues of the T. & R. BULLETIN we have gathered the information that 238 members were elected during 1929 and 378 during 1930. The increase this year is, therefore, distinctly satisfactory. Council are concentrating upon the task of increasing our membership to 2,000, which figure at the present rate of progress should be reached during the early part of 1933.

Our Sixth Annual Convention proved an unqualified success, due in no small measure to the splendid support given by the Provincial membership. The introduction of the new District and County Representatives scheme has already borne fruit, and we can with confidence state that every member who was elected or appointed to act as the Society's local official, in his district or county, has used his best endeavours to further our interests.

District Conventionettes have been an outstanding feature during the year. These have been held in Manchester, Leeds, Birmingham, Nottingham, Bristol, Newport and Tunbridge Wells, and in every case record attendances have been registered. Monthly meetings in Provincial towns have been organised in most districts, whilst local Amateur Radio Societies have been formed in Birmingham, Gloucester, Gillingham, Farnham and Exeter. In every case their organisation is in the hands of R.S.G.B. officials, who have received the wholehearted support of Council.

The T. & R. Bulletin.

With an ever increasing membership the necessity for continually improving the T. & R. BULLETIN naturally arises. Those who have had the good fortune to follow its progress from the first issue will have no hesitation in agreeing that to-day the BULLETIN is a journal worthy of the highest commendation.

The advances made are due entirely to the hard work of the Honorary Editor, Mr. G. W. Thomas, and his assistants, to all of whom we take this opportunity of recording our sincerest appreciations.

The size of the BULLETIN depends largely upon the volume of advertising matter received. Full credit must, therefore, be given to Mr. A. W. Alliston, a member of the Editorial Sub-Committee, for the increase in revenue received from that source during the year.

It is the confident hope of Council that the present enlarged BULLETIN will continue throughout the coming year, but this to some extent turns upon the amount of support given by advertisers. We wish to place on record our thanks to those who have taken advertising space in the BULLETIN, and also to our members who continue to support our advertisers.

The reduction of the original band width to the present allocation, viz. 3,520 to 3,730 Kcs., was made with the full agreement and knowledge of Council.

The technical advances made during the past three years have undoubtedly enabled our members to operate their stations at a high degree of efficiency, whilst the number of British stations employing frequency stabilisation methods provides an example to the rest of the world. We cannot refrain from recording a protest against amateurs of other countries who persist in the use of poorly rectified transmissions. To an extent we blame the Governments concerned for their failure to take drastic steps to overcome this condition, but we feel that the National Societies themselves should use more effective measures to rid the air of these nuisances.

In recording this protest it is desirable to mention that your Council have been compelled to advise the licensing authorities that certain British amateurs have used their stations for the purpose of transmitting programmes of music for the benefit of broadcast listeners who, in most cases, are their customers. Council intend to take every precaution to prevent the high esteem of the genuine Radio experimenter being lowered by amateurs

BRITISH 28 M.C. TESTS: Jan. 23-24 & 30-31. Mar. 19-20 & 26-27

B.E.R.U. TESTS: Each Week-end in February

Transmitting Licences.

Three outstanding successes in connection with our transmitting facilities stand to the credit of our Past President and Licences Manager, Mr. Gerald Marcuse. Early in the year he succeeded in obtaining sanction from the G.P.O. for R.S.G.B. members to use the 3.5. M.C. band from 20.00 G.M.T. to 08.00 G.M.T. daily. This concession, together with the earlier one which opened the band for week-end use, has produced an increase of interest, particularly amongst the newer group of transmitting amateurs who, until the concessions were made, had had no previous experience of operating conditions on that band. In October of this year, through Mr. Marcuse's perseverance, the G.P.O. reduced our guard bands, and it is of interest to quote the opening paragraph of the G.P.O. letter dealing with the subject :—" The Secretary . . . desires to say that, in the light of experience of the tolerances which were laid down by the Post Office under the Washington Convention . . . he has found it possible to reduce the breadth of tolerances."

British amateurs can feel a sense of pleasure in the knowledge that their standard of operating has been recognised as highly satisfactory.

The third important concession, made on November 12 last, affected all amateurs using the 3.5 M.C.'s band. For many months Mr. Marcuse and the members of Council pressed for longer operating times on this band, with the result that permission has now been granted for 24 hours working during eight months of the year. Week-end permission has been granted during the four summer months.

holding commercial interests, whether such persons are members of the Society or not.

The intrusion of commercial stations into the exclusive amateur bands has been the subject of correspondence between the Society and the Licensing authorities. Relief has been effected in most cases where wilful interference by a non-experimental station has been proved.

The recent complaint regarding the Spanish commercial EAK has resulted in an official protest being lodged by the General Post Office.

Contact Bureau and B.E.R.W. Tests.

The Contact Bureau Section under the direction of Mr. H. C. Page has made steady progress. The reorganisation of the Bureau has proved entirely satisfactory, as is evinced by the successful C.B. notes which are a regular feature of the BULLETIN.

The 28 megacycles tests held in February proved abortive, owing to poor radio conditions, but it is hoped that much useful information will be obtained as a result of the 1932 tests which have been arranged to take place during week-ends in January and March. Highly successful tests were carried out on the 1.75 megacycle band, whilst " QRP Week " arranged in April again proved the usefulness of low power for transmission purposes on the higher band frequencies.

The B.E.R.U. membership continues to increase. During the year official representatives were appointed for all Colonies, Dominions and Groups, with the result that the Society's interests are now fully safeguarded in every part of the Empire.

British Empire Radio Week, the first contest of its kind organised, produced great interest at

home and abroad. The handsome challenge trophy was won for Australia by Mr. Trevor Evans, VK2NS.

Empire Link Station work has again been handled with promptness and efficiency.

The outstanding achievement of the year, however, concerns the Honorary Affiliation of Empire Radio Organisations to the B.E.R.U. It is impossible, at this stage, even to hazard a guess as to the ultimate outcome of these affiliations, but it is your Council's belief that as a result the welfare of all Empire amateurs will be safeguarded to an extent which, in the past, has been impossible.

To assist in the preparation of a statement outlining our proposals for Madrid, all affiliated Empire organisations have been invited to forward their views to the Headquarters Society.

Society Celebrities—No. 4.

It is opportune at this time to emphasise that a very close and cordial relationship exists between the British Post Office authorities and the Society's officials detailed to deal with them on matters affecting policy.

The finances of the Society are in an eminently satisfactory state, due mainly to the careful and efficient manner in which your Treasurer has carried out his duties. His help and guidance have been of the utmost assistance to Council, and no record would be complete unless a gracious acknowledgment was paid to Mr. Ostermeyer for the services he has rendered on our behalf.

The Publicity Section under Mr. Arthur Watts has achieved much which cannot be detailed, but to them we can give credit for obtaining a good proportion of the new B.E.R.U. membership. Your acting Vice-President was personally responsible for British Empire Radio Week and for the organisation of the Empire Link Stations; he has also done much to bring into being the affiliation of the British Empire Radio organisations.

The difficult duties of Provincial Districts Representatives have again been undertaken by Mr. H. B. Old, of Nottingham. Present at all Council meetings in London and at every District Conventionette, Mr. Old is in the unique position of being conversant with the views of probably more amateurs than any other member of the Council. We desire to accord him a special word of thanks for the splendid work he has done in linking up the London executive with the Provincial membership.

Mr. Chisholm and Mr. Pilpel as QSL and QRA Managers have, with much success, organised their respective sections. Owing to a gradual increase in the use of the QSL Bureau, it was found necessary to engage a junior clerk during the year. The section is now handling on an average 3,000 cards per week throughout the year, and is one of the best organised in the world.

It is impossible in this report to include the names of all who have helped us to make progress during the year, but we feel that a word of high praise is due to Mr. Wyllie for the excellent manner in which he has carried out his duties as honorary Scottish Manager.

Thanks are also due to the Press, both national and local, for the publicity which has been so freely given to us during the past year.

Before concluding this report I wish to record my personal thanks to our President, Mr. H. Bevan Swift, for the assistance he has rendered me throughout the year. Hardly a week has passed without some difficult matter of policy arising, which has required his prompt decision or clear guidance. Your President deserves the sincere thanks of every member for the manner in which he has guided our destinies during the year. He carries with him into 1932 the knowledge that Council will support him loyally and sincerely.

Finally, I desire to thank Miss Gadsden for the work she has done in her capacity as Assistant Secretary. Under present conditions it is essential that I should have the benefit of her services after her normal working hours; consequently whole week-ends and countless evenings have been willingly given up to Society work, thus enabling me to carry out a duty in a manner which I trust has met with approval.

J. C.

Short-Wave Aerials and Feeders.—(*Continued from page* 225).

Finally, the feeders must be matched into the output stage of the transmitter. As this output stage may be anything, no definite information can be advanced, but the circuits of Fig. 6 may be tried, and one of them will be satisfactory. A little experimental work is necessary to get things nicely adjusted, but when they are the current should be the same anywhere in the feeders, and should be the highest obtainable. Remember, when coupling to the transmitter, to try and keep symmetry, and watch for capacity couplings to the transmitter or earth.

A common aerial consists of a half-wave top, with a twin feeder, one of whose wires is joined to the end of the top portion, the other being free. This falls into the A.O.G. class and will be dealt with there.

(*To be concluded.*)

SHORT-WAVE AERIALS AND FEEDERS.

By F. Charman (G6CJ).

MUCH has been written on the design of short-wave aerials, and there is often a wide range of opinion as to what is the best procedure when erecting and adjusting an amateur aerial. A complete treatment would be impossible in a single article, but it is hoped that the following will help to clear up one or two important points of divergence, and at the same time offer a little practical help.

Before treating aerial types in detail, however, it is essential to have a thorough understanding of the behaviour of waves on wires, and we will study the theory of these for a start, and see why the wires radiate, and how to stop them if we do not want them to do so.

Waves on Wires.

Let us take a pair of parallel wires stretched between two points, A and B, our old friends of the arithmetic book, and let us suddenly apply some volts across the pair at the end A. The source of voltage will discover that the wires have a mutual capacity, and will try to charge them up. But the charge cannot be taken up instantaneously, because of the limited velocity of electricity, and also because of the retarding effect of the inductance of the wires on the sudden growth of the current. Thus the wires will commence to charge up from A, and the initial surge will travel down the line, the source supplying current to "fill up behind," so to speak. Now, suppose that, having started the charge flowing down the line, we disconnect the source. What will happen? The charge cannot disappear, because it represents an amount of energy. The advancing wavefront in motion was in a stable condition, and there is no reason to suppose that it knows what is happening way back. There is an equilibrium between the L and C and the moving current, much the same as there is in a "tank" circuit. So the wavefront must go on as if nothing untoward had happened. But what of the tail? Well, there is an electrical theorem which tells us we can regard no current as two equal and opposite currents, so that the sudden removal of the source can be regarded, instead, as the application of —V volts in parallel with +V, giving two equal but opposite waves.

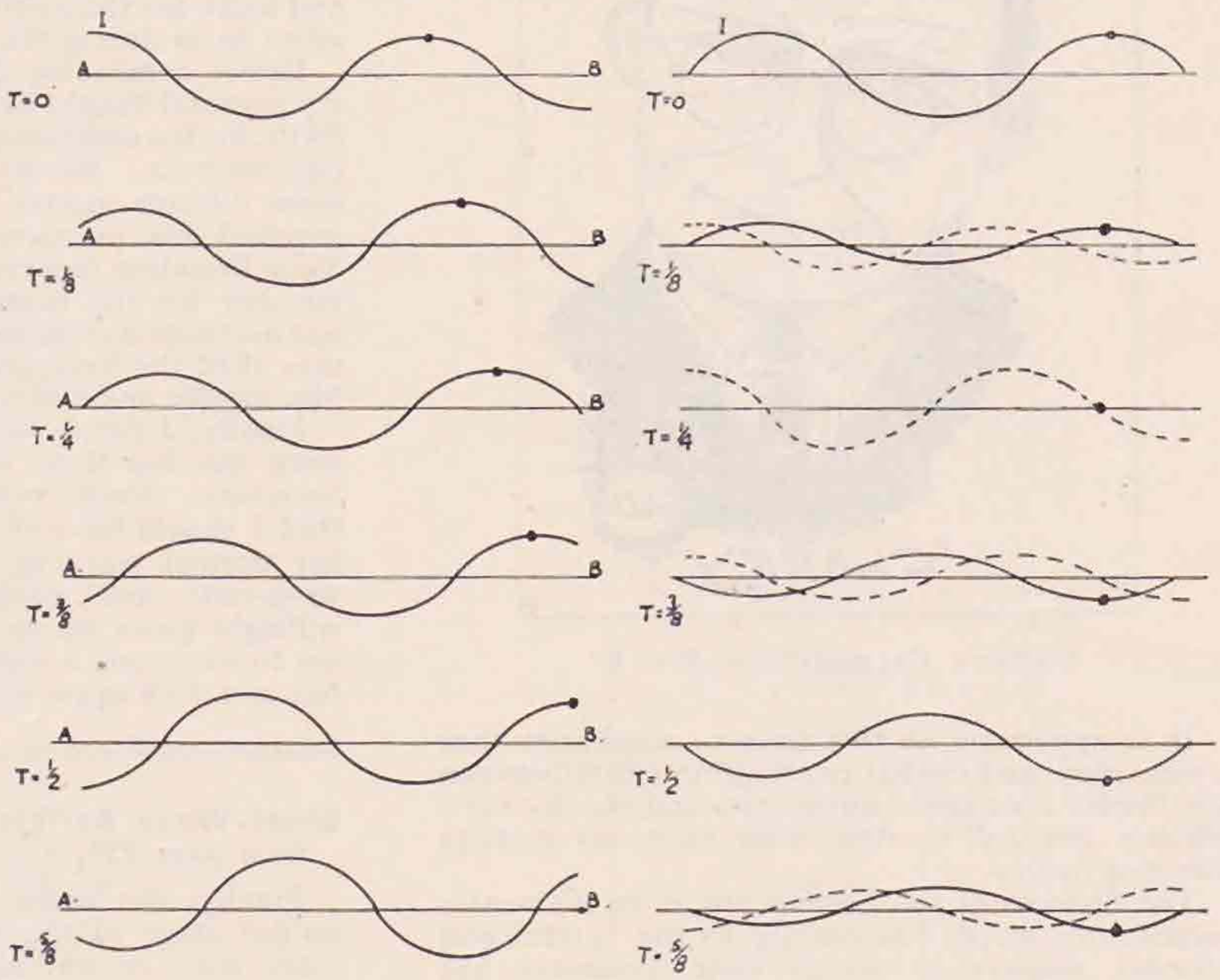


FIG 1a
TRAVELLING WAVES

FIG 1b
STANDING WAVES

Looking at it another way, we can have the same equilibrium between L and C and the receding "wave rear" as we had at the front.

It would appear, then, that the wave shaped like ⌐¬ will travel away from A towards B with a uniform velocity, the corner posts representing V and the crossbar tune. This is what actually does happen, and the above physical explanation is substantiated by mathematics, which to the mathematician is the same thing written more concisely, whilst to the uninitiated it is nothing short of Black Magic.

It will easily be appreciated that whatever picture of V we draw in the time direction will be repeated along the lines, and, by regarding it as composed of many small steps, we see that a sine e.m.f. applied at A will send sine waves along the line.

Now, having sent the wave off, let us trace its history. What becomes of it? If B is at an infinite distance from A, the wave never gets there, but just travels sweetly along, never to return. But if B is at a finite distance, the wavefront will arrive sooner or later, and when it does it encounters a serious obstacle. There is the whole charge pushing up behind; the wave cannot pile up at B; the only thing for it to do is to come back; and so back it comes, each little part in turn going right up to B and then turning round and returning, so

that the thing comes back to A, turned round, where it must do the same again, unless special circumstances intervene.

Terminations.

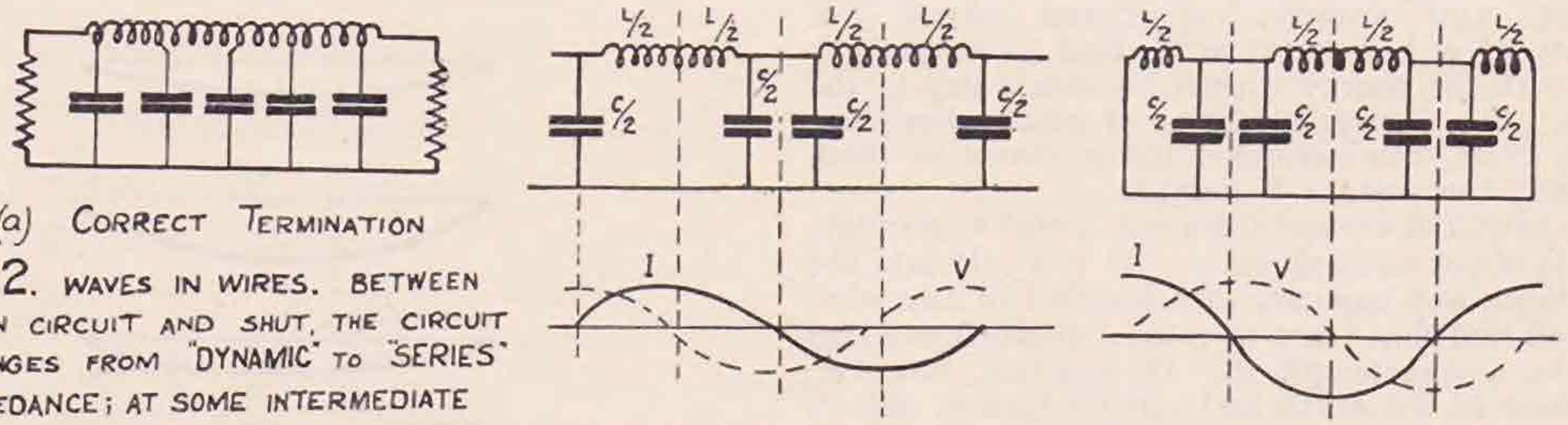
Going back for a moment, we noted that immediately V was applied the current flowed, *i.e.*, it was *in phase* with the supply, or, in other words, when V is applied the pair of wires looks like a resistance across the source. This resistance, R_0, is called the *characteristic* or *surge* impedance of the line, and the relation between current, volts and resistance is strictly according to Ohm's law. If the line is infinitely long, this condition will remain, and as far as the source is concerned, it is feeding into a resistance R_0.

Now for some more Black Magic. Suppose that B is finite, so that there would normally be a reflection of voltage, but connect a resistance of value R_0 across it. The wave arriving has no means of distinguishing between an infinite extension from B, and a piece of eureka value R_0. It will behave, then, as if the line were infinite and there will be no reflection at B! It will be dissipated just as fast as it arrives.

Standing and Travelling Waves.

Consider, now, the reflections and their effect on things in general. I think it has been shown that we may legitimately make the voltage V alternate, and expect to get alternations of current and voltage distributed up and down the line, and we will henceforth consider only such waves.

If there is no reflection at B, we shall have a set of waves, current and volts in phase, travelling as a whole down the line. In the case of complete reflection at B, however, the returning waves will be superimposed on the going ones, and there will be points where the currents are equal, but opposite, and balance out, and other points where they assist. These points are fixed, and do not move with the waves. At the points where the currents balance, it will be found, if signs and directions are taken into account, that the voltages are always additive, and at the points where the currents are additive the two voltages generated by them will be balanced out. This system is known as *Standing Waves*. The whole is sketched in a series of cinematograph pictures, taken over one cycle, in Fig. 1b, whilst Fig. 1a shows the other case, where there is no reflection, namely, *Travelling Waves*. I think the pictures will explain far more easily than words can what is happening in the two cases.



(a) Correct Termination

(b) Open Circuit.

(c) Short Circuit.

Fig 2. Waves in wires. Between open circuit and shut, the circuit changes from "dynamic" to "series" impedance; at some intermediate condition it can be neither

With travelling waves we have the sort of thing you see when you waggle the end of a string up and down quickly; the surges travel down the line in succession. With standing waves, however, it is a case of "when father says turn, we all turn." In the former case, we have volts and current *in phase*, and therefore energy on the move; in the latter case the volts and current are in quadrature, or a quarter of a cycle apart, and we have the case of energy standing still, like the energy in a tank circuit, alternating between kinetic and potential forms.

In the case of an indeterminate value of load at B there will be some intermediate condition between the two described. It will be instructive for the reader to distinguish between the cases where the load is greater or less than R_0, as, for example, when B is shorted.

Two other points are worth mention. Firstly, the condition for no reflection at the source A is obviously the same as that at B. The generator must be matched to the line. Secondly, although we have considered only two parallel wires, it should be apparent that similar conditions will hold if one wire is replaced by earth, giving us the alternatives of the twin feeder and the single-wire transmission line. This latter usually has higher R_0 than the former, and consequently is more subject to disturbances due to stray capacities, leaks, etc. Henceforth it will be considered that the same physical treatment may be taken for either system, unless specifically stated, the difference between the two being merely a difference of "impedance level."

Radiation.

The question now arises, when do the systems radiate, and why? Well, it is known that radiation is connected with the mis-match of impedance, so that the open-ended system radiates, whilst the matched feeders do not. No satisfactory explanation has been found, however, for the mechanism of radiation of this type. In most textbooks on the subject the matter is skilfully dodged; one leaves one chapter with the energy in the aerial, and in the next chapter one finds it already radiated. Some writers, particularly across the Atlantic, advance explanations of what happens in the quarter wavelength between the aerial and the free wave, but as they mostly arrive at wrong conclusions regarding the free wave, the matter will be left by the writer, and we will satisfy ourselves with the knowledge that if we want the wire to radiate

we grow standing waves on it, whilst if we just want to transfer energy along it we carefully match both ends of the line.

Circuits.

It may be helpful, finally, to get an idea of the "circuits" of these wire systems. The correctly terminated line looks like Fig. 2a, the inductance and capacity being distributed uniformly along the line. The system will show the same impedance wherever we measure it. Fig. 2b shows the line on open circuit, when it is one wavelength long, and Fig. 2c the same line with the ends shorted. It will be seen that with these unmatched lines, the impedance depends on where we measure it. At the current maxima we measure the series resistance of the tuned circuits, and at the voltage maxima the "dynamic" impedance, and at other points some intermediate value containing reactance as well as resistance.

The matched line will be seen to be a sort of hybrid beast, a cross between the "series" and "dynamic" resistance of the circuit. As a matter of fact, if one takes a coil and condenser a certain value of resistance can be found which, connected either in series or parallel, will just make the circuit aperiodic. Its value is $\sqrt{\frac{L}{C}}$, the same as the value of R_0 above, so that the analogy is complete.

The Hertz Aerial ("Current Fed").

Let us now turn our attention to various aerial systems, taking the Hertz as the most straightforward. One variety, called the *current fed*, consists of a horizontal wire, half a wavelength long, with the energy supplied across a gap in the centre. Fig. 3 gives a picture of what takes place in one cycle, the current I being shown in thick lines and the voltage V dotted.

The length of the aerial for one complete standing wave is about one half-wave. If you calculate the inductance and capacity of a length l of any wire, you will find that the two values obtained together tune to a wavelength 2l. In practice, however, the effect of the earth and other adjacent objects is to increase C somewhat without affecting L, so that the aerial actually comes anything up to 10 per cent. shorter than half a wavelength. As this effect is never the same in two cases, we have in the past been given all sorts of legendary values for the correction.

Across a break in the centre the resistance appears to be about 80 ohms, this being almost entirely due to radiation (hence the high efficiency of the Hertz). The value varies actually between 60 and 100 ohms, depending on the height. As this varies R rises first from 0 to 100 ohms at $h=\frac{\lambda}{2}$, then drops to 60 and rises to about 90 at $h=\frac{3\lambda}{2}$, and so on, finally settling near 80. This has been confirmed experimentally, but is not much under control in our particular cases as the electrical height is very indefinite, and usually disappointing where there are houses and trees around the aerial. Again the $\frac{\lambda}{2}$ value is not much use, as the radiation mostly goes upwards, the spacing being such that the ground reflects it in the correct phase. *

* See the conclusion of G6FO's article, November, 1931.

C/F Feeders.

We have to make the feeders work into about 80 ohms. Can we make them 80 ohms themselves? This would be the nicest thing to do. The curve of Fig. 4 gives the R_0 of a pair of wires. It depends on the ratio of diameter to spacing, and as you see, it is difficult to make it come outside 300 to 600 ohms. Bringing the wires too close makes their H.F. resistance go up rapidly, whilst they do not like being an appreciable fraction of a wavelength apart. Systems of several wires around a ring, alternately + and — so to speak, have been found satisfactory, and for those who wish to experiment, six wires will give about the correct R_0. However, it will probably be quite satisfactory to make a transformer. There are two ways. The first is the ordinary type, and can consist of two coils of equal winding length, one inside the other, and about 1 in. diameter, and about 5 and 10 turns for 14 M.C., 10 and 20 for 7 M.C., the small coil, of course, being in the aerial.

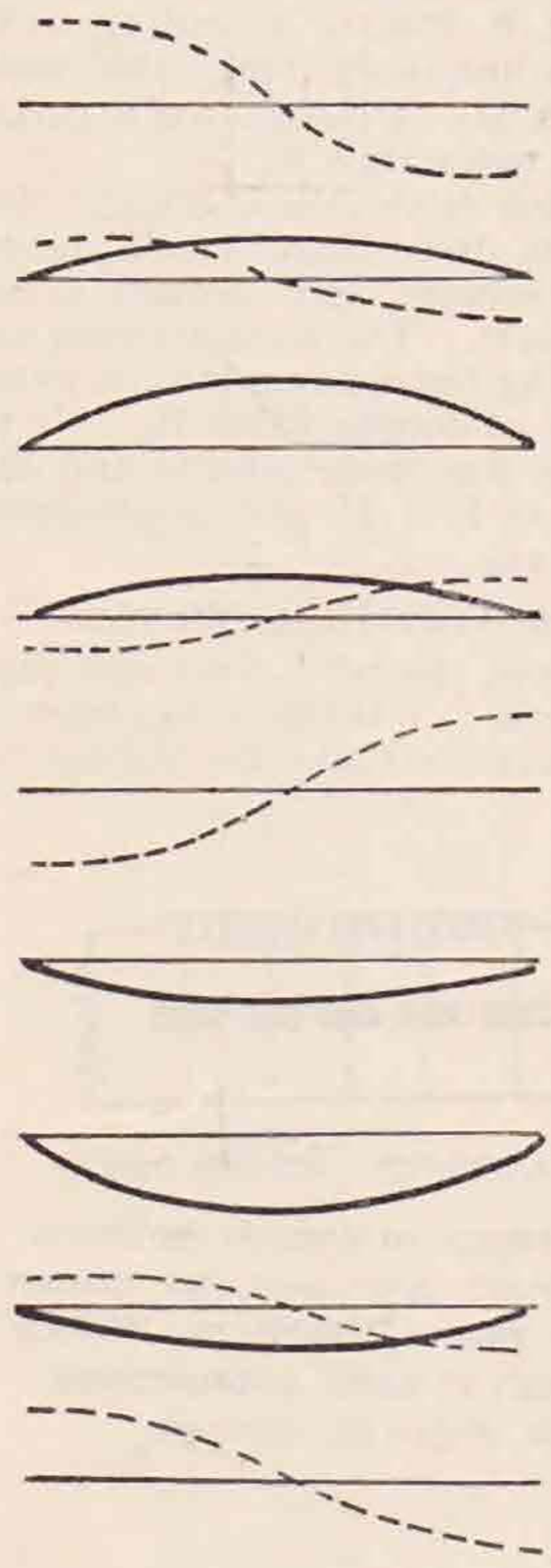


FIG. 3.

ONE CYCLE IN A HERTZ

The second is a tuned circuit of the correct $\frac{L}{C}$ ratio to bridge the two impedances, so that one

looks "dynamic" and the other "series." The coil need not be "hot" as the impedances are low. Suitable values are shown in Fig. 5. The coil dimensions are as follows: 28 M.C., two turns on 1-in. diameter, spaced ⅜ in.; 14 M.C., three

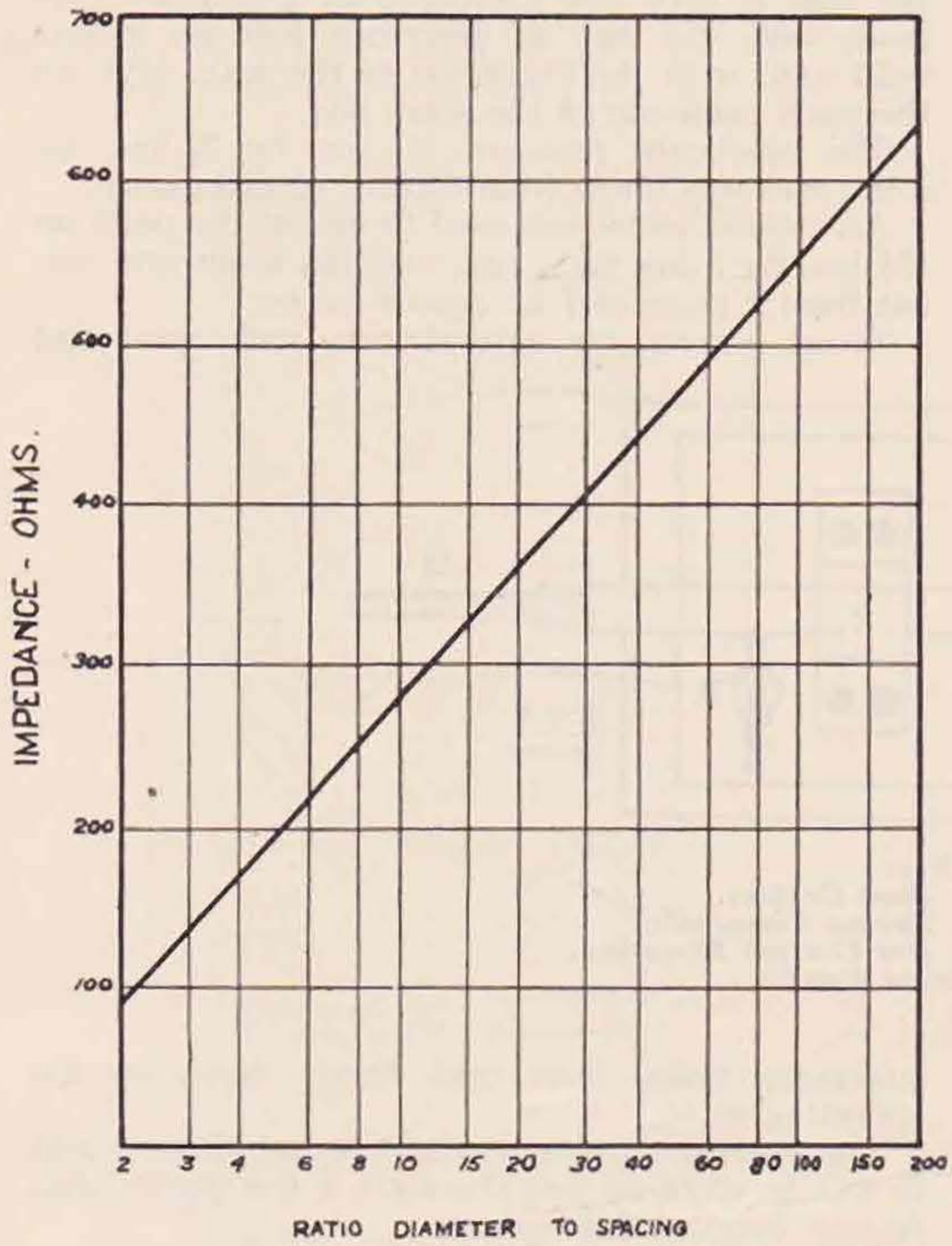


FIG 4.

IMPEDANCE OF TWIN FEEDERS.

turns on 1-in. diameter, spaced ¼ in.; 7 M.C., four turns on 1-in. diameter, spaced ¼ in.; all fairly fat wire, say 12 or 14 S.W.G., or even our old friend, 7/22.

Insulation is not highly important, only ordinary care being necessary, in these circuits, or the feeders for that matter, though the network should, of course, be protected from the rain and soot.

A casual glance at Fig. 2 reveals a third way of feeding the aerial, which consists of replacing the network of Fig. 5 by a quarter-wave feeder. The impedance of this feeder is the geometric mean of the two it is matching, but as the bottom end is under our control, the feeders are now arbitrary. It will most probably be necessary to have a step-up from the transmitter. This type of feeder, however, may only be used when it can be made the correct length, and when this does not include sharp bends.

A third, and probably the most satisfactory, method is to connect the feeders symmetrically a few feet astride of the centre, without breaking the centre at all, the matching being done by sliding them outwards or inwards.

The feeders are not critical in their demands. We need two wires about 10 to 15 diameters apart. * By the time we have included the effect of capacity to earth (which reduces R_0) we shall have about the right impedance. Do not worry about accurate matching: 10 per cent. to 20 per cent. is not going to wreck the whole concern.

The aerial itself is tuned by adjusting its length. This is done by coupling a small oscillator to the

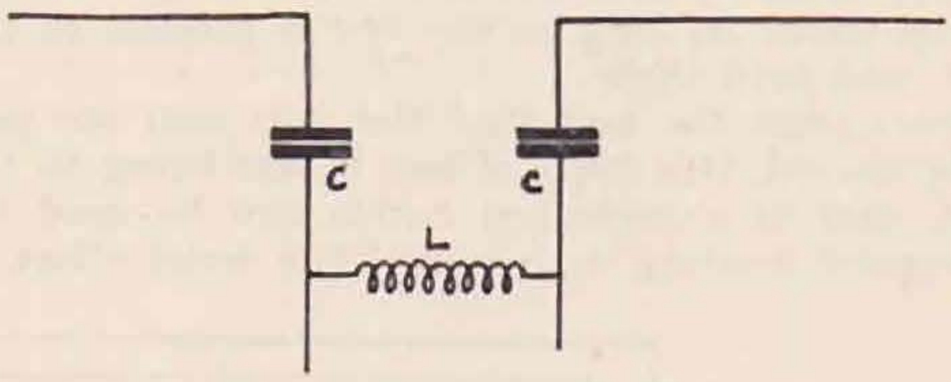


FIG. 5. IMPEDANCE MATCHING NETWORK

L = ·85 μH (28 mc.)
1·7 μH (14 mc)
3·4 μH (7 mc.)

C = 66 μμF (28 mc.)
130 μμF (14 mc.)
260 μμF (7 mc.)

bottom end of the feeders, and finding where the aerial absorbs most power, by drawing the greatest feed, or if more power is available, by inserting an ammeter in the centre of a symmetrical coupling circuit at the bottom of the feeder. Having found this wavelength, the aerial is chopped off in pro-

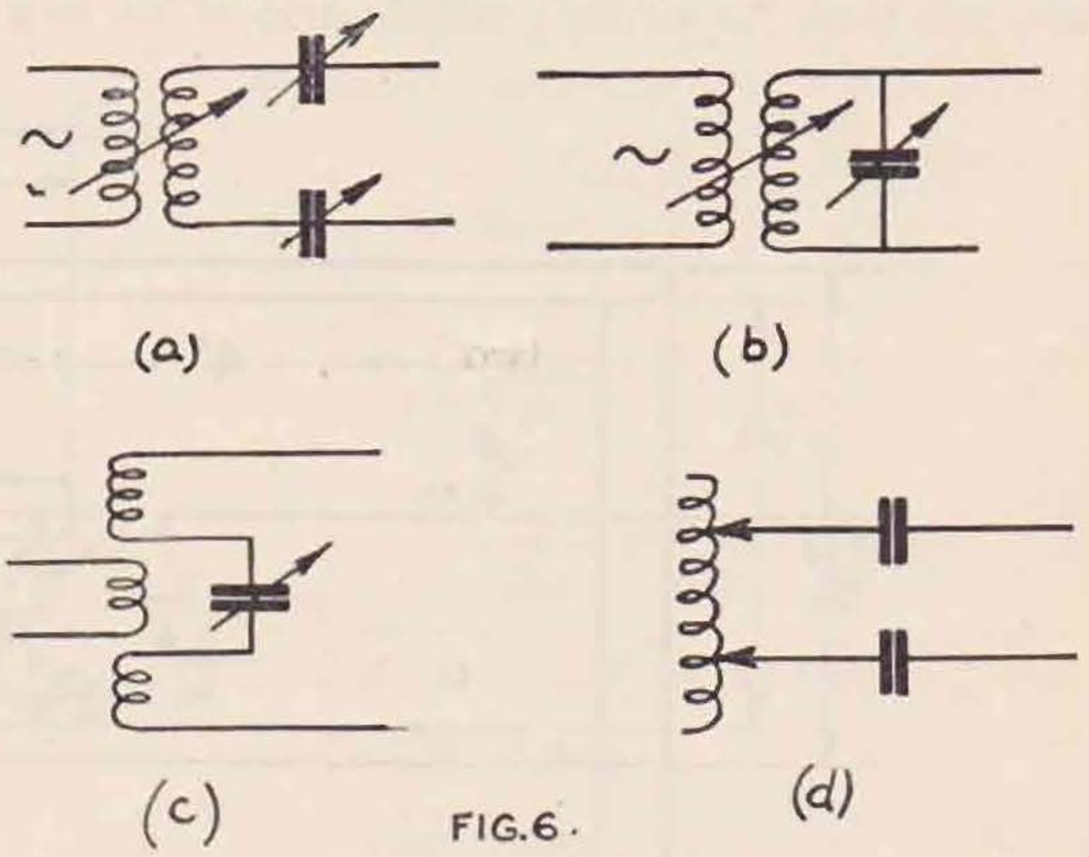


FIG. 6.

COUPLINGS TO THE SOURCE
(d) SHOULD ONLY BE USED WITH A BALANCED CIRCUIT.

portion. It will work satisfactorily up to about 3 per cent. too long or short. Misadjustment of the feeders will not upset the tuning of the aerial.

* Say about 3 ins. for 7/22.

(*Continued on page* 221).

SEMI-AUTOMATIC MORSE KEY.

By Captain A. M. Houston Fergus (G2ZC).

THE action of the semi-automatic key to be described is that it works horizontally, and while each dash has to be made by pressing the key to the left, a continuous succession of dots can be made, so long as the key is pressed to the right, and held there.

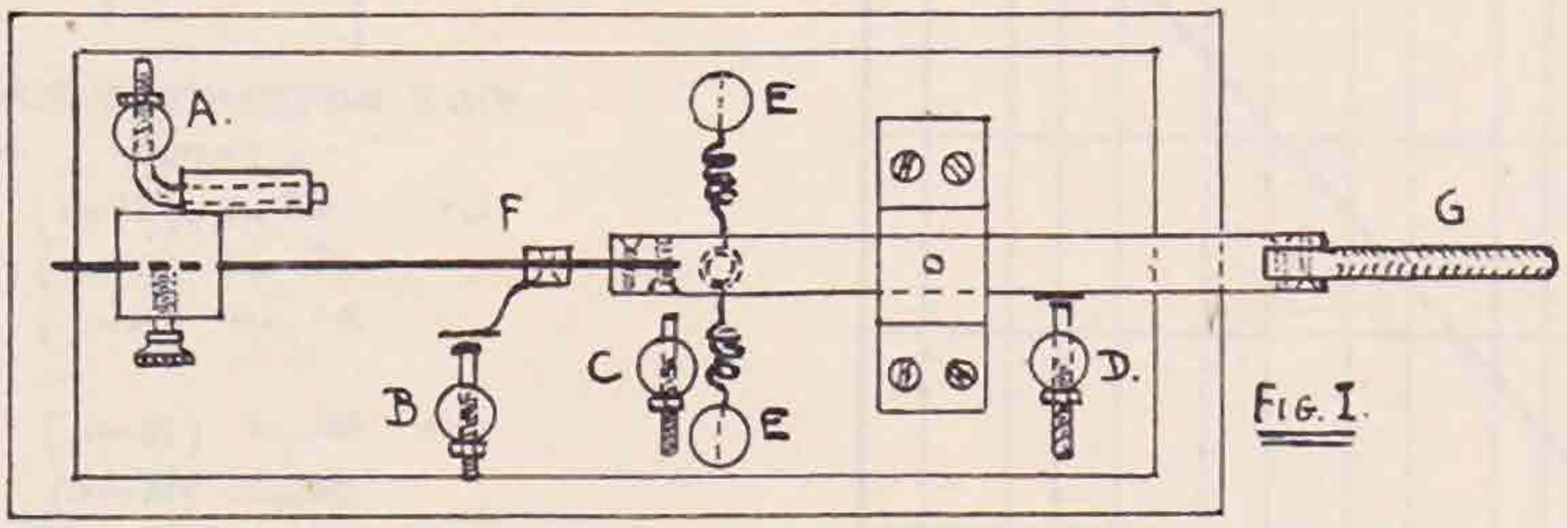
Apart from the fact that the dots sent are perfectly spaced, this type of key is less tiring to the wrist, and in experienced hands can be used for high-speed sending with very little wrist effort.

R.S.G.B. readers of "QST" will have seen two "Bug" keys described in recent years, and the only excuse the writer has of submitting this article to the T. & R. Bulletin is, that W3WO, who has built the writer's modification of his own "QST" key, says that it is a nicer key to work than his own, and nothing of the kind has appeared in the Bulletin. As several British hams, who have seen the key, have built similar ones, and as the cost is very low compared to a commercially made one, the key is described just as it was built and, with the exception of the main arm, all the parts came out of the scrap box.

The baseboard measures 8½ ins. by 3½ ins. by ½ in., and was made from a piece of mahogany.

An ebonite panel was used to mount the parts on (7½ ins. by 3 ins. by ¼ in.), and the main arm was cut from a piece of ⅜ in. square brass.

Wood screws through ebonite and baseboard (clearance holes) hold both firmly down on the operating table.



Plan of Key.

A. Dash Stop.
B. Dot Contact.
C. Dot Stop.
D. Dash Contact.
E. Spring Terminals.
F. Dot Contact Mounting.
G. Ebonite Operating Handle.

The general construction and layout (Figs. 1 and 2) will be obvious, but there are a few points that require detailed description.

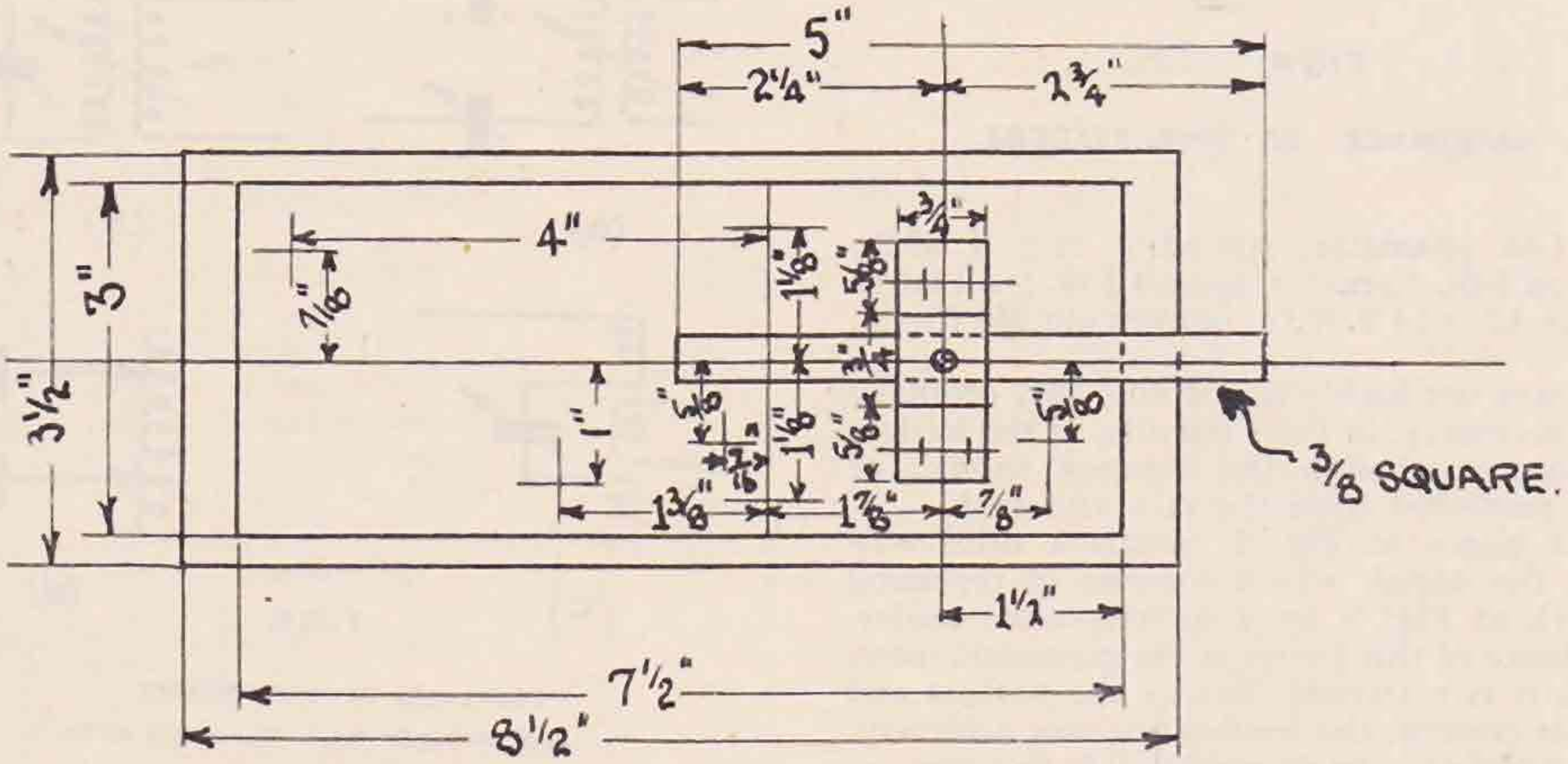


FIG II

W3WO specified a thin corset "bone" (metal) for the vibrator spring, but as the writer could not find this in his scrap box, he used an old hacksaw blade.

The temper was drawn from one end (if held in a vice this will localise the amount drawn) and a second hole was drilled, after which the blade was re-tempered.

The teeth were ground off and the blade ground a little on each flat, and then the blade was ground to about half its original depth. The datum point for all measurements is taken from the centre of the pivot.

The pivot was turned out of brass with ample shoulder on the bottom bearing surface for the hole drilled for it in the $\frac{3}{8}$ in. square brass arm, and of a tight "pushing" fit. It was then sweated into the arm (Fig. 3).

The bearings for the pivot were made from 1/16 in. brass sheet, two strips each $\frac{3}{4}$ in. wide being cut.

The bottom plate is quite flat, and the top one was shaped into a flat topped, inverted U (Fig. 3).

With four suitable screws and nuts, these plates are not only held together, but also to the ebonite base plate, and tension can be adjusted between the pivot and its bearings by slight adjustment of the screws and nuts. In shaping the U piece, do not forget to "temper" it thoroughly at each bending.

Both the vibrator spring and the ebonite handle (key) may be bolted on to the outside of the $\frac{3}{8}$ in. arm, but it makes a much neater looking job to slot centrally for each.

The ebonite handle can be shaped to fit the slot in the arm ($1\frac{1}{2}$ ins. by 1 in. deep by $\frac{1}{4}$ in.) the corners and edges being rounded off.

In the original model the dot contact extension piece (F. Fig. 1) was soldered direct on to the vibrator spring, but in the key being described, a piece of square brass was slotted to fit over the hacksaw blade, with a pinching screw, so that this can be adjusted in position, and to this the thin brass extension piece is soldered. This piece should be a thin springy brass strip. The weight (Fig. 3) was made from an odd bit of $\frac{3}{4}$ in. diameter brass rod, with a pinching grub screw fitted as shown, and to the head of the screw a terminal head was soldered on, for convenience in adjusting. One can experiment with weights of different sizes, and a piece of lead, or lead piping, is suggested to start off with. The writer's weight is just short of 2 oz.

Brass rods, as stopping and contact pieces were mounted through terminals, but a neater job might possibly be made by making the mounts of brass, and mounting the rods through them, but in practice terminals do the work quite well, as they allow necessary adjustments to be made in the gaps of the stops and contacts. It was found that by threading the rods (Fig. 3), and screwing a nut on *behind* the terminal, that this nut acts as an excellent vernier adjusting device, if one wants to put the rods a fraction nearer, or further away, as adjusting by hand without them was found to be rather rough.

The dot and dash contacts, both on arm and

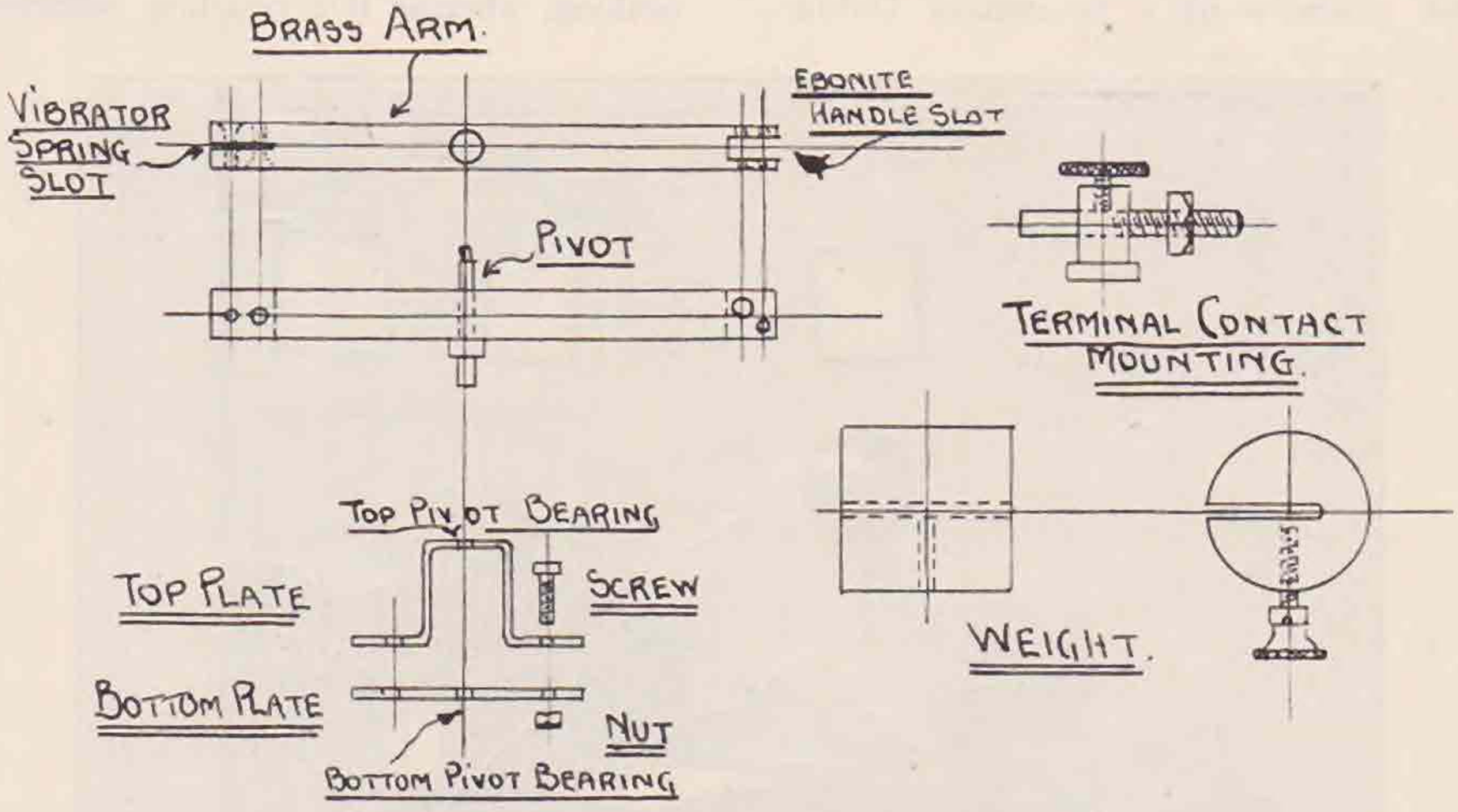


FIG III

contact points, were each faced with a plate of solid silver, but this is a refinement.

The two springs (E. Fig. I) can be pinched at the correct tension under the terminals, and the springs themselves can be anchored to the arm by means of a screw tapped into the underside of the arm. The terminals allow tensioning, or evening of the springs, as the action of these springs is to bring the arm central (free from contacts) when the key is not being pressed.

A piece of rubber tube sleeving slipped over the dash stop (A. Fig. 1) makes the key more silent in operation.

Two terminals (not shown) can be mounted where desired, to connect the key in circuit, one terminal having a lead wired to the arm (say, via the bearing plates) and the other terminal being wired to the dot and dash contact terminals respectively. (B and D. Fig. 1). For neatness, sub-panel wiring was employed. The setting of the key as regards the *speed* of the dots, depends upon the position

(*Continued on page* 230.)

STATION DESCRIPTION No. 20.

EI7C

By "James Morrison."

EI7C is well known as an effective low power station. The Brothers Scott are joint owners and operators and succeeded in winning the 1.75 M.C. Transmitting Trophy in last year's C.B. Tests.

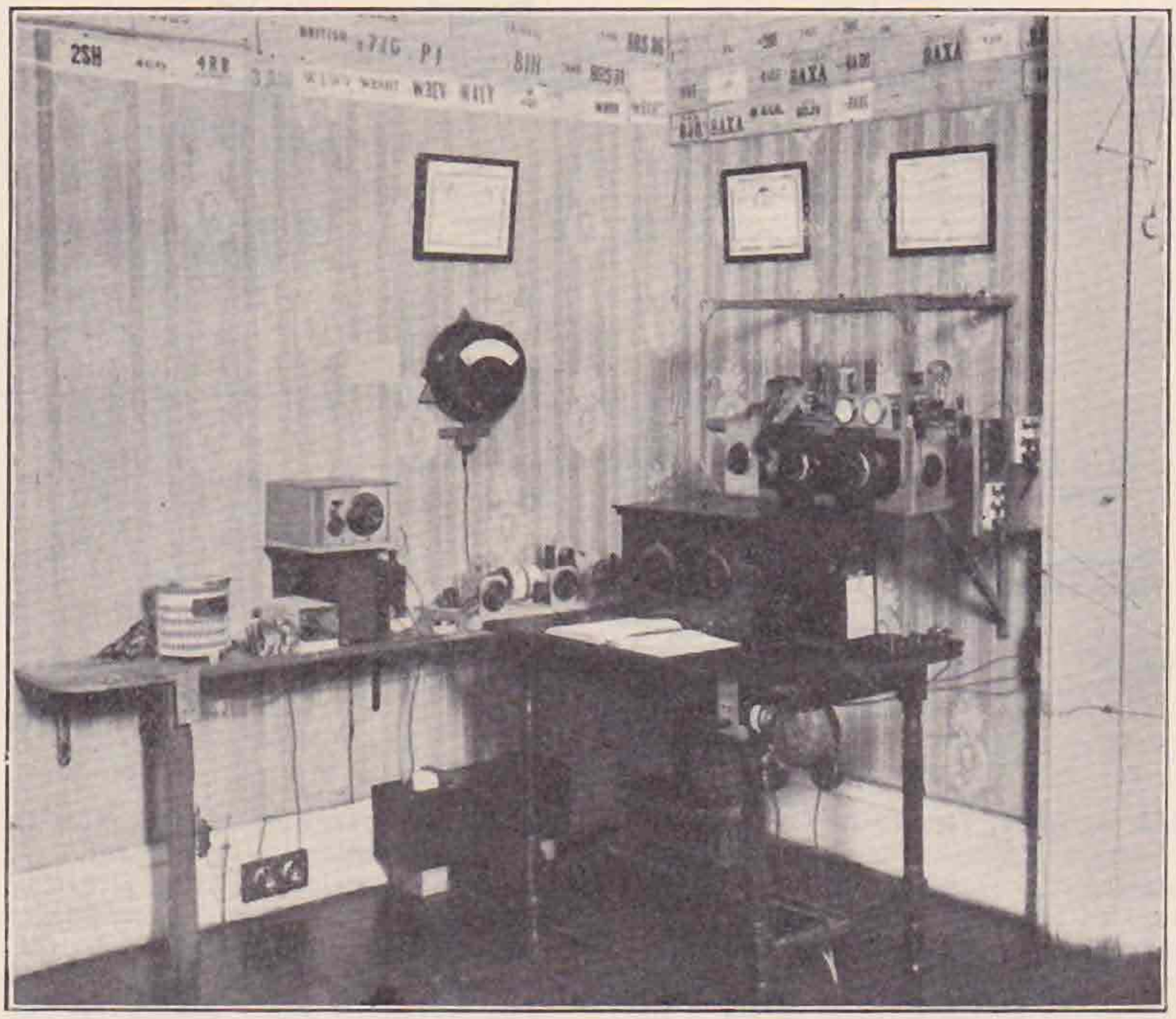
AFTER twisting across Dublin through streets designed by a demented snake, I finally reached Garville Avenue, which is on the south side of the city. The front steps of No. 9 —the home of EI7C, and the Scott brothers—go right up, apparently, to the first floor, and at the top "R.D." gave me a usual Southern welcome in the sonorous cadences of a fascinating Dublin brogue. A slight, good-looking young man with a tremendous smile—who is not so tall as "J.B.," whom I had met previously, and who is now doing his "operating" in England—being a doctor—"R.D." is a final year medical at Trinity, and a B.A.

Like good hams, we made immediately for the back of the house, where EI7C is situated, and found the "doings" in a corner of R.D.'s bedroom. The walls are covered with cards from every corner of the globe, and testify to the good work done.

The receiver is a standard Reinartz with two L.F. stages; the first is transformer coupled, and the second R.C., as this arrangement was found to be free from threshold howl, and is easier to make oscillate on 28 M.C. than a detector followed by R.C. coupling.

The receiver has large diameter coils (3 in.) wound with bare wire and spaced. The aerial is tapped one turn from the filament end of the grid coil; this reduces the hand capacity to almost nothing, whereas if a coupling condenser is used between aerial and grid, hand capacity is very bad. The receiver cabinet carries a tinfoil screen, unearthed, and the receiver sits on an earthed plate of zinc. This eliminated hum, and mains H.T. (from A.C. mains) is used for all bands, including 28 M.C., and found quite satisfactory.

A combined monitor-frequency meter is used, and the phones are always in circuit. When transmitting, the receiver filaments are switched off and the monitor filaments switched on. With the present connections, shown in Fig. 1, one gets a howl when receiver and monitor are both "on" and tuned to the same frequency or harmonic frequency; this is a disadvantage, but "R.D." is



experimenting with output circuits for the monitor in the hope of removing this trouble. A small neutralising condenser is used in parallel with the monitor condenser to correct slight variations in the calibration.

EI7C's signals are well known as clear-cut beautifully keyed CC, and I think that the trans-

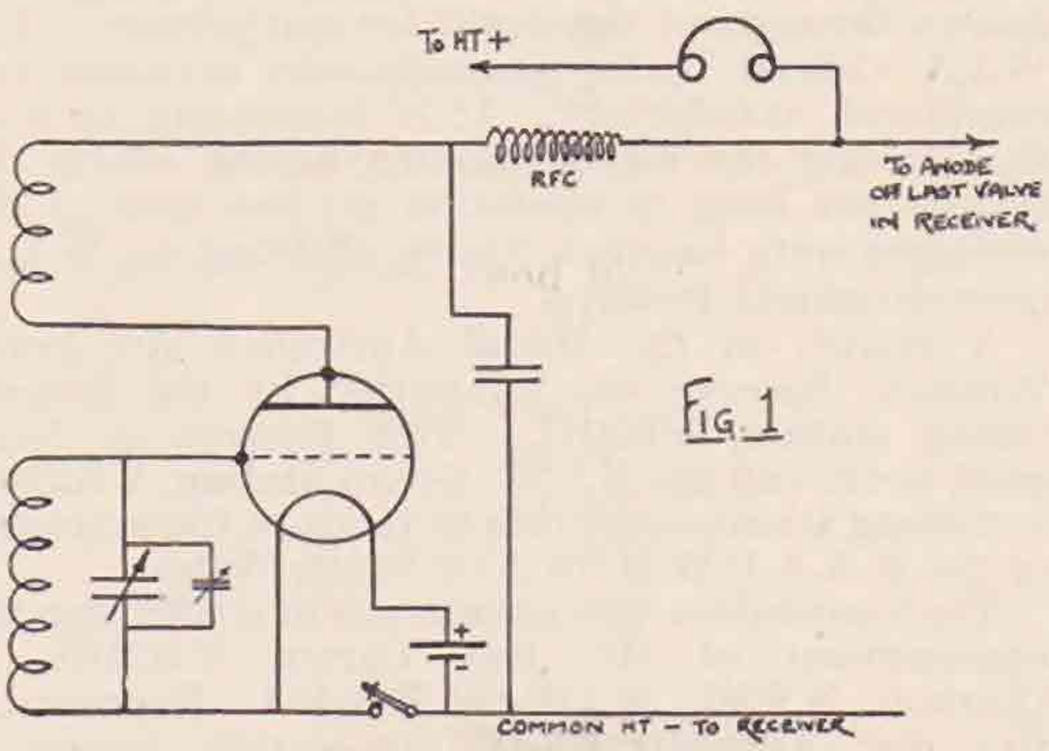


Fig. 1

mitter circuits will rather surprise lovers of the orthodox. The transmitter itself is an absolute triumph of ingenuity, and leaves the pleasant impression one always gets after seeing a well-made job, where everything possible is made by hand from all sorts of odds and ends. EI7C is a real home-made station, and not one of these kit sets. It is neither hay-wire, nor does it imitate the commercial job; it is a business-like bit of work done by two fellows who know what they are doing, and who are not content to copy someone else. It is my idea of a real ham station, and everyone knows how well it performs.

The whole scheme is shown in Fig. 2. When working on 7 M.C., a 7 M.C. crystal is used in the CO and the second valve is used as a neutralised PA. The clips C and B are taken off the coil, and the clips A and B (leads to 7 M.C. feeders) are put on. The anode circuit of the PA is then retuned for best output, and the H.T. plus is keyed. When on 7 M.C., the LS5D is used as a PA, as it is found much more efficient than the LS5. On 14 M.C., the LS5 is used in the second stage, which is now tuned as an FD, and the LS5D is used as a locked oscillator of the Ultraudion type. Clips A and B are removed, C and D are connected, and what previously was the aerial coil is now the 14 M.C. tuned circuit of the output valve. The 14 M.C. aerial coil of one turn is always in position and makes no difference to 7 M.C. working, as it then is connected only as far as a switch. EI7C says that he finds the parallel feed Ultraudion about 30 per cent. better than any other circuit he has tried. The three coils which couple together are fixed on the one former, with $\frac{1}{8}$-in. between turns and between coils.

The transmitter used so successfully on 1.75 M.C. was a CO inductively coupled to a neutralised T.P.T.G., and is about as simple a little rig to get going as can be imagined. It is also very efficient, and was used by several other Irish stations during the Tests. EI7C has worked many countries on this band.

The aerial at EI7C is a full-wave for 14 M.C., with quarter-wave feeders. The radiator is about

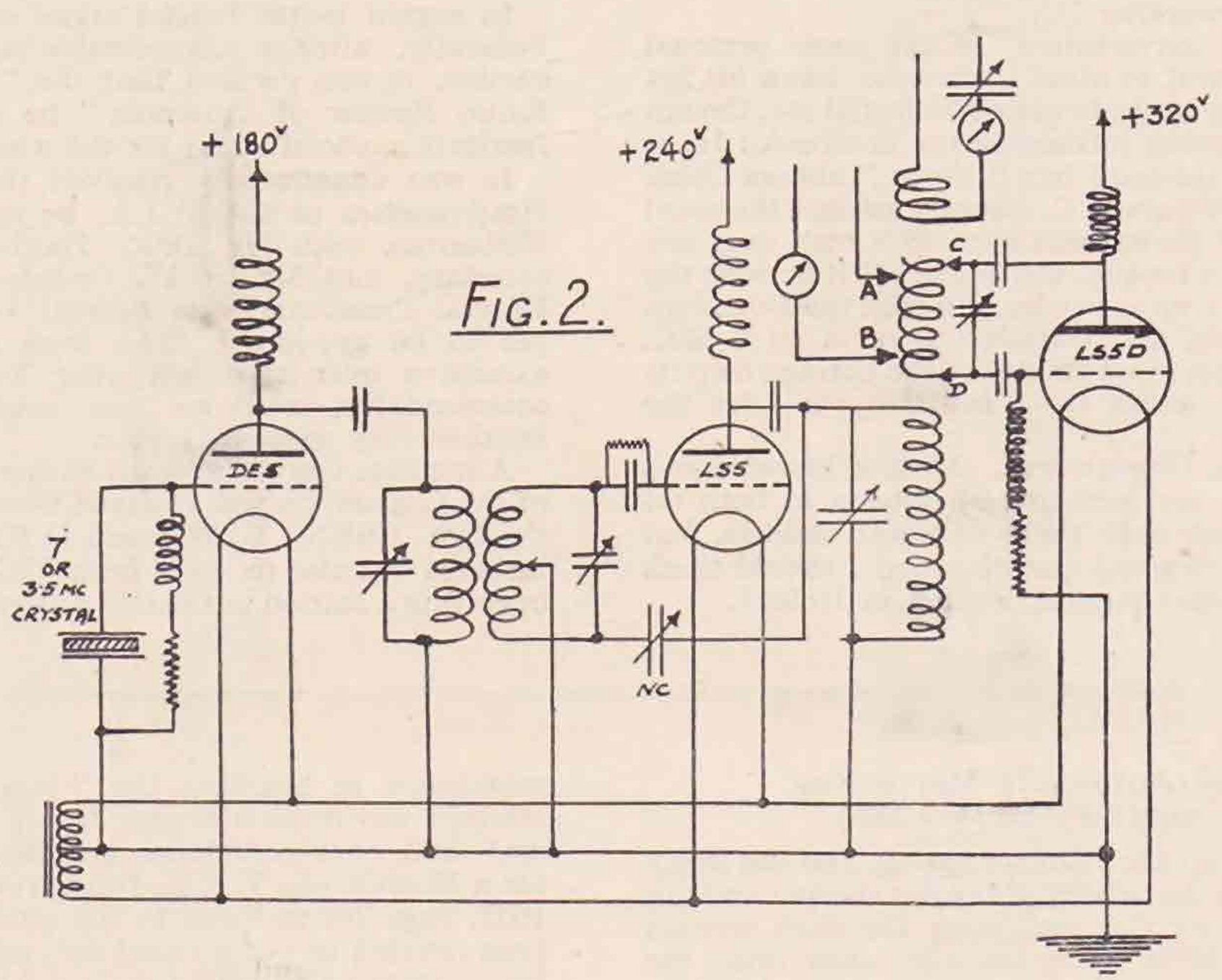


Fig. 2.

35 ft. high for half its length, then it drops vertically and the feeders extend only about 8 ft. beyond the window. For 7 M.C., an extra length of feeder is switched in to make it a half-wave radiator with quarter-wave feeders; the extra feeder length is stretched inside the shack.

The H.T. plus is always keyed, and an ingenious

switch is used when going from 7 M.C. to 14 M.C. This is shown in Fig. 3. With switch up, key is in second valve circuit and third valve gets no H.T. With switch down, the key is put in third valve and the H.T. is put straight through to second valve, which is now an FD.

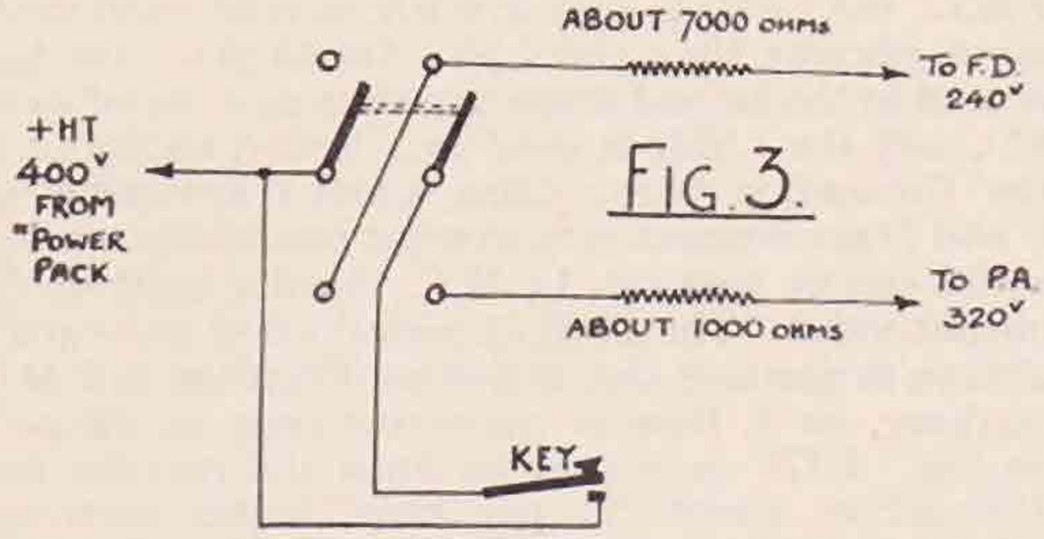


FIG. 3.

The 28 M.C. transmitter was described some time ago in the BULLETIN. It is an Ultraudion also, and was "locked" when the mains were D.C., though for some obscure reason this is now impossible on the "Shannon current." It will be remembered that EI7C was one of the first stations in Europe to work across the Atlantic on 28 M.C.

EI7C has used an input power of about 7 watts for most of the work done, but much lower powers have been successfully used for DX work on 7 and 14 M.C. The station is WAC and WBE, and is very consistent in working DX.

I tried, in conversation, to get some personal details of interest to other hams who know his fist so well, but his modesty almost defeated me, though I see the following jottings in my notebook: He is an absolutely die-hard bug "keyist," abhors China tea, never works raw A.C. stations, smokes the usual brands (I had no unusual ones with me), does not like the Dublin brogue, will live in EI if he wins the Sweep, has now no appendix, can read the BULLETIN without glasses, and considers London on 2 M.C. is not DX. This gives an idea of the barrage he puts up when one wants the "heart-appeal" for the GBP.

Lastly—and I speak with absolute knowledge—both brothers are held in high esteem in both GI and EI for not only their technical abilities, but also for their personal qualities, and I should think EI7C is the most popular station in Ireland.

The 1931 Convention of the Wireless Institute of Australia—(*Continued from opposite page*).

present being conducted by the N.S.W. Division, was discussed, and it was resolved that a similar system be adopted Federally. The N.S.W. Division of the W.I.A. is to retain the Federal QSL Bureau, the P.O. box number, 3120P, having been known throughout the world for many years. The W.I.A. Official Traffic Channels were reviewed and considered satisfactory. It is interesting to note that during the eleven months during which the system has been in operation no less than 7,063 messages were handled, nearly all being on W.I.A. inter-divisional business.

A report on the Royal Australian Air Force Wireless Reserve was submitted by the Federal Guard station, VK3ML. This Reserve is doing good work, and the N.S.W. Guard Station, VK2DY, is making strenuous efforts to increase the activities of the R.A.A.F.W.R. in New South Wales.

The Convention was unanimous in confirming the appointment of Mr. Ray Carter, VK2HC, of Quirindi, N.S.W., as Official B.E.R.U. Representative for Australia. The Convention expressed hearty appreciation of Mr. Carter's efforts in the past year or more, in respect of both the B.E.R.U. and W.I.A. Mr. Carter was present throughout Convention week, and his assistance and advice were greatly appreciated. The same remarks also apply to Mr. Trevor Evans, VK2NS, of Bathurst, N.S.W.

In regard to the official organ of the Institute, Federally, after a considerable amount of discussion, it was decided that the "Television and Radio Review of Australia" be adopted as the Institute's official organ for the whole of Australia.

It was unanimously resolved that the Federal Headquarters of the W.I.A. be again located in Melbourne, with Mr. Bruce Hardie (VK3YX) as secretary, and Mr. S. W. Gadsden (VK3SW) as Federal President. The Federal Vice-President is yet to be appointed. The work of the Federal executive over the past year has been highly commendable, and we can confidently expect another very successful year.

A message conveying good wishes for the success of the Convention was received from B.E.R.U. HQ, through G6UN, G2VQ and VK2XU. Another message was also received from VK2RF, at present operating a station in Central Australia.

Semi-Automatic Morse Key

(*Continued from page* 227.)

of the weight on the vibrator spring, and the *length* of the dots, on the setting of the dot stopper and dot contact. To set the key, place the dash contact (D) about 1/32 in. from the arm, then bring the dash stop (A) up till it touches the weight (or vibrator spring) and holds it steady.

Next set the dot stopper (C) about 1/16 in. away from the arm, and swing the key (arm) over to the right, adjusting the dot contact rod in (B) till it is making contact with the dot extension piece (F). This, if done correctly, will give a succession of dots. Practice alone will show the correct settings, and if the writer may add, practice alone will give proficiency in handling the "Bug." For a first attempt use it on a buzzer before going "on the air," and once confidence has been gained, then use a Monitor (see T. & R. BULLETIN for September, 1931, page 76) to listen to the sending once it has been decided to put a signal out, using the "Bug" key. Start by adjusting the weight to send slowly, and speed will soon come with practice.

Stray.

Reports are wanted by G5QU (ex-2AGN), 39, Westfield Way, Dormanstown, Redcar, Yorks, who transmits on 7, 14 and 28 M.C.

THE 1931 CONVENTION OF THE WIRELESS INSTITUTE OF AUSTRALIA

By VK2HC.

THE Eighth Annual Federal Convention of the Wireless Institute of Australia was held in Sydney, commencing on October 12; it continued till October 16, after which some of the delegates had to return to their home States.

The day before the opening of the Convention was spent at National Park, one of the beauty and favourite picnic spots of N.S.W. There was a good roll-up, and the YL's made the picnic complete. Between cricket, swimming, rowing, etc., they were a pretty tired lot of hams that arrived home late for tea that night.

On Monday, October 12, the visitors were welcomed to Sydney by His Worship the Lord Mayor, Alderman Jackson. The Lord Mayor was particularly interested in amateur equipment and international telephony between amateurs, and encouraged a rather lengthy discussion on this matter. The party then adjourned to the official opening of the Convention by Mr. E. T. Fisk, managing director of Amalgamated Wireless (A'sia), Ltd., followed by the official luncheon. As a past president of the Institute, Mr. Fisk drew particular attention to the work that had been done by some of the old amateurs in this country, such as Mr. Charles Maclurcan (VK2CM), and Mr. Max Howden (VK3BQ and the development of the ultra-high frequencies and television, which was the job of the amateur to-day. The toast of "The King" was proposed by the Federal President, Mr. H. K. Love, and numerous toasts followed. It is most gratifying to find so much interest taken in the Institute's activities, as over 70 were present, representing every section of the radio and allied industries. Following the luncheon the work commenced in earnest and some of the business put through will be given later.

On Wednesday evening (October 14), the visiting delegates and Council of the N.S.W. Division were the guests of Mr. Stuart Doyle at the State Theatre, where a very enjoyable programme was witnessed. Thursday was the big day on the social side, and the Convention adjourned to Pittwater, for the motor yacht outing provided by the Broken Bay branch of the Royal Motor Yacht Club. The two launches were equipped with radiophone transmitters, one by Mr. A. H. Gray (VK2IJ), and the other by Mr. S. V. Colville (VK2FA). Although Mr. Colville had the misfortune to wreck the S.G. valve in his receiver during transit, putting the receiver out of action, the transmitter worked perfectly. Mr. Gray's outfit functioned perfectly, and during the afternoon an R.A.A.F. 'plane came up from Richmond Aerodrome. The signals from the 'plane came through well, but the engine QRM was too severe to receive the launch transmitters. Following the Yacht expedition, the W.I.A. Dinner was held at the Royal Motor Yacht Clubs' Newport Club House. After many toasts were disposed of the British Empire Radio Unions' Trophy was presented to Mr. Trevor Evans (VK2NS) by the President of the N.S.W. Division of the W.I.A., Mr. Phil Renshaw (VK2DE). In his address, Mr. Renshaw paid tribute to the work of VK2NS in winning this magnificent trophy, and he is held in high esteem by all that know him. On Friday, the 16th, the delegates visited the factories of Philips and A.W.A., concluding with the Radio centre at Pennant Hills, the home of numerous transmitters, including the Sydney-London Telephone and VK2ME. The same evening the visitors and some of the Councillors were conducted on a tour of inspection over the Sydney Harbour Bridge by Dr. J. J. C. Bradfield, who supervised its construction.

Mr. Trevor Evans (VK2NS) with the B.E.R.U. Challenge Trophy.

[By Courtesy "Sydney Morning Herald."]

One of the most important items dealt with at the Convention was with regard to the Madrid I.R.C., and it was resolved to urge the Postmaster-General's Department to send a representative to this Convention. The subject of vigilance stations has been left to each division of the Institute.

The matter of standards in radio equipment and materials, was brought forward by Mr. H. Kingsley Dove, Federal President, and met with favourable consideration by the Convention. The system of trade certificates and diploma examinations, at

(*Continued on col.* **2**, *previous page.*)

MORE ABOUT AERIALS

To the Editor of T. & R. Bulletin.

DEAR SIR,—In Mr. Forsyth's excellent article on "Transmitting Aerials" there are one or two statements which I beg leave to question.

In the case of the Zeppelin system shown in Fig. 5 we are told that the two feeders are exactly balanced, both in voltage at the top and current at the bottom, so that there is no radiation from them. If this is the case, then how does the aerial receive energy? There must be a current flowing from the one feeder to the roof, to represent the energy being radiated. One is not feeding volts alone to the aerial; it merely happens that the volts are high and the current low at this point in the circuit, but at the bottom this small current may be transformed to something much greater, so that the currents in the two feeders may be considerably different, and there is thus, also, no reason why the greatest current should appear at the centre of the coupling coil. The only way to stop feeders from radiating is to see that their impedances are matched, and this we cannot do with the "Zepp.": they are not even balanced.

Again, in the case of the single-wire feeder. The writer says that there is no theoretical reason why the system should not be made to work with the feeder tapped at one end of the roof. There is a very definite reason why it should not work, for the aerial appears as a very high impedance at the free ends, whilst the feeder is considerably lower in impedance. The impedance presented by the aerial varies according to the point taken, being highest where the voltages are greatest, and lowest where the currents are greatest, *i.e.*, in the case of a half-wave aerial, high at the ends and low in the middle. Fortunately for us the impedance of a single wire falls between the two extremes, and there is thus a point where the two match, and there is a complete transfer of energy from the feeder to the aerial, with consequently no radiation from the feeder.

Later on we are given a system which can be made to work on 7, 14 and 28 M.C. I do not doubt that the arrangement is very effective, but there is surely something about the system which needs explanation. It will be seen that in the "Windom" aerial the feeder taps on to a different part of the wave for each band, whereas we know that these particular impedances are independent of frequency. I think that the solution is this. It has been assumed that the current distribution in the top is perfectly sinusoidal, with the maximum current in the centre of each half-wave. We know that this is not so, and anyone can find for himself, with the aid of an ammeter, that in the case of a single half-wave the distribution is lop-sided, with the maximum at the point of tapping the feeder. It is probable, then, that in the "Windom" the feeder is adjusted for the correct match on the fundamental, and that for the various harmonics the current distributes itself to suit the tapping point.

It should have been emphasised that the impedances in question depend almost entirely on the size of wire, so that the position of the taps depends on the S.W.G. However, as the *relative* impedances depend mainly on the *relative* sizes of wire, the same proportion can be adopted with safety by anyone who uses the same size of wire for both feeder and roof.

In conclusion, it is a pity that the writer has filled the article with references to "current" and "voltage" feeding, because one cannot separate the two quantities as easily as this. It would be far more satisfactory, in the interests of accuracy of expression (which, I take it, is one of our first aims as scientific investigators), if one could refer to "high" and "low" impedance feeders, or even "single" and "twin."

Yours truly,

F. Charman (G6CJ).

Mr. Charman's letter was submitted to Mr. Forsyth, the author of the article in question, and his reply follows.

Mr. Charman raises some interesting points, but his remarks are based on purely academic grounds.

He is correct when he states that the feeders of a "Zepp."-fed Hertz can only be made non-radiating if their impedances are matched, but is not that exactly what we aim at in the very design of such a system? One can only refer him to the first part of the excellent article in the December Bulletin by A. E. Livesey (G6LI) on "The Zeppelin Aerial."

Mr. Charman's treatment of the case of the single-wire fed aerial (feeder tapped to one end) is instructive, but, at the same time, the difficulty which really makes this arrangement impracticable is the fact that the aerial always tends to function as an inverted L, A.O.G., or what you will, for the reason he gives. But it is possible to match the impedances of the roof and feeder by "doctoring" the latter. Therefore, while there is no need at all to use such an arrangement, it is quite permissible to say that "theoretically, there is no reason why it should not be made to work."

With regard to the "Windom," it will be seen that in the paragraph dealing with that type of aerial, it was expressly stated that "all the difficulties have been overcome by an *experimentally-evolved* method of connecting the feed." It was not thought necessary to go into the details, as they are given fully in the September, 1929, issue of the A.R.R.L.'s "QST." Mr. Charman's suggested explanation is substantially correct. His remarks about the size of wire are also quite relevant, but does not the average person use the same kind of wire for both aerial and feeder, and is not 7/22's very nearly equal to No. 14 S.W.G.? In any case, the actual resonance frequency of any of these aerial systems is never finally fixed till they are hoisted into the operating position, and the correction factor for different sizes of wire for a "Windom" is really a negligible point when this is taken into consideration. The really important thing is that a "Windom" must be worked on its exact resonance frequency, and best results depend upon the accuracy with which this is determined,

(*Continued on page* 245.)

DISTRICT No. 2 CONVENTIONETTE

THIS was held at the Guildford Hotel, Leeds, on November 28, and there were present more than 40 transmitter and BRS members, Leeds, Sheffield and Newcastle areas being particularly well represented.

The chair was taken by the District Representative, Mr. L. Parry (G6PY), and he was supported by his C.R.'s and Mr. H. B. Old (G2VQ), Council member.

The first item discussed was the Letter Budget. The general opinion was that this took too long to get round to all the members ; that it was sometimes " held up " for an indefinite period ; and that it appeared to compete with C.B. and District Notes.

It was eventually decided to discontinue the Budget (proposed G6SK, seconded G5TQ).

The next business referred to District Notes. Mr. Parry reported that very few reports had been sent in—the only active area appearing to be the Newcastle region.

Mr. Old besought the members to get into the habit of sending in, regularly, monthly reports, even if merely to state that a station was active.

It was finally decided to send in reports more regularly, members using their QSL cards where reports were brief (proposed G2BH, seconded G5TQ).

The next item on the agenda was the appointment of sub-area representatives. For the Leeds district G2WS was elected (proposer G5IZ, seconder G5CX). For the Sheffield district G6LF was elected (proposer G5HK, seconder G2XH). For the Newcastle district G5DI was elected, subject to his acceptance (proposer G6FG, seconder G6QT).

The final item of business before adjournment for tea was that dealing with Morse practice " skeds." A good discussion followed, the prevailing opinion—expressed alike by BRS and transmitter members—being that the fortnightly tests were inadequate as a means of improving one's Morse reception. It was submitted that a better plan would be for BRS members to attach themselves to the nearest transmitting stations, whose owners would be only too willing to give personal help ; and in addition they would become more conversant with the main factors arising out of the manipulation of, and general procedure connected with, a transmitting station.

Mr. Old (G2VQ) reminded the members that these Morse practice " skeds " had been approved of by every other district, and that the Council were anxious that they should be carried out.

It was finally decided to recommend, as an alternative to these Morse skeds, that BRS members should apply to the nearest transmitter as mentioned above. It was also suggested that the D.R.'s, C.R.'s and special sub-area representatives should be supplied with a complete list of present BRS and transmitting members of the R.S.G.B.

The meeting was now adjourned for tea. After, and, naturally, during, tea the " rag-chew " was continued—pending the arrival of Mr. Clarricoats, who had been delayed owing to a breakdown on the railway. He eventually arrived, just as the second part of the business meeting was about to commence, and he was hailed with vociferous greetings.

Here followed a rousing address by " Clarry," in which the following were the main features :

(1) He pleaded for more Contact Bureaux—for more actual co-ordinated experimental work.

(2) He stressed the importance of the growing membership of the BRS members ; they " should be given every encouragement and help." He was keenly disappointed to learn that the meeting had " turned down " the Morse practice " skeds." He reiterated that it was the Council's earnest desire that these should, at any rate, be given a fair trial.

(3) He outlined the policy in connection with the forthcoming Madrid Convention, and said he was confident that we should have a worthy representative attending the same.

(4) He illustrated the cordial relations which existed between the P.O. officials and the R.S.G.B.

(5) He sketched the recent activities of the Society, and concluded with the hope that before long the Society would have to change its title letters to those of R.S.B.E. (Radio Society of the British Empire). His address was thoroughly enjoyed by all present. This was evidenced by the continued applause at its conclusion.

Now followed a general discussion arising out of which are the following main features :—

(1) With reference to the earlier decision regarding an alteration to the Morse practice " skeds," it was agreed to carry on and give the " skeds " a good trial.

(2) There was a desire to see the issue of a 20- (or 25-) watt permit, with the proportional annual licence fee.

(3) The question of EAK's encroachment and interference on the " amateur band " was brought up, and Mr. Clarricoats stated the matter had been taken up by radio societies in three or four countries, in addition to the R.S.G.B.

The meeting finally closed with the usual votes of thanks to those who had helped to officiate and to make the Conventionette such a success.

The following were present :—g2bh, g2co, g2tb, g2vq, g2ws, g2xh, g2xs, g2yu, g5cx, g5dd, g5hk, g5ia, g5iz, g5kd, g5lw, g5np, g5xu, g5zl, g6bx, g6cl, g6db, g6fg, g6lf, g6mc, g6mn, g6np, g6py, g6qt, g6sh, g6sk, g6ty, g6uf, g6wd, 2akd, 2ayb, brs276, brs477, brs524, brs575, brs588.

Lost—A Ham.

G2OP writes that last April he received a letter by the first Australia-England air mail from VS2AF, who stated that he was leaving the F.M.S. in June, " and after pottering around Paris for a while, hoped to arrive in England in July or August. I hang out in Bath, so will run along and look you up."

G2OP has heard nothing of him since and wonders if he is still " pottering around Paris," or if he has taken an overdose of Bath waters—those at Cheltenham are even more poisonous ! ! ! !

PORTABLE XF8WQ.

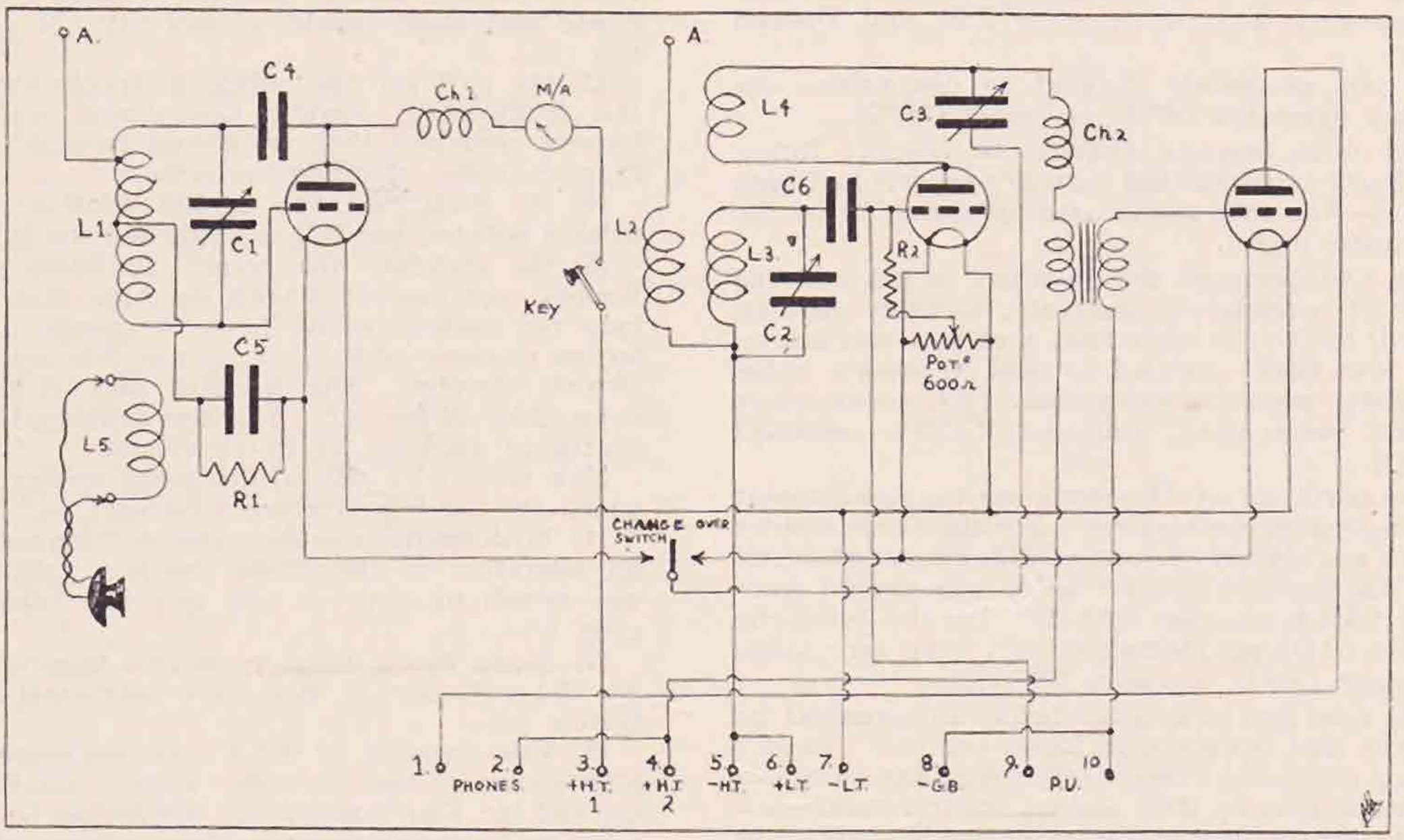
By C. Brookes, G2CB.

XF8WQ is a low-powered portable station operating in the neighbourhood of Tours, France, and its description should prove of interest to all R.S.G.B. members who have carried out tests at any time with portable apparatus.

The station was constructed in November, 1930, and as the owner was desirous of investigating wave propagation in various geographical locations, a portable station seemed the best way of conducting these tests. The results obtained have been very interesting, and much useful data has been collected.

in a wooden carrying case, measuring 13 ins. by 11 ins. by 9 ins. The case has a deep lid fitted with an ebonite panel, behind which are mounted the transmitter and receiver components, all controls and terminals being on the front of the panel. The body of the box contains the 80-volt H.T. battery, 4-volt L.T. accumulator, Morse key, microphone, aerial, headphones, the spare transmitter and receiver coils (for three wave bands), a voltmeter, tools and the log book.

The transmitter and receiver panel is fitted with



C_1—0·00025mf.
C_2—0·00025mf.
C_3—0·00025mf.
C_4—0·002mf.
C_5—0·002mf.
C_6—0.00015mf.
R_1—10,000 ohms..
R_2—3 megohms

The Hartley circuit was decided upon for the transmitter, as it is the simplest circuit to adjust, and requires a minimum of apparatus, which is a point worth considering when designing portable stations. With this circuit it is also possible to change wave-length in a very short space of time.

The type of aerial chosen was a voltage-fed Hertz. A 63-ft. length of wire was cut, and an insulator attached to one end. When erecting, a weight is fixed to the insulated end, and thrown over a branch of a suitable tree, the free end going direct to the aerial terminal of the set. When not in use the aerial is coiled and housed in the transmitter case.

The receiver is a two-valve affair, the detector being followed by a stage of transformer coupled amplification. The receiver is kept as compact as possible, the coils being wound on ½ in. and 1 in. diameter ebonite tubing.

The complete transmitter and receiver are housed

six terminals for battery connections, besides terminals for the aerial, microphone, key, phones and pick-up or microphone transformer, as needed. A change-over switch connects the L.T. accumulator to either transmitter or receiver, and the aerial is changed over by means of a plug and two sockets.

A circuit diagram of the combined transmitter and receiver is given, together with component values.

When additional power is required on the transmitter, the strap between terminals 4 and 3 is removed, and an extra battery connected between these terminals.

By connecting a pick-up or microphone through a transformer, to terminals 9 and 10, the receiver can be used as a speech amplifier. When this is done, the amplifier is coupled to the transmitter by means of a transformer with a 1 : 3 ratio. The primary of this transformer is connected in place

(*Continued on next page, col.* 1.)

A VISIT TO LEAFIELD

ON November 25 a party of two, consisting of G5YH and Mr. R. F. G. Sarell, was taken round the wireless station at Leafield. We arrived soon after two o'clock after an arduous walk across ploughed fields, and were first shown round the meteorological station which is situated in a hut at the foot of one of the masts. We then went across to the wireless station and commenced our tour of inspection. The transformer section occupies a small part of a block which was originally used to house the steam turbines. Now, however, the power is taken from the local supply at 11,000 volts, and having been stepped down to the required voltage, is distributed to the two transmitter houses. The first transmitter house contains the long-wave transmitters GBL, GBY and GBZ, and the short-wavers GBN and GBO. The layout of the station is remarkably neat, the power distribution board and the tuning fork sections for the long-wave transmitters being along one wall, and the transmitters along the opposite wall, with the operators' desk in between. Strictly speaking, they are not operators as the keying is remote-controlled from London, but they are on duty to see if any mistakes are made in any transmission, and if the mistake is due to the keying or the transmitter. The tuning fork sections are housed in neat metal cabinets. The oscillator is biased so as to produce very strong harmonics; the correct harmonic is then picked out, amplified and passed to the final linear amplifier, which consists of a single 1,500-watt valve. This amplifier drives the last stage, which consists of a bank of six water-cooled valves. The input to the last stage of GBZ was 96 kilowatts! We were very interested to examine one of the final stage valves, and to see how the copper anode is welded on to the glass bulb. Although the copper-glass joint is extremely difficult to make (hence the great cost of the valve, which is £90), and is, of course, very fragile, no case has occurred of this joint giving way. We then passed on to see GBN and GBO, which occupy an alcove by the side of GBY. These transmitters are very compact, being about 8 ft. long, 6 ft. high, and 3 ft. deep. They consist of a crystal oscillator, one or more frequency doublers, linear amplifier, and power amplifier. The input to the last stage is about 10 kilowatts. GBM is housed by itself, and is the same as GBN and GBO, except that there is a stage of modulation. The input to the power amplifier is 12 kilowatts. Finally, we saw the aerial system, which consists of two beam sections for the short-wavers, and three network sections for the long-wavers. The beam sections are some distance away from the transmitters, and are fed by transmission lines which have to be extremely accurately balanced.

Thus concluded a very interesting afternoon, and we then adjourned for tea. Our thanks are due to Mr. Heywood, of the meteorological station, for arranging the visit; to Mr. Macdonald, the director of the station, and to the gentleman whose name we did not hear, who so very kindly spent nearly two hours taking us round.

Portable XF8WQ — (*Continued from previous page*).

of the phones, and the secondary is joined in series with the transmitter grid leak.

Finally, as to the results obtained with this low-powered outfit. With an input of 0.5 watts, the longest distances worked have been with W1 and 2, ZC and TF, and with 0.24 watts input W1, TF, FM and CT2.

CALLS HEARD.

Contributors to this section will assist considerably if they will list their calls in strict alphabetical and numerical order.

A. T. Mathews (*BRS*497), 24, *Woodside Park Road, N.*12. *November* 27-*December* 19, 1931.

7 M.C.: au1de, cm8az, ct3ab, fnhz (QRA ?), j1ct, j1dr, k4acf, k4rj, k4ry, ldsd, su1ch, ti2hv, vk3bj, vk3bw, vk3by, vk3rj, vk3wl, vk3za, vk5gr, vk5hg, vk5lc, vk6cx, vk6ow, vk6wi, vk7ch, vu2ah, vu2jp, w1arx, w3apn, w4abo, w4ft, w5aqy, w5vq, w5yd, w6ahz, w6am, w8azl, w8bda, w8rj, yi2dc, yi2fu, zl1ak, zl2ab, zl2ac, zl2gq, zl3aq, zl3az, zl3cm, zl4ao, zs1j, zs1z, zs2a.

3.5 M.C.: ve1ae, ve1rp (?), w1apr.

* * *

VS7AO. R.F.A." Slavol," Trincomali, Ceylon. November, 1931.

14 M.C.: ac8al, g2xq, gx2tm, haf2d, ka1cm, ka1jm, ka1jr, oh7nb, ok1kd, pa0wr, pk1, pk1ci, pk1hs, pk1jr, pk1xl, pk2wj, pk4yy, vk2ap, vk2ax, vk2ba, vk2hw, vk2hz, vk2jz, vk2lz, vk2sk, vk2xu, vk2yk, vk3ac, vk3bz, vk3jl, vk3pa, vk3sk, vk3xo, vk4gk, vk4rj, vk4rv, vk5bo, vk5gr, vk5wr, vk5xk, vk6gf, vk6rl, vk6wi, vs1ad, vs3ac, vu2df, vu2dr, vu2fx, vu2jb, vu2kt, vu2ut, w6sn, yi2dc, zc6jm, zl2bz, zl2cl, zt6k.

* * *

K. H. Fanke (*DE*0849), *Blankenburg, Germany. November* 7 *to December* 6, 1931.

g2bw, g2cb, g2dk, g2dz, g2ga, g2gw, g2li, g2nm, g2nz, g2qq, g2qx, g2tk, g2tq, g2ux, g2vq, g2vr, g2vv, g2wi, g2wq, g2xa, g2xo, g2xs, g2zq, g5br, g5cv, g5fk, g5gw, g5gy, g5gz, g5ix, g5iz, g5ju, g5jv, g5jz, g5ka, g5lp, g5np, g5nw, g5ph, g5pj, g5qc, g5rv, g5tz, g5vb, g5wg, g6ba, g6bb, g6cl, g6gd, g6gl. g6lf, g6mm, g6nu, g6pm, g6qb, g6un, g6wn, g6wy, g6zw, gi5nj.

* * *

G5CV on 7 *M.C.*

cm2vg, cm8az, gx2tm (ship off Port Said), hh7c, k4acf, lu5ar, oa3jf, oa4z, su1ch, ti2fg, ve1bv, ve4dq, vk2hg, vk2lz, vk2pz, vk3ek, vk3jf, vk3oc, vk3wl, vk3wx, vk3zb, vk5hg, vk5lc, vk5pk, vk6ag, vk7ch, vk7jk, vs3ac, vu2kh, yi2fu, zl2bi, zl2bz, zl3as, zl3cc.

* * *

VS7GT. October and November, 1931.

7 M.C.: fx7c, vk2lx, vk2oc, vk2vs, vk3gj, vk3gu, vk3ka, vk3rj, vk3rz, vk3tm, vk3wx, vk4kh, vk5bo, vk5dq, vk5hl, vk5jm, vk5lx, vk5ml, vk5pk, vk5rg, vk5rw, vk5xk, vk5yk, vk6bo, vk6cb, vk6cr, vk6fl, vk6gf, vk6js, vk6lj, vk6ow, vk6rl, vk6wi, vp1fr, vq2tw, vs1ad, vs2af, vs3ac, vs6ad, vs6ae, vs6ag, vs6an, vu2fs, vu2jp, vu2kh, zl1ca, zl2ce, zs5s, zs5u, zs6d, zt5v.

* * *

VO8MC. November, 1931:

7 M.C.: ka1pr, ou4jb, su1ch, vk3gu, vk3mm, vk3nm, vk3pp, vk3zc, vk5bo, vk5gr, vk5hg, vk5jm, vk5mx, vk5rh, vk5wc, vk5yk, vk6ow, vk7ch, vp2pa, zl2az, zl2dv, zl2gk, zl3ah, zl3az, zl3cx, zs6aa.

14 M.C.: ce1ai, ct2af, f8sm, g2dz, g2qb, g2xh, g2yd, gi5nj, g6vp, g6wn, g6xn, ve3bm.

* * *

J. S. H. Youlden, 2,400 *miles East of Durban, between* 12.00 *and* 15.00 *G.M.T.*

14 M.C.: g2ng, g6gb, g6rg, g6vp, g6wy, vk3oe, vk4gk, vk6fm, vs7sg, zl1ce, zs6y, zt6k.

7 M.C.: vk2zw, vk3wx, vk3wz, vk5dq, vk6nj, zt6c, zt6x.

New Members.

CORPORATES—GREAT BRITAIN.

C. T. ATKINSON (G2CZ), 15, Greenland Avenue, Humberstone, Leicester.
J. G. MAITLAND EDWARDS (G2GS), 127, Ashley Gardens, Westminster, S.W.1.
C. J. OLIVER (op G2NF), Wireless College, Colwyn Bay, N. Wales.
H. W. SELLARS (G2TB, G2TC), Gledholt, Westwood Lane, Headingley, Leeds.
H. LANGSTAFF (G5VC), Commercial Bank Buildings, Bradford, Yorks
J. A. MACKINNON (G6VV), 102, Ewart Road, Chatham, Kent.
T. S. GARRARD (2BJW), 50, Lambeth Road, Linthorpe, Middlesbrough, Yorks.
C. A. MACKAY (BRS693), The Cliftons, Penn Road, Penn, Wolverhampton.
G. R. G. BELLAMY (BRS694) 25, Blenheim Street, Stapleton Road, Bristol.
W. H. WILLCOX (BRS695), 22, North Street, Downend, Bristol.
P. L. GREEN (BRS696), 17, Daisy Road, Eastville, Bristol.
E. GOOSEMAN (BRS697), 7, Charis Avenue, Southmead Road, Bristol
M. F. LONG (BRS698), 32, South Parade, Summertown, Oxford.
E. F. L. DANBURY (BRS699), 12, Batchwood View, St. Albans, Herts.
A. HOPKINSON (BRS700), 36, York Place, Harrogate, Yorks.
F. P. PAIGE (BRS701), 11, Glandore Gardens, Antrim Road, Belfast.
K. C. BROWN (BRS702), 7, Iles Lane, Knaresborough, Yorks.
D. A. MACDONNELL (BRS703), 45, Trouville Road, Anfield, Liverpool.
P. G. TANDY (BRS704), 17, Osberton Road, Oxford.
A. S. BROWN (BRS705), Rugeley, Sandhurst Road, Sidcup, Kent.
M. BUCKWELL (BRS706), 114, Tankerville Drive, Leigh-on-Sea, Essex.
H. J. WESTON (BRS707), 11, London Street, Kingswood, Bristol.
E. H. TREVERTON (BRS708), 92, Hampton Road, Redland, Bristol.
M. J. H. SOUTHWAY (BRS709), 89, Cotham Brow, Bristol.
W. H. JEFFERIES (BRS710), St. Keverne, Cleeve Hill, Downend, Bristol.
CAPT. P. M. H. LEMON (BRS711), 48, Albany Villas, Hove, Sussex.
R. H. THOMPSON (BRS712), 5, Loreburn Road, Wavertree, Liverpool.
R. E. POWER (BRS713). 114, Talbot Road, Bayswater, W.11.
V. G. H. HEMUS (BRS714), 852, Bristol Road, Selly Oak, Birmingham.
G. E. HILLARY (BRS715), 127, Broad Street, Pendleton, Lancs.
N. BYRD (BRS716), 33, All Hallows Road, Easton, Bristol.
E. C. FARTHING (BRS717), 116, Downend Road, Horfield, Bristol.
H. ORGAN (BRS718), 27, Bushy Park, Knowle, Bristol.
W. J. FORD (BRS719), 82, Hayward Road, Bristol.
H. J. HOULDING (BRS720), 34, Two Mile Hill, Kingswood, Bristol.
A. J. B. BEAK (BRS721), 17, The Avenue, Clifton, Bristol.
R. C. SQUIRES (BRS722), 22, Clare Street, Bristol.
P. C. FAIRALL (BRS723), 234, Filton Avenue, Horfield, Bristol.
C. W. G. LAWES (BRS724), 35, Armoury Square, Stapleton Road, Bristol.
W. S. HANDLEY (BRS725), 55-57, Lower Union Street, Bristol.
F. H. SMITH (BRS726), 22, Bishop Street, Eastwood, Notts.
D. A. DYER (BRS727), 8, Lochaber Street, Roath Park, Cardiff.
W. R. J. LEWIS (BRS728), The Manse, Coggeshall, Essex.
N. J. MASSEY (BRS729), Burn Lea, Bridge Park, Gosforth, Newcastle-on-Tyne.
D. W. BOTHWELL (BRS730), 8, Henryville Street, Belfast.
J. G. MELVILLE (BRS731), 152A, Lochee Road, Dundee.
V. H. S. CURLING (BRS732), 175, Dover Road, Northfleet, Kent.
J. A. GUY (A), 42, Grosvenor Buildings, Manisty Street, Poplar, E.14.

CORPORATES—DOMINION AND FOREIGN.

J. H. ADAMA (PA0FB), 42, Waalsdorperlaan, The Hague, Holland.
E. M. CHORLIAN (SU1CH), 7, Rue Peake Bulkeley, Alexandria, Egypt
R. O. SCOTT (VK2RS), Stockdale, Gobarralong, Gundagai, N.S.W., Australia.
K. SUNDARAMPILLAI (VS7KS), Barnes Hall, Barnes Place, Colombo.
W. MOHAMMAD (VU2BK), Professor of Physics, Lucknow University, Lucknow.
H. C. KNOEPPEL (W2CNL), 404, 13th Street, West New York, N.J., U.S.A.
C. T. CAUSTON (ZT1J), 23, Springbok Road, Greenpoint, Capetown, S. Africa.
G. S. H. SMITH-SYMMS (BERS93), Sandown, Rosemead Avenue, Wynberg, S. Africa.
SERGT. J. HICKS (BERS94), R.A.O.C. Arsenal, Rawalpindi, Punjab, India.
N. VAN PERLSTEIN (BERS95), Drosselweg 47, Koln-Nippes, Germany.

The Annual General Meeting.

Minutes of the Annual General Meeting held at the Institution of Electrical Engineers, on Tuesday, December 22, 1931.

Present: Mr. H. Bevan Swift, President (in the Chair), supported by Mr. A. E. Watts, Acting Vice-President; Mr. E. Dawson Ostermeyer, Hon. Treasurer; Mr. J. Clarricoats, Hon. Secretary, and about 70 members of the Society.

The President moved that the minutes of the last Annual General Meeting as published in the Society's Journal, dated January, 1931, be taken as read. The motion was carried.

Mr. E. D. Ostermeyer proposed, and Mr. John Watts seconded, that the Honorary Treasurer's report for the year and the annual balance sheet be passed.

Mr. Gregory paid a compliment to Council for the manner in which the Society's work has been undertaken.

The Honorary Treasurer's report was unanimously carried.

Mr. J. Clarricoats read his report for the year. It was proposed by the Chairman and supported by Mr. Exeter, that the report be adopted. This report appears in the current issue of the T. & R. Bulletin.)

The Honorary Secretary announced that the following members had been elected to serve on Council for the year 1932 :—

H. Bevan Swift G2TI —President.
A. E. Watts G6UN —Acting Vice-President
E. D. Ostermeyer G5AR —Hon. Treasurer.
J. Clarricoats G6CL —Hon. Secretary.

Ordinary members of Council :—

A. D. Gay, G6NF.
H. B. Old, G2VQ.
J. W. Mathews, G6LL.
J. D. Chisholm, G2CX.
T. A. St. Johnston, G6UT.
H. V. Wilkins, G6WN.
J. C. Watts, BRS.246.
A. W. Alliston, G5LA.

Messrs. Dedman and Curnow were unsuccessful candidates in the ballot.

The Chairman moved that a vote of thanks be recorded to the scrutineers, Messrs. Parr and Kempton. This was carried unanimously.

Mr. Griffiths proposed and Mr. Gay seconded that Mr. Ockleshaw be appointed Honorary Auditor for the year 1932. The motion was carried as was a vote of thanks to Mr. Ockleshaw for his past services.

The Chairman moved a vote of thanks to the President and Council of the I.E.E. for allowing the Society to use the Institution building. This was carried with acclamation.

The Honorary Secretary read a letter from the Czechoslovakian Society, in which they conveyed good wishes for the coming year.

He also advised the meeting that Mr. T. A. St. Johnston, G6UT, a member of Council, had recently been taken seriously ill and stated that on behalf of the members present he intended to send Mr. St. Johnston a letter expressing the hope that he would shortly recover.

This concluded the business meeting.

Mr. D. N. Corfield, G5CD, gave his lecture, "The Measurement of Speech and Music Qualities."

Calibration Section.

A. D. Gay (G6NF).

THE R.S.G.B. frequency meter has been recalibrated from two lengthwise quartz oscillators of 97.34 and 122.75 kilocycles respectively (approximately 3,000λ). These crystals give forty calibration points, thus producing an excellent curve. It is interesting to note that the new curve, which is much more accurate, only shows an occasional variation on the 3.5 M.C. band of roughly 1 kilocycle from the old one.

As certain crystals have quite an appreciable temperature co-efficient experiments are in progress using a temperature oven to establish what variations do occur in a scale of 12° to 37° C. with different types of crystals of both N. and T. cut.

We are publishing a list of frequencies measured recently between December 16 and 20, 1931.

Further measurements will be taken on various stations and published in a future issue.

G2AQ	1,789	K.C.	G5BY	14,388	K.C.
G2BY	7,096	,,	G5CV	7,184	,,
G2CX	14,140	,,	G5LA	14,210	,,
G2DZ	14,292	,,	G5YH	7,142	,,
G2NM	3,584	,,	G6BB	7,150	,,
G2WJ	3,537	,,		7,206	,,
G2YN	7,074	,,	G6LM	7,118	,,
*G2ZC	1,775	,,	G6NF	7,184	,,
				7,254	,,
	7,230	,,		14,080	,,
				14,368	,,
G6QB	1,781	,,	G6SN	7,114	,,
	14,200	,,			
			G6SR	7,054	,,
*G6RG	7,172	,,			
	7,202	,,	G6WY	7,055	,,
	14,030	,,			
	14,300	,,			

* The frequencies of G2ZC and G6RG have been supplied and not measured.

A few commercials are here given, with nominal frequencies in brackets :—

WKP	6,948 (6,950)	DFK	11,619 (11,620)
EAK	7,168	G5SW	11,748 (11,750)
RPK	7,223	WQP	13,899 (13,900)
UOK	7,389 (7,390)	GBW	14,438 (14,440)
WEA	10,611 (10,610)	WCN	14,470 (14,470)
VQP	10,722 (10,722)	WAZ	14,924 (14,920)

It is not suggested that the nominal figures are inaccurate, the figures are compared to indicate that the accuracy of measurement is within 1 part in 3,000.

Members are reminded that they may send crystals (any frequency) and frequency meters (3.5 M.C. band only) for calibration, carriage paid each way and at owner's risk, to: A. D. Gay, 49, Thornlaw Road, West Norwood, S.E.27. Crystals are now charged at 1s. 6d. per calibration and frequency meters 5s.

STRAY.

As some thought has to be given to the Bulletin some months ahead, the Editor will be pleased to receive both suggestions for future articles, and offers from members who will contribute single (or series of) articles during the coming months. An article on modulation is already in course of preparation and it is suggested that one dealing with the advantages and disadvantages of the many keying systems used by amateurs might be useful.

HIC ET UBIQUE.

COUNCIL ELECTIONS.

THE following gentlemen have been duly elected to serve on the Council for the year 1932 :—

President : Mr. H. Bevan Swift (G2TN).
Acting Vice-President : Mr. A. E. Watts (G6UN).
Honorary Treasurer : Mr. E. Dawson Ostermeyer (G5AR).
Honorary Secretary : Mr. J. Clarricoats (G6CL).
(G5LA) Mr. A. W. Alliston.
(G2CX) Mr. J. D. Chisholm, QSL Manager.
(G6NF) Mr. A. D. Gay, Deputy Editor.
(G6LL) Mr. J. W. Mathews.
(G2VQ) Mr. H. B. Old, Provincial Districts Representative.
(G6UT) Mr. T. A. St. Johnston, Deputy Treasurer.
(BRS246) Mr. J. C. Watts, Deputy Publicity Manager.
(G6WN) H. V. Wilkins, Social Manager.

Mr. G. W. Thomas has been co-opted to serve as Honorary Editor.

Mr. Arthur Watts (Acting Vice-President) continues to act as Publicity Manager.

Mr. Gerald Marcuse (Past President) continues as Licensing Manager.

Mr. Maurice Pilpel continues as QRA Manager, reporting direct to Council, but without a vote.

* * *

Commercial Interference.

Council wish to advise the membership that an official protest was lodged against the Spanish commercial station, EAK, during November last. This protest was presented to the G.P.O. officials in London, who will undoubtedly take whatever steps they consider desirable to have this offending station moved.

Members are reminded that complaints against commercials working in our exclusive bands take time to become effective and therefore immediate relief is never possible.

The Council members are fully alive to these breaches of the Washington Convention and do not hesitate to protest.

Complaints from individual members regarding commercial interference must always be forwarded to London via the District Representative.

* * *

December Bulletins.

We have received several complaints from members that the December BULLETIN did not arrive. Copies will be sent to all members who failed to receive their copy. We wish to explain, however, that the BULLETIN is sent out direct from the printers and not from Headquarters.

* * *

International Goodwill Tests.

With reference to the above tests, which are being organised by the A.R.R.L., we wish to draw our members' attention to the fact that on three of the dates chosen, R.S.G.B.-B.E.R.U. tests will be in operation. On February 21, the B.E.R.U. Contests will be running, whilst March 12 and 13 have been set aside for 3.5 M.C. tests.

Under these circumstances we have considered it desirable to advise A.R.R.L. that we cannot agree to their suggestion that our stations should close down on these three days during the periods shown in their published schedule.

Co-operation during the other days of their test will be willingly given by all British stations.

The closed transmitting periods for Europe are as follows : February 21 and March 11 : 0200-0400, 0800-1000, 1400-1600, 2000-2200 G.M.T.

February 22 and March 12 : 0600-0800, 1200-1400, 1800-2000, 2400-0200 G.M.T.

February 23 and March 13 : 0400-0600, 1000-1200, 1600-1800, 2200-2400 G.M.T.

Full details of the tests appear on pages 41-43 of the January issue of *Q.S.T.*

* * *

The following new County representatives have been appointed :—

DISTRICT 2—

Northumberland and Durham—T. W. Brown (G5DI), 253 Helmsley Road, Sandyford, Newcastle-on-Tyne.

DISTRICT 10—

Monmouth—H. J. Gwillim (G6GW), The Mount, West Hill, Tredegar.

Radnorshire—R. H. Johns (2BPM), School House, Painscastle, Erwood.

* * *

Owing to the very unsettled nature of the exchange between this country and U.S.A., we regret we cannot accept subscriptions for the A.R.R.L., as we have done in the past. We hope at a later date to be able to revert to our former practice.

* * *

We have been in communication with the A.R.R.L. regarding the bulk transmission of copies of QST to England for redistribution here. These are the terms : The A.R.R.L. will despatch batches of 25 copies of *QST* to any specified address in England for the annual sum of $2.30c. per copy. Members will then have to make their own arrangements for collecting from Victoria Street, or pay the Society an additional postage fee for forwarding. As the individual members (of this Society) who take part in this scheme would be unknown to the A.R.R.L., they would not be members of the League. Will any members who desire to participate in such a scheme please let the Hon. Secretary know as soon as possible, stating at the time whether they are paying members of the A.R.R.L. at the moment, and if so when their subscription lapses.

* * *

The Honorary Secretary desires to thank his countless friends, both at home and abroad, who

sent personal Christmas and New Year greetings. These cards of good wishes were most highly appreciated.

* * *

The Council desire to thank all members who forwarded to them greetings during the Christmas and New Year season, and particularly they wish to express their pleasure in receiving messages of good will from many foreign and overseas societies.

* * *

The following message was sent on 1.75, 3.5 and 7 M.C. bands by our President, G2TI, from station G6NF between 01.00 and 01.30 G.M.T., on January 1, 1932. We hope it was well received :—

"R.S.G.B. Es B.E.R.U. DE G2TI.—Gd Luck es best 73 to all. More QSO's es fb DX everywhere, keep banner of British Empire Amateur Radio flying high in every respect. Here's to U all.—Sig G2TI.

Erratum.

The Editor regrets that owing to an error, the list of "Calls Heard" which headed last month's collection was not attributed to VS7GT, whose name was unfortunately omitted.

QRA Section.

Manager : M. W. Pilpel (G6PP).

NEW QRA's.

G5HC.—F. N. Hitchcock, 98, Highfields, Dursley, Glos.

G5IB.—I. Campbell-Bruce, "Summer Hill," Tenterden, Kent.

G5OJ.—H. C. Turner, "Gedling," Forest Ridge, Keston, Kent.

G5PV.—T. H. Bridgewater, 74, Egmont Road, Sutton, Surrey.

G5QU.—C. S. Brown, 39, Westfield Way, Dormanstown, Redcar, Yorks.

G5ZG.—R. P. Hawkey, "Ashleigh," Manor Road, Chigwell, Essex.

G6DC.—D. C. Clark, 179, Wood Street, Chelmsford, Essex.

G6DP.—W. P. Dolphin, 127, King's Road, Old Trafford, Manchester.

G6LG.—T. Laing, 13, Salisbury Terrace, Aberdeen, Scotland.

G6TZ.—R. Bottomley, 27, Thornhill Avenue, Huddersfield, Yorks.

G6WP.—W. A. Panton, "La Estancia," Marine Drive, Bridlington, Yorks.

2APN.—E. M. L. Stear, 25, Rokeby Avenue, Redland, Bristol.

2ATK.—L. E. G. Grosvenor, 1, The Crescent, Sutton Road, Walsall, Staffs.

2AUZ.—L. B. Parkes, 102, Lichfield Street, Walsall, Staffs.

2AWJ.—R. Parsons, 9, Ailsa Terrace, Tiverton, Devon.

2AXW.—F. H. Robb, 3, Worcester Terrace, Chamberlain Street, Belfast, N. Ireland.

2BQO.—W. C. G. Smith, 23, Fairfield Road, Montpelier, Bristol.

The following are cancelled :—2AGN, 2AMY, 2BLX.

Please send all new QRA's changes of address, etc., to G6PP, 54, Purley Avenue, London, N.W.2.

QSL Section.

A Happy New Year to everyone! Please try to find room amongst your New Year resolutions for just this : "I will try to keep H.Q. constantly supplied with envelopes for my cards."

The files of the section received another clean-out on January 1, but the same sorry tale of "unclaimed cards" meet the eyes of the sorrowing staff. Please don't ask for QSL's if you don't want them, and make it clear during the QSO that you either don't want cards or are too absent-minded to collect them.

J. D. C.

FORTHCOMING TESTS.

CONTACT BUREAU.

C.B. Tests commence this month. See announcements in recent Bulletins.

* * *

B.E.R.U. CONTEST.

Full details of this are to be found on page 153 of the November Bulletin.

* * *

AUSTRALIAN QRP CONTEST.

From January 4 to 31 the Australians are holding a QRP contest organised by the Federal Traffic Manager, VK3ML. It is entirely a test for *their* stations, but they ask for our co-operation. That's given, of course, and we will try and make their tests go with a swing. All bands will be used and their results will be judged on a miles per watt basis.

RECEPTION TESTS.

In continuation of the Reception Tests (details published on page 196, December, 1931, issue of the Bulletin), further tests have not been arranged as below. It is hoped that these tests will stimulate particularly the B.R.S. and A.A. member ; it is also noticed that transmitters are interested inasmuch as a number of logs have been received from them. While it has recently been extremely difficult to choose ideal periods ahead on the various bands, it should be understood that reception on a "dead" band may, and does, at times give extraordinary results when compared with various localities. Fill in your logs even if the period chosen proves "dead." Logs in budget form will be circulated to all members contributing. Send logs to T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4. Budget will be closed January 26, 1932.

The Incorporated Radio Society of Great Britain.

Headquarters Society:—BRITISH EMPIRE RADIO UNION,
53, VICTORIA STREET, LONDON, S.W.1. **('Phone, Victoria 4412**

APPLICATION FORM.

The Hon. Secretary,

Sir,—I beg to make application to be enrolled as a member, and shall be obliged if you will submit my name to your Council. I agree, if elected, to act and abide by the Rules of the Society as expressed in its Articles of Association and By-laws.

Signature.....

Name in full (please use Block Letters) .....

Address (to which all communications may be sent) .....

Nationality..... Age (if under 21).....

Call Sign.....

NOTE.—*Members not having Call Signs are allotted B.R.S. (British Receiving Station) or B.E.R.S. (British Empire Receiving Station) Numbers, which are used for identification purposes only.*

Proposed by..... Seconded by.....

NOTES.—*Applicants who do not know any member may accompany their forms by references in writing by persons to whom they are known. Such persons should be householders, and should state profession and length of acquaintance with applicant.*
The Council reserve the right to refuse any application without reason.

UNDERTAKING TO BE SIGNED BY APPLICANT.

I, the undersigned, agree that in the event of my election to membership of the INCORPORATED RADIO SOCIETY OF GREAT BRITAIN, I will abide by and observe the Rules, Regulations and Articles of Association of the Society, and that in the event of my resignation from the Society given under my hand in writing, I shall, after the payment of all arrears which may be due by me at that period, be free from this obligation. I further agree to observe strictly the terms of any licence issued to me by the responsible authorities to operate transmission or receiving apparatus.

Witness my hand this.....day of..... (*signed*).....

SUBSCRIPTION RATES.

Corporate Members and Associate Members (Town) ...	**£1**	**1**	**0**	**per annum.**
Corporate Members resident outside 25 mile radius Charing Cross	**0**	**15**	**0**	**,, ,,**
Corporate Members resident outside British Isles ...	**0**	**12**	**6**	**,, ,,**
Non-Corporate Members—Associates	**0**	**10**	**0**	**,, ,,**

Associates are not eligible to vote or receive individual notices of the Society.
Certrficates of Membership and copy of the Articles of Association are issued to all members upon election.

NO ENTRANCE FEE.

A copy of the Articles of Association may be inspected at the Headquarters of the Society, 53, Victoria Street, London, S.W.1, by applicants upon request.

FOR OFFICE USE ONLY.

Approved by Council.....

B.(E.)R.S. Number issued..... ....First Subscription Paid.....

Reception Periods and Bands.

Date.		Period G.M.T.		Band.
January	23-24	23.30—00.30		1.7 M.C.
,,	24	23.00—23.30		1.7 ,,
,,	19	20.00—20.30		3.5 ,,
,,	19	21.30—22.00		3.5 ,,
,,	20	21.00—21.30		3.5 ,,
,,	18	18.30—19.00		7 ,,
,,	20	20.00—20.30		7 ,,
,,	24	07.00—08.00		7 ,,
,,	23	16.00—17.00		14 ,,
,,	24	08.00—09.00		14 ,,
,,	24	15.00—15.30		14 ,,
,,	23	At any time during the day		28 ,,
,,	24	,, ,, ,,		28 ,,

Book Review.

VADE-MECUM. Published by EAR, 59, Jaime Mas Bauza, 16, Palma de Mallorca (Espana).

We have received a copy of the above book, which is unique in many respects, being published in three languages : Spanish, French and English. It contains a very comprehensive collection of amateur radio information, including a special vocabulary which is intended to allow amateurs not understanding one another's language to converse with some facility. The vocabulary comprises some 1,500 abbreviations.

In a brief examination we do not believe that many amateurs will take the trouble to learn this new form of languages, but we congratulate the editor on the ingenious methods which he has adopted. Very useful tables are included, but unfortunately these are all arranged on the metric system, with the result that as far as British amateurs are concerned a good deal of conversion would be necessary.

The book is clearly printed, and whilst presenting an unusual appearance in English eyes, is one which could be made much use of in any amateur station. The special price of 9 pesetas has been fixed for the first edition. J. C.

A New Filament Transformer.

Messrs. W. B. Savage, of 192, Bishopsgate, London, E.C., have designed a filament transformer to cope with mains voltage variations. The primary is tapped for voltages above and below the standard on which it is to be used, and the secondary is centre-tapped as usual. As it is distinctly harmful to run most valves at a high plate currrent with a filament voltage lower than that specified, some method of keeping this constant is advantageous. The model tested was designed for 200 volt mains, and was tapped at 190 V, 195 V, 200 V, and 205 V. It was used on mains which usually fluctuate from 190 to 210 volts. The output was rated at 6 volts, and it was possible to keep this practically constant while the mains varied from 192 to 208 volts. There is no standard model, and the makers would, no doubt, quote on almost any specification. The best means of varying the tappings is a stud switch, which could, no doubt, be incorporated in the design.

CORRESPONDENCE.

The Editor does not hold himself responsible for opinions expressed by correspondents. All correspondence must be accompanied by the writer's name and address, though not necessarily for publication.

Another Appeal for Esperanto.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—May I beg a few lines from your correspondence columns in order to make a few brief remarks on the vexed question of Esperanto and its suitability for use in Amateur Radio.

I am afraid the trouble lies mainly in the unfortunate axiom that man is a lazy animal. The average Englishman especially. This latter species speaks an extraordinarily difficult language which the enterprising foreigner very obligingly learns.

I do not understand what G5QY means when he refers to Esperanto as "only an international code." I am a comparative newcomer, yet I find a rich and expressive language with a comprehensive literature and an absurdly simple grammar. Esperanto is not intended to supplant but to supplement National languages. It is rightly described as an international auxiliary language.

Further, in regard to G5QY's remarks, I cannot see his objection to Esperanto Morse code, and I definitely disagree with him in his remarks about "fone." I regard this as the ideal form of QSO. Duplex fone at that. The only real objections I can find are, I admit, technical.

To return to Esperanto. I advise all amateurs to write BRS591 and find out for themselves.

In conclusion, I append a list of amateur stations who, I know, already speak Esperanto, although I am assured it is by no means complete : G2ZN D4UAO, F8PJ, OK2MA, VK3CA, and VK3WX.

I hope, before many months elapse, to add G2MI. There are over a million Esperantists in the world, and they are highly organised. I feel sure that some form of co-operation with the equally well organised radio societies would be to the advantage of both.

Yours sincerely,
ARTHUR S. MILNE (G2M).

Who Can Reply?

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Can any British station claim to have worked all six continents in six consecutive contacts? I find that I have just done this, without setting out to W.A.C. or even realising it.

The contacts, in order, were with YI2DC, W1AU, VK3JF, G6WY, FM8CR, and PY2BN. FM8CR was worked at 23.00 on 7 M.C. and PY2BN at 08.00 next day, on 14 M.C.

Yours sincerely,
L. H. THOMAS (G6QB).

STRAY.

G5QY, of 7, Lansdowne Terrace, Gosforth, Newcastle-on-Tyne, wishes to get into touch (via radio or otherwise) with other foreign amateurs interested in stamp collecting, with the object of exchanging varieties.

CONTACT BUREAU NOTES.

By H. C. Page (G6PA).

I TRUST you will forgive me if I refer to personal matters for one moment. First, I would like to offer my sincere thanks to all those who have so kindly send me cards and letters this Christmas. I only wish I had time to reply to all in person, but am afraid that is not possible, so I must ask you to take the word for the deed. Second, I would like to wish you all the very best of success in the New Year.

Now to turn to matters radio. I am afraid there is very little to write about this month. Possibly the season has a good deal to do with this.

One very interesting letter has been received from that tireless 28 M.C. worker, VE2AC. He reports that his numerous schedules have not met with success, but he is not deterred by this, and intends to carry out a further series of schedules in the New Year. For the benefit of those who may be interested, a full list of these schedules will be published as soon as it is received. VE2AC remarks that, having had three years' experience of 28 M.C. conditions, he was not very upset at the failure of his tests, but hopes that our BRS men have not become too discouraged. Doubtless, the BRS men will put his fears to rest over this.

G2ZN reports very little doing in the sunspot business, and says he has come to the conclusion that only very pronounced solar activity has any effect on radio conditions. There are so many other factors which govern radio conditions that small sunspots, even if they do affect radio, would be unlikely to cause enough activity to overcome other forms of interference. In future, he will only send in sunspot maps when there is a really good big spot.

2ALR reports that he has heard HAF8B on 28 M.C. consistently during the last few months at strengths varying from R3 to R8. Apart from this, he has heard nothing except local G stations since the last R.S.G.B. Tests.

By the time most of you read this, the 28 M.C. Tests will be looming up in the very near future, and I will conclude by wishing you all the very best of success, and may conditions be better than they have ever been before.

Group Reports

28 M.C. Work.

G6VP, Group Manager.

Conditions on the higher frequencies still continue to be very bad indeed ; but for all that, more and more amateurs seem to be turning their attention to this work, which cannot fail to attract if even only on account of the difficulties and the general uncertainty of the results. The 28 M.C. Band undoubtedly has a great attraction for the BRS man, and it is probably in this direction that he can do the most useful work at the moment. Week by week, applications to join groups are coming in, and if conditions will only fall into line a bit, the tests should bring out some very interesting results.

I know that we have our solar sunspot partisans, and I have expressed my lack of opinion on this question before, but the fact remains that our bad conditions are not shared by either the Americans nor by the Australian amateurs at present. W2JN usually knows when conditions are favourable for trans-atlantic work, and on Saturday, December 19, he called me up (on 14 M.C.) and arranged a sked for between 14.00 S.M.T. and 16.00 G.M.T. for every Sunday. It goes without saying that his lead is sure to be followed by other high-powered W's. From VK3WL via HB9Q (who sent the message to me by quite six different sources, including a Dutch station, PA0QQ), I have a résumé of their work. "To G6VP, Nr. 16 de HB9Q. Sunday, November 22.—28 M.C.—VK4XN audible at VK3WL from 7.30 a.m. until 10.15 p.m. never under R5, max. R9—VK3GK also audible most days. VK3WL, R9T9 QSO, VK4XN R8T8—8.30 a.m. and five times—last QSO 10.15 p.m. VK3WL R7 QSO, VK4GK R5, VK5HG and VK3HK heard VK4XN and VK4GK many times during day and evening. VK4XN also QSO VK3KN, VK3BQ, VK3RJ, VK3NM, VK3BZ, and VK3JP, and heard other VK3 stations. Nd from VU or VS7 stations.

"To G6VP, No. 17 de HB9Q Sunday, November 29.—Ten meter work FB 23.00 G.M.T. Sat to 12.00 G.M.T. Thirty QSO between VK3 stations and VK5HG, VK7CH, VK4XN, VK4GK, VK4RB, VK4GW, VK4WO. About twenty VK3 stations on 28 MC.

VK5HG max. here at 09.00 G.M.T. No VU or VS7 heard Eastern States. About 80 inter-state contacts on 28 M.C. during November. Best test conditions yet experienced."

"To G6VP de HB9Q. November 18. 9-12-31. 28 M.C. conditions again good on December 6. VK4GK, VK4XN, and VK4WO worked. They also had many other inter-state contacts."

"To G6VP, No. 19 de HB9Q. Sunday, 13. 28 M.C., VK4XN, VK4GK, VK4GW. QSO's with VK5KC, VK3BQ, VK3WL, VK3RZ, VK3JJ conditions not so good as last week, but still many contacts. On the 6th ZL3AV heard VK (?) and VK4XN, but no QSO's.

From the above, I think I am justified in saying that our friend, the Sunspot Cycle Theory, is well . . . rather local, to say the least of it, and quite possibly, the poor DX conditions we have been experiencing from a westerly direction is occasioned by the same force that has so changed the air currents reaching our shores.

ST2D writes that he is regularly sending and standing by on 28 M.C., and sends a very long log of commercial signals heard. The only amateur signal seems to be from HAF3D, but unfortunately contact was not established. He has two transmitters on the band at present, a C.C. set and also a T.P.T.G., using a 66.5 ft. Zepp with 40-ft. feeders. At present he uses only 35 watts, and he certainly notices the difference from this output to that of his old set, using the kilowatt! As to our own Groups.

Group 1*B*. does not report.

Group 1*C*.—G6WN's have neither heard nor worked any DX. They have identified the two telephony stations as Rome and Sardinia. They have worked G6NF on fone R5. G6VP has been

changing his power supply, and at last has got adequate high tension. Nothing of interest has been either heard or worked.

Group 1*F*.—BRS25 writes that it is pleasant to have some members again in his group who do report and is thankful for the new stations drafted to him. He has personally spent a long time listening, and heard HAF4D on December 6 R6. G2DZ says that although he has been listening frequently since last June, when he returned from sea, he has heard only local amateur and commercial signals. His transmitter is quite ready. G2OA says that he has been on 28 M.C. since 1928, and the first ex England report has just come to hand from FM8IH, who logged him at 18.10 G.M.T. on August 21. His transmitter is a push-pull T.P.T.G. using 2 LS5B's with 400 volts. BRS615, who heard HAF4D and 8B in July, reports that he has again heard HAF8B on November 22. His receiver is the usual O.V.1 with a 16 ft. 6 in. inverted aerial. He finds results as good as with a 70 ft. aerial, and better as regards hand capacity effects. These, however, return if he makes his 16 ft. 6 in. aerial 17 ft. long. BRS25 has been QRX a lot, and he has logged HAF4D at 15.00 G.M.T. on December 6. R6.

Fading, Blindspotting, and Skip.

G2ZC, Group Manager.

There seems to be an increasing interest in the above subjects, and in the work of the groups working on them, and I have had several enquiries. I have already got the names of three members who would like to become members of a group, so if I can get other three names Group 2C might be formed. I am particularly anxious to have a group consisting of a majority of BRS members, for as the work is mostly a mixture of theory and observation BRS members are of the greatest assistance in observation work, in conjunction with practical work. 2A run special schedules in this manner for observation work, and the idea is an excellent one. If the scheme is not too ambitious, I should like to see a special group of BRS members formed, who work on each of the bands, so that concentrated observation could be done on each separate band, and also that the whole number of groups could then co-operate in issuing a combined report. If, therefore, separate groups can be formed, I shall be glad to have the names of six members who will be willing to work on one band, so far as observation work is concerned, for there is no limit to the number of groups we could have, while actually we only have two.

Reports this month are as follows :

Group 2*A*.—A continued discussion of the Heaviside Layer (or layers) with further arguments for and against the mass theory of radiation has been the subject this month. While most of the members are in partial agreement, BRS473 puts forward arguments against it.

A book issued by the French Meteorological Office on the subject of wave propagation and skip is in circulation, and some very interesting and informative data is contained in it.

Two articles on Professor Appleton's researches are also in circulation, which give conclusive evidence of the existence of two layers, and the possible existence of a third layer.

G.C. is running schedules with the group, but so far results have been nil, and G5NL is about to assist by carrying out two schedules per week, and it is hoped that these schedules will yield some interesting information on skip.

[May I suggest you *publish* your schedules, so that others interested in such observation work may participate, and add their own notes to those of the group ?—G.M.]

Group 2*B*.—This month's report must be a short one, for the group, having completed three years' observation, are now discussing what they have proved, and what they have not proved. Unfortunately, the list of " Not proven " is much longer than the " Proved," but we have, at least, demonstrated several points, and those we intend to go more deeply into in the near future. The probable existence of a second reflecting layer has been shown, and we await with interest the origin of a third layer, from which reflections have been recorded (about 500 miles away from the earth's surface). Should these echo effects show that reflecting surfaces do exist, it will solve the problem of the existence of the Heaviside Layer once and for all ! In the matter of sunspot phenomena, we have so far proved our case, but to do so fully will require at least one, or more complete cycles.

So far as earthquate phenomena goes, this, too, we have not only drawn attention to, but have seemingly made the shoe to fit the foot, but here again an average over a long period will be required to be noted, before we can state our ideas.

This month we issue a list of earthquakes that have taken place during the month of November, 1931, and would again invite any who have found peculiar conditions on any of the dates mentioned to let us have particulars.

It is with the greatest regret that one of the founder members (CT1BK) has had to resign. We have asked him to become an honorary member of the group, as this is the first severance from the group since CT1BL had to resign on taking up an appointment in Brazil.

Through the courtesy of the G.C. of 2A, 2B have had copies of the French Meteorological books, mentioned in their notes, sent to them, and these will shortly be in circulation. (2B have also circulated Professor Appleton's proof of the two layers. —G.M.)

3.5 M.C. Work.

G6RB, Group Manager.

Group 4*B*.—G2WP reports slightly better conditions. Finds his Marconi type, aerial-earth system the best type tried so far. Experiments on effect of loose aerial coupling with circuit tuned nearly to resonance, and tighter coupling with circuit detuned, indicate little difference in results. SM6WL found conditions better. Gives a report on conditions and stations heard in Sweden. G stations are seldom heard in Sweden before 18.00 G.M.T. on this band. G2XS sends description of his 3.5 M.C. apparatus. Has trouble with key thump filter. He is using a C.C. T.P.T.G., working from batteries or mains. The aerial used is one side of a 7 M.C. Zepp. G2KB.—Work has been done on most evenings after 22.00 G.M.T., and conditions have been variable. On some nights there has been no skip effect, and G stations have been worked. Reliable weekly schedule maintained with G6RB and G2WP. It is found that signal strength falls off at about 10.30 G.M.T. by about one R strength.

Conditions seem to be at their best between 08.00 and 09.00 G.M.T., but very few stations are on the band then. There is still a vacancy in Group 4B.

QRP Work.

G2VV, Group Manager.

Group 8B.—GC.. G2VV has little to say other than to comment on the prevailing conditions, which are quite the worst that have ever been experienced. 14 M.C. seems completely dead, and on 7 M.C., when signals are audible, the QRM is amazing. He intends to try the " 6JV " method of coupling the aerial in the near future. G6SO has been busy on 3.5 M.C., and seems to have worked most Europe. He states that reports seem to be best when the weather at his station is good, and weather at the other end " bad." What do others think ? He is now using CO.FD. for 3.5 M.C., and COPA for 1.75 M.C. The TX is TPTG and plug in coils of Litz wire are used. Is using a DE5B as the CO and P625A as PA or FD. G5OQ is getting out well, using a UD2 as oscillator with ultra QRP inputs. Has been using c.c. with crystal across the grid coil. Remarks that whilst countries all round can be worked, he cannot QSO EAR, and wonders if it is directional effects. Using the 33 ft. Windom he cannot get the TX to work on 7 M.C., as it throws it out of oscillation. G6PV has been active on 7 M.C., but owing to conditions, has little of interest to report, and says 14 M.C. absolutely dud. ZD2A promises dope later, as he is now busy preparing a portable 2-watt outfit for use in the bush, as he will be moving about a good deal in the near future.

Group 8C.—G.C. G5PH says that the group have decided to study the relations between the moon and radio conditions on short waves. For phone he employs grid modulation, using a valve as a grid leak, and is getting 100 per cent. modulation reports. G5LQ reports very poor conditions. At certain times he hears DX, but this reception seems to be freak, and is not at all reliable from day to day. BRS587 now has his receiver working on all bands. Has been testing out a portable heterodyne wavemeter, which he finds very useful. Also reports bad conditions with fading on all bands. G2WX has not been on very much, as he is busy testing aerials, etc., and will report on his results later.

Group 8D.—G.C. G6BU unfortunately is forced to resign his position owing to business obligations, and 2AGN will probably be taking over his job as G.C. (Sorry to lose you, BU G.M.) He has been trying all possible means to make his receiver work on 28 M.C., but has not had much success so far. BRS534 also finds his set refuses to work on 28 M.C. so is rebuilding. G51X has not heard any signals on 28 M.C. so far. He has cured BCL WRM from key clicks by changing the direction of his aerial! He must be congratulated on working WK1GO on 7 M.C., who gave his QRA as San Francisco. Although the QSO seemed genuine, G5IX suspects a pirate, and would like to hear from anyone who has heard or worked WK1GO !

Group 8E.—G.C. EI7D sends no reports, as he is resigning, and arrangements for a new G.C. are being made.

Group 8F.—G.C. G2TJ is now using a parallel-fed Hartley on 1.75 M.C., and 4 watts input, and would welcome reports. This group have chosen 1.75 M.C. work as their subject. G5IH unfortunately has to resign, as business QRM is bad. (Sorry, OM, G.C.) G5LN working well on 1.75 M.C. with 4.5 watts.

Earthquake Report.

Date (1931).	Time, G.M.T.	Situation.	Remarks.
Nov. 1	Evening	Violent shock in the Caxias district (S. America)	—
Nov. 2	1215	Slight shock registered at Helwan Observatory, Egypt. Epicentre nearly 6,000 miles away	—
Nov. 2	1500 G.M.T. ?	Strong shocks in Algiers and district for 5 secs. From West to East	—
Nov. 2	1900 G.M.T. ?	Violent quake in the Islands of Kyushu and Shikoku (S.W. Japan)	There had been a quake also, in the afternoon, at Kumamoto, in Kyushu
Nov. 4	Early morning	Severe quake in N.E. Japan	Part of the Island of Port Kamaishi disappeared into the sea.
Nov. 6	2100 G.M.T. ?	Slight shock felt in Rovereto and Isera, Italy	—
Nov. 15	?	Severe shock felt in several places in Central Finland	—
Nov. 16	2130	Light earthquake felt at Helsingfors, Finland	Lasted 3 secs.
Nov. 28	?	Three tremors felt in the Cantons of Ticino and the Engadine, Switzerland	—

2 MC. Work.

G5UM, Group Manager.

Conditions during the month up to December 15 had improved slightly on 2 M.C., and in addition to Germany, represented by D4WUM last October, Denmark, I.F.S., and France have been active on the band.

During November, Group 10A maintained all-night watches in an endeavour to hear some of the various U.S. stations who were known to be using the band. Some of the Americans had as much as 1 k.w. input, but conditions throughout the month were of the worst character imaginable. Static and QSC reigned supreme.

Last month's remarks about fog and smoke screening have brought an interesting letter from

the Group Manager of 2A and 2B. G2ZC comments on the difficulty of putting a 2 M.C. wave into smoke-bound industrial areas, whereas a 7 M.C. wave penetrates with ease. He suggests that the attenuation of the longer wave is greater, as it has further to travel. The 7 M.C. wave, coming at a steeper angle, drops into the smoke or fog area, while the 2 M.C. wave has to push through it. ZC adds that he cannot put his 2 M.C. signals into industrial towns, but has no difficulty in working districts beyond.

G5RX has been trying A.C. valves in the transmitter, and finds them more efficient than the LS5. They are, perhaps, a little more difficult to control. On the subject of Self-Excited *versus* Crystal Controlled Transmitters, G5RX emphasises the fact that a T9 note occupies less room on the band than a T7 or modulated note. The ideal is to abolish the spacer wave, and thus mitigate the interference problem on all bands to a not inconsiderable extent. Difficulties with the A.C. power supply, coupled with the fact that a 2 M.C. crystal was already on hand, contributed to the decision of RX to build a C.C. transmitter.

G5FP has been in the throes of reconstruction both of receiver and transmitter. He is embarking on a new line of experiment, and some interesting details are expected soon.

Continued poor conditions have curtailed activity by BRS164. Static has been unparalleled for the time of the year, and bad fading has been observed also.

G5UM has built a COPA in place of the push-pull C.O., and results are somewhat better. Before the latter transmitter was dismantled, however, tests were made with two PT625 pentodes in place of the DE5B's. Results were encouraging, and good R.F. output was obtained. Grid bias was rather critical, and |1|60 volts were necessary. The pentodes needed more coaxing into oscillation than the 5B's, but this seems to be a characteristic of modern high-efficiency valves. (*Vide* experience of G5RX with A.C. valves, mentioned above.)

The next 2 M.C. party of Group 10A will be held on Saturday, February 6, and all amateurs requiring QSO's on the band should listen at 23.00 G.M.T. on that date.

Television.

G5CV, Group Manager.

Group 11*A*.—G5GJ has at last got his 60 ft. lattice mast up, but is now experiencing trouble with a transformer in the vision set. Incidentally, he uses crystal rectification which should be very efficient for the purpose.

2AOB is now using power grid rectification and two transformer coupled L.F. stages, but finds that he cannot strike the neon even when using 300 volts H.T. to a P256A. (The reason, OM, is that there is no steady D.C. flowing through the neon, only the A.C. vision current.—G.C.)

G6MS is seriously hampered by the fact that the London Regional transmissions cannot be received in Glasgow during daylight. He also raises the old controversy, "Transformer *v.* R.C. coupling" for vision work, which is being dealt with in the Letter Budget.

G.C. G5CV has again had very little time available recently, but a start has been made in an attempt to modulate a high frequency oscillator with the vision signals, and thereby light a number of neon tubes very brilliantly.

Antenna Group.

G2OP, Group Manager.

Conditions have been such during the last four weeks that it has been impossible to do any organised work, and it is sincerely hoped that the New Year will bring better conditions so that we can get on with the job.

G2CJ is so busy that we may have to find a new G.C. for 12A. G5ML is testing out at his new QRA two full-wave Zepp antennas for 14 M.C. with ¾ wave feeders in parallel, fed by means of a split coil from push-pull. One top runs east and west, and the other north-west and south-east. By this method the radiation is in all directions. G2YX is testing out a half-wave current-fed aerial on 80 M. G5BD is testing out a Zepp with 67 ft. top, and 40 ft. feeders. He finds it reasonably efficient on 14 M.C., but difficult to get greater range than 800 miles on 7 M.C. G6AC is doing comparative tests, using single wire feeder. G6MB and G2OP are both rebuilding their transmitters. G6GS writes that he must drop out, so a vacancy occurs in 12B for anyone interested.

Can anyone please give me information as to the whereabouts of VS2AF, who was due in England in September, but has not been heard of or seen?

(*Continued from page* 232.)

which is necessarily done when the aerial is *in situ*. Providing the feeder is tapped on within the limits of accuracy of the curve (which is obtainable to about ½ in.), these other variables adjust themselves.

Finally, one may be pardoned for criticising the concluding remarks in regard to accuracy of expression. The nomenclature used is that which is commonly accepted by the majority of amateurs, and though it is admitted that it would have been possible to use more "scientific" language, one ventures to suggest that the main object of the whole article would have been defeated, which, as indicated in the first few paragraphs, was to present the generally known facts with regard to aerials in the simplest possible manner and from a purely practical point of view. It was written in the hope that some light might be shed on the matter of aerials, and that those interested would be sufficiently enthused to probe further into the technical and theoretical considerations of the subject in consequence. In a phrase, "Simplicity was the Key-note."

* * *

One point that should be explained is that on page 151 of the November issue of the BULLETIN there occurs an inaccuracy. Dealing with the method of orientation of the frame for 28 M.C. directional radiation, it is stated that the "centre of the aerial wire is sighted along the compass needle." This is incorrect, as it is the bearing that is wanted, not the north point, so that the line of the bearing must be sighted to the aerial wire centre.

* * *

The writer will be pleased to give any references that are required by those who are interested in getting more information.

Empire B.E.R.U. News.

B.E.R.U. REPRESENTATIVES.

Australia.—H. R. Carter (VK2HC), Yarraman North, Quirindi, N.S.W.

British West Indies, Bahamas, Bermuda, and British Guiana.—H. B. Trasler, No. 2 Mess, Pointe à Pierre, Trinidad, B.W.I.

Canada.—C. J. Dawes (VE2BB), Main Street, St. Anne de Bellevue, Quebec.

Ceylon and South India.—G. H. Jolliffe (VS7GJ), Frocester Estate, Govinna, Ceylon.

Channel Islands.—Captain A. M. Houston Fergus (G2ZC), La Cotte, St. Brelades, Jersey, Channel Islands.

Egypt and Sudan.—H. Mohrstadt (SU1AQ), No. 1 Co. Egypt Signals, Polygon, Cairo.

Hong Kong.—P. J. O'Brien (VS6AE), 12, Kent Road, Kowloon Tong, Hong Kong.

Iraq.—H. W. Hamblin (YI6HT), Wireless Section, R.A.F., Shaibah, Basra, Iraq.

Irish Free State.—Col. M. J. C. Dennis (EI2B), Fortgranite, Baltinglass, Co. Wicklow.

Kenya, Uganda and Tanganyika.—H. W. Cox (VQ4CRF), Box 572, Nairobi, Kenya.

Malaya.—G. W. Salt (VS2AF), Glenmarie Estate, Batu Tiga, Selangor, Malay States.

Newfoundland.—Rev. W. P. Stoyles (VO8MC), Mount Cashel Home, St. John's East.

New Zealand.—D. W. Buchanan (ZL3AR), 74, Willis Street, Ashburton; and C. W. Parton (ZL3CP), 69, Hackthorne Road, Cashmere Hills, Christchurch.

Nigeria.—Capt. G. C. Wilmot (ZD2A), 1st Battalion Nigeria Regt., Kaduna, Nigeria.

N. India and Burma.—R. N. Fox (VU2DR), C/o VU2FX, Sgt. C. D. Connerton, Aircraft Park, Lahore Cantonments, Punjab, India.

South Africa.—W. H. Heathcote (ZT6X), 3, North Avenue, Bezuidenhout Valley, Johannesburg.

South Rhodesia.—S. Emptage (ZE1JG), Salcombe, Plumtree, Southern Rhodesia.

MAY we take this opportunity of wishing all B.E.R.U. members and member societies the very best of good wishes for the coming New Year, and in so doing thank them one and all for the magnificent support which has been given to the cause of Amateur Radio in general and B.E.R.U. in particular during the year that is past. Our B.E.R.U representatives in all parts of the Empire deserve special thanks in this connection, and without their valuable aid the work could not have gone forward as it has done.

New groups in the B.E.R.U. movement have been springing up in various corners of the Empire during the past year, and it is our fervent hope that more and more centres of Empire Radio activity will see the light during 1932. We must present a united front at Madrid, and unity of amateur radio bodies means strength. Our aims and aspirations must be the same, and we must speak with a common voice when our interests are affected. Honorary affiliation of Empire national societies to the B.E.R.U. is one way of achieving this unity, and it is with extreme gratification that we have noted some of our sister societies in the Empire joining in with us.

Trade, and even radio conditions themselves, are against us, but nothing can daunt the enthusiasm of the true "Ham," and it is with confidence and assurance that we look forward to 1932!

A Happy New Year to you all!

Think Amateur Radio, Talk Amateur Radio!

* * *

Many of you will remember that in recent issues of the BULLETIN we have been able to print records of some special achievements of the amateur in times of emergency, and it is with great pleasure that we add to this list of "special mentions" that the amateur has received from time to time. The New Zealand earthquake, the troubles in Cyprus, and many other incidents have afforded the amateur excellent opportunities for demonstrating his usefulness to the community in times of danger, and now we receive the following laconic note by radio to tell of yet other laurels he has won.

(The information is from VK3WL *via* G5YH) :—

"VK3WL reports cable broken between Hobart and Melbourne. VK3RJ and VK3WL taken over by P.M.G. from December 21 to December 28 for handling traffic between these towns. They both have special telegraph lines from G.P.O. to their shacks."

(Congratulations to both stations concerned.—ED.)

From Newfoundland, too, comes cheering news: VO8MC reports that the Newfoundland government has asked for co-operation in maintaining contact with the North-West River, an isolated part of the country, devoid of other means of communication with the outside world, and he is confident that the value of amateur assistance is being realised more fully by his government.

* * *

AUSTRALIA

(NOVEMBER-DECEMBER).

By VK2HC.

The 7 M.C. band is the mainstay, and although local work is patchy, DX at about 20.00 until 21.30 G.M.T. is quite good, and numerous European and African contacts are reported, particularly from

VK3WL and VK5HG. The W signals are only fair between 08.00 and 11.00 G.M.T.

Some of the gang are still battling against static on 3.5 M.C., and when permitted have some good QSO's.

Once again the New Year is here, and the amateurs of Australia wish their brothers and cousins in the Mother Country, sister Dominions and other parts of the world a happy and prosperous New Year.

CANADA

(November-December).

By VE2BB.

Canada sends best season's greetings to all. We are sorry that the poor DX conditions will not allow us to send our wishes to each country separately by amateur radio.

A few DX contacts have been made, but results generally are not good.

It does not appear that any VE station had any luck in the recent 1,750 k.c. test.

CEYLON & S. INDIA

November.

By VS7GJ.

The only report received is from VS7GT, who appears by his list of " calls heard " to have been busy on the 7 M.C. band.

Conditions have not been favourable, especially at present, when most afternoons crashing thunderstorms are experienced.

The 7 M.C. band appears to be the only active band, whilst 14 M.C. still remains very quiet.

A committee meeting of the Radio Club of Ceylon and South India was held on December 5, and a transmitting sub-committee was formed consisting of A. M. Rahim (VS7AP), G. H. Todd (VS7GT), and myself as chairman (VS7GJ). This committee will deal with all transmitting and B.E.R.U. work, and we now hope to collect more hams ; in fact, we caught one that night, and he will be joining the R.S.G.B. almost immediately.

FIJI ISLANDS.

It is interesting to record that in Fiji amateur wireless has its place among the more usual recreations to be found in the Pacific Islands. There is no broadcasting in Fiji, but experimental wireless has during the last three years received a good deal of attention.

In 1930 it was decided that the Club should embark on a short-wave transmitter, and this apparatus was soon functioning, and is now operated under call sign VP1FW on the 14 and the 7 M.C. bands. A push-pull circuit is used employing power valves only, and the first night it was put into commission contact was at once effected with stations in New South Wales—a distance of something like 2,000 miles.

The Club is indebted to the Fiji Government and Amalgamated Wireless (Australasia), Ltd., for their courtesy in relaxing the restrictions previously obtaining in order that licences might be issued for conducting experimental wireless transmissions in the Colony. To the Fiji Wireless Club belongs the distinction of being granted the first amateur short-wave wireless experimental transmitting licence ever issued in Fiji, and amateurs in other parts of the Empire will be pleased to learn that those in Fiji are doing their bit in the Colony, which is further situated from England than any other.

Quarters have recently been obtained for the Club, and although their location is not altogether suitable from the wireless point of view, this very fact offers opportunity for much experimenting to overcome the difficulties. The Fiji Government are again to be thanked for making available the headquarters of the Club, which, it is anticipated, will now be in a position to carry out more regular schedules than has been possible in the past. The address of the Club is Suva, Fiji.

HONG KONG

(November-December).

By VS6AE.

The 14 M.C. band has been dead for months, but at time of writing it has begun to show signs of a return to normal.

All G stations are requested to look forward to announcements of the H.A.R.T.S. world contest, and are invited to participate. Details are being prepared and will appear in the Bulletin, giving ample time for everyone to make preparations.

The VS6 ranks now number from 6AB to 6AO, with two aspirants who will be licensed before the New Year, thus bringing VS6AQ into existence. A heavy programme of crystal control and phone is occupying the time of the boys here.

May I take this opportunity to include our congratulations on the excellent show put up by the R.S.G.B. and B.E.R.U. at Stand 246 ; the report in the Bulletin having been read with interest by us all here.

VS6AG and VS6AE are both trying hard to establish a reliable link with B.E.R.U. headquarters, but are finding conditions right against them.

Here's wishing everybody a bright and prosperous New Year, and with continued success to the B.E.R.U. and R.S.G.B.

IRISH FREE STATE.

By EI2B.

First, to one and all a very Happy Christmas and all the best for the New Year. Conditions here continue to be the worst possible on all bands, so that I have nothing of interest to report. 14 M.C. especially seems to be absolutely dead so far as DX is concerned, and only on one or two occasions during the month has the blanket on the band lifted for an hour or so during which it has been possible to work an occasional W station at about mid-day. I am sorry to say that we have lost EI7C, as " R. D." has just left for England to take up his professional duties. We all wish him the very best of luck and look forward to hearing him again on the air as a G in the near future. There was a pleasant little gathering of EI hams in Dublin on December 16 to give him a send-off.

NEWFOUNDLAND.

(November).

By VO8MC.

There is very little to report this month as VO8WG was the only local station heard. Conditions on both the 7 and 3.5 M.C. bands were fair at times. VK and ZL are stations coming in well on the 7 M.C. band in the morning as late as 8 a.m. A.S.T. Some European and a few South African stations are heard in the evening at 4.30 p.m. A.S.T. on the same band. VO8MC hopes to do some work on 28 M.C. during the winter.

NEW ZEALAND

By ZL3CP.

I take this opportunity of congratulating the Editors of the T. & R. Bulletin on the wonderful

mprovement in the magazine during the last year. It has had some really splendid articles, which show that the British amateur is well in the forefront in this great game of amateur radio. (Many thanks, ED.)

Conditions out here are changing. The 3.5 M.C. band has gone off for DX, but skip distance effects are making themselves felt, showing that this band is changing back to what it was several years ago. It is possible to get very good reports from Australia when using extreme low power, such as 45 volts on a receiving valve.

The 7 M.C. band has been very good for DX recently with Europeans coming in well in the early evenings and mornings. About the 14 M.C. band, opinions differ; some say there is nothing doing, some say conditions patchy, and a few are working DX regularly. New amateurs are coming on in dozens, and the 3.5 M.C. band, the beginners' band, is certainly lively. Transmitters wanting to operate on the higher frequencies now apply for permits through the NZART, who appoint a H.Q. station to test with the applicants, and then advise the P. & T. Dept. A postal ballot was recently held on the phone question, and a majority decided that it is advisable to confine phone to the 3750-4,000 Kc. half of the band.

The Xmas Convention is to be held in Christchurch, where NZART H.Q. will be for the next two years.

NIGERIA

By ZD2A.

(NOVEMBER).

There is very little to report this month. Conditions, however, have been steadily improving since the end of the rains. ZD2A is closed down at the moment, rebuilding his transmitter for C.C., and no reports have been received from the other B.E.R.S. stations in the district.

NORTHERN INDIA & BURMA

NOVEMBER-DECEMBER.

By VU2FX.

The 28 M.C. tests were held between the VU, VS7 and VK groups during November, but as far as can be ascertained at present, no Australian signals were heard at this end. VU2FS and VU2AH heard commercial stations in the neighbourhood of the 28 M.C. band, whilst VU2FX and VS7AI reported "N.D." Reports from other stations have not yet arrived.

Conditions were variable on both 7 and 14 M.C. Great Britain and the U.S.A. have been received on the former frequency in the early morning (04.00—07.00 I.S.T.).

Australian stations were received at fair to good strength on 14 M.C. between 16.00 and 19.30 I.S.T., but "G's" were heard at irregular intervals only.

SOUTH AFRICA.

(NOVEMBER-DECEMBER).

By ZT6X.

The activities of the Union amateurs appear to have slackened off recently; whether this is due to recent unfavourable conditions for working what we call local (which in South Africa is anything up to a couple of thousand miles), or the lure of the 19th hole at the golf courses, I am unable to say.

The headquarters of the S.A.R.R.L. has given a great deal of publicity to the proposed non-stop

(*Continued on page* 256.)

NOTES and NEWS from the BRITISH ISLES

DISTRICT REPRESENTATIVES.

DISTRICT 1 (North-Western).
(Cumberland, Westmorland, Cheshire, Lancashire.)
MR. S. HIGSON (G2RV), "Hebblecroft," Egremont Promenade, Wallasey, Cheshire.

DISTRICT 2 (North-Eastern).
(Yorkshire, Durham, Northumberland).
MR. L. W. PARRY (G6PY), 13, Huddersfield Road, Barnsley, Yorks.

DISTRICT 3 (West Midlands).
(Warwick, Worcester, Staffordshire, Shropshire.)
MR. V. M. DESMOND (G5VM), 199, Russell Road, Moseley, Birmingham.

DISTRICT 4 (East Midlands).
(Derby, Leicester, Northants, Notts, Rutland, Lincoln.)
MR. H. B. OLD (G2VQ), 3, St. Jude's Avenue, Mapperley, Nottingham.

DISTRICT 5 (Western).
(Hereford, Oxford, Wiltshire, Gloucester.)
CAPT. G. C. PRICE (G2OP), 2, St. Anne's Villas, Hewlett Road, Cheltenham, Glos.

DISTRICT 6 (South-Western).
(Cornwall, Devon, Dorset, Somerset.)
MR. H. A. BARTLETT (G5QA), 95, Old Tiverton Road, Exeter, Devon.

DISTRICT 7 (South-Eastern).
(Berkshire, Hampshire, Kent, Surrey, Sussex.)
MR. J. DRUDGE COATES (G2DC), "Burleigh," Farnborough Park, Hants.

DISTRICT 8 (Eastern).
(Cambridge, Huntingdon, Norfolk, Suffolk.)
Mr. C. E. RUNECKLES (BRS163), "The Myrtles," Needham Market, Suffolk.

DISTRICT 9 (Home Counties).
(Bedfordshire, Hertfordshire, Essex, Buckinghamshire.
MR. F. L. STOLLERY (G5QV), "Kingsmead," Lancaster Gardens East, Clacton-on-Sea, Essex.

DISTRICT 10 (South Wales and Monmouth).
(Monmouth, Glamorgan, Breconshire, Carmarthen, Cardigan, Pembroke.)
MR. A. J. E. FORSYTH (G6FO), "St. Aubyns," Gold Tops, Newport Mon.

DISTRICT 11 (North Wales).
(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire.)
[To be appointed.]

DISTRICT 12 (London North).
Mr. S. BUCKINGHAM (G5QF), 19, Oakleigh Road, Whetstone, N.20.

DISTRICT 13 (London South).
MR. A. D. GAY (G6NF), 49, Thornlaw Road, West Norwood, S.E.27.

DISTRICT 14 (London East).
MR. T. A. ST. JOHNSTON (G6UT), 28, Douglas Road, Chingford, E.4.

DISTRICT 15 (London West and Middlesex).
MR. H. V. WILKINS (G6WN), 81, Studland Road, Hanwell, W.7.

SCOTLAND.
MR. J. WYLLIE (G5YG), 31, Lubnaig Road, Newlands, Glasgow.

NORTHERN IRELAND.
Mr. C. MORTON, (GI5MO), 27, Bristol Avenue, Belfast.

District Notes for publication should be written as concisely as possible and should be in the Editor's hands by the 25th of the month preceding publication. They should be of a general rather than personal nature. Individual reports from County Representatives will not be accepted for publication.

DISTRICT 1 (North-Western).

ON December 19 eleven members and friends spent a very enjoyable afternoon looking over the big Power Station at Lister Drive Liverpool. On arrival we were divided into four small parties and each had its own guide, and everything was explained to us in a most able manner. The Control Room certainly had all our "Ham" stations beaten for switches and meters, and we saw many pieces of apparatus that would simplify our lot a great deal. The meeting held in the evening mustered some sixteen hams and was very successful. G5KR gave a short talk on the first principle of frequency measurement, i.e., "The Time Factor." It proved very interesting and enlightening. At our next meeting in January we have decided to hold a debate on "Self-excited v. C.C." It looks like being a very good show, as most of our members hold very definite views on both subjects. The Cheshire report appears to he upset by the bad conditions prevailing at tbe moment. G5WG is still rebuilding. G2OA is rearranging. G5CN is also rebuilding and has been trying a Zepp, as also has G6OM, who has not met with very great success. G5XD has found great delight in the 1.7 M.C. band. G2RV has not had much time for anything just lately, but hopes to be on the air on all bands very soon. G5GY is now a BCL because of dud conditions. Meetings have now commenced in Manchester, and are held at the same QRA as the Conventionette, from 17.00 G.M.T., on the first Wednesday in each month. Fourteen attended the December meeting and we want to double that for future meetings. The Lancs. Letter Budget seems to have fallen off; how about it? You must keep it going. 2ARY has been trying a doublet antenna for reception purposes and says it cuts down QRM from electric trams, etc. G5KL reports very little doing and 14 M.C. "dead." He hopes to have C.C. working soon. G2QB reports "lack of fuses" and says five watts doesn't get out like 100 watts. (Cheer up, OM). The

"Lancs Lads" paid a very interesting visit to G6FA, and extend a hearty welcome to ST2C, now home from his preambles in the Sudan, and we hope to hear him on the air again with his old G call. Let us have better individual reports next month.

DISTRICT 2 (North-Eastern).

This month has brought in plenty of reports, but so many of them merely report activity. The lack of worth-while results must be attributed to conditions, but whether you have interesting results or not just drop your C.R. a card by the 15th. Thanks.

T. Brown, 253, Helmsley Road, Newcastle-on-Tyne, has now taken over the C.R. job for Durham and Northumberland. G2WS and G5IA have arranged a Leeds District meeting for all within 12 miles; date and place later by post. G5LF has arranged with the Sheffield gang for a meeting in January. (Let me know more.—G6PY).

G2BH is trying out three different circuits:—(1) T.P.T.G. with crystal lock; (2) direct frequency drive *coil* coupling; (3) ditto *condenser* coupling; and finds No. 3 the best on 1.7, 3.5 and 7 M.C. G5QY was QSO HAF on 28 M.C. Others interested in this band are G5FV, G2XH (who was a 10 M.C. crystal) and BRS588, who received G6LL (?) at QSA2. G5IA and G5HK have restarted activity, the former on 1.7 M.C. G5NP is a new member and doing good phone work with 4 watts and an indoor aerial. G6LF was QSO SEABX in flight. BRS575 observes that QRM from passing cars is louder during fog. The following are also active:—G2XT, G6UF, G6YC, G6LT, G2RU and G6PY.

DISTRICT 3 (West Midlands).

Will all stations please let me have a brief report of their activities each month either direct or *via* their CR; this will enable me to make these notes more interesting.

Conditions on 14 M.C. are still very disappointing, although VK can still be worked at odd intervals. The 7 M.C. band has been very lively, and South Africa, Iraq, India and Hong Kong have been worked on this band. I would advise some of the 14 M.C. devotees to move to 7 M.C. and revive their interest in radio; you will find plenty to do there.

The fortnightly Morse practice has been arranged as follows:—G2AK, 160 metres, 10.00 to 10.10 G.M.T.; G2KB, 80 metres, 10.10 to 10.20 G.M.T; G5VM, 40 metres, 10.20 to 10.30 G.M.T.

DISTRICT 4.

As D.R. and Provincial District Representative, I would like to extend my sincere thanks to those who sent me Christmas greetings. In reciprocating, I wish you and all R.S.G.B. and B.E.R.U. all the best for the New Year.

The district is making F.B. progress and new members still rolling up, so keep it up, you keen fellows and let's have a bumper membership for 1932. The D.R. has offered to pay a year's subscription for the one in the district obtaining the most new members by the end of March.

The schedule fixed for the first half of 1932 is as follows:—

February 13—Monthly meeting in Nottingham.
March 12—First meeting in Leicester.
April 9—Proposed visit to Rugby Station.
May 21—Proposed visit to Northern Regional Station.
June 19—Annual Conventionette in Nottingham.

A cordial invitation is given to the adjoining districts to join us on April 9 and May 21, further details will be given later in the "BULL."

It is hoped that a meeting will be held somewhere in Lincs after June, to suit the majority of members in that county, and if so, strong support will be forthcoming from Leicestershire and Notts, so please put forward your suggestions, Lincs, to your C.R., G6LI.

DERBYSHIRE.—No reports to hand; what about it, G5FA and BRS4 and BRS545.

LEICESTERSHIRE is still pulling its weight for the district, the members are active on all bands.

LINCOLNSHIRE.—G5BD, G5CY, G5IX, G6HK and G6LI are all working on the 7 M.C. band. G6LI is also on the 3.5 M.C. band with telephony and code. Also G5CY, who would appreciate reports on tone quality, and directional effects of a new Zepp. aerial. G5LQ is temporarily inactive, but reports typically bad conditions. BRS156 and BRS426 both report, but have not been active. G6LI is running the new 50-watt C.C. plant and is particularly requiring 40-metre reports from local BRS stations on transmissions *after* sundown. Any number required, all acknowledged, any part of England. G6HK asks for same. The object is to ascertain the ground-wave limit. All stations report miserable conditions and spasmodic D.X. with Eastern D.X. seemingly the order of the day rather than West.

One report to hand this month, from Northants. This is from 2ATV, ex BRS498, who complains of no interest in S.W. around him.

NOTTINGHAMSHIRE.—The usual monthly meeting was held, with 21 members present from Newark, Leicester, Worksop and local. An increase in BRS membership is again evident this month, and many BRS stations are applying for AA permits throughout the county. Conditions on all bands are reported fair to bad for the time of year. Morse test transmissions by G2VQ and G2IO have received some support. The county is 100 per cent. active.

RUTLAND.—No report to hand. There is only G6NO in this county, but should very much appreciate a line from you, OM.

DISTRICT 5 (Western).

The D.R. wishes everybody a very Happy New Year and hopes that we shall have good conditions on all bands.

It is proposed to hold a social evening and ham supper at Bristol at the end of January, and an open invitation and good welcome will be given to all members from all districts. Particulars from G6QW or G2OP.

Gloucestershire.—The new C.R. on taking office said he would double the membership by Christmas. The actual increase is 114 per cent., there being 32 new members in ten weeks—a truly excellent piece of work. The third monthly meeting was held on December 3, when 31 members attended. Magazine, library, competitions, etc., are all going strong and the county is now getting ready to challenge any other county to anything.

Wiltshire.—The last month's budget cost 3½d. to circulate and contained no hot air, but all good solid contributions, every word full of interest and

valuable information. Letters to be included should reach G2BI on the last day of each month.

DISTRICT 6.

A letter budget has been started by the enthusiastic letters from members, and it should prove a great success. The bad conditions on 14 M.C. continue, although G5SY appears to do excellent work on that band in the morning round about 09.00. G5QS (Bradley), of Exeter, is a new TX man, having just received his ticket. He is busily building his C.C. outfit, and hopes to be on the air within the course of the next few weeks. His knowledge of morse and position as R.S.M. in the R.F.A. should go a long way to stimulate interest in the R.S.G.B., especially in this Mess. Cornwall remains fairly quiet, G6XB and G5VL only apparently being active.

Dorset, as represented by Kennedy of Sturminster Newton, is almost ready to go on the air.

Now, Somerset, what about your reports; nothing to hand yet. Just drop a line to your D.R. by the 20th of each month.

G5QA is still in the throes of rebuilding, but has managed to hook up a few W stations.

DISTRICT 7 (South-Eastern).

Reports this month from Hants, Surrey and Sussex only. The Surrey report from G6NK shows that, despite appalling conditions prevailing, very healthy activity is shown throughout the county. G2DZ is again the star station, having worked VK 39 times since October 5. (F.B. OM). The December meeting was again a great success, being attended by 19 " hams," and a very interesting talk on crystals was given by G2NH. If you cannot attend the monthly meeting, OM's, please drop G6NK a card each month just to let him know that you are still alive.

The Hants report from G6GZ states that activity is on the increase and that many stations are overhauling their gear, apparently with an eye on the B.E.R.U. contests. The combined Letter Budget is still growing, the following contributing to the November Budget (which contained a most interesting article on Goyder Lock system of C.C. by G6GZ) :—G5OU, G2GG, G2DC, G2BI, G5UY, G5BU, G5JZ, G2VV, G2PF, 2BXT, and BRS343. (I would like to see more BRS men, OM).

The Sussex report from G2AX shows a slight increase in activity, particularly in the Eastern part of the county. G2AO, G2MC and G5BS are active on the 1.75 M.C. band. G2AX has rebuilt to C.C. and will be on the air with a 50 watter. Several stations report very bad QRM from EAK on the 7 M.C. band, and all areas report bad conditions prevailing on both 7 and 14 M.C. bands.

" Tail Piece." To all in No. 7 District. Please drop your C.R. a card by the 15th of the month so that he has a fair chance to sum up the activity in the county; if you are fed up with conditions or even the C.R., write and tell him so. Please report on the fortnightly " Morse Practice " transmissions.

DISTRICT 9 (Homes Counties).

In the first place, let me thank all those who sent Christmas greetings. In reciprocating, the C.R.'s and D.R. wish all members of this area " Favourable breezes," a happy and bright New Year, and to the R.S.G.B. and B.E.R.U., QRO. Conditions appear to be improving daily on all bands. W6QW has been worked at 4.30 p.m. December 22, on 14 M.C. ZL and VK's are coming in now about 8.30 a.m. on 7 and 14 M.C. most mornings. Last month's notes were inadvertently lost in the post, causing quite an epidemic of trunk calls between Nottingham, Clacton, Yarmouth and Cromer. Having a copy, they are included in the following : G2HJ and G5FB report as usual the activities in their respective counties. We welcome G5MR on joining Herts and G6WI in returning to action after two years' absence. Late G6 Freddy Toc of Felixstowe, now with W2CXJ, sends *via* G2MI 73 to all old friends. Sundry BRS stations have reported by letter and in person. BRS490 has found G2NM's calibration signals useful. The following stations are well to the front : G6QO, G6DC, G5VS, G5SM, G5OK, G5LY, G2WG, G2SA, G2QJ, G2LZ, G2KT, G2DQ, the latter stepping out with good fone. G2AF please report, also Beds and Herts.

Districts 8 and 9 combined Conventionette will take place at Clacton-on-Sea at Easter. We extend a very hearty welcome to all transmitters and BRS members in the Midland and South-Eastern counties and a special invitation to all London members to join us and talk radio by the sea. Come by road, rail, sea or air—Clacton for the Easter Conventionette.

DISTRICT 10 (South Wales and Monmouth).

Activity in the district is increasing, and several people are taking great interest in the 3.5 M.C. band, while work on 1.75 M.C. is as regular as ever. Indeed, this area may be said to have pioneered the recent popularity of this frequency, and DX is still being worked, as one of our newer members, G5NS, of Ebbw Vale, has been QSO both F and HB on 170 metres with QRP.

The Letter Budget has made an encouraging start, but more contributions were promised by, and expected, from members who have previously been interested in this part of the society's work. It is hoped that we shall have a regular muster of at least fifteen by the New Year.

The following gentlemen have been appointed county representatives for the counties noted :—

Monmouthshire : H. J. Gwillim, Esq. (G6GW), Tredegar, Mon.

Radnorshire : R. H. Johns, Esq. (2BPM), Erwood, Rads.

Full QRA's are in the call books, and will county members please communicate in future with their C.R. in the first instance.

The stations known to be active are as follows :—G2PA, G5FI, G5LP, G5NS, G5OC, G6FO, G6GW, 2BPI, 2BPM, 2BRF, and BRS493.

DISTRICT 13 (London South).

May I take this opportunity of thanking those who sent me their reports.

G2AI is active on 7 and 14 M.C. G2YG has been on 7 M.C. occasionally, but fitting W/T gear on trawlers has taken up most of his time. G2ZQ (whose note is now P.D.C., C.C.) is installing Goyder-lock. G5AW uses remote control and employs a dialling system for changing from 'phone to c.w., etc. H.T. transformers blown up owing to filter-condenser breakdown. (It's always wise to use a flash lamp bulb as fuse, OM). G5PL is W.B.E. and W.A.C. on phone and will be QRX for B.E.R.U. tests. (I hope many others in this area

will give these tests the wholehearted support they deserve). G5YH is very active at the key at all hours during this vac. G6BB is comparing the "Windom" with the end fed Hertz on 7 M.C. G6NF has been active and recently journeyed to Scotland, when station G5NW was visited. A fine collection of beautifully made apparatus was seen, ranging from an old 440 metre phone transmitter to a portable 7 and 14 M.C. transmitter and receiver. The S.L. & D.R.T.S., which meets at the Brotherhood Hall, Knight's Hill, S.E.27, on the first Thursday in the month, consists of mainly R.S.G.B. members, although non-members are not excluded. This meeting takes the place of an area meeting and is most enthusiastically supported, averaging 40 members per meeting. Come along to the next one, OM. Please remember your reports before the 20th.

DISTRICT 14 (London East)

We are sorry to learn that G6UT is laid up in hospital. District 14 wish him a speedy return to the key. As a consequence the December meeting was held at G2ZN's. Among those present was G5ZG, who is once again on the air after several years' absence. Members are asked to note that the next meeting will be held on January 26 at G6FY's QRA, viz. :—37, Wallwood Road, Leytonstone. These monthly meetings are a great success, and it should be remarked that we are always pleased to welcome hams from other districts.

DISTRICT 15 (London West).

The December monthly meeting proved to be the best yet and the discussion was a very lively one. January's meeting is to be held at G2UV, "Woodlands," 91, Ruby Avenue, Wembley. The subject of this meeting to be announced at the time. Date, January 16, at 7.30 p.m.

Not very many reports have been received this month, and it would appear that the frequent meetings are rather killing the budget. May I take this opportunity to thank all those who sent my brother and I seasonal greetings. Although some very good D.X. has been done in the area, conditions have not been any better than the previous month.

SCOTLAND.

Permit me even at this late date to offer you one and all my heartiest felicitations for 1932. I should also desire to acknowledge and reciprocate the good wishes conveyed to me direct.

Well, friends, here is 1932. How does it find you from a radio standpoint? Is your enthusiasm waning, or are you effervescing with "up-and-at-it-itis?" I sincerely trust the latter, for if ever the Society needed and deserved your wholehearted support and co-operation, it requires it in 1932. This will be one of the fateful years for amateur radio, as, without doubt, our stronghold will be assailed by various commercial interests at Madrid in the autumn. I am not in the least pessimistic as to the ultimate result, but if our desired ends are to be achieved, the Society MUST have your loyal and enthusiastic support. The Society is *your* Society, fighting for *your* interests, and I commend you, therefore, to see to it that it has *your* unreserved warrant and support in the battle.

Remember Washington, 1927 ! !

The period under review on this occasion has been one of the worst on record, and conditions have been freakish to a degree. As a test, the writer made an effort to connect with U.S.A. at least once per day on the 14 M.C. band during the first 14 days of December. He succeeded, but what a job it was. In no case was audibility above R5 given, and more usually R4. In every case fading was quite phenomenal and the contacts were very difficult to sustain. When one considers the facility with which we normally connect with U.S.A. on this band, the contrast is all the more marked. Conversely, during the forenoon of Sunday, December 20, G6CL was heard QSO with G6XB on 14 M.C., and both stations came in at Glasgow at R7, while the writer had a 14 M.C. contact with G6RB, during which both signals were very powerful. This queer period extended over exactly 25 minutes, then QSC total of all "G" stations.

I am sorry to record the loss this month of my "A" District Officer G2MA, who has left to take up an appointment at Birmingham, and consequently severs his connection with Scottish radio. I am quite sure that on your behalf I can wish him every success in his new sphere.

Throughout Scotland generally there seems to be an increase of activity among the membership, and I hope this will be progressive.

The fortnightly Morse test is still being carried on by G6SR and G6FN, but so far neither has received a single report or acknowledgment. BRS making use of these transmissions might please advise G6SR as it is not in the least entertaining to pump out lessons regularly for the benefit of folks who do not take the trouble to acknowledge the usefulness or otherwise of the transmissions.

In view of the fact that quite serious local QRM was being experienced by Scottish stations working crystal-controlled transmitters on the 7 and 14 M.C. bands, the writer decided to form a Scottish crystal frequency register in order to prevent further growth of the evil. This register is almost complete, and will be at the disposal of the members in the future when purchasing crystals.

EUROPEAN NOTES.

Conditions generally over Europe during the last month seem to have been very poor on the 14 M.C. band, and most activity centred around the 7 M.C. band. We hear from Czechoslovakia that the K.V.A.C. and the S.K.E.C. organised some local tests during December, with a view to improving

the exchange of messages within this country : some interesting results are expected. Several QSO's with Japan on 7 M.C. are reported from this country.

The D.A.S.D. reports several contacts with Australian stations on both the 7 and 14 M.C. bands, but American stations on the 3.5 M.C. band have been conspicuous by their absence. The D.A.S.D., wishing all their foreign friends a very happy New Year, say : " We feel that in these trying times Amateur Radio is all the more called upon to do its share for world improvement and peace, and we fully associate ourselves in this respect with the excellent editorial which appeared in the August, 1931, issue of the T. & R. BULLETIN."

Activity in Switzerland is still on the increase and a considerable number of new stations are now on the air.

The U.S.K.A. has now formed local groups (similar to the R.S.G.B. districts) at Zurich, Basle, Berne and Lausanne.

On January 23 and 24 a short-wave Radio Exhibition is to be held at Zurich, and foreign amateurs are cordially invited. All those intending to be present should communicate with HB9Q, M. Th. Schinzel, Jr., Lur Post, Kilchberg, Zurich. It is very interesting and gratifying to amateurs to note the rapid increase in the number of transmitting licences granted within the last year in Switzerland.

The R.S.G.B. 28 M.C. tests are being eagerly awaited by CV5EV and CV5AS, and we hope some interesting reports will be forthcoming from these Roumanian stations.

(*Continued from page* 248.)

flight from England to Cape Town, details of which were received from B.E.R.U. headquarters, and members of the League hope to be of assistance when the flight takes place. Headquarters of the S.A.R.R.L. have arranged for notification to be given to those who have intimated their intention of " standing by " as soon as the flight commences.

Conditions on 7 M.C. have been rather erratic recently, and communications with Australia and Ceylon are fairly reliable, but America and Europe can only be heard on rare occasions.

I have not been working on 14 M.C. recently, but from what I hear, contacts on this band are fairly good, and ZS6Y managed to QSO VE, and thus earn his W.B.E. (Congrats.—ED.).

Notice to Contributors.

The Editor is pleased to have manuscripts submitted to him for publication, but would remind contributors that, owing to lack of space, a delay often elapses between the receipt of the MS. and the date of its appearance in these pages. All matter intended for publication should be written on one side of the paper only and preferably typewritten (double spaced). Diagrams should always be shown on separate *sheets. Rough sketches can be re-drawn by our draughtsmen. Photographs, if any, should not be smaller than ¼-plate as otherwise the reproduction will be poor.*

ARKS

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