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*Type LL. 525. "The best we have tried, and we shall always use it in future" —The "Wireless Trader."*



"When used in the last stage of our own receiver, the Valve (LL. 525) proved to be the best we have tried, and we shall always use it in future—until something better comes along." This is an extract from the report of the "Wireless Trader's" test of Burndept Valves. Filament current consumption *under* that rated, and anode resistance also *under* that rated are points to the credit of Burndept Valves which were also noted. This is undoubted proof of the efficiency of Burndept Valves and their ability to do the work for which they are designed.

There is a Burndept Valve for every purpose—therefore, use Burndept Valves always and better reception is assured.

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Type LL. 525 is a super power valve, designed for the last stage of an amplifier where great volume is required. Its high emission and good characteristics ensure perfect reproduction.

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22/6

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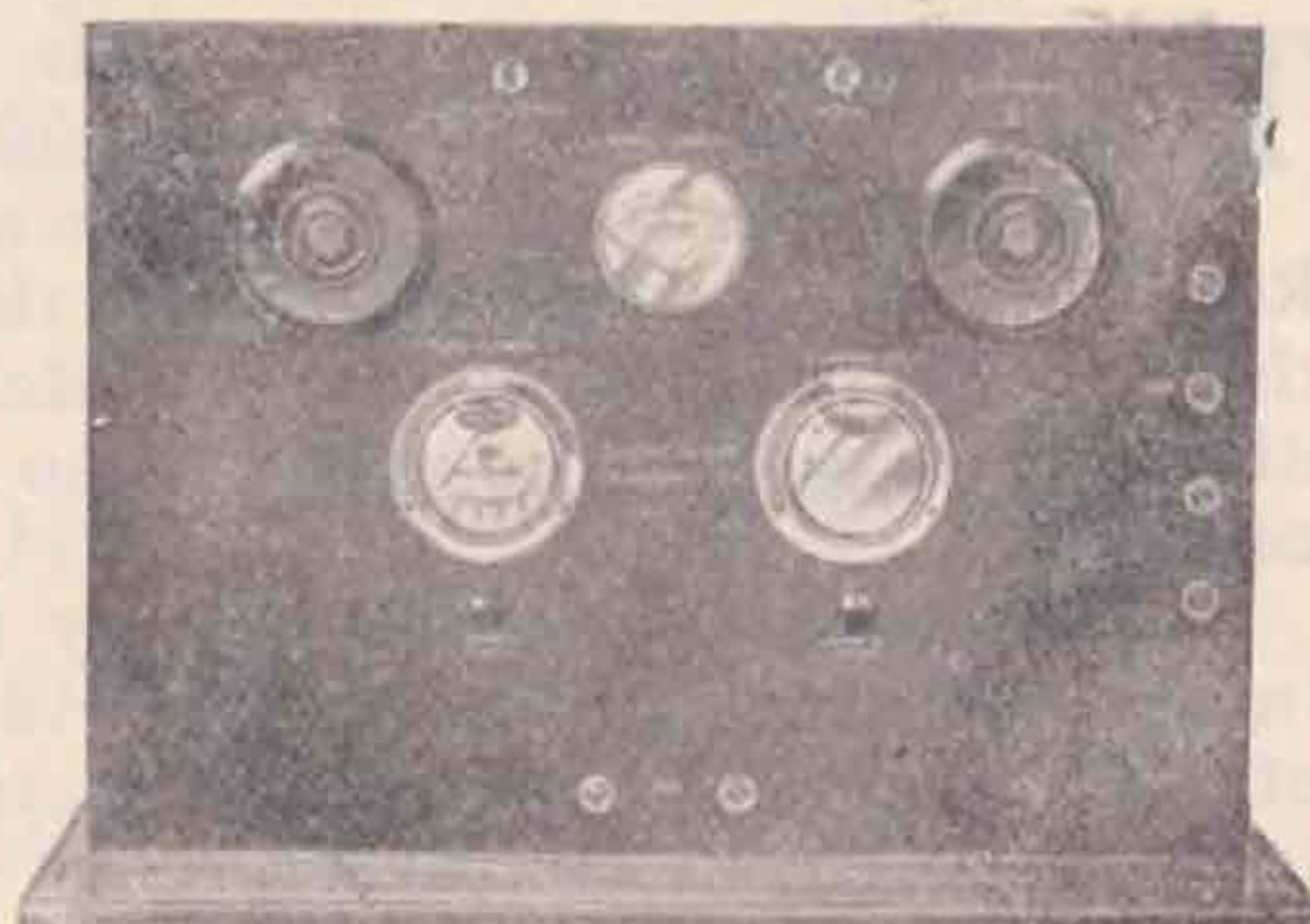
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**T**HIS SECTION of the Radio Society of Great Britain is a virile and progressive body of amateur radio experimenters bonded together for promotion of knowledge and brotherhood of those interested in the Radio Art. It exists also with the object of the advancement of the Art, the representation of the amateur in legislative matters, and for the disciplined use of the ether in so far as amateur experimenters are concerned.

The Section is governed by a Committee which is elected annually in accordance with rules approved by a Convention held at the Institute of Electrical Engineers, London, in September, 1926, and the Constitution is democratic in character.

The policy of the Section is to accept to its Membership any person or persons who are able to satisfy the Committee that they are interested in Radio Art, or who in their opinion are persons whose Membership is desirable in the interests of the Amateur Experimenter.

The "Bulletin" is published by amateurs for amateurs. The Section is the body recognised by the British Postmaster-General as being representative of the aims and objects of the experimenter. Through its agency great concessions have been obtained in the matter of licences in the past. We have members in every corner of the earth, and we welcome inquiries from prospective Members at all times. A bona fide interest in experimental Radio work is the only essential qualification.

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# T. & R. Bulletin

*Devoted to the Interests of the Transmitting Amateur*

— The Official Organ of —  
THE TRANSMITTER AND RELAY SECTION  
of

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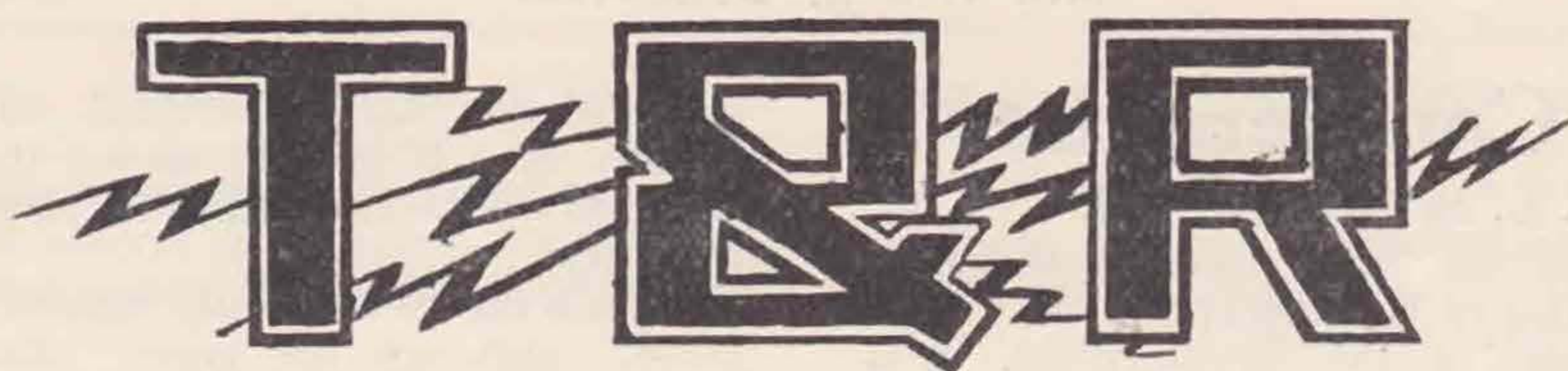
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# BULLETIN.

*The only British Wireless Journal Written and Published by Amateurs*

NOVEMBER, 1926.

Vol. 2. No. 5.

## EDITORIAL

### Can I Help?

This is a question we are asked repeatedly, and one not difficult to answer. Every member can help the Section in some way, the obtaining of new members or of advertisers, the submission of reports to Area offices, the submission of articles to the BULLETIN, and the general advertising of the BULLETIN are all matters in which each individual may be interested. So far as the BULLETIN itself is concerned, only the building up of the Section and the systematic "boosting" of the magazine can make it the indispensable journal which we all want. The subscriptions of members which are paid annually do not pay for one-half of the cost of the production of the BULLETIN, it is the advertisers who pay the major portion of our printing expenses, and hence our repeated parrot-like plea in every issue to "Buy only from advertisers" and "Always mention T. & R." These two phrases are written time out of number in order to impress upon everybody interested in the well-being of the Section that "It pays to advertise." If you advertise the BULLETIN when you buy, the manufacturer will advertise in the BULLETIN. The gist of this might be summarised in a misquotation of a well-known phrase which we might be excused for using: "Get the BULLETIN Feeling!"

### A Good Turn All Round.

If you do any one of these things you will be a benefactor not only to the Section but to the BULLETIN, the other fellow whom you introduce to the Section, and yourself. The whole of the future of this organisation depends upon the efforts of every individual member and not only upon one or two committee members or officials at headquarters. Therefore, we ask of

you, do not think that you have done your bit when your subscription is paid, you have only just begun the job when that cheque is sent to us; we want your kind co-operation right through the year, spring, summer, autumn and winter alike, and not only during the interesting dark DX days of the latter season of the year. Let every member realise that now, if ever, is the time to put his shoulder to the wheel and give us that half-promised push, but let the push be sufficiently prolonged to help us all right over the hill which we are slowly but surely surmounting.

### A Story.

Now let us tell you a story. A year or two ago there were a number of amateurs in the London Area who felt that there was a great need in the country for a scientific body which would cater for the needs of others like themselves. Two bodies were formed within a few weeks of each other, the T. & R. Section of the R.S.G.B. and the Radio Transmitters' Society. It is natural that very shortly after it occurred to some careful thinkers that one body would better serve their mutual interests than two small bodies with separate identities. The things to be done were so many and the future possibilities of amateur radio in England and the Dominions so great, that they could not possibly be catered for by two or more small bodies scattered about the country. In these days it is recognised that unity or mass movements are the only roads to security and strength, and the R.T.S. accordingly sank its identity and became a portion of the T. & R. Section of the thoroughly established and representative Radio Society of Great Britain, which had but a few months previously been known as the Wireless Society of London. At that time membership of the Transmitting Section reached but the figure of 200 members. Now we have a healthy growing Transmitters' Section which is doing all that was contemplated and proposes to do even more in the

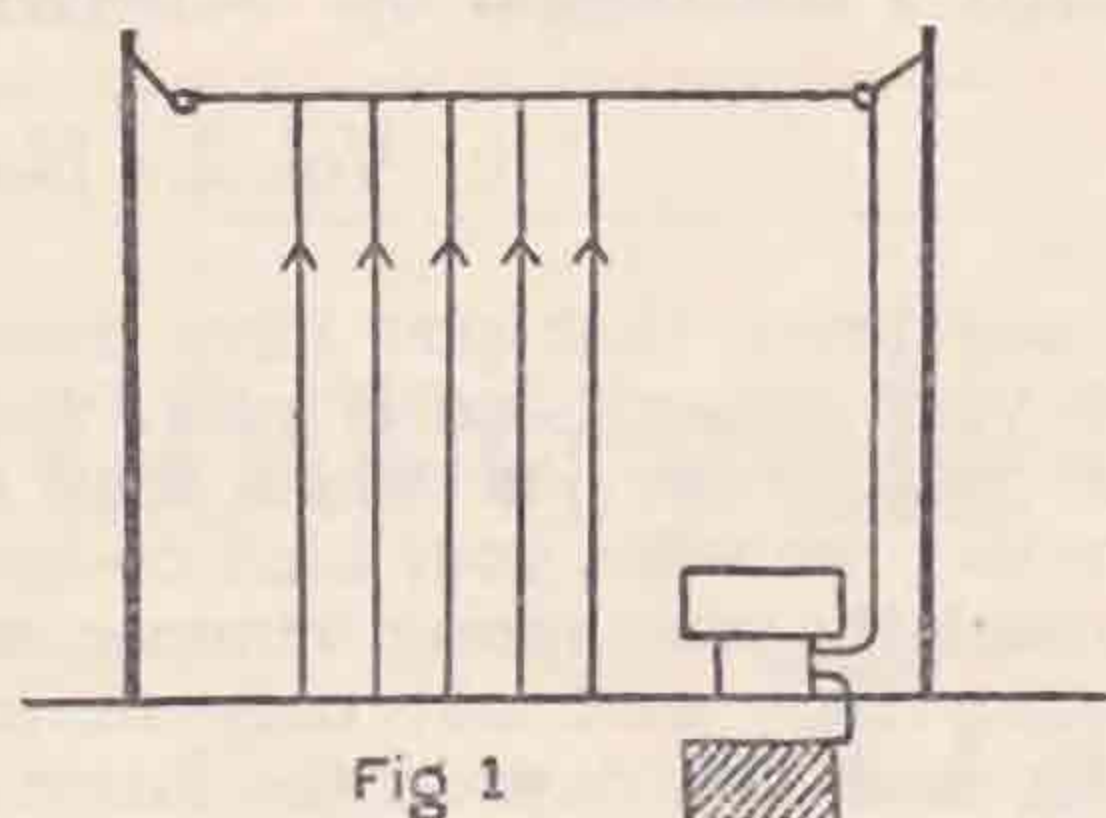
(Concluded on page 11.)



# The Counterpoise.

By G. L. MORROW (G6UV).

IN order that one may have a thorough understanding of the operation, and therefore the use, of the counterpoise, it is first necessary to consider the form of radiation from the aerial itself. When an elevated system is excited at radio-frequency energy is radiated and the exact form which this radiation takes will be dependent on several factors, chief of which are the geometrical shape of the aerial and its relation to absorbing bodies,



Since these various absorbing bodies actually consume energy which should be employed to produce a signal at the distant receiver, it is obvious that the efficiency of the aerial system should be improved by reducing this wasteful dissipation of energy as much as possible.

Of the total energy put into the aerial by the transmitter a large proportion is totally lost in the earth surrounding the aerial, and since, in general, the ground has a resistance very much greater than that of the aerial, these losses will assume serious proportions.

Let us consider the ordinary type of inverted-L aerial; since one end of this is grounded (Fig. 1) current will flow in a circuit which comprises the aerial and the capacity in respect of the aerial and earth. Now it should be noted that practically all the lines of force terminate in the ground under the aerial, and therefore the return currents will flow from the earth plate through this medium. Because of the comparative high resistance of the earth, circulating currents will be set up therein and energy lost according to the magnitude of this resistance.

The problem is seen, therefore, to consist in reducing the resistance of the earth to such a point that it approaches a perfect conductor.

Such an end can only be achieved in practice by laying down a continuous copper plate of many times the area of the projection of the aerial on the ground. This, of course, entails almost prohibitive cost, and a means must be found which will give similar results by a less expensive means.

If a screen of insulated wires, placed a short distance above the ground, is connected to the

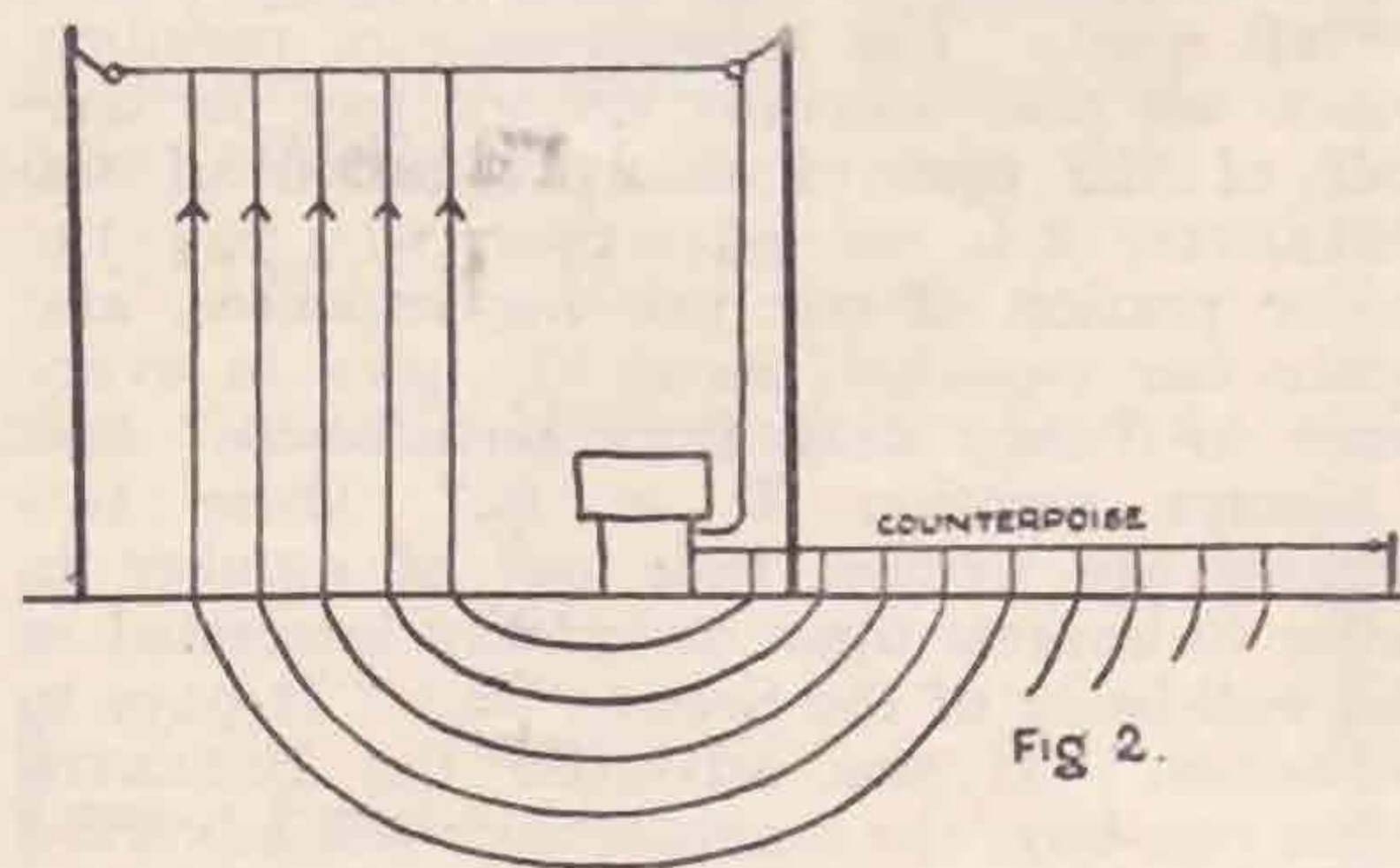
conventional earth terminal of the transmitter, then it can be shown that the earth currents will be reduced to an almost negligible quantity.

Such a screen is usually termed a "Counterpoise," although the name "Earth Screen" would appear to be the more accurate, since counterpoise at once suggests Lodge's original balanced capacity which involves a different effect, although possibly effecting the same end. However, "Counterpoise" has come into common use, so the term will be used in this article.

It is as well to remember that a counterpoise—theoretically—cannot entirely do away with earth losses, because, however elaborate the counterpoise is, it can, at best, only be a form of grid through the intervening spaces of which the electric force at right angles to the earth will cause leakage losses not only through the wires but over the edges of the counterpoise.

With the limited facilities which almost always exist at the average amateur station for installing even a fairly efficient earth, the counterpoise is usually the only proposition which can be considered, but I am afraid that often a counterpoise is erected without the owner considering carefully what it has to do.

Space will not permit anything in the way of a discourse on counterpoise design, but one example of "how NOT to do it" may be of interest. Unless space will allow nothing better, counterpoise should never be built at right angles to or still less behind the aerial. If we consider the latter as shown in Fig. 2 it



will be clear that the return path for the earth currents is actually lengthened, causing a great increase of losses, which can usually be reduced in such cases by a good earth.

Again, one often comes across a single-wire counterpoise; if we stop to consider the size of the area occupied by the lines of force from any radiating aerial, it will be clear that as many wires as possible should be used.

It is true that even with such extreme cases as those just quoted good results can be, and are, obtained, but the aim of all of us



should be to obtain the utmost efficiency throughout and a proper appreciation of fundamental principles, and their carrying out in practice will always give better results, and what is even more important, CONSISTENT results.

Finally, some practical hints on the building of the counterpoise:—

(1) Have as many equally spaced wires as possible, either parallel or fan-shaped (according to the type of aerial) directly underneath the aerial and, where space permits, extending at least a distance in all directions equal to half the height of the aerial.

(2) Where supporting posts are necessary, use those made of metal, since the losses in wooden posts will vary according to atmospheric conditions.

(3) It is probably better to leave the far-ends of the wires free, as bonding them will sometimes set up undesirable circulating currents.

(4) Insulation must be good throughout, not because large potentials exist, but owing to the number of parallel insulation points required.

(5) As the frequency becomes higher spurious end to end oscillation may occur in the counterpoise at a frequency approaching that of the main oscillation, thus causing serious losses. This may usually be stopped by earthing some point on the A.T.I.

In conclusion, where circumstances will only permit the erection of an indifferent counterpoise, a really good buried earth is usually superior, but where even the latter cannot be achieved, then a counterpoise is probably best, however bad it is.

## Keying a Transmitter with a Dull Emitter Valve.

By LIEUT. D. GROVE-WHITE. (G5GW).

**I**N October, 1924, I started transmitting on 115 to 130 metres, using R.F.B. circuit, and keying in the plate lead. Power supply has always been a problem at 5GW, and for that reason a C-301A valve, which is similar to a DE5, was used. I was always reported as DC with ripple, sometimes "bad chirp," but more often no mention of chirp was made. I therefore did not worry about my note.

After an absence of a year I returned to the key in January last to find that nearly everyone had gone down to 45 metres. I rigged up a Hartley circuit, using a DE5 valve, and keying in the anode lead as before. My first three QSO's all reported "unsteady note," and then 5WV reported "Ur QSB DC, but so quacky

that u go out when u press ur key, OM." I had noticed that every time the H.T. came on the valve, due to the key being pressed, the filament dimmed. This happens on all valves with coated filaments. I asked 5WV to "MO" while I fished an old 60 ohm ear-piece out of the junk box and put it across the key. 5WV now reported "QSB stdi nw no chirp" (5WV-Tnx vy OM). I found 60 ohms across the key gave me a very nice steady note with no chirp, and a well separated space wave.

I also learnt the first rule in keying dull emitter valves—any change in milliamps while keying gives a chirpy note.

When I changed over to the tuned anode circuit I found that "resistance across the key" method was no good. This circuit has been described as almost as steady as a master oscillator. Anyway, the variation in H.T. produced by the resistance was not enough to

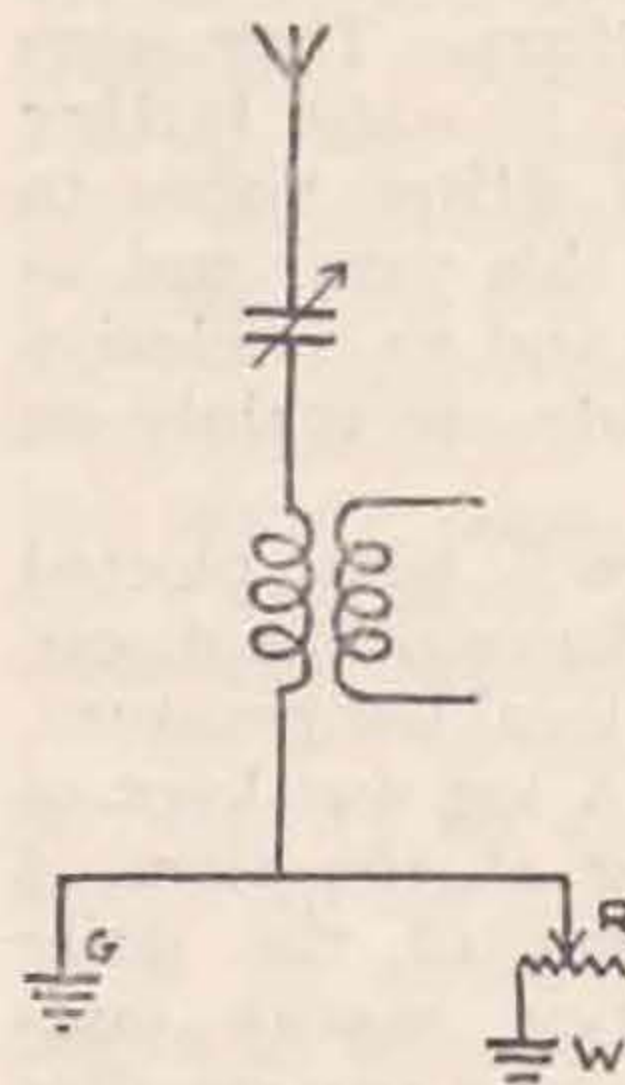


Fig 1

separate the marking and spacing waves. I was at that time using 3rd harmonic aerial system. After several experiments I found that the best way to key was as shown in the diagram. "W" is the water pipe earth, "G" is the gas pipe earth. To keep the milliamps steady a balancing resistance R was added. This was an ordinary filament resistance, value about 10 ohms. This arrangement gave very good results, signals being steady with no chirp and well separated spacing and marking waves.

Last July a Hertz aerial was fitted instead of the inverted L, and a new method of keying had to be adopted. Keying an earth on and off was found to be no good, as the capacity between the key

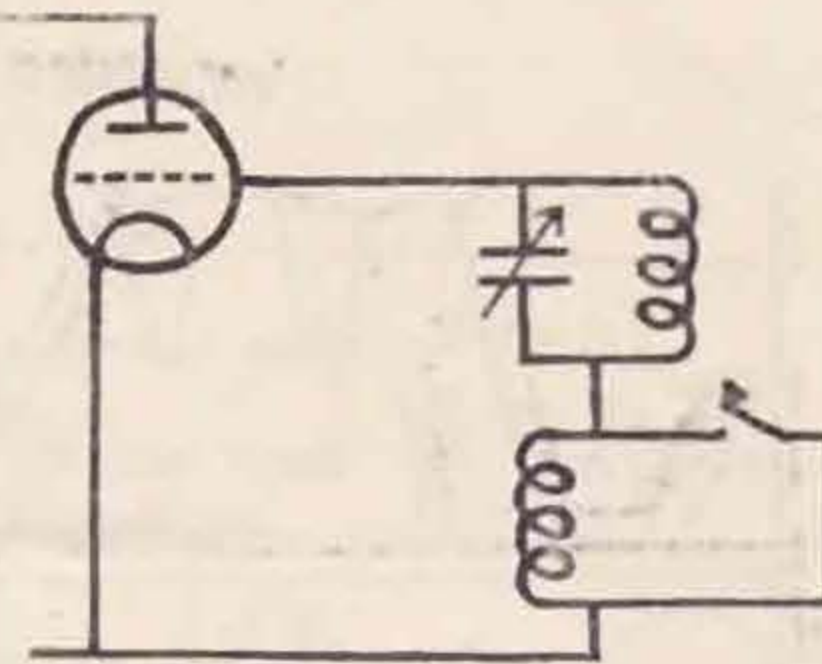


Fig 2

points prevented the Hertz working properly. The method now in use is as shown in Fig 2. Keying is effected by shorting a lin. diameter coil of 6 turns in the grid circuit. This gives a very nice clear-cut note with no chirp (and, incidentally, no variation in milliamps). It is now six months since I have had a report of chirp. I have tried all the recognised positions of keying, including keying in the feeder lead and keying in the H.T. lead, but none of these have given a chirpless note.

(Concluded on page 10.)



# Some Notes on Weather Conditions and Wireless Reception on 45-30 ms.

By A. HINE, B.Sc. (BRS34), WEST BRIDGFORD, NOTTINGHAM.

THESE tests were carried out with a view to determining any definite connection between various meteorological phenomena and wireless reception conditions. They were largely preliminary in form; to some further and more detailed tests the writer hopes to carry out in the autumn of this year, and as such they are not as detailed and as conclusive as could be desired. The tests are mainly on European signals.

Curves of "DX conditions" were plotted on a common base with the phases of the moon, local barometric pressure and local temperature, these being recorded daily. A log was kept of weather conditions prevailing at the time of working and note was taken of the daily forecast and general situation report published in the newspapers along with any weather charts published.

All calls heard were logged in chronological order, along with notes of QRK, QRN, QSS, etc., and the DX curves are based on the number of calls heard and the number of hours of watch kept.

The Moon curve is graph A, Barometer graph B, Thermometer C, and DX graph D. This latter is shown by the thin lines representing the points plotted from day to day, and the thick line represents the mean variation of DX conditions in general, in order to deter-

mine any cyclic change occurring during a number of months. It is thus possible to study the general change of DX conditions, if any, due to regularly changing electrical and atmospheric factors, and the particular variations in conditions due to meteorological conditions prevailing at the time, and which are not necessarily at all constant.

It will be well to generalise first of all, before passing on to any outstanding facts in connection with the results obtained.

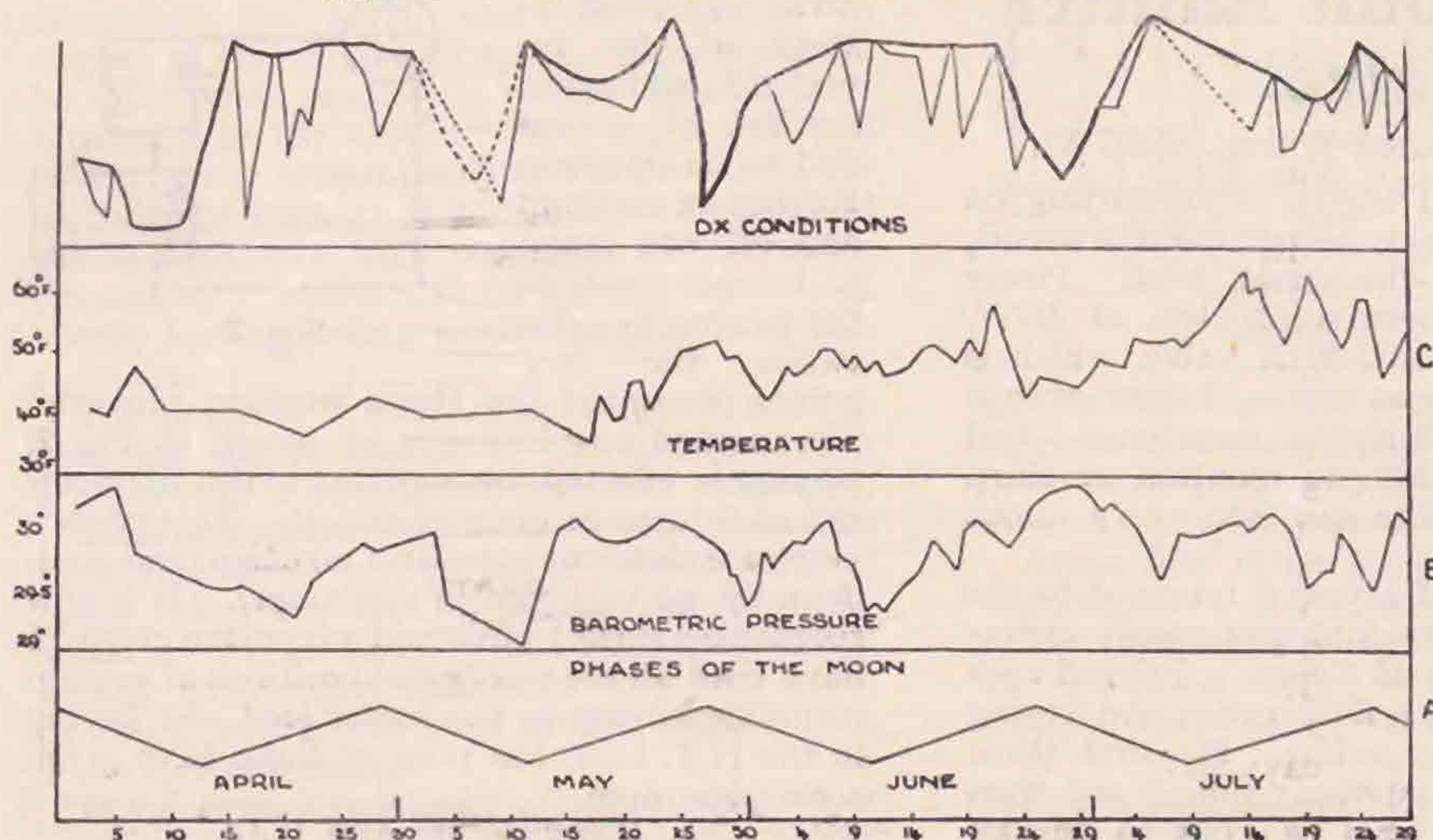
One of the first things noticed was that for best reception, atmospheric and other conditions round about the receiver up to 200 to 500 miles must be constant. This was observed also in certain tests carried out by G5KU, in which the writer co-operated.

That is to say, factors such as barometric pressure and temperature should be practically steady between receiver and transmitter, and the general weather conditions should be mainly fair or settled; in addition the time of day should be either entirely light or entirely dark.

It has been observed from time to time that when the thermometer and barometer are fluctuating a great deal, then conditions are distinctly unsteady for DX reception, and also when the weather is becoming generally unsettled and large cloud masses are present.

It can hardly be considered a settled state when the weather is bad for long periods, since, although the weather may be termed constant in a sense of badness, the cloud layer, usually attending this kind of weather is continually changing and is by no means in a state of homogeneity or constant in electrical properties. This will apply particularly to signals which reach the receiver

WEATHER CONDITIONS AND WIRELESS RECEPTION



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barometer and thermometer, the gradient of which was moderately steep. A thunderstorm also occurred on May 26, and a full moon on May 27. These conditions are the very reverse of the previous set, and a very rapid drop in DX conditions is observed to quite a low minimum.

The end of May and beginning of June were rather unsettled, but with considerable fair periods, but, coupled with a slowly rising barometer and steady thermometer and a waning moon, DX conditions began to improve steadily.

The effect of somewhat unsettled weather is indicated by fluctuations of the actual plotted points, but at this time a series of depressions were advancing from the West, the main centre of disturbance being not yet centred over Europe.

June 10 indicated a state of good DX, in spite of a very sudden drop in pressure. This was due to an intense secondary moving N.E. from Cornwall, and would hardly affect European conditions, and meanwhile the main depression was stationary off the N.W. of Britain, giving temporarily a steady state of affairs. For the next few days weather was rather variable, owing to the main depression moving steadily across England, but a rising pressure gradient was maintained towards the Continent. DX conditions here continued to be satisfactory. Following this the depression moved over Europe, giving a fairly uniform and settled pressure distribution over England, but a falling pressure gradient towards Europe. Certain fluctuations in the DX curve are noticeable and also a tendency for conditions to descend, no doubt assisted by the fact that the moon was then full. A sudden variation in temperature appears to cause irregularity in DX conditions.

Immediately behind the depression referred to above, a large anticyclonic area began to spread over England and the Continent, giving mainly settled conditions, and this, coupled with a high and steady barometer, and a practically steady thermometer, appeared to prevent this last minimum from being very low.

These favourable conditions continued till about July 4, an area of high pressure being situated over Britain, Scandinavia and Central Europe. The moon at this time was waning, and DX conditions began to improve rapidly towards a maximum.

The best signals logged were from the above-mentioned districts, and French signals at this time were quite weak, South Europe being hardly heard at all. It was observed that a low pressure area lay over France.

About July 4 conditions became temporarily unsettled, followed by a further improvement, but, unfortunately, no useful observations were recorded until about July 15. At this time a shallow depression was spreading from France, causing rather unsettled weather

in that region, and a high pressure zone was situated over N.W. Britain, giving a falling gradient from N.W. to S.E. The barometer locally was high and steady, but DX conditions were not good, in spite of the fact that the period corresponding to this during the last month under the influence of a moon only a few days old showed very satisfactory conditions, rather pointing to the fact that the lunar influence on signals can be counteracted by sufficiently intense and adverse meteorological conditions. The thermometer also showed rather violent variations.

Meteorological conditions improved during the next day or two, with practically steady conditions being maintained round about Britain, but this was only temporary. The weather again became rather unsettled with variable DX conditions. About July 21 the pressure distribution assumed a high state South of Ireland, gradually falling towards the North. Isobars were practically parallel in a N.W.-S.E. direction, giving a much less downward pressure gradient towards Europe. DX conditions improved. The anticyclone moved East, causing practically parallel isobars E.-W., giving practically steady conditions between the receiver and the Continent, and DX conditions improved very much indeed, and continued good until about July 23, during which period meteorological conditions were about steady and mainly settled over Europe, and the North Sea, an anticyclone being settled over France. A depression was then observed moving in from the Atlantic, and later unsettled conditions were apparent with secondaries spreading eastward.

Local barometric and thermometric fluctuations were observed and DX was somewhat variable. The depression moved to S.W. Ireland and then towards N.W. France, travelling rapidly eastward, backed up by a considerable anticyclone off West Britain. This caused a considerable falling gradient of pressure from W.-E. approximately, and in conjunction with these adverse conditions a full moon occurred, and DX fell off very rapidly. Also intense secondaries were crossing the country eastwards, giving very unsettled conditions, the main anticyclone becoming stationary.

This brought the series of tests to a close, and at this time barometric changes were becoming less sudden and a fairly constant meteorological state began to occur over Britain and Western Europe, so that it was thought very probable that DX conditions would tend to improve towards a good state under the influence of a waning moon, and reach a fairly high value, since the favourable effects of moon and weather were again working together with each other.

*(Concluded in our next issue)*



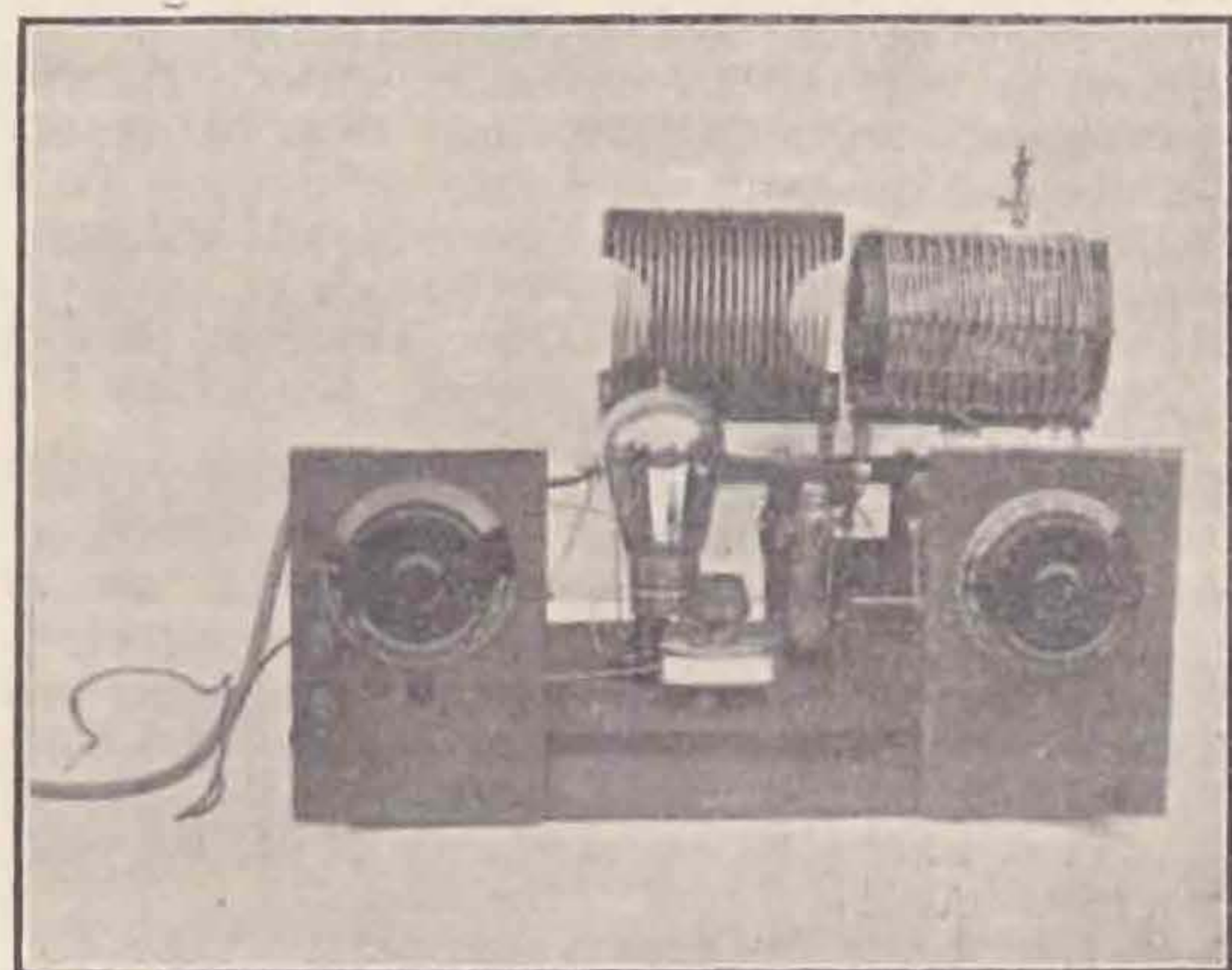
# About the Short Wave Receiver.

By G5YM.

**I**F you want QSA signals on all waves from 10 to 200 metres use the largest practical inductance and the smallest practical capacity for each band. Cut down your grid tuning condenser to 2 fixed and 1 moving plate.

Use rigid coils with the minimum of solid dielectric. A good commercial example, useful to copy in all particulars, are the "Baltic" coils, wound with silver-plated wire.

Use some method of reaction control which does away with any necessity for moving the reaction inductance. Throttle control, with a



condenser of about 0.00025 microfarads, seems as good as any.

Mount the inductances at least four inches above the baseboard. Six inches is better. See that the mounting is quite rigid. Igranite stand-off insulators are useful for this, or pillars can be made of ebonite tube through which a threaded 4 BA rod passes.

Use condensers with slow motion friction drive and earthed frames. With these and inductances mounted well clear there is no necessity to bother about remote control.

Don't use any form of aerial coil or aerial coupling condenser. Tap your aerial straight on to the low potential end of the grid coil. If you have trouble with blind spots caused by harmonics of the aerial use an aerial loading coil in some position as far removed from the receiver as possible. Blind spots may also be caused by an incorrectly proportioned R.F. choke. Look to it carefully.

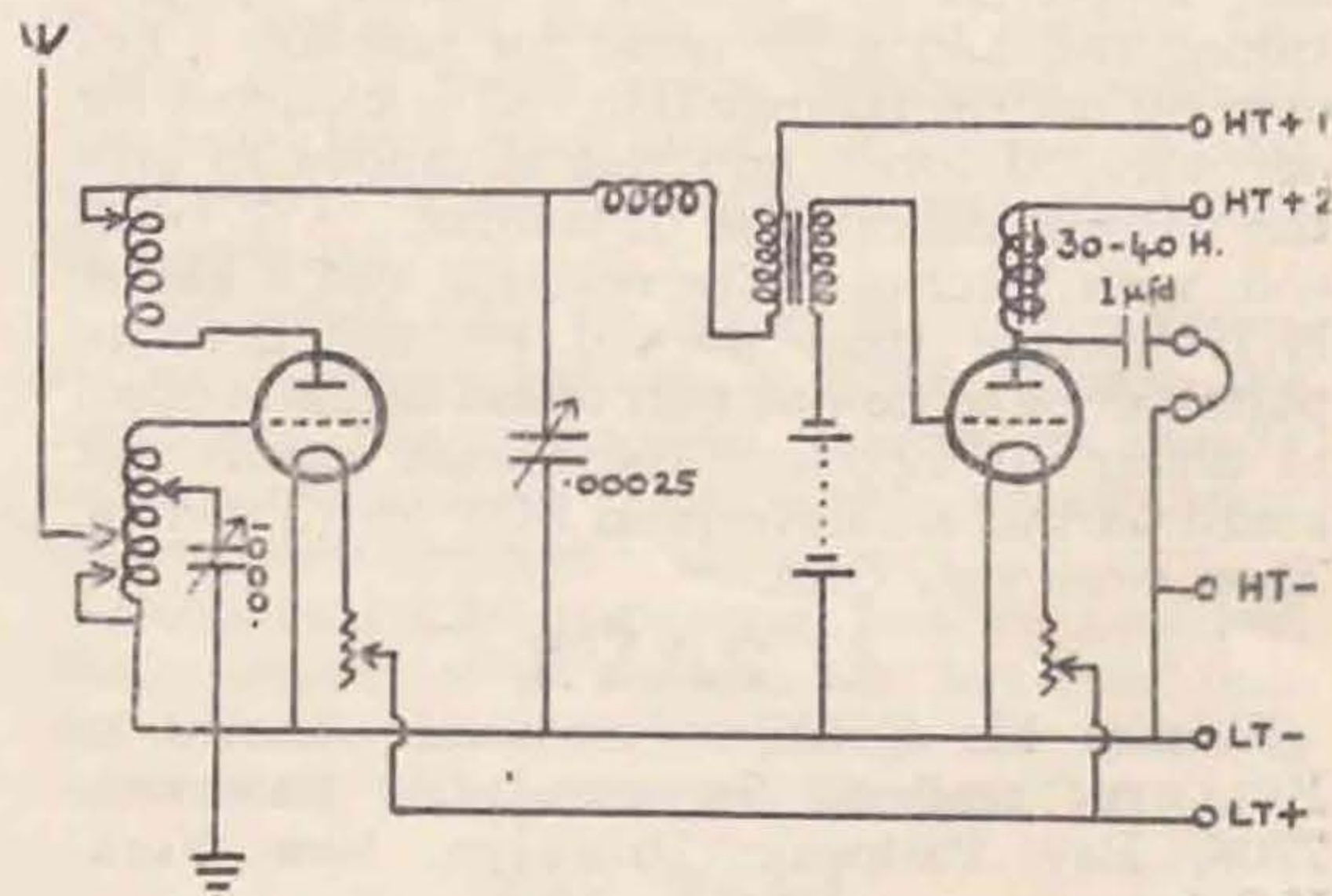
Use a QX valve and cut out the grid condenser and grid leak. There is no necessity to use a potentiometer, either. The removal of these allows lower tuning with any given

inductance. The QX valve used in this way is wonderfully sensitive.

Use the smallest possible amount of reaction inductance. On all but the very shortest waves this need never be more than the inductance in the grid circuit. It is better to increase the H.T. to the detector plate than to put up the amount of inductance, as increasing the reaction inductance seriously affects the minimum tuning range of the grid circuit.

The photograph and diagram show a receiver constructed on these lines. This receiver has proved almost all that can be desired both as regards sensitivity and stability.

The tuning arrangements may be novel to many readers and deserve rather full explanation. The tuning condenser is not connected straight across the inductance between grid and earth, but is tapped on to some point of the inductance below the grid connection. As the



amount of inductance between the condenser tap and the earth end of the coil is lessened so the tuning is broadened and the minimum tuning of the inductance lowered slightly. It is possible to so broaden the tuning that a band of a few metres can be spread over the whole 180° of the condenser scale. For instance, with a 20 turns Baltic coil and a three-plate Gecophone condenser, the fixed plates being double spaced, with the tap  $3\frac{1}{2}$  turns down, it is possible to cover from 36 to 47 metres, with 22° separating 44 and 46 metres. By using a 30 turns inductance and tapping off a few turns, say 5, from the low potential end, as indicated in the diagram, it is possible to so arrange the condenser tapping, near the centre of the coil, that the band between 42 and 47 metres is covered by a complete sweep of the condenser. This open scale tuning is of the utmost advantage during busy week-ends. It makes the set remarkably flexible. Adjustments of the reaction coil can be made with a tapping on the H.T. end. This is also shown in the diagram.

A considerable increase in signal strength may be had by using a high magnification valve,



such as the DE5b or the SP55 blue spot as a note magnifier. 120 volts can be used on the plate of this type of valve, and as the impedance is high a small amount of grid bias, say  $1\frac{1}{2}$  to 3 volts, reduces the anode current to very small dimensions.

The phones may be kept isolated from the direct anode current and also kept at earth potential by the familiar connection, with choke and capacity shown in the diagram. I have this choke and capacity made up as a separate unit.

By making the inductances reasonably small the fields are reduced, about  $3\frac{1}{4}$  in. diameter and 4 ins. long seems a good size. It is convenient to have the coils all of the same physical dimensions, the size of wire and the spacing being increased as the number of turns is reduced. The usual inductances worked with here for the 40-50 metre band are a 30 turn coil, tapped at the desired places for the grid tuning coil and a 20 turns for reaction. For over 50 metres the reaction coil is changed for one with 30 turns, and this is tapped to give the desired smoothness of control. A 7 turns coil, with 7 turns in the reaction and a higher H.T. voltage than normal on the detector plate can be so tapped that it will oscillate down to about 10 metres. The lowest signals yet heard on this set have been POF on 13 metres. They were very QSA.

## U 2AVR

Wishes his QRA to be made known to BULLETIN readers. It is: Julius Bernstein, 7708, Bay Parkway, Brooklyn, New York, U.S.A.

### Keying a Transmitter—(Concluded from page 5).

The disadvantage of all these systems is that the valve is radiating all the time the H.T. is switched on, so it is impossible to use a break-in system, and that unnecessary interference is caused due to the spacing wave. In the last instance, however, it appears that as the space wave is well off 45 metres, it is not radiated efficiently by the Hertz. Anyway, it is reported as being very weak.

The DE5 valve is very economical indeed, and will stand 12 watts without overheating. It will stand transmitting voltages well, and no falling off in emission has been observed. Everyone is familiar with the "Pong" given by dull emitter valves when the table is vibrated. The same happens in transmitting, the effect being to give a ripple in the note. Sometimes this becomes so bad as to be like raw A.C.! The remedy for this is to mount the key on a different support to that on which the valve is mounted, and to mount the valve on an anti-vibration holder. At 5GW the key is mounted on a rubber base. This effect is not very apparent on waves above 90 metres.

## Abstracts of Recent Articles.

Compiled by G. L. MORROW (G-6UV.)

AERIAL-EARTH TUNING. "Wireless World," Oct. 13. Page 517. A. G. Warren, M.I.E.E.

Deals with half-wave tuning, and although mainly concerned with reception on B.C. wavelengths presents some useful theory which should prove of interest in connection with S/W transmission.

CALIBRATION OF ULTRA SHORT WAVELENGTHS. "Experimental Wireless," Oct. Page 633. F. Aughtie, B.Sc. G-6AT.

Describes a method of harmonic calibration of a circuit having a frequency corresponding to a wavelength of the order of 5ms.

DESIGN FOR A WAVEMETER. "Wireless World," October 6. Page 481. F. M. Colebrook, B.Sc.

A detailed description is given of a heterodyne wavemeter covering the range 20-2,000 ms. with plug-in coils. One would be inclined to suggest that its usefulness for S/W work could be improved by opening out the short wavelength scales.

HINTS ON THE DESIGN OF SMALL POWER TRANSFORMERS. "Q.S.T.," October. Page 29. A. H. Babcock.

Deals mainly with core-losses, and although somewhat arbitrary is well worth reading.

HOW TO MEASURE YOUR OWN TUBES. "Radio Broadcast," October. Page 499. Keith Henney. An instructive and useful article.

HIGH TENSION RECTIFIER FOR LOW POWER TRANSMITTER. "Experimental Wireless," October. Page 599. T. S. Skeet.

Describes a synchronous rectifying arrangement for supplying H.T. from A.C. mains.

THEORY OF THE HERTZ ANTENNA. "E.A.R.," Nos. 9, 10, 11 and 12. A. L. Stainier (B-S2).

A most interesting series of articles dealing with the mathematical theory of the Hertz.

THE LENGTH OF THE HERTZ ANTENNA. "Q.S.T.," October. G. W. Lang.

Gives some interesting figures connecting length and fundamental wavelength of various aerials of this type.

(Concluded on page 24).

## FORCED OSCILLATION AND—





## QRH?

By F. CHARMAN (6CJ).

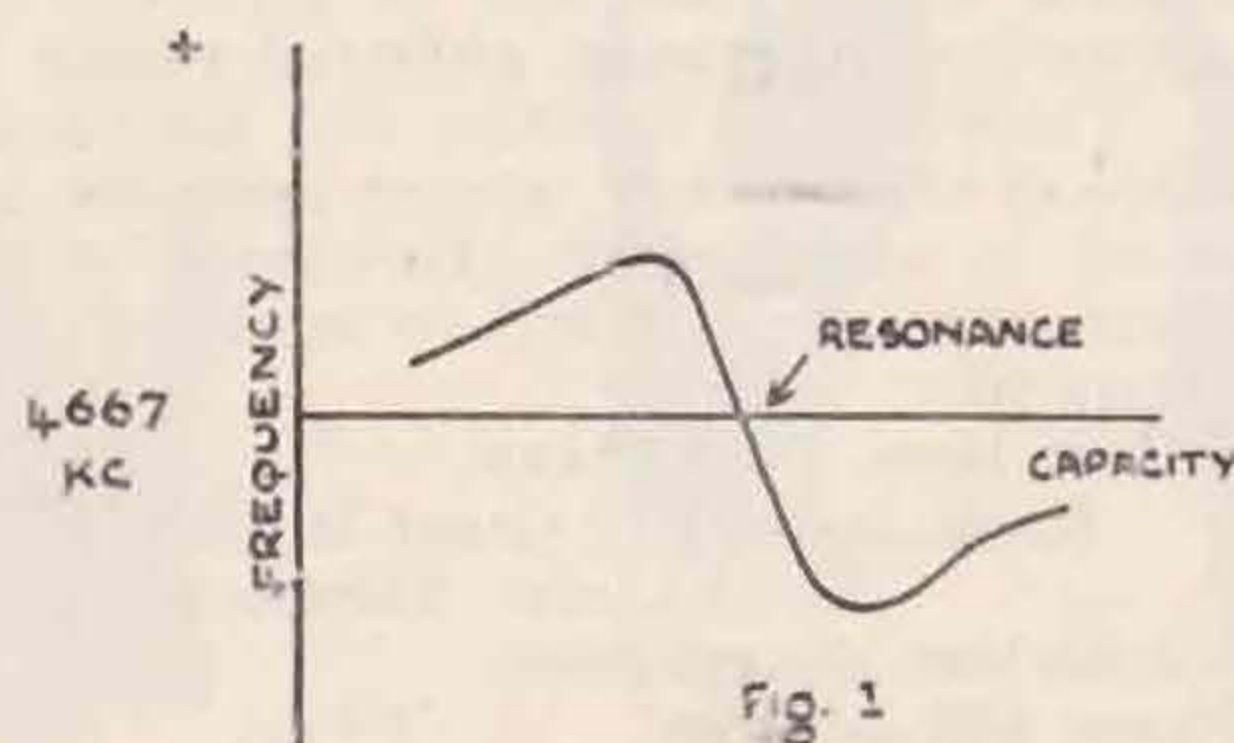
THE operator of a real QRP station is often at a loss to know the best way, or *the way*, to find the exact QRH of his transmitter. A knowledge of the exact spot QRH is of great use, because one can listen on this spot before performing on the key, to ensure that there is no QRM on the wavelength in use. In the event of QRM, the QRP can shift slightly and so avoid much less of QSD making calls which can only be heard by the local crystal receivers. The following is the method which has been in use at 6CJ for some time, and it has been found that in the one metre band on 45 it is possible to dodge a whole heap of QRO stations.

An absorption wavemeter was manufactured from a good condenser, one peal lamp and holder, and a short length of squirrel-cage inductance cut off the stock coil. You all know the sort of arrangement. "Sec" was kind enough to distribute a pamphlet advertising its simplicity to all. This was calibrated with the lamp in situ, by the usual "wipe-out" method.

When we applied the thing to the transmitter, we found it impossible to make the lamp light decently off less than two watts, unless it was coupled very closely to the oscillator, and then, of course, the wavelength was pulled all over the spectrum by the meter, giving two peaks several metres apart, or the transmitter QRT'd.

So 6CJ did a little think, and as a result the lamp was removed from the holder, smashed, shorted-out, and put back.

Now, when one has two circuits coupled to one another, the resonance frequency of one is pulled by the other, and so, if we turn the wavemeter condenser round, the frequency of the oscillator performs a little switchback, as shown in Fig. 1.



The ordinates represent the frequency, and the abscissa the capacity from the resonance point where the curve crosses the frequency base, their heights depending upon the coupling.

The receiver is set up and a beat found. There are plenty of pairs of harmonics to be found in the 45m. range of the set, though the fundamental, or direct harmonics usually "wipe-out" the RX altogether. The wave-

meter can then be stood a yard or so away from the transmitter (and not on top of the RX either), and the knob twiddled, as a result of which the resonance point is indicated, even if the frequency is pulled only 100 cycles or so. When the resonance point is set, the TX is QRT, and the wavemeter is now placed by the RX, and its resonance point transferred in the usual way.

This takes a long while to describe, and sounds a lot, but it only takes about ten seconds to do, and one knows at once if one is QRM.

The wavemeter may be calibrated off signals in precisely the same way, listening to the pull of the autodyne beat of the calibration wave.

The method appears to be much more accurate than the wipe-out method, especially if the wavemeter is well made. The resonance point is more definite, because the oscillator is not pulled so much, and also because the meter has a much lower decrement without the usual lamp stuck in it. It cannot be used very well on a raw A.C. station, but who wants to, anyway?

The aerial may be tuned in on the transmitter this way without a HWA, though the frequency change on 45 metres is usually outside the audible limit, which makes things rather more difficult.

I could say a lot more about how we measured the resistance of the wavemeter, but I see that the title doesn't include this, so the reader is referred to "Experimental Wireless."

## Tea Fund.

In addition to the members enumerated under this heading in our last issue, Mr. E. D. Ostermeyer (5AR) has kindly offered to provide a tea preceding a T. & R. meeting at the Institute of Electrical Engineers.

## Stray.

Capt. E. H. Robinson (G-5YM) is conducting some experiments on 32-34 metres and would be glad to hear from readers on from 30 to 40 metres who can, and will, work with him. Any day, any time, except week days between 0900 and 1200 GMT.

C. Hartman, U-3FI writes to say that he is commencing a monthly magazine consisting entirely of Calls Heard, the subscription to foreign subscribers being two dollars per annum. QRA is 2,857, N. Bailey Street, Phil., Pa., U.S.A.

## Editorial—(Concluded from page 3).

future. The licence question is reaching a very satisfactory position as time goes on, and the P.M.G. recognises the Section as being representative of the amateur experimenter movement. An experimental or pure research section is in process of formation, and we think that before long this will be in active existence.



## Some Aerial Experiments.

**D**URING the last three months at G-5YM extensive experiments have been carried out on 44-46 metres with various forms of aerial. The sender has remained unchanged throughout and the power has been kept at 25 watts with the same DET 1 tube. The situation of the station is in the open country, with no very tall trees near. Elevation 200 feet above sea level. Soil sandy.

The aerials used have been as follows (single wires in all cases, No. 14 enamel covered):—

- (1) Aerial and counterpoise tuned to 3rd harmonic.
- (2) Aerial and waterpipe earth (main) tuned to 3rd harmonic.
- (3) Short aerial worked near fundamental tuned with series capacity.
- (4) Hertz aerial half wavelength.
- (5) Hertz aerial quarter wavelength with base loading inductance. (Secretan, September "Bull.")

Aerials have been slung between house roof about 40 feet and mast about 45 feet. Lead in south, free end north. No particular directional effects have been noted with any form of aerial.

The short aerial No. 3 was abandoned very quickly as giving results very definitely less favourable than other forms.

The Hertz aerial has not been found to give any definite advantages over 3rd harmonic tuning, save in very windy weather, when the two stays on the aerial did not serve to keep it steady. In such weather the Hertz gave a steady note when the 3rd harmonic tuned aerial gave a note reported as "QSS." The Secretan form of Hertz seems to give results as good as the other, but not very many stations were worked and comparisons were made with a 3rd harmonic tuned aerial and not with the more usual Hertz form. The Secretan Hertz is a little flexible as regards wavelength without altering length of outside wire.

The only surprising result obtained is that the long aerial with water-pipe earth is definitely a little better than the single wire counterpoise. Probably the resistance of the aerial is already so high on 45 metres that the ground resistance does not matter and the greater effective height comes in. The power supply is from a Mackie generator of the aircraft type, and the low tension side is used to drive with. A filter is used to smooth out the ripple, but reports have almost always been of rectified a.c. when using the counterpoise or Hertz aerial. When using the earth reports are always "D.C." The purer note may

account for the better reports received when using this system.

As a result of these experiments the counterpoise has been abandoned and the ordinary long aerial and water-pipe earth used for transmission just as it is used for BCL reception. A minor point of interest is that definitely better results have been obtained with the aerial pick-up coil untuned by capacity than when it is tuned.

Most of these results will probably not be new to readers of the "Bull," but I have not seen any definite statements, and so thought the experience of this station might be useful in promoting discussion as to the best form of aerial for 45 metre work. It is probably unnecessary to remind readers that the aerial amp. meter is no guide at all to the amount of radiation.

Another interesting point that has emerged is that in this situation there seems to be a skip of signals in daylight of about 150 miles at this station when using the 3rd harmonic tuned aerial. This skip does not seem to be there when using a Hertz aerial. By the kindness of "Wireless World," who put in an invitation to readers to listen for my signals at definite times on definite days, much interesting information about this skip was obtained. There is no doubt about it being there, as I had negative reports from some stations in London 35 miles away and the nearest reports of reception were all from over 150 miles. A friend six miles away has listened constantly for my signals and has never heard the faintest sound of them. Maybe some brother "hams" have experiences that will help to add something to our knowledge of this subject.

5YM.

## Provincial Lecturers Wanted.

**T**HE Radio Society is desirous of compiling a list of names of those gentlemen who would be so kind as to volunteer to give one or two lectures to Local Societies affiliated to the Parent Body. These Local Societies are scattered over the whole of the country, and at least one lecturer is wanted in every town. Gentlemen willing to give their services are asked to send the following particulars to:

THE HON. SECRETARY,

Radio Society of Great Britain,

53, Victoria Street, S.W.1,

at their earliest convenience.

Name and address.

Area (radius in miles) in which the lectures are available.

Title of lecture or lectures.

Whether travelling expenses are desired.



### STRAY.

G5DA.—Mr. G. Gore, of Berwick-on-Tweed, will no longer be transmitting from his present QRA, but hopes soon to be on air again, probably in the Midlands.





## The Dixon ULTRA ONE-METER

*Readers of the "T. & R. Bulletin" are capable of appreciating the full value of these press reports.*

The *Wireless World* says:—"A new measuring instrument which is particularly suitable for carrying out practically all the tests associated with wireless apparatus is obtainable from ELECTRADIX RADIOS, 218, Upper Thames Street, London, E.C.4. A novel constructional feature is the provision of double contacts under the press button which throws the meter in circuit, an additional resistance coming into operation on first pressing the key. The instrument is supplied with a booklet of instructions describing a number of typical measurements met with in experimental work; the details are very complete, and the determinations are worked out by means of simple examples."

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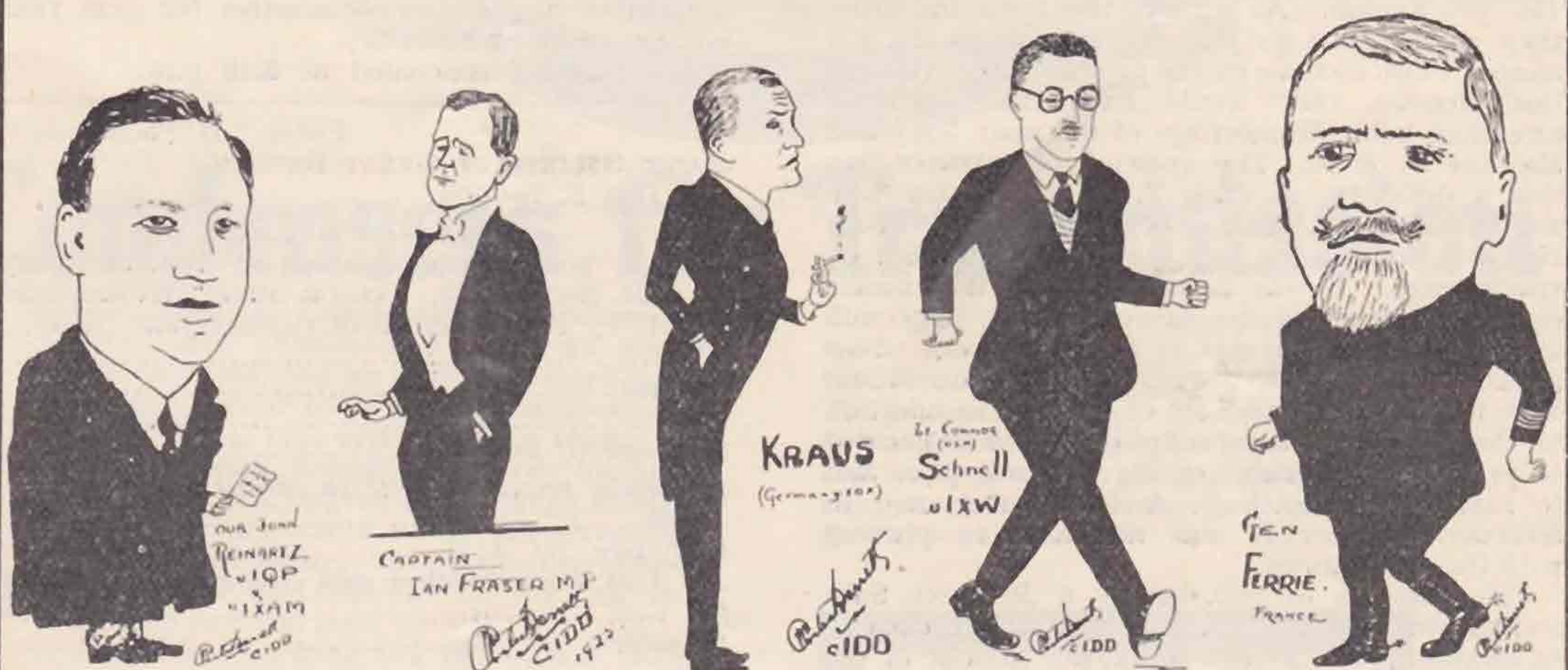
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### MINIATURE PORTRAITS OF CELEBRITIES.

By W. C. BORRETT.

All the above will be recognised by those who attended the Paris I.A.R.U. Congress in 1924.

YOU WOULD HAVE A BIGGER "BULLETIN."



# Report on Proceedings of T. & R. Section Committee Meeting.

HELD ON OCTOBER 22, 1926.

The minutes of the last meeting were read and confirmed.

The Secretary made a report concerning the final arrangements for the low-power tests. He stated that between 100 and 150 experimenters had signified their intentions of taking part.

The Chairman gave details of an interview which he had had with the chairman and Dr. Eccles the past-president of the R.S.G.B., with regard to the co-ordination of the T. & R. Section with the main body of the parent society. It was generally admitted that, if means could be found by which T. & R. members could become corporate members of the society, it would be beneficial to all. It would give them the advantage of being able to nominate for the council and vote upon matters of vital interest. The Chairman here pointed out that a difficulty had been encountered in the matter of subscriptions. As those of the corporate members were fixed under the articles of incorporation of the Radio Society of Great Britain, it was impossible to vary them, the net effect being that all members would pay the same subscription and would participate in equal benefits. As the R.S.G.B. provides for town and country members, the latter, residing outside a radius of 25 miles from London, would enjoy a lower rate of subscription, and it was found that, if amalgamation came about, the country members of the T. & R. would pay the same as at present, viz., 15s. per annum. As regards the town members, they would have to pay the rate of £1 1s. per annum, or 6s. increase on the present rate. Against this increase, they would have the benefit of attending both the meetings of the main body and also the T. & R. The question of entrance fees was a difficulty, as each T. & R. member who was not already a member of the main body would be liable to have to pay the sum of 10s. 6d. on transference. It was, however, stated that means could be provided to overcome this objection in the case of the present T. & R. members. New members joining after the amalgamation would have to pay an entrance fee of 10s. 6d., in addition to their first year's subscription. It was decided to prepare a statement of the proposed plan and to submit it to each T. & R. member, and to ascertain whether it was advisable to proceed with the negotiations.

The question of establishing a Research Sub-section was discussed, and it was finally decided to establish this. A sub-committee of four of the main Committee was appointed to consider the proposals and find the best ways of founding the Section. Mr. G. V. Morrow, who attended the meeting to advance his views on the matter of the Research Section, was co-opted on to the committee.

A report on the progress of the standard wave-meter was made, and it was stated that this was practically ready to go to the National Physical Laboratory for calibration.

The Advertising Manager presented a financial report on the BULLETIN.

Tenders for the printing of the new rules and list of members were before the Committee, but it was decided that, in view of the possible changes, which would be introduced by the proposed amalgamation, it was better to defer action on these *pro tem*.

Election nominations for the sub-areas were considered, and the following had been received:—

London: Mr. K. Secretan, one nomination form.\*

London: Mr. Exeter, one nomination form.\*

Mid-Britain: Captain H. J. B. Hampson, six nomination forms.

Scotland: Mr. J. Wyllie, three nomination forms.

Northern Area: Mr. S. Wright, two nomination forms.

Northern Area: Mr. H. B. Old, two nomination forms.

The only election to take place, therefore, is in the Northern Area, and members are asked to register their votes according to their wishes.

In areas not mentioned above, no nominations came forward, so that the new Committee will make their own appointments in these districts under the rule providing for that contingency.

In the areas where only one candidate was nominated, the nominee automatically becomes a member of the new Committee for next year, polling being unnecessary.

The meeting concluded at 8.10 p.m.

Form "B" Schedule.

RADIO SOCIETY OF GREAT BRITAIN,  
T. & R. Section.

## BALLOT PAPER.

To be posted on completion to Hon. Secretary, T. & R. Section, 53, Victoria Street, Westminster, S.W.1, by November 20 of current year (1926).

I,.....  
Address.....

.....  
Call sign (if any).....

Do hereby record my vote in favour of:—

Name.....  
Call sign (if any).....

As Area Representative and Member of Committee for..... Area

Signature.....  
Date.....

(This form will be used in Northern Area only, for counties included in area, see page 20.)

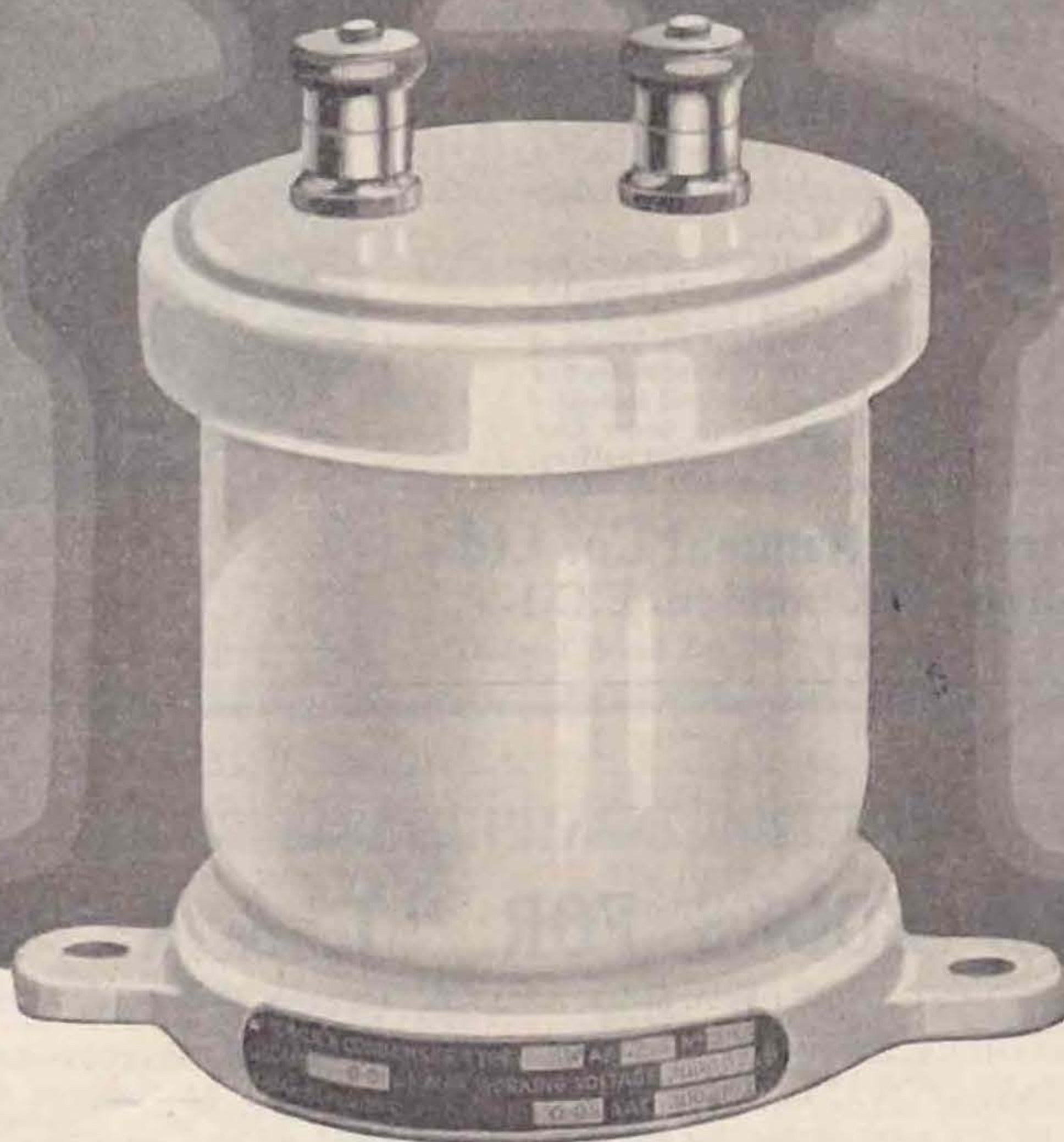
T. & R. MEETINGS AT THE INSTITUTE OF ELECTRICAL ENGINEERS, LONDON.

November 12 (preceded by tea at 5.30 p.m.).

December 17.—Meeting commences at 6 p.m.

\*Under Rule 3 (c) (iv.), page 7, the senominations are not valid.





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*Permanent Magnet Moving Coil Type.*

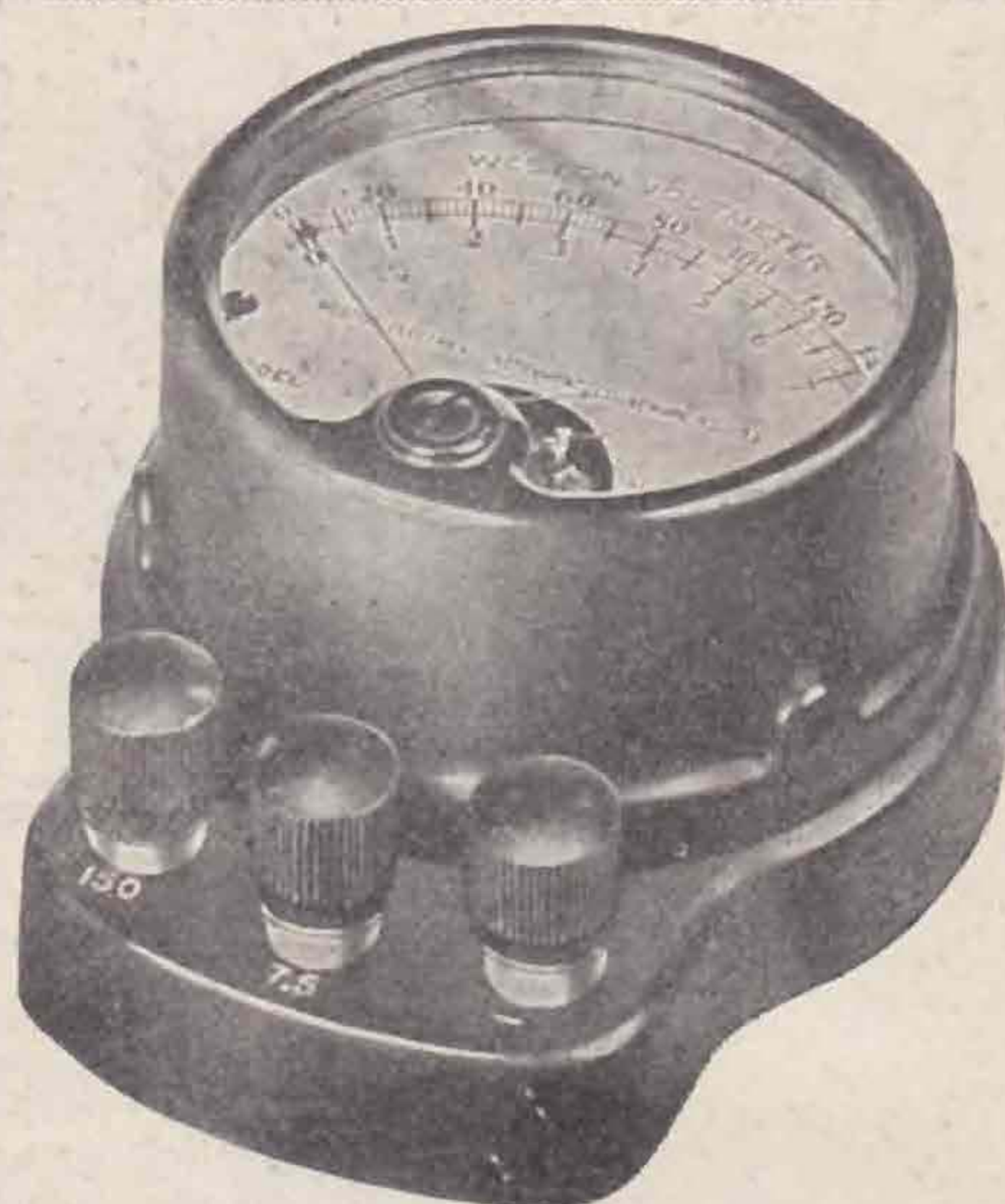
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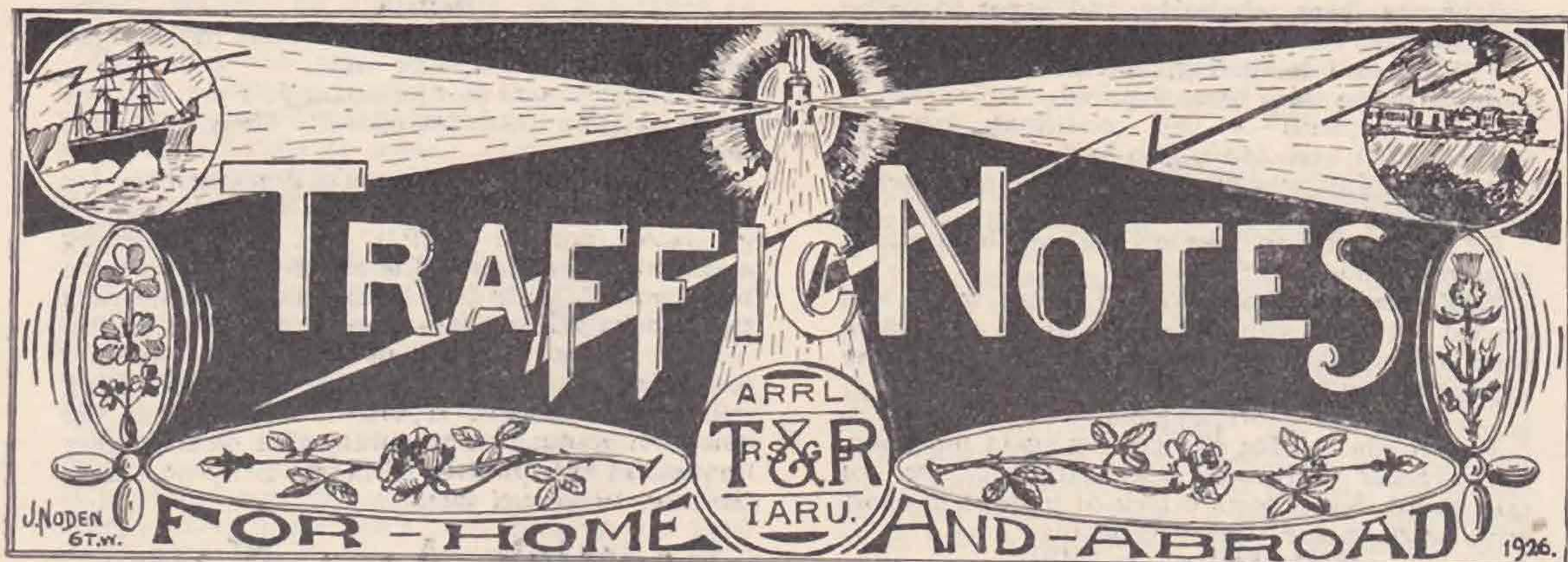
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## Southern Notes.

Prepared by G-2LZ.

**C**RYSTAL control is rapidly gaining in popularity, the latest Southern stations who have changed over to this method of transmission being 2NM on 44.8 metres and 2OD on 32.2 metres. The increase in efficiency of transmitters using crystal control will no doubt be brought out during the forthcoming low power tests. A steady pure D.C. note will often carry much greater distances on lower power than a high power wobbly note.

5KU has worked several 1st and 2nd U. districts on less than 10 watts, and U-9KW on 17 watts.

6CL reports two-way working with 72 stations during September on 6 watts, and has worked several Austrians and Swedes on 5 watts. He claims the first two-way between England and Lithuania on September 26, when he worked LIT-IB. America has not yet been worked on 5 watts, but he hopes to accomplish this shortly.

2AOL reports working several BZ stations and the usual crowd of French and Italian stations, who he says want QSL. He offers to collect reports from Sussex amateurs, so will DX enthusiasts in this area please get into touch with him at "Monkleigh," Hove Park Road, Hove.

2MI, of Margate, who is collecting reports for Kent, appeals for a little more space this month. This is what he says: "Now you Kentish hams, put your backs into it and send in those reports! We want to know all about your problems and DX, so drop them along to 2MI before the 10th of the month. There are plenty of you, but for the love o' Mike don't be so shy. Come along, 5JG, 2UD, 5DT, 2QC, 2QN, 6PG and others. Let's have those reports!" We welcome a new member this month in the person of 2QN, the pioneer of radio in South-East Kent.

5HJ reports very little doing on his 5 watts during September, but he has worked LIT-IB, and had a report of his phone from S. Wales.

5WV has not had much luck lately with his treadle-driven alternator. He has worked BZ-IIB and had report from U-3BVA.

2ZC, of the Channel Isles, states that all licence holders in the C.I. are now T. & R. members, and would like to know if any other district can claim this. 6HZ and 2ZC have been active with

stations all over Europe. Both have QSB trouble, and although they are using D.C. get varying reports on their notes from D.C. to R.A.C.

5OK, situated in Southend-on-Sea, has just received a radiating licence for 150-200 metres. He hopes to get a permit for 45 metres shortly, when we shall no doubt hear of him doing some DX work.

## Mid-Britain Notes.

Prepared by 6JV.

**T**HERE will be no need for Mid-Britons to forward sub-area ballot cards (see last month's notes), for in no sub-area has any alternative candidate obtained the minimum qualifying nominations.

The following is the list of sub-area organisers, to whom reports and articles should be sent:—

Shropshire.—C. L. Naylor (5SI), 43, Hill Crescent, Shrewsbury.

Cambridge.—G. A. Jeapes (2XV), Chandos, Great Shelford, Cambs.

Warwick.—L. W. Gardner (2BPI), 10, Ludlow Road, Coventry.

Stafford.—F. J. Singleton (5UW), Wellington Place, Penn Fields, Wolverhampton.

Norfolk.—C. R. Hunt (6ZJ), Kensington House, Church Street, Sheringham.

Northampton.—I hope to make an appointment shortly.

The following counties are still unrepresented, and offers of help are requested:—

Leicester, Huntingdon, Worcester, Hereford.

The month's reports:—

Shropshire (via 5SI).

6TD reports QSO with Argentine, Uruguay, U.S.A., N.Z., and Australia. He has maintained a weekly schedule with A7CW for nine weeks. He is now using 75 watts input to a D.O./250.

5SI has worked A3LS on 12 watts, and was still R2, when QRP to 6 watts. He has also been QSO U.S.A., and is investigating the peculiarities of 32 metres. H. L. Palmer has reported this month from Cheltenham College, where he has logged some good DX under difficulties.

Cambridge (via 2XV).

2AYB has constructed an interesting receive on a glass plate which oscillates below 2 metres, and upon which he has logged several U.S.A. 20 metre stations,

AND TELL US ABOUT IT!



2DB has been rebuilding, and hopes to be on the air again soon.

5YK is also rebuilding, and new transformers and T50 valve have been acquired.

2XV complains of bad conditions, but has worked Z3A1 and Z4A0, also half a dozen U.S.A. stations. Z4A0 was worked for 40 minutes while he was using an input of 5 watts.

5RT is reported to have left the area, but nothing is known of his new QRA.

2HK has been busy with 5 metre work, and carried out tests with 5VG some weeks ago, which were reasonably successful. He has also been experimenting with crystal oscillators.

#### Northampton.

We are glad to see this county again reporting. Mr. Trasler forwards an excellent list of calls heard, but reports a lack of interest in short wave work in the county generally.

#### Warwickshire (via 2BPI).

5PX has been rebuilding, but expects to continue his "no-aerial" experiments soon. Some of his apparatus which was exhibited at the Birmingham Exhibition created quite a stir amongst the local enthusiasts.

BRS3 sends in a good list of calls heard, and joins the chorus of those who lament the bad DX conditions generally prevailing.

5SK has been active among the Europeans, and has also been QSO the Faroe Islands.

2BPP and 2BMW report little doing this month.

2BUN has been fishing—and very little reliance can be placed upon "fishy stories!"

6YU is preparing for the QRP tests and is constructing a telephoto electric pendulum.

2BLM, 6JN, and 2BPI report nothing of interest.

6YD is preparing for QRP and has his M.O. drive functioning well.

#### Stafford (via 5UW).

6UZ has been rebuilding for crystal control.

5CW hopes to be on the air again soon.

6BH is not active at present.

2KK has worked schedule with USEQ, and has an excellent reception log.

BRS2 reports bad conditions, but has managed to log a great number of DX stations.

2WN has been doing some excellent low power fone work (this is endorsed by 6JV). He has caught the "shock fever" and is building one.

#### Wolverhampton.

2OQ was QSO with another BZ with his QRP station, but has dismantled his gear in readiness to move into the new shack as soon as the builders move out. He hopes to "get going" again within the next fortnight.

5UW worked two more U's and chewed the rag with many G stations in the early part of last month. The latter portion was spent in Italy with Italian 1FP at his summer residence, but all efforts to raise "G" stations from there were N.D. The only "G" station heard was 6IA.

6HT has been carrying out aerial tests, and has not been after DX this month. (He missed a golden opportunity during 5UW's absence. Hi, vide October BULLETIN.)

5PR ex 2AZD, having passed his Morse test, has been allotted 5PR as his call letters. He is already xmitting (QRP) and reports are welcomed.

5NU is repeatedly bombarded with T. & R. membership forms. Perhaps he will find time to fill one up soon!

#### Norfolk.

6ZJ reports business QRW. Glad to hear the coal strike is not worrying him!

Ex 2BJP reports that he is now 5UF and licensed for 10 watts on 150 to 200 metres. He will welcome reports.

6JV has been building a QRP transmitter for the tests. He has also installed a 100 watt Mortley generator (not for QRP!), and is now testing aeriels on 32 metres. The usual Europeans have been worked with two L.S.5's in parallel, while the month's DX includes Canada, Arabia, Y.S., etc.

Experiments with aeriels have been most interesting, and although the difficulty of collecting reliable comparative reports is appreciated, the opinion is gradually crystallising that on the higher frequencies the question of height is by no means the most important factor.

## Scottish Area Notes.

Prepared by 5YG.

#### At the Convention.

THE first T. & R. Convention was duly held in London on September 17 and 18, and I have to record my pleasure at meeting there 5ST, 6JJ, 6KO and 6YT from the Scottish Area. I would also like to express my satisfaction at meeting the various Headquarters Officials and Area Representatives, and would thank them for the cordial welcome accorded to the Scottish Area members present. Now for the reports:—

6YT attended on the eve of his departure to New Zealand, and was fortunate enough to have a few words of advice as to procedure "down under" from Mr. Frank Bell, Z4AA.

6JJ is, I am afraid, likely to be lost to us for good, as there is a possibility of him settling down permanently in the south-east of England.

It is with great regret that I have to announce the immediate resignation of 5DA, and the approaching resignation of 5JD from the posts of Area Sub-Editors of Nos. 2 and 4 Districts respectively. 5DA has received an appointment in Birmingham, and leaves immediately. His departure is a heavy loss to No. 4 District in particular, and to the Area in general, as, apart from being our "star" transmitting station, he is a genial soul, and I am sure that those of us who came into contact with him feel we are losing a friend. Would No. 4 District stations please report to me direct by the 8th of each month until other arrangements can be made.

5JD also goes to England shortly, and although he is not so much in the limelight as friend 5DA, owing to the fact that his station has been QRT for a long time, he has put in a power of work in connection with No. 2 District, and we will regret his departure exceedingly. 6IZ has been approached, and has kindly consented to take over from 5JD when the latter finds it necessary to lay down the reins.

As indicated in this office circular No. 4, the prefix "GC" has been authorised for Scottish transmitting stations, and I trust will be made use of. Several stations have reported a marked increase in QSO's since commencing to use the new prefix, also that they are now able to "raise" stations hitherto silent as far as they were concerned. In this connection I would wish to place on record the thanks of the Scottish Area to Mr.



Gerald Marcuse for the trouble he has taken in the matter.

Regarding the new T. & R. badges, several inquiries have been received at this office. Please note that badges are only issued from HQ, to which application should be made.

I have pleasure in recording the following inter-station visits: 6IZ to 5WT, 6KO and 5NW, and BRS6 to 5NW.

The following applications for T. & R. membership have recently been lodged at HQ, and ere this issue reaches the printer will no doubt be duly elected: E. J. Allan (5NW), Dundee; Alex. Robertson, Edinburgh; John Higgins, Glasgow; and J. Cyril Adams (2BPB), Greenock.

Once again I have to comment on the omission of stations to report to their Area Sub-Editors. It is really most discouraging to the fellows who occupy these posts OM's, and even if you have very little to report, please remember that a "nil" report at least indicates interest in the affairs of your particular district, and while we look for better things than "nil" reports, they at least serve to show your Area Sub-Editor that you have not lapsed completely.

#### No. 1 District (by 5YG).

2MG has done a little spasmodic working, but has not yet been able to settle down owing to business, 25 cycle AC mains, and other QRM.

2FV reports less QRW now, and hopes to put in some good work in October. He is at present building a new receiver, and confesses to considerable interest in the GREBE method of obtaining smooth reaction by means of a 25,000-ohm resistance in place of the customary H.F. choke. He has carried out some interesting tests with his 45-metre transmitter, but hopes to have something further to report next month.

5YG has very little of interest to report in the way of traffic, having merely worked the usual European stations. Tests, however, have been carried out with a view to ascertaining the direction in which the station's signals travel best, and results would seem to establish the fact that reports of very QSA signals almost invariably come from the SSW. The transmitting aerial runs W-E, and is badly screened from the north by eight BCL aerials (of varying heights) in parallel, all within 70 yards. These, it is thought, may have the effect of deflecting the signals to the south.

6NX has undoubtedly been the "live wire" of No. 1 District this month. Having only just received his "foreign permit," he has already worked N-R7, SM-R5, F-R6, K-R5, H, LA, B, and C. He has also worked a station using the call sign MA3, but the contact was broken by QRN and QSS before he could get the QRA. He is very anxious to ascertain this. Can anyone help? (How about it, 6BT, OM?—5YG.) His best achievement, however, is a QSO with C8RG. This was effected at GMT 00.30 with an input of a little over 6 watts. QRK was R3 in both cases, and the QSO finally broke down owing to QRN, but not before C8RG had given his QRA as Newfoundland. Mr. McDade has now come to the conclusion that the stunts sans aerial referred to last month have proved somewhat misleading, and that, after all, impulses may have been conveyed to the aerial by induction. He finds that when the aerial is definitely "earthed" his signals do not appear to "get out."

BRS19 reports receiving one evening, between 20.00 and 21.00 GMT, 12 BZs, 1U, an FM, and Oa4Z. (Not a bad hour's work, OM.—5YG.)

The following stations did not report: 2TT, 5YQ, and 6OW.

#### No. 2 District (by 5JD.)

5JD, owing to various circumstances, has not been transmitting, and consequently has nothing to report.

5JK is home again once more, and may be able to "rattle the cans" for a little before setting off on another voyage.

6IZ has been doing considerable QRP work with an input of 2—3 watts to a Mullard 0/20, and has had some surprising results. He has been heard in Ireland and the Faroe Islands R6, in both cases on an indoor aerial and with O-V-O. He speaks highly of Messrs. Mullard's treatment in relation to an 0/20 which went "dud" prematurely, and which was replaced by them free of charge.

6VO has little to report, his power being at present 2 watts from H.T. accumulators. He purposes fitting up his T.V.T. unit again, along with a rectifier, in order to get more "juice," but so far has not managed time owing to business QRM.

The following stations did not report:—2JZ, 2VX, and 6GQ.

#### No. 3 District (by BRS6).

2SR is very active just now, and is putting out a signal with a terrific "punch." He obtains an R6-8 QRK from most European stations, this including an R7 from Nijni Novgorod. He has also reached Australia, but on that occasion his QRK was given as R2. (You got there, OM—that is the main thing.—BRS6.) Fone tests are presently being carried out with 5NW.

6KO has been on the air regularly experimenting with a Hertz aerial. His signals got out OK, but the QSB was too dreadful for words, and no adjustments seemed to improve it. The result is that the Hertz has been deserted, and the old "3rd harmonic" is once again "the order of the day."

BRS6 has been putting in a lot of reception work in the latter part of September, and his "bag" runs as follows: B, BZ, CS, D, E, F, FA, FM, G, GC, GI, GW, H, I, K, KC, LA, N, OE, P, PR, R, S, SM, TE, TJ, U (1, 2, 4, 8), Y, YS.

The following stations did not report: 2BB, 5NW, and 5WT. Buck up, OM's, please.

#### No. 4 District (by 5DA).

2BFQ is only just back from holiday and has nothing to report.

2TF is very QRW instructing embryo RAF Ops in the tender art of "brass-pounding," and has no time at present for DX work.

5BA is getting out very well on 10 watts, and hopes to do great things during the coming QRP tests.

5DA is spending most of his spare time sending "GB. CUAGN sometime" to all his fellow "hams" on account of the coming QRT and move to Birmingham. There was a pool of salt tears under the transmitter table when the final "end of work" was sent to dear old BZ1AW!!! (A more consistent station has never been heard.) The crystal-controlled transmitter and super-het are "standing bi" in the meantime—too bad!!!

73's es best luck to all Scottish Area hams.



## Northern Notes.

(Prepared by 2DR.)

### A Call to Arms!

**W**ILL some kind person tell me what has happened to most of the Northern Area hams? Here I am on the 14th of the month, and less than a dozen reports, all told, from a huge area, containing easily a couple of hundred hams. Now what about it, OM's? You cannot expect me to manufacture reports for you, and, after all, one has to be very busy not to be able to sit down once a month and spend ten minutes sending me a brief account of your month's doings. What is more, I hear any amount of you brass-pounding night after night on 45, so it isn't because you are not doing anything. There are not a few of you on the 90 and 150 bands, and yet I never get a line from you. Don't think that, because you are not covering thousands of miles on 45, that you are not doing anything worth recording for the benefit of your brother hams; take it from me, there is lots of good work to be done on these bands yet. Sorry to have to call your attention to this matter, OM's, but the North has always been up to the scratch, and there is no reason why it should not remain there, so far as I know. For your information, at the bottom of this column, you will find the addresses of hams to whom reports can be sent.

### General.

Conditions this month seem to have been very erratic, and although one or two hams report fair results with U.S.A., others have been unable to connect. I have heard them beginning to trickle through about 23.00, but between 02.00 and 05.00 has been the best time for them. 5US, of Ilkley, Yorks, has sent in the best report of the month, and he is to be congratulated on an excellent bit of low-power work; more especially as he is working under very difficult circumstances. Working 9 U's in two mornings, R6 in every case, using less than 8 watts, and the R.F. feeder coming across a room and through a door and a wall, well, it makes one wonder what sort of sigs 5US could turn out under ideal conditions. FB, OM.

Now for the individual reports:—

#### Lancashire (per 5XY).

5MS has been busy producing a D.C. QSB from his full-wave chemical rectifier, and using 30 watts has been busy with the U's. He is now QRT for a few weeks, having gone up to Cambridge again.

5DC uses 1,000 volts H.T. from accumulators to ensure a pure D.C. QSB! He has been heard on phone in U.S.A., Brazil and Australia, but I have no details as to power used.

6SZ is installing crystal control, and intends to take part in the QRP tests.

6KK is rebuilding for the winter, and is putting in a Newton D.C. generator.

5XY has bought a Mortley D.C. generator, and is going in for crystal control. Here is another station ready for the QRP tests. 5XY has now worked all continents, and has applied for the W.A.C. certificate! FB, OM.

#### Northumberland.

6FG, having got A.C. in his domain, is rebuilding his big transmitter for use with a "sync" or

rectifying valves. In the meantime his QRP transmitter is well under way for the tests. He tells me that there is a danger of 5KO giving up the game, but I hope this rumour proves wrong. We want more men up your way, rather than less, OM. What about it?

#### Cheshire (per 6TW).

2SO must be still suffering from the effects of the Convention, as he has no DX to report, but he is much employed with his QRP tests, and I hope he has got a snorter ready to show us what Cheshire can do on QRP.

6TW has been doing a heap of listening and getting his Grebe CR18 receiver into something like order. Erected a new 60-ft. mast, but the recent gale proved its master, and literally twisted 28 ft. off it. Here is another for the tests.

#### Yorkshire.

5US holds the palm this month, having worked nine U's, Districts 1, 2, 3 and 4, in two mornings, using 7.5 watts, D.C. mains and an LS5 valve. U-4IT reported sigs. readable 10ft. from the phones, and the others R5/6. Not satisfied, he tried phone on the same power, but QRN proved too strong for I-AC1 to get what he said. 5US has been keeping a schedule with U-1BYX, who wants to know where all the G's are. Here ready for tests. 6TY must accept my apologies for omitting his report last month. Sorry, OM. He has worked 61 new stations during the last two months. Best DX on 10 watts was C-1ED, from whom he took a message for 2OD which originated from A2LM. Best DX on 2.3 watts SMVG (near Arctic Circle), from whom he took a message for 6UV. He has also had good phone results over a range of about 300 miles with this very small power. 5KZ has worked his first BZ, using 15 watts, whilst on 12½ watts he has had several very good reports from India. He has been held up for some receiving gear, but is now in full swing again, and ready for the QRP tests.

6HF has started up on 45 with a half-wave Hertz after some hectic correspondence on the matter with 2DR, and using 8 watts has established an 800-miles range in the first two days.

2DR is busy with a QRP set for the tests, using a 35-ft. vertical aerial, and has had some excellent reports when the input was 5 watts. The best was from a French station, R8 in daylight. I am glad to see that practically all those who have sent in reports are entering for the QRP tests. Now, play up the North, and good luck to you all, OM's.

### Addresses for Reports.

LANCASHIRE.—Mr. J. C. Harrison (5XY), "Highcroft," Ightenhill, near Burnley, Lancs.

CHESHIRE AND DISTRICT.—Mr. J. Noden (6TW), Coppice Road, Willaston, near Nantwich.

YORKSHIRE, WESTMORLAND, CUMBERLAND, NORTHUMBERLAND AND DURHAM.—Mr. S. R. Wright (2DR), Bankfield Drive, Nab Wood, Shipley, Yorks.

## Irish Notes.

By 5NJ.

**I**HAVE received very few reports on last month's work in Ireland, so these notes must be somewhat brief on this occasion. Very little DX work is being done, and many of our stations seem to be very quiet—probably preparing for the QRP



week in November. It is up to every low-power station in Ireland to take part in these tests, and we feel sure that, when the results are announced, men in the Emerald Isle will figure very close to the top of the list of stations who obtained the best results. So the best of luck to you all—and don't forget to send me a report by the 10th inst.!

In the Free State, 11B tells me that he has been inactive for some time past, but will be on again regularly from October. Recently he has been QSO with Italy and Germany.

18B has had trouble in getting started again after rebuilding, but is now apparently O.K. He has worked KJOE and reports of reception in U.S.A. are to hand. A new station in Dublin is 14C, who is QSO most of Europe, including Norway and Italy. QRA D. G. Kennedy, 21, Morehampton Road, Dublin. The other GW's have not reported.

In the North things are quiet also. 6WG, a new G1 worker, who has come to us from Scotland, started work in February last on 6 watts, and has been QSO eight European countries, the best to date being Madeira, where he was reported R7 on an input of 5 watts.

6YW has been too QRW for much work "on the air," but has been QSO Czecho-Slovakia, this making his 24th country on 8 watts and under. His hand generator is at present broken down, but he is able to work stations 200 miles distant on his 50-volt receiving battery! In reception he reports SS-2SE and BN-SK2, the latter being copied solid for an hour. A regular QSO was maintained each night with GX-6MU on the home trip.

2BX is QRT until 6YW can find more time—probably in mid-winter—to do the operating.

5GH has had some splendid results of late, and says that the demise of summer time has had a great effect. He has raised his Hertz aerial about 7 ft., and this has made his signals R7 in many parts of Europe on an input of 4 watts. On the same input—which is never exceeded—QSO has been had with 7XX of Yugo-Slavia and Switzerland. (Any other G or G1 worked Switzerland officially yet?)

6SQ has been on fairly frequently, except during week-ends, and has worked D7JO, in the Faroe Islands, on .7 watt being reported R5. This is good work.

Two new stations are on the air, viz., 5WD and 5MO, both of Belfast. Best of luck to both of you.

2IT has not reported, and I have not heard him lately. Hw cum, OM?

6MU has not had much time as yet to be often on the air, but says he finds U.S.A. conditions very bad lately. He has, however, worked A-3EN, and has been doing some very good reception work. I am sure the description of his recent Atlantic voyage will be read with much interest.

Just before going to press a report has arrived from our good friend 19B. He has been very QRW lately, and has not had much time for radio, but has got over to PR4JA on 7 watts, which is excellent work, and has frequently been heard in Porto Rico. He has also put very good fone over to F8UT, being reported a good R6 when the input was  $2\frac{1}{2}$  watts!

In conclusion, the usual reminder—reports by 10th inst., please.

## QRA and QSL Section.

NOW that T. & R. membership is growing so rapidly it is necessary to ask members to strictly observe the rules of this Section, and not cause unnecessary correspondence, which all takes up time.

Quite a number of members seem to use the Section simply as a means of getting their cards addressed for them, and in this connection we beg to point out that it is not necessary to send cards here for forwarding when their destination is for countries which have distributing agents whose addresses have been published many times in our BULLETIN.

We have had several cards lately for addressing and forwarding to "G" stations whose QRA's are in every published list, and we politely suggest that this is going a bit too deep into the interpretation of the "*facilities provided by this Section*," which, after all, is not a "whole time" job, and has, on the other hand, to be done in a very limited amount of "spare time"!!!

It would be of assistance if members would enclose all stamps, for the forwarding of their cards, *loose*, as sometimes it is necessary to send them at letter rate.

GW-19B informs us he has mislaid a number of his QSL cards, and would be glad to hear from anyone who has not received an acknowledgment from him.

We regret that in the last BULLETIN there was a printer's error in the name of the owner of the call sign 6QW. This gentleman's name is WEBER, not WEVER, and he is the hon. secretary and treasurer of the Bristol and District Radio Society.

We understand that Rolf Formes, who has for so long acted as distributing agent for Germany, has at last been compelled to pass on these duties to another. We wish him a well-earned rest from this arduous task. Cards for this country should, therefore, in future be sent to:—

HERR KRUSCHWITZ, K-L4,  
Funkverein,  
Reilstrasse 128,  
Halle-un-Salle,  
Germany.

### New Intermediates.

D.F. Faroe Isles.  
B.G. British Guiana.

### QSL's Waiting.

The following have not less than three cards each waiting to be claimed.

Will they please forward stamped addressed envelopes to this Section:—

2BD	2WM	6DO
2BDY	2WW	6HT
2BK	2WX	6HZ
2BMO	2ZA	6JU
2BOW	2ZF	6KK
2CA	5BV	6KO
2CH	5CZ	6MX
2CO	5DK	6OW
2DA	5DS	6QW
2DF	5GF	6RY
2DX	5GQ	6TM
2DY	5HA	6US
2FM	5HG	6UZ
2FO	5IR	6VP



2GV	5LS	3WS
2HQ	5LX	6YD
2KF	5MF	6YQ
2LF	5MS	6YS
2NC	5MU	6YX
2OG	5NW	6ZC
2OJ	5RZ	BRS6
2RL	5SW	BRS9
2UD	5UL	
2VQ	5WD	

Please help us by acquainting owners of above.

#### QRA's Found.

- SAD.—Swedish Naval Floating Station, Stockholm. (Inf. 2BYN).  
 LIT-1B.—W. Hinentalis, Kaunas, Aukst, Karin, Kursai, Lithuania. (Inf. 6CL and 2AFG).  
 KTC.—KTC Radio Station P., P.O. Box 177, Khartoum, Sudan, Africa. (Inf. 2AFG).  
 LA-ISE.—E. P. Sjoclie, Fauske, Norway. (Inf. A. F. C. Adye, T. & R.).  
 PI-1AW.—E. Grupe, 271 Zobel, Manila, Philippine Islands. (Inf. "Wireless World").

#### QRA's.

- SS-2SE.—R. E. Earle, Electrical Engineers' Dept., Harbour Board, Singapore, Malay. (Inf. 2NM).  
 BN-SK1.—J. R. Barnes, Telegraph Dept., Kuching, Sarawak, B.N. Borneo. (Inf. 2LZ and J. S. Drewett, T. & R.).  
 BN-SK2.—H. G. Gray, Kuching, Sarawak, B.N. Borneo. (Inf. 2LZ and J. S. Drewett, T. & R.).  
 OE-KE.—Erich Kohout, In Sauerbrunn 200, Austria. (Inf. 6CL).  
 BZ-2AJ.—J. R. Baccarat, Av. Conselheiro Nebias 504, Santos, Est de S. Paulo, Brazil. (Inf. 2AJC).  
 DF-7JO.—J. Finsen, Thorshavn, Faroe Islands. (Inf. 2VJ).  
 A-2HL.—H. F. Lovett (ex A7HL), 3, Kahiban Road, Mogman, Sydney, N.S. Wales. (Inf. A. F. C. Adye, T. & R.).  
 Y-2AK.—J. C. Primavesi, Nueva York 1590, Montevideo, Uruguay. (Inf. A. F. C. Adye, T. & R.).  
 GW-14C.—D. G. Kennedy, 21, Morehampton Road, Dublin. (Inf. 5HX).  
 2ADI (AA).—H. J. Blanden, 10, Woodfield Road, Braintree, Essex.  
 2AFD (AA).—R. S. Holden, 110, Glenwood Street, Belfast, N. Ireland.  
 2AHM (AA).—J. M. Rutherford, 146, Ethel Street, Benwell, Newcastle-on-Tyne.  
 2AJC (AA).—H. Brabrook, 31, Court Lane, Dulwich, London, S.E.21.  
 2BMK (AA).—C. Vickers, 49, Hamilton Street, Cardiff.  
 2GF.—P. E. A. Griffiths, 12, Glencoe Mansions, Chapel Street, Brixton, S.W.9.  
 5RU.—L. D. Roberts, 26, St. Andrews Avenue, Ashton-on-Ribble, Preston, Lancs.  
 5UF.—A. A. Barrett, Langside, Cabbell Road, Cromer.

#### Change of Address.

- 2BLA.—Now 14, Raymond Street, Thetford.  
 2BZC.—Now 38, Purley Avenue, Cricklewood, N.W.2.  
 5SO.—Now 19, Parkfield Road, Edgeworth, Bebington, Cheshire.  
 6NP.—Now Bank Terrace, Heckmondwike.  
 Z-1AO.—Now Martin Avenue, Mount Albert, New Zealand. (Inf. 2LZ).

K-AYY.—Cards for this station may be sent via T. & R.

#### Change of Call Sign.

K-12, now K-4ABF.

2BJP, now 5UF.

#### QRA's Wanted.

G6GB, 6TV.

M-1DJ, TROY, MCHT, PLH.

M-3KUS.

All new QRA's wanted by G6BT.

#### Correction.

2BWH, H. V. Peacock, Esq.—The address given in our last issue was 24a, Stapleton Road. The correct address is 34a, Stapleton Road, Upper Tooting, S.W.17.

G6BT,

QRA and QSL Section,

T. & R. R.S.G.B.,

Bury,

Suffolk.

### I.A.R.U. Notes.

Last month particulars were given of the Field Museum "Chicago Daily News" Expedition to Abyssinia. Further information has now been received from the operator of the expedition that the call letters assigned are BAUM (not WCDN, as reported last month).

The expedition will use a 45 metre wave, and the periods of transmitting news and personal message traffic will be between 8 and 9 p.m. on Mondays, Wednesdays and Saturdays, Abyssinian time, which is about three hours ahead of G.M.T.

Please send reports of contact with this station to C-2LZ or to I.A.R.U. headquarters at Hartford, Conn., U.S.A.

Will I.A.R.U. members and others engaged in DX work please send in reports of their two-way workings to me, so that they can be included in a monthly report which is forwarded to Hartford for publication in "QST." These reports must be of international interest, and must refer to actual two-way contacts. Reports on the forthcoming low-power tests will be of particular interest. We are getting very much behind other countries in letting others know what we are doing through the medium of "QST," so we must look to our laurels in this respect. I shall be pleased to send particulars of I.A.R.U. membership to anyone interested. Everyone interested in DX work should join this important organisation, whether a transmitter or not.

G-2LZ, British Secretary.

### EXCHANGE & MART.

**S**URPLUS APPARATUS 6WQ.—Sterling Folding Frame Aerial, 3 Bowyer-Lowe Supersonic Transformers, 1 Filter, 2 complete sets McMichael H.F. Transformers, 80-7,000 metres. All these half list price. One Flush Panel Hoyt Milliammeter 0-50, 15s. All as new.—52, Eastwood Lane, Westcliff-on-Sea.

**A.C.** GENERATOR, Newton 200 watt, and Transformer by Foster (500-1000 volts output) £3. Voltmeter and Ammeter for same (10 volts 20 amps., six in. scale), Westinghouse & Everett-Edgcumbe, £3.—Box 1, T. & R. BULLETIN.



# Correspondence.

## IN REPLY TO 6JV.

To the Editor of T. & R. BULLETIN.

SIR,—It was with surprise and regret that I read Capt. Hampson's letter in your last issue.

While heartily agreeing with 6JV that such a section is urgently required, I cannot see how any research can be carried out by men who scorn "sin cos 0" a term used by the author!

I do not hold that everybody should be a mathematician, but surely the man who says: "I don't know much theory, but I wish I did and will dig into it as well as I can," is the man we want in our Section.

How can anyone who uses the term "Mathematical Jargon" for the very fundamentals of the most interesting branch of modern science hope to do anything really worth while.

The fact that we are amateurs only enhances the position. As such we do our work for its own sake, and therefore it does seem that a little more attention paid to the underlying theory would aid an experimenter enormously and would rid many hams of that "Hit or Miss" method of "experimenting."

I will take the opportunity of again emphasising the value and need of a Research Section, and hope it will not be very long before we see such an arrangement in working order.—Yours faithfully,

H. A. CLARK (6OT).

50A, Rosebery Gardens, Harringay, N.4.

## THERMO-COUPLES AND ONEMETERS.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—Many thanks for yours of the 4th inst., and we hope that the boys of the T. & R. Section will be able to buy a few "Onemeters," as they have never had such a chance of a multi-range instrument with such cheap shunts, etc., before.

You may be interested to know that the problem of A.C. measurement is being tackled, and Mullards are investigating the manufacture of gang thermo-couples in a bottle with the standard valve pins to suit the "Onemeter." It may be some while before these are on the market, but we have hopes of enlarging the sphere of usefulness of "Onemeters" in this way.—Yours sincerely,

LESLIE DIXON & Co.

## MONEY SAVED!

To the Editor of T. & R. BULLETIN.

DEAR OM,—If any of these cards you can't forward, please return in next envelope to me. Have saved my T. & R. sub. in postage alone. Mni tks to you, and may u live long. Hi!—Chin chin es 73's,

W. SAKWELL (G6UZ).

To the Editor of T. & R. BULLETIN.

DEAR OM,—I recd a crd this morning fm Mr. H. F. Lovett, of A7HL, who asked me to tell the gang that he is operating A2HL as a temporary call at 3, Kahibah Road, Mosman, Sydney, N.S.W., es wants QSL's. Will you pse QSR this message thru the pages of the BULLETIN? Tnx, OM.

K. E. B. JAY (G2BMM).

"The Quinta," Elm Close, Amersham, Bucks.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I have just received a letter from Mr. H. G. Gray (BN-SK2), of the Radio Station, Kuching, Sarawak. He tells me he is the chief op. of VQF at Kuching. The transmitter is a 110 watter and was designed by Mr. J. R. Barnes, the superintendent of VQF, who has a similar transmitter at his house. He uses the call-sign BN-SK1.

QRN is well nigh hopeless there, but Great Britain amateurs are picked up by the dozens!

Both stations are very keen to work G's. Best 73's, OM.—Yours sincerely,

G. F. C. ADYE (BRS37).

3, Vale Avenue, Tunbridge Wells, Kent.

September 20, 1926.

To the Editor of T. & R. BULLETIN.

SIR,—I beg to inform you that a new society has been formed, and it has been decided that the body shall be known as "The North London Experimental Radio Society."

The following officers have been elected: President, Mr. S. Panton; secretary and treasurer, Mr. Wilfred J. L. Parker-Ayers; committee, Messrs. Clarricoats, Halden and Buckingham.

The society is intended to appeal to those interested in the experimental side of wireless, rather than to those interested solely in the perfection of broadcast reception. Receivers will be just as welcome as transmitters, and they will be able to give valuable assistance by co-operation with the transmitters.

Rules have been drafted and will be settled in committee, to be laid before the society at the next meeting: the annual subscription is fixed at 10s., and part of the society's service is to

consist of the provision of instruments for the use of members in their experimental work. The entrance fee is 5s.

Yours faithfully,

WILFRED J. L. PARKER-AYERS (2AOT),  
Honorary Secretary and Treasurer  
(Member T. & R.).

61, Carey Street, Lincoln's Inn, W.C.2.

October 19, 1926.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—May I be permitted to use your columns for the purpose of making a few friendly criticisms on the rules and organisation of the Low Power Tests?

I am sure that, in making these criticisms, members of the Section will realise that I do so with only one object, and that is, to help by such criticism, if possible, the furtherance of such tests of a purely scientific nature.

Firstly, one cannot help feeling that, in making these low power tests limited to voltage control, the main technical object of such tests has been lost sight of. As I see it, low power is synonymous with low wattage, and to limit the plate voltage to 220 imposes, at once, a somewhat severe restriction on the choice of valves and the associated circuits. In the article published in the October BULLETIN, relative to these tests, it is stated that one of the objects is "to test the efficiency of various generating circuits in use." The limiting voltage imposed necessitates, generally speaking, the use of low-impedance valves working into suitable circuits and does not allow the use of a high-impedance system. It is of the highest importance that comparative tests of these two systems should be made, and the low power tests would have been a most suitable opportunity, and one therefore feels that an error of judgment has been made in imposing this voltage limit.

Secondly, and this is, in a manner, subservient to my first point, since the organisers have seen fit to allow the use of rectified and smoothed A.C. for plate supplies, why should the use of small D.C. generators—of the M-L and hand type—be vetoed?

I know of one of the finest low-powered stations in this country who is debarred by this somewhat unreasonable rule from using his standard arrangements in these tests. It should have been remembered, I think, that a large number of members cannot afford to install alternative power supplies merely for the purposes of this test. Granted that the use of A.C. allows the testing of the many types of battery eliminators now existing, have not the small D.C. generators also proved their usefulness?

Apropos of the generator question, it has been stated, not only in the BULLETIN, but in our contemporaries having a public sale, that the use of the generator is forbidden in order to prevent any attempt at increased power. As a member of the T. & R. Section since its inception, I wish to protest against these suggestions of members not "playing the game." A few friendly words on this point at our meetings is certainly in order, but to voice this suggestion through the columns of the popular Press shows, to my mind, a lack of good taste, and is not calculated to improve our status as a scientific organisation, and, I take it, we are all of us very jealous of that status and reputation. I think one may let it go at that. With regard to the general organisation of the low power tests, it is, of course, too early to say whether or not this has been sufficient, but one regrets that no OFFICIAL schedules, hours of individual working or code words have been allotted, as was the case with the first Transatlantic tests. It is not so much the actual carrying out of such tests which give us the scientific data we require, but the organisation properly to abstract from such tests the individual and collective factors which go to form such data. Unless adequate organisation exists to collect and co-ordinate such reports, the scientific value may easily become negligible.

I am, Sir,

Yours faithfully,

G. L. MORROW (G6UV.).

"Penolver," Berkhamsted, Herts.

October 22, 1926.

## Calls Heard.

Calls heard by G2NH, 65, Kingston Road, New Malden, Surrey, During September, 1926:—GB—2kf, 2jb, 2jj, 2nm, 2od, 2tj, 2so, 2wn, 2of, 2zf, 5xy, 5mu, 5jw, 5us, 5gw, 5wd, 5wt, 5ms, 5hs, 5hx, 5nj, 6ty, 6hz, 6yc, 6ia, 6ci, 6cl, 6mu, 6ux, 6og, 6br, 6za, 6nf, 6vp, 6iy, 6ko, 6al, 6pu, 6ou, 6ot, 6gh, 6wllc, 6wl8b, 6x6mu. F—8ut, 8vcd, 8pax, 8pj, 8gi, 8cyi, 8rh, 8pc, 8rk, 8jrz, 8oqp, 8di, 8zi, 8ol, 8fj, 8zb, 8hdg, 8zet, 8wel, 8ei, 8gmj, 8qw, 8tis, 8mul, 8lgd, 8gmw, ocrb, octu, vim, berri, fm8ma. B—32, r2, 2ssk, 4sc, h5. BZ—1bd, 1aw, 1ap, 1av, 2ab, 1bi. D—7mt, 7ah, 7zg, 7jo. E—ear31, ear26. I—1ma, 1cw, 1ce, 1ru, 1co. K—w3, w8, m1, 4mha, 4ha, 4kez, 4wm, w9, 4ya, 4mfl. OE—ke, hl. LA—le. PR—4sa. S—2ns, 2co, 2nd. SM—smxv, smtt, smyc, smzv, smwr, smwv, sgc, sgt, sid, ssw. TJ—crj. YS—7xx. Various—ylcg, pilhr, csok1, z4am, 4ag, play, y2ak.

G calls heard by Y1CG, W. FIGUEIRA, Box 37, Montevideo, Uruguay:—5pz, 5dh, 2cc, 2it, 2wy, 2nm, 6yd.



B-n33, j9, m8, k3, m2, a4, h5, k2, z1. CS-un. D-7zg, 7mt. DF-7jo. EAR-4, 6, 9, 10, 23, 26, 28. F-8ut, 8xix, 8qw, 8kw, 8wel, 8ez, 8gnv, 8ku, 8rk, 8la, 8jrt, 8zet, 8oqp, 8il, 8tis, 8koa, 8xam, 8lz, 8nec, 8xm, 8prd, 8kk, 8rrf, 8ca, 8zb, 8rbp, 8st, 8ong, 8bp, 8gi, 8kv, 8jyz, 8ynb, 8xih. FA-8co. GW-14b, 14c. GI-6mu, 5nj, 6yw. I-1bc, 1cc, 1nd, 1ma, 1au, 1bd, 1ss. K-4mca, an2, w7, 4uao, n4, 4aap, 4mfl, i2, 4ga, oj, kko, 4ya, brt, 4abn. KC-z4. LA-1a. LIT-1b. N-ouc, oth, oly, obp, ovn, oag, pb3, owc, pck4, okh, oga. O-ke, gp. P-1ae. R-rp. S-2co, uc, am, ab, fv, gt. SM-uv, us, xv, vg, ua. TP-xx, ai. U-2agq, 4rm, 1bhm, 1cn, 2md, 3dd, 1ccz, 2ejd, 2buy, 2wf. Reports on request.—45 metre band.—Calls heard September 15—October 14, 1926, by G6UT, 28, Douglas Road, Chingford, Essex.

USA-3afw, 3ahl, 3aif, 3bz, 3cah, 3cdv, 3hr, 3ld, 3rf, 3wf, 3zo, 4aah, 4aik, 4ft, 4fu, 4dd, 4it, 4iz, 4si, 4wj, 5ash, 5sp, 6cto, 7wu, 8eq, 8afq, 8arm, 8ben, 8bpq, 8bkm, 8ccq, 8cor, 8eyi, 8dbb, 8dot, 8drs, 8es, 8rh, 8sc, 8zt, 9bpb, 9bqe, 9cvn, 9czw, 9ejg, 9elb, 9za, 9ze, aq8, wil. Porto Rica-4ja, 4sa. Canada-1ar. Chile-2ar. Mexico-in, 5c, jh, yy. Argentina-aal, bal. Uruguay-1br, 1bu, 1cd, 1cx, 2ak. Brazil-1aa, 1ak, 1am, 1ap, 1ao, 1aq, 1ar, 1av, 1aw, 1bc, 1bi, 1bg, 2ab, 2ad, 5ab, 5ad. Australia-2bb, 2bk, 2sh, 2yi, 3bd, 3xo, 4cm, 4go, 5kn. New Zealand-1aj, 2ac, 2ae, 2bg, 2gc, 2xa, 3ai, 3am, 3ar, 4aa, 4ac, 4am. Tasmania-7cw, 7dx, 7gh. Dominica-hik. Miscellaneous-cb3, wup, voq, wvc, and, bxy, glky, fx.—F. SMITH (BRS3). DX heard during September at 101, Highfield Road, Saltley, Birmingham.

Calls heard in Latvia, September 20, 1926, to October 4, 1926:—By KC2A-2xv, 2xy, 5gv, 5is, 6lj. By KC2K-6uz, 6mu. By KC2N-6bp, 6gf. By KC2R-2db, 5by, 5dh, 5qv, 6dr, 6gf, 6iz. By KC2U-2cc, 2db, 2it, 2jb, 2jj, 2nm, 2of, 2vj, 2zf, 5bv, 5da, 5fq, 5gq, 5ms, 5nj, 5pz, 5qv, 5tz, 5yk, 6cl, 6gf, 6kk, 6mu, 6nf, 6nx, 6ot, 6pu, 6rm, 6uz, 6yv.—Extracted from *Latvian Radio*, by G6BT.

Calls heard on 30-50 metres. O-V-I Reinartz. K. B. DAVIS, BRS2:—A-2bk, 2cm, 2lk, 2lm, 3bd, 3en, 3xo, 4rb, 5kn, 7cw, 7hl. BN-sk2. BZ-1ac, 1ad, 1af, 1ai, 1ak, 1al, 1am, 1an, 1aq, 1ar, 1at, 1au, 1av, 1aw, 1ax, 1bc, 1bd, 1bg, 1bh, 1bi, 1ib, 1ja, 2aa, 2ab, 2ad, 2af, 2ag, 2aj, 2ak, 2am, 2ar, 5ab, 5ad, 9qa, sq1x, sq2, sni, pt5, ptq. C-1ar, 1dd, 3fc, 8ar. CH-2ld. CZ-fr5. FI-8qq. Hong Kong-bxy. M-1aa, 1j, 1n, 5c, 9a, jh. Malta-byz. O-a3b, a4z, a6n. PE-6zk. PI-1au, 1bd, 1dr, 3aa. PR-4ja, 4ur. Q-8kp. R-af1, bal, cb8, db2, dx8, dz9, fa3, jga2, ha2, hb5. Russia-1fl, 2nd. SS-2se. TJ-crj. U-4by, 4cj, 4dd, 4ft, 4ha, 4hx, 4iz, 4jk, 4jn, 4jr, 4js, 4kj, 4lk, 4ns, 4oc, 4rm, 4wf, 5asw, 5adz, 5fz, 5kc, 5sd, 5wi, 6xi, 9axh, 9bpb, 9ctr, 9eye, 9drs, 9ej, 9ln, 9mn. Y-1bu, 1cd, 1cg, 1cx, 1ub, 2ak, jcp. Z-1ao, 1ax, 2ac, 2ae, 2gc, 2xa, 3ai, 3ak, 4aa, 4ac, 4ak, 4am, 4av. Various-kegk, kgb, nulv, u2xg, voq.

G calls heard, extracted from *Latvian Journal, Radio*:—By KC2A-5jw, 5mq, 5ms, 5sw, 5uw, 5xy, 6br, 6ia, 6ty. By KC2B-2it, 5us, 6nx, 6ou. By KC2K-5tz. By KC2U-2it, 2qb, 2sz, 5ku, 5mq, 5tz, 5uw, 5vl, 5xy, 5yk, 6ab, 6al, 6br, 6cj, 6cl, 6da, 6ia, 6og, 6qw, 6td, 6vo, 6yc, 6yd, 6yv. By KC2V-2it, 5xy.—Via (T. & R.) R.S.G.B., Bury, Suffolk.

Reinartz O-V-1, September 2 to 8 inclusive. All below 50 ms.:—Austria-gp, hl. Belgium-m8. Brazil-1ad, 1af, 1ak. Denmark-7zg. France-8aq, 8bnz, 8brn, 8gi, 8gm, 8mib, 8pax, 8xv. Germany-4ya. Holland-obp, oga, oge, opm, perr. India-2ak. Irish Free State-18b. Italy-1cu, 1er, 1rm. Russia-1nn. Scandinavia-2nm, smui, smuv, smvg, smwr. Poland-pal, pas, pax. Trans Jordania-crj. U.S.A.-lawy, 1zs, 2amj, 2apv, 2eav, 2gk, 4sa. Miscellaneous-and, bnx, glky, kws, muu, ocng, oiaj, sad, sgc, rdk, vim, wgy, wiz, xan.—G. L. MORROW, G6UV.

Calls received by R. A. Bartlett (BRS27), 3, Chertsey Road, Redland, Bristol, in September, on O-V-1 receiver:—B-4qq, h5. BZ-1aa, 1ac, 1ad, 1ak, 1am, 1an, 1ao, 1aq, 1ar, 1aw, 1bi, 2ab. F-8lz, 8pax, 8ip, 8gi, 8cl, 8ppc, 8hu. I-1er, 1au, 1gw. O-a6n, a3e. P-1ae, 1aw. S-smws, smxv. R-cb8, bal. M-3kus. U-1rd, 1rf, 1bjk, 1bqt, 1zs, 1ckp, 1byx, 1cmx, 2aqw, 2cyx, 2gk, 2erb, 2arm, 2bbx, 3bva, 3cdv, 3afw, 3ld, 4rm, 4ft, 4ob, 4dd, 4jk, 4it, 4tn, 5nj, 5api, 5ash, 5sp, 5aec, 6zat, 6bvo, 8don, 8buy, 8cbr, 8kf, 8qb, 8adg, 8ben, 8es, 8pk, 8bbe, 8bay, 8rt, 9afx, 9bmm, 9cet, 9ej, 9to, 9hp, 9ara, 9aek, 9cvn, 9dpu, 9bpb, 9bwo, 9bzg, 9za, 9beq, 9bdt. Y-1br, 1cx. Z-2br, 2ac, 4am. Miscellaneous-lalse, pr4ja, ss2se, nlss, neqq, hva, tpach, d7mt, tjerj, gcia.

G calls heard by T. H. HARRIS, "Westhoek," Mintaro Avenue, Enfield, near Sydney, N.S.W., Australia. Those marked \* doubtful:—2od, 2nm, 2sz, 2lz, 2kz, 2cc, 2ab, 2ao, 2xy, 2kf, 2qb, 2kw, 2sh, 2wj, 2fu, 2dr, 2dx, 2it, 2oj, 2wy, \*2ph, 2go, 2bz, 2xv, 5lf, 5nn, 5nj, \*5uz, 5pm, 5hs, 5uo, 5sz, 5ma, 5vl, 5dh, 5qv, 5by, \*5uw, \*5nb, 5si, 5ar, gfp, gbm, gfc, byc, 6nf, 6tm, 6rm, \*6fh, 6gh, 6zm, 6lj, 6yu, 6ox, 6uz, 6mj, \*6cf, 6yd, 6br, 6ah, \*6ty 6vp, 6td, \*6ko.

Calls heard by Y1BR-Y2AK, JUAN C. PRUNARESI, Box 37, Montevideo, Uruguay:—G-2bz, 2cc, 2it, 2ts, 5dh, 5ib, 5nj, 6og, 2kf, 6yd, 6rm, 5da, 2xy, 5tz, 2kz. F-onm, 8jn, 8pe, 8kf, 8ca, 8ba. FM-8ma. I-1gw, 1er, 1co, 1cw, 1ax, 1au. N-pe2, fp, wc, pm. P-1ae. S-2co, 2nm, smuk, smvl. B-k2, b7, 4zz. PI-1bd, 1hr. CZ-99x. A-3ef, 4an. Siberia-ra19. J-1pp, 3aa, 3qq, 3yz. Z-1ao, 2ac, 2ae, 2xa, 4ac. HU-6ajl, 6axw, 6nlb, 6buc. PR-4ja. K-k7. M-jh, 1j. U.S.A.-1cak, 1aao, 1cmp, 1ao, 1ckp, 1bbj, 1bif, 1nq, 1cib, 1ain, 1ci, 1xv, 1cmx, 1ch, 1mv, 1air, 1my, 1ccz, 1air, 2cxr, 2aao, 2ahm, 2acp, 2amj, 2gv, 2crd, 2zu, 2ff, 2gob, 2apv, 2ek, 2ha, 2ld, 2aqw, 2erb, 2eyx, 2pp, 2cxl, 2agq, 2ahk, 3op, 3aha, 3odk, 3hz, 3bmz, 4tn, 4ft, 4 cu, 4iz, 5acl, 5em, 5akn, 5aw, 5ydd, 5ei, 5zal, 6cgw, 6hm, 6cuk, 6cbp, 6ckv, 6ti, 6cg, 6rn, 6oct, 6bb, 6apk, 6cua, 6aou, 6bxc, 8bpl, 8gz, 8aly, 8bf, 8adg, 8cau, 8kpc, 8oca, 8dmz, 8cug, 8don, 8cdv, 9vo, 9xi, 9ck, 9zt, 9wo, 9ub, 9ej, 9adk, 9ado, 9bdt, 9ekr, 9axq, 9bdq, 9tg, 9cxc, 9aek, dx8.

U-1bgc, 1aao, 1azd, 1uw, 1aff, 1rd, 2bbx, 2xo, 3rf, 3ahl, 4au, 8aly, 8kf, 9cpq. BZ-2ab, 1aw, 1av, 1qa, 1bi, 1an, sq4, 5ad, sqix. Z-2bg, 2gc, 2xa, 2ac, 3ai, 4ao. Various-a3wm, pr4ja, rga2, yibu, rafi, fm, 8ma, rcb8, a3rb, mj5. All on O-V-2. QRK my signals on 32.5 and 44.5. Calls heard September 1 to 30, 1926 (30-50 metres).—G2XV.

A-4rb. B-b1, ch2, 64, h5, j9, m2, u3, 4aa, 5er. BZ-1ac, 1ak, 1am, 1aq, 1ar, 1aw, 1bc, 1bd, 1bi, 1ja, sq4, 2ab, 2ad, 2ag, 2ak, 2ar. D-7jo. F-872, 888\*, bertt, fl\*, 8arm, cax, cn, fmr, hu, jf, kk, lz, mco, mul, oqp, rl, rot, rrp, sr, ssw, wa, wot, ww, xa, ynb. G-2cs, 2db, 2gm\*, 2go, 2jj, 2ra, 2od, 2vg\*, 2vs, 2vr, 2xy, 2am\*, 5ad\*, 5bu, 5by\*, 5gq, 5hx, 5hy\*, 5io, 5is, 5pm, 5qv, 5sk, 5td, 5tz\*, 5us\*, 5wq, 5wv, 5xy, 5za, 5wc, 6br, 6ci, 6cj, 6cl, 6gf\*, 6ia\*, 6ig, 6lj, 6no, 6og, 6oh\*, 6ot\*, 6pa, 6pc\*, 6po\*, 6rd, 6rm, 6ry, 6tx\*, 6ty, 6ug, 6wv, 6vp, 6yd, 6fa, 6gq, 6an. GC-6ko, 6nx, 6vo. GI-5nj\*, 6mu\*. GW-3xo, 1ib, 1lc. I-1au, 1er, 1co\*, 1gw, 1ma, 1do. K-ayy, c8, 4wb. N-onm, obp, oeg, okh, onc, ovn, pck4, pcell, perr, pnu. O-a6n. PI-1bd. FA-8ip, FM-oerb. R-af1. Russia-1nn. S-2cs, 2co, 2nd, 2nm. SM-smtn, smua, smuk, smwr, smxv. U-abl, 1aao, 1apu, 1asu, 1bqt, 1caw, 1ch, 1ckp, 1cmf, 1cmp, 1cmx, 1cw, 1mv, 1my, 1sw, 1xv, 2bbx, 2blm, 2ctn, 2czr, 2uo, 3auv, 3civ, 4ft, 8adz, 8cti, 8kf, Y-1cd, 1cg, 2ah, 2ak. Z-4aa. Miscellaneous-and, anf, cb3, du4, fbvq, gfup, lpl, pda, ptm, ptr, ocha, sab, ska, 9pz, 9yu, (\*Indicates telephony.) Calls heard at Northampton October 3-11, O-V-1 Reinartz.—P. H. BRIGSTOCK TRASLER, BRS30.

B-h6, k3, m8, n33, n8, 3aa, 4aa, 4qq. BZ-1ar, 1ak, 1ax, 1bd, 1bi, 2az, sq1q. C-1ar, 8aw. CH-2ab. D-7zg. F-8bp, 8hu, 8jf, 8jn, 8kn, 8ku, 8kv, 8afn, 8brn, 8cax, 8nox, 8pam, 8pml. FM-8rdi. I-1au, 1ma, 1pa. LIT-1b. N-pb3, 0gg, 0pm. OE-hl, ke. P-3or. PR-4sa. R-af1, bal. S-2co. SM-wr, xv. TJ-crj. TP-ai. U-1ae, 1gp, 1nk, 1rd, 1sw, 1zs, 1adm, 1aei, 1ajx, 1apv, 1azr, 1bdq, 1bbs, 1bjk, 1bmz, 1ccz, 1ckp, 1cmf, 1cmx, 2iz, 2tp, 2uk, 2agq, 2amj, 2ann, 2anx, 2apv, 2aqk, 2arm, 2erb, 2ctf, 2cvj, 2czr, 3bd, 3jo, 3ld, 3mv, 3zo, 3afw, 3ajl, 3bmt, 3cdv, 4iz, 4ll, 4rm, 4ut, 4aac, 8adg, 8ago, 8bth, 8cpk. Y-1cg, 2ak. YS-7xx. Miscellaneous-abl, agc, b52, gbm, glq, lpl, ntt, ocdj, perr, sgl, sgt, viz, yn. Heard between September 12 and October 20, 1926. All below 50 metres. Receiver O-V-1 Reinartz.—BRS25, T. A. ISEBYT, "Lynmouth," 18, Broughton Road, Thornton Heath, Surrey.

**G** 5XY has for Sale the following: One 525 watt 190 cycle Marconi Alternator, 75 volts 7 amps, self exciting; one Newton 200 watt 500 cycle Alternator; 3 Amrad "S" Tubes with bases, very little used. Only reason for sale is purchase of D.C. generator. Offers.—HARRISON, Park Lane, Burnley.

### Abstracts of Recent Articles—(Concluded from page 10).

**SOME SHORT WAVE ESSENTIALS.** "Amateur Wireless," October 16. Page 513. G. C. P. B.

The method of construction—if modified to give a good lay-out—may appeal to some. No details of circuits or other essentials are given.

**RECENT DEVELOPMENTS IN S/W WIRELESS TELEGRAPHY.** "Experimental Wireless," Oct. Page . A. Rukop.

An interesting review by a member of the Telefunken Company of the theory and commercial development of S/W work.



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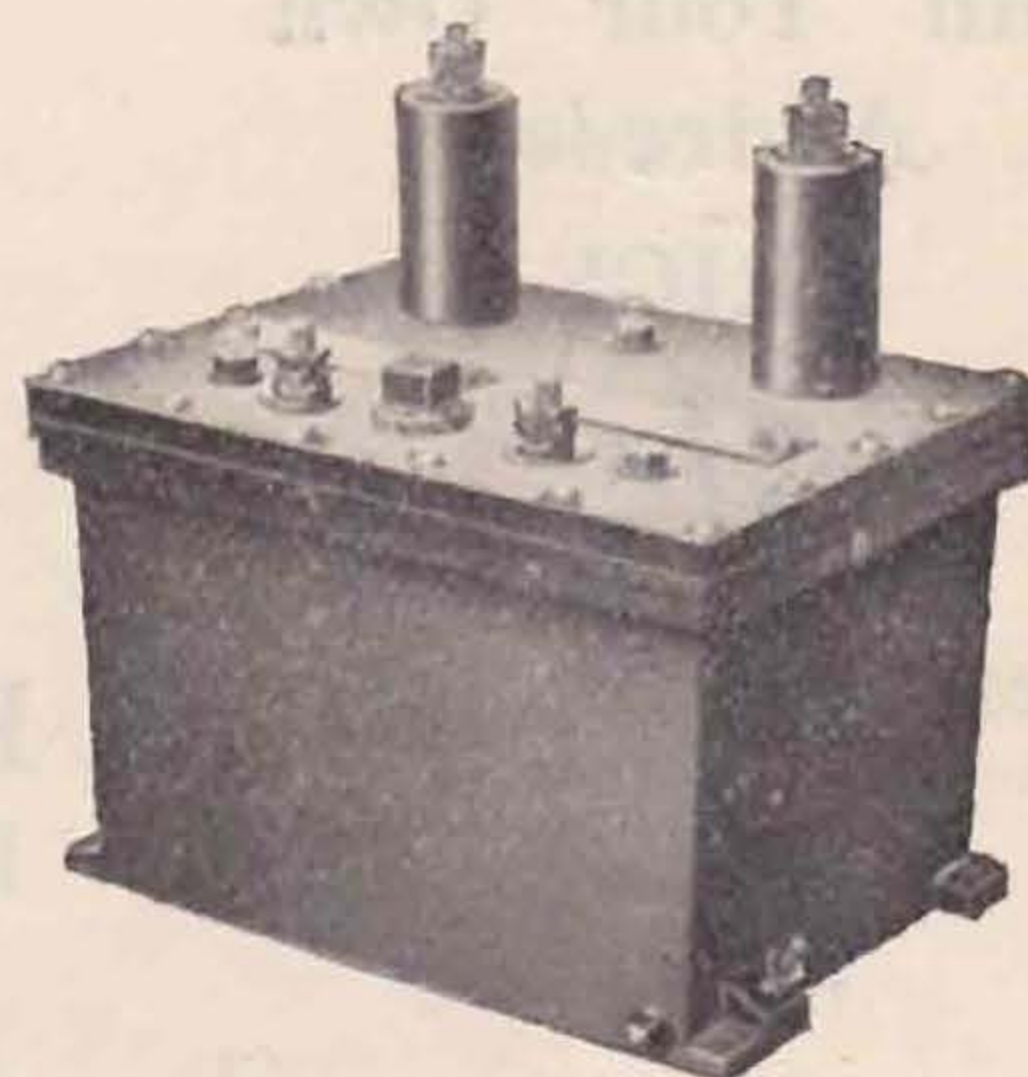
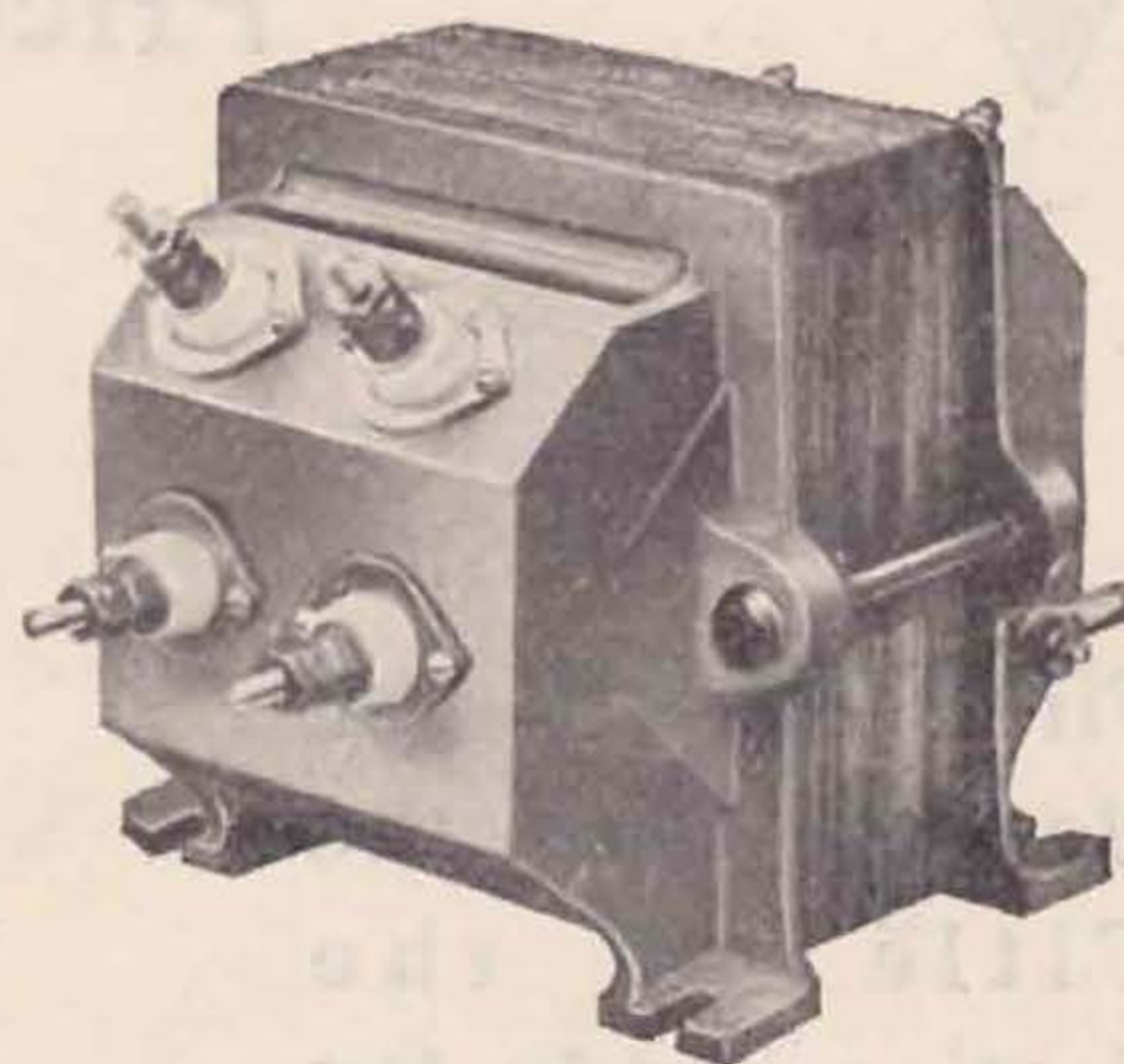
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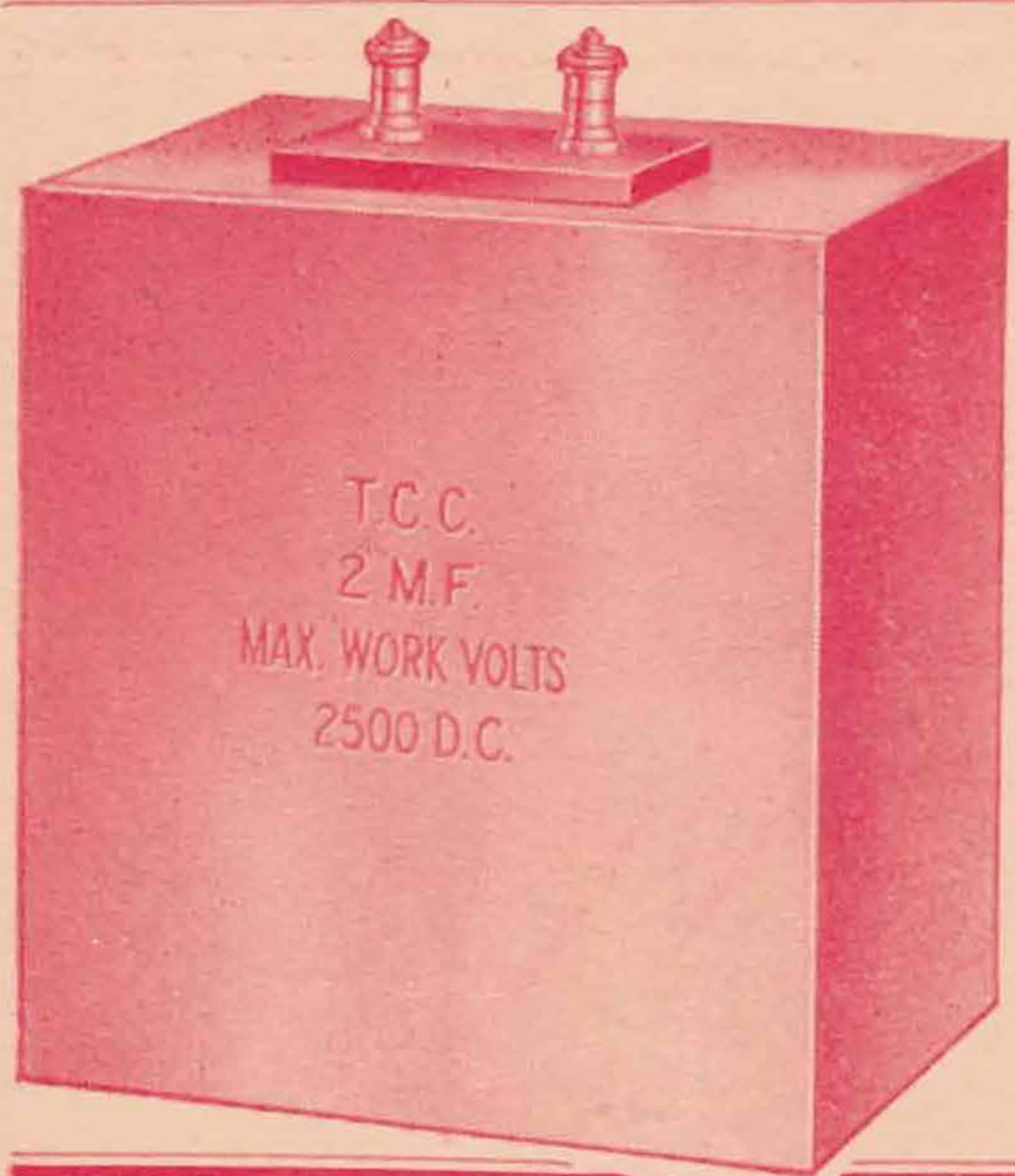


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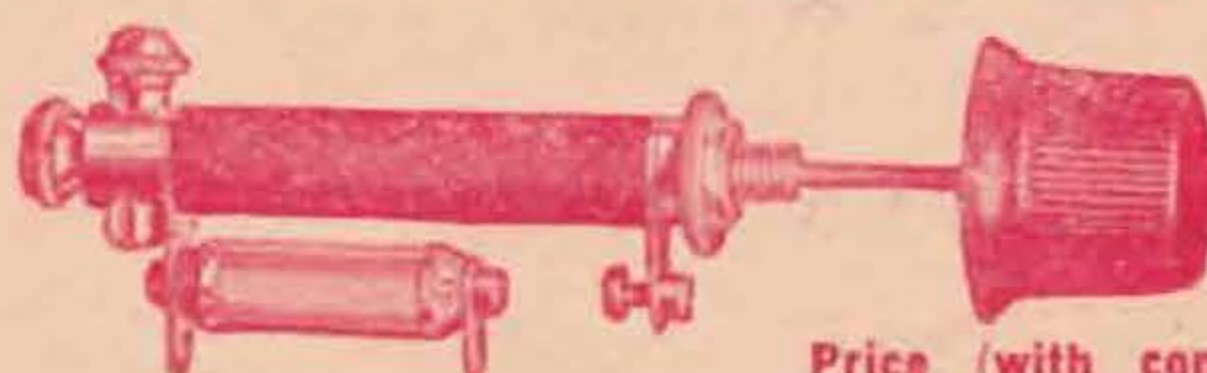
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